



**HOYA**

# TCFD Disclosure

HOYA Corporation

April 17, 2023



# 1. Overview

# Introduction

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As a responsible member of society, HOYA is addressing climate-change issues in order to protect the global environment that will be passed on to the next generation. In October 2021, we identified four ESG materialities, including Reducing Greenhouse Gases (GHG). In December 2021, we announced our endorsement of the recommendations of the Climate-Related Financial Disclosure Task Force (TCFD). In the following year, 2022, we began analyzing scenarios based on TCFD recommendations.

The assumptions for the TCFD disclosure, the first year for us, are as follows.

Year of analysis: Fiscal year ended March 31, 2023

Scenario: 4°C/1.5°C scenario

Fiscal year covered by analysis: Impact as of 2030

Major GHG to be analyzed: Carbon dioxide (CO<sub>2</sub>)

Scope: Scope 1+Scope 2\*

\*We do not measure Scope 3 at present. We will continue to explore Scope 3 measurements, including methods..

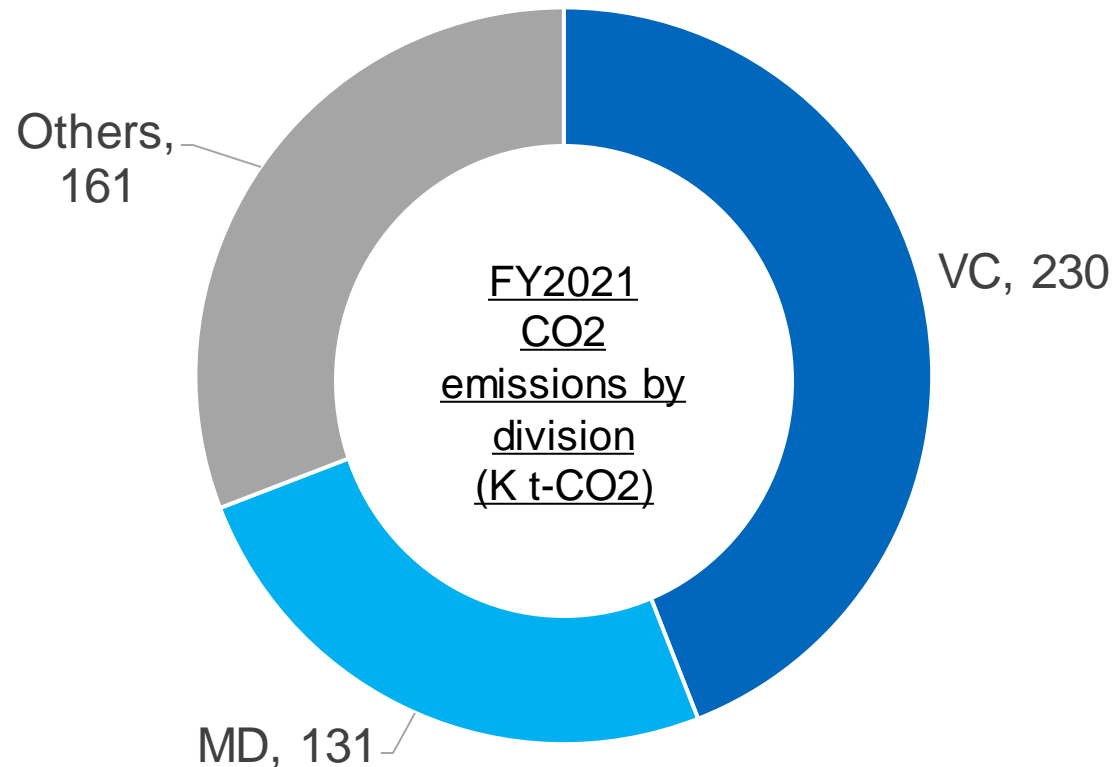


# Businesses Covered in the Analysis

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Our group has more than 10 divisions, and their business characteristics, scale of operations, and regions of operation vary greatly. In FY21, the Group's consolidated Scope 1, Scope 2 CO2 emissions totaled 522K tons.\* Considering the size of the impact, we have chosen two business divisions, Vision Care division and MD division in this analysis. The combined CO2 emissions of these two business divisions account for nearly 70% of the HOYA Group's total CO2 emissions. With regard to physical risk, the largest factories for the two divisions in Thailand and Vietnam were set as the main targets of the analysis.

\*Figures reflect the results of an audit by a third-party organization (February 2023)



# VC Division Overview

**Description of Business:** R&D, production, and commercialization of eyeglass lenses. We handle not only general monofocal ophthalmic lenses, but also lens products, which aim to meet vision care needs along all life stages and lifestyles. Examples of these are progressive addition lenses, which offer tailored vision or all viewing distances from near to far, and photochromic lenses, which adapt to light conditions, rapidly changing from clear to dark and back. Overseas sales account for approximately 90% of total sales, and by region, Europe is followed by the Americas. Manufacturing sites are located around the world, and production is particularly high in Thailand and Vietnam.



**Environmental Characteristics:** VC Division procures resin from material manufacturers. The resin material is molded, cut and polished, and then coated with anti-reflection materials etc. In the manufacturing process, a large amount of electricity is used for vacuum deposition machines used in coating, and the majority of CO2 generated is Scope 2. In addition, water is used in the polishing process, and a large amount of scrap is generated in the process.

## Supply Chain:



Lens material manufacturer



HOYA

Lens manufacturer



Eye care professionals

# MD Division Overview

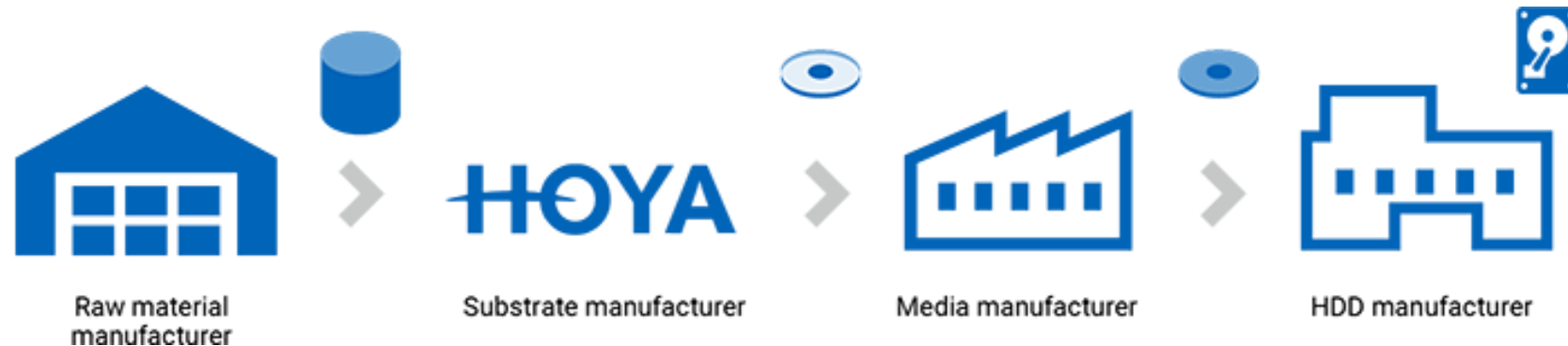
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**Description of Business:** R&D, production and sales of glass substrates for HDDs (Hard Disc Drives). HDDs are used as an external storage for PCs and TVs, and is a critical device for data centers, which are essential infrastructures in a data-driven modern society. By making glass substrates thinner, we are helping to improve the efficiency of data storage by expanding the number of substrates installed per HDD unit as well as data capacity per HDD unit. Glass substrates are manufactured mainly in Vietnam. In the future, we plan to increase the capacity of the plant in Laos.

