Climate Change and Natural Capital

Approach

Approach to Climate Change and Natural Capital (Conservation of the Global Environment · Circular Economy)

The IHI Group implements management that embraces ESG values (ESG management) based on the desire to "Create a world where nature and technology work in unity". The Group's environmental initiatives continue to work to reduce the environmental impact on society at large in an effort to combat climate change, conservation of the global environment, and circular economy.

In particular, the IHI Group sees taking measures against climate change as a particularly important issue in ESG management and is doing everything possible to accomplish this. Climate change has an enormous social and economic impact and is a vital social issue for companies to address in order to realize sustainability and one that the IHI Group believes it should focus on.

Governance

Structures for Implementing Initiatives to Become Carbon Neutral

The IHI Group deliberates on and determines approaches and important matters concerning climate change countermeasures through the Environment Committee, a Group-wide body.

In fiscal 2021, the Group established a task force comprising members from different divisions to promote initiatives to become carbon-neutral throughout the entire value chain. Until fiscal 2023, the Administration Division and Corporate Planning Division served as the secretariat to the task force, but in fiscal 2024, the secretariat was consolidated within the General Affairs Division to carry out these activities more efficiently and accelerate their implementation. Reports on the activities of the task force are made to the Environment Committee, which deliberates on them. The details of discussions by the Environment Committee are reported to the ESG Management Promotion Committee, and feedback received from management is disseminated throughout the Group.

Amid discussions at these meetings and committees, matters related to important management decision-making are deliberated on by the Management Committee, which serves as the decision-making body for management execution, and are then submitted to the Board of Directors.

System for Achieving Carbon Neutrality



Structures for Initiatives to Natural Capital (Conservation of the Global Environment · Circular Economy)

The IHI Group deliberates and decides on the approach and important matters concerning conservation of the global environment or circular economy also through the Environment Committee, a Group-wide body. Each office, plant, and business establishment has set up an environment committee to draft policies tailored to the needs of each region based on Group-wide policy.

Strategy

IHI Carbon-Neutral 2050

The IHI Group is committed to achieving the Paris Agreement's effort target of "Keeping the global average temperature increase to 1.5°C compared to pre-industrial levels" by promoting "IHI Carbon-Neutral 2050".

The Group aims to have direct and indirect greenhouse gas emissions (Scope 1, 2) from its business activities compared to 2019 by 2030 and achieve effectively zero emissions by 2050. As shortterm measures, the Group established the IHI Group Environment Action Plan 2023 (FY2023–FY2025) and set targets of reducing total Scope 1 and 2 emissions by 12,000 t-CO₂e and reducing energy intensity (energy consumption per unit of sales) by 3% compared to fiscal 2022 through capital investment.

The Group also aims to achieve effectively zero greenhouse gas emissions released in upstream and downstream processes (Scope 3) by 2050. The Group

 \equiv

 \blacksquare

formulated the Scope 3 reduction roadmap and will reduce emissions with a focus on category 11 (use of sold products) and category 1 (purchased products and services), which have particularly large emissions, to achieve carbon neutrality across Scopes 1, 2, and 3.

Possessing decarbonization technology, the IHI Group will take the lead in contributing toward the realization of a global carbon-neutral society through its efforts in achieving this goal.

Risk and Opportunity Due to Climate Change

The IHI Group conducted simple scenario analyses of four business domains significantly impacted by climate change: the energy business, bridge and water gate business, vehicle turbocharger business, and the civil aero-engine business.

The first step set 1 a carbon-neutral world as the highest transition risk and 2 a world greatly impacted by climate change as the highest physical risk in our own independent scenarios drafted with reference to external scenarios created by the International Energy Agency (IEA) and Intergovernmental Panel on Climate Change (IPCC). The second step identified risks and opportunities for all four business domains. The third step assessed the impact each business has. The fourth and last step drafted countermeasures according to our findings.

In the future, the IHI Group will enhance its ability to leverage scenario analyses in business strategy through efforts, such as assessing the financial impact of climate change.

The IHI Group will proactively incorporate the concepts pursued by TCFD signatories in management policies and business strategies, contributing not only to the sustainable development of our Company, but society as a whole.

Strategy for Conservation of the Global **Environment (Pollution Prevention and** Biodiversity Conservation)

The IHI Group has set zero violations of environmental laws and regulations and zero accidents as environmental targets, and compliance with environmental laws and regulations, as well as the prevention of environmental accidents, are positioned as the top priorities for environmental activities at offices and plants.

Regarding the conservation of biodiversity, the Group believes that the sustainable use of natural capital is crucial for the continuation of business, and accordingly, it is focusing on measures to address climate change, which has a major impact on biodiversity. At offices and plants, they are implementing measures linked to the 2030 global targets specified in the Kunming-Montreal Global Biodiversity Framework (GBF), which was formulated at COP15.

