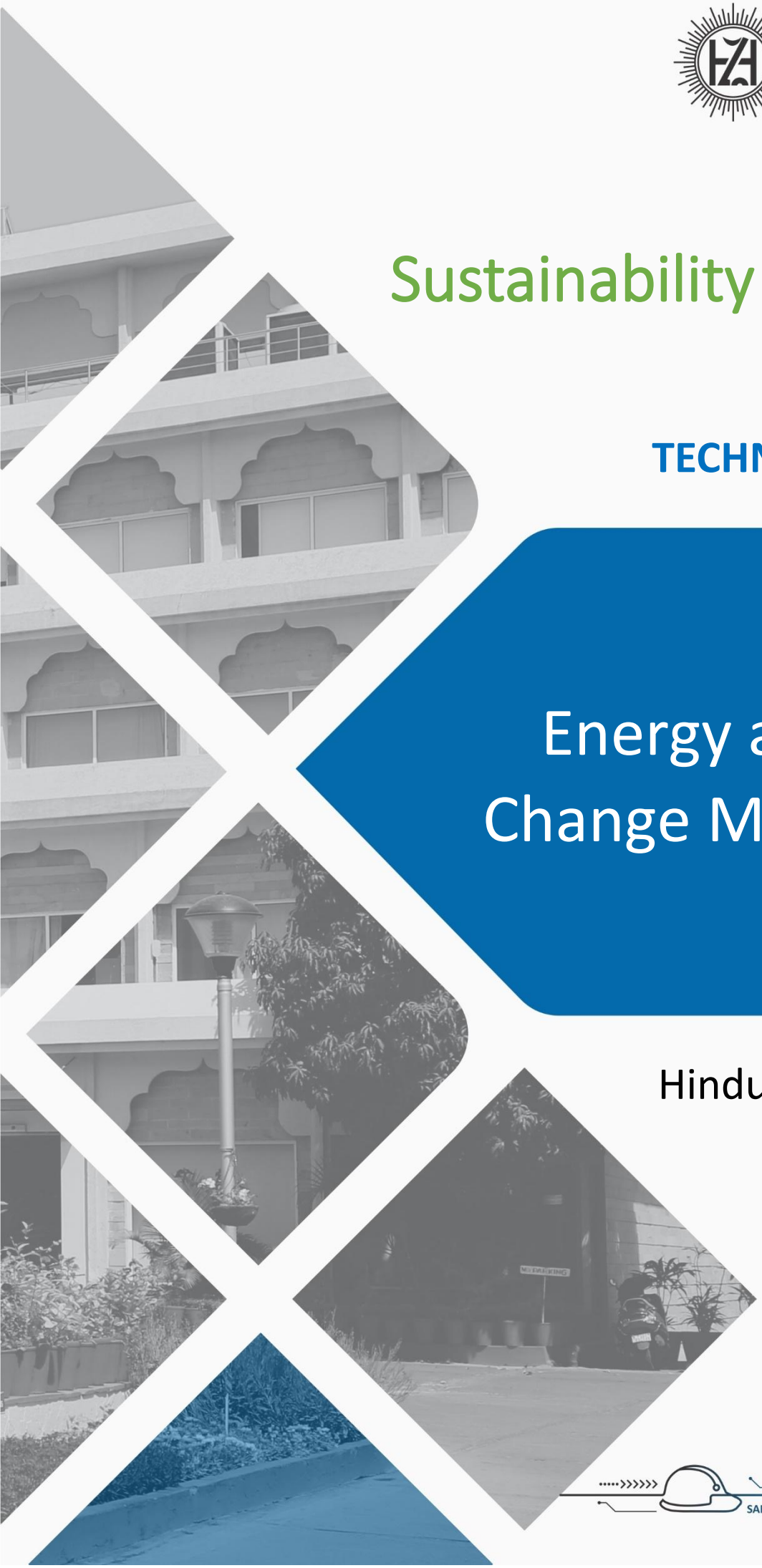
HINDUSTAN ZINC
Zinc & Silver of India

Sustainability Framework

TECHNICAL STANDARD

Energy and Climate Change Management

Hindustan Zinc Limited

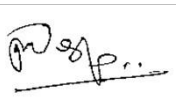


SAFE SMART SUSTAINABLE

Standard Title:	**Energy and Climate Change Management**	**Date of Issue:**	**16/08/2025**
Standard:	HZL/CORP/SUST/TS 16	**Revision:**	V.1

Document Issue and Revision History

DATE	REVISION NUMBER	CHANGE SUMMARY
16/08/2025	v.1	Initial issue

Authorised	**Pradeep Singh**
Signature	
Position:	Chief HSE & Sustainability

Confidentiality

Contents

1. INTRODUCTION

HZL acknowledges the global concern on climate change and recognizes that concerted and sustained global action is required to reduce the scale of the problem and to adapt to its impacts. HZL is committed to this effort through our own progressive energy and Climate Change management programme that forms an integral part of our vision for sustainable development and is consistent with our overall business vision and mission. In recognition of this commitment and in accordance with our energy and climate change policy this Standard aims to facilitate the integration of energy and Climate Change management into decision making processes for new and existing projects, and to help ensure that all necessary measures are taken to avoid and minimize the carbon emissions arising from our projects. It also sets out the process through which HZL will report on its overall Climate Change and energy management performance.

The assessment and management of impacts of new projects shall be considered as part of the overarching environmental and social impact assessment and therefore this document should be read in conjunction with the *Conducting ESIA to International Standards Technical Standard* for such purposes. For existing projects, reference shall also be made to existing environmental management provisions adopted at a Company and site level.

This standard has been adopted from the parent company Vedanta 's Sustainability framework.

2. SCOPE

3. This Technical Standard is mandatory and applies to all HZL subsidiaries, operations and managed sites, including new acquisitions, corporate offices and research facilities and to all new and existing employees. This Standard is applicable to the entire operational lifecycle (including exploration and planning, evaluation, operation and closure).

DEFINITIONS

Definitions of key terms used in this document are shown in the following table.

Term	Definition
Carbon Footprint	For each HZL unit, the carbon footprint is the sum of the GHG emissions arising annually across the company's sites, operations and facilities.
CO_2e (CO_2 equivalent)	A measure which takes account of the global warming potential (GWP) of GHGs other than CO_2 (eg methane), expressed as the equivalent weight of CO_2 that would lead to the same global warming potential as the weight of that GHG. Methane has a GWP ca. 22 times greater than that of CO_2 and so each tonne of methane emitted has the same global warming potential as 22 tonnes of CO_2.
GHG (Greenhouse Gas) Emissions	Emissions of the six gases that form part of the Kyoto Protocol to the United Nations Framework on Climate Change, namely: Carbon dioxide (CO_2) / methane (CH_4) / nitrous oxide (N_2O) hydrofluorocarbons (HFCs) / perfluorocarbons (PFCs) sulphur hexafluoride (SF_6)
GHG (Greenhouse Gas) Accounting	The systematic collation of GHG emissions information from each site to enable the Corporate Sustainability

Term	Definition
	Committee to measure, record and report aspects of GHG emissions associated with its operations and activities.
ICMM (International Council on Mining and Metals)	The International Council on Mining and Metals (ICMM) was established in 2001 and seeks to drive performance improvement through its members which comprise mining and metals companies as well as national and regional mining associations and global commodity associations.
IFC (International Finance Corporation)	Member of the World Bank that finances and provides advice to private sector ventures and projects in developing countries.
Lifecycle	The phases of a HZL project including exploration, pre feasibility, feasibility, planning, evaluation, operation and closure.
Operation(s)	A location or activity that is operated by a HZL Company and its subsidiaries. Locations could include exploration activities, mines, smelters, refineries, wind farms, offices including corporate head offices and research and development facilities.
Stakeholders	Persons or groups that are directly or indirectly affected by a project as well as those that may have interests in a project and/or the ability to influence its outcome, either positively or negatively. This can refer to shareholders, lenders, employees, communities, industry, governments and interested third parties.