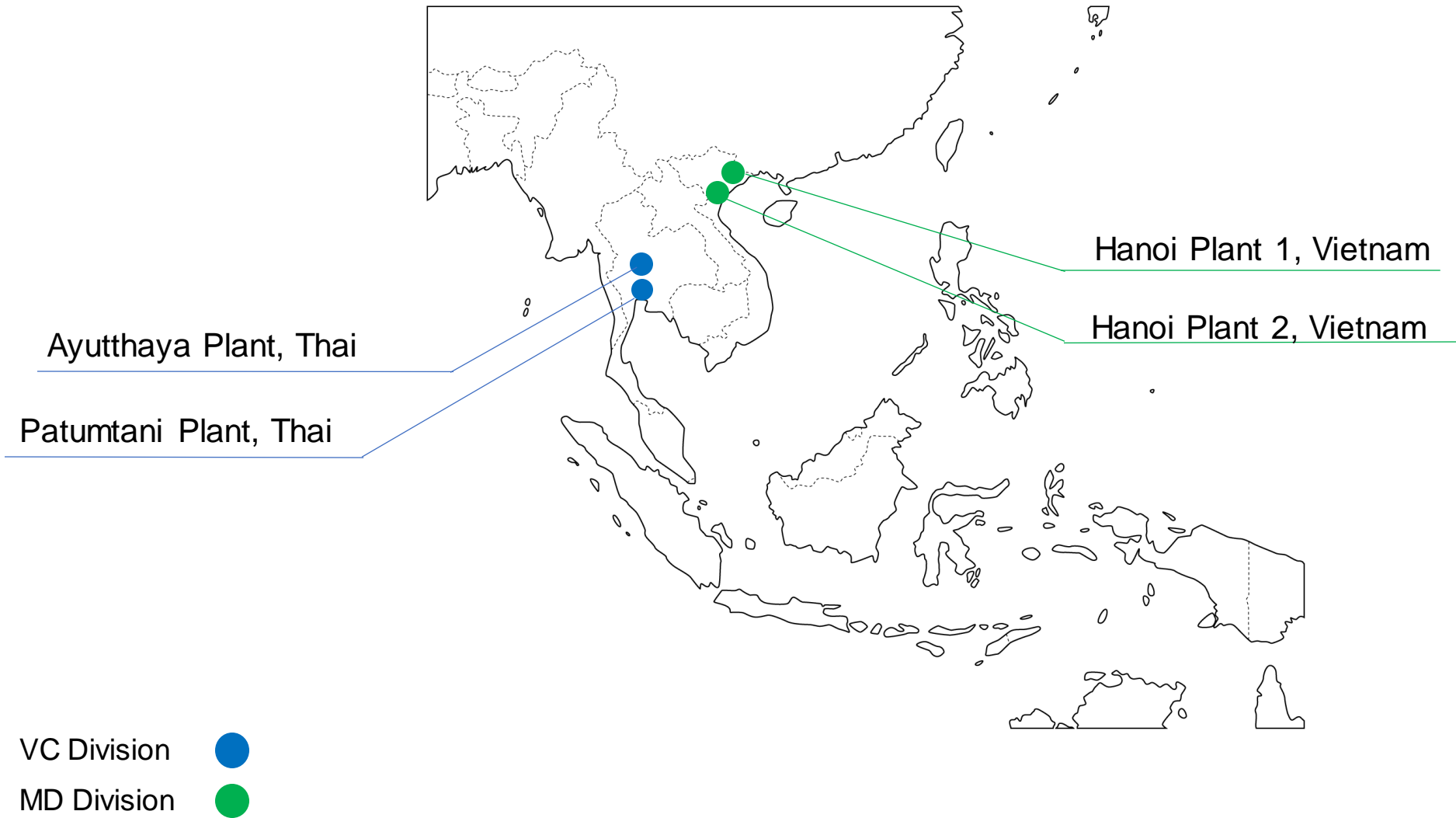


**Environmental Characteristics:** MD Division procures glass materials from material manufacturers, which are then molded into discs and then polished to make them thin. The majority of CO2 generated is Scope 2 as almost all processes use electricity for processing. It also requires large amounts of water in the polishing process.

## Supply Chain:



# Manufacturing Sites: Main Subject of Physical Risk Analysis

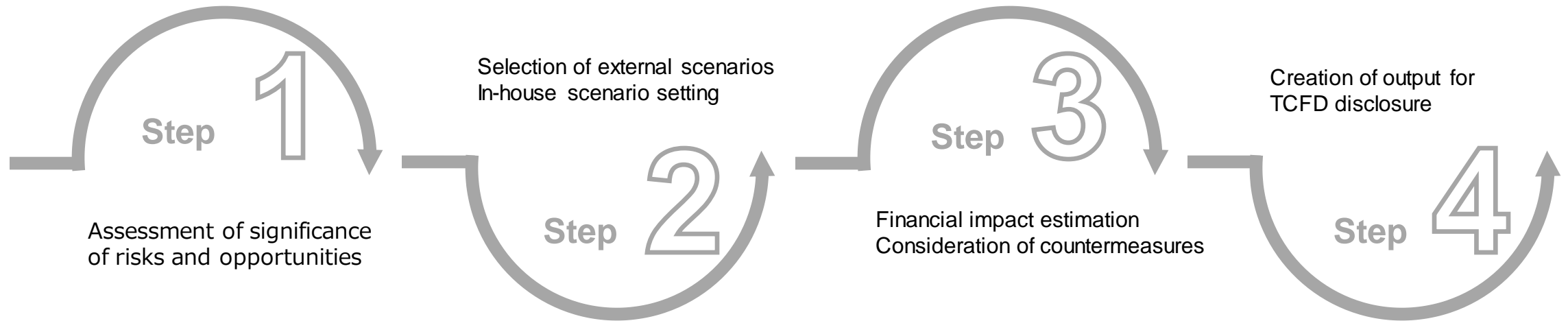


# Process of Scenario Analysis

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After narrowing down the analysis target to the VC and MD divisions, we organized a study team (TCFD project) consisting of personnel from departments that are highly relevant to each business division and conducted data collection and analysis as well as multiple workshop-style discussions in the following four steps.

Approximately 30 members from the Head Quarter TCFD Team and relevant functions in each division participated in the workshop. They shared highly specialized insights from the perspectives of technology development, manufacturing, administration, sales, and environmental, health, and safety, and actively exchanged views. In addition to Japan, participants from Europe and Southeast Asia were also able to reflect the pragmatic situation at the site in scenario analysis etc.







## 2. Governance

# Governance Structure

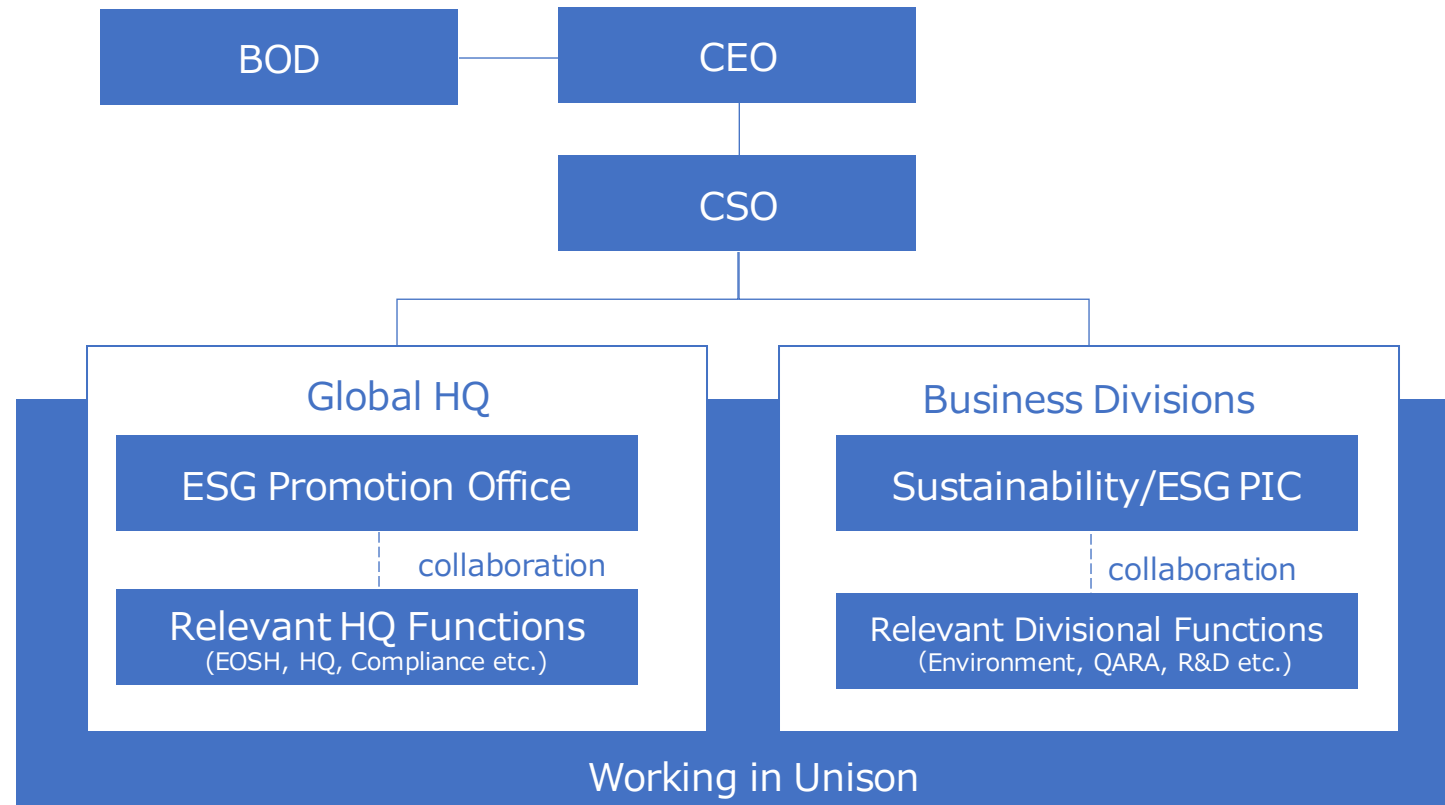
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We have a company with a Nominating Committee, etc. system. The Board of Directors serves as a monitoring board, oversees the execution side, and deliberates and decides on important matters related to the management policies of the entire Group. The ESG Promotion Office proposes the Group's basic sustainability policies, including climate change countermeasures, materiality, and important measures such as TCFD and RE100, which are then deliberated and decided by the Board of Directors. In addition, the Board of Directors receives regular reports from the Chief Sustainability Officer (CSO) on progress in addressing climate change within the Group approximately twice a year and provides advice from multiple perspectives.

