



Contribution to global environmental conservation

To realize a decarbonized society

We recognize that climate change represents both risks and an important management mission for the Toho Titanium Group to gain new profit opportunities. We will work to mitigate and adapt to climate change through our business, actively contribute to decarbonization through technological innovation, and work proactively in good collaboration with stakeholders to achieve both medium- to long-term improvements in the Group's corporate value and sustainable development of society as a whole.

Through the reduction of GHG emissions across the whole value chain, we will also help achieve the goals set forth in the

SDGs and the Paris Agreement. Our Group supports the Japanese government's decision to lead the country toward decarbonization, and will comply with all laws and regulations related to climate change. We also recognize the importance of climate-related financial disclosures, support the TCFD, and disclose information in line with the TCFD.



Information disclosure consistent with the four TCFD themes

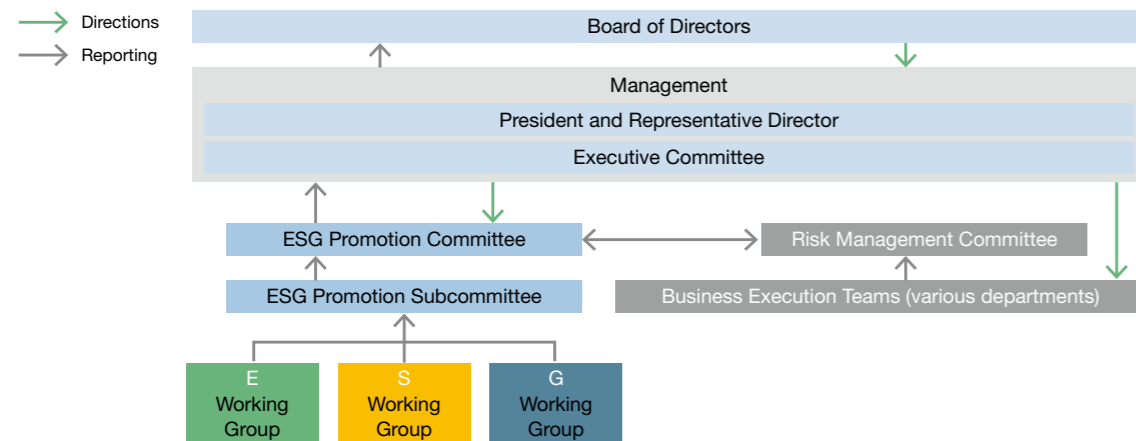
Governance

The ESG Promotion Subcommittee, which is made up of three working groups of the ESG Promotion Committee, serves as the parent body responsible for formulating specific response plans and targets for climate change issues and managing the progress of countermeasures, while also playing a liaison role with the business divisions.

The status of the working groups is shared at the ESG Promotion Subcommittee Meeting, which is held regularly every month. Furthermore, at the ESG Promotion Committee Meeting

(chaired by the President and Representative Director), which meets twice a year, we discuss the status of activities from the Promotion Subcommittee, as well as activity policies related to materiality, important matters, plans for the next fiscal year, and other topics. These matters are then reported to the Executive Committee and the Board of Directors, and opinions and suggestions are fed back to the ESG Promotion Committee. This way the climate change issues are monitored from a secondary and company-wide perspective.

System for addressing materiality including decarbonization (ESG promotion system)



Strategy

The Group strives to understand the financial impact of climate change through scenario analysis. Based on the results of the scenario analysis, we are formulating a concrete transition plan to achieve a low-carbon society, which will be reflected in the three-year medium-term corporate management plan starting in FY2023.

Scenario Analysis

Selected Scenario	IEA STEPS IPCC RCP4.5				
Hypothetical Scenario	We selected the above scenario and assumed the following as our business environment. <ul style="list-style-type: none"> Each country's decarbonization policies continue to progress as they currently do, and the 1.5°C target set out in the Paris Agreement will not be achieved. There is little incentive to actively invest in the development of decarbonization technologies, including switching the electricity consumed in our main titanium smelting business to renewable energy electricity, and adopting new smelting technologies that reduce electricity consumption. Regarding weather conditions such as storms, floods, and rise in temperature, we assume that the frequency/intensity will increase slightly from the current level, and consider the impact on our main plants and production systems. 				
Identified Risks and Opportunities		Driver	Time horizon	Financial Impact	Countermeasures
Type	Overview				
Transition risk (market)	Under China's current energy consumption control policy through decarbonization policies, it is highly possible that the country will end up with restrictions on power supply to industries, and power supply to magnesium smelting is also expected to be restricted, assuming that the transition to renewable energy does not make significant progress. As a result, if magnesium production is delayed in China (China accounts for approximately 80% of the world's magnesium supply), there is a risk that the price of magnesium we use in titanium smelting may rise and it may become difficult to procure it.	Introduction of renewable energy in China	Short/medium/long term	Approximately 400 million yen/year	<ul style="list-style-type: none"> Diversify magnesium procurement sources and adjust inventory to stabilize procurement. We are considering reducing the amount of products imported from China. We will also respond to fluctuations in magnesium prices by shortening the contract period and stipulating automatic cost adjustment items in the contract for titanium sales.
Physical risk (acute)	We expect the frequency and intensity of storms and flooding to increase in the areas where our plants are located. In particular, plants that are at high risk of flooding, due to nearby rivers overflowing, are likely to suspend operations if occurrence of heavy rains increase in the future. Also, if the intensity of storms increases in the future, the scattering risk of roofs and walls of aging plant buildings also increases. The amount of damage to our company due to the suspension of plant operations will be significant, and we will also incur costs for repairs to the plant building.	Frequency of storms and floods	Short/medium/long term	Approximately 100 million yen/day	<ul style="list-style-type: none"> For plants that are at risk of flooding due to nearby rivers overflowing, we have implemented risk countermeasures to the point where the risk of plant shutdown is virtually non-existent under the hazard conditions assumed by the city where the plant is located (assuming rainfall once every 50 years). Going forward, we will continue to evaluate trends in changes in the frequency and intensity of abnormal weather events and consider whether additional measures are necessary. For plants with aging buildings and are in areas experiencing high levels of storm intensity, we have formed a risk countermeasure working group and are proceeding with storm countermeasure construction after conducting a risk level assessment. Of the 19 countermeasures taken at the Chigasaki Plant, 13 are completed, 4 are in progress, and 2 are planned. The Wakamatsu Plant is considering reinforcing the plant roof and installing a seawall at the central substation. Going forward, we will complete construction according to this countermeasure plan. We will also consider the need for additional measures by monitoring trends in typhoon and storm intensity across all sites.
Physical risk (chronic)	As summer temperature and humidity rise and the number of extremely hot days is expected to increase, it is possible that there will be an increase in the number of cases of employees suffering from heat stroke while at work.	Number of extremely hot days	Short/medium/long term	Not remarkable	<ul style="list-style-type: none"> In addition to activities that drive awareness of heatstroke via the Safety and Health Department, we are also taking measures to counter the heat by installing air conditioning equipment in departments where heatstrokes occurred. In workplaces where air conditioning measures is not expected to be very effective, such as large work areas, risks are avoided through measures such as work time management. We will continue to monitor changes in heat conditions and the number of heatstroke occurrences, and consider strengthening measures according to the situation. We will continue our effort to avoid a situation that would lead to a shutdown of operations due to the reason multiple people at the same work place suffer from heatstroke at the same time.

Selected Scenario	IEA NZE 2050				
Hypothetical Scenario	We selected the above scenario and assumed the following as our business environment. <ul style="list-style-type: none"> Decarbonization policies in each country will progress toward achieving the 1.5°C target set forth in the Paris Agreement. There will be increasing pressure on the titanium smelting business, an electricity-intensive business, to switch to renewable energy. Development of a new smelting technology that can significantly reduce power consumption is required. Competition in technology development will intensify in the field of decarbonization technology, which we have determined as having a significant impact on our business. As our technology develops in response to the acceleration of the shift to EV and the advent of a hydrogen society, new market expansion is expected. Regarding weather conditions such as storms, floods, and rise in temperature, we assume that the frequency/intensity will increase slightly from the current level, and consider the impact on our main plants and production systems. 				
Identified Risks and Opportunities		Driver	Time horizon	Financial Impact	Countermeasures
Type	Overview				
Transition risk (market)	We anticipate that demand for carbon-free materials will increase from aircraft manufacturers, plant manufacturers, and heat exchanger manufacturers, which are our major customers. The current titanium smelting method is a power-intensive manufacturing method, so there is the potential issue of high CO ₂ emissions. If we do not reduce these emissions, we will not be able to meet customer demands, and there is a possibility that our products will be replaced with other materials with lower emissions. Moreover, switching to carbon-free electricity in order to avoid this will result in higher costs.	Price of carbon-free electricity	Medium/long term	Approximately 600 million yen/year	<ul style="list-style-type: none"> We are progressing with the development and gradual commercialization of a new titanium smelting method that significantly reduces power consumption and CO₂ emissions to minimize the amount needed for switching to carbon-free electricity. Compress electricity cost increases through direct purchase of non-fossil fuel certificates Continue to proceed with energy conservation / waste heat recovery and utilization measures, and use carbon-free energy other than electricity. In the future, we will also consider participating in renewable energy power generation projects in collaboration with local communities and other companies.
Physical risk (acute)	*Same as physical risk (acute) in the table above				
Physical risk (chronic)	*Same as physical risk (chronic) in the table above				
Opportunity (Products/Services)	As efforts, such as decarbonization, are strengthened toward building a sustainable society, titanium, which is lightweight, has high strength, and excellent durability, is a useful material that can contribute to this goal. Thus, by establishing a new smelting technology that can produce CO ₂ -free titanium, we expect to create opportunities for our titanium business.	Customer demand for low carbon products	<ul style="list-style-type: none"> Mid-term: Start of dissemination of new smelting technology Long-term: Applicable to approximately 40% of titanium products, stabilizing the effect of the demonstration 	Not determined	<ul style="list-style-type: none"> We will complete studies on resolving issues facing industrialization by FY2024 based on the results obtained so far regarding CO₂-free titanium production technology. A company-wide steering organization will proceed with technology evaluation and investment decisions, with the aim of starting small-scale commercial production in 2025. Proceed with gradual scale expansion while incorporating improvements related to productivity and cost reduction. In conjunction with the application of other CO₂ emission reduction measures, the goal is to achieve substantial carbon neutrality in FY2040.
Opportunity (Products/Services)	The production and use of hydrogen is expected to play a major role in building a sustainable society centered on decarbonization. In addition, our company's business opportunities are expected to expand by developing titanium and titanium-containing compounds essential as hydrogen-related materials.	National hydrogen-related measures	<ul style="list-style-type: none"> Long-term: Emergence of markets for porous titanium, titanium foils, and FeTi hydrogen storage alloys as the creation of a hydrogen energy based society gains momentum Long-term: Promote in-house hydrogen utilization using the above technologies (ultra-fine nickel powder production, WEBTi Ti powder production, etc.) 	billions of yen / annual revenue increase (FY2030)	<ul style="list-style-type: none"> The WEBTi porous thin titanium sheet is expected to be applied to parts of water electrolysis hydrogen generators, which is expected to be put into practical use by around 2030. In order to be able to respond to the rapidly increasing number of inquiries on the WEBTi porous thin titanium sheet, we will establish an initial mass production system in 2024. Centered around the departments in charge of technology development and new businesses, we will accurately grasp technological seeds and market needs and trends, and aim for timely development and stage deployment. In addition to technological improvements, a company-wide steering organization will make investment decisions and technology evaluations in accordance with the progress of building a hydrogen energy based society, and aim to expand the scale. In FY2040, the above materials will become a large-scale market with the full-scale operation of a hydrogen energy based society.
Opportunity (Products/Services)	As decarbonization policies progress, EV are expected to account for more than 50% of new car sales by 2030. There is a strong need for reducing the weight of EV, and there is a need for lighter and thinner parts, so we expect increase in our Catalysts Business sales by providing high-performance catalysts that can produce these resins.	EV production volume	Medium/long term	Approx. ¥1 billion/year increase in revenue (FY2030) *Compared to FY2021	<ul style="list-style-type: none"> Development of high-performance catalysts began in 2020, and we plan to continue to improve their functionality. In order to respond to increasing demand, we have worked to expand our production sites for high-performance catalysts, and a new plant was completed in November 2022.

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Risk Management

The Climate Change Risk Identification Process

The Risk Management Committee leads the identification of climate change risks. The results of ESG Promotion Committee deliberations are reported to the Executive Committee for final approval of the company's identified climate change risks. In assessing and determining the severity of climate change risk, we primarily consider the following factors:

Method of Determining Level of Severity

- Short-, medium-, and long-term time horizons
- Transition risks: Decarbonization trends, generation power mix, product demand trends, existing and new regulatory requirements (carbon pricing, plastics regulations, etc.)
- Physical risks: Frequency of occurrence, loss of life, impact on external parties, degree of loss
- Potential for risks to materialize

How We Respond to Risks

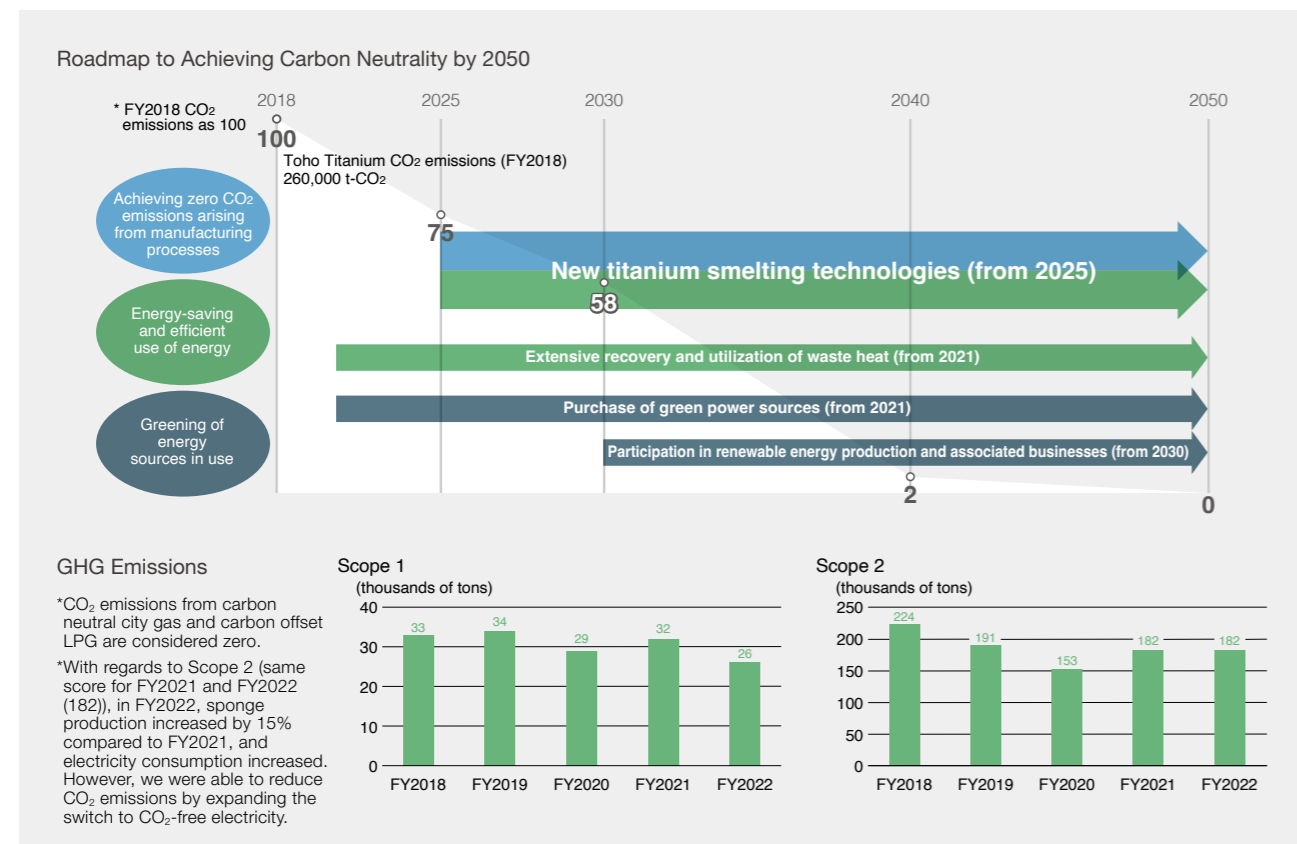
Identified climate change risks are assessed in accordance with the Risk Management Manual. They will be categorized by avoidance, mitigation, transfer, and retention, and measures will be considered for each. After deliberation by the Risk Management Committee, response policies are reported to and approved by the Executive Committee through the ESG Promotion Committee.

Integration into Company-Wide Risk Management

The Risk Management Committee is chaired by the Toho Titanium president, and consists of its executive officers, the presidents of affiliated companies, and other members appointed by the President. Climate change risk is also managed by the Risk Management Committee in the same manner as other risks, based on the system set forth in the Risk Management Manual.

Indicators and Targets

Our Group is committed to reducing GHG emissions by achieving zero-CO₂ emissions from manufacturing processes, conservation and effective use of energy, and moving to carbon-free sources for the energy we use. We have set targets of a 25% reduction by FY2025 and a 40% reduction by FY2030 (both compared to FY2018), with a final goal of reaching net zero by FY2050.



Adoption of CO₂-free electricity

From FY2021, we have introduced CO₂-free electricity to the Chigasaki Plant part of the Wakamatsu Plant, and the Hitachi Plant. In FY2022, we increased the amount of CO₂-free electricity introduced at the Chigasaki Plant. Moving forward, we will continue to introduce CO₂-free electricity to other processes to reduce CO₂ emissions.

Compensation Rules for Directors and Management

The Company's compensation system for Directors and management consists of fixed and performance-linked remuneration. In the future, we will consider reflecting the achievement of climate change-related goals in our compensation structure.

TOPIC

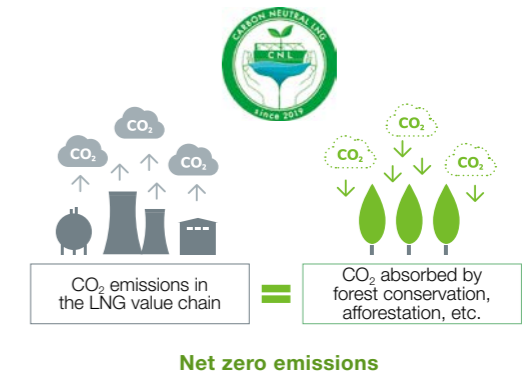
Initiatives to make fuel carbon-free

Carbon Neutral LNG Buