



Hindustan Zinc Limited

Climate Action Report 2024

About this Report

This Climate Action Report (this "Report") pertains to Hindustan Zinc Limited and covers the qualitative and quantitative data for the year ended March 31, 2024.

Hindustan Zinc's progress towards its climate change goals is described in detail in the Climate Action Report (CAR), including the performance against targets and the implementation of the relevant projects. The report provides insights into the HZL's climate change strategy and actions taken to mitigate its impacts.

PERSPECTIVE INCLUDED IN THIS REPORT

This is our fourth edition of the Climate Action Report (formerly known as TCFD report) which is being aligned with the principles contained in the IFRS S2 'Climate-related disclosures', issued by the International Sustainability Standards Board's (ISSB).

This report focusses on climate-related disclosure and provides comprehensive and comparable information about the impact of climate change and our mitigation strategies.

In addition to the Sustainability Report, which Hindustan Zinc issued for disclosures pertaining to other Environmental, Social, and Governance (ESG) parameters following the GRI, UNGC and FIMI frameworks, this report focusses on risks and opportunities related to climate change.

EXTERNAL ASSURANCE

We safeguard the quality of information contained in this report through a robust assurance process. The content and data disclosed in this report have been externally assured by Mazars Advisory LLP in accordance with the requirement of the Assurance Standard ISAE 3000 (Revised) 'Assurance Engagements other than Audits or Reviews of Historical Financial Information'.

What's Inside



Alignment of Remuneration Policy with Climate Goal	20
Climate Policy Engagement & Advocacy Approach	22
Strategy	26
Transitional Risk Assessment	30
Financial Alignment	36



Key Highlights FY 2023-24	2
Key Facts	3
Message from the Chairperson	4
Message from the CEO	6
Executive Summary	8
Climate Change Risk Assessment	9
Journey towards Net Zero	12
Governance	14



Value Chain Risk Assessment	42
EcoZen: Low Carbon Zinc	46
Risk Management	48
Metrics & Targets	52
Way Forward	56
IFRS S2 Alignment	58
List of Abbreviations	60
Assurance Statement	62

Key Highlights FY 2023-24

- ▶ **EcoZen:** Low carbon Zinc with <1 tonne of GHG emission per tonne of Zinc launched in July 2024
- ▶ Validated SBTi Targets aligned with **1.5°C** scenario, to reduce Scope 1 & Scope 2 emissions by 50% & Scope 3 emissions by 25% by 2030 & Net Zero by 2050
- ▶ Started receiving green power from 450 MW RE-RTC power delivery agreement (PDA) in 1st phase. The 180 MW Bikaner solar power project is the centrepiece of this strategic partnership and has been completed a year ahead of schedule in May 2024
- ▶ **100% renewable power** sourcing for Pantnagar Metal Plant
- ▶ 76,035 TCO_{2e} emission reduced by **biomass use**
- ▶ MoU signed for **180 LNG** vehicles for the transport of finished goods & IUT movement and out of these, 41 vehicles have been deployed in FY 2023-24
- ▶ **3 underground battery electric vehicle** (BEV's) deployed at SK Mines. In total 31 EV's have been deployed across HZL including 10, 55 MT EV trucks being deployed in FY 2023-24 for interunit transport. Further, three EV charging stations have also been set up
- ▶ Received an **A- Rating** in both CDP Climate change and Water Security
- ▶ Conducted a pilot study at Dariba Smelting Complex (RDC) as per Niti Aayog's Water Neutrality standard and received certificate, **"Aspiring company for water neutrality"**
- ▶ Inaugurated phase 1 of **4,000 KLD** zero liquid discharge (**ZLD**) plant at Zawar Mines, deploying advanced technology to aid in water conservation
- ▶ **Dry Tailing plant** started at Rajpura Dariba Complex
- ▶ **Fumer plant** commissioned at Chanderiya Lead Zinc Smelter to minimise generation of Jarosite



- ▶ In FY 2023, a Group **EV purchase policy** has been introduced for the employees of the Company
- ▶ Introduced **ESG expectations** through the ARIBA platform into our procurement process
- ▶ Comprehensive strategy and tools developed for product-level **life cycle assessment** for our critical machines and commodities for the purpose of **Scope 3** calculations
- ▶ Collaborated with JNCASR for new-age **Zinc-based battery technologies**
- ▶ Signed MoU with Aesir Technologies, Inc., which specialises in development and commercialisation of **next-generation Nickel-Zinc battery technologies**

KEY FACTS

Largest and the only

Integrated producer of zinc, lead and silver in India

75%

Market share in India's primary zinc industry

3rd

Largest silver producer globally¹

2nd

Largest integrated zinc producer globally²

World's largest

Underground zinc mining operations at Rampura Agucha²

2nd

Largest silver mine globally at Sindesar Khurd¹

World's largest

Single-location zinc-lead smelting operations at Chanderiya²

Amongst India's largest

Wind power producers, with a generation capacity of 273.5 MW across 5 states

1st decile

Of the global zinc mining cost curve, and one of the lowest-cost producers of zinc globally²

25+ years

Mine life³

Ranked 1st

In S&P Global Corporate Sustainability Assessment in metals and mining sector

As on March 31, 2024

Source:

¹ World Silver Institute for silver producer/mine rankings

² Wood Mackenzie for global mine/smelter rankings for zinc-lead mine and cost

³ Mineral Resources and Ore Reserves (R&R) at current rate of metal production

Message from the Chairperson



 Innovation lies at the core of our mission, exemplified by the launch of Asia's first low-carbon zinc, EcoZen, at Hindustan Zinc.

Dear All,

At Hindustan Zinc, sustainability is at the core of who we are. It is not just a commitment but a responsibility. Our progress is not measured by numbers alone, but by the meaningful impact we are making on our planet, ensuring that we leave behind a greener, healthier and safer world for future generations.

It is with great pleasure that I present to you Hindustan Zinc's 4th Climate Action Report. This report reflects our collective efforts and the strides we have made toward a greener tomorrow. Our drive towards a cleaner future stem from our concrete actions to create impactful change, particularly our focus on increasing our renewable energy mix in line with our SBTi commitment.

At Hindustan Zinc, we've set ambitious goals for ourselves. We are working tirelessly to reduce our **Scope 1 & 2 emissions by 50%** and our **Scope 3 emissions by 25% by 2030**. Our overarching vision is aligned with Vedanta's goal to achieve **Net Zero emissions by 2050**. Signing of a **450 MW Power Delivery Agreement**, further cementing our commitment to renewable energy. Hindustan Zinc has a captive **solar power capacity of 40.70 MW, WHRB of 48.46 MW** and relies on conventional fuel sources for the remainder of its power needs. The addition of renewable power from Serentica will ensure that **50% of our power needs are met through renewables**. The progress we've made so far is promising, and it's only the beginning. Additionally, in line with our strategic focus on value creation for our stakeholders, we launched **EcoZen, Asia's first low-carbon Green Zinc**, in July 2024. It exemplifies our commitment to decarbonising our operations and providing our customers with a competitive edge through more sustainable choices.



Our drive towards a cleaner future stem from our concrete actions to create impactful change, particularly our focus on increasing our renewable energy mix in line with our SBTi commitment.

Our efforts have been recognised on global platforms, with Hindustan Zinc being ranked **#1 in the metals and mining sector in the S&P Global Corporate Sustainability Assessment**. These recognitions only fuel our determination to continue leading the charge for sustainable change.

I truly believe that innovation will guide us toward our net-zero future. We are advancing zinc's role in energy storage solutions, especially in zinc batteries, which are emerging as a powerful alternative to lithium-based options. By doing so, we are not only contributing to the global energy transition but also positioning zinc as a key player in shaping a more sustainable energy landscape.

As we look ahead, let's continue to strive for excellence in every step we take towards sustainability. Every milestone we achieve is because of the dedication and passion of the stellar HZL team for creating a better world.

Together, we can make a lasting impact. Let us harness the power of sustained collective action and undertake this transformative journey towards a greener future.

Regards,

Priya Agarwal Hebbbar
Chairperson, Hindustan Zinc

Message from the CEO



I strongly believe that climate action is not just a choice but an imperative for our long-term success and well-being of the planet

To Our Valued Stakeholders,

At a time when climate action is more crucial than ever, we, at Hindustan Zinc, are unwavering in our commitment to drive sustainability across every aspect of our operations. It is our belief that sustainability and good business sense are two sides of the same coin and our actions taken today will shape the future of our planet. We are resolutely focussed on leading this transition towards a greener, more resilient future.

I am proud to present our 4th Climate Action Report, now aligned with the International Financial Reporting Standards (IFRS) S2 recommendations. This framework enhances our transparency regarding the impact of climate change on our business and financial performance, providing you with clearer and more actionable insights. This report is designed to catalyse ongoing dialogue and proactive measures on climate change mitigation and adaptation, while showcasing our resilience to climate-related risks and opportunities.

This year, our efforts in decarbonisation have yielded significant results. We have accelerated the progress of our 450 MW Renewable Energy (RE) project, delivering the first phase ahead of schedule. Additionally, the launch of EcoZen – Asia’s first low-carbon zinc product in July 2024 – demonstrates our commitment to product innovation and ESG excellence. Manufactured using renewable energy, EcoZen has a carbon footprint approximately 75% lower than the global average. These advancements reaffirm our leadership in the transition to a low-carbon economy.

We are catapulting our efforts in aiding the ongoing global energy transition by advancing research on zinc batteries as a strong alternative to lithium-based batteries.



We have accelerated the progress of our 450 MW Renewable Energy (RE) project, delivering the first phase ahead of schedule.

We have crossed another milestone in our water stewardship journey by introducing India’s first zero liquid discharge (ZLD) plant at a mining location propelling us towards the goal of becoming 5 times water positive by 2025. The Fumer plant at Chanderiya exemplifies our dedication to sustainability through improved waste management and metal recovery.

Recognising that climate knowledge is constantly evolving, we are committed to updating our risk assessments and strategies accordingly. This report, developed in line with International Financial Reporting Standards (IFRS) S2 guidelines, offers a comprehensive view of our governance, strategy, risk assessment, and targets, aimed at enhancing stakeholder engagement and delivering valuable information.

I trust this report will inspire continued action, foster meaningful dialogue and create opportunities for collaboration as we advance toward a safe, smart, and sustainable future.

Best Wishes,
Arun Misra
CEO & Whole Time Director,
Hindustan Zinc

Executive Summary

A Vedanta Group company, Hindustan Zinc Limited is the world's second-largest integrated zinc producer and third-largest silver producer. We have placed sustainability at the centre of our business model and built our ESG strategy on the foundation of economic prudence. This helps us to ensure that our initiatives deliver both positive societal impact and robust financial performance.

We consistently strive to achieve our vision of Zero Waste, Zero Harm and Zero Discharge by minimising our environmental footprint. We have committed to Science Based Target initiative (SBTi) and are proactively working to reduce our direct and indirect GHG emissions. We also participated in pilot target setting group of Science Based Targets Network (SBTN).

We believe that a robust governance structure will help us manage our climate-related risks and opportunities. The Board of Directors of the Company has a clear oversight on climate-related issues, as they are updated on a quarterly basis with the recent developments and wherever required they also provide their inputs on a regular basis. We have a unique three-tiered sustainable governance structure which promotes sustainability practices from highest decision-making body in the organisation to shopfloor at sites. It is to be noted that all our operational sites are ISO 50001 certified.

We have also implemented a robust Enterprise Risk Management framework across all our locations. Our risk management framework incorporates the identified climate-related risks and continuously monitors them. This is a component of our proactive risk management and mitigation approach for any impending climate-related risks.

Our climate-related metrics such as GHG emissions, Energy, Water, Waste & Air emissions are transparently disclosed and monitored. Further, the Company's Annual Sustainability Report, Integrated Annual Report and CDP Climate change response contains disclosures related to climate change.

As a responsible corporate, we intend to take more actions to boost the usage of renewable energy in our operations. Our long-term vision is to safeguard environmental, social, and business values for our people, communities, and nature. Although transitioning to a low-carbon and sustainable business can be difficult; however, we have already begun this process and plan to develop it further. In-line with the same, we have also launched EcoZen, a new low carbon Zinc product.

Climate Change Risk Assessment

Our climate change risk assessment evaluates the potential impacts of both transitional and physical risks on Hindustan Zinc Limited.

DEFINITION

PHYSICAL RISK

Risks related to physical impacts of climate change, which includes:

- ▶ Acute weather events, such as water stress, drought, heat waves, extreme precipitation, and floods
- ▶ Chronic climate-related changes, such as sea level rise and sustained temperature increases

TRANSITIONAL RISK

Risks related to shifts in the policy, regulatory, technology & socioeconomic conditions that are likely to happen in the transition to a low carbon economy such as:

- ▶ Policy & Legal
- ▶ Technology
- ▶ Market
- ▶ Reputation

POTENTIAL IMPACTS

PHYSICAL RISK

Impact due to physical risk can be defined as:

- ▶ Damage to direct assets
- ▶ Indirect impacts including:
 - Disruption in operations, e.g., heavy rainfall affecting production, supply chain disruption, health, and safety of employees

TRANSITIONAL RISK

Depending on the form and speed of the change, many types of financial and reputational risks arise, which includes:

- ▶ Decrease in revenue as with change in consumer preferences
- ▶ Increased cost of production
- ▶ Impacts on asset values
- ▶ Obsolescence of tangible and intangible assets

TIMING

PHYSICAL RISK

- ▶ We anticipate an increase in the severity and frequency of acute risks
- ▶ Long-term chronic risks are more likely to emerge, particularly after the middle of the century

TRANSITIONAL RISK

- ▶ Timing and speed of the occurrence of events are uncertain, with the transition more likely to happen in short-to medium-term
- ▶ The likelihood of a more chaotic, disruptive, and abrupt transition increases with delay



CLIMATE SCENARIOS

We considered various climate scenarios covering a broad spectrum of outcomes to help us provide insights into some of the risks and opportunities that may arise and can impact Hindustan Zinc Limited.

MODELLING ASSUMPTIONS

Our current portfolio and value chain were modelled using historical data basis the tools available in the public domain. The model incorporated Hindustan Zinc’s physical & financial inputs. Following points summarises the input data and the methodology used:

- ▶ Physical data included:
 - Business unit locations
 - Raw material used
 - Sourcing location of raw materials
 - Revenue associated with production volumes
- ▶ Financial data included:
 - Sales and Profit related to our finished goods
- ▶ Tools such as ThinkHazard, WRI Aqueduct & Network for Greening the Financial System (NGFS) were used to analyse physical risk on direct operations, Analysis was done for RCP 2.6, RCP 4.5, RCP 6.0 & RCP 8.5
- ▶ Scenarios considered from IEA were Stated Policies Scenarios (STEPS), Announced Pledges Scenario (APS) & Net Zero Emission Scenario (NZE) for transitional risk assessment
- ▶ WWF’s Biodiversity risk filter was used for risk assessment of upstream and downstream value chain partners
- ▶ Each risk was considered in isolation/independently and trade-offs between risks were not considered
- ▶ Time horizon used was Medium-Term 2030 and Long-term 2050

TIMELINE

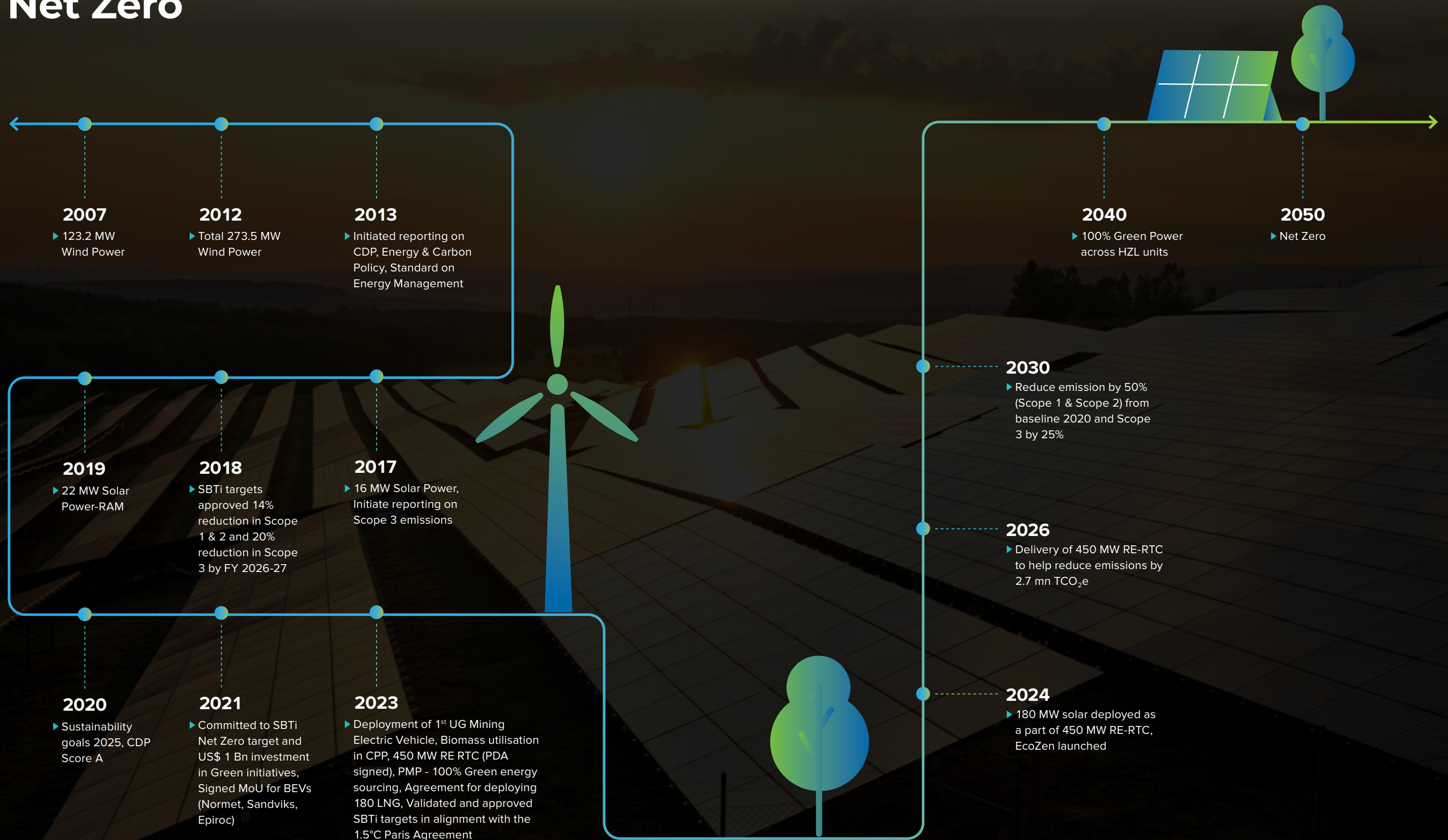
	YEARS	DESCRIPTION
SHORT-TERM	0 - 5	The climate-related risks and opportunities identified to have an immediate impact on the Company’s business i.e., within 5 years, are categorised under short-term horizon. At HZL, the business risk assessment is aligned with the climate-related risks and opportunities, hence the timeline remains the same for both.
MEDIUM-TERM	6 - 20	Potential climate-related risks and opportunities that may impact company’s business in the future (6-20 years) are categorised into medium term.
LONG-TERM	21 - 30	Long-term business risks and opportunities are usually anticipated and identified based on scenario analysis, IEA guidelines and market predictions, etc. Therefore, the climate risks and opportunities identified to have an impact beyond 20 years duration are termed as long-term. Our definition for long-term coincides with our Net-Zero Goal 2050

SCENARIO ANALYSIS OUTCOMES

The Strategy section of this report explains outcomes of scenario analysis for physical and transitional risks on Hindustan Zinc’s current portfolio and value chain in short, medium and long-term. Value chain risk assessment section provides brief about risks associated with our upstream and downstream value chain.



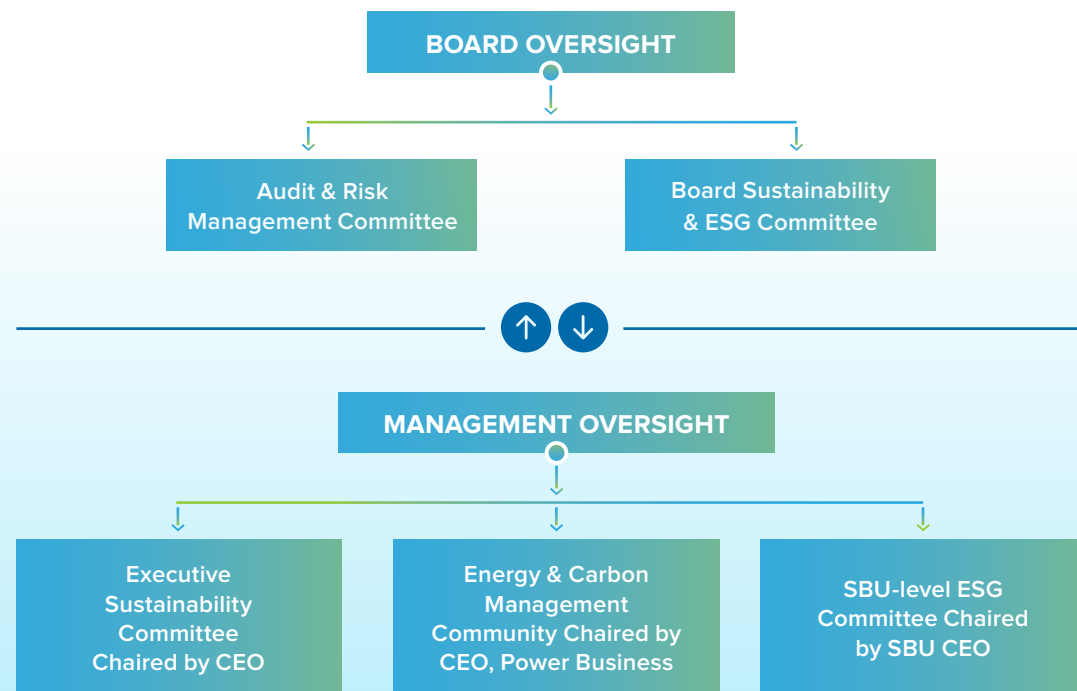
Journey towards Net Zero



Governance

CLIMATE CHANGE GOVERNANCE

Governance is the most essential embedded component into our Company's climate risk structure. It covers the applicable Rules and Regulations and covers a well-defined framework, roles and responsibilities across the functions within the organisation, and decision-making procedures, assisting our company adhering to its goals and targets related to climate change and related aspects. This serves as an enabler for our different set of stakeholders to understand the tone at the top and more precisely the role of the Board and Management in identifying, establishing and managing the climate-related risks and opportunities.



BOARD OVERSIGHT

Apart from managing other responsibilities, our Board's key focus is also to oversee every aspects of sustainability across the organisation and CEO holds ultimate responsibility for addressing climate change-related issues. In the current era and matching with the ecosystem around us, climate change has become one of the most important aspects for our long-term business sustainability and hence the Board considers and strategises every attributes related to the climate change into various Board's functions

viz. business strategies, investment decisions, Company's long-term targets and its resilience towards all anticipated business risks. The Board also reviews the Company's performance against the established targets like SBTi and HZL's Sustainability Goals-2025. To assist the Board in the oversight process, on a decided frequency (bi-annually), the Board committee is apprised on the pertinent matrices, including the relevant climate-related challenges and opportunities, key projects impacting the climate and related risks.

More specifically, the **Audit and Risk Management Committee (ARC)** of the Board is the pivot to overseeing HZL's overall risk management including the climate-related risks and opportunities. Being the crucial integrated element of our Enterprise Risk Management System and financial planning, it is the primary responsibility of ARC Committee to monitor on climate-related risks and

opportunities from the macro level, and to report progress on risk mitigation initiatives to the Board on a quarterly basis. The ARC also reviews potential impacts on the production disruptions due to the climate-related physical and transition risks that may impact HZL's core business in short-term or long-term.

The composition of ARC:

Name of the Member	Position
Mr. Kannan Ramamirtham	Chairperson
Mr. Akhilesh Joshi	Member
Ms. Nirupama Kotru	Member
Mr. Anjani K Agrawal	Member

Sustainability and ESG Committee

Another important Committee at Board which plays decisive role into climate risk management is the Sustainability and ESG committee. The role of this Committee is to assist the Board in meeting its responsibilities in relation to the Environmental, Social and Governance (ESG) matters and ensuring strong governance for sustainability. The Board is considered Tier 1 level of the governance framework to guide the Company towards achieving its sustainability

goals and Net Zero commitment. The committee, chaired by an Independent Director, is responsible for providing oversight and formulating our overseeing strategy, climate action, implementation of policies & processes, setting & reviewing long-term goals & targets to achieve net-zero by 2050 and enhancing a commitment towards stakeholders. To ensure common approach and consistency with the HZL's strategy and policy on climate change, our CEO is one of the members of the Committee.

Composition of Sustainability & ESG Committee:

Name of the Member	Position
Mr. Akhilesh Joshi	Chairperson
Ms. Nirupama Kotru	Member
Mr. Arun Misra	Member
Dr. Veena Kumari Derma	Member

In terms of the broad objectives of the Committee, it is entrusted with the following responsibilities:

- ▶ Laying out Sustainability Strategy, short-term and long-term objectives
- ▶ Providing guidance to ensure continual improvement in sustainability performance and implementation of appropriate processes and policies across the Company

Our ESG & Sustainability Committee of Board meets bi-annually to discuss climate-related strategies and reviews progress against the targets and goals.

To better implement the ESG and Sustainability Goals of the Company's top level, this Committee also undergoes the Learning and Development initiatives of the Company. It encompasses, familiarising with the issues associated with health and safety at workplace, asset integrity, climate change, environment and social responsibility, business sustainability etc. These are also the key attributes and skillsets which are taken into consideration while nominating and selecting any person on this Committee. Following were the areas wherein the Committee underwent the training on:

- ▶ Key Risks (Global Risks Report 2024)
- ▶ Cyber Security Awareness Session
- ▶ Risk Management Awareness Session
- ▶ ESG Awareness Session including Climate Change



For more information, please refer to [Familiarisation program for directors](#)

For more information regarding Board's areas expertise, please refer to page 305 of [Integrated annual report FY 2023-24](#).

ESG Considerations in Board Meetings held during the FY 2023-24

- ▶ The Company has decided to collaborate with Inland EV Green Services Pvt. Ltd. to deploy Electric Vehicles (EV) Trucks in order to achieve sustainable logistics

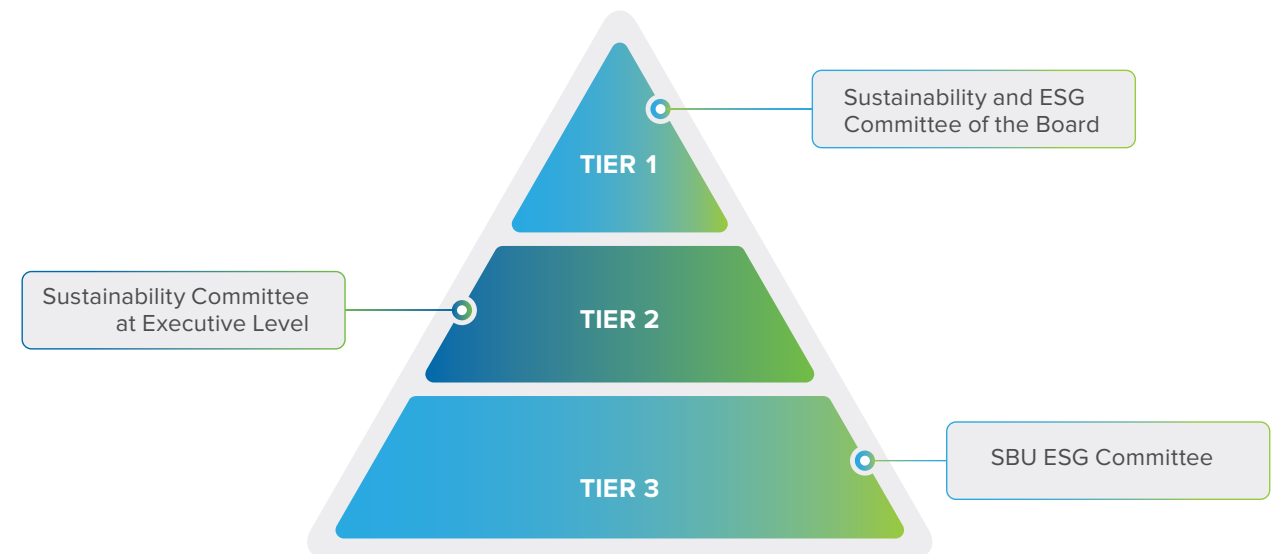
- ▶ Further, in order to make a significant leap towards green transportation, the Company has also decided to form a partnership with GreenLine for deployment of LNG (transitional fuel)-powered vehicles
- ▶ Discussion on HZL's Sustainability Goals 2030
- ▶ Board's Approval was taken for:
 - Conducting Water Neutrality assessment at Rajpura Dariba Complex by CII
 - Third party certification for Low-carbon Zinc "EcoZen"

MANAGEMENT OVERSIGHT

In addition to handling of other obligations, our Management is also responsible for the operational assessment of climate management across the Company and the subsequent implementation of HZL's climate change strategies. For the said purpose, the CEO, who is a member of Sustainability and ESG Committee at the Board has been designated as the highest management position, who has been made responsible for taking decisions with

respect to climate change, which includes sanctioning of CAPEX & OPEX budgets together with other necessary resources required for the implementation of climate adaptation and mitigation actions.

Furthermore, we, at Hindustan Zinc Limited, have established a three-tiered sustainable governance framework as depicted below, which governs the risks and opportunities related to sustainability including climate change.



EXECUTIVE LEVEL SUSTAINABILITY COMMUNITIES



To help us achieve our eight Sustainability Goals by 2025, we have established 10 sustainability communities. These communities, made up of champions from all units, regularly

assess progress toward their respective goals. They meet on a monthly basis to review and discuss developments.

EXECUTIVE LEVEL SUSTAINABILITY COMMITTEE

Executive sustainability committee at Hindustan Zinc, which is chaired by the CEO of the Company is responsible for formulating sustainability strategies and long-term goals and targets. The committee plays a strategic role in all business decisions, be it ensuring workplace safety, preventing any potential environmental damage, enhancing commitment towards stakeholders, and maintaining our reputation, amongst other things.

The committee consisting of CEO, CFO, functional heads, community chairmen and SBU CEO's undertakes monthly review of the Company's progress towards Sustainability Goals 2025, including long-term goals for climate change. Further, the performance against the sustainability goals and way forward are being presented by the management representative of the executive sustainability committee to the Board-level sustainability and ESG committee on a bi-annual basis.

Key decisions taken by Executive Level Sustainability Committee

- ▶ Zero Liquid Discharge Commitment
- ▶ Internal Carbon Price (Shadow Price) US\$ 15/TCO_{2e}
- ▶ 100% Renewable Energy at Pant Nagar Metal Plant, Uttarakhand
- ▶ Commitment to Electric mobility at Smelters and Underground mining
- ▶ Commitment to install Tail Gas Treatment (TGT) plant across all roasters
- ▶ Committed to Dry Tailing Stacks at all three Tailing storage facility
- ▶ Utilisation of Jarofix to Road construction & Jarosite to cement industry
- ▶ Commitment to Fumer plant for waste generation reduction
- ▶ Report on Taskforce on Nature-related financial disclosures
- ▶ Reporting on BRSR
- ▶ EV charging stations at HZL

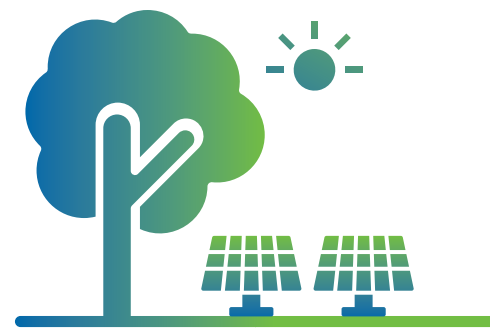
ENERGY AND CARBON MANAGEMENT COMMUNITY

It is a taskforce under the Executive Sustainability Committee, which is chaired by CEO Power Business and energy and carbon representatives from each site. This Committee is specifically established to ensure a strong governance for working towards climate resilience for our host communities and operations, climate change modelling including risk assessment, Carbon pricing and financial implications, identifying strategies for Energy conservation, identifying innovative solutions, equipment's and processes that consume less energy and results in significant GHG emissions reduction.

RESPONSIBILITIES OF THE ENERGY AND CARBON MANAGEMENT COMMUNITY:

- ▶ To drive the agenda for achieving Net Zero by 2050 or sooner
- ▶ To conduct audits, energy and carbon risk assessments and implementing recommendations
- ▶ To provide guidance to achieve continuous improvement in energy and carbon management by implementing appropriate processes and policies across the Company
- ▶ To implement IFRS S2 recommendations including scenario analysis

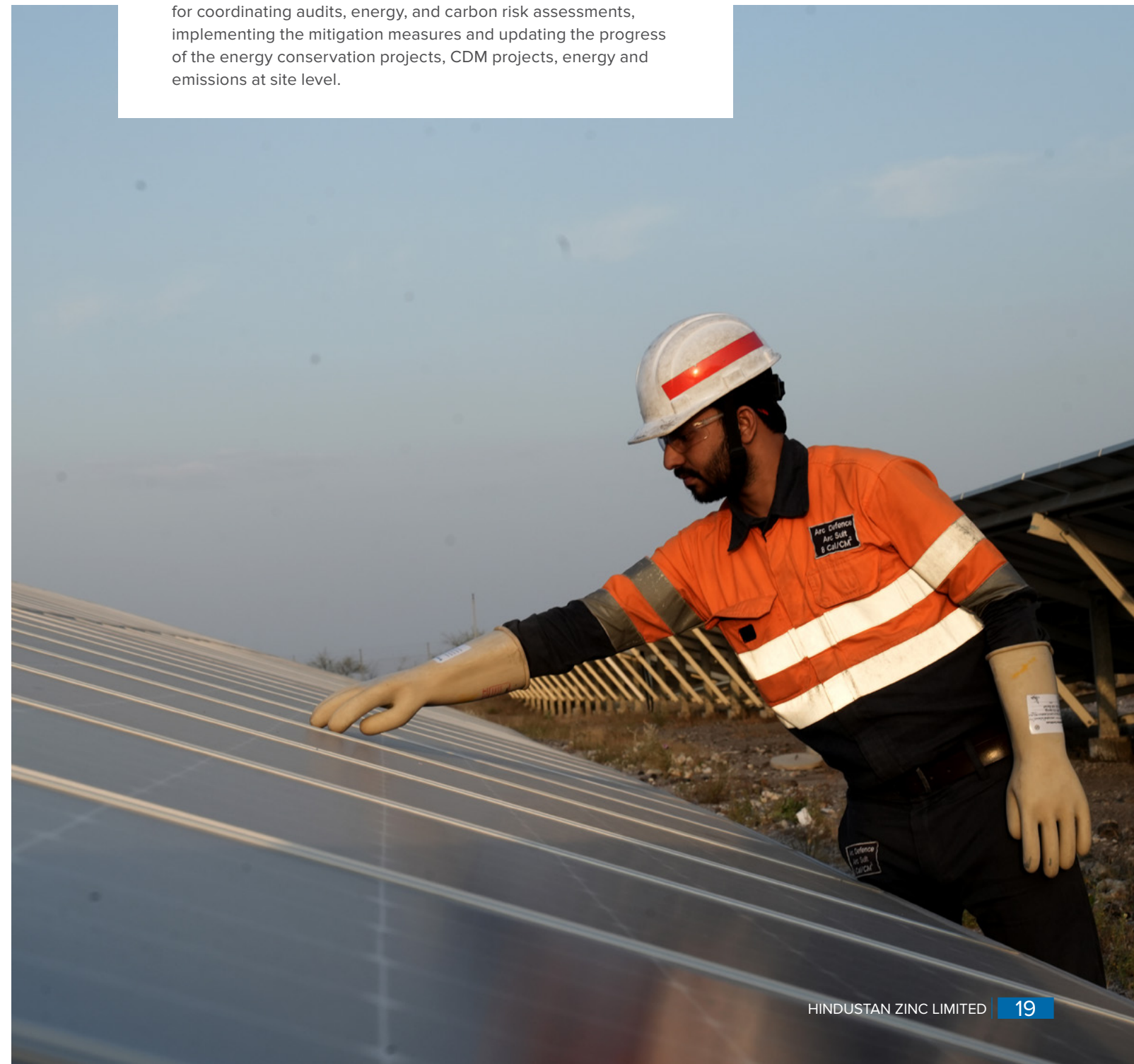
Further, the aforesaid community is also responsible for tracking the performance of the Company against Energy conservation, Clean Development Mechanism (CDM) projects, targets and report its progress to the Executive Sustainability Committee. The community meets on monthly basis to apprise the chairman on the progress of various Energy and Carbon Management projects and seek his guidance.



SBU ESG COMMITTEES

Each of the Company's Strategic Business Units (SBU's) has an SBU ESG Committee, which ensures the implementation of sustainability practices relating to ESG aspects. These committees are responsible for constantly evaluating, identifying, and mitigating risks from both internal and external causes. To manage risks with a suitable mitigation strategy and to advance the ESG agenda including climate change, over 100-line managers are aligned within a structural governance framework across all SBUs.

To ensure an internal formal monitoring process at the Company level, new risks are identified, categorised based on their impact and likelihood, and accordingly mapped to key responsibilities of specific managers. Additionally, the energy and carbon representatives, as nominated by the SBU are also responsible for coordinating audits, energy, and carbon risk assessments, implementing the mitigation measures and updating the progress of the energy conservation projects, CDM projects, energy and emissions at site level.



Alignment of Remuneration Policy with Climate Goal

ANNUAL PERFORMANCE BONUS

The annual performance bonus of the Company's management is determined by a balanced scorecard that takes into account financial, operational, sustainability and strategic metrics with appropriate weightage for people and individual performance.

Every employee of the Company, including the CEO and other business heads such as Head Health Safety & Environment & Sustainability (HSE&S) and Power business head are eligible for incentive plans, and are also held accountable for the Company's success in terms of health, safety, and sustainability based on the VSAP scores as per the HZL's performance-based compensation structure. Further, the CEO's performance KPIs in terms of the ESG parameters, are also cascaded to the Executive Committee of the Company and ultimately to the employees of the organisation. Furthermore, the Individual performance criteria of the Business Heads consider KPIs related to their performance in line with our Net Zero commitments of SBTi.

For example - The annual performance bonus of Head HSE & Sustainability is based on the achievement of climate-related targets and KPIs (e.g., Increased energy efficiency, reduction in GHG emissions, action towards reducing freshwater consumption).



LINKING EMPLOYEES COMPENSATION TO ESG PERFORMANCE

Short-term incentive plan (STIP)

Variable annual pay of all employees including CEO, executive members and other senior management is linked to the sustainability performance (10% of the annual bonus) which includes climate-related goals and related KPIs

which includes reduction in absolute emissions, energy & water consumption, waste generation, it also includes number of sustainability-related trainings to employees and workers and achievement of climate-related targets and Sustainability Goals 2025, and initiatives to drive production of low-carbon zinc. It also focusses on the Company's performance in climate-related sustainability index.

Bucket	Performance Parameter	Weightage FY 2022-23	Multiplier	
			APA Rating	Nil Fatality
Organisational Parameters	Volume, COP & Reserves Creation EBITDA, FCF Strategic/Regulatory Objectives	60%		
HSE Parameters	Safety (5%)	15%	125%	Nil-100%
	Sustainability/ VSAP (10%)		100%	1-90%
People Metrics	MIP	5%	75%	2-80%
	Talent Retention/Development Employee Engagement		0%	>2-75%
Individuals Performance	APA Rating	20%		
Total		100%		

Long-term incentive plan (LTIP)

in the form of Employee Stock Option Scheme (ESOS) of parent company rewards employees' performance on pre-determined performance criteria (includes sustainability & climate goals, ESG and carbon footprint, like energy and water efficiency, emission reduction targets, supply chain engagement and GHG transition and water positivity) and continued employment with the Company during the

vesting period of 36 months from the date of grant. Climate change considerations (ESG/Carbon footprint) constitute 15% part of our employees' stock option scheme (ESOS). The performance against carbon footprint is related to absolute emission reduction and bringing in innovative technologies to reduce dependency on non-renewable energy also increase energy efficiency to reduce emission intensity.

Performance Parameters

Business Category	Business Performance (405)				Individual Performance	Mgmt. Discretion	Multiplier	
	Vol	COP	NSR	ESG/Carbon Footprint			APA Rating	Nil Fatality
Hindustan Zinc	60%	15%	10%	15%	40%	20%	Sustained 3 years rating	110%

ADDITIONAL INCENTIVES AND RECOGNITIONS BEING OFFERED TO EMPLOYEES

Furthermore, as part of the yearly competitions, such as **Kaizen** for focussed improvement project (FIP), HZL acknowledges and rewards employees (including business heads like Head HSE & Sustainability and Head Power business) who actively contribute to HZL's sustainability objectives, thereby minimising the Company's operational impact on the environment while being in line with our business plan.

The champions who present the most innovative ideas resulting in notable reductions in emissions and energy consumption are duly recognised and rewarded. Individual employees or teams who undertake innovative initiatives are also acknowledged and nominated for the prestigious 'Star of the Month' and 'Star Team of the Month' awards, which comes with a monetary reward of ₹ 50,000 for the team. The CEO then recognises these exceptional individuals and teams during a monthly townhall meeting called "Sampark".

The prestigious Chairman Award is also being given for innovative idea's related to climate change that contributes to business development, such as deploying a fumer plant to increase gainful utilisation of waste and reducing transportation of waste from plant to secured landfill and thus reducing Scope 1 emissions in line with our SBTi commitment.

Further, the team which successfully introduced India's first underground battery electric vehicle in SK mine was also given a Chairman award. This initiative will help us in achieving our SBTi Net Zero goals and reducing our Scope 1 emissions.

These incentives encourage and motivates the leaders and employees to identify and actively pursue projects related to energy efficiency, water conservation, gainful utilisation of waste, supply chain sustainability, emission reduction etc.

Furthermore, Vedanta's electric vehicle policy, which offers monetary incentives to employees to purchase 2-wheeler and 4-wheeler EVs, is encouraging our employees to convert their conventional vehicles to electric ones, keeping in line with our mission to act for a greener future.



Climate Policy Engagement & Advocacy Approach

We support the Paris Agreement signed in 2015 to limit the global average temperature to well below 2°C and to take actions to limit it further to 1.5°C. In line with the same, we have SBTi validated targets to achieve Net Zero by 2050. We are also aligned with India's Nationally Determined Contributions (NDCs).

GOVERNANCE

The Executive Sustainability Committee, chaired by the CEO, who is also a member of Board sustainability & ESG committee monitors and oversees progress against goals and targets for addressing climate-related issues. Further, approval for climate-related actions, including providing recommendations with respect to any new/change in existing policy at national or state level, is also determined by the aforesaid committee. Consequently, the members of the Executive sustainability committee are also updated on the progress on such recommendations.

The members of Executive sustainability committee are also entitled to determine association and membership with organisations in collaboration with the corporate affairs team of Hindustan Zinc Limited. Our corporate affairs team further ensures that policies, strategies and actions of the organisations and the associations we are a part of are aligned. The aforementioned team also conducts a survey to identify whether the associations we are a part share HZL's perspective on climate change, such as the Paris Agreement. The corporate affairs team regularly engages with our stakeholders involved in climate-related policies and activities including our suppliers, customers, government representatives as well as industry peers and trade association and organisation members to review our climate change-related policies, positions, and activities.

CLIMATE CHANGE POLICY POSITION

- ▶ We acknowledge the importance of adaptation and resilience for business and all our stakeholders to a changing climate
- ▶ We do not advocate for policies that undermine the Paris Agreement or discount Nationally Determined Contributions (NDCs)
- ▶ We encourage effective climate policy for private sector investment in low-carbon technologies while maintaining the competitiveness of the metals industry.
- ▶ We support the outcomes of the Paris Agreement and the long-term goal to limit global average temperature rise to well below 2°C and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels
- ▶ We support the government as they raise the ambition of their Nationally Determined Contributions (NDCs)
- ▶ We believe policy should be efficient, equitable, practical, market-driven, and promote free trade
- ▶ We welcome increased transparency in climate-related disclosures, and support for consistency across standards & metrics
- ▶ We incentivise and encourage use of low emission technology and products like electric vehicles and rooftop solar

CLIMATE POLICY AND INDUSTRY COMMITMENTS

Hindustan Zinc engages with industry associations at a global, regional, national and local level to work collaboratively on best practices align on standards and regulations which may impact us.

HZL contributes to associations and organisations to collaborate with them and represent interest of the mining sector, non-ferrous mining in particular to the government as part of the policy making process. These associations and organisations assist policymakers by sharing information from external sources, research, and visions regarding sustainable growth for India. We also send direct representations to the government as part of the pre-legislative consultations on matters which might impact our business such as green credit and upcoming clean technology.

ALIGNMENT OF ADVOCACY THROUGH INDUSTRY ASSOCIATIONS

Where our membership is significant, we will collaborate with industry associations to ensure that their policy positions and advocacy are consistent with the Paris Agreement and our own public position.

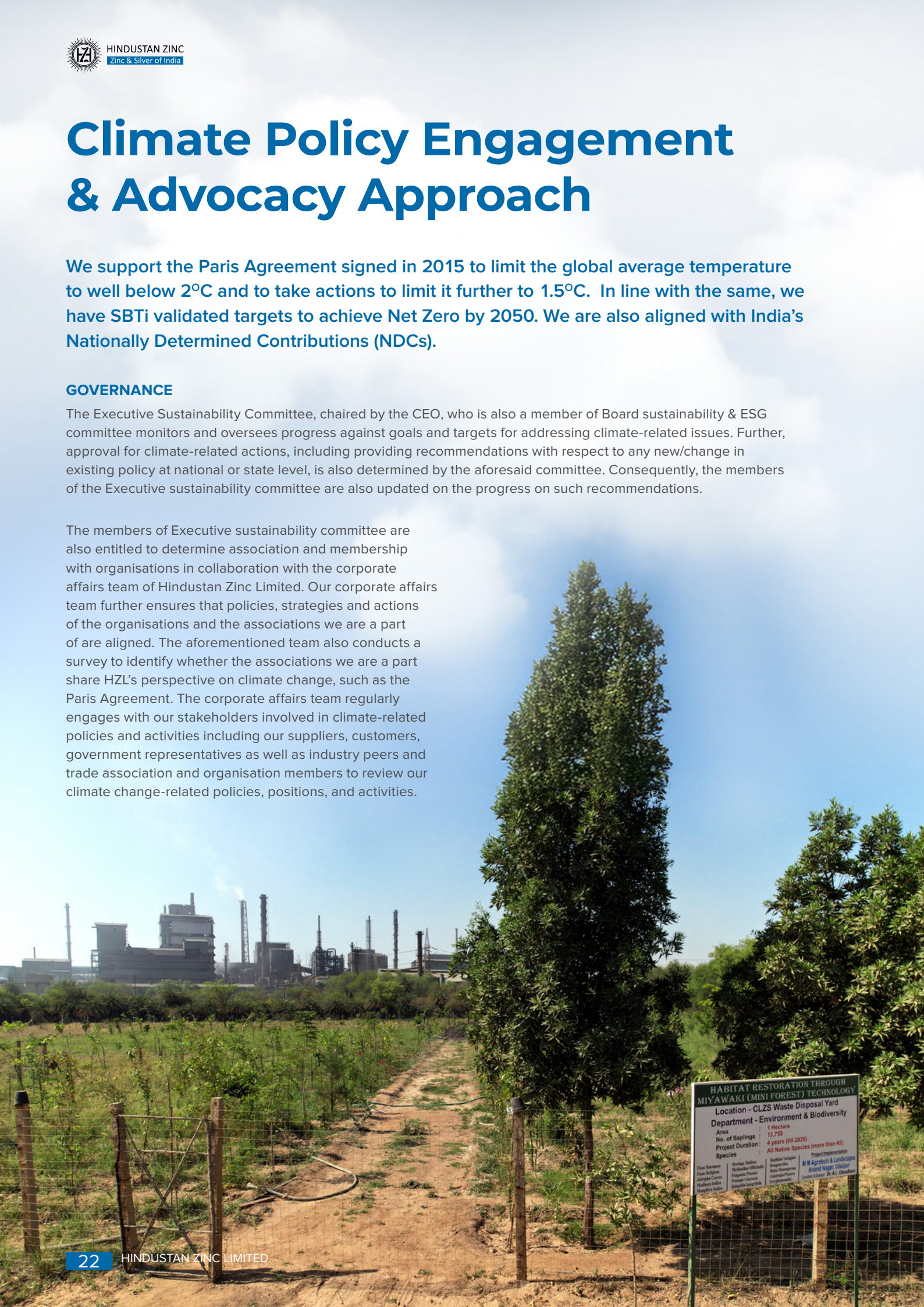
CLIMATE AND ENERGY ADVOCACY

Our responses to government consultations are guided by our overall policy positions that include support for market mechanisms, as we believe this is the best way of stimulating innovation and achieving emissions reductions at least cost. Our submissions are typically developed by subject matter experts, reviewed by government relations and legal teams, and then approved by the relevant country director or senior executive.

Direct Advocacy

We have engaged with the below-mentioned Ministries, and other trade and industry chambers/associations on various subject matters:

- ▶ **Green Credit:** In July 2023 we submitted comments on draft Green Credit Programme Implementation Rules, 2023, released by the Ministry of Environment, Forest and Climate Change, wherein we suggested that, credits granted may be determined based on the different types of lands restored and different climatic and geographical area, e.g., higher credit can be awarded for utilisation of barren land; innovative approaches in water stress areas, or for innovation-driven programmes which would help reduce environmental footprints related to both GHG and Non-GHG emissions, water and waste
- ▶ **Suggestions and Inputs for Ministry of Mines Task Force on Greening of Mining Operation and Mineral Processing:** HZL provided inputs regarding resource use efficiency, waste management and restoration, emission reduction and frontier technology adoption. For the Taskforce incorporated by Ministry of Mines, our suggestions focussed on positive incentives for value-added products generated from waste and alignment of emission monitoring framework with national (BRSR) and International Standards (DJSI, TNFD, etc.)
- ▶ **Confederation of Indian Industries (CII):** CII works to create and sustain an environment conducive to India's development, by partnering with industry, Government and civil society, through advisory and consultative processes. HZL is a member of the CII Working Group on Driving Accelerated Climate Action by Indian Businesses. As a member of the working group, we acknowledge our responsibility and the urgency to address climate change risks as well as our role in accelerating action on climate change. Five specific sessions on EP 100, SME Climate Hub, RE 100, EV 100, Technology Transfer, and one



HABITAT RESTORATION THROUGH MIYAWAKI (MINI FOREST) TECHNOLOGY
Location - CLZS Waste Disposal Yard
Department - Environment & Biodiversity
Area : 1 Hectare
No. of Saplings : 13,750
Project Duration : 4 years (till 2028)
Species : All Native Species (more than 45)

Project Implementation:
M M Agritech & Landscapes
Arihant Nagar, Gurgaon
Sankar & Sankar, Dr. B.I. Chaudhary

session with CEOs of top Indian companies on their views on Race to Zero have been conducted in 2022 in association with HZL. We also participate in their programmes such as Climate Action Programme (CAP 2.0), which allows to share industry best practices and is in line with Paris Agreement

► **International Zinc Association (IZA) Climate Change Task Force:**

As part of its active participation in defining the carbon footprint of recycled content in SHG zinc production and the societal benefits of improved resource recovery in a circular economy, HZL became a member of the IZA Climate Change Task Force. The creation of a Decarbonisation Roadmap for the global zinc industry will be spearheaded by this organisation. Furthermore, IZA is striving to offer guidelines about high-quality global average SHG zinc production data so that businesses can compute product carbon and water footprints with precision. Our CEO is the first Indian to serve as a chairman of IZA. In order to standardise Scope 3 reporting for the zinc industry and for Life Cycle Assessment of our product Zinc, we are collaborating with the IZA

► **Task Force on Nature-related Financial Disclosures (TNFD):**

We have collaborated with TNFD members to establish a market-driven framework that enables organisations to disclose and address emerging nature-related risks. Our aim is to facilitate a transition in global financial investments, redirecting them from activities that harm nature to those that have positive impacts on nature. We are the only company in India and only metal and mining company amongst the member companies to become piloting member for Science Based Target for Nature target setting

► **Federation of Indian Mineral Industries' Sustainable Mining Initiative (SMI):**

The FIMI's Code of Conduct is a voluntary commitment by the mining companies to adhere to the 10 Sustainable Mining Principles outlined in the SMI Code of Conduct. HZL, as a Governing Council Member, aligns its BRSR Disclosures with the FIMI principles

Indirect Advocacy:

► **UN Global Compact:** We are a signatory member of UN Global Compact. In line with the ten principles of the UNGC, we have developed a performance matrix that is integrated into all of our strategic business functions and regularly reviewed from the shop floor to the Boardroom level

► **Science based Targets for Nature (SBTN):** We participated in the pilot of first science-based targets for nature, aiming to establish the global benchmark for quantifiable corporate efforts to protect nature. The purpose of this pilot is to ensure a robust, feasible and clear process for companies to set targets before the full rollout

► **UNFCCC COP business leaders working group:** Hindustan Zinc is a part of the business leader's group since COP26, which is actively engaged in shaping the agenda for the COP meetings of countries that signed the United Nations' Framework Convention on Climate Change

Further, we survey our memberships and keeps an eye on the advocacy efforts of all our industry associations and review them on an annual basis. This assessment includes:

- Alignment with HZL's commitment to climate change
- Impact of memberships on HZL's operations/business
- The adequacy of governance structures within the industry association
- Policy positions and advocacy

Related to HZL's commitment to the implementation of the Paris Agreement.

During our annual review, if gaps continue to persist, we conduct an internal cost/benefit analysis to determine if HZL should remain a member.

The memberships in business and industry organisations that advocate on policy issues related to mining, business and ethical industry practices are listed in the table below. This list includes organisations whose mission is advocating for public policies that may have an impact on climate policy.

National/ International	Organisation	Membership fees FY 2023-24	Leadership role	Policy positions that support Paris Agreement	Alignment with HZL's position
Global	IZA	56,567,980	Chairman	Yes	Yes
National	UN Global Compact-INDIA	623,550	Member	Yes	Yes
Rajasthan, India	Confederation of Indian Industry	324,000	Chairman	Yes	Yes
India	FICCI	120,000	Co-Chair, Non Ferrous Mining Committee	Yes	Yes
India	Indian Chamber of Commerce	70,000	Member	Yes	Yes
India	Federation of Indian Mineral Industries	150,000	Member Managing Committee, Non Ferrous Mining Committee, Non Metallic Committee	Yes	Yes
India	GujMin Industry Association	10,000	Managing Committee Member	Yes	Yes
Rajasthan	Udaipur Chamber of Commerce and Industries	31,000	Managing Committee Member	Yes	Yes



Strategy

HZL has identified and categorised climate-related risks and opportunities over the short, medium, and long-term with respect to both physical risks (Increase in temperature, drought, flood, extreme weather, wind speed etc.) and transition risks (risks due to change in policy, technological change, market change, reputational etc.) According to the IFRS S2 guidelines, we have identified our climate-related risks using scenario analysis. In developing our strategy, we have considered a wide range of opportunities and risks across two discrete-time horizons 2030 and 2050 for mapping physical and transition risks.

- ▶ For, physical risks, we used Advanced Climate Modelling and Representative Concentration Pathway (RCP) 2.6, 4.5, 6.0 and 8.5
- ▶ For transition risks, we used IEA's Stated Policies Scenario (STEPS), Announced Pledges Scenario (APS) & Net Zero Emissions by 2050 (NZE) scenario

PHYSICAL RISK ASSESSMENT

We conducted baseline assessment of our business units by using ThinkHazard tool to assess potential baseline physical risks.

Direct Operations

ThinkHazard

Site	Water Scarcity	Extreme Heat	Wildfire	Earthquake	River Flood	Urban Flood	Cyclone	Landslide
Chanderiya (Chittorgarh)	High	High	High	Medium	Low	Low	Low	Very Low
Rajpura Dariba Mines & Smelter (Rajsamand)*	High	High	High	Medium	Very Low	Low	Very Low	Low
Debari Smelter (Udaipur)	High	High	High	Medium	Very Low	Low	Low	Low
Kayad Mines (Ajmer)	High	High	High	Medium	Low	Low	Low	Very Low
Pantnagar Metal Plant (Udham Singh Nagar)	High	High	High	Medium	Medium	Low	Very Low	Very Low
Rampura Agucha Mines (Bhilwara)	High	High	High	Medium	Low	Low	Very Low	Very Low
Zawar Mines (Udaipur)	High	High	High	Medium	Very Low	Low	Low	Low

* Rajpura Dariba Mines & Smelter consists of Rajpura Dariba & Sindesar Khurd Mines & Dariba Smelting Complex.

● High ● Medium ● Low ● Very Low

Climate-related physical risks

Our climate-related Physical Risk assessment is studied using the following scenarios for medium-term 2030 & long-term 2050:

IPCC Emission Scenario 1	RCP 2.6	SSP 1 (Optimistic)
IPCC Emission Scenario 2	RCP 4.5	
IPCC Emission Scenario 3	RCP 7	SSP 3 (Business as usual)
IPCC Emission Scenario 4	RCP 6.0	
IPCC Emission Scenario 5	RCP 8.5	SSP 5 (Pessimistic)

As part of the physical risk assessment, acute risks arising out of increasing severity of extreme weather events and chronic risks resulting from longer-term changes in climate patterns were studied for all our business units.

For future hazard trends, climate change scenarios based on IPCC Representative Concentration Pathways (RCP) were used for medium-term 2030 and long-term 2050. We used WRI Aqueduct's future predictions basis Pessimistic, Business as usual and Optimistic scenario for the years 2030 and 2050.

Site Unit	Pessimistic				Business as usual				Optimistic			
	Water Stress		Seasonal Variability		Water Stress		Seasonal Variability		Water Stress		Seasonal Variability	
Years	2030	2050	2030	2050	2030	2050	2030	2050	2030	2050	2030	2050
CLZS	High	High	Low to Medium	Medium to High	High	High	Low to Medium	Medium to High	High	High	Medium to High	Medium to High
ZSD	High	High	Low to Medium	Medium to High	High	High	Low to Medium	Medium to High	High	High	Medium to High	Medium to High
PMP*	High	High	High	High	High	High	High	High	High	High	High	High
DSC	High	High	Low to Medium	Medium to High	High	High	Low to Medium	Medium to High	High	High	Medium to High	Medium to High
RDM	High	High	Low to Medium	Medium to High	High	High	Low to Medium	Medium to High	High	High	Medium to High	Medium to High
SKM	High	High	Low to Medium	Medium to High	High	High	Low to Medium	Medium to High	High	High	Medium to High	Medium to High
RAM	High	High	Low to Medium	Medium to High	High	High	Low to Medium	Medium to High	High	High	Medium to High	Medium to High
ZWM	High	High	Medium to High	High	High	High	Medium to High	Medium to High	High	High	Medium to High	High
KYD	High	High	Medium to High	Medium to High	High	High	Medium to High	Medium to High	High	High	Medium to High	Medium to High

* It is to be noted that as per Central Ground Water Board (CGWB), India, Pantnagar metal plant is not in water stress area, however, to maintain uniformity as per WRI Aqueduct, it is being reported in water stress area.

Pant Nagar Metal Plant's Flood Risk

Site Unit	Pessimistic		Business as usual		Optimistic	
	2030	2050	2030	2050	2030	2050
PMP	High	High	High	High	High	High

● Extremely High ● High ● Medium to High ● Low to Medium ● Low

We used Network for Greening the Financial System (NGFS) for physical risk such as mean air temperature and employee productivity related to the states of Rajasthan and Uttarakhand in India where our operations are based. The baseline scenario in case of NGFS scenario analysis was 1986-2006. A summary of how the regions where our business units are located will face the risk to climate change under four RCP scenarios are presented in the table below:

Region	Physical Risk	RCP 2.6		RCP 4.5		RCP 6.0		RCP 8.5	
		2030	2050	2030	2050	2030	2050	2030	2050
Absolute change in mean air temperature									
Rajasthan	Increase/decrease from baseline	↑	↑	↑	↑	↑	↑	↑	↑
Uttarakhand	Increase/decrease from baseline	↑	↑	↑	↑	↑	↑	↑	↑
Relative change in labour productivity due to heat stress									
Rajasthan	Percentage points increase/decrease from baseline	↓	↓	↓	↓	↓	↓	↓	↓
Uttarakhand	Percentage points increase/decrease from baseline	↓	↓	↓	↓	↓	↓	↓	↓

Overall Result from the Physical Risk Assessment

We have compiled potential risks that our businesses could encounter due to physical risks. We have also examined the impacts of different climate change scenarios namely RCP 2.6, RCP 4.5, RCP 6.0, RCP 8.5, which are as follows:

- ▶ Basin Water stress is extremely high for all our locations
- ▶ Riverine flood risk is high for Pantnagar, whereas Low to Medium for all other locations
- ▶ Urban Floods, Landslides and Cyclones are very low to low for all our locations
- ▶ Seasonal variability measures the average within year variability of available water supply, including both renewable surface and groundwater supplies. Higher values indicate wider variations of available supply within a year

The table below presents how each of our businesses will be impacted by climate change, this considers the risk level based on hazard, sensitivity, and adaptive capacity of the unit. This table also elaborates the impacts of climate change on the organisation's businesses, strategy, and financial planning:

Physical Risks	Reason	Expected Impacts
RAW MATERIAL SUPPLY	<ul style="list-style-type: none"> ▶ Increased Temperature ▶ Heat Waves ▶ Water Stress 	<p>High Impact</p> <ul style="list-style-type: none"> ▶ High temperatures, water shortage and extreme weather variability possibly causing lower production, revenue generation and business continuity
OPERATION DISRUPTION	<ul style="list-style-type: none"> ▶ Water Stress ▶ Increased Temperature ▶ Extreme Rainfall 	<p>Medium to High</p> <ul style="list-style-type: none"> ▶ Disruption of operations or downsizing of the same and scarce water resources ▶ Increased cost due to installations of cooling devices ▶ Supply chain disruptions due to extreme weather-related events ▶ Increased damage to infrastructure/structural stability due to flooding/wind speed
MARKET DISRUPTION	<ul style="list-style-type: none"> ▶ Setback in upstream and downstream supply 	<p>Low to Medium</p> <ul style="list-style-type: none"> ▶ Consumer demand might get impacted by physical events ▶ Revenue levels and demand forecasting might also get disrupted by extreme weather events ▶ Short-term impacts on trends in consumption pattern due to extreme weather events
IMPACT ON WORKFORCE	<ul style="list-style-type: none"> ▶ Direct Impact on productivity 	<p>High Impact</p> <ul style="list-style-type: none"> ▶ Employee heat exhaustion and dehydration leading to lower productivity ▶ Increased electricity cost due to installations of air conditioning devices ▶ Attrition rate might increase due to increase in temperature in Rajasthan which will lead to skilled talent reduction and high cost of production due to increase in expectation of salary by workforce

PHYSICAL CLIMATE RISK ADAPTATION

HZL has its strategic plan in place to adapt to physical climate risks across its operations for more than 10 years.

Strategy	Short-Term	Medium-Term	Long-Term
RAW MATERIAL SUPPLY	<ul style="list-style-type: none"> ▶ Implement heat stress management programmes 	<ul style="list-style-type: none"> ▶ Sourcing 450 MW Renewable Energy Round the Clock (RE-RTC) ▶ Harnessing potential of RE in line with Indian commitment 500 GW NDC ▶ Dual sourcing and safety stock to ensure no operation disruption 	<ul style="list-style-type: none"> ▶ Increased use of renewable energy in operations thus reducing freshwater demand in Captive Thermal Power plants
OPERATION DISRUPTION	<ul style="list-style-type: none"> ▶ Zero Liquid Discharge plants at all our locations to reduce freshwater demand ▶ Increased use of recycled water like treated municipal wastewater (sewage) 	<ul style="list-style-type: none"> ▶ Site-based freshwater reduction programme ▶ Exploring alternate sources of water and ensuring more recycling of water ▶ Storm Water Drains are upgraded to cater to torrential rains ▶ Monsoon preparedness plans developed across all locations ▶ Natural restoration of biodiversity by eradication of Lantana Camara and using it as alternate source of energy in business requirement 	<ul style="list-style-type: none"> ▶ Ensuring climate-resilient infrastructure ▶ Continuous monitoring of flood management and storage capacity (Ponds, Dams etc.) ▶ Further improvement in pumping/dewatering facilities in case of excessive rainfall event
MARKET DISRUPTION	<ul style="list-style-type: none"> ▶ Ground water recharge systems near our operating locations to cater to water security needs to local community 	<ul style="list-style-type: none"> ▶ Public Advocacy to improve durability ▶ Continuous interactions with value-chain partners both upstream & downstream for value chain resilience 	
IMPACT ON WORKFORCE	<ul style="list-style-type: none"> ▶ Heat stress awareness campaigns and monitoring ▶ Water coolers provided for all the employees. ORS & hydrants are provided to the employees ▶ Deployment of chiller units ▶ Health care facilities present for employee well-being & periodic health check-ups undertaken ▶ Monsoon preparedness plan along with emergency management plan and mock-drills ▶ Alerts to employees to avoid work during any extreme climate event. Employees are provided with alert notifications based on the severity of weather event 		

TRANSITIONAL RISK ASSESSMENT

Relevant external variables, such as regulatory consequences, energy mix, shifts in consumer behaviour, and mineral requirements for renewable energy, were taken into consideration to simulate a climate scenario and evaluate short-, medium-, and long-term transitional risk. Since we are an integrated producers of Zinc, Lead and Silver, we identify transitional risk and opportunities for the entire business as whole.

Recognising the uncertainties, we used scenario planning to explore energy transitions in the next 20-30 years, considering changes in Regulations, Technology, Markets, and their impact on Reputation. This process also considered a wide range of pertinent transition risks, such as changes in carbon pricing, energy efficiency, and water management regulations, renewable energy law, technology obsolescence or financial viability changes

in the supply and demand for Zinc, Lead and Silver, shifts in public perception, and community perceptions. For transitional risks IEA scenarios- Stated Policies Scenario (STEPS), Announced Pledges Scenarios (APS) and Net Zero Emissions (NZE) 2050 were used.

The following parameters and assumptions were considered:

- ▶ We identified transition risks, financial impacts, and vulnerabilities for scenarios with global warming exceeds 2°C and scenarios well below 2°C, focussing on the time periods of 2030 and 2050
- ▶ Scenarios were developed using publicly available data and reports from the International Energy Agency (IEA)
- ▶ Each risk was evaluated independently, without considering trade-offs between different risks
- ▶ The assessed transition risk includes policy and legal risks technology risks, and market risks

A variety of transition risk factors were reviewed for our scenario analysis and following Transitional risk and impact were identified:

RISK MAP	STEPS		APS		NZE 2050	
	2030	2050	2030	2050	2030	2050
<p>POLICY Action to constrain emission-intensive activities</p> <p>&</p> <p>LEGAL increase in climate-related litigation claims.</p>	<ul style="list-style-type: none"> ▶ No foreseeable Carbon price in India ▶ India has no plans to pull out completely from coal will take a couple of decades through "a phase down" 	<ul style="list-style-type: none"> ▶ No foreseeable Carbon price in India ▶ Global coal supply falls gradually to 2030, with increases in India offset by reductions in advanced economies, and then drops by about 30% from 2030 to 2050 	<ul style="list-style-type: none"> ▶ No foreseeable carbon price in India, however as per IEA APS Scenario Emerging market and developing economies with net zero pledges to have high Carbon Price 	<ul style="list-style-type: none"> ▶ No foreseeable carbon price in India, however as per IEA APS Scenario Emerging market and developing economies with net zero pledges to have high Carbon Price ▶ Supply declines by 30% to 2030 and by 75% to 2050, compared to 2022 levels ▶ The leading exporters, Australia and Indonesia, see production fall by around 85% and 65% respectively between 2022 and 2050 	<ul style="list-style-type: none"> ▶ No foreseeable carbon price in India, however as per IEA NZE Scenario Emerging market and developing economies with net zero pledges to have high Carbon Price 	<ul style="list-style-type: none"> ▶ No foreseeable carbon price in India, however as per IEA NZE Scenario Emerging market and developing economies with net zero pledges to have high Carbon Price ▶ Global coal production declines by 45% to 2030 and a further 85% between 2030 and 2050
	<p>India Specific Regulations:</p> <ul style="list-style-type: none"> ▶ Renewable Purchase Obligations ▶ National Carbon Market ▶ Perform achieve and Trade scheme ▶ Energy Conservation Act <p>The above can increase indirect (operating) cost.</p>					

RISK MAP	STEPS		APS		NZE 2050	
	2030	2050	2030	2050	2030	2050
<p>TECHNOLOGY Development of emerging technology to support a lower-carbon economy</p>	<ul style="list-style-type: none"> ▶ Regulatory authority mandating use of more energy-efficient systems ▶ Energy intensity improves at an average rate of 2.2% per year to 2030 	<ul style="list-style-type: none"> ▶ Investments required in storage systems as flexibility needs arise 	<ul style="list-style-type: none"> ▶ Decline in unabated coal use for electricity generation. ▶ Rise in flexibility requirements for reliable source of renewable energy ▶ Energy intensity improves at an average rate of 3% per year to 2030 	<ul style="list-style-type: none"> ▶ Phasing out of unabated coal use for electricity generation by 2040 ▶ Rise in flexibility requirements for reliable source of renewable energy ▶ India's pledges to reach net zero emissions by 2070 drive a faster decline in coal demand than in the STEPS 	<ul style="list-style-type: none"> ▶ End of unabated coal use for electricity generation worldwide by 2040 ▶ Energy intensity improves at an average rate of 4.1% per year to 2030 	<ul style="list-style-type: none"> ▶ Costs to adopt/ deploy new practices and processes by changing the current processes such as phasing out Pyro metallurgical processes ▶ Increased cost due to investment in carbon capture technology
	<ul style="list-style-type: none"> ▶ Costs to adopt/deploy new practices and processes will experience such as high per unit cost of utility-scale stationary batteries & Hydrogen electrolyzers ▶ The direct use of renewables in total final energy consumption expands by 3% per year 		<ul style="list-style-type: none"> ▶ Increased research and development (R&D) expenditures in new and alternative technologies & physical modifications ▶ Costs to adopt/deploy new practices and processes will incur high per unit Cost. (Utility-scale stationary batteries & Hydrogen electrolyzers etc.) ▶ The direct use of renewables in total final energy consumption expands by 7% per year 	<ul style="list-style-type: none"> ▶ Increased research and development (R&D) expenditures in new and alternative technologies & physical modifications ▶ Costs to adopt/deploy new practices and processes will incur high per unit Cost. (Utility-scale stationary batteries & Hydrogen electrolyzers etc.) ▶ The direct use of renewables in total final energy consumption expands by 9% per year 		
<p>MARKET Shifts in supply and demand as consumers prefer sustainable alternatives</p>	<ul style="list-style-type: none"> ▶ Nearly 40 mn electric cars are purchased in 2030, accounting for nearly 40% of all vehicle sales reducing Lead demand ▶ Carbon Border adjustment mechanism to directly impact any EU-related expansion plans 	<ul style="list-style-type: none"> ▶ Loss of market share to competitors producing cleaner products 	<ul style="list-style-type: none"> ▶ Total EV sales represent over 45% of total car sales & 25% of global truck sales ▶ Carbon Border adjustment mechanism to directly impact any EU-related expansion plans 	<ul style="list-style-type: none"> ▶ Global coal supply to decline between 2030 and 2050 ▶ Loss of market share to competitors producing cleaner products 	<ul style="list-style-type: none"> ▶ The share of electric cars accounts for two-thirds of total sales by 2030 ▶ Carbon Border adjustment mechanism to directly impact any EU-related expansion plans. As of now, there is no direct impact on Zinc industry in near to medium term however, our customers in steel industry look forward to low carbon zinc for galvanisation 	<ul style="list-style-type: none"> ▶ Global coal supply declines significantly between 2030-2050. High cost for running Coal based CPP's ▶ Loss of market share to competitors producing cleaner products

RISK MAP	STEPS		APS		NZE 2050	
	2030	2050	2030	2050	2030	2050
	<ul style="list-style-type: none"> ▶ High Levelised cost of electricity (LCOE) from Coal ▶ Low Value-Added Levelised cost of electricity from Solar PV & Offshore Wind 	<ul style="list-style-type: none"> ▶ High Levelised cost of electricity (LCOE) from Coal ▶ Loss of market share to competitors producing more cleaner products ▶ Low Value-Added Levelised cost of electricity from Solar PV & Offshore Wind 	<ul style="list-style-type: none"> ▶ High Levelised cost of electricity (LCOE) from Coal ▶ Loss of market share to competitors producing more cleaner products ▶ Low Value-Added Levelised cost of electricity from Solar PV & Offshore Wind 	<ul style="list-style-type: none"> ▶ High Levelised cost of electricity (LCOE) from Coal ▶ Loss of market share to competitors producing more cleaner products ▶ Low Value-Added Levelised cost of electricity from Solar PV & Offshore Wind 	<ul style="list-style-type: none"> ▶ High Levelised cost of electricity (LCOE) from Coal ▶ Loss of market share to competitors producing more cleaner products ▶ Low Value-Added Levelised cost of electricity from Solar PV & Offshore Wind 	<ul style="list-style-type: none"> ▶ High Levelised cost of electricity (LCOE) from Coal ▶ Loss of market share to competitors producing more cleaner products ▶ Low Value-Added Levelised cost of electricity from Solar PV & Offshore Wind
REPUTATION Perception of an organisation's contribution to a lower-carbon economy	<ul style="list-style-type: none"> ▶ Increasing consumer awareness leading to isolating companies with significant emissions 	<ul style="list-style-type: none"> ▶ Consumer activism will lead to loss of revenue and missed growth opportunities ▶ Disruption in Social Licence to operate ▶ Decrease in revenue due to demand for low carbon products ▶ Increased competition for natural resources and tensions between mining sites and local communities 	<ul style="list-style-type: none"> ▶ Consumer activism will lead to loss of revenue and missed growth opportunities ▶ Disruption in Social Licence to operate ▶ Decrease in revenue due to demand for green products ▶ Increased competition for natural resources and tensions between mining sites and local communities 	<ul style="list-style-type: none"> ▶ Consumer activism will lead to loss of revenue and missed growth opportunities ▶ Disruption in Social Licence to operate ▶ Decrease in revenue due to demand for green products ▶ Increased competition for natural resources and tensions between mining sites and local communities 	<ul style="list-style-type: none"> ▶ Consumer activism will lead to loss of revenue and missed growth opportunities ▶ Disruption in Social Licence to operate ▶ Decrease in revenue due to demand for green products ▶ Increased competition for natural resources and tensions between mining sites and local communities 	<ul style="list-style-type: none"> ▶ Consumer activism will lead to loss of revenue and missed growth opportunities ▶ Disruption in Social Licence to operate ▶ Decrease in revenue due to demand for green products ▶ Increased competition for natural resources and tensions between mining sites and local communities
	<ul style="list-style-type: none"> ▶ Low emission electricity generation increases as a % of total electricity generation ▶ The direct use of renewables in total final energy consumption – including modern bioenergy, solar thermal and geothermal – expands significantly in each scenario 	<ul style="list-style-type: none"> ▶ Low emission electricity generation increases as a % of total electricity generation 	<ul style="list-style-type: none"> ▶ Low emission electricity generation increases as a % of total electricity generation 	<ul style="list-style-type: none"> ▶ Low emission electricity generation increases as a % of total electricity generation 	<ul style="list-style-type: none"> ▶ Low emission electricity generation increases as a % of total electricity generation 	<ul style="list-style-type: none"> ▶ Low emission electricity generation increases as a % of total electricity generation
LIABILITY	<ul style="list-style-type: none"> ▶ The Company's strategy consists of mitigation and adaptation measures and is committed to reducing its carbon footprint by limiting its exposure to coal-based projects and reducing its GHG emissions through high impact initiatives such as investment in Renewable Energy (450 MW Power delivery agreement ('PDA') signed on a group captive basis, fuel switch, electrification of vehicles and mining fleet and energy efficiency opportunities. However, renewable sources might have inherent limitations in supplying regular power/power on timely basis, therefore existing power plants would support transition and fleet replacement is part of normal lifecycle renewal. 					

RESULT FROM THE TRANSITIONAL RISK ASSESSMENT

In IEA scenarios, we find that Carbon price/tax will have a high impact in 2030 and 2050. However, local regulations and policies such as Renewable purchase obligation are expected to impact on our business strategy as well.

As the share of renewable energy in energy mix rises, the demand for flexible system will also rise. The unavailability of the desired technology at an economical cost could directly impact the business. While our metals, Zinc and Silver, are expected to play a key role in the energy transition, we anticipate a decline in demand for lead due to the obsolescence of lead-acid batteries in electric vehicles.

However, lead will remain important as cost-effective and readily available component in energy storage systems.

Any negative impact on the cost of coal due to a decrease in supply from international suppliers to increase our cost of operations. Market regulations such as CBAM will directly have an impact on expansion plans. Consumer activism will lead to loss of revenue and impact the social licence to operate. With an increase in consumer demand for low-carbon products, there can be loss of market share to competitors producing cleaner and greener products.

Considering the analysis, we summarise the strategy towards Transitional risks as follows:

STRATEGY	Short-Term	Medium-Term	Long-Term
POLICY & LEGAL	<p>Energy & Climate Change</p> <ul style="list-style-type: none"> ▶ Implement policies and infrastructure to promote the increased use of Renewables ▶ Take actions to achieve commitment to Science Based Target initiative (SBTi) <p>Circular Economy</p> <ul style="list-style-type: none"> ▶ Develop policies and establish infrastructure for waste management schemes, increase recycling rates, promote circular economies & ensuring gainful utilisation of waste <p>Commitment to Nature</p> <ul style="list-style-type: none"> ▶ Commitment to achieving No Net Loss (NNL) for biodiversity ▶ Adopting the guidelines of the Taskforce on Nature related Financial Disclosures (TNFD) 		
TECHNOLOGY	<p>Research & Development</p> <ul style="list-style-type: none"> ▶ Invest in new technologies to increase energy efficiency & maximise output while minimising emissions ▶ Utilise biomass (5-8%) as a substitute of coal ▶ Implement technology upgrades in phased manner ▶ Deploy battery electric vehicle for underground operations. ▶ Collaborating for the next-gen Zinc battery <p>Adoption of best available technology to reduce freshwater consumption</p> <ul style="list-style-type: none"> ▶ Maintain Zero Liquid Discharge (ZLD) at all our locations ▶ Use of treated sewage water for operations <p>Logistics</p> <ul style="list-style-type: none"> ▶ Transport of upstream goods via trains ▶ Deployment of 180 LNG vehicles ▶ Deployment of EV's for Interunit transport (IUT) movement <p>180 MW Solar (Part of 450 MW RE-RTC)</p> <ul style="list-style-type: none"> ▶ Flow of renewable power commenced in May 2024 	<p>Logistics</p> <ul style="list-style-type: none"> ▶ To achieve 100% LMVs by 2030 ▶ Use electric vehicle/alternate fuel (LNG) vehicles for Inter Unit Transport and for transport of finished goods <p>Energy Storage System</p> <ul style="list-style-type: none"> ▶ Introduction of battery/pump storage systems to meet flexibility requirements <p>Manufacturing</p> <ul style="list-style-type: none"> ▶ Adoption of best available technologies to increase our use of renewable electricity, including signing a Power Delivery Agreement (PDA) for 450 MW of Renewable Energy-Round the Clock (RE-RTC) ▶ Achieve 100% Green Power at Pant Nagar Metal Plant in Uttarakhand <p>Logistics</p> <ul style="list-style-type: none"> ▶ To achieve 75% underground battery electric vehicles at mining location by 2035 <p>Harness Renewable Energy commitment by India</p> <ul style="list-style-type: none"> ▶ Aligning with India's NDC of 500 GW commitment by 2030 <p>Flexible Power System</p> <ul style="list-style-type: none"> ▶ Implement Storage Systems to enhance the reliability of renewable energy 	<p>Commitment towards harnessing Green Hydrogen</p> <ul style="list-style-type: none"> ▶ Rajasthan has huge potential for solar power & HZL plans to harness it for green hydrogen generation to support mobility, smelter operations & energy storage <p>Abate residual emissions</p> <ul style="list-style-type: none"> ▶ Implement carbon capture, utilisation and storage (CCUS) ▶ Hydrogen use as a replacement of coke and fuel for vehicle



STRATEGY	Short-Term	Medium-Term	Long-Term
MARKET	<p>Carbon Neutrality Individual commodity achieving carbon neutrality in line with customer preference for sustainable finished goods. Changing consumer preferences for low-carbon products and decarbonised upstream mining commodities will have a direct short-term impact on our revenue as the requirement of recycled input materials increases.</p> <ul style="list-style-type: none"> ▶ Our product Continuous Galvanising Grade (CGG) zinc alloy can be used directly by the customers eliminating the need for conversion into an alloy, thereby saving resources such as water, energy, and cost by up to 5-10%. Value-added low emissions product (VAP) portfolio increased from 15% to 20% in FY 2023-24. Focussed approach to increase share of value-added products to 23% in FY 2024-25 ▶ Utilise high-quality, verified GHG offsets ▶ Increase in demand for Green Zinc & Silver due to energy transition ▶ Use of by-products such as Fly Ash & Jarosite in cement production & road construction, contributing to a reduction in GHG emissions from production of virgin material ▶ EcoZen: Offer a low carbon Zinc (<1 MT CO₂-eq per MT of Metal produced) product to capture premium market opportunities 		
REPUTATION	<p>Transparent Disclosures</p> <ul style="list-style-type: none"> ▶ Provide transparent disclosure of our GHG emissions by scope ▶ Introducing Internal Carbon Price (Shadow Price) ▶ Achieve 5X water positivity and 25% reduction in freshwater consumption 		

CAPITALISING CLIMATE CHANGE OPPORTUNITIES

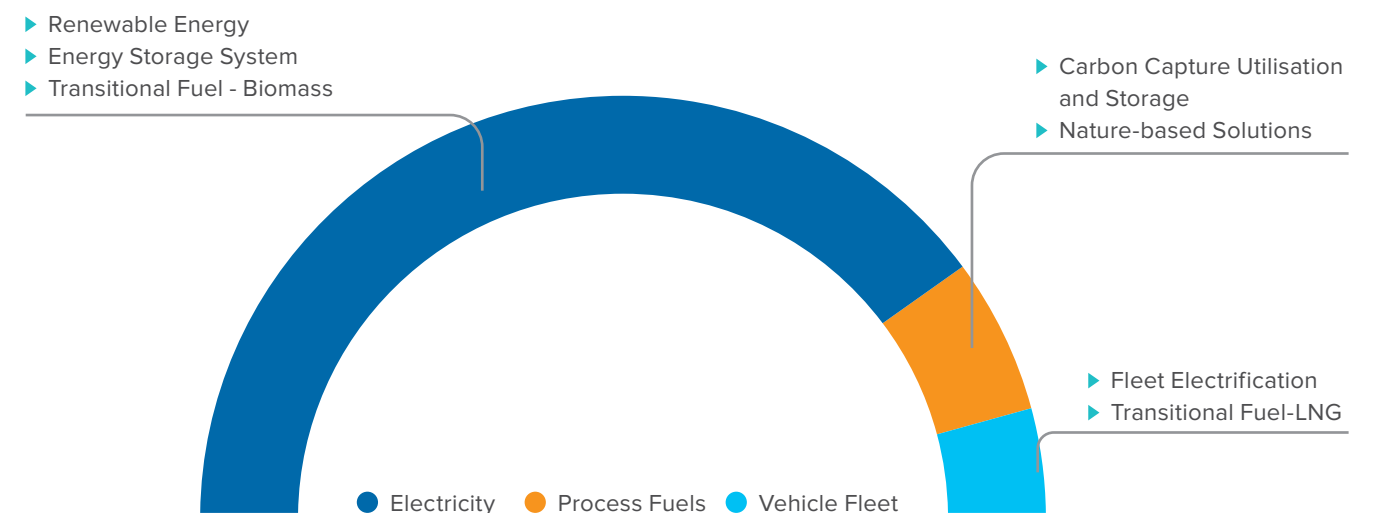
- ▶ EcoZinc: Offer low-carbon Zinc (<1 MT CO₂-eq per MT of Metal produced)
- ▶ Improvement in energy efficiency and transition to clean energy sources
- ▶ Application of circular economy principles like jarosite being used by our suppliers as a substitute to gypsum
- ▶ Reducing exposure to climate-related risks can lower costs and preserve or enhance revenues
- ▶ Explore increased opportunities for collecting freshwater through rainwater harvesting which reduces exposure to climate-related risks leading to improved community relationships
- ▶ Leverage first mover advantage by expanding electrification and utilising cost-effective renewable energy resources
- ▶ Achieve low carbon emission through the use of lower-emission sources of energy, supportive policy incentives, and new technologies
- ▶ Increase in demand for decarbonised/low carbon metals like Silver and Zinc providing access to new markets
- ▶ Employ new technologies and resource substitutes for diversification
- ▶ Signed MoU with Aesir Technologies, Inc., under this MoU, we will be the preferred supplier of zinc, a critical raw material for these cutting-edge next generation zinc battery technologies
- ▶ Hindustan Zinc and JNCASR collaborate for new-age Zinc-based battery technologies, this partnership aims to advance research and development of cost-effective & durable sustainable energy storage solutions with next-generation Zinc-based batteries



OUR TRANSITIONING PATHWAY TO A LOW-CARBON ECONOMY

2030	2050
<p>Scope 1 & Scope 2 – Reduction by 50% Scope 3 – Reduction by 25%</p> <ul style="list-style-type: none"> ▶ Include low carbon Zinc product in our portfolio by leveraging increase in renewable energy usage leading to 30% of zinc portfolio as low carbon by FY 2025-26 ▶ Sourcing >50% electricity from renewable energy, which will significantly reduce our freshwater consumption and non-GHG (SOx & NOx) emissions ▶ Implement energy efficiency measures to reduce energy consumption ▶ Achieve 100% electrification of surface fleet ▶ Electrification of 50% of the mining fleet ▶ Drive innovation in product development to achieve recyclability and other emission during the use of final products ▶ Engage rigorously with the supply chain to reduce emissions associated with upstream purchased goods ▶ Deploy electric vehicles & alternate fuel vehicles (LNG) for IUT and finished goods transportation ▶ Increasing reliance on renewable energy will significantly reduce emissions associated with category 3 (Scope 3) ▶ Engage with value chain partners who are committed to achieving Net Zero commitment 	<p>Net Zero GHG emissions</p> <ul style="list-style-type: none"> ▶ Achieve 100% firm 24x7 renewable electricity at all sites ▶ 100% shift towards Electric or Hydrogen-driven vehicles ▶ Use 100% hydrogen as a substitute for Coke (as a reducing agent) ▶ Secondary material in production ▶ Plantation of 5 mn trees (cumulatively) ▶ Offsetting of the remaining GHG emission ▶ Utilise Direct Air Capture (DAC) & CCUS technology to capture residual emissions ▶ MoU with battery manufacturers for Zinc-based batteries

Technology focus areas 2050



Impact of Identified Climate-related issues on HZL's Strategy and Financial Planning

We consider the policy and technology climate-related transition risk as strong drivers impacting our business currently and, in the time, to come. In the current era, policy changes to limit GHG emissions and introducing carbon pricing could potentially have an impact on the metal demand, bringing risks to the revenues with increase in the cost of operations due to the impact of carbon costs. On the contrary, while switching to lower emissions technologies like hydrogen, CCUS, and biofuels would bring positive impact to our business operations, however, these could lead to additional capital and increased operating costs for the Company. If we look through different lenses, physical risks driven on account of the climate changes, the business units could be affected by a shortage of water, and a rise in temperatures, which could affect the health and safety of workers as well as mining operations.

In nutshell, the potential impacts of climate change may also be on assets and liabilities that are measured based on an estimate of future cash flows. The principal ways in which potential climate change impacts have been considered in the preparation of the financial statements, pertain to (a) inclusion of capex in cash flow projections, (b) recoverable amounts of existing assets, (c) review of estimates of useful lives of property, plant and equipment, and (d) assets and liabilities carried at fair value, etc. The following table summarises the financial attributes and the corresponding impacts of the same.



CAPITAL EXPENDITURES

FINANCIAL ATTRIBUTE

- ▶ Investments in Low-Carbon Solutions:
 - We are committed to investing in innovative technologies that reduce carbon emissions
 - Piloting projects focussed on reusing/recycling waste generated in our operations
- ▶ Capital Expenditure for Emission Reduction:
 - There is a significant capital expenditure which is allocated to achieve our greenhouse gas emission reduction targets
 - Increasing the integration of renewable energy sources into our portfolio requires substantial investment
- ▶ Capital Expenditure for Water Management:
 - Employ various mitigation and adaptation practices. These practices include managing water demand and supply, implementing risk management measures, adopting new technologies like ZLD's, and accounting for infrastructure costs

IMPACT

- ▶ Climate change can exacerbate the frequency and severity of extreme weather events, leading to more frequent significant repairs and maintenance of infrastructure
- ▶ At the same time, failing to implement mitigation and adaptation strategies may lead to negative financial consequences. However, the Company is committed to taking positive steps towards its journey of becoming net zero

LIABILITIES

- ▶ As the Company's assessment of the potential impacts of climate change and the transition to a low-carbon economy continues to mature, any future changes in the Company's climate change strategy, changes in environmental laws and regulations and global decarbonisation measures may impact the Company's significant judgements and key estimates and result in changes to financial statements and carrying values of certain assets and liabilities in future reporting periods. However, as of the balance sheet date, the Company believes that there is no material impact on carrying values of its assets or liabilities.

- ▶ The Company's strategy consists of mitigation and adaptation measures and is committed to reducing its carbon footprint by limiting its exposure to coal-based projects and reducing its GHG emissions through high impact initiatives such as investment in Renewable Energy (450 MW Power delivery agreement ('PDA') signed on a group captive basis, fuel switch, electrification of vehicles and mining fleet and energy efficiency opportunities. However, renewable sources might have inherent limitations in supplying regular power/power on timely basis, therefore existing power plants would support transition and fleet replacement is part of normal lifecycle renewal

ADDRESSING RISKS AND HARNESSING OPPORTUNITIES

CLIMATE-RELATED RISK

Risk	Mitigation Strategy
<p>Risk: Water Scarcity</p> <p>Risk Type: Acute Physical II Drought</p> <p>Impact: Increased direct cost</p> <p>Timeframe: Medium-term & Long-term</p>	<p>As per the WRI Aqueduct tool, we identified that all our locations in Rajasthan are in extremely high-water stress areas and high seasonal variability, because of which drought is identified as the top acute physical risk in medium-term and long-term. Since water is a vital component of our mining and smelting operations, its unavailability could potentially cause operational disruptions by raising our direct costs. For instance, non-availability of water due to drought will cause disruption in operations of Captive Power Plant (CPP).</p> <p>To address this risk, we are consistently prioritising the optimisation of water recycling and reuse across all our processes to minimise the requirement for freshwater extraction. Additionally, to replenish our groundwater sources, we are also actively engaged in the development of rainwater harvesting systems. Our company has set a target to become a 5 times Water Positive Company by 2025, aiming to reduce its freshwater consumption by 25% compared to the base year of 2020. Currently, we are operating as a 2.41 times water positive company. Moreover, we have also signed a Power delivery agreement for 450 MW RE-RTC and will start receiving renewable energy in phased manner from May 2024. These efforts together will help us reduce our dependency on freshwater and consequently, reduce our carbon footprints.</p>

Risk	Mitigation Strategy
<p>Risk: Carbon Tax</p> <p>Risk Type: Transitional II Regulatory</p> <p>Impact: Increased cost of production</p> <p>Timeframe: Medium & Long-term</p>	<p>There is an increasing focus on global climate change abatement regulations such as the EU Carbon Border Adjustment Mechanism (CBAM), set to be applicable from 2026. This mechanism proposes a tax of 25%-30% starting in 2026 on steel and aluminium imports from foreign suppliers with high carbon intensive production processes. The EU CBAM will require many EU importers to pay a carbon price on their Scope 3 emissions, which are emissions resulting from the activities of a different business. The export of Indian steel to Europe could be significantly impacted by this regulation. Since zinc is a key product in steel manufacturing (used for galvanisation), the demand for zinc may be directly affected. This could lead to an increase in cost per unit and therefore, less premium and cash inflows for zinc. Therefore, it would ultimately impact the zinc revenue and EBITDA from zinc exports to the EU. Considering that zinc is a carbon-intensive industry, there is a possibility that these tax mechanisms could be extended to zinc in the long-term.</p> <p>Transitioning towards renewable energy in our operations and producing low carbon products like EcoZen will help HZL mitigate carbon tax in the future.</p> <p>Hindustan Zinc has implemented an internal carbon pricing mechanism that applies to all units, aiming to bring about organisational change by influencing internal behaviour, and driving decarbonisation across operations. The internal carbon price for FY 2023-24 is US\$ 15/TCO₂e. As a part of our emissions reduction initiative, our Pantnagar metal plant has begun sourcing 100% green power for its operations, resulting in an abatement of over 30,000 TCO₂e.</p> <p>We are also collaborating with our value chain partners to reduce their carbon footprint. They have introduced electric forklifts and tow trucks in our smelting operations, thereby reducing Scope 1 emissions.</p> <p>These initiatives along with the 450 MW RE-RTC, will help us achieve our short-term target of a 50% reduction in Scope 1 emissions by 2030.</p>

Risk: Coal Availability & Cost	Risk	Mitigation Strategy
<p>Risk Type: Transitional II Supply chain disruption</p> <p>Impact: Increased cost of production</p> <p>Timeframe: Short & Medium-term</p>	<p>Hindustan Zinc has 6 Captive Power Plants that generate electricity for its operational needs and relies on coal for the same. A mismatch in coal demand and supply will directly impact on production and revenue generation. IEA scenarios of APS & NZE show a significant decline in global coal supplies as well as a decline in unabated fossil fuel use for energy. Additionally geopolitical situations such as the Russia-Ukraine war can directly impact the cost and availability of coal.</p>	<p>Keeping this in mind, we have already started increasing our dependency on renewable energy by signing a PDA for 450 MW RE-RTC. This will not only meet more than 50% of our electricity needs by 2026 but also help reduce our carbon footprint by 2.7 mn TCO₂e.</p>

CLIMATE-RELATED OPPORTUNITY

Opportunity Type	Impact	Timeframe
Resource Efficiency	Reduced direct cost	Short, medium and long-term

Opportunity
<p>Resource efficiency: Our commitment to delivering positive outcomes for nature drives us to continuously review and update our approach. As our manufacturing operations are energy and water intensive, we believe that sustainable business practices will create opportunities for enhancing resource efficiency and minimising negative environmental impacts.</p> <p>Low-emission sources of energy: As a part of net-zero ambition, Hindustan Zinc has committed to increasing its reliance on lower emission energy sources. This will also help us comply with current regulations such as the Renewable Purchase Obligation (RPO). In future, we anticipate these obligations to increase, further, with schemes like Perform, Achieve, Trade (PAT), Carbon Markets and the Energy Conservation Act being implemented. We have deployed 41 LNG vehicles in FY 2023-24, these LNG vehicles cumulatively helped us abate 47.38 TCO₂e GHG emissions in our IUT movement (between December & March). This emission abatement will only increase with the increase in number of LNG vehicles.</p>

Actions taken to realise Opportunity
<p>Initiatives such as improving cell house rating, installing no-load sensors on conveyors and implementing other energy-saving measures across Hindustan Zinc have resulted in cumulative energy savings of 783,201 GJ in FY 2023-24.</p> <p>Our approach to water management includes, increasing water efficiency, and exploring new technologies such as installing ZLD across at our operational sites, enhancing water recycling across operations and implementing rainwater harvesting through localised watersheds.</p> <p>We have enhanced Zero Liquid Discharge (ZLD) plants at all our smelting locations, to guide our water stewardship efforts. The commissioned and upcoming ZLD plants will contribute to freshwater saving of 19,500 KLD by FY 2024-25, with an additional ZLD plant planned for the Rampura Agucha mines.</p> <p>We also collaborate with our communities to improve water security through initiatives like watershed management.</p> <p>Approximately, 90% of our energy needs rely on electricity, making it a central component of our decarbonisation strategy. In line with HZL's commitment to renewable energy, we have already signed a Power Delivery Agreement (PDA) for supply of 450 MW of Renewable Energy Round the Clock (RE-RTC) power under a group captive scheme. This initiative will replace our need for thermal power, decreasing our reliance on coal and lowering our direct operating expenses.</p>

OPPORTUNITY: METAL DEMAND

Opportunity Type	Impact	Timeframe
Market demand	Increased demand of Zinc, Lead and Silver	Medium-term & Long-term

In accordance with India's NDC goal to achieve approximately 50% cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030, we believe that our products will be at the forefront.

Zinc is not only present in solar cells themselves, but it is also used as a protectant against corrosion in solar panel structures. For wind power, zinc is essential for the structure of wind turbines, specifically for steel galvanising. The life cycle of solar and wind energy is 25 to 30 years, making galvanisation of structures necessary to sustain them and ultimately increasing costs. As per

IEA, solar PV and wind offshore generation to see a rise in all scenarios.

With this growing demand, we have opportunities to expand our zinc business through organic growth. As the demand for renewable power increases, so will the demand for zinc. Our expansion and capacity increase plans along with our business targets, are well established to meet this growing demand. To address this rising demand, we introduced Asia's 1st low carbon Zinc EcoZen, with a carbon footprint of less than 1 tonne of carbon equivalent per tonne of zinc produced, which is 75% lower than global industry average.

IMPACT DUE TO PHYSICAL & TRANSITIONAL RISK

Impact Area	Cost occurred in FY 2023-24 (₹)	Mitigation Measures	Impact
Capital Expenditure	4,637,300,000	Zero Liquid Discharge, renewable energy, and other positive environmental-related expenses	Lower freshwater usage, greater reliance on renewable energy, and other positive environmental-related impacts.

INTERNAL CARBON PRICING

Hindustan Zinc has implemented an internal carbon pricing mechanism that applies to all units. This initiative aims to drive organisational change by influencing internal behaviour and promoting energy efficiency. Carbon pricing has been integrated into all our capital expenditures. This internal carbon pricing strategy is key in implementing energy conservation and efficiency projects in our operations. It also helps in decision-making for a low carbon transition, directs investments towards adding renewable energy sources to our portfolio, mitigates carbon compliance risks, and assists in meeting SBTi targets for emission reduction.

We are utilising a shadow carbon pricing of US\$ 15/TCO₂e to evaluate procurement decisions. This method adds a notional surcharge to the procurement cost based on the level of carbon emissions. This approach supports procurement decisions that prioritise emissions efficiency

over price competitiveness. Our use of internal carbon pricing aligns with our sustainability goals. By 2025, our company aims to reduce both Scope 1 and Scope 2 emissions. Setting a price on carbon allows teams to analyse project profitability in various scenarios, enabling better decision-making to future-proof our business. It also encourages innovative ideas on how to allocate capital effectively to generate higher returns in a low-carbon economy.

It is important to note that we have not revised our ICP from FY 2022-23. This decision was made due to the introduction of a 450 MW RE-RTC, which resulted in the calculated ICP falling below US\$ 5/TCO₂e. This adjustment will reduce the impact of carbon emissions associated with our upcoming projects and eliminate the need for a revised ICP. Hence, we are continuing with a shadow price of US\$ 15/TCO₂e (₹ 1241.77/ TCO₂e).

MARGINAL ABATEMENT COST CURVE (MACC)

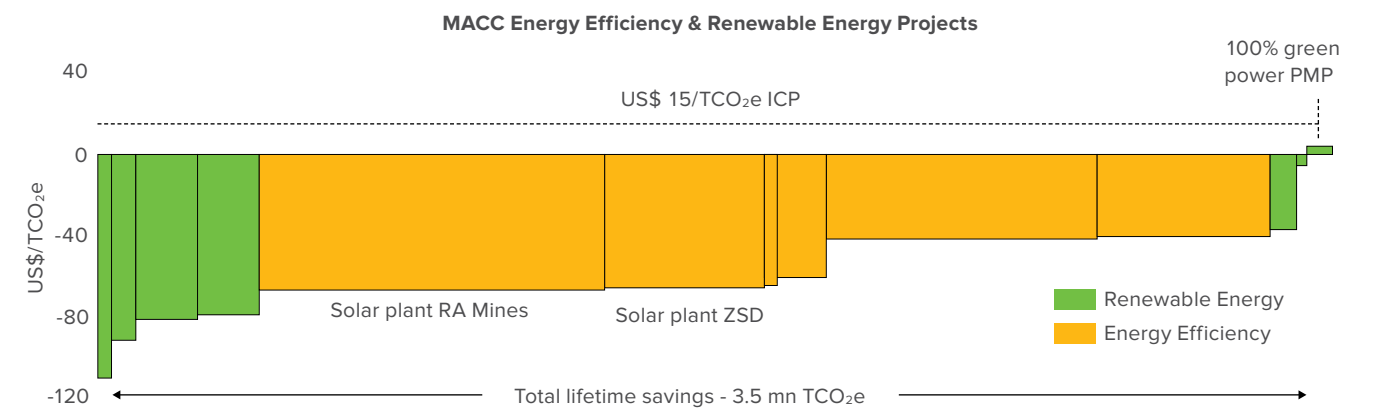
Our MACC enables an assessment abatement opportunity, which is driven by Energy and Carbon committees as part of energy-saving projects. The projects are identified based on their resource optimisation potential including energy efficiency and renewable energy projects. The viability of the project depends on the financial savings from the reduction in the use of electricity, diesel and other fuels, which helps reduce our emission footprints.

The MACC includes energy efficiency projects identified at Hindustan Zinc Limited providing savings throughout

the year for last 2 financial years. RE projects have been considered for their entire project life.

Most of our projects have a positive NPV. For example, installing a no-load sensor in one of our mines in FY 2022-23, saved over 32,000 TCO₂e in a year with a negative cost of abatement, i.e., a positive NPV. Many positive NPV projects are zero operational cost projects such as process optimisation projects to increase the energy efficiency of systems.

These projects demonstrate the immense potential to reduce our environmental footprint.



Notes:

- ▶ Includes Scope 1 and 2 emissions only on a CO₂e basis; Scope 3 emissions excluded
- ▶ Assumes a US\$ 0/t carbon tax for analysis purposes
- ▶ The MACC does not include cost or abatement related to 450 MW RE-RTC project
- ▶ Cost data for energy efficiency projects is sourced from respective project owners & site teams. This information is conceptual and will be advanced over time



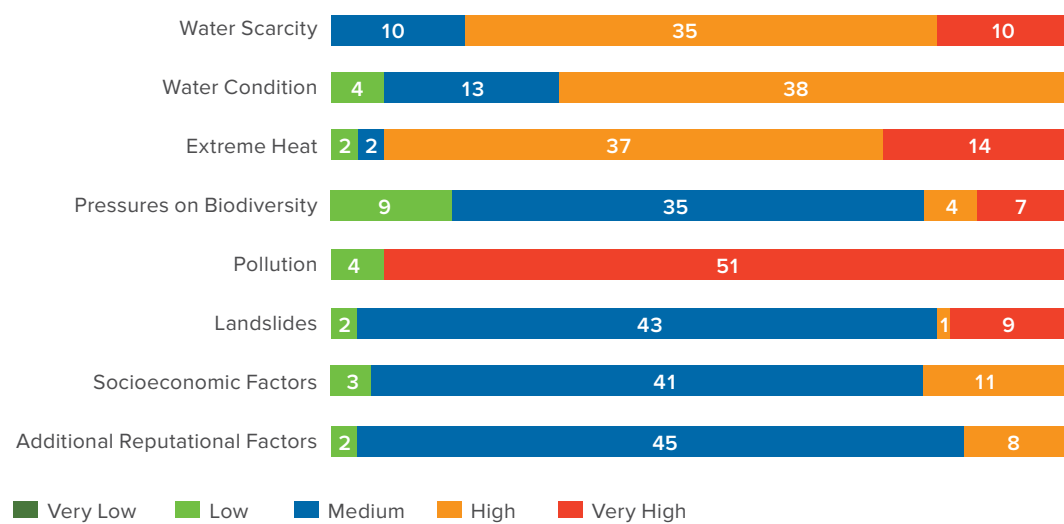
Value Chain Risk Assessment

SUPPLIER RISK ASSESSMENT

Hindustan Zinc, being a responsible producer has assessed the risks associated with several commodities such as lime, soda ash, cement, chemicals etc. 55 Suppliers associated with the most relevant materials that are consumed in the production processes of our industrial assets to create intermediate products were assessed.

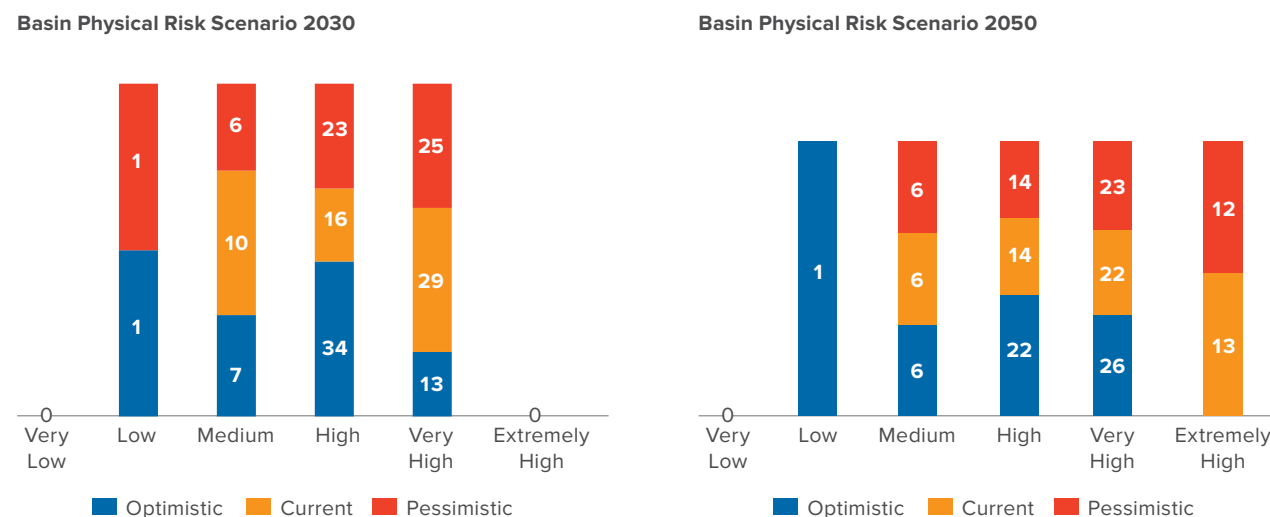
HZL used the WWF's Biodiversity risk filter to identify climate-related impact and dependencies of our suppliers. Using the said filter, we were able to sort the suppliers based in terms of different risk factors on overall very high-risk, high-risk, medium-risk, low-risk and very low-risk.

Number of Supplier Sites Under Different Risk Level



We performed WWF's water risk filter-based scenario analysis for 2030 & 2050 and analysed the basin physical risk of our supplier sites using WWF's water risk filter and obtained the following results based on Optimistic (SSP 1), Current (SSP 2) and SSP 5 (Pessimistic),

Supplier Site Scenario Analysis



Going ahead, the above scenario analysis will play a pivotal role in identifying risks associated with our suppliers

SUSTAINABILITY THROUGH SUPPLIER COLLABORATION

We are currently in the process of evaluating the impact of the identified climate-related risk and opportunities of our supply chain. Having a diverse set of operations, we are working towards creating a synergy with our value chain partners on decarbonisation. We are focussing on making upstream supply chain sustainable by:

- ▶ Creating awareness and assessing ESG-related performance of suppliers (Climate/Water/Biodiversity)
- ▶ Assessing whether Sustainable Supply Chain initiatives are in line with HZL's Sustainability goal of Sustainable Sourcing
- ▶ Identifying areas of collaboration like circular economy

As a part of our collaborative activities, we explored circular economy related opportunities with our suppliers wherein we supplied them with Slag and Jarosite as a substitute for the replacement / part replacement of existing material i.e., Red Ocher and Mineral Gypsum, which in turn allowed them to reduce GHG emissions and enhance resource efficiency. For example, Replacement of 1.0% mineral gypsum by Jarosite will reduce raw material consumption and GHG emissions associated with importing gypsum and promote circular economy. As reported by one of our suppliers' utilisations of slag and jarosite from Hindustan Zinc as a

substitute to red ocher & mineral gypsum respectively helped reduce transportation-related GHG emissions by 1171 TCO₂e annually. This collaboration helped HZL to reduce its waste to landfill.

In FY 2023-24, we connected with our suppliers by a special programme "Wednesdays for Transition", which was a series of online ESG awareness sessions with our suppliers in which we discussed topics such as Climate change, Biodiversity & Human rights etc. This programme itself helped us cover 39% of our total suppliers.

As a starting step, we connect with our suppliers and motivate them to take proactive steps on climate change front. We plan to sign MoU with our suppliers, to support the continued development of a responsible supply chain through enhancing traceability and material origin verification by exchanging pertinent ESG data (i.e., ESG goals & targets, Scope 1 & 2 GHG emission, water, biodiversity and human rights etc.).

Comprehensive strategy and tools developed for product-level life cycle assessment of our critical machines & commodities aimed at significant reduction in our Scope 3 emissions.

We strive to work with all our suppliers for them to set climate-related targets in the public domain.

Suppliers with targets in public domain



Apart from supplier assessment & due diligence, we ask our select critical suppliers to provide us with their ESG goals, vis-à-vis Climate Change, Water Stewardship, Circular Economy, Biodiversity, Diversity in Workforce, 23 critical suppliers (~22% of our total production & infrastructure commodity suppliers by value) participated in this programme which included material suppliers. Going ahead, we shall further connect with these suppliers to check on their progress and align their goals with Hindustan Zinc's. Going ahead, we will also plan to recognise our suppliers based on ESG parameters.

Some actions taken by our suppliers:

- ▶ Achieving Water positivity
- ▶ Increase in renewable energy in power mix
- ▶ Using secondary raw materials
- ▶ Environment Fund for activities and research linked to the conservation and use of ecoservices
- ▶ Sustainable Sourcing
- ▶ Use recycled/sewage treated water

CUSTOMER RISK ASSESSMENT

In FY 2023-24, we used WWF’s Biodiversity risk filter to assess some of our key customers for their climate change dependencies and impacts. We identified that 9 of our key customers had Climate-related targets in the public domain. We have had consultations with our customers on how they plan to reduce their GHG emissions and what support we can provide, EcoZen being one such product to help our customers to reduce their Scope 3 emissions. For example, following the requests from customers in the galvanising industry for a product with a lower carbon footprint, we identified CGG zinc alloy as a suitable solution. This allowed us to take advantage of the opportunity

while also reducing our and our customers’ climate impact and mitigating market demand risk. CGG can be used directly by customers without the need for conversion into an alloy, resulting in resource savings of up to 5-10% in terms of water, energy, and cost, as well as improved bath management during galvanising. In FY 2023-24, Value-added product (VAP) portfolio saw an increase from 15% to 20%.

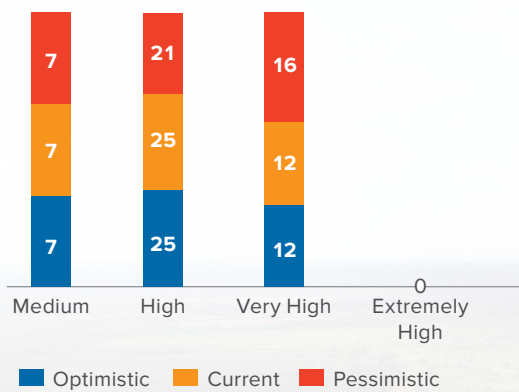
We analysed our key customers basis the available list of sites where our products are supplied, and following could be inferred,

	Water Scarcity	Landslides	Extreme Heat	Cyclones	Pollution
Customer Sites	High – Very High	Medium	High – Very High	Medium – High	Very High

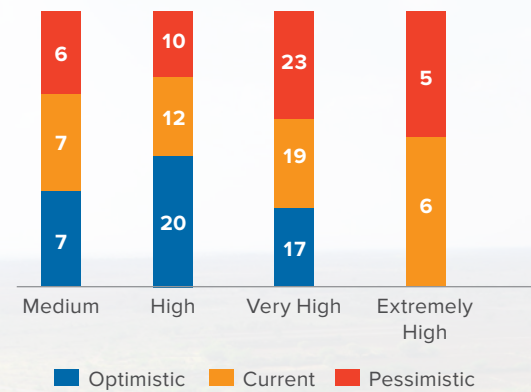
We performed WWF’s water risk filter-based scenario analysis for 2030 & 2050 and analysed the basin physical risk of our select key customers sites (44) only using WWF’s water risk filter and obtained the following results:

Customer Site Scenario Analysis

Basin Physical Risk Scenario 2030



Basin Physical Risk Scenario 2050



The following table is the basis of the risks and mitigation being reported by some of our customers in public domain.

	RISK	MITIGATION
PHYSICAL RISK	Operational Disruption due to extreme climate events	Use of sewage treated water and water recycling at operational units to reduce dependency on fresh water
	<ul style="list-style-type: none"> Increased temperature Water stress Floods Cyclones Landslides 	<ul style="list-style-type: none"> Augment structural design to avoid damage during extreme weather events like high wind speed or cyclones
TRANSITIONAL RISK	Climate change related regulations	Increased in consumption of renewable energy
	Customer expectations of green products	Increase in secondary material consumption
	Increased in cost of technology for greener energy	Sustainable sourcing
	Cost of Carbon border taxes	Ensuring zero effluent discharge
		Long-term capital expenditure plans aimed at reducing carbon emissions
		Developing Low carbon products
		Offsetting through carbon sequestration
		Our customers of lead utilise up to 80% of recycled lead

In FY 2023-24, we interacted with our key customers and shall continue this exercise to align their and our ESG goals in the future.

EcoZen: Low Carbon Zinc

Hindustan Zinc believes in creating value for all its stakeholders while creating a sustainable future and business growth. We believe in providing our customers the best and in-line with the same, we plan of providing low carbon zinc to our customers, which will truly create a low carbon value chain. Earlier in 2022, HZL published its 1st Environmental Product Declaration (EPD) for the Zinc product to communicate transparent and comparable information about the life-cycle environmental impact of our Zinc products. To know more, [please click EPD](#).

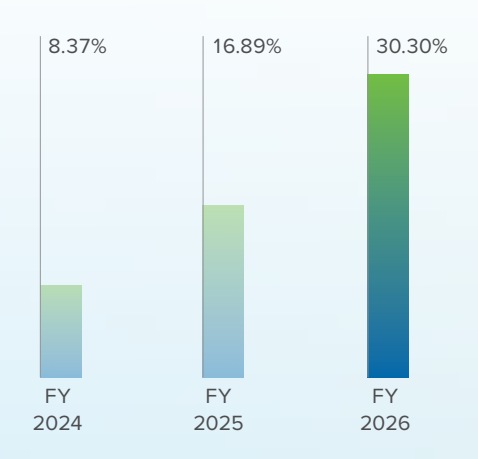
Low-carbon transition is the core of our business strategy and is further helping us in setting a clear pathway to deliver long-term value as well as ambitious targets to decarbonise our business. This product will allow our customers to access low carbon Zinc & essentially reduce their Scope 3 upstream emissions. We have recently started receiving the first flow of round-the-clock renewable energy

as part of its 450 MW power delivery agreement. This is in addition to its existing 40.7 MW of captive solar power and 48.46 MW of WHRB.

We undertook Product Carbon Footprint of Average Low Carbon SHGZ product based on mass balance approach as per ISO 14067 Standards along with Third Party Verification by an Independent International reviewer. As per the latest verification carried out for Low carbon Zinc, the total emissions associated with our zinc produced is 5.882 TCO₂e/ tonne of Zinc & emissions associated with low carbon Zinc is 0.939 TCO₂e/Tonne of Zn, which is less than 1 tonne.

Production projection of Average Low Carbon Special High Grade Zinc Product is calculated based on mass balance approach of renewable electricity and total electricity consumption mix. The graph depicts the percentage of low carbon zinc over the years.

% of Low Carbon Zinc EcoZen



Features of EcoZen

- ▶ Groundbreaking Certification: Asia's First-Ever Low-Carbon Special High-Grade Zinc
- ▶ Exceptional Carbon Footprint: Less than 1 tonne of carbon equivalent per tonne of zinc produced which is 75% lesser than global industry average
- ▶ Our eco-friendly zinc is being manufactured using renewable energy
- ▶ Global Recognition - Certified through a comprehensive Life Cycle Assessment (LCA), cradle to gate approach by a renowned global sustainability firm
- ▶ Eco-Friendly Advantage - For customers looking to decarbonise their own and their customers' value chains

While it can help our customers to navigate the existing and upcoming carbon regulations arising due to their Scope 3 emissions and also provide them with a competitive edge in the market, it will also enhance their brand reputation as responsible and forward-thinking, appealing to environmentally conscious consumers.

EcoZen demonstrates Hindustan Zinc's commitment to decarbonise its operations as well as provide its customers with an unmatched competitive advantage to in turn serve their customers with more sustainable choices.



Risk Management

HZL leverages Enterprise Risk Management (ERM) framework, which serves as a robust mechanism to identify, assess, monitor, and respond to climate-related risks. Our ERM framework is based on Vedanta's Risk Management Standard, is in line with the requirements of Companies Act, 2013, SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015, and is in accordance with the leading standards and guidelines which includes ISO 31000:2018 – Risk Management, Committee of Sponsoring Organisations (COSO): Enterprise Risk Management – Integrating with Strategy and Performance (2017) and various regulations applicable in India that delineates process of risk assessment, compilation of risk registers and associated action plans, mapping of events and its mitigation. HZL's risk management system is certified as per ISO 31000:2018 risk management framework.

RISK IDENTIFICATION

Risk identification involves recognising and listing plausible uncertainties or risks that may impact the successful achievement of our functional, organisational and business objectives, or threaten our business continuity.

We, at HZL, employ a multiple-stakeholder approach to ensure effective risk identification. Our employees are encouraged to actively participate in the risk management process, facilitating early identification and understanding of risks including internal, external and emerging risk. HZL also hold discussions, periodic surveys and risk assessments with key stakeholders, such as customers and suppliers to gain important insights into the risks they face, which may eventually translate into risks for the Company. Additionally, the Company have engaged business partners which help it to capture relevant risks and opportunities through global risk sensing report for benchmarking best practices across our peers. We further use our understanding of regulatory and legal requirements to anticipate potential risks and the events that typically precede their emergence.

RISK ANALYSIS, EVALUATION AND PRIORITISATION

We consider multiple factors in our risk analysis or assessment. These include understanding the causes, their positive and negative impacts, the likelihood of occurrence

and the potential impact and velocity, or the time taken for impact since the occurrence of the risk. A risk score is calculated by rating the impact, likelihood and velocity on a 5-point scale. Introduction of third dimension in risk analysis and evaluation criteria helps our management prioritise risks based on the risk score and deploy necessary response strategies for their effective management. Climate risk is integrated as a key risk in our ERM framework and financial planning. We follow the '5*5' Risk Matrix for the purpose of risk assessment. The risk score for each of the risks is calculated by rating its impact, likelihood and velocity on a 5-point scale. Based on the risk score, the management prioritised the risks and deploy necessary response strategies for their effective management.

We have clearly defined our risk appetite and tolerance limits to objectively evaluate our risk-taking ability, facilitating assessment and measurement of the identified risks. The risk appetite, determined by the Board, outlining the risks the Company is willing to take to pursue its business strategy. Risk tolerance puts risk appetite into practice, using quantitative metrics. The impact of any risk is assessed on a 5-point scale. A risk impact of >10% on projected EBITDA (breach of risk tolerance) corresponds to the maximum risk impact score of 'Very High' or '5'.

HZL defines substantive financial or strategic impact on its business, when any of the following triggering (4 point on a

scale of 5,) is observed, anything beyond the below points will be of level 5:

- ▶ Reduction of targeted EBIDTA by >7.5% & <=10%
- ▶ Reduction of targeted production volume by >7.5% and <=10%
- ▶ Major pollutants released into the environment around the local area (reversible yet long-term impact) with possibility of prosecution, litigations and financial damage and fines/penalties imposed
- ▶ Serious impairment of ecosystem; recovery takes between 1 month and 3 months
- ▶ Category IV/V environmental incidents such as:
 - Breach of ash dyke/waste disposal site without immediate impact to communities/water bodies
 - Unauthorised hazardous waste disposal on land (unlined) outside the plant boundary/to unauthorised agencies
 - Continuous emissions beyond norms but no immediate impact on health of communities
- ▶ Material loss in brand value and perception and major loss of customer confidence
- ▶ Critical and hostile coverage by the national media which persists for a period of <3 days
- ▶ Decline in stock prices of <15% over a sustained period of 2 weeks due to negative media coverage/publicity
- ▶ Reduction of targeted IRR by > 15% and <=20%
- ▶ Substantial increase from budgeted costs i.e., >10 and <= 20% of Project Value
- ▶ Project delay: >9 and <= 12 Months

CONTINUOUS MONITORING AND REVIEW

The ever-evolving and changing nature of risks, their impact, and likelihood necessitates continuous monitoring and review of risks. It is therefore important for us to keep track of the external environment and internal controls as well as our business strategy to better comprehend the risk dynamics. Taking this into consideration, we have defined review forums and cycles for monitoring the risk exposure. We track the risks quarterly, ensuring agility in responding to any change in circumstances. It equips us to promptly implement the necessary controls and actions in time to mitigate them. Also, we have defined Key risk indicators for principal risks of HZL which acts as leading and lagging indicators for risk monitoring and helps management to monitor risk activities closely.

RISK GOVERNANCE AND OVERSIGHT

The Board of Directors are responsible for oversight on Risk Management for the entire organisation. They are also responsible for approving policies that address high-risk areas. The Audit and Risk Management Committee is responsible for the quarterly review of risk management practices and shall apprise the Board on risk management in the organisation.

RISK INFRASTRUCTURE AND MANAGEMENT

The Management Committee (MANCOM) of the Company includes risk management matters in its agenda on a quarterly basis.

The Chief Risk Officer (CRO) acts as the coordinator to collate and present risk management matters to the MANCOM on a quarterly basis and presents key enterprise risks reviewed by the MANCOM to the Audit and Risk Management Committee on a semi-annual basis.

RISK OWNERSHIP

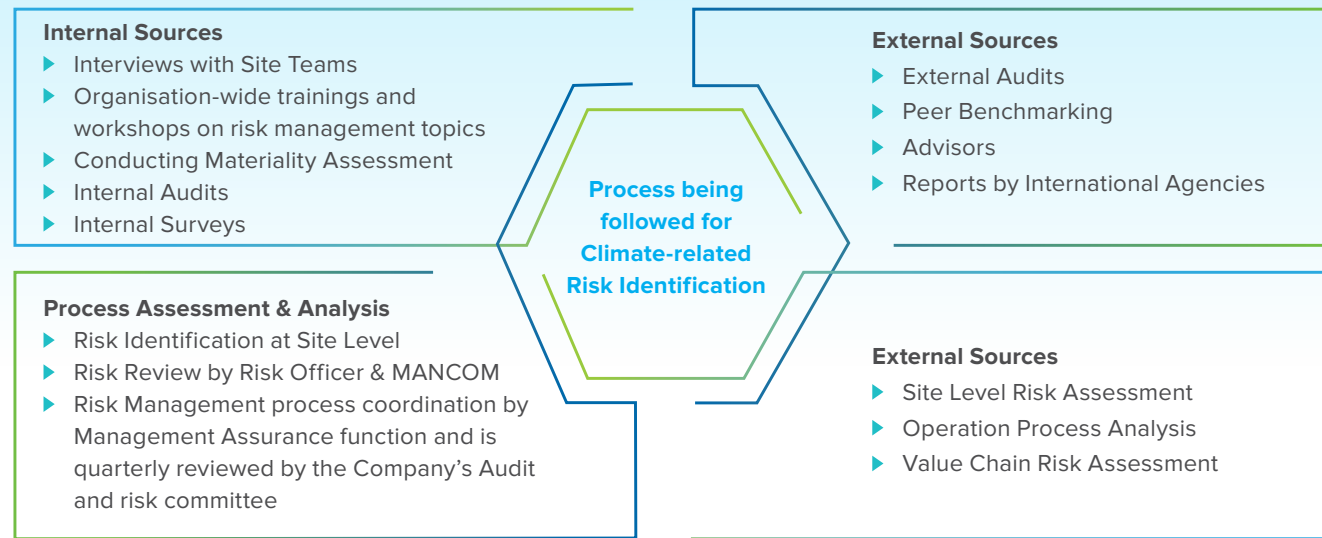
- ▶ Each unit of HZL has a Unit Risk Officer who is responsible for overseeing the reporting of risks to the Central Risk Team and for convening the Unit Risk Councils on quarterly basis to review unit level risks and responses
- ▶ Further, the Unit Risk Officers are also responsible for monitoring risks and response plans reported by the risk owners and response owners of the respective Unit functions

CLIMATE-RELATED RISK IDENTIFICATION

We conduct materiality assessment to identify topics of significance for our internal and external stakeholders, guiding our strategies for managing the risks and harnessing the opportunities. This robust process strengthens our sustainability approach by facilitating the identification and understanding of the most material ESG priorities. Climate change & decarbonisation, health and safety, water management and people development have been identified as the top material topics for Hindustan Zinc.

In order to identify and classify the existing and emerging climate-related risks and opportunities with respect to both Physical and Transition risks scenarios, HZL uses a formal monitoring process that operates both at the corporate and unit levels. An essential tool for enhancing our comprehension of the causes and effects of climate change on the natural and socioeconomic systems in which we live and work, as well as how these effects may influence our company's operations, is the climate change risk assessment. It also helps in identifying risks and opportunities from an interconnectedness standpoint, considering the interdependencies between water, energy, and climate change.





A wide range of relevant transition and physical risks were also taken into account in this process, including changes in the price of carbon, laws pertaining to energy efficiency and water management, renewable energy, insurance premium changes, obsolescence of technology, changes in the supply and demand for zinc, lead, and silver, shifts in public and community perceptions, drought, intense rainfall, and lightning etc.

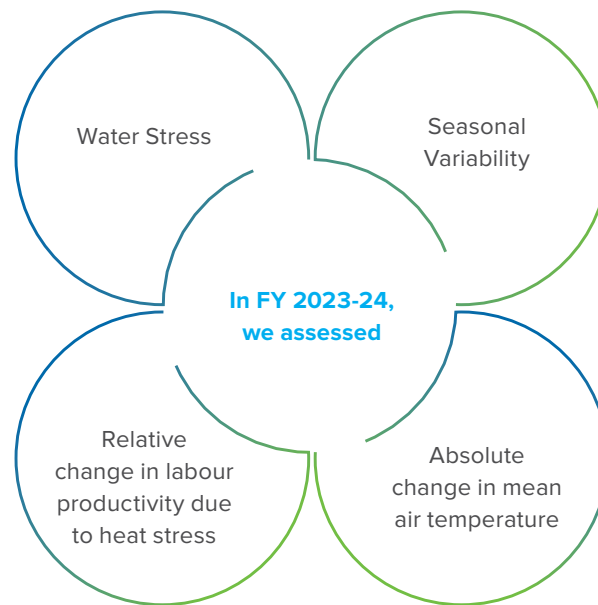
In order to establish adequate accountability with decision-makers, we inform the Board of Directors as well as MANCOM of substantial risks. Further, to ensure that we prepare for and communicate impending and/or possible regulations throughout the organisation, we have assigned corporate and site levels staff with the task of identifying and overseeing any forthcoming changes to climate regulations.

In addition to a continuous risk assessment process, HZL has also conducted specific risk studies to identify the impact of climate change on its business.

A. Physical Risk Assessment: HZL has conducted climate risk assessment for two time periods (2030 & 2050) which includes short, medium and long-terms using following four RCP scenarios namely,

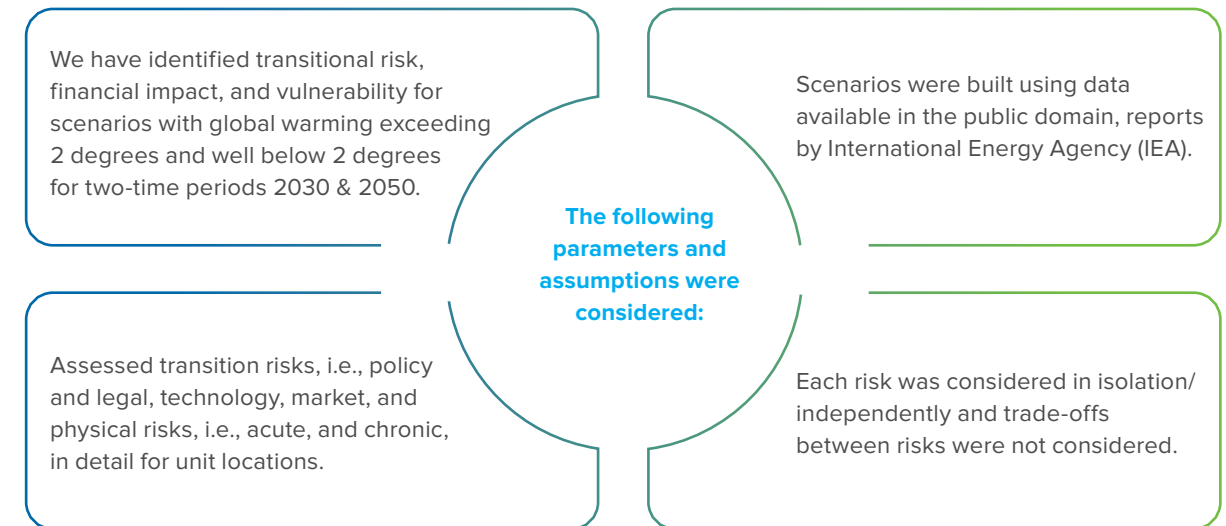
- ▶ IPCC Emission Scenario 1: RCP 2.6
- ▶ IPCC Emission Scenario 2: RCP 4.5
- ▶ IPCC Emission Scenario 3: RCP 6.0
- ▶ IPCC Emission Scenario 4: RCP 8.5

We used ThinkHazard tool of World Bank to identify the potential risk and Network for greening financial systems (NGFS) tool to identify magnitude of potential impact (such as impact on labour productivity, infrastructure). Water Scarcity & Extreme Heat were identified as high risks while cyclone and floods were identified as low to medium risks. Above analysis helped us to infer the potential impacts on raw material supply, operational disruption including impact on infrastructure, market disruption & impact on the workforce.



B. Transition Risk Assessment: Recognising the uncertainties, we used scenario analysis to assess the impact from energy transition in the short, medium and long-term, resulting from changes in policy, technology, markets, and impact on reputation. This process considered a wide range of pertinent factors, such as changes in carbon pricing, energy efficiency, and water management regulations, renewable energy law,

insurance premium changes, technology obsolescence or financial viability, changes in the supply and demand for zinc, Lead & Silver, shifts in public perception, and community perceptions. For transitional risks IEA scenarios - Stated Policies Scenario (STEPS), Announced Pledges Scenarios (APS) & Net Zero Emission (NZE) were used.



Integrating Climate Change into Enterprise Risk Management Systems

HZL will adapt the measures laid out by parent company Vedanta for strengthening the risk management system by integrating climate-related issues.

Short-Term	Medium-Term	Long-Term
<ul style="list-style-type: none"> ▶ Adapt existing enterprise level and other risk management processes to take account of loss and damages incurred/ projected from extreme physical risks ▶ Plan to use the same quality assurance and compliance approaches for climate-related information as for finance, management, and governance disclosures ▶ Embed Internal Carbon Pricing into the business decision-making process 	<ul style="list-style-type: none"> ▶ Develop site-level adaptation plans based on identified climate risks ▶ Engage with external key stakeholders (along the supply chain) to manage risks ▶ Identify/validate business critical suppliers of goods and services who are exposed to high physical and transition risks ▶ Assess and quantify the impact of the loss of the critical suppliers in the event of climate disasters, or in case of low carbon transitions 	<ul style="list-style-type: none"> ▶ Consider insurance or additional climate fund (enhanced ICP) for emergency purpose ▶ Install measures to reduce exposure to physical climate risks identified

Metrics & Targets

GHG EMISSION

Monthly performance review is undertaken to keep track of energy efficiency initiatives and GHG emissions generated, this helps to plan and implement emission reduction measures.

Hindustan Zinc has SBTi approved target of 50% reduction in Scope 1 & Scope 2 GHG emissions, 25% reduction in Scope 3 GHG emissions by 2030* and achieving Net Zero by 2050** from base year 2020.

*The target boundary includes land-related emissions and removals from bioenergy feedstocks.

**Hindustan Zinc Limited is a subsidiary of Vedanta. Vedanta is currently excluded from joining the SBTi due to the temporary policy surrounding fossil fuel companies; however, as Hindustan Zinc Limited meets category 2.4 of the temporary policy, science-based targets have been approved.

NET ZERO BY 2050

HZL has committed to Business Ambition for 1.5°C campaign of the Science Based Targets initiative (SBTi), a landmark decision taken under the oversight of the Board to align company's climate mitigation targets with the most ambitious Paris Agreement - reaching net-zero emissions by 2050 at the latest to limit global warming to 1.5°C.

Major contributor (~90%) of our GHG emissions is from electricity generated at our captive thermal plants and procured from state grid. Our commitment towards transitioning to renewable energy, evident from Power Delivery Agreement of 450 MW Renewable Energy Round the Clock (RE-RTC) which will help reduce our dependency on electricity from non-renewable sources.

SOLAR POWER
40.70 MW
Capacity

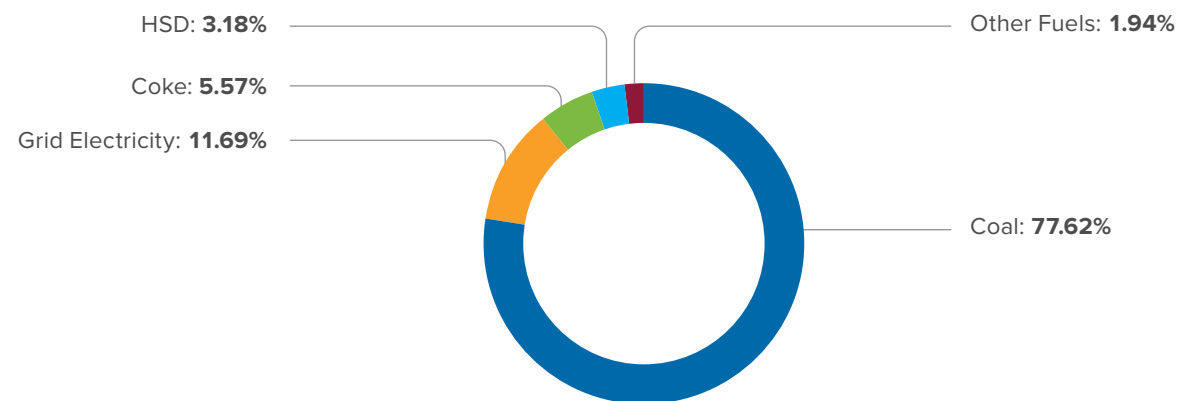
WIND POWER
273.50 MW
Capacity

CAPTIVE THERMAL POWER
514.00 MW
Capacity

WASTE HEAT RECOVERY BOILER
48.46 MW
Capacity



Source-wise emission distribution



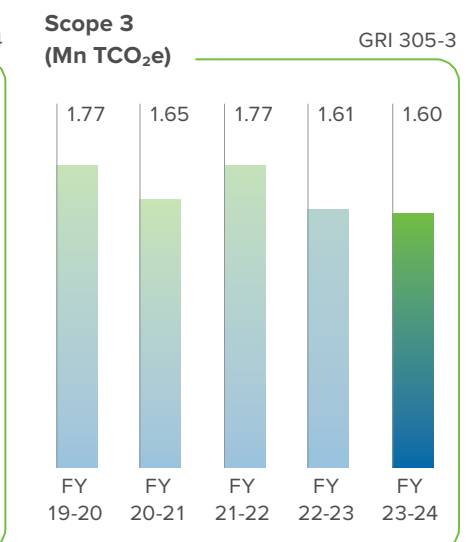
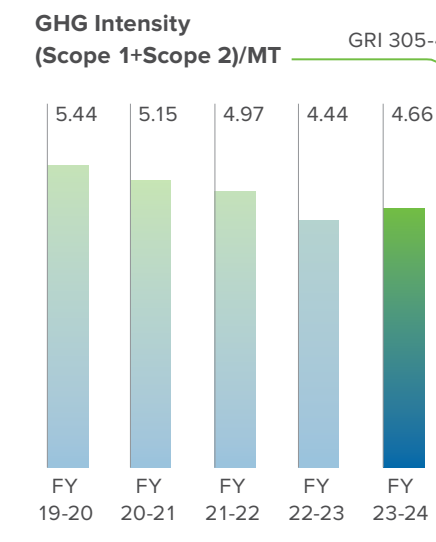
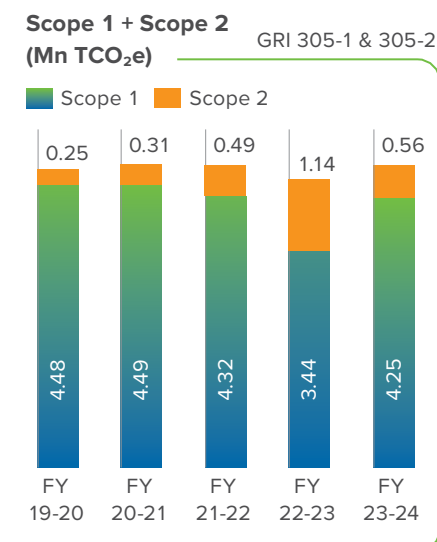
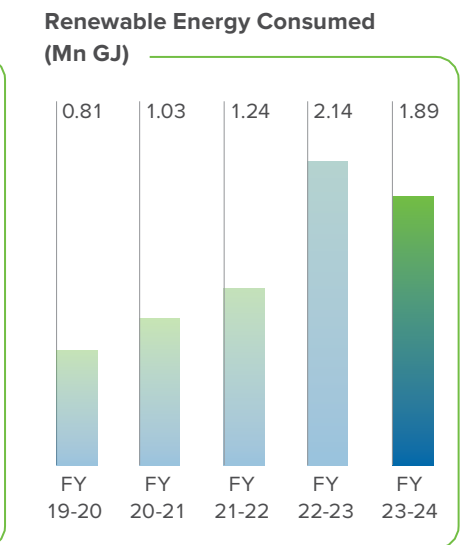
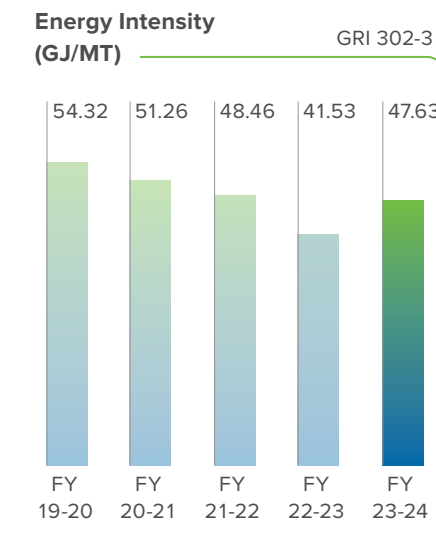
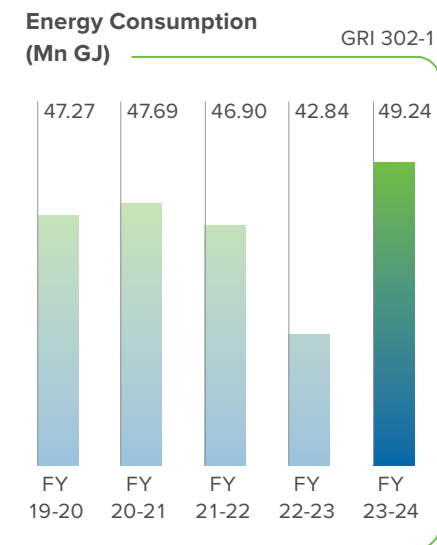
GHG emissions are calculated & reported in accordance with Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition).

During the year, total energy consumption was 49.24 mn GJ, this is on account of higher reliance on CPPs during FY 2023-24 owing to the softened coal prices. However, the energy intensity is 12.32% lower than FY 2019-20. Our energy consumption from coal will see a decline basis our increased consumption of renewable energy from our

power delivery agreement of 450 MW RE-RTC, which will provide ~50% of our power consumption & help reduce 2.7 mn TCO₂e emissions by 2026. However, we have started receiving RE power from 180 MW Solar in Bikaner, completed a year ahead of the schedule.

50 energy efficiency projects were undertaken in FY 2023-24 and have contributed to energy savings of 783,201 GJ & GHG emission reduction by 232,793 TCO₂e (GRI 302-4 and 305-5). These projects have led to saving of ₹ 132 crore.

METRICS



Scope 3 saw a decline of ~ 1% owing to more domestic coal being used. However, we are committed to reducing our Scope 3 emissions by 25% by 2030 in line with our SBTi commitments.

Scope 3 (TCO ₂ e)	FY 2022-23	FY 2023-24
Category 1 Purchased Goods & Services	369,654	432,386
Category 2 Capital Goods	22,454	2,425
Category 3 Fuel & Energy Related Activities	916,109	844,295
Category 4 Upstream Transportation & Distribution	9,899	14,196
Category 5 Waste Generated In Operations	8,175	9,631
Category 6 Business Travel	630	205
Category 7 Employee Commuting	1,252	1,237
Category 8 Upstream Leased Assets	0	0
Category 9 Downstream Transportation & Distribution	46,553	42,679
Category 10 Processing of Sold Products	222,527	236,071
Category 12 End-of-life Treatment of Sold Products	15,875	16,830
Total	1,613,128	1,599,955

The Scope 3 emissions have been reinstated post SBTi validation and basis [Scope 3 methodology](#) developed in line with International Zinc Association’s (IZA) [Scope 3 Emissions Accounting and Reporting Guidance ZINC](#) for the value chain. However, going ahead as emission factors evolve we may revise our data further.

Though our absolute Scope 1 & Scope 2 emissions have increased on account of higher reliance on CPPs during FY 2023-24, however, the GHG emission intensity has decreased by 14.34% from FY 2019-20. We will see a further decrease in our absolute Scope 1 & Scope 2 emissions as we move towards renewable power inflow in a phased manner from 450 MW RE-RTC, the project is progressing well, and the first flow of renewable power was moved up and commenced in May 2024. This 450 MW RE-RTC will help us reduce our GHG emissions significantly by 2.7 mn TCO₂e per annum.

To reduce Scope 1 emissions, we have initiated the deployment of battery electric vehicles in our underground mining operations and electric vehicle (EV) trucks to pioneer sustainable logistics in the mining industry. This will also lead to a remarkable decline in the ventilation

requirements in the underground mines, facilitating further expansion while reducing ventilation costs.

5X WATER POSITIVE

HZL believes in creating long-term value for all its stakeholders and in line with the same, we believe that reducing freshwater consumption plays a vital role for our commitment towards a sustainable future. Non-availability of water will directly impact our business operations and subsequently reduce revenue and increase costs. We have set a target of 25% reduction in freshwater withdrawal by 2025 from base year FY 2019-20. As of FY 2023-24, we have been able to achieve 9% reduction in freshwater withdrawal and with increasing consumption in sewage treated water and increased dependency on renewable power we will see a further decrease in freshwater withdrawal. Our STP water consumption has increased by 38% in FY 2023-24 from baseline FY 2019-20, this is due to our concrete efforts to reduce our freshwater consumption while utilising more sewage treated water.

Our approach to water management includes, increasing water efficiency, and exploring new technologies which are less water intensive.

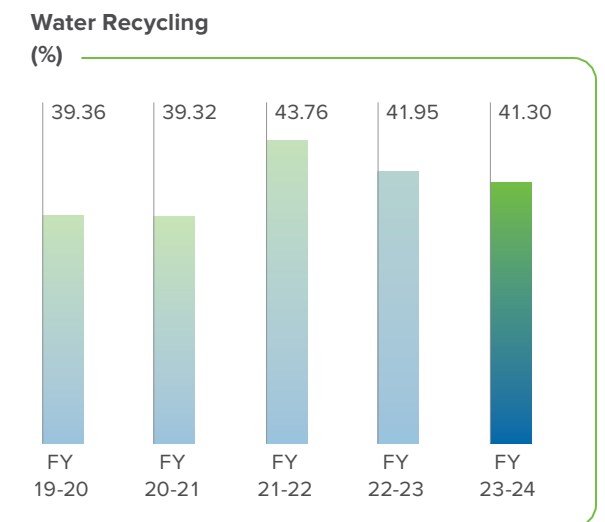
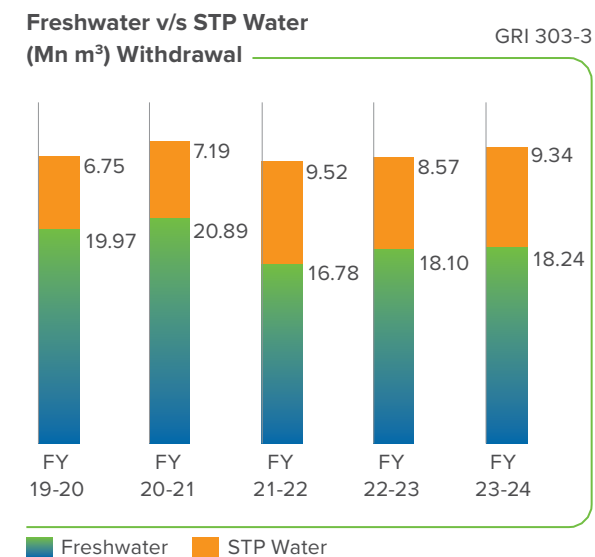
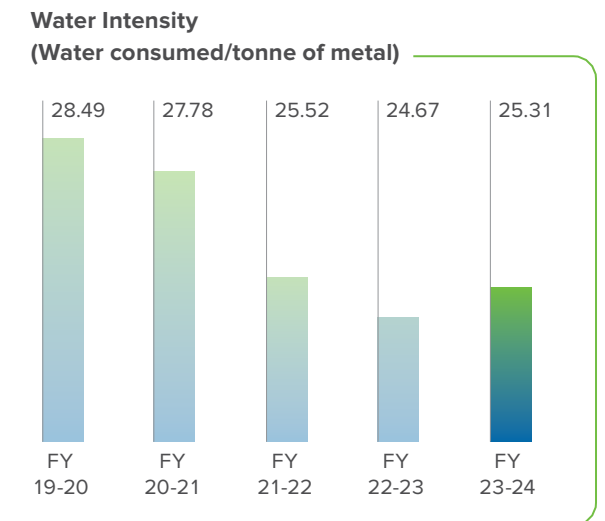
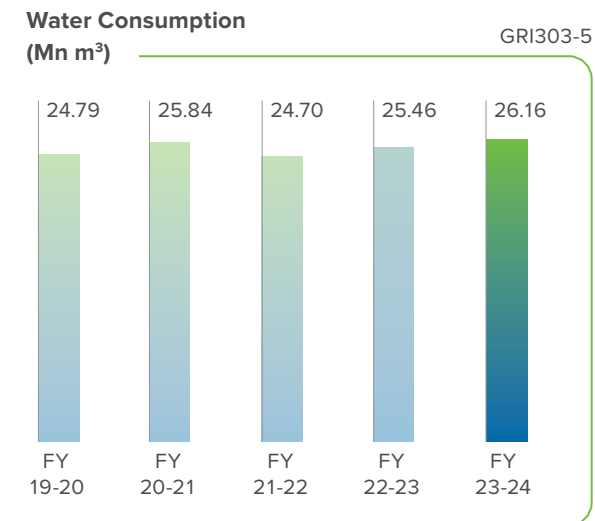
Key actions:

- ▶ Augmenting water recycling across the operations
- ▶ Exploring alternatives to freshwater
- ▶ Rainwater harvesting via localised water shed management, such as Rainwater harvesting at Rampura Agucha Mines leading to 87 lakhs m³ groundwater augmentation
- ▶ Water risk assessment using WRI Aqueduct Water Risk Atlas and data published by CGWB
- ▶ We have commissioned Zero Liquid Discharge at multiple locations and have committed to inducting Zero liquid

discharge at all our Business Units. Commissioned & upcoming Zero Liquid Discharge will together contribute to 19,500 KLD freshwater saving by 2025

- ▶ Dry Stack Tailing at our mining locations will help water recovery to the tune of 4,500 m³/day

The above initiatives will help us reduce water withdrawal from surface water substantially across the locations. As per our last third-party audit in 2019, we are already 2.41 times water positive, and this ratio is Water credit to Water debit, with all the initiatives listed above, we are on track to reduce water debit and increasing water credit. HZL is a Zero liquid discharge company (GRI 303-4).



Metrics:

Water forms an indispensable part of our operations considering our extraction, processing and smelting activities. Due to this, it is imperative that we strive to reduce the water consumption throughout our value chain and reuse and recycle it in the best possible way.

Way Forward

Tackling climate change requires the integrated efforts of all stakeholders. HZL's Climate Risk Assessment Report is just one step towards communicating our climate strategy and the climate-related risks and opportunities addressed. We initiated the climate-related risk assessment and disclosed the financial impacts of climate change on our business following TCFD recommendations. Going forward, we will continue to strengthen and broaden the scope and coverage of risk management. The following steps will be taken in this direction.

BUSINESS GROWTH

Study of Climate-related risks and opportunities will be a key element for the pursuit of new business opportunities, Divestments, Mergers & Acquisitions, and Asset Capture across geographies.

FINANCIAL PLANNING

Further, we plan to prepare a separate budget provision to address climate-related risks and opportunities with the approval of the Board and refine the financial cost estimates. The financial planning will be assessed every year considering the climate change targets aligned as per SBTi and internal commitments after taking into account both risks and opportunities.

SUPPLY CHAIN

Going forward, Climate-related assessment will be an integral element while assessing critical suppliers.

MARKET & PRODUCT

In years to come, our endeavour is to evaluate the opportunities for the new product lines to combat climate change compatible with the global markets and explore new avenues to be a strong contributor to the climate-related opportunities in consultation and joint efforts with our customers.

METRICS & TARGETS

We have committed to short, medium, and long-term targets to achieve carbon, water, and waste stewardship. We are committed to adopting additional climate-related KPIs emphasising on vulnerability and impacts like duration of heat waves, green products, reputational risk score, etc.

ALIGNMENT WITH IFRS S2

We have already begun aligning our strategy and governance to support the mitigative and adaptive measures and harnessing of future possibilities. We endeavour to support the principles contained in IFRS S2 and are fully committed to climate-related quantification, analysis, and assessment. We believe we are on the right path towards the alignment of the business and climate-related risks and opportunities.

Forward-Looking Statements

This report's disclosures are being made based on the principles contained within IFRS S2 reporting requirements, to meet investor and other stakeholder requests, and to improve our collective comprehension of how climate risk relates to HZL's major risk categories. As was mentioned above, we take a different approach to the disclosures in this report than we do to those in our mandatory disclosures.

This report contains "forward-looking statements," some of which concern our net zero aims, goals, strategy, and ambitions, among other things. Additionally, we could include forward-looking statements in other publicly accessible publications, and our management might do the same when speaking verbally with analysts, investors, members of the press, and other parties. Our forward-looking statements are not only meant for confirming our historical pattern of success but also our intentions to perform better in future.

Forward-looking statements include risks, uncertainties, assumptions, and changes in circumstance that are hard to foresee and frequently outside of our control. These assertions do not represent assurances of future performance, outcomes, or conditions. Furthermore, a lot of the standards, metrics, and measures that were used to prepare this report are still evolving and were based on assumptions that were deemed plausible at the time of preparation, but they shouldn't be considered as assurances. We might not be able to predict in advance whether or to what extent we will be able to achieve our plans, aims, or goals due to the inherent uncertainty of the estimates, assumptions, and timescales mentioned in this report. Furthermore, HZL has not independently verified data from third

parties and does not plan to. Due to a number of factors, including, among others, global socio-demographic and economic trends, energy prices, technological advancements, climate-related conditions and weather events, legislative and regulatory changes, our ability to gather and verify data regarding environmental impacts, and our ability to successfully implement our business strategy, actual results and financial condition or outcomes may differ materially from those expressed in or implied by any of these forward-looking statements. This report and other disclosures are accessible on our corporate website at <https://www.hzlindia.com>. These risks, along with others, could cause actual results and financial position to substantially differ from those predicted in forward-looking statements. This report includes claims that are based on hypothetical or extremely unlikely situations and assumptions; these comments shouldn't be taken as predictions of expected risk or as being indicative of existing or real danger.

Any forward-looking statement is only accurate as of the date it was made and is based on management's assumptions at the time; we do not undertake to amend any forward-looking statement to account for circumstances or events that have changed after the statement was made.



IFRS S2 Alignment

Pillar	Guidance	Source
Governance	a. The governance body(s) (which can include a board, committee or equivalent body charged with governance) or individual(s) responsible for oversight of climate-related risks and opportunities.	Pg: 14-16
	b. Management's role in the governance processes, controls and procedures used to monitor, manage and oversee climate-related risks and opportunities.	Pg: 17-19
Strategy	a. The climate-related risks and opportunities that could reasonably be expected to affect the entity's prospects	Pg: 26-34 Pg: 42-45
	b. The current and anticipated effects of those climate-related risks and opportunities on the entity's business model and value chain	
	c. The effects of those climate-related risks and opportunities on the entity's strategy and decision-making, including information about its climate-related transition plan.	Pg: 29 Pg: 33-35 Pg: 36-41 Pg: 46-47 Pg: 51
	d. The effects of those climate-related risks and opportunities on the entity's financial position, financial performance and cash flows for the reporting period, and their anticipated effects on the entity's financial position, financial performance and cash flows over the short, medium and long-term taking into consideration how those climate-related risks and opportunities have been factored into the entity's financial planning.	Pg: 36-41
	e. The climate resilience of the entity's strategy and its business model to climate-related changes, developments and uncertainties – taking into consideration the entity's identified climate-related risks and opportunities.	Pg: 29 Pg: 33-35 Pg: 36-41 Pg: 43 Pg: 46-47
Risk management	a. The processes and related policies the entity uses to identify, assess, prioritise and monitor climate-related risks.	Pg: 48-51
	b. The processes the entity uses to identify, assess, prioritise and monitor climate-related opportunities, including information about whether and how the entity uses climate-related scenario analysis to inform its identification of climate-related opportunities.	
	c. The extent to which, and how, the processes for identifying, assessing, prioritising and monitoring climate-related risks and opportunities are integrated into and inform the entity's overall risk management process.	

Pillar	Guidance	Source
Metrics and targets	a. Information related to greenhouse gases (GHG)	Pg: 53-54
	b. Climate-related transition risks – the amount and percentage of assets or business activities vulnerable to climate-related transition risks.	We are an integrated producer of zinc, lead, and silver. Any effects from transition risks – like regulatory changes, shifts in consumer preferences, or technological advancements that promote low-carbon solutions – will impact the entire company. Pg: 26-29
	c. Climate-related physical risks – the amount and percentage of assets or business activities vulnerable to climate-related physical risks.	We are an integrated producer of zinc, lead, and silver. Any effects such as extreme weather events (floods, wildfires) and long-term climate changes (rising sea levels, temperature increases) – will impact the entire company. Pg: 30-33
	d. Climate-related opportunities – the amount and percentage of assets or business activities aligned with climate-related opportunities.	Pg: 39-40 Pg: 46-47
	e. Capital deployment – the amount of capital expenditure, financing or investment deployed towards climate-related risks and opportunities.	Pg: 40-41
	f. Internal carbon price – Disclosure w.r.t. <ul style="list-style-type: none"> ▶ explanation of whether and how the entity is applying a carbon price in decision-making ▶ price for each metric tonne of greenhouse gas emissions the entity uses to assess the costs of its greenhouse gas emission 	Pg: 40-41 Pg: 53
	g. Climate-related considerations in remunerations.	Pg: 20-21

List of Abbreviations

APS	Announced Pledges Scenario	MACC	Marginal Abatement Cost Curve
CAGR	Compound Annual Growth Rate	MANCOM	Management Committee after MACC
CAPEX	Capital Expenditure	NDCs	Nationally Determined Contributions
CBAM	Carbon Border Adjusted Mechanism	NGFS	Network for Greening the Financial System
CCUS	Carbon Capture, Usage & Storage	NPV	Net Present Value
CLZS	Chandera Lead Zinc Smelter	NZE	Net Zero Emissions
CPCB	Central Pollution Control Board	OPEX	Operating Expense
CPP	Captive Power Plant	PDA	Power Delivery Agreement
DSC	Dariba Smelting Complex	RAM	Rampura Agucha Mines
ZSD	Zinc Smelter Debari	RCP	Representative Concentration Pathway
ERM	Enterprise Risk Management	RDM	Rajpura Dariba Mines
ESOS	Employees' Stock Option Scheme	RE	Renewable Energy
EV	Electric Vehicle	REC	Renewable Energy Certificate
GHG	Greenhouse Gas	RPO	Renewable Purchase Obligations
HSE & S	Health Safety Environment & Sustainability	RTC	Round the Clock
HZL	Hindustan Zinc Limited	SBTI	Science-Based Targets Initiative
SBU	Strategic Business Unit	SEBI	Securities and Exchange Board of India
IEA	International Energy Agency	SKM	Sindesar Khurd Mines
IFRS	International Financial Reporting Standards	SSP	Shared Socioeconomic Pathways
IPCC	Intergovernmental Panel on Climate Change	STEPS	Stated Policies Scenario
IUT	Inter Unit Transport	TCFD	Task force on Climate-related Financial Disclosures
IZA	International Zinc Association	VSAP	Vedanta Sustainability Assurance Programme
JNCASR	Jawaharlal Nehru Centre for Advanced Scientific Research	WRI	World Resources Institute
KM	Kayad Mines	WWF	World Wide Fund
KPIs	Key Performance Indicators	ZLD	Zero Liquid Discharge
		ZM	Zawar Mines



Assurance Statement

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INDEPENDENT AUDITOR'S LIMITED ASSURANCE REPORT ON THE IDENTIFIED SUSTAINABILITY INFORMATION IN HINDUSTAN ZINC LIMITED'S CLIMATE ACTION REPORT

To the Board of Directors of Hindustan Zinc Limited

We have undertaken to perform a limited assurance engagement for Hindustan Zinc Limited (the 'Company'), its Legal Entities and their Sites (the 'Group'), the details of which are as described in the "Scope, Boundary and Limitations" paragraph given below, vide agreement dated 17 January 2024 in respect of the agreed Sustainability Information listed below in accordance with the "Criteria" stated below. This Sustainability Information is as included in the Climate Action Report of the Group for the year ended 31 March 2024. This engagement was conducted by a multidisciplinary team, including professionals with suitable skills and experience in auditing environmental, social, and economic information (Chartered Accountants, Engineers and Environment Professionals).

Identified Sustainability Information

The Identified Sustainability Information for the year beginning 1 April 2023 and ending 31 March 2024 is summarized below:

The Identified Sustainability Information of the Group is the Quantitative Information as mentioned in the Climate Action Report of the Group for the year ended 31 March 2024.

Our limited assurance engagement was with respect to the year ended 31 March 2024, unless otherwise stated and we have not performed any procedures with respect to earlier periods and, therefore, do not express any limited assurance conclusion thereon.

Criteria

The Climate Action Report of the Group for the Financial Year 2023-2024, is prepared in accordance with the International Financial Reporting Standards (IFRS) S2- Climate Related Disclosures (aligned with Task Force on Climate Related Financial Disclosures (TCFD) Recommendations by the

Financial Stability Board (FSB)), select Global Reporting Initiatives (GRI) Standards, as per Appendix I to this Report (the "Criteria"). Since the disclosures given in the Climate Action Report are based on the guidance mentioned above, as a result, the subject matter information may not be suitable for another purpose.

Management's Responsibilities

The Group's management is responsible for establishing the "Criteria" for preparing the Climate Action Report, in accordance with IFRS S2 (aligned with TCFD recommendations), select GRI Standards, identification of key aspects, engagement with stakeholders, content, preparation and presentation of the Climate Action Report in accordance with the "Criteria". This responsibility includes design, implementation and maintenance of internal controls, relevant to the preparation and measurement of the Climate Action Report, which is free from material misstatement, whether due to fraud or error.

Inherent limitations

The absence of a significant body of established practice on which to draw to evaluate and measure non-financial information allows for different, but acceptable, measures and measurement techniques and can affect comparability between entities.

Our Independence and Quality Control

We have complied with the independence and other ethical requirements of the International Code of Ethics for Professional Accountants (including International Independence Standards) issued by the International Ethics Standards Board for Accountants (IESBA Code), which is founded on fundamental principles of integrity, objectivity, professional competence, due care, confidentiality, and professional behavior.

Our firm applies International Standard on Quality Management (ISQM) 1, "Quality Management for Firms that Perform Audits or Reviews of Financial Statements, or Other Assurance or Related Services Engagements" and accordingly maintains a comprehensive system of quality management, including documented policies and procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

Our Responsibility

Our responsibility is to express a limited assurance conclusion on the Identified Sustainability Information with respect to the Entity/ Sites covered in the "Scope, Boundary, and Limitations" paragraph given below, based on the procedures we have performed and the evidence we have obtained.



We conducted our engagement in accordance with the International Standard on Assurance Engagements (‘ISAE’) 3000 (Revised), ‘Assurance Engagements other than Audits or Reviews of Historical Financial Information’, issued by the International Auditing and Assurance Standards Board. This standard requires that we plan and perform our engagement to obtain limited assurance about whether the Identified Sustainability Information is free from material misstatement.

A limited assurance engagement involves assessing the suitability in the circumstances of the Group’s use of the ‘Criteria’ as the basis for the preparation of the Identified Sustainability Information whether due to fraud or error, responding to the assessed risks as necessary in the circumstances, and evaluating the overall presentation of the Identified Sustainability Information.

A limited assurance engagement is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal controls, and the procedures performed in response to the assessed risks.

Scope, Boundary and Limitations

Scope and Boundary

- The scope of our limited assurance covers the Group’s Identified Sustainability Information for the period 1 April 2023 to 31 March 2024.
- Out of the boundary used for the preparation of the audited Consolidated Financial Statements of the Group for the Financial Year 2023-24, the boundary used for the purpose of preparation of the Group’s Climate Action Report includes the data and the information of the Group, which include Hindustan Zinc Limited and its operational Sites, based on the management’s assessment of materiality, as mentioned below:

Entity and Sites Included	Status
Hindustan Zinc Limited (HZL)	The Company
Rampura Agucha Mine (RAM)	Site
Zawar Mines (ZM)	Site
Rajpura Dariba Mine (RDM)	Site
Sindesar Khurd Mine (SKM)	Site
Dariba Smelting Complex (DSC)	Site
Chanderiya Lead-Zinc Smelter (CLZS)	Site
Kayad Mine (KM)	Site
Debari Zinc Smelter (DZS)	Site
Pantnagar Metal Plant (PMP)	Site



- The data review and validation of these Entity/ Sites was performed through physical site visits and/or together with desktop reviews.
- The Categories of the Scope 3 emissions considered by the Group and verified by us are given in Appendix II to this Report, as per the coverage given in the Group’s Scope 3 Emissions Methodology (<https://www.hzllindia.com/wp-content/uploads/HZLs-Scope-3-Methodology-FY2023-24.pdf>).

Limitations

Our limited assurance scope excludes the following and therefore we do not express a limited assurance conclusion on the same:

- Operations of the Group other than those covered in the ‘Scope and Boundary’.
- The data/ information other than the Identified Sustainability Information.
- Data and information outside the defined reporting period i.e., Financial Year 2023-24.
- The statements that describe expressions of opinion, belief, aspiration, expectation, aim, or future intentions provided by the Group.
- Data related to Group’s environmental, economic and financial performance, strategy and other related linkages expressed in the Group’s Integrated Annual Report for the Financial Year 2023-24 or any other Report, containing Identified Sustainability Information.
- Effectiveness of management’s internal controls of the Group, while we considered the same when determining the nature and extent of our procedures; however, our limited assurance engagement was not designed to provide assurance on these internal controls.
- The Group’s compliance with Acts, Regulations and Guidelines with respect to various Regulatory authorities and other legal matters.

Assurance Procedures

The procedures we performed were based on our professional judgment and included inquiries, observation of processes performed, inspection of documents, evaluating the appropriateness of quantification methods and reporting policies, analytical procedures and agreeing or reconciling with underlying records.

Given the circumstances of the engagement, in performing the procedures listed above, we:



- Obtained an understanding of the Group’s business activities, processes and its operating locations, as identified by the Group.
- Interviewed people involved to understand the reporting process including management’s process to identify the Group’s material climate related risks and opportunities, governance, design and implementation of the data management systems and internal controls in place during the reporting period to capture, collate, calculate and report the data and assumption in the Identified Sustainability Information.
- Performed limited substantive testing on a sample basis of disclosures and presentations in the Identified Sustainability Information for the Entity/ Sites, as covered in the “Scope, Boundary and Limitations” to verify whether the data was appropriately recorded, collated, measured and reported with underlying supporting documents.
- Checked the consistency of the data/information within the Identified Sustainability Information.
- Checked the consolidation methodology for the Entity/ Sites as covered in the “Scope, Boundary and Limitations” for ensuring the completeness of data being reported.
- Tested the mathematical accuracy of the data provided on a test-check basis.
- Assessed the level of adherence of the “Criteria”, as mentioned above by the Group while reporting.
- Assessed the appropriateness of various assumptions, estimations and thresholds used by the Group in the preparation of the Identified Sustainability Information.
- Undertook analytical review procedures to support the reasonableness of the data used in the Identified Sustainability Information.
- Performed walkthroughs in the form of analytical procedures to gain an understanding of the approach to the Group’s scenario analysis, key assumptions, and consistency with the principles and documents specified in the criteria.
- We traced the relevant data and assumptions from the following published Reports and the Group’s internal documents:
 - Annual Accounts for the Financial Year 2023-24 of the Group (Independent Auditors’ Report, issued by another auditor, vide Audit Report dated 19 April 2024).
 - Business Responsibility and Sustainability Report (BRSR) of the Group for the Financial Year 2023-24 (Reasonable and Limited Assurance Letter issued by us , vide Assurance Letter dated 21 June 2024 on BRSR Core and other than BRSR Core indicators respectively).



- The Task Force on Climate-related Financial Disclosures (TCFD) Report for the Financial Year 2022-23 (currently known as Climate Action Report) (Limited Assurance letter issued by another auditor, vide Assurance Letter dated 26 July 2023).
- Management Presentations.
- Internal Email confirmations from various stakeholders.
- Enquired to corroborate with the relevant management personnel to understand the progress against the Climate Action Plan commitments.
- Obtained written representations from the Group’s Management.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had we performed a reasonable assurance engagement. Accordingly, we do not express a reasonable assurance opinion about whether the Identified Sustainability Information has been prepared, in all material respects, in accordance with the “Criteria”.

Limited Assurance Conclusion

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the Group’s Identified Sustainability Information for the year ended 31 March 2024 is not prepared, in all material respects, in accordance with the “Criteria”.

Emphasis of Matter

We draw your attention to the following matters:

- The “Scope, Boundary and Limitations” in this report. The Entity/ Sites considered for the purpose of reporting in the Climate Action Report are as per the management’s assessment of materiality.
- The financial numbers used in some of the disclosures in the Identified Sustainability Information are extracted from the Integrated Annual Report for the Financial Year 2023-24 and hence are not audited by us. While the financial numbers related to certain entities include inter-company consolidation adjustments as per the applicable financial reporting framework (net figures), the non-financial data used in some of the disclosures in the Identified Sustainability Information related to these entities are given without adjustments (gross figures). Further, some of the Entities/ Sites are considered for the purpose of said financial numbers, which may have been excluded from the “Scope, Boundary and Limitations”.



- Some of the entities are considered for the purpose of preparation of the Identified Sustainability Information on full consolidation method, without adjusting for minority interest in the relevant group entity, based on operational control, as assessed by the management.
- The Non-Financial Reporting System used by the Group in the preparation of the Identified Sustainability Information is in the advanced stage of implementation and is in the process of being integrated with other Financial and Non-Financial Reporting Systems of the Group.

Our limited assurance conclusion is not modified in respect of these matters.

Other matter

The Identified Sustainability Information as contained in the TCFD Report (currently known as Climate Action Report) for the year ended 31 March 2023 was assured by the previous assurance practitioner who had expressed an unmodified opinion on 26 July 2023.

Our opinion is not modified in respect of this matter.

Restriction on use

Our Limited Assurance Report has been prepared and addressed to the Board of Directors of the Company at the request of the Company solely, to assist the Group in reporting on Group's sustainability performance and activities. Accordingly, we accept no liability to anyone, other than the Group. Our Limited Assurance report should not be used for any other purpose or by any person other than the addressees of our report. We neither accept nor assume any duty of care or liability for any other purpose or to any other party to whom our report is shown or into whose hands it may come without our prior consent in writing.

For **Mazars Advisory LLP**

Firm Registration No.: AAI-2887



Sarika Gosain
Partner

Gurugram
26 September 2024

Appendix I to the Independent Auditor's Limited Assurance Report on the Identified Sustainability Information in Hindustan Zinc Limited's Climate Action Report

GRI	Indicators	Measurement Units
302-1	Total Energy Consumption (in GJ)	4,92,38,370
302-3	Energy Intensity (Total energy consumption/tonnes of metal produced)	47.63
302-4	Reduction of Energy consumption (in GJ)	7,83,201
303-3	Total volume of water withdrawal – operational and non-operational use (in KL)	2,75,83,043
303-4	Total Volume of water discharge (in KL)	0
303-5	Total volume of water consumption (in KL)	2,61,62,252
305-1	Scope 1 Direct GHG emissions (in TCO ₂ e)	42,51,360
305-2	Scope 2 Indirect GHG emissions (in TCO ₂ e)	5,62,715
305-3	Scope 3 GHG Emission (in TCO ₂ e)	15,99,955
305-4	GHG Emission Intensity (GHG emissions/tonnes of metal produced)	4.66
305-5	GHG Emission Reduction (in TCO ₂ e)	2,32,793



Appendix II to the Independent Auditor's Limited Assurance Report on the Identified Sustainability Information in Hindustan Zinc Limited's Climate Action Report

Category	Coverage	Emissions tCO ₂ e
Category 1 - Purchased Goods and Services	As per the Coverage mentioned in Group's Scope 3 Emissions Methodology (https://www.hzindia.com/wp-content/uploads/HZLS-Scope-3-Methodology-FY2023-24.pdf)	4,32,386
Category 2 - Capital Goods		2,425
Category 3 - Fuel and energy-related activities		8,44,295
Category 4 - Upstream transportation and distribution		14,196
Category 5 - Waste generated in Operations		9,631
Category 6 - Business travel		205
Category 7 - Employee commuting		1,237
Category 8 - Upstream leased assets		Not Applicable
Category 9 - Downstream transportation and distribution		42,679
Category 10 - Processing of sold products		2,36,071
Category 11 - Use of sold products		Not Applicable
Category 12 - End-of-life treatment of sold products		16,830



Category 13 - Downstream leased assets		Not Applicable
Category 14 - Franchises		Not Applicable
Category 15 - Investments		Not Applicable
Total Emissions		15,99,955





HINDUSTAN ZINC
Zinc & Silver of India

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