Since management is conducted under a business division system through portfolio management, policies for responding to climate-related issues in each division are reflected in the management strategies, management plans, and annual budgets of each business, which are approved and resolved by the Board of Directors. Each division also has a team in charge of ESG, which develops measures for KPIs established by each division after consulting with CSO about KPIs that are consistent with group targets. KPIs set by individual divisions are monitored and supported by ESG Promotion Office, and the effectiveness of KPIs is enhanced by setting key items as annual incentive-assessment items for presidents of business divisions.

# Governance Structure

In March 2022, a Chief Sustainability Officer (CSO) was appointed and the ESG Promotion Office at the Group headquarters was established. The CSO and ESG Promotion Office play a central role in promoting activities related to HOYA Group-wide sustainability /ESG. In addition, HOYA has a fully independent business division structure. Each division was voluntarily engaged in initiatives related to sustainability /ESG, but in May 2022 we established ESG counterparts in each division to coordinate with ESG Promotion Office at the head quarters. Through collaboration between CSO, ESG Promotion Office and ESG counterparts of each business divisions, management discussions are also reflected in the promotion of integrated group-wide activities. These activities are also reported by CSO to the Board of Directors and monitored by the Board of Directors.





## 3. Strategy

In this document, risks and opportunities related to climate change are analyzed from the following three aspects, based on the 1.5°C and 4°C scenarios assumed by specialized organizations such as the Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency (IEA). Specifically, from the list of risks and opportunities, the importance of the TCFD project was evaluated in terms of likelihood of occurrence and impact on three levels.

**Transition risk:**

Risks arising from the strengthening of regulations and changes in the market accompanying the transition to a carbon-free society

**Physical risk:**

Risks arising from physical damage caused by natural disasters, etc.

**Opportunities:**

Positive business opportunities for operating results due to changes in the market/customers, etc.

The time frame considered here is short term (1-3 years), medium term (2030), and long term (2050), and the impact as of 2030 is analyzed in this study.

# 4°C and 1.5°C Scenarios

## 4°C Scenario

Scenario in which introduction of climate policies are slow, fossil fuel dependence develops; GHG emissions continue to increase

- Governments are not expected to meet climate change targets. Slow progress in introducing policies to curb GHG emissions.
- Carbon taxes/carbon pricing are rarely introduced or are low in amount.
- Energy demand increases by 1.3% annually with economic development but is mostly supported by fossil fuels.
- Temperatures will rise about 4°C above current levels (assuming IPCC SSP5-8.5 or SSP3-7.9).

## 1.5°C Scenario





Scenario in which climate policies are introduced, economic development becomes less dependent on fossil fuels; GHG emissions decline

- Governments introduce policies to curb GHG emissions; developed countries lead the way in reaching net zero CO<sub>2</sub> emissions.
- Carbon tax/carbon pricing is introduced.
- Use of renewable energy expands, and fossil fuel energy supply declines significantly.
- Clean energy policies and investments surge, technological progress is rapid, and development of low-carbon energy sources and land productivity increases.
- Temperature increase limited to about 1.5°C above current levels (assuming IPCC SSP1-1.9)