Strategy for circular economy

The IHI Group aims to create a resource recycling-oriented society, thereby helping drive the transition to a circular economy. Therefore, in its business activities, the Group is working to reduce waste emissions through the 3Rs (reduce, reuse, and recycle) and to reduce water withdrawal and water consumption. Also, in addition to providing resource-efficient products using minimal quantities of resource input and consumption, the Group is working to expand its business of providing comprehensive services that include reuse, repair, and maintenance throughout the entire product lifecycle.

Scenario Analysis Process

Step 1	> Step 2	> Step 3	→ Step 4 Formulate countermeasures	
Set independent scenarios	Identify risks and opportunities	Evaluate the business impact		
The IHI Group referred to external scenarios* to set independent Group scenarios in anticipation of the world in 2050. ① High-transition risk scenario ② High-physical risk scenario	The IHI Group identifies risk and opportunities for the two scenarios created in Step 1.	The IHI Group assigns point values for the potential of occurrence and scale of impact for each risk and opportunity identified in Step 2. The intersection between both define the impact and estimate the influence the risks and opportunities have on our businesses.	The IHI Group formulates measures to respond to these risks and opportunities to foster resilient businesses.	
* External reference scenarios:				

 A carbon-neutral world IEA 2DS (qualitative assessment based on the ETP2017 Global technology penetration in LDV stock by scenario, global electricity generation, etc.) • A world greatly impacted by climate change RCP 8.5 (gualitative assessment based on the portions relating to wind and flood damage risk of IPCC AR5 WG2)

Main Risks, Opportunities, and Countermeasures Specific to Each Business (Four Main Business Domains)

	Energy Business	Bridge and Water Gate Business Vehicle Supercharger Business		Civil Aero-Engine Business				
	(1) Risks, Opportunities, and Main Countermeasures in a Carbon-neutral World							
Risks	Declining demand for large fossil fuel power generation equipment	 Increasing procurement costs (carbon tax, etc.) for materials with high CO₂ emissions (concrete, steel, etc.) Declining demand for combustion engine vehicles unable to address carbon-neutral requirements and a falling demand for existing turbochargers 		Declining demand for aircrafts due to carbon-neutral requirements and standardization of alternative highspeed means of transportation				
Opportunities	 Increasing demand for fuel conversion, carbon capture and storage (CCUS), and other decarbonization technologies Increasing demand for regulated power supplies, storage energy, and Power-to-X to provide a stable energy supply as renewable energy becomes the standard 	 Increasing demand for roads(bridges and tunnels) to provide a more efficient transportation network Increasing demand for railway construction due to expansion of railway systems overseas Potential to secure market competitiveness and leverage an increase in demand for turbochar by being first to market with new turbocharger products (electric products in addition to existing mode for carbon-neutral electric vehicli (PHEV, HeV, FCV, etc.) 		 Increasing demand for the development of aircraft engines supporting carbon neutral requirements and a rise in opportunities due to electrification of engines and utilization of advanced material technologies. 				
Main counter- measures	 Rapidly deploy carbon-neutral technologies to society Promote technological development to stabilize the energy supply Expand the lifecycle business through remote monitoring and other Internet of Things (IoT) technologies 	Reduce construction schedules and labor costs by labor-saving, remotization, and improving construction methods through promoting digital transformation (DX)	Rapid development and commercialization of turbochargers for electric vehicles that comply with carbon-neutral requirement trends	 Early commercialization of electric engines and advanced technologies such as advanced composites. 				
	(2) Risks, Opportunities, and Main Countermeasures in a World Greatly Impacted by Climate Change							
Risks	Extreme delays due to on-site construction stoppages or disasters caused by frequent severe weather	Extreme delays due to on-site construction stoppages or disasters caused by frequent severe weather	Suspension of production due to disrupted supply chains caused by frequent severe weather	Suspension of production due to disrupted supply chains caused by frequent severe weather				
Opportunities	Contributing to early recovery of equipment damaged in severe weather Increasing demand for digital technologies to promote labor saving and remote operation	Increasing demand to build robust national infrastructure Contributing in early recovery of infrastructure damaged in severe weather	No opportunities unique to our business	No opportunities unique to our business				
Main counter- measures	Expand the lifecycle business through www monitoring and other Internet of Things (IoT) technologies	Expand business beyond lifecycle business with wider perspective to include disaster prevention business Create technologies and systems that contribute to maintenance, disaster prevention, disaster mitigation, and quick recovery of infrastructure	Strengthen supply chains	Strengthen supply chains				

