JSL
JINDAL STAINLESS

Building Trust with Climate Action

Report FY2023-24

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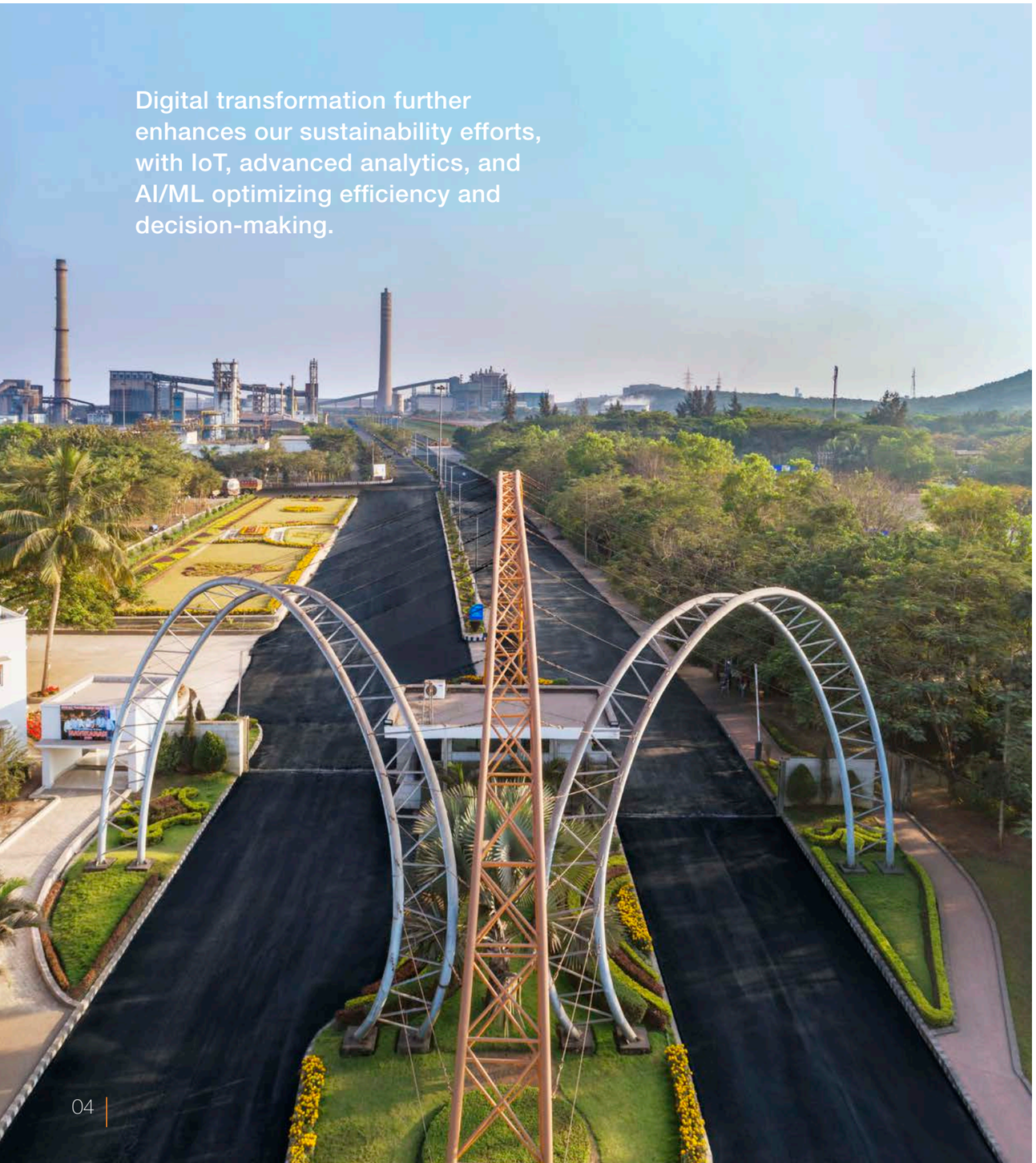
1 About the Report

By integrating sustainability into our decisions and fostering collaboration, we aim to build a greener, more resilient future for the steel industry and create lasting value for all our stakeholders.



1.1 Forward-looking statement

Jindal Stainless is proud to release its first Climate Action Report aligned with the recommendations of Task Force on Climate-related Financial Disclosures (TCFD), partially aligned with International Sustainability Disclosure Standards IFRS S2 developed by the International Sustainability Standards Board (ISSB), reflecting our commitment to transparency and action on climate-related risks and opportunities. As we deepen our understanding of climate impacts and the transition to a low-carbon economy, we recognize that evolving strategies, regulations, and global decarbonization efforts may influence key financial judgments and the valuation of certain assets and liabilities in future reporting.

We are committed to achieving full IFRS S2 alignment, reducing emissions, and innovating low-carbon solutions. By integrating sustainability into our decisions and fostering collaboration, we aim to build a greener, more resilient future for the steel industry and create lasting value for all our stakeholders.

Disclaimer: This report includes forward-looking statements based on current assumptions, expectations, and available information. These statements are subject to inherent risks, uncertainties, and evolving regulatory, market, and technological factors, which may cause actual outcomes to differ materially. Jindal Stainless makes no commitment to update these statements and assumes no liability for reliance on them. This report should not be interpreted as a guarantee of future performance or regulatory compliance.

1.2 Why climate change is material to JSL

A Climate change is a material topic for Jindal Stainless Limited (JSL), as identified through its materiality assessment, reflecting its significance to both the company and its stakeholders. With evolving regulations, increasing stakeholder expectations, and the transition to a low-carbon economy, climate change presents both risks and opportunities that are central to JSL's long-term sustainability and competitiveness.

Global Context: Evolving Regulations & Stakeholder Expectations

Climate change has emerged as one of the most pressing global challenges, prompting governments, investors, and consumers to demand greater accountability and action from businesses. Regulatory landscapes are rapidly evolving, with stricter emission limits, carbon pricing mechanisms, and penalties for non-compliance. Businesses worldwide are aligning with Sustainable Development Goals (SDGs), Nationally Determined Contributions (NDCs), and net-zero targets under international climate agreements. Industry benchmarks such as the Sustainability Accounting Standards Board (SASB) emphasize climate change as a high-priority area, reinforcing the urgency for companies like JSL to integrate sustainability into their operations.

International Sustainability Standards Board (ISSB), reflecting our commitment to transparency and action on **climate-related risks and opportunities**

Steel Sector: Carbon Intensity & Regulatory Landscape

The stainless-steel industry operates with high energy and water requirements, given the nature of its production processes. However, this also presents significant opportunities for efficiency improvements and emission reductions. As a hard-to-abate sector, steelmaking is among the largest industrial sources of greenhouse gas (GHG) emissions globally. Recognizing this, regulatory mechanisms such as the Carbon Border Adjustment Mechanism (CBAM) and Corporate Carbon Trading System (CCTS) have been introduced to drive decarbonization and ensure competitiveness in a low-carbon economy. These policies impose carbon costs on emissions-intensive imports and set financial incentives for emission reductions, impacting the industry's trade dynamics and investment decisions. Companies that proactively embrace low-carbon technologies and sustainable practices will gain a competitive edge in this evolving regulatory landscape.

JSL's Climate Impact & Strategic Response

For JSL, addressing climate change is not just an environmental responsibility but a business imperative. Several of JSL's core operations contribute to its carbon footprint, including fuel consumption during steel melting and rolling operations (hot and cold), captive power generation and ferroalloy production, both of which are energy-intensive and water dependency, particularly for cooling processes, requiring efficient water management.

By integrating energy efficiency measures, renewable energy, and process optimization, JSL is committed to mitigating emissions, reducing operational vulnerabilities, and enhancing business resilience. Aligning with India's NDCs and global net-zero ambitions positions JSL as a leader in sustainable steel production.

Climate Action: A Strategic Imperative

Stakeholders—including investors, customers, and regulatory bodies—expect JSL to demonstrate climate leadership. Proactively adopting green technologies and sustainability-driven strategies strengthens JSL's market position, fosters trust, and ensures long-term growth. Climate action is no longer a peripheral concern; it is embedded in JSL's business strategy to build resilience, drive innovation, and create lasting value in a low-carbon economy.

1.3 JSL's commitment to climate action

As India's leading stainless-steel producer and the fifth largest globally (excluding China), we are committed to driving the nation's green transformation through sustainable solutions. At COP 28 in December 2023, we announced an investment of over INR 700 crore in sustainability initiatives aimed at cutting 1.5 million tonnes of carbon emissions annually, supporting our goals to halve emissions by 2035 and achieve net zero by 2050.

Key milestones include establishing India's first green hydrogen plant for stainless steel production, deploying floating solar plants of 7.3 MWp capacity, and committing to source all incremental power from renewables. Our circular production processes, utilizing 72% scrap as raw material, and innovative low-carbon technologies avoided 76,595 tonnes of CO_2 emissions this year.

At Jindal Stainless, our commitment to sustainability extends beyond compliance—it is embedded in our innovation and digital transformation efforts. By leveraging advanced technologies such as IoT, AI/ML, and data analytics, we enhance operational efficiency, reduce resource consumption, and minimize emissions across our value chain.

The stainless-steel industry operates with high **energy and water** requirements, given the nature of its production processes

Our contributions to key infrastructure and clean energy projects further reinforce our role in driving climate action. From providing stainless steel for India's first underwater metro—promoting low-carbon urban mobility—to supporting lightweight electric buses and green hydrogen systems, we enable the transition to a low-carbon economy. Additionally, our materials for energy-efficient thermal power plants, as recognized by Bharat Heavy Electricals Limited (BHEL), contribute to improved energy performance and reduced emissions in the power sector.

Through these initiatives, we are building a resilient, sustainable future and advancing the vision of 'Viksit Bharat.'

1.4 Reporting period and boundary

This report provides a detailed account of the climate-related dependencies, impacts, risks, opportunities, and mitigation strategies of Jindal Stainless Limited (JSL) for the period from **1st April 2023 to 31st March 2024**. The reporting boundaries for the TCFD report have been defined distinctly for physical risk analysis, transition risk analysis, and GHG emissions calculations, ensuring a comprehensive assessment across all critical areas.

Physical Risk Analysis

JSL conducted a Climate Change Physical Risk Assessment (CCRA) for its operations across eight strategically significant locations. This analysis focuses on identifying physical risks posed by climate change to JSL's operations including manufacturing sites at Jajpur, Hisar, Vizag.

The CCRA aims to assess the vulnerability of these sites to physical climate risks such as extreme weather events, temperature changes, and other environmental factors.

Transition Risk Analysis

In evaluating transition risks, JSL extends its scope to include its value chain and the key manufacturing sites located in Jajpur, Hisar and Vizag.

Additionally, this analysis covers JSL's global markets across multiple regions globally.

The transition risk analysis examines the financial and strategic implications of the global shift towards a low-carbon economy, considering regulatory changes, market dynamics, and technological advancements.

GHG Emissions

The GHG emissions disclosures in this report are focused on JSL's operations that account for over 95% of its annual turnover. We have enhanced our scope 3 coverage this year and we are working on covering 100% of our operations in the coming years. The scope includes:

Manufacturing Sites:
Hisar, Jajpur, Vizag

Mining Operations:
Sukinda Mines

Corporate Offices:
Gurgaon, Delhi

Stockyards:
Pathredi, Chennai, Vadodara & Mumbai

JSL will also strive to integrate its acquisitions and strategic collaborations within its GHG emissions report in subsequent years. These efforts are part of JSL's commitment to diversifying its product offerings while mitigating the environmental and social impacts of its operations.

JSL is dedicated to aligning its operations with global best practices and sustainability commitments, ensuring comprehensive reporting and transparency across all dimensions of climate-related risks and opportunities in line with TCFD recommendations & IFRS S2.