# Risks Identified by VC Division

	Item	Countermeasures	Financial impact	
			4°C	1.5°C
Transition risk	Increase in material (resin), production, and transportation costs due to introduction of carbon tax /carbon pricing	<ul style="list-style-type: none"> <li>• Introduce renewable energy/purchase carbon credits</li> <li>• Innovate process and product development to reduce impact and cost</li> <li>• Reduce GHG emissions and expenses in consultation with raw material manufacturers and transporters</li> </ul>		
	Strengthening emission reporting obligations Mandatory carbon footprint display in the manufacturing process	<ul style="list-style-type: none"> <li>• Establish new governance structure to trace carbon footprint</li> <li>• Introduce IT infrastructure to set targets, track and take actions</li> </ul>		
	Regulation of microplastics in the polishing process due to stricter disposal regulations and an increase in processing costs	<ul style="list-style-type: none"> <li>• Develop plastic recycling technologies</li> <li>• Innovate processing methods that minimize residues and waste</li> </ul>		
	Decline in market share and sales due to delay in response to consumer awareness of climate change	<ul style="list-style-type: none"> <li>• Consider labeling CO2 emissions on products</li> <li>• Review marketing strategy: innovate product to reduce impact and increase communication</li> </ul>		
	Loss of customers and decrease in sales in the event of delays in the introduction of climate change measures /information disclosure in the selection of customers' suppliers	<ul style="list-style-type: none"> <li>• Provide regular ESG progress updates to customers and other external stakeholders</li> <li>• Expansion of climate-change-related disclosure, including TCFD and CDP disclosure</li> </ul>		
	Decline in reputation and sales due to insufficient response to environmental issues such as reducing CO2 emissions and water recycling	<ul style="list-style-type: none"> <li>• Provide annual ESG progress report to customers</li> <li>• Expansion of climate-change-related disclosures, including TCFD and CDP disclosures</li> </ul>		

# Risks Identified by VC Division – Cont'd

	Item	Countermeasures	Financial impact	
			4°C	1.5°C
Physical risk	Production activities and supply chain disruptions caused by outbreaks of infectious diseases triggered by extreme weather conditions, lockdowns and other behavioral restrictions that limit the operations of eyeglass retailers, who are customers of VC Division	<ul style="list-style-type: none"> <li>• Formulation/update of BCP for own factories</li> <li>• Promote dispersion of production sites</li> </ul>		
	Stagnation of production and sales activities due to extreme weather conditions, and the submersion or destruction of production sites due to flooding	<ul style="list-style-type: none"> <li>• Promote dispersion of production sites and individual flood control measures</li> <li>• Formulate BCP including securing inventory</li> </ul>		



# Reference: Past Case Studies - Physical Risks in VC Division

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In October 2011, two plants in HOYA Lens Thailand, Ltd., the main manufacturing sites for eyeglass lenses, were damaged by a large-scale flooding in the Chao Prayer River Basin in Thailand. In particular, the Ayutthaya plant in Thailand, which manufactures custom-made eyeglass lenses, was heavily inundated, and it took about six months to resume operations after drainage and recovery work of manufacturing equipment.

The Thai plant ships and processes products to countries around the world. During the period of shutdown of operations, sales declined due to the suspension of orders and damage to manufacturing equipment were severe.

In response to the above, we have been working to decentralize our manufacturing sites by increasing capacity at sites other than Thailand including the establishment of a new plant in Vietnam. At the same time, we are promoting the establishment of a business continuity planning (BCP) to ensure that supplies to customers are maintained for a certain period in the event of an emergency.

# Opportunities Identified by VC Division











	Item	Countermeasures	Financial impact	
			4°C	1.5°C
Market	Improve assessment in financial markets and reduce financing costs by addressing ESG and climate-change issues and disclosing information	<ul style="list-style-type: none"> <li>Expansion of ESG disclosures including TCFD disclosure</li> <li>Improve disclosure and score in CDP</li> </ul>		
	Increased sales by rapid success in product development responding to growing demand for low-carbon products	<ul style="list-style-type: none"> <li>Indicate carbon footprint</li> <li>Integrated environmental footprint reduction mindset into overall product development strategy</li> <li>Collaborate with material manufacturers</li> </ul>		
Products & Services	Increase in sales due to rapid success in product development as demand for products that are easy to recycle/reuse increases	<ul style="list-style-type: none"> <li>Develop circular economy-focused product strategy together with suppliers and customers</li> </ul>		
Resource efficiency	Cost reduction by developing technology to reuse and reduce water consumption as a result of water resource shortage due to global warming	<ul style="list-style-type: none"> <li>Establishment of production methods with low water consumption</li> <li>Introduction of advanced water treatment technology and increase in reuse</li> </ul>		
	Realizing more efficient manufacturing processes through DX, etc.	<ul style="list-style-type: none"> <li>Reduce CO2 and relevant costs through improving production efficiency</li> <li>Invest in DX technology and DX training</li> </ul>		
Resilience	Formulation of BCP, diversification of manufacturing sites and suppliers	<ul style="list-style-type: none"> <li>Introduction and Training of BCP</li> <li>Renovation of each plant, geographical dispersion of sites, etc.</li> </ul>		

# Risks Identified by MD Division

	Content	Countermeasures	Financial impact	
			4°C	1.5°C
Transition risk	Increase in material (glass), manufacturing and transportation costs due to introduce of carbon tax/carbon pricing	<ul style="list-style-type: none"> <li>• Introduction of renewable energy/purchase of carbon credits</li> <li>• Reduce GHG emissions and expenses in consultation with raw material manufacturers and transporters</li> </ul>	● ● ●	● ● ●
	Increase in compliance costs due to strengthen of environmental regulations, and fines for violations	<ul style="list-style-type: none"> <li>• Establishment/enhancement of an organizational structure</li> <li>• Conversion to facilities in compliance with regulations</li> </ul>	● ● ●	● ● ●
	Decline in reputation and sales due to insufficient response to environmental issues such as reducing CO2 emissions and water recycling	<ul style="list-style-type: none"> <li>• Expansion of climate-change-related disclosures, including TCFD and CDP disclosures</li> </ul>	● ● ●	● ● ●
Physical risk	Production activities and supply chain disruptions caused by outbreaks of infectious diseases triggered by extreme weather conditions, and a decline in demand due to a decline in the operation of factories by customers	<ul style="list-style-type: none"> <li>• Formulation/update of BCP for own factories</li> <li>• Promote dispersion of production sites</li> <li>• Consideration of plans based on impact for the customers</li> </ul>	● ● ●	● ● ●



# Opportunities Identified by MD Division

	Content	Countermeasures	Financial impact	
			4°C	1.5°C
Market	Improve assessment in financial markets and reduce financing costs by addressing ESG and climate-change issues and disclosing information	<ul style="list-style-type: none"> <li>Expansion of ESG disclosures including TCFD disclosures</li> <li>Improved disclosure and scores on CDP</li> </ul>		
	Growing demand for low-carbon products and rapid success in product development will increase sales	<ul style="list-style-type: none"> <li>Indication of carbon footprint</li> <li>Review of product strategy</li> <li>Increase in technology development budget</li> <li>Collaboration with materials manufacturers</li> </ul>		
Resource efficiency	Cost reduction by developing technology to reuse and reduce water consumption as a result of water resource shortage due to global warming	<ul style="list-style-type: none"> <li>Establishment of production methods with low water consumption</li> <li>Introduction of advanced water treatment technology and increase in reuse</li> </ul>		
	Realizing more efficient manufacturing processes through DX, etc.	<ul style="list-style-type: none"> <li>Reduce CO2 and relevant costs through improving production efficiency</li> <li>Invest in DX technology and DX training</li> </ul>		
Resilience	Formulation of BCP, diversify of in-house manufacturing sites and suppliers	<ul style="list-style-type: none"> <li>Introduction and Training of BCP</li> <li>Renovation of each plant, geographical dispersion of sites, etc.</li> </ul>		



## 4. Risk Management

# Risk Management

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The Group conducts portfolio management and responds to changes in the business environment by reviewing its portfolio through the development of new businesses, acquisitions from external sources, and business transfers. In addition, we have appointed a person in charge at the Group Head Quarters who is responsible for functions that we believe pose significant risks to us, such as compliance, regulatory compliance, cybersecurity, and health and safety. The person responsible for identifying and preventing risks through the person responsible for these functions in each division is reported to the Board of Directors once a year by the person responsible at the Group Head Office. Climate change risks are handled in an integrated manner with these and are reported to the Board of Directors by the CSO.

ESG Promotion Office under CSO monitors changes in circumstances surrounding climate change with the participation of outside experts and analyses them once a year.

In fiscal 2022, we analyzed the risks and opportunities associated with our two business divisions' key operations, where GHG emissions are high and climate-change impacts are high. In the future, we will gradually expand the target regions and businesses.

In the event of a significant change in circumstances resulting from monitoring, the head office TCFD projects and business divisions, including the Head Office ESG Promotion Office, IR, and members of the Environment, Health, and Safety Department, collaborate to review physical risks related to climate change. Responses to these risks will be coordinated with appropriate divisions within the respective divisions (e.g., departments related to production, store development and procurement) under the supervision of the responsible persons in charge of each business division.

The risks associated with changes in the business environment due to climate change (transition risks) will also be shared with the sustainability /ESG teams/staff in business divisions around the world based on the above analyses, as well as the environmental, quality assurance, and procurement-charge departments related to sustainability, and appropriate countermeasures will be formulated for each business division.

ESG Promotion Office at the Group head quarters monitors the progress of KPI established in the respective businesses semiannually and discusses countermeasures with the business divisions as needed.



## 5. Goals and Future Outlook

# Indicators and Targets

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- Scope 1 and 2 greenhouse gas emissions and the renewable energy ratio of electricity used in business activities are used as measures to evaluate climate-related risks and opportunities.
- Scope 2 accounts for 97% (\*1) of our Group's total greenhouse gas emissions (Scope 1 and 2). Since most of these emissions are indirect emissions derived from purchased electricity, there is plenty of room to reduce greenhouse gas emissions by switching to renewable energy.
- Each business unit formulates an energy conservation plan in line with the company's targets, and the degree of achievement of the RE100 (energy conservation) target together with other ESG targets is reflected in the annual incentives for each business unit manager, thereby enhancing effectiveness. The degree of achievement of Group-wide ESG targets is also an evaluation item for the annual incentives of the executive officers in charge and for the mid-term incentives of all executive officers.



# Indicators and Targets – Cont'd

- To decarbonize our operations, in addition to our existing efforts to upgrade to high-efficiency equipment and conserve energy, switch to eco-cars (hybrid cars, electric cars, etc.) for company vehicles, and switch to LED lighting, we have begun installing solar panels and switching to electricity derived from renewable energy sources, both in Japan and overseas. In addition, we have begun installing solar panels and switching to electricity derived from renewable energy sources in Japan and overseas. Furthermore, we will consider electrification of facilities that use fossil fuels as their energy source in the future.
- We will gradually begin to calculate Scope 3 from FY2023 and prepare for disclosure.

Item	Fiscal 2021 Results (Base year)	Fiscal 2030 Target	FY2040 Target
Renewable energy power ratio (%)	1%	60%	100%
HOYA's CO2 emissions (Scope 1 and 2)	522K t-CO2 (*2)	Nearly 60% reduction	Nearly 100% reduction

\*1 Fiscal 2021 Results

\*2 63 manufacturing sites (10 domestic and 53 overseas) and 45 non-manufacturing domestic sites (including all Eye City retail stores and 10 aggregation units). Third-party verification with limited assurance.

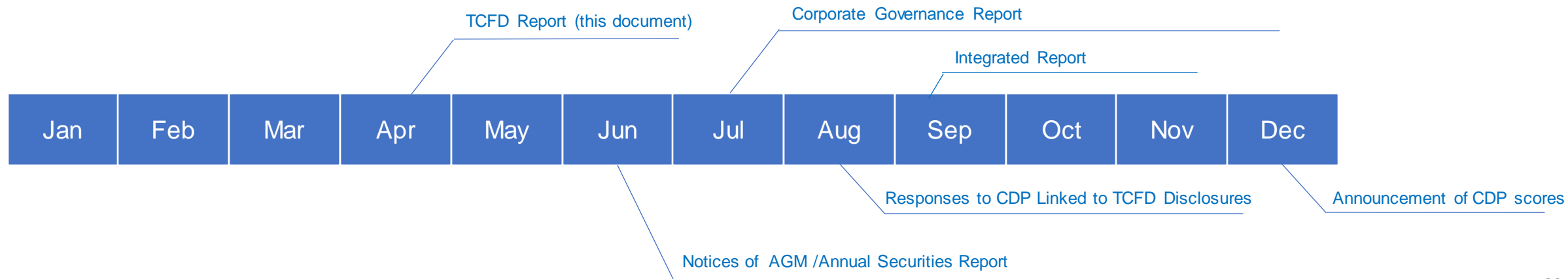
# TCFD Disclosure Timeline

## Disclosure Policy:

We strive to disclose information in a timely and appropriate manner so that all of our stakeholders, including shareholders and investors, customers, and business partners, can better understand our Group and properly evaluate us. As a listed company, we believe that it is important to promote fair stock price formation in the securities market and contribute to the sound development of the capital market by providing information that can be particularly important for shareholders and investors to make investment decisions promptly, accurately and fairly. In particular, as stakeholders' interest in disclosing information based on TCFD recommendations increases, we will disclose information in a timely manner in an easy-to-understand and transparent manner.

## Information Disclosure Methods:

We will disclose information based on the TCFD recommendations (this document), as well as in our Annual Securities Report and Integrated Report etc. as per the schedule below. In addition, we will continue to consider expanding the number of business divisions covered, Scope 3 calculations and disclosures, and compliance with the IFRS Sustainability Disclosure Standards proposed by the International Financial Reporting Standards (IFRS) Foundation.



**Innovating For a Better Tomorrow**

**HOYA**