Main Risks and Countermeasures Shared Across All Businesses

	Main Items	Main Countermeasures and Transitioning to Opportunities				
	(1) Transition Risks and Countermeasures for a Carbon-neutral World					
Policy and legal	 Introduction of carbon taxes, stronger industrial waste regulations, raising costs due to the adoption of renewable energy and energy-efficient equipment, etc. 	Reduce costs in business activities through efficient production and distribution as well as the proper management of energy consumption				
Technology	Raising costs due to research to realize carbon-neutral products and services, failed technological development, etc.	Concentrate investments in technological development while staying acutely aware of policies, technologies, markets, and other social trends				
Market	Declining demand for products and services with high CO ₂ emissions, etc.	Actively draft and promote business plans that always anticipate multiple business scenarios to adapt to dramatic changes in market structures				
Reputation	Lost opportunities due to poor evaluations of our response to climate change, declining social credibility, etc.	 Disseminate easy-to-understand information about products and services that can help both mitigate and adapt to climate change 				
	(2) Physical Risks and Countermeasures in a World Greatly Impacted by Climate Change					
Acute/Chronic	 Ceased business activities due to damaged offices and business sites caused by typhoons, floods, or other natural disasters, etc. 	 Incorporate the response to climate change into the business continuity plans plants and offices to ensure the safety of Officers and employees and strengt the supply chain Draft, execute, and manage advance measures in anticipation of foreseeal flood damage 				

Risk Management

In addition to short-term business risks, the IHI Group also manages sustainability-related risks that affect the medium- to long-term business environment as a risk to conducting business. In particular the IHI Group assesses the medium- to long-term impact of these risks to the Group and convert them into short-term business risks. The Group has clarified the roles and responsibilities of its Internal Audit Division, corporate divisions, business areas, and business divisions (including affiliated companies), which are managed under a multi-layered risk management framework.

Metrics and Targets

The IHI Group aims to achieve carbon neutrality throughout its entire value chain by 2050.

In FY2023, the Board of Directors adopted a resolution setting a goal of having the Group's FY2019 GHG emissions from plants, offices, and other business establishments (Scope 1 and 2) by FY2030.

See p.107 for performance data.

=

⋜

 \blacksquare

Initiatives

• Reducing Scope3 Emissions

The majority of IHI Group's Scope 3 emissions fell under category 11 (use of sold products) with coal-fired power plant boilers accounting for most of these emissions during fiscal 2023. However, new boiler construction will be completed by fiscal 2025, with emissions expected to decrease significantly from fiscal 2026 onwards. The Group also aims to significantly reduce emissions from other products included in category 11 by 2050 by converting to clean energy and improving energy consumption efficiency.

In order to achieve these goals, the IHI Group has devised a roadmap for reducing its Scope 3 emissions by 2050. In line with this roadmap, the Group will continue to reduce GHG emissions throughout the life cycle of our products from the material procurement, design, and manufacturing stages and use after customer purchase. Furthermore, the Group aims to create a carbon-neutral society by working to come up with carbon solutions to reduce its carbon footprint, such as building a fuel ammonia value chain and through carbon dioxide capture, utilization, and storage (CCUS).

Regarding civil aero-engines, which serve as the IHI Group's main product, the Group is working with business partners to make its entire supply chain, including material procurement, carbon neutral. Additionally, the Group is making efforts to improve conventional aero engine fuel efficiency and develop revolutionary aero engines with the goal of improving aircraft energy efficiency as a whole. Moreover, the Group will be focusing on developing and expanding the use of sustainable aviation fuel (SAF) production technology, aiming for carbon neutrality across its entire value chain.

In particular, the IHI Group has taken an interest in fuel ammonia. The Group plans to build a value chain by leveraging its strengths throughout each stage in the process, from fuel manufacturing, receiving, storage, and utilization. This will be beneficial toward expanding the use of fuel ammonia and contributing to reducing GHG emissions among society as a whole.

(million t-CO₂e) 1000 Emission results 800 Emission projections Contribution to reduction by carbon solutions 600 400 200 40 30 20 10 0 -2027 -2025 . 2020 . 2022 . રેટ્યુ . 2028 . २०_{२६} 2079 2050 .૨૦૩૦ (year)

Scope3 Emissions Reduction Roadmap

		2020	2030		2040	2050
Category 11	Transition to clean energy	Development of technology (amr	fuel conversion nonia)	Promotion a	and expansion of products using fu	iel ammonia
		Promotion and expansion of the use of biomass power generation				
		Development of met	hanation technology	Promoti	ion of social implementation of e-r	nethane
		Development and expansion of the use of SAF manufacturing technology				
	Improving energy consumption efficiency	Improvement of conventional aero engines				
		Development	of revolutionary aero er	igines	Launch of revolutionary aero	o engines
		Support for improving customer operations				
		Improvement of product functionality and ef ciency				
	Carbon	Sharing information and improving cooperation among business partners				
Category 1	neutralization throughout the supply chain	Expansion of carbon-neutral product purchasing				
		Support for business partners to decarbonize their operations				
Reduction contribution	Carbon solutions	Establishment of am	imonia value chain		Expansion of fuel ammonia supply	/
		Development of C	CCUS technology			
		Reduc	tion contribution throug	gh fuel convers	ion and introducing CCUS techno	logy

Scope 3 Emissions Results and Projections