2 Key Highlights

Where we are:

Our GHG Emissions

Scope 1
2,992.3 thousand tCO2e

Scope 2
787.2 thousand tCO2e

Scope 3
3,345.4 thousand tCO2e

Our Targets Ahead

Achieve net-zero carbon emission by 2050

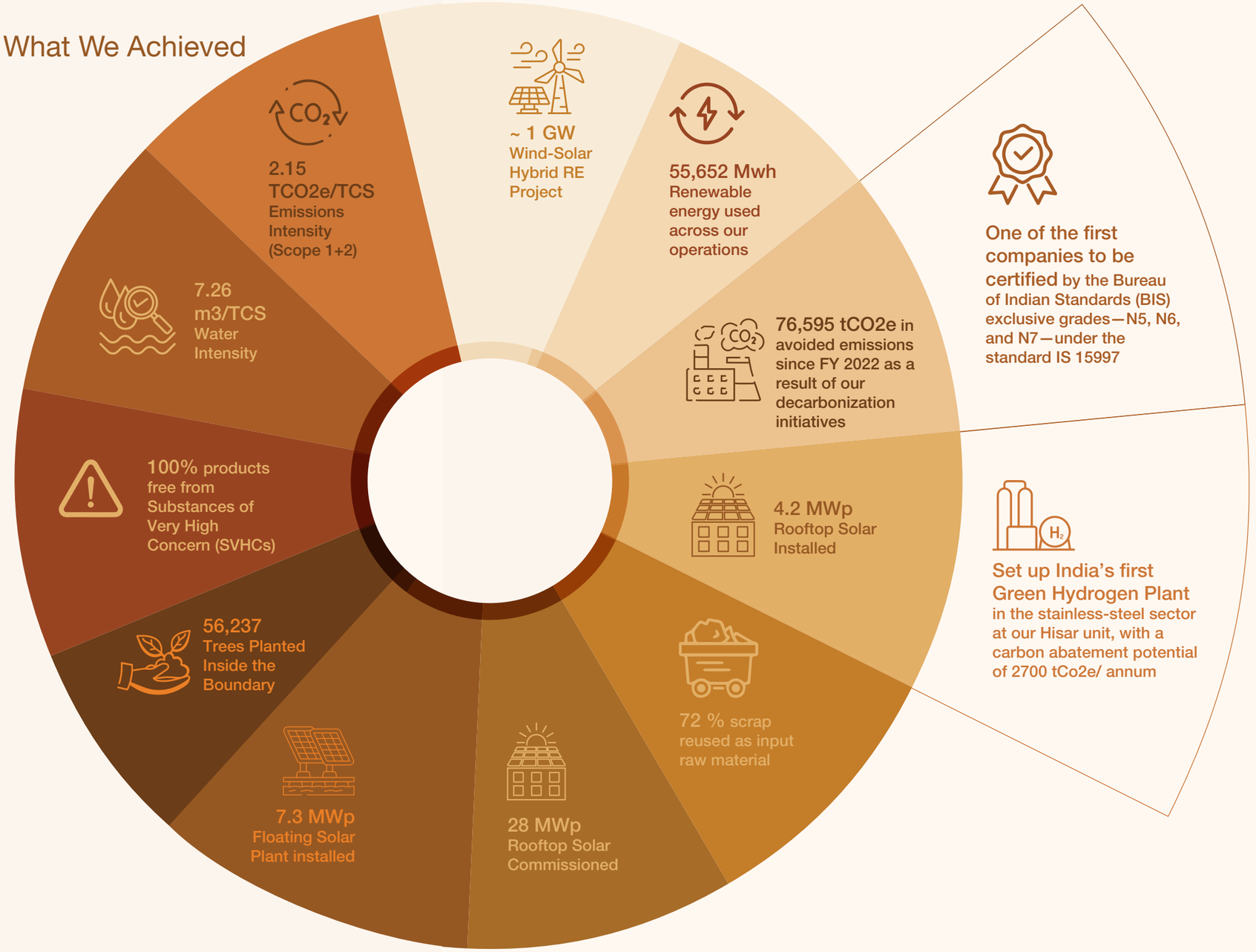
50% reduction in carbon emission intensity by 2035 compared to the baseline levels of **1.98 tonnes CO2/tonnes** of crude steel in FY 2022

Energy reduction targets for 2023-24:

Target for Jajpur: 1.5184 TOE/ton

Target for Hisar: 0.0591 TOE/ton

What We Achieved



3 Message from Leadership

Our employees, customers, suppliers, and communities – to foster a shared understanding of our sustainability goals and collaborate on solutions. We believe that collective action is essential to addressing the global challenge of climate change.

From the Managing Director's Desk

Abhyuday Jindal
Managing Director

> **WE ARE ALSO ACTIVELY EXPLORING RENEWABLE ENERGY SOURCES AND COLLABORATING WITH PARTNERS TO DEVELOP INNOVATIVE SOLUTIONS FOR GREEN STEELMAKING.**

It is with great enthusiasm that I share JSL's first Climate Action Report, a significant milestone in our journey towards environmental stewardship and sustainable growth. This report underscores our commitment to transparency and accountability as we navigate the challenges and opportunities of climate change.

As a leading stainless-steel manufacturer in India, we recognize our responsibility to not only minimize our environmental impact but also enhance our resilience to the impacts of a changing climate. This report details our comprehensive strategy for decarbonizing our operations, enhancing resource efficiency, and promoting sustainable practices across our value chain, while also building resilience to the physical risks of climate change.

We have made significant strides in recent years, including investing in energy-efficient technologies, optimizing our production processes, and implementing robust waste management systems.

We are also actively exploring renewable energy sources and collaborating with partners to develop innovative solutions for green steelmaking. Furthermore, we are proactively assessing our vulnerability to climate-related risks such as extreme weather events and water scarcity and implementing adaptation measures to ensure the continuity of our operations.

However, we acknowledge that the journey to sustainability and climate resilience is an ongoing one. We are committed to setting ambitious targets, continuously improving our performance, and transparently reporting our progress. This report outlines our key performance indicators, targets, and initiatives for the coming years, demonstrating our dedication to achieving meaningful reductions in our environmental footprint and strengthening our resilience to climate change.

We believe that sustainability and climate resilience are not just ethical obligations but also strategic imperatives. By integrating these principles into our core business operations, we are enhancing our operational efficiency, mitigating risks, and creating long-term value for our shareholders.

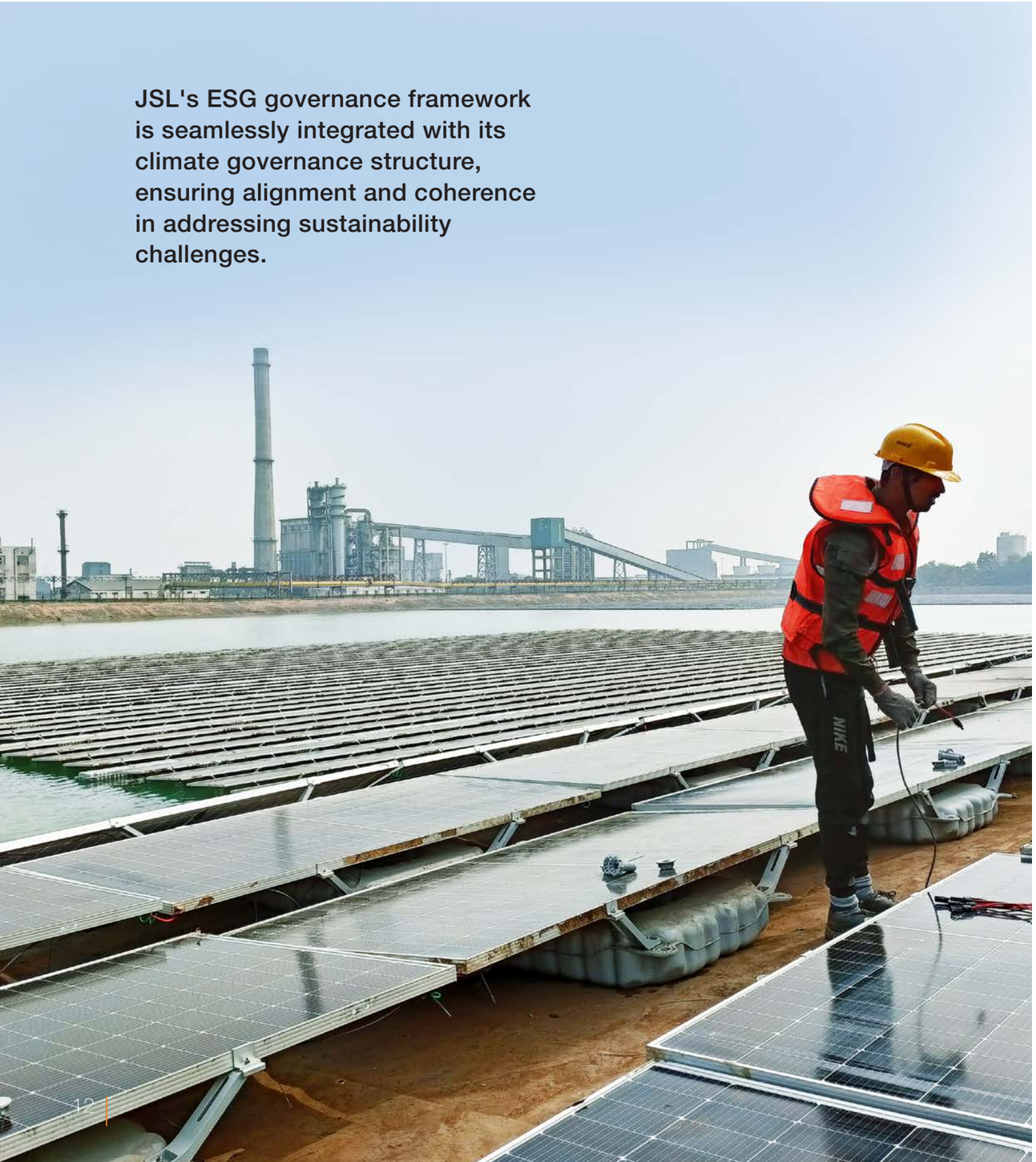
Furthermore, we are committed to engaging with our stakeholders – our employees, customers, suppliers, and communities – to foster a shared understanding of our sustainability goals and collaborate on solutions. We believe that collective action is essential to addressing the global challenge of climate change.

This report is a testament to the hard work and dedication of our employees, who are passionate about building a more sustainable future. I am incredibly proud of their commitment and confident in our ability to achieve our ambitious goals.

I encourage you to explore this report and learn more about our commitment to climate action and resilience. We are excited to embark on this journey and contribute to a more sustainable and prosperous India.

4 Governance

JSL's ESG governance framework is seamlessly integrated with its climate governance structure, ensuring alignment and coherence in addressing sustainability challenges.



> Our board members contribute a wide range of expertise spanning supply chain management, technology, finance, corporate governance, and administrative reforms, enhancing our ability to navigate climate-related challenges and leverage emerging opportunities.

Addressing climate change is a key governance priority and is consistently featured in discussions on strategy, operational performance, investment evaluations, and scenario analysis to identify potential risks and opportunities.

JSL's ESG governance framework is seamlessly integrated with its climate governance structure, ensuring alignment and coherence in addressing sustainability challenges. Representatives from various levels of the corporate governance hierarchy actively engage in and contribute to climate-related discussions and strategic planning. The Board of Directors holds ultimate accountability for these matters, supported by a dedicated ESG Committee at the board level. This committee plays a pivotal role in overseeing and guiding the integration of climate considerations into strategic decision-making and risk management frameworks. Our board members contribute a wide range of expertise spanning supply chain management, technology, finance, corporate governance, and administrative reforms, enhancing our ability to navigate climate-related challenges and leverage emerging opportunities. Furthermore, there is a management-level ESG Steering Committee tasked with overseeing the implementation of our strategies and controls. This committee ensures that material climate-related risks and opportunities are regularly reviewed and reported to the Board and ESG Committee, ensuring proactive and informed decision-making at the leadership level.

