



# **ENERGY AND CLIMATE CHANGE MANAGEMENT**

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(GRI 2-5, 201-2, 302-1, 302-3, 302-4, 305-1, 305-2, 305-3, 305-4, 305-5)

## APPROACH

Hindustan Zinc Limited employs a proactive approach to energy management and climate change adaptation and mitigation. We recognise the significant impact our energy consumption and operational greenhouse gas (GHG) emissions have on climate change and are committed to reducing our carbon footprint. We prioritise energy efficiency throughout our operations by investing in energy-efficient technologies, optimising processes and promoting a culture of conservation among employees. Additionally, we actively seek renewable energy alternatives. We also integrate climate change adaptation strategies into our business planning, to assess and address potential risks and vulnerabilities associated with changing climate conditions. By taking a proactive and holistic approach to energy management and climate change, we aim to contribute to a more sustainable future and build resilience within our organisation and the communities we serve.

## CLIMATE CHANGE

Climate change mitigation is a core component of our strategy as a mining company, driven by both the urgency of the global challenge and our commitment to sustainability. We continually adopt and explore various approaches for building resilient infrastructures against physical climate risks. Additionally, we actively engage with stakeholders, collaborate with business partners and support research for promoting sustainable practices across the mining industry. We have significantly intensified our efforts and commitment to decarbonise our business. We have made a pledge to become a Net Zero carbon organisation by 2050, or earlier, with the business ambition for the 1.5°C campaign led by the SBTi in partnership with the UN Global Compact and the 'We Mean Business' coalition. Furthermore, we conducted an extensive climate risk assessment and scenario analysis to gain a comprehensive understanding of the risks and opportunities associated with climate change for our operation and value chain. The insights from these studies serve as valuable inputs for developing our carbon strategy

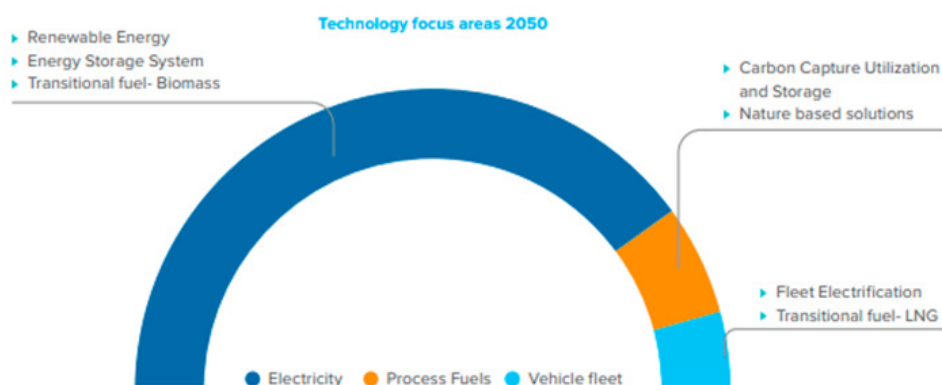
and roadmap, to guide our path towards achieving Net Zero status by 2050.

We conduct the scenario analysis and stress-testing for understanding the implications of climate change on our operations across units to develop a long-term strategy about the risks and opportunities posed by climate change. We used Advanced Climate Modelling, Representative Concentration Pathway (RCP) RCP 2.6, RCP 4.5, RCP 6.0, and RCP 8.5 and IEA Net Zero Scenario (NZE), Announced Pledges Scenario (APS), Stated Policies Scenarios (STEPS) of the International Energy Agency to forecast the likely physical and transition changes for two time periods 2030 and 2050.

## CLIMATE RESILIENCE

We understand the importance of adapting to challenges and uncertainties posed by climate change. With a steadfast commitment, we are proactively implementing measures to enhance our resilience and minimise the potential impacts on our business, stakeholders and the environment. Through robust risk assessments, scenario analysis and the integration of climate considerations into our decision-making processes, we are fortifying our ability to navigate changing climatic conditions. The unique combination of our technology mix and asset configuration sets us apart, allowing us to comply with existing climate regulations such as Renewable Energy Certificate (REC) and Renewable Purchase Obligation (RPO). Through the adoption of Firm Renewable Energy (RE), we position ourselves to capitalise on new markets, and our locations are situated to leverage cost-effective options for Firm RE. We also foresee a positive environment in the demand for our products with Race to Net Zero emissions taking the momentum. By embracing innovative technologies and fostering sustainable partnerships, we strive to build a resilient organisation that can thrive in a rapidly changing climate.

## DECARBONISATION STRATEGY



We strive to reduce our operational footprint and align our decarbonisation strategy in line with global commitment. In line with our Sustainability Goal 2025 of achieving 0.5 million tCO<sub>2</sub>e GHG emission savings in our operations, we successfully avoided 0.67 million tCO<sub>2</sub>e through increased consumption of renewable power. Electricity use contributes to nearly 85%-90% of total Scope 1 and 2 emissions. Hence, we have implemented myriad initiatives including increasing dependency on the electricity generated from renewable energy sources.

**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.

## DELIVERING ON OUR DECARBONISATION COMMITMENTS

We are redefining business imperatives to foster sustainable and long-term growth to accomplish our climate commitments. We have successfully adopted green or low-carbon solutions to harness the extensive benefits of actualisation of our climate vision and to attain various target milestones. The details of such initiatives are briefly provided in this section.

### Renewable Energy (RE)

HZL has embarked on its journey to deploy renewable energy solutions in its operations with implementation of captive power with capacity of 530 MW. This initiative will ensure a minimum assured supply of renewable energy for Hindustan Zinc from solar, wind and energy storage systems annually at the delivery point which shall be the 'Guaranteed Annual Generation' (GG). Round the clock power delivery agreement (PDA III) with Serentica, taking the renewable energy capacity to 530 MW, equivalent to 70% of our total power requirement by FY2028, the first flow of power commenced in May 2024, taking the solar energy utilization to c. 13%.