4. PROGRAMME REQUIREMENTS

This technical standard has been prepared in order to manage and reduce GHG emissions arising across HZL's sites and operations. It describes mechanisms for monitoring, managing, minimising and reporting GHG emissions across existing or proposed HZL activities or operations, and over entire HZL

4.1. General Requirements

All HZL operation are required to follow the requirements listed below with regards to energy and Climate Change management.

a) Arrangements shall be created, implemented and maintained so that the requirements of applicable local, regional, national legislation are complied with.

b) Arrangements shall also be implemented to ensure conformance to the requirements of the *IFC Performance Standards.* The key IFC provisions are summarised as follows*:*

- *Performance Standard 1 – Assessment and Management of Social and Environmental Risks and Impacts* – The relevant objectives of this standard are to identify and assess social and environment impacts, both adverse and beneficial, in the project's area of influence; to avoid, or where avoidance is not possible, minimize, mitigate, or compensate for adverse impacts on workers, affected communities, and the environment; to ensure that affected communities are appropriately engaged on issues that could potentially affect them and to promote improved social and environment performance through the effective use of management systems. The key considerations in so far as they relate to this Technical Standard are: the need to undertake a risk and impact assessment

(including the consideration of GHG emissions and the risks arising from a changing climate and the project's adaptation opportunities); the need for a management programme of mitigation and performance improvement measures; and monitoring and reporting;

- *Performance Standard 3 – Resource Efficiency and Pollution Prevention* – The relevant objectives of this standard are to promote more sustainable use of resources, including energy and water; to reduce project-related GHG emissions; and to avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities. The key considerations in so far as they relate to this Technical Standard are: consideration and use of resource efficiency and pollution prevention principles and techniques during all stages of the project lifecycle, particularly the implementation of technically and financially feasible and cost-effective options to reduce project-related GHG emissions during the design and operation of projects. These options may include, but are not limited to alternative project locations, adoption of renewable or low carbon energy sources, sustainable agricultural, forestry and livestock management practices, the reduction of fugitive emissions and the reduction of gas flaring; and the use of benchmarking data (where available) to provide insights into the relative efficiencies achievable.

4.2. Existing Projects and Operations

a) All existing HZL operations shall create, implement and maintain arrangements for energy and Climate Change monitoring and management at all locations including but not limited to offices, manufacturing sites, distribution infrastructure, mines, etc.

4.2.1. Energy and Carbon Assessment

a) All HZL operations shall conduct an energy and Climate Change assessment for each location which shall take into account GHG emissions of each of the six principal GHG Emissions

b) Each location's energy and Climate Change assessment shall quantify direct emissions from the facilities owned or controlled within the physical project boundary and indirect emissions associated with the off-site production of power used by the project. The energy and Climate Change assessment shall be conducted in accordance with internationally recognised methodologies.

c) The energy and Climate Change assessment for each location shall be undertaken annually and shall form a constituent part of HZL's energy and Climate Change monitoring process.

d) Particular attention shall be paid to assessments for locations giving rise to more than 25,000 tonnes of CO_2e annually.

4.2.2. Energy and Climate Change Management Plan

a) An Energy and Climate Change Management Plan (ECMP) for each location shall be developed, to identify alternatives and to guide implementation of options to reduce GHG emissions for that location. The scope of the ECMP shall be commensurate with the scale of emissions identified within the location's energy and Climate Change assessment, and shall focus on areas that are considered core business activities as appropriate.

b) The ECMP shall identify approaches, measures and options for reducing or offsetting GHG emissions that are suitable for implementation at the site subject to technical and financial feasibility and cost-effectiveness considerations. These measures shall be considered across the lifecycle of the location.

c) Measures and options for reducing or offsetting GHG emissions within the ECMP may include, but are not limited to:

- Alterations to project or location design to remove or reduce sources of emissions;
- Energy efficiency improvements;
- The adoption of renewable or low-carbon energy sources;
- Carbon financing;
- Emissions offsets;
- Other mitigation measures.

d) The ECMP shall include provision where appropriate for reducing or offsetting emissions associated with the eventual closure of locations.

e) The ECMP shall be integrated into the Company or Project Social and Environmental Management Plan.

f) The ECMP shall also include other items as necessary to ensure conformance with HZL's Energy and climate change Policy.

4.2.3. Legal and Other Requirements

a) All HZL operations shall identify all relevant local, regional and national legislative requirements on energy and Climate Change management that are relevant to each of its owned and/or managed operations and facilities.

b) Arrangements shall be established to ensure compliance with all such requirements, and to surpass them where practicable.

c) All applicable international conventions shall be identified and complied with in all jurisdictions in which HZL operates.

d) HZL shall consider opportunities to reduce and offset GHG emissions beyond the scope of legal compliance and the requirements of international standards.

4.2.4. Research, Innovation and Investment

a) Each HZL operations shall develop and maintain its awareness and knowledge of innovatory techniques and research opportunities that may give rise to GHG emissions reduction opportunities within the ECMPs for which it has responsibility. An annual statement shall be produced showing how the HZL operations is considering these techniques and opportunities across its existing operations.

b) Each HZL operations shall work with its value chain to help it to reduce energy consumption and carbon intensity across its operations. An annual statement shall be produced showing what activities of this kind the HZL operations is undertaking and the outcomes arising.

c) Each HZL operations shall produce an annual statement showing the investments that have taken place during that year in energy and Climate Change management techniques, measures and opportunities at existing operations, and the anticipated benefits and outcomes arising.

4.2.5. Measuring and Monitoring

a) Using the GRI Mining and Metals Sector Supplement each HZL operations shall monitor performance in managing energy and carbon emissions.

b) Each HZL operations shall develop performance indicators on the basis of corporate and legal requirements and using the following GRI Mining and Metals Performance Indicators:

- Disclosure 302-1 Energy consumption within the organization

- Disclosure 302-2 Energy consumption outside of the organization
- Disclosure 302-3 Energy intensity
- Disclosure 305-1 Direct (Scope 1) GHG emissions
- Disclosure 305-2 Energy indirect (Scope 2) GHG emissions
- Disclosure 305-3 Other indirect (Scope 3) GHG emissions
- Disclosure 305-4 GHG emissions intensity
- Disclosure 305-5 Reduction of GHG emissions

c) Each HZL operation or facility shall also establish arrangements for monitoring its performance against the relevant indicators established by the Company.

4.2.6. Knowledge, Awareness and Communication

a) Arrangements shall be implemented to support energy technology and process research, resource efficiency techniques, and innovatory institutional initiatives carried out by local, regional and national research groups in order to further knowledge and understanding of such attributes in HZL's areas of operation.

b) Mechanisms shall be created and implemented to provide information and raise awareness among employees, customers and suppliers and other stakeholders to enhance knowledge and understanding of energy and Climate Change management issues.

c) Arrangements shall be established for the regular reporting to stakeholders on the Company's management of energy and carbon and the progress towards targets and under Performance Indicators.

d) HZL shall work closely with policy-makers to encourage effective and equitable energy and Climate Change policies within their sectors of operation.

4.3. New Projects

4.3.1. Relevant Considerations

a) HZL operations shall undertake all elements of energy and carbon management described under 'Existing Projects and Operations' for new projects that are developed in the future (described under headings 4.2.1 to 4.2.7 above). These elements shall address energy and Climate Change issues in project design, construction and commissioning as well as operation and closure.

4.3.2. Impact Assessment

a) For any new project or operation that is planned, an initial pre-design assessment of the energy and carbon emissions implications shall also be undertaken. Where necessary, such an assessment will be included or appended as part of a formal international standard Environmental and Social Impact Assessment (ESIA). Reference shall be made to the provisions of local legislative requirements and to the IFC Performance Standard PS1 on the Assessment and Management of Social and Environmental Risks and Impacts.

b) For projects that require an ESIA the *Technical Standard on Conducting ESIA to International Standards* shall be followed.

c) For projects that do not fall within the scope of an ESIA an assessment of energy and carbon emissions shall still be undertaken.

d) The initial assessment of GHG emissions implications for new sites and operations shall be used to determine the scope for designing in and implementing extended measures and approaches for carbon and energy reduction and efficiency that may not be applicable within previously existing sites and operations. Extended measures and approaches shall be considered in the light of the HZL's Performance Indicators and appropriate targets for energy and carbon reduction.

4.4. Group-Wide Reporting

a) HZL shall report its energy and carbon emissions using internationally recognised methodologies in its annual Sustainable Development Report Energy and Carbon Emissions Performance

a) The annual energy and carbon assessment and the associated ECMP for each operation and site of HZL shall be calculated and maintained by each location. Each unit shall draw together and amalgamate annual GHG emissions to develop a company-wide carbon footprint.

b) The carbon footprint shall be reviewed on an annual basis and updated as required and reported to the HZL head office.

c) Each operation shall collate the annual GHG emissions arising from all its facilities and use these to determine Company-level performance goals and emissions reduction targets for the forthcoming year.

d) The GHG emissions collated by each Company shall be submitted to the Group Sustainability Committee for the purposes of the annual management review, performance reporting and continual improvement in accordance with the *Management Review and Continual Performance*.

5. ROLES AND RESPONSIBILITIES

HZL operations and sites shall ensure that roles and responsibilities for implementing and complying with this Standard are allocated. Key responsibilities shall be included in job descriptions, procedures and/or other appropriate documentation.

6. COMPLIANCE AND PERFORMANCE

Each HZL operation shall ensure they comply with the requirements of this standard. Performance against meeting the requirements of this Standard shall be periodically assessed, documented and, where required, reported to HZL Corporate. The assessment of performance shall include setting and reporting on key performance indicators (KPIs) where these have been established at HZL Company or local level. The evaluation of performance shall include, as a minimum, confirmation that:

- An energy and Climate Change assessment is prepared annually by each site and is reported to the Company Head Office.
- An energy and Climate Change management plan (ECMP) exists for each site and that its provisions are being put into practice
- A carbon footprint is prepared annually by each Company and reported to the Group Sustainability Committee to enable it to fulfil its duties for data reporting and continual improvement.
- Statements of Company actions relating to research, innovation, and investment in energy and low carbon are prepared annually.
- Evidence is available to demonstrate the actions and initiatives taken to monitor and reduce energy and carbon emissions.

- Information and awareness-raising activities have been undertaken among employees, customers and suppliers and other stakeholders to enhance knowledge and understanding of energy and Climate Change management issues.

7. SUPPORTING INFORMATION

Reference	Description
Greenhouse Gas Emissions Accounting and Reporting Methodologies	Internationally-recognised sources such as the World Business Council for Sustainable Development (WBCSD) / World Resources Institute (WRI). Greenhouse Gas (GHG) Protocol Initiative: *"A Corporate Accounting and Reporting Standard, Revised Edition* (WBCSD and WRI 2004) http://www.wbcsd.org/pages/EDocument/EDocumentDetails.aspx?ID=13590&NoSearchContextKey=true *"The GHG Protocol for Project Accounting* (WBCSD and WRI, 2005) http://www.wbcsd.org/includes/getTarget.asp?type=d&id=MTc1MDk ISO 14064 on GHGs, parts 1, 2 and 3 http://www.iso.org/iso/iso_catalogue.htm Sector-specific guidance on GHG emissions accounting will also be relevant to some of HZL's businesses, notably the aluminium sector GHG protocol: http://www.world-aluminium.org/cache/fl0000127.pdf
The Office of the Compliance Advisor/Ombudsman (CAO)	An independent post that reports directly to the President of the World Bank Group. The CAO reviews complaints from communities affected by development projects undertaken by the private sector lending and insurance members of the World Bank Group, the International Finance Corporation (IFC) and the Multilateral Investment Guarantee Agency (MIGA). The CAO works to respond to complaints through mediated settlements or through compliance audits that ensure adherence with relevant policies. The CAO also offers advice and guidance to IFC and MIGA, and to the World Bank Group President, about improving the social and environmental outcomes of IFC and MIGA projects.
Global Reporting Initiative (GRI)	The Global Reporting Initiative (GRI) is a network-based organization that produced an internationally applicable sustainability reporting and disclosure framework. The GRI periodically updates the framework and also provides sectorspecific guidance on its application to environmental, social and governance performance. http://www.globalreporting.org/Home
ICMM (International Council of Mining and Metals)	The ICMM has produced and published a good practice guidance document 'Policy on Climate Change' that contains useful guidance and references to cultural heritage. The ICMM has also produced many other best practice documents on a range of health, safety, environment and community issues relating to mining. http://www.icmm.com/library

Reference	Description
IFC Performance Standards Guidance Notes	Provides detailed guidance for adopting and implementing the requirements of the different Performance Standards. http://www.ifc.org/ifcext/sustainability.nsf/Content/PerformanceStandards

8. REVIEW

This Technical Standard shall be periodically audited and reviewed to determine its accuracy and relevance with regard to legislation, education, training and technological changes. In all other circumstances, it shall be reviewed no later than 12 months since the previous review.

9. RELATED DOCUMENTATION

A summary of the references and supporting documents relevant to this document is provided in the following table.

Doc. Ref.	Document name
	HZL Code of Conduct
POL 10	Energy and Climate Change Policy
TS 08	Conducting ESIA to International Standards Technical Standard
MS 14	Management Review and Continual Performance