The Board and Key Managerial Personnel (KMP) receive regular training and orientation on ESG and climate-related topics to enhance their understanding of critical sustainability issues.

These sessions cover safety, health, environment, industry trends, governance, ethics, and regulatory updates, ensuring alignment with the company's ESG goals.

The Board's performance evaluation includes assessing members' understanding of their roles and responsibilities in the ESG and Steering Committees.

At JSL, we approach every business decision with a deep awareness of the rapidly changing global and national climate and sustainability landscape. This deliberate and thoughtful process reflects our unwavering commitment to driving meaningful change and building a sustainable future for all stakeholders.

ESG and climate-related topics to enhance their understanding of critical sustainability issues. These sessions cover safety, health, environment, industry trends, governance, ethics, and regulatory updates, ensuring alignment with the company's ESG goals

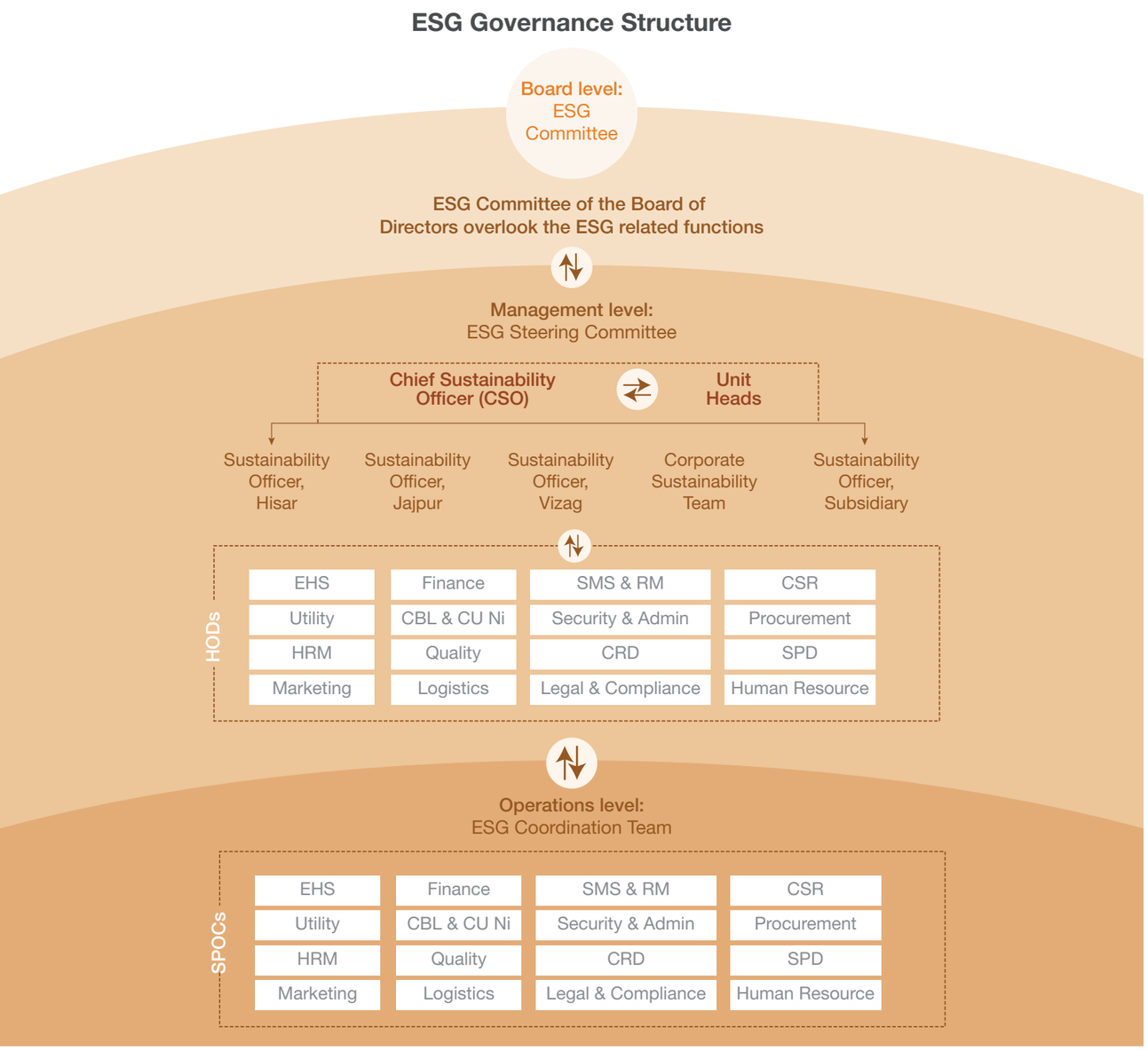


Figure 4-1: Climate Change Governance

4.1 Board and management responsibilities

Apex Level:
Board-Level ESG Oversight

The Board of Directors holds ultimate responsibility for overseeing the company's long-term strategy, ensuring ESG priorities and climate-related risks are integrated into decision-making. A dedicated ESG Committee plays a critical role in shaping this strategy, including the goal of achieving Net Zero by 2050. The five member ESG committee is led by an Independent Director and includes two more Independent Directors and two Executive Directors:

- **Ms Arti Luniya**
  Chairperson of the Committee, Independent Director
- **Mr Abhyuday Jindal**
  Member, Managing Director
- **Mr Jayaram Easwaran**
  Member, Independent Director
- **Mr Jagmohan Sood**
  Member, Whole Time Director and COO
- **Dr Rajeev Uberoi**
  Member, Independent Director

The committee reviews the ESG framework, oversees stakeholder engagement, and tracks progress toward key ESG goals. It also recommends policies, assesses risks and opportunities, and ensures transparent reporting. Quarterly updates on emerging ESG issues including climate-related risks and opportunities are provided to the Board during board meetings to ensure accountability and alignment with strategic objectives.

This governance structure ensures sustainability remains at the core of our business, driving long-term value and resilience.

Management Level
ESG Steering Committee

The ESG Steering Committee, led by the Chief Sustainability Officer (CSO), forms the second tier of our governance framework. It translates the Board's strategic direction into actionable plans, with participation from facility-level sustainability officers and functional department heads. It is responsible for:

Embedding Climate Considerations and Governance

The committee integrates climate considerations into daily operations and long-term strategies. It advises the Board on regulatory and sustainability topics across geographies and ensures alignment with climate-related governance frameworks.

Monitoring ESG Targets and Progress

It oversees short, medium, and long-term ESG and Net Zero targets, recommending improvements to governance structures and progress tracking mechanisms.

Cultural Integration and Implementation

The committee drives sustainability efforts by fostering a climate-conscious culture and ensuring effective governance and advocacy for ESG and climate change.

Risk Evaluation and Reporting

Emerging climate risks and opportunities are assessed, with guidance provided to mitigate risks and leverage opportunities. The committee reviews sustainability and climate disclosures for accuracy and transparency before taking an approval from the ESG Committee.

Overall, the ESG Steering Committee ensures the effective execution of sustainability initiatives and provides monthly updates to the Board on progress, challenges, opportunities, risk management, and emissions performance.

Operational Level: ESG Coordination Teams

ESG Coordination Teams, supported by departmental Single Points of Contact (SPOCs), are tasked with executing sustainability and climate-related initiatives at the operational level. These teams drive cross-functional collaboration to ensure the integration of ESG strategies into daily activities through documentation, monitoring, and tracking of departmental targets, ensuring timely achievement of goals.

They coordinate with departmental heads to report progress, seek guidance, and drive key initiatives forward. The CSO conducts weekly meetings with the ESG teams and fortnightly at operational level to oversee and guide the coordination teams. By overseeing climate-related risks, opportunities, and carbon reduction strategies, these teams play a critical role in advancing JSL's overarching sustainability objectives.

4.2 Stakeholder engagement

We are committed to strong governance practices, including proactive engagement with shareholders and suppliers on ESG and climate-related issues. Recognizing the vital role of these groups in shaping our strategic direction, the Board ensures open communication channels to seek and incorporate their insights.

We leverage a variety of formal and informal communication channels to actively engage with shareholders and suppliers and address their perspectives. As environmental priorities gain prominence, discussions on climate change have become integral to our regular interactions with investors and gradually a part of supplier discussions as well, reflecting our commitment to aligning with evolving sustainability expectations.

We actively analyse shareholder feedback gathered through various platforms, including investor meetings and one-on-one engagements, both virtual and in person. These insights enhance the Board's understanding of investor sentiments on climate change and provide valuable perspectives on suppliers' ESG practices and climate-related risks.

This feedback is meticulously documented and shared with the Board, ensuring that it informs strategic decision-making. This comprehensive approach reflects our unwavering commitment to transparency, proactive engagement, and addressing climate-related challenges with informed and strategic actions.

4.3 Advocating for global climate action

As an industry pioneer and leader, we actively collaborate and engage with industry associations to advocate on sustainability topics that impact the stainless-steel sector. In FY 2023–24, we actively engaged with policymakers, trade associations, and other stakeholders to promote a framework that aligns industry practices with global environmental goals, including the Paris Agreement. Our advocacy efforts focus on several critical areas:

- **Framework Development for Green Steel:** We contributed to the Ministry of Steel's development of a green steel taxonomy, promoting sustainable solutions, monitoring emissions, and supporting a transition to renewable energy, ensuring industry alignment with decarbonization targets.
- **Carbon Border Adjustment Mechanism (CBAM):** By engaging with the Bureau of Energy Efficiency (BEE) and nominating senior experts, we shaped technical aspects of CBAM, aligning policies with India's Paris Agreement commitments.
- **Collaboration with Trade Associations:** Through partnerships with organizations like FICCI, CII, and ISSDA, we advocated for decarbonization, renewable energy adoption, and sustainable manufacturing, amplifying industry perspectives in policy development.
- **United Nations Conference of Parties (COP) 28:** At COP 28, we reaffirmed our sustainability commitment, announcing a significant investment of over INR 700 crore to reduce 1.5 million tonnes of carbon emissions annually, advancing our mid-term target of a 50% carbon footprint reduction by 2035.
- **India-Sweden Green Transition Partnership (ISGPT):** On February 13, 2024, we hosted a technical workshop with Swedish companies, fostering dialogue and collaboration between India and Sweden to exchange best practices and drive sustainability initiatives.

5 Strategy

At Jindal Stainless, sustainability is integral to our corporate strategy, guiding our efforts to create long-term value for stakeholders while addressing global climate challenges. Aligned with our Net Zero carbon emissions goal for 2050, we have committed to reducing carbon emission intensity by 50% by FY 2034-35.

> For JSL, aligning with India's NDCs and global net-zero ambitions is not just a regulatory requirement but a strategic imperative. This alignment helps in reinforcing JSL's commitment to sustainable development and climate leadership, thereby contributing to global climate goals.

Recognizing the critical role of climate-related risks in shaping business strategies, we have integrated these risks into our Group risk management framework, ensuring accountability at the highest levels. In FY2024, we undertook our first climate risk assessment using scenario analysis to identify and evaluate potential risks and opportunities. This exercise serves as a foundation for refining our climate strategy and aligning business planning with a sustainable future.

Through these efforts, we aim to contribute meaningfully to sustainable development, maintain transparency, and foster collaboration with stakeholders to address climate risks effectively. The following sections detail our approach, and the key risks and opportunities identified.

5.1 Highlights of key climate-related risks

Aligned with TCFD recommendations, we undertook a detailed evaluation of both physical and transition risks to understand their potential impact on our operations and strategy.

Physical Risks

We analysed eight significant climate hazards—water stress, drought, urban flooding, riverine flooding, coastal flooding, cyclones and wind, landslides, and extreme heat—under both current and projected future climate scenarios. Key findings reveal that water scarcity, flooding, cyclones, and extreme temperatures could severely affect operational facilities and pose challenges to worker health and safety.

Transition Risks and opportunities

Our assessment identified eleven key drivers, including carbon pricing, evolving regulations, and market demand shifts. These were analyzed under scenarios from the Network of Greening the Financial System's (NGFS) High carbon scenario: Current Policies and Low carbon scenario: Net Zero 2050. Policies like the Carbon Credit Trading Scheme (CCTS), governed by the Energy Conservation Act, 2022, and the Ministry of Power (MoP), along with Renewable Purchase Obligations (RPO) and the Carbon Border Adjustment Mechanism (CBAM), are expected to enforce stricter emission controls. Complying with these regulations may require substantial investments in sustainable raw materials and advanced technologies, such as hydrogen, carbon capture, utilization, and storage (CCUS), and biofuels, potentially increasing capital and operational costs.

Our approach incorporates bottom-up methodologies to analyse potential climate impacts under various scenarios, considering both **physical and transition risks**

Transition to a low-carbon world will also bring in several opportunities as stainless steel is expected to play a crucial role in low carbon energy solutions. Wind energy, solar energy, nuclear energy, geothermal energy, green hydrogen production and storage systems all require stainless steel because of its corrosion resistance and strength and durability.

These findings highlight the importance of integrating climate resilience into our strategic planning, ensuring our business adapts to a low-carbon future while remaining competitive and sustainable.

5.2 Physical risks

Worsening climate hazards, including long-term shifts in weather patterns, pose significant risks to Jindal Stainless Limited. These risks can damage critical infrastructure, disrupt raw material supplies, and drive input price volatility. Additionally, extreme weather events may lower workforce productivity, interrupt supply chains, and affect downstream value chains and market stability.

Inaction on climate issues can lead to heightened scrutiny from stakeholders, strained relations with communities over scarce resources, and potential reputational and operational challenges.

Regulators and investors are intensifying efforts to address these risks through stringent disclosure requirements, emphasizing the assessment and management of climate risks. Companies are expected to demonstrate proactive strategies for resilience and sustainability, aligning their operations with global climate goals to remain competitive and compliant.

We have thus conducted a comprehensive physical risk assessment to evaluate both acute and chronic risks that may impact all our business locations.

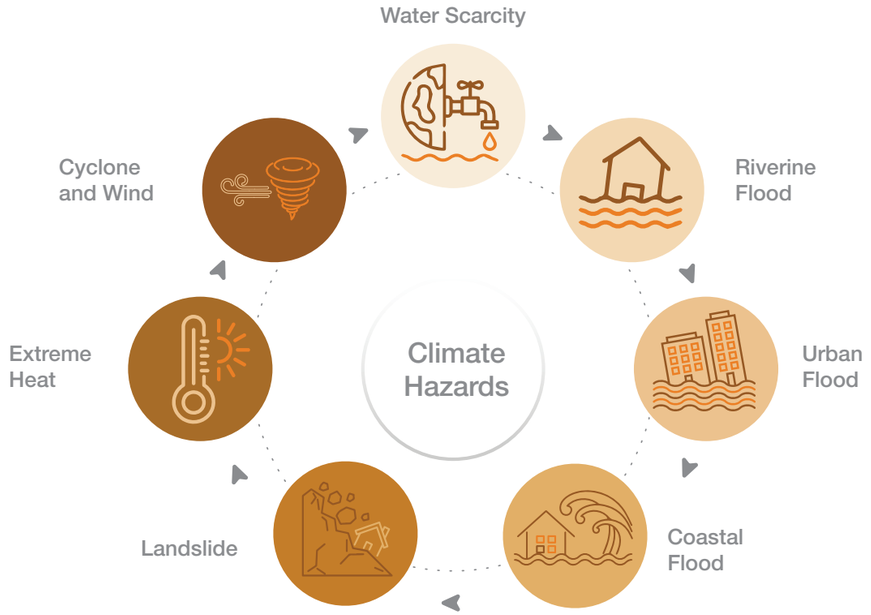


Figure 5-1: Climate Hazards Considered

Overview of climate-related physical risks scenarios

We have considered various scenarios covering broad spectrum of climate outcomes to gain insights into range of risks and opportunities that we might face over time. We used global tools which comprises of climate change projections data when assessing the impact of future climate hazards for any given location. We utilized internationally accepted scenarios from International Panel for Climate Change WGI Interactive Atlas[1], which is based on the IPCC's Sixth Assessment Report IPCC's AR6, which provides pathways for assessing physical impacts of climate change from varying degrees of GHG emission concentration in the atmosphere. The IPCC model provides a series of 'Shared Socio-Economic Pathways' (SSPs) and Representative Concentration Pathways (RCP) which are a series of scenarios that vary depending based on the projected greenhouse gas (GHG) emissions over the next century.

For each climate hazard we used the following climate scenarios to help us make informed business decisions while taking into consideration potential impact of climate risks:

The SSP1-2.6 scenario, a low emissions scenario where Global warming is limited to 1.5°C to 2°C by 2100. CO_2 emissions peak early and drop to net-zero by around 2070, potentially turning net-negative by 2100.

The SSP2-4.5 scenario, an intermediate scenario resulting from no additional climate policy – CO2 emissions continue rising, which leads to a global temperature rise of 2°C to 3°C by 2100.

The SSP5-8.5 scenario, a high emissions scenario, global warming could reach 4°C to 5°C or more by 2100, driven by continually rising emissions throughout the century.

We mapped each scenario to three future time horizons considering both the life of our assets as well as the framework and reporting requirements:

2030 (Short/Medium-term)

2050 (Long-term)

[1] IPCC WGI Interactive Atlas

5.2.1 Approach and methodology of assessing physical risks

The physical risk analysis was conducted through a structured five-step approach to assess climate hazards and their potential impact on operations:

- **Step 1 – Primary Data collection:** Geospatial information, including site locations, coordinates, site types, and sectoral details, was collected for the analysis. This foundational data formed the basis for site-specific risk assessments.
- **Step 2 – Baseline Hazard Risk Assessment:** Location-specific historical data was analyzed to identify trends and determine whether a site is historically prone to climate-related hazards such as water scarcity, floods, droughts, extreme heat, cyclones, and high winds. This qualitative assessment relied on globally recognized tools and datasets, including the World Bank's Climate Change Knowledge Portal (CCKP), WRI, IPCC Risk Atlas, and NOAA IBTrACS.
- **Step 3 – Future Hazard Risk Assessment:** Future climate scenarios and potential hazards were evaluated to assess changes in key climatic variables such as precipitation, temperature, and wind speed. Global tools were used to project the extent of these changes under different timeframes and scenarios.
- **Step 4 – Hazard Potential Categorization:** The impact of each climate hazard was assessed and categorized into three levels—Low, Medium, and High—based on its potential impact on the built and natural environment. This categorization considered factors such as hazard intensity, frequency, and regional/site-specific vulnerabilities.
- **Step 5 – Trends and Recommendations:** Trends in climate parameters were evaluated to project the likely direction and magnitude of hazard changes compared to historical baselines. Based on the findings, high-level implications of the hazards were identified, and actionable recommendations were provided to mitigate risks and enhance resilience.

5.2.1.1 Physical risks scenario analysis output

The output shown below across different hazards in the baseline period and the future projections is based on the legend provided below.

Baseline Hazard Classification

No Hazard	-
Low	-
Medium	-
High	-

Projected Climate Change Classification

Significant Increase	-
Moderate Increase	-
Minimal Increase	-
No Change	-
Minimal Decrease	-
Moderate Decrease	-
Significant Decrease	-
Not Applicable	-

Figure 5-2: Legend for Hazard Classification

Water stress

The overall physical climate risk summary for Water Stress at all the JSL Sites for future climate scenarios is shown in table below.

Table 1: Summary of water stress under baseline and climate change scenarios

Site Name	Baseline Hazard Level	Water Stress					
		Future Trends in Climatic Hazard					
		SSP1-2.6/RCP2.6		SSP2-4.5/RCP4.5		SSP5-8.5/RCP8.5	
		2030	2050	2030	2050	2030	2050
Jindal Stainless, Jajpur JSL Sukinda Mines	High	Same as baseline					
Jindal Stainless, Hisar	High	Same as baseline					
Jindal Stainless, Vizag	High	Same as baseline					

JSL is conscious about water-stress risk and is actively taking several water stewardship measures like installing ZLD systems, ETP systems and water recycling. Details on water conservation initiatives can be found under the topic Water Conservation in Metrics and Targets section.

Urban Flooding

The overall summary for risk of urban flooding due to extreme rainfall (one-day maximum) at all the JSL Sites for future climate scenarios is shown in the table below.

Table 2: Summary of urban flooding risk under baseline and climate change scenarios

Site Name	Baseline Hazard Level	Urban Flooding (based on one-day max rainfall)					
		Future Trends in Climatic Hazard					
		SSP1-2.6/RCP2.6		SSP2-4.5/RCP4.5		SSP5-8.5/RCP8.5	
		2030	2050	2030	2050	2030	2050
Jindal Stainless, Jajpur	High	1% increase	10% increase	2% increase	7% increase	1% increase	6% increase
JSL Sukinda Mines	High	1% increase	11% increase	1% increase	5% increase	1% increase	5% increase
Jindal Stainless, Hisar	Medium	8% increase	11% increase	5% increase	11% increase	10% increase	14% increase
Jindal Stainless, Vizag	Medium	3% increase	10% increase	1% increase	9% increase	2% increase	12% increase

Riverine Flooding

The overall summary for risk of riverine flooding (five-day maximum) at all the JSL Sites for future climate scenarios is shown in the table below.

Table 3: Summary of riverine flooding risk under baseline and climate change scenarios

Site Name	Baseline Hazard Level	Riverine Flooding					
		Future Trends in Climatic Hazard					
		SSP1-2.6/RCP2.6		SSP2-4.5/RCP4.5		SSP5-8.5/RCP8.5	
		2030	2050	2030	2050	2030	2050
Jindal Stainless, Jajpur JSL Sukinda Mines	No Hazard	Not Applicable					
Jindal Stainless, Hisar	High	10% increase	11% increase	7% increase	14% increase	13% increase	15% increase
Jindal Stainless, Vizag	No Hazard	Not Applicable					

Coastal Flooding

None of the sites covered under this assessment are exposed to risks from climate change driven coastal flooding.

Landslide

None of the sites covered under this assessment are exposed to risks from climate change driven landslides.

Extreme Heat

The overall summary for risk of extreme heat at all the JSL Sites for future climate scenarios is shown in the table below.

Table 4: Summary of extreme heat risk under baseline and climate change scenarios

Site Name	Baseline Hazard Level	Extreme Heat					
		Future Trends in Climatic Hazard					
		SSP1-2.6/RCP2.6		SSP2-4.5/RCP4.5		SSP5-8.5/RCP8.5	
		2030	2050	2030	2050	2030	2050
Jindal Stainless, Jajpur	High	0.44oC increase	0.94 oC increase	0.42 oC increase	1.06 oC increase	0.34 oC increase	1.39 oC increase
JSL Sukinda Mines	High	0.46oC increase	0.99 oC increase	0.48 oC increase	1.11 oC increase	0.35 oC increase	1.45 oC increase
Jindal Stainless, Hisar	High	0.64 oC increase	1.22 oC increase	0.62 oC increase	1.32 oC increase	0.61 oC increase	1.7 oC increase
Jindal Stainless, Vizag	High	0.39 oC increase	0.82 oC increase	0.41 oC increase	0.94 oC increase	0.38 oC increase	1.25 oC increase

Cyclone and Wind

The overall summary for risk of cyclone and wind at all the JSL Sites for future climate scenarios is shown in the table below.

Table 5: Summary of cyclone and wind risk under baseline and climate change scenarios

Site Name	Baseline Hazard Level	Cyclone and Wind					
		Future Trends in Climatic Hazard					
		SSP1-2.6/RCP2.6		SSP2-4.5/RCP4.5		SSP5-8.5/RCP8.5	
		2030	2050	2030	2050	2030	2050
Jindal Stainless, Jajpur JSL Sukinda Mines	High	6% increase	7% increase	6% increase	8% increase	6% increase	9% increase
Jindal Stainless, Hisar Steel Limited	No Data	Not Applicable					
Jindal Stainless Steel Limited	High	6% increase	7% increase	6% increase	8% increase	6% increase	9% increase

5.3 Physical risks scenarios – business impacts and mitigation measures

The overall summary for impacts and plausible mitigation measures at the JSL Sites for physical risk scenarios is shown in table below.