### Electric Vehicles

HZL has assumed a leadership position among Indian mining companies by successfully pioneering the electrification of its mining fleet. The Company introduced underground Battery Electric Vehicles (BEV) at Sindesar Khurd Mine (SKM). We have also entered into a Memorandum of Understanding with three global manufacturers to introduce battery-powered service equipment and utility vehicles for our underground mining operations. As of now we have 3 underground battery electric vehicles (BEV's) in operation at Sindesar Khurd Mines (SKM). We have set our special focus on Scope 3 emissions and in-line with the same we have

introduced 10 Electric vehicles and 41 LNG's for interunit transport and finished goods transportation. 3 charging stations for EV's for IUT & finished goods transport has also been set up.

### Internal Carbon Pricing

Hindustan Zinc has implemented internal carbon pricing mechanism across all units to drive the decarbonisation mission. We have carbon pricing as a component in all our capital deployment and expenditures, which will help us to advocate the decision-making in low-carbon transition including identification of energy conservation/efficiency projects for our operations to meet SBTi targets for emission reduction. Currently, the internal carbon price is US\$ 15/tCO<sub>2</sub>e. (INR 1,268.29)

### Energy & Carbon Management Programs

All sites are required to have an energy management plan that is revised annually. This plan outlines a detailed strategy and sets specific annual targets at the site level. Each site's designated energy manager is responsible for achieving these objectives and implementing the plan effectively.

As part of Vedanta's annual group-level audit of its sustainability framework, these energy management plans and their implementation are thoroughly reviewed. The audit process ensures compliance, evaluates effectiveness, and identifies opportunities for continuous improvement.

We are committed to reducing non-renewable energy consumption by 40% by 2030 from baseline 2020. This goal is supported by innovative energy efficiency projects we've implemented across operations. Innovative Energy-efficiency projects such as revamping of all the turbines, improvement of cellhouse efficiency, and other projects like installation of variable frequency drives across operations, switching from high-speed diesel to piped natural gas, have contributed to energy savings in our operations.

All our sites are ISO 50001-certified for Energy Management Systems, reflecting our commitment to energy efficiency. We undergo a rigorous third-party audit every three years, which includes verifying site-wide energy consumption, evaluating energy conservation projects, and assessing progress toward our energy and renewable energy targets. This audit also ensures compliance with legal and regulatory requirements and includes annual surveillance.

HZL has a structured approach to energy management through regular audits and systematic tracking mechanisms in alignment with ISO 50001:2018 – Energy Management System. An Energy Audit is conducted every three years to analyze energy consumption patterns, identify inefficiencies, and recommend actionable energy-saving opportunities. This initiative supports cost reduction, enhances equipment efficiency, and contributes to HZL's sustainability goals while ensuring compliance with applicable energy regulations. In addition, an annual Integrated Management System (IMS) Surveillance Audit, which includes compliance with ISO 50001:2018, is carried out to assess the continued effectiveness of the energy management system. These audits help maintain certification status, identify areas for operational improvement, and evaluate the performance of energy-intensive equipment. Furthermore, internal audits are held biannually to assess process adherence, detect non-conformities, and drive a culture of continuous improvement. All audit findings are closely monitored through an ongoing Corrective and Preventive Action (CAPA) tracking system that ensures root cause analysis, timely resolution, and verification of the effectiveness of implemented actions.

In parallel, HZL continues to strengthen energy efficiency across its cell house operations, which are critical to the zinc electro-winning and manufacturing processes. Monthly monitoring of specific energy consumption is conducted, and the results are reviewed by senior management to ensure accountability and continual enhancement. Energy efficiency and energy-saving projects are initiated annually, with close oversight to evaluate their outcomes. To support real-time energy optimization, HZL employs Advanced Process Control (APC) systems and digital monitoring tools. All operational units are certified under ISO 50001:2018, reinforcing HZL's commitment to a systematic, data-driven approach to improving energy per

Dariba Smelting Complex (DSC) has implemented a structured system to monitor, measure, analyze, and evaluate the performance of its Integrated Management System (IMS) in line with ISO 50001:2018. Key operational parameters, energy performance indicators (EnPIs), legal requirements, and risks are regularly tracked. Energy performance is evaluated by comparing current EnPI values with energy baselines. Customer satisfaction is assessed annually using defined indicators and direct feedback. Compliance with legal and other requirements is reviewed periodically. All data is documented, analyzed using statistical tools, and shared as per the communication procedure.

#### Internal Audits and Management Review:

Internal audits are conducted every six months by trained auditors to assess IMS compliance and effectiveness. Non-conformities are recorded, corrective actions are implemented, and follow-up audits ensure closure. The Management Representative compiles audit results and reports them to leadership. Management Reviews are held in two formats: monthly operational reviews and biannual system reviews. These reviews assess system performance, compliance status, customer feedback, resource adequacy, and opportunities for improvement. Decisions from the reviews are documented and communicated to relevant stakeholders, ensuring continual improvement of the IMS.

DSC continually improves the suitability, adequacy, and effectiveness of its Integrated Management System by enhancing energy performance, promoting a supportive IMS culture, and encouraging worker participation. Improvement actions are based on analysis, evaluation, and management review outputs. All identified continual improvements are documented and relevant results are communicated to workers or their representatives.

The energy saving 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.

Investment of 3.22 CR. was made towards implementing Energy efficiency projects.