Table 6: Climate change physical risk implications and adaptation measures

Climate Hazard	Applicable Site Locations	Implications	Adaptation Measures (Internal)	Adaptation Measures (External)
Water Scarcity (Acute# and Chronic*)	High Baseline and Future risk • Jajpur • Hisar • Vizag	• Reduced or unavailability of water for domestic and operational purposes including drinking and sanitation. • Increased water tariffs • Increased operational costs due to reliance on alternate water sources. • Potential production delays or shutdowns during severe shortages.	Manufacturing Sites • Conduct detailed water risk assessment and develop / implement water risk mitigation plan. • Conduct periodic water audits and improve process efficiency to minimize wastage. • Identify alternate sources of water to be used during water scarce periods.	Manufacturing Sites • Engage with regulatory authority, NGO's and industries in the vicinity to support local water conservation initiatives. • Share data and best practices with industry peers and regulators to foster a collaborative approach to water resource management. Timeline: Less than 5 years
		• More stringent regulatory requirements for Water conservation and efficiency • Higher reputational risks due to public concerns about water usage.	• Create awareness amongst employees and suppliers on water conservation. • Ensure to follow the strategy towards water neutrality / water positivity and regular monitoring on the status of the roadmap. • Explore opportunities for implementation of water saving technologies. • Harvest rainwater for utilization and/or groundwater recharge within Site. Timeline: Less than 5 years	
Flooding (Acute# and Chronic*)	High Baseline and Future risk • Jajpur • Hisar Medium Baseline and Future risk • Vizag	• Physical damage to the structural integrity of buildings, electrical equipment, machinery, and utilities. • Deterioration in water quality due to carry over of sediments along with the storm run-off. • Increased cost of water treatment. • Supply chain disruption. • Restricted access to sites due to flooding; impacting the delivery of raw materials. • Increased logistics costs. • Risk to health and safety of the employees. • Power failure. • Business disruptions, temporary closure, loss in revenue.	• Continuously enhance flood risk assessment • Enhance and regularly update the flood emergency response plan • Design and implement efficient drainage systems to handle stormwater runoff and prevent water accumulation. • Implementation of nature-based solutions to mitigate the flood situations can be explored. • Conduct regular maintenance of drainage systems and flood protection structures to ensure they function effectively. • Install advanced flood forecasting and early warning systems to provide timely alerts and improve preparedness.	• Engage with local communities to understand flood risks and incorporate their input into design and emergency planning. • Partner with local authorities for flood prevention infrastructure. • Engage with supply chain partners to ensure continuity during floods. Timeline: Less than 5 years

Climate Hazard	Applicable Site Locations	Implications	Adaptation Measures (Internal)	Adaptation Measures (External)
			• Conduct capacity building/training on safety measures during floods for employees. • Implement nature-based solutions to decrease the run-off. • Explore opportunities for rainwater harvesting within Site to decrease the run-off. • Elevate sensitive equipment above flood levels to prevent water damage. Timeline: Less than 5 years	
Extreme Heat (Acute#)	High Baseline and Future risk • Jajpur • Hisar • Vizag	• Equipment overheating leading to breakdowns or inefficiencies. • Product quality deterioration due to heat-sensitive materials. • Excessive evaporation losses in cooling towers leading to excessive make-up water requirement. • Increased power and water demand for cooling and associated costs. • Early wearing of the equipment/ materials, requiring replacement. • Increased risk of heat-related illnesses like heatstroke and dehydration.	• Consider appropriate temperature ranges for the design of structures and cooling system. • Develop a heat stress management plan for employees. • Install industrial cooling systems (e.g., air conditioners, fans). • Provide hydration stations and cool rest zones. • Adjust work hours to cooler periods. Timeline: 5 to 10 years	• Partner with health services for on-site medical support. • Collaborate with utility providers to ensure stable power supply for cooling systems. Timeline: Less than 5 years
Cyclone and Wind (Acute#)	High Baseline and Future risk • Jajpur • Vizag	• Machinery and infrastructure damaged by strong winds and flooding. • Interruptions in production schedules due to damage or evacuation. • Risk of injury or fatality due to high winds or falling debris.	• Reinforce structures to withstand high winds (e.g., storm-proof roofs, windows). • Ensure all machinery and equipment is anchored securely and capable of withstanding high winds. • Implement evacuation plans and conduct regular drills. • Provide regular training for employees and local communities on how to prepare and respond during a cyclone. • Install backup power generators to maintain operations during power outages. Timeline: 5 to 10 years	• Collaborate with supply chain partners to ensure alternate sources for raw materials and products during disruptions. • Partner with local governments to improve cyclone preparedness, such as flood control and evacuation infrastructure. • Advocate for the development of storm surge barriers and better stormwater drainage systems around industrial zones. Timeline: 5 to 10 years

5.4 Transition risks and opportunities

Transition risks are those associated with the pace and extent at which an organization manages and adapts to the internal and external pace of change to reduce greenhouse gas emissions and transition to low carbon energy. Transitioning for the world requires policy and legal, technology, and market changes to reduce carbon emissions. Depending on the nature, speed, and focus of these changes, transition risks may pose varying levels of financial and reputational risk to organizations across various sectors and geographies. Alternatively, if an organization is a low-carbon emitter and in the low carbon energy or climate transition market, they could experience market, technological, and reputational opportunities.

5.4.1 Transition risk and opportunity identification approach

This year, JSL has conducted a climate transition assessment in line with the requirements of the TCFD. This included the identification of transition risks and opportunities in a first step and scenario analysis in the second step.

To identify the relevant transition risks and opportunities, JSL considered the dimensions of the TCFD and has assessed its value chain, including the upstream, direct operations and downstream operations.

Table 7: TCFD transition risks and opportunities dimensions considered

Risks	Opportunities
Policy and Legal	Resource Efficiency
Market	Energy Source
Technology	Products and Services
Reputation	Markets
	Resilience

JSL considered the following time horizons considering the life of its operations as well as the requirements of the various regulatory requirements:

2030 (Short/Medium-term)

2050 (Long-term)

JSL has selected time horizons which extend to 2050, considering the life of its plants.

The selection of potentially material risks and opportunities was determined based on JSL's business model, value chain, current transition efforts and the policy environment, particularly in India in tandem with research from leading organizations such as the International Energy Agency to determine how JSL may be affected by the climate transition. Four opportunities and eight risks were identified as potentially material and considered for scenario analysis.

JSL's business model, value chain, current transition efforts and the **policy environment**

Overview of JSL's identified transition risks and opportunities

TCFD Category	Transition drive name	Value chain impact	Financial Driver
Opportunities			
Energy source	Use of supportive government decarbonization policy incentives	Direct Operations	CAPEX
Markets	Increased demand for stainless steel	Downstream	Revenue
Products & services	Investment into and development of green stainless steel	Direct Operations	Revenue
Resilience	Improved supply chain transparency and demonstration of industry leadership leading to reputational benefits	Downstream	Revenue
Risks			
Market	Changing consumer preferences	Downstream	Revenue
Market	Increased raw material costs due to increased stainless-steel demand	Upstream	OPEX
Market	Increased fossil fuel prices and reduced supply, affecting energy- and transport-related costs	Upstream, Direct Operations, Downstream	OPEX
Market	Devaluation or stranding of assets	Direct Operations	CAPEX
Policy & legal	Exposure to emerging GHG and climate-related regulations	Downstream	OPEX
Policy & legal	Emerging mandates on stainless steel industry	Direct Operations	OPEX
Reputation	Reputational impacts from stigmatization of sector	Downstream	Revenue
Technology	Investment into lower emissions technology and/or electrification of operations	Direct Operations	CAPEX

Scenario analysis approach

Following the identification of key transition risks and opportunities, the shortlisted twelve risks and opportunities were taken for scenario analysis. Two (2) scenarios from the Network of Greening the Financial System (NGFS) were used for the scenario analysis. The scenarios from the NGFS were selected due to its extensive regional and national data coverage, including India as relevant to JSL, as well as its data extending to 2050 which aligns with JSL's long-term time horizon.

The latest NGFS dataset, version V published in October 2024, was used to conduct this assessment. Where available, scenario data specific to India was selected. In line with the recommendations of the TCFD, two contrasting scenarios were assessed, namely:

High carbon scenario:
Current Policies

Current Policies assumes that only currently implemented policies are preserved, leading to high physical risks. This scenario is aligned with a 3°C+ and slow change.

Low carbon scenario:
Net Zero 2050

Net Zero 2050 is an ambitious scenario that limits global warming to 1.5 °C through stringent climate policies and innovation, reaching net zero CO_2 emissions around 2050. Some jurisdictions such as the US, EU and Japan reach net zero for all greenhouse gases by this point. This scenario is aligned with a 1.4°C warming outcome, with immediate and rapid change.

Transition opportunities

Transition opportunities are expected to be related to increased demand for JSL products, government policy incentives and reputational benefits from climate leadership. A summary of how key transition opportunities may affect JSL is provided below.

Increased demand for stainless steel

To facilitate the climate transition, extensive investment in infrastructure and new technologies is expected to take place to green the energy supply along with electrification which is an important opportunity for JSL. Under a net-zero scenario, the energy sector is expected to rapidly decarbonize for which technologies such as wind energy, solar and nuclear are expected to expand in India and are all dependent on steel components to be developed along with grid infrastructure which will. Under India's net-zero plans by 2070, this is further expected to back this trend. Cumulative steel demand is expected to be 5 billion tonnes, accounting for 75% of the material requirement for the energy transition between 2022-2050, however it is expected that some of this demand will come from recycled steel due to steel's high end-of-life recycling capacity.

Use of supportive government decarbonization policy incentives

Steel plays a central role in India's GHG emissions, with the IEA estimating that 41% of final energy consumption in India was consumed by the industrial from which a large proportion is made up by steel. As steel is simultaneously a key sector for Indian economic development and a hard-to-abate sector, it is expected that industrial activities such as steel production will be regarded by the government as a crucial sector to curb emissions from to meet ambitious decarbonization target. This is expected to result in substantial policy support to reduce emissions in the steel sector and promote green steel developments, such as India's Green Steel Taxonomy that was recently published.

Transition risks

While the uptake of the energy transition under a low carbon scenario provides with ample opportunities, the climate transition may also affect JSL's operational practices. Key identified risks include government regulatory requirements such as emissions performance and carbon taxation, as well as supply chain disruptions resulting from increased demand for stainless steel.

Emerging mandates on stainless steel industry

India's Net-zero target by 2070 will lead to substantial changes in the energy system and pressure on particularly on heavy industries to decarbonize. It is expected that while governments will provide incentives to decarbonize, it is also expected to introduce more stringent rules on energy performance and reduce support of the fossil fuel sector which can lead to increased operational expenditure to meet the standards, energy procurement costs along with increased investment to retrofit or replace existing equipment.

Fossil fuel subsidies have decreased by 59% since 2014 in India, a clear indication of the willingness to move into a new direction, further substantiated by allocating USD 4.4 billion for priority capital investment toward the energy transition and net-zero objectives. India has further committed to reduce emissions intensity of GDP by 45% by 2030 from 2005 levels for which substantial requirements are expected to come in place for energy intensive industries. India's energy efficiency policies and plans our implemented through the Bureau of Energy Efficiency (BEE) and the Energy Conservation Act. The BEE developed a strategic plan called "Unlocking National Energy Efficiency Potential" to meeting India's 2030 NDC targets published in 2017. This plan estimates that emission intensity can reduce by 36%, under a moderate savings scenario, out of which 50% originates from energy efficiency measures. Under a low carbon scenario, these mandates are expected to emerge rapidly and lead to financial burdens which may outweigh government benefits.

Exposure to emerging GHG- and climate-related regulations

Regulatory mechanisms have emerged across regions as key tools for decarbonization, such as carbon pricing, climate disclosure requirements to companies and sustainability taxonomies. While India currently does not have a carbon pricing mechanism in place, legislative progress is underway through the national government for the development of a Carbon Credit Trading Scheme (CCTS) through the 2022 Energy Conservation Act. CCTS will be based on an intensity-based 'baseline-and-credit' scheme, with mandatory GHG emissions intensity targets and is expected cover industries included by the Perform, Achieve and Trade (PAT). PAT is a mandatory energy efficiency scheme covered over 1,000 entities from 13 energy intensive industries, including the steel sector. Furthermore, the impact of international carbon pricing mechanisms such as the EU's Carbon Border Adjustment Mechanism (CBAM) is also expected to affect JSL and may impact the business' outlook on geographical expansion or business.

Increased raw material costs due to increased stainless steel demand

As the demand for stainless steel rises to meet the energy transition's objectives, competition to procure the components to produce steel are also expected to rise, leading to potential supply chain disruptions and price changes in components required for steel production. This demand may come from local competition as well as international players who may seek to capitalize on.

Summary on transition risks and opportunities

Description	2030	2050
Use of supportive government decarbonization policies	Low opportunity	Low opportunity
Increased demand for stainless steel	Low opportunity	High opportunity
Investment into and development of green stainless steel	Moderate opportunity	Low opportunity
Improved supply chain transparency and demonstration of industry leadership leading to reputational benefits	Low opportunity	Moderate opportunity
Changing consumer preferences	Low risk	Low risk
Increased raw material costs due to increased stainless-steel demand	Low risk	Low risk
Increased fossil fuel prices and reduced supply, affecting energy and transport-related costs	Low risk	Moderate risk
Devaluation or stranding of assets	Low risk	High risk
Exposure to emerging GHG and climate-related regulations	Low risk	High risk
Emerging mandates on stainless steel industry	Low risk	Low risk
Reputational impacts from stigmatization of sector	Low risk	Low risk
Investment into lower emissions technology and/or electrification of operations	Low risk	Low risk

Legend:

Low opportunity | Moderate opportunity | High opportunity | Low risk | Moderate risk | High risk

5.4.2 Mitigation strategies

TJSL is proactively addressing transition risks and capitalizing on emerging opportunities to ensure its long-term competitiveness and contribute to a more sustainable future for India and globally. Some of the mitigation measures planned includes:

Short/ Medium-term

Energy Efficiency

- Conduct energy audits and implement quick-win measures to optimize energy consumption in existing processes (e.g., lighting upgrades, process optimization).
- Invest in energy-efficient equipment and technologies for immediate improvements (e.g., high-efficiency motors, heat recovery systems).
- Implement employee training programs on energy conservation and best practices.
- Pursue LEED and IGBC certifications for buildings to enhance energy efficiency and sustainability in operations
- Use of direct reduced iron (DRI) in electric arc furnace to reduce carbon emissions and improve energy efficiency in steelmaking

Policy Engagement

- Stay informed about upcoming environmental regulations and policies (e.g., carbon pricing, renewable energy mandates).
- Engage with industry associations and policymakers to advocate for policies that support a just transition and incentivize emissions reduction.

Supply Chain Engagement

- Assess the carbon footprint of key suppliers and identify opportunities for collaboration on emissions reduction.
- Encourage suppliers to adopt sustainable practices and set emissions reduction targets.

Renewable Energy Adoption

- Install on-site renewable energy generation capacity (e.g., rooftop solar) to reduce reliance on fossil fuels.
- Explore opportunities for procuring renewable energy through Power Purchase Agreements (PPAs).

Technology Upgrades

- Invest in pilot projects to test and evaluate emerging technologies for low-carbon steelmaking (e.g., hydrogen-based direct reduction).

Circular Economy Practices

- Implement increased recycling and waste reduction programs to minimize waste generation and resource consumption.
- Explore further opportunities for using by-products and waste materials from other industries as inputs in stainless steel production.

Product Portfolio Diversification

- Begin developing and marketing "low carbon stainless steel" products with lower embodied carbon to cater to growing demand from environmentally conscious customers.
- Explore green financing options and sustainability-linked loans.

Long-term

- Gradually replace older, less efficient equipment with newer, more energy-efficient technologies.
- Explore low carbon energy sources (solar, wind, nuclear etc.) to power manufacturing operations.
- Invest in energy storage solutions to improve the reliability of renewable energy sources.
- Analyze the feasibility of carbon capture and storage (CCS) technologies.
- Invest in research and development of low-carbon steel production technologies (e.g., hydrogen-based steelmaking).
- Continue to monitor and enhance emissions reduction targets aligned with the Paris Agreement goals.
- Participate in industry collaborations and initiatives to accelerate the development and adoption of breakthrough technologies.

6 Decarbonization Levers

> Our commitment to India's vision for self-sufficiency in critical industries drives us to adopt strategies that support sustainable growth and progression towards a net-zero future.

Recognising the steel industry's substantial contribution to industrial emissions, we are embracing transformative changes to align with global climate priorities. Our commitment to India's vision for self-sufficiency in critical industries drives us to adopt strategies that support sustainable growth and progression towards a net-zero future.

The steel industry is crucial in achieving India's environmental and economic goals. At Jindal Stainless, we employ a comprehensive range of decarbonisation strategies to innovate our production processes and significantly reduce our carbon emissions:

Sustainable Supply Chain/Procurement
Emphasising responsible sourcing and the sustainability of raw materials to enhance operational efficiency.

Feedstock Optimisation
Shifting towards low-carbon and renewable feedstocks to decrease reliance on fossil fuels and mitigate emissions.

Process Reconfiguration
Revamping core manufacturing processes to boost energy efficiency and adhere to sustainable practices.

Energy Substitution
Integrating renewable energy sources to replace traditional energy inputs, thereby reducing the carbon intensity of production.

Circular Steel
Advancing a circular economy by promoting the reuse and recycling of steel, thereby minimising waste and conserving resources.

Logistics Decarbonisation
Enhancing transport and logistics systems to lower fuel consumption and emissions.

Carbon Capture, Utilisation & Storage (CCUS)
Investing in advanced technologies to capture and store emissions, preventing their release into the atmosphere.

Decarbonisation enabled by Digitisation
Employing cutting-edge digital tools to monitor, optimise, and achieve decarbonisation goals.

6.1 Decarbonization initiatives

As part of our commitment to climate action we have taken a few initiatives towards decarbonizing our operations.

India's First Green Hydrogen Plant to Power Stainless Steel Production

Partnering with Hygenco India Private Ltd., we established India's first green hydrogen plant at our Hisar facility, commencing operations on March 4, 2024. This plant generates 90 NM3 of green hydrogen per hour, replacing fossil fuels in energy-intensive processes like Bell Annealing and Bright Annealing. It aims to offset 2,700 tonnes of CO2 annually and reduce ammonia consumption by 390 metric tonnes per annum through electrically operated ammonia crackers. These efforts are part of our long-term strategy to scale these successes across other manufacturing processes.

Decarbonization initiatives at Jajpur Plant

JSL has undertaken 27 Energy Conservation (ENCON) projects at its Jajpur unit, focusing on retrofitting, resizing fans, blowers, and pumps, optimizing duct systems, enhancing process control, and upgrading technologies. Key achievements include:

- A 28 MWp rooftop solar plant.
- A waste heat recovery boiler on the COMBO line.
- Process optimizations like annealing bypass for specific grades and hot charging of slabs.
- Commissioning of a Chrome Pelletisation Plant, replacing the briquetting process, reducing energy consumption, and emissions.
- The annealing bypass for 44,457 MT of coils saved 355,680 kWh of electricity and 909 tonnes of propane, cutting emissions by 3,106.79 TCO2e.

Decarbonizing Operations at Hisar Plant

At the Hisar unit, 17 decarbonization projects were implemented, including:

- India's first Green Hydrogen Plant in the stainless steel sector.
- Trials for coal substitution with biochar.
- Bio-LDO fuel trials in the Steckel mill.
- Oxygen enrichment in the Walking Beam Furnace (WBM) and optimized descaling pumps in the Steckel mill.
- Transitioning to natural gas for fuels by 2030, scaling up feedstock optimization, and introducing electric forklifts.

Decarbonization at Other Plants

Across other facilities, JSL introduced high-efficiency pumps, IE3 motors, BLDC fans, energy-efficient compressors, and VFDs. Improvements in liquid metal transfer and hot slab charging significantly enhanced energy efficiency, contributing to a cumulative reduction of 76,595 tCO2e in FY 2023-24.

Strategic Partnerships for Clean Energy

JSL has partnered with ReNew Power and Oyster Renewable for renewable energy projects:

- MoU with ReNew Power for 100 MW renewable energy at Jajpur, with a potential abatement 4,35,372 tCO2e.
- Agreement with Oyster Renewable for 100 MW of RTC power at Hisar, with a potential abatement 4,35,372 tCO2e. These projects collectively represent a carbon abatement potential of 8,70,744 tCO2e.

Fossil-Fuel Substitution

JSL is advancing biofuel integration by replacing liquid fossil fuels with biofuels at the Hisar Hot Rolling Mill, with a potential abatement of 45,000 tCO2e. Bio-coal implementation at Hisar show promise for reducing CO2 emissions by 13,000 MT annually using 4,000 MT of bio-coal.

Green Mobility

JSL is advancing green mobility at its Jajpur facility as part of its low-carbon strategy:

- **Electric Vehicles (EVs):** Deployment of four EVs for on-site operations, powered by in-house renewable energy, reducing annual emissions by 54 tCO2.
- **Electric Forklifts:** Adoption of electric forklifts for material handling, decreasing fossil fuel dependence and enhancing energy efficiency.
- **Renewable Charging Infrastructure:** Renewable energy-powered charging stations maximize the benefits of electrification.
- **Low-Carbon Commute:** Exploration of low-carbon commute options for employees to extend sustainability beyond operations.

7 Risk Management

Jindal Stainless Limited (JSL) acknowledges the increasing urgency of managing climate-related risks amidst a rapidly evolving economic, regulatory, and environmental landscape.

> This framework underpins our comprehensive approach to identifying, assessing, and mitigating climate-related risks, ensuring that sustainability is deeply embedded in our operations.

Our Risk Management and Compliance Framework is designed to address these challenges by enhancing business resilience, maintaining financial discipline, and safeguarding stakeholder interests. This framework underpins our comprehensive approach to identifying, assessing, and mitigating climate-related risks, ensuring that sustainability is deeply embedded in our operations. Regular audits and assessments fortify our adherence to internal controls and our Business Continuity Plan.

7.1 Processes for identifying and assessing climate-related risks

JSL's processes for identifying and assessing climate-related risks are integral to our overarching Risk Management Framework. This framework encompasses financial, operational, sectoral, and Environmental, Social, and Governance (ESG) risks, including emerging climate change. The identification and assessment process is structured and thorough:

Identifying Risks

We continuously scan the internal and external environment to identify climate-related risks. This includes regulatory changes, shifts in market dynamics, technological advancements, and physical impacts of climate change such as extreme weather events.

Assessing Impact and Probability

Each identified risk is evaluated for its potential impact on business operations and the likelihood of its occurrence. This assessment considers factors such as regulatory compliance, operational disruptions, financial costs, and reputational damage.

Designing Mitigation Solutions

Based on the assessment, we develop tailored mitigation strategies. These strategies are designed to minimize adverse impacts and enhance the company's capacity to adapt to changing climate conditions.

7.2 Processes for managing climate-related risks

Our risk management process for climate-related risks involves several key steps to ensure proactive and effective mitigation:

Implementation of Actions

After designing mitigation solutions, we implement them across the organization. This may involve technological upgrades, policy adjustments, or operational changes aimed at reducing our carbon footprint and enhancing resilience.

Monitoring Progress

Continuous monitoring of both internal and external risks is conducted to track the effectiveness of mitigation measures. This includes regular reviews of key performance indicators and compliance with regulatory standards.

Reviewing Learnings

We conduct periodic reviews to learn from past experiences and refine our strategies. This iterative process ensures that our risk management practices evolve in response to new information and changing conditions.

7.3 Integration into overall risk management

Integrating climate-related risk management into JSL's overall risk framework is a cornerstone of our governance strategy. It integrates the processes for identifying, assessing, and managing climate-related risks into its overall risk management framework through a structured and streamlined approach:

Governance Integration

The climate-related risk management processes are embedded within the existing governance structures. The ESG Committee, Steering Committee, and operational groups, as detailed in the Governance section, ensure that climate risks are consistently addressed at all organizational levels. The Risk Management Committee, comprising Independent Board Members, the Managing Director, and Executive Directors, regularly reviews and evaluates climate risks, ensuring alignment and accountability across all levels of the organization.

Strategic Alignment

The ESG Committee provides oversight and strategic guidance on climate-related risks, ensuring alignment with JSL's broader sustainability objectives. The Steering Committee translates these strategies into actionable plans that integrate climate considerations across all business functions.

Operational Execution

Departmental heads and designated points of contact implement these strategies in day-to-day operations. This ensures that climate risk management is a continuous, embedded practice rather than a standalone activity.

Frequency of Review

The Risk Management Committee in conjunction with the ESG Committee, reviews climate-related risks quarterly. This regular review cycle allows for timely updates to strategies in response to emerging risks and ensures that mitigation measures remain effective and relevant.

By embedding climate-related risk management into our corporate governance and operational frameworks, JSL ensures a holistic approach to sustainability and resilience.

8 Metrics and Targets

This framework underpins our comprehensive approach to identifying, assessing, and mitigating climate-related risks, ensuring that sustainability is deeply embedded in our operations.

Jindal Stainless Limited (JSL) integrates a comprehensive suite of metrics and targets to effectively manage and mitigate climate-related risks and seize opportunities.

These metrics form a cornerstone of JSL's strategy, aligning with international best practices and national sustainability goals. Our improved GHG inventory coverage and consistent progress in sustainability metrics highlight our commitment to transparency and accountability.

JSL's use of a comprehensive set of metrics spans across emissions, energy consumption, water usage, and waste management. Each metric is tailored to address critical aspects of our operations, helping us to measure progress, identify areas for improvement, and guide strategic investments.

8.1 Key performance indicators KPIs

Target: We have set a goal to become net zero by 2050 following a cohesive climate action strategy focusing on minimizing energy consumption and reducing emissions across our entire value chain.

Carbon Emissions Intensity

Carbon emissions intensity is a key metric that indicates the amount of CO2 emissions per tonne of stainless steel produced, highlighting efficiency improvements in reducing carbon output relative to production levels.

- Goal: Reduce emissions intensity by 50% by 2035, compared to the FY 2021-22 baseline.
- Baseline: 1.98 TCO2e per tonne of stainless steel (TCS) in FY 2021-22.
- Progress (2024): 2.15 TCO2e/TCS.
- Coverage: Emissions from all manufacturing sites, offices, and stockyards.

Renewable Energy Usage

Transitioning to renewable energy sources is pivotal to reducing carbon footprint. JSL's commitment to renewable energy is demonstrated through significant investments in solar and green hydrogen projects.

- Goal: JSL is in process for defining a target at a group level while for Hisar manufacturing location, we aim to achieve 100% power requirements from renewable sources by 2030.
- Progress (2024): 55,652 MWh of renewable energy used across operations, including signing an agreement with Renew Power to source 100 MW of round-the-clock (RTC) renewable energy.
- Coverage: All operational sites.

Water Intensity

Reducing water intensity reflects JSL's efforts to enhance water efficiency, particularly in water-stressed areas, by adopting advanced recycling and rainwater harvesting methods.

- Goal: JSL is in process of defining a goal for water. However, we prioritise minimising reliance on freshwater sources by embracing eco-friendly water conservation methods, adopting advanced water efficient practices, and implementing zero-liquid discharge solutions to ensure sustainable water management.
- Progress (2024): 7.26 m^3/tcs.
- Coverage: All plants, focusing on areas identified as water stressed.

Waste Management

JSL's waste management focuses on maximizing the recycling of operational waste to minimize environmental impact and promote a circular economy.

- Goal: No Goal. However, we are committed to the principles of 'Reduce, Reuse, Recycle, Recover and Repurpose', aiming to maximize the amount of scrap utilization in the operations. We are reducing our reliance on natural resources and producing a significant portion of our products from recycled scrap metal recovered from slag-grinding dust, thereby minimizing the need for virgin resources.
- Progress (2024): Achieved 72% reuse rate.
- Coverage: All manufacturing units.

Greenhouse Gas (GHG) Emissions Inventory

JSL's GHG inventory has seen significant enhancements in coverage from previous years. This improved coverage enables more accurate tracking and reporting of emissions across all operations, facilitating better management of our carbon footprint.

- Scope 1 Emissions: Direct emissions from operations, primarily from fuel consumption in the Steel Melting Shop (SMS), rolling mills, and captive power plants.
- Scope 2 Emissions: Indirect emissions from the consumption of purchased electricity.
- Scope 3 Emissions: Emissions from the entire value chain, including supplier and customer activities.

Methodology used: Emissions from all our units have been calculated following the methodology outlined in the WRI-WBCSD Greenhouse Gas Protocol and the guidelines specified under ISO 14064-Part I. The Operational Control Approach has been employed to assess and consolidate the organizational GHG emissions inventory. Under this approach, the reporting entity accounts for all emissions from operations within its control. For the 2024 GHG inventory, the organizational boundary encompasses the JSL standalone units located in Hisar, Jajpur, and Vizag.

8.2 Climate metrics

The data in the table immediately below and the subsequent tables represent the GHG inventory of the most material entities under JSL covering substantial amount of our GHG emissions.

Table 8: GHG inventory and intensity JSL

Particulars	2021-22	2022-23	2023-24
Scope 1 (tCO2e)	28,16,979	25,48,227	29,92,334
Scope 2 (tCO2e)	6,84,949	7,35,756	7,87,141
Scope 3 (tCO2e)	-	27,81,558	33,45,443
GHG Emission Intensity (Scope 1, 2 in tCO2e/tcs)	1.98	2.08	2.15
GHG Emission Intensity (Scope 3 in tCO2e/tcs)	-	1.76	1.90

Table 9: JSL scope 3 emissions category-wise

Scope 3 Categories (tCO2e)	2023-24
Purchased Goods & Purchased Services	13,20,286
Capital Goods	37,344
Fuel and energy-related activities	9,34,410
Upstream transportation and distribution	1,13,714
Waste generated in operations	20,894
Business Travel	1,038
Employee commuting	6,309
Downstream transportation and distribution	1,59,416
Processing of sold products	7,40,655
End-of-life treatment of sold products	11,377
Total	**33,45,443**

GHG emissions and intensity at business unit level

Table 10: GHG inventorization and intensity Hissar

Particulars	2021-22	2022-23	2023-24
Scope 1 (tCO2e)	2,69,142	2,41,731	2,57,138
Scope 2 (tCO2e)	5,71,485	5,10,878	5,42,585
Scope 3 (tCO2e)	-	8,82,934	9,70,607
GHG Emission Intensity (Scope 1, 2 in tCO2e/tcs)	1.17	1.27	1.26
GHG Emission Intensity (Scope 3 in tCO2e/tcs)	-	1.49	1.53

Table 11: GHG inventorization and intensity Jajpur

Particulars	2021-22	2022-23	2023-24
Scope 1 (tCO2e)	25,22,649	22,62,884	27,01,048
Scope 2 (tCO2e)	79,705	1,42,112	1,71,564
Scope 3 (tCO2e)	-	18,61,283	23,74,836
GHG Emission Intensity (Scope 1, 2 in tCO2e/tcs)	2.47	2.44	2.55
GHG Emission Intensity (Scope 3 in tCO2e/tcs)	-	1.89	2.11

Table 12: GHG inventorization and intensity Vizag

Particulars (tCO2e)	2021-22	2022-23	2023-24
Scope 1	25,188	43,612	34,148
Scope 2	33,759	82,765	72,992

* Vizag is an intermediate site which produces Ferro-chrome and its produced output gets used as input raw material at Jajpur & Hisar plants

Energy Efficiency

Our total energy consumption for 2023-24 compared to FY 2021-22 has increased by 7.9%, and the share of renewable energy in total energy consumption compared to FY 2021 baseline has increased from 0.38% to 0.6%.

Table 13: Electricity consumption

Particulars	Unit	2021-22	2022-23	2023-24
Non-renewable energy consumption	MWh	84,06,334	83,85,221	97,08,052
Renewable energy consumption	MWh	33,890	33,676	55,652
Total energy consumption	MWh	90,47,540	84,18,897	97,63,705

Table 14: Total energy consumption

Parameter (Figures are in gigajoules (GJ))	2022-23	2023-24
From renewable/ low carbon sources		
Total electricity consumption (A)	1,21,060	1,07,386
Total fuel consumption (B)	-	92,808
Energy consumption through other sources (C)	-	-
Total energy consumed from renewable sources (A+B+C)	**1,21,060**	**2,00,194**
From non-renewable sources		
Total electricity consumption (D)	38,39,160	40,11,619
Total fuel consumption (E)	2,63,42,463	3,09,31,896
Energy consumption through other sources (F)	-	-
Total energy consumed from non-renewable sources (D+E+F)	**3,01,81,623**	**3,49,43,515**
Total energy consumed (A+B+C+D+E+F)	**3,03,02,683**	**3,51,43,709**
Energy intensity per rupee of turnover	**865.04 GJ / Crore INR**	**916.25 GJ / Crore INR**
Energy intensity in terms of physical output	**19.17 GJ / TCS**	**19.97 GJ / TCS**

Water Conservation

Stainless steel manufacturing demands significant water for processes such as cooling, cleaning, and pickling, making effective water conservation and recycling vital for reducing environmental impact and maintaining operational efficiency, especially in water-stressed areas.

We utilize surface water, groundwater, and third-party supplies, monitored continuously through water meters. Regular water risk assessments and audits help us identify and implement water-saving opportunities. Internal tracking and third-party audits enable us to monitor water usage and set internal reduction targets. Additionally, we engage stakeholders, including employees and local communities, through awareness campaigns and annual training sessions to foster a culture of water conservation.

To ensure responsible water sourcing and usage, we have implemented zero-discharge systems, expanded rainwater harvesting infrastructure, enhanced biodiversity for improved water retention, and installed low-flow fixtures. In FY 2023-24, we harvested 265,827 m^3 of rainwater at our Jajpur facility, contributing to our water demand.

We strengthened our water management initiatives by collaborating with S J Environmental Solutions to install a surface runoff treatment plant with a capacity of 5,500 m³/day at Jajpur. Both our Hisar and Jajpur units are Zero Liquid Discharge (ZLD) facilities, while our Vizag site operates a Sewage Treatment Plant (STP) to recycle sewage water for internal reuse.

State-of-the-art Effluent Treatment Plants (ETP) at our sites, with a daily capacity of 4,430 m³, recycle spent acid and rinse water. Additionally, floating solar installations not only generate renewable energy but also reduce evaporation losses, conserving water resources. Our Hisar plant, which handles Steel Melting (SMS), Hot Rolling, Cold Rolling, and Special Product Division processes, is located in a water-stressed area, emphasizing the importance of these measures.

We are launching a three-year transformation initiative to enhance water management across our facilities and value chain. This initiative focuses on optimizing water usage, improving conservation measures, and aligning with our sustainability goals through comprehensive assessments and action plans. Our commitment to long-term water stewardship aims to significantly reduce our freshwater footprint.

Table 15: Water consumption details

Parameter (Figures are in kilolitres (kl))	**2022-23**	**2023-24**
Total volume of water withdrawal	1,16,70,159	1,33,20,439
Total volume of water consumption	1,11,90,622	1,27,72,873
Water intensity per rupee of turnover	319.45 KL / Crore INR	333.01 KL / Crore INR
Water intensity in terms of physical output	7.1 KL / TCS	7.26 KL / TCS
Water-stress area - Hisar Unit, Haryana		
Total volume of water withdrawal	20,44,612	23,36,887
Total volume of water consumption	20,44,612	23,36,887
Water intensity per rupee of turnover	58.4 KL / INR Crore	60.9 KL / INR Crore

Waste Management

We have adopted comprehensive waste management practices based on the principles of Reduce, Reuse, Recycle, and Recover. These efforts are part of our broader strategy to minimize the use of hazardous and toxic chemicals in our products and processes. Our waste streams include both hazardous and non-hazardous materials. To achieve near-zero waste production, we focus on waste minimization strategies that promote efficient raw material use and recycling, aligning with the norms of India's State Pollution Control Board (SPCB) and Central Pollution Control Board (CPCB). Waste is sorted, stored by type, and either sold to authorized vendors or recycled.

Table 16: Waste generation data

Parameter (Figures are in metric tonnes (MT))	**2022-23**	**2023-24**
Total Hazardous Waste Generated	49,796	75,228
Total Non-Hazardous Waste Generated	11,75,778	15,07,686
Total Waste Disposed	0.74	42,808
Waste Recycled	2,80,346	16,74,108
Waste Re-used	18,508	84,174
Waste recovered through other recovery options	18,356	19,419
Waste Intensity per rupee of turnover	35.01 MT / Crore INR	41.31 MT / Crore INR
Waste intensity in terms of physical output	0.7759 MT / TCS	0.9006 MT / TCS

JSL has linked capital expenditures to performance in specific sustainability metrics. For instance, the investment in renewable energy projects, including solar installations and a green hydrogen plant, was driven by our emission reduction targets. This strategic allocation of capital underscores the financial commitment to achieving our climate-related objectives. JSL's systematic use of diverse metrics and targets reflects our proactive approach to climate-related challenges. Through diligent tracking and continuous improvement, JSL remains poised to address the challenges of climate change while contributing positively to the environment and society. These efforts are essential to our strategy and operational excellence, driving progress towards a sustainable future as well as fostering trust and transparency with stakeholders.

From the Desk of the Chief Sustainability Officer

Kalyan Kumar Bhattacherjee
Chief Sustainability Officer

> **THIS CLIMATE ACTION REPORT MARKS A SIGNIFICANT STEP FORWARD IN OUR JOURNEY TO ENVIRONMENTAL RESPONSIBILITY.** IT OUTLINES OUR COMMITMENT TO MITIGATING CLIMATE CHANGE, REDUCING OUR CARBON FOOTPRINT, AND DRIVING INNOVATION IN SUSTAINABLE STEEL PRODUCTION.

At Jindal Stainless, we believe that a sustainable future is a stainless future. As a leading manufacturer of stainless steel, we recognize the profound impact our industry has on the global climate. We also recognize the crucial role we must play in forging a path towards a low-carbon economy.

This Climate Action Report marks a significant step forward in our journey to environmental responsibility. It outlines our commitment to mitigating climate change, reducing our carbon footprint, and driving innovation in sustainable steel production.

Our strategy is built on three pillars:

Decarbonization: We are aggressively pursuing initiatives to reduce our greenhouse gas emissions across our operations, from sourcing raw materials to optimizing energy efficiency in our manufacturing processes. This includes investing in renewable energy sources and exploring breakthrough technologies like green hydrogen.

Circular Economy: We are dedicated to maximizing the lifecycle of our products and minimizing waste through recycling and resource recovery. We are also committed to working with our customers and partners to develop closed-loop systems that keep stainless steel in use for as long as possible.

Transparency and Collaboration: We believe in open communication and collaboration to achieve our sustainability goals. This report reflects our commitment to transparency, providing detailed information about our environmental performance and our plans for the future. We are actively engaging with our stakeholders, including employees, customers, suppliers, and communities, to drive collective action on climate change.

We are proud of the progress we have made, but we know that there is much more to do. The challenges posed by climate change require bold action and continuous improvement. We are committed to leading the stainless-steel industry towards a sustainable future, one where our products contribute to a healthier planet for generations to come.

Acronyms and abbreviations

Acronyms	Abbreviations
JSL	Jindal Stainless Limited
JUSL	Jindal United Steel Limited
JSSL	Jindal Stainless Steelway Limited
JSL SSL	JSL Super Steel Limited
TCFD	Task Force on Climate-related Financial Disclosures
BRSR	Business Responsibility and Sustainability Reporting
GHG	Greenhouse Gas
WRI	World Resources Institute
WBCSD	World Business Council for Sustainable Development
IFRS S2	International Financial Reporting Standards Sustainability Disclosure Standard 2
COP 28	28th Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC)
SASB	Sustainability Accounting Standards Board
NDC	Nationally Determined Contributions
CCRA	Climate Change Physical Risk Assessment
tCO2e	Tonnes of Carbon Di-Oxide equivalent
MWh	Mega Watt-Hour
MWp	Megawatt peak
TCS	Tonnes of Crude Steel
GW	Giga-watt
BIS	Bureau of Indian Standards

Acronyms	Abbreviations
TOE	Tonne of Oil Equivalent
CSO	Chief Sustainability Officer
CBAM	Carbon Border Adjustment Mechanism
FICCI	Federation of Indian Chambers of Commerce & Industry
CII	Confederation of Indian Industry
ISSDA	Indian Stainless Steel Development Association
NGFS	Network of Greening the Financial System
CCTS	Carbon Credit Trading Scheme
RPO	Renewable Purchase Obligation
CCUS	Carbon Capture, Utilization and Storage
IPCC	Intergovernmental Panel on Climate Change
SSP	Shared Socio-Economic Pathways
RCP	Representation Concentration Pathways
CAPEX	Capital Expenditure
OPEX	Operational Expenditure
BEE	Bureau of Energy Efficiency
ENCON	Energy Conservation
WBF	Working Blast Furnace
EV	Electric Vehicle
ZLD	Zero Liquid Discharge
STP	Sewage Treatment Plant
ETP	Effluent Treatment Plant
SMS	Steel Melt Shop
SPCB	State Pollution Control Board
CPCB	Central Pollution Control Board

Glossary

Terms	Meaning
Scope 1	Refers to all direct GHG emissions
Scope 2	Refers to indirect GHG emissions from consumption of purchased electricity, heat, or steam
Scope 3	Refers to other indirect emissions not covered in Scope 2 that occur in the value chain of the reporting company, including both upstream and downstream emissions
Greenhouse Gas (GHG) Emissions	Gases such as carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) that trap heat in the Earth's atmosphere, contributing to global warming and climate change
Acute Physical Risks	Climate-related risks that result from extreme weather events such as hurricanes, floods, wildfires, and heatwaves. These events can cause immediate damage to infrastructure, disrupt supply chains, and affect business continuity
Chronic Physical Risks	Long-term climate-related risks arising from gradual changes such as rising sea levels, increasing average temperatures, and long-term shifts in precipitation patterns. These risks can affect operations, supply chains, and resource availability over extended periods
Transition Risks	Financial and operational risks that arise due to shifts in policies, technologies, and market preferences as economies transition to low-carbon practices
Task Force on Climate-related Financial Disclosures (TCFD)	A framework developed by the Financial Stability Board (FSB) to guide companies in reporting climate-related risks and opportunities
International Financial Reporting Standards Sustainability Disclosure Standard 2 (IFRS S2)	A sustainability reporting standard that mandates companies to disclose information about their climate-related risks and opportunities, focusing on aspects like governance, strategy, risk management, and metrics related to climate change
Business Responsibility and Sustainability Reporting (BRSR)	A reporting framework mandated by the Securities and Exchange Board of India (SEBI) to ensure transparency in corporate sustainability practices
Intergovernmental Panel on Climate Change (IPCC)	A scientific body under the United Nations responsible for assessing climate change science and its impacts globally
Carbon Border Adjustment Mechanism (CBAM)	A European Union policy that imposes a carbon price on imports of carbon-intensive goods to prevent carbon leakage and encourage cleaner production practices globally
Decarbonization	The process of reducing carbon dioxide (CO_2) emissions from industrial activities, energy production, and other sectors to mitigate climate change
Net Zero Emissions	A state in which an entity's greenhouse gas emissions are balanced by removals or offsets, leading to no net increase in atmospheric carbon dioxide levels
Low-Carbon Economy	An economic system that prioritizes reducing carbon emissions through the use of renewable energy, energy efficiency, and sustainable industrial practices

Terms	Meaning
Renewable Purchase Obligation (RPO)	A policy that mandates businesses and utilities to purchase a certain percentage of their energy from renewable sources to promote sustainability
Nationally Determined Contributions	Refers to the post-2020 actions that a country intends to take under the international climate agreement adopted in Paris
Tonnes of Carbon Di-Oxide equivalent	a unit of measurement used to compare the environmental impact of different greenhouse gases by converting them to an equivalent amount of carbon dioxide based on their global warming potential (GWP)
Carbon Capture, Utilization and Storage	A technology that captures carbon dioxide emissions from industrial sources and either stores it underground or repurposes it for industrial use to reduce emissions
Shared Socio-Economic Pathways	Climate change scenarios developed by the IPCC to explore different potential future socio-economic and environmental developments
Representation Concentration Pathways	a standardized scenario used in climate modeling that outlines a possible trajectory of greenhouse gas concentrations over time, representing different levels of human emissions and the resulting climate change impacts, with each pathway identified by a number indicating its projected radiative forcing by 2100

Annexure

Combined Index: TCFD & IFRS S2

Topic	Sub-Topic	TCFD/IFRS S2	Disclosure	Chapters
Governance	Board Oversight	TCFD	Describe the board of directors' oversight of climate-related risks and opportunities	4.1
		IFRS S2	Governance processes, controls and procedures used to monitor, manage and oversee climate-related risks and opportunities	4.1
	Management's Role	TCFD	Describe management's role in assessing and managing risks and opportunities.	4.1
		IFRS S2	Management's role in the governance processes, controls and procedures used to monitor, manage and oversee climate-related risks and opportunities	4.1
Strategy	Climate-related Risks and Opportunities	TCFD	Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	5.2.1.1, 5.4.1
		IFRS S2	Disclosure of significant climate-related risks and opportunities affecting business operations	5.2.1.1, 5.4.1
	Impact on Business Model and Financial Planning	TCFD	Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning	5.3, 5.4.1
		IFRS S2	Effects on financial position, performance, and cash flows	5.3, 5.4.1
	Resilience and Scenario Analysis	TCFD	Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	5.3, 5.4.2, 6, 6.1
		IFRS S2	Mandatory disclosure of resilience analysis and transition plans	5.3, 5.4.2, 6, 6.1

Topic	Sub-Topic	TCFD/IFRS S2	Disclosure	Chapters
Risk management	Identification and Assessment of Climate Risks	TCFD	Describe the organization's processes for identifying and assessing climate-related risks	7.1
		IFRS S2	Disclosure of risk identification and prioritization	7.1
	Risk Integration into Overall Risk Management	TCFD	Describe the organization's processes for managing climate-related risks	7.2
		IFRS S2	Transition planning, risk mitigation measures, and adaptation plans	5.3, 5.4.2, 6, 6.1
	Climate Risk Mitigation and Adaptation Strategies	TCFD	Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management	7.3
		IFRS S2	Explanation of risk integration into enterprise-wide risk management	7.3
Metrics and targets	Climate-related Performance Metrics	TCFD	Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process	8.1
		IFRS S2	Industry-specific climate-related metrics	8.1
	GHG Emissions Reporting	TCFD	Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks	8.2
		IFRS S2	Mandatory disclosure of Scope 1, 2, and 3 emissions	8.2
	Targets and Progress Tracking	TCFD	Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets	8.1, 8.2
		IFRS S2	Disclosure of climate targets, progress measurement, and supporting assumptions	8.1, 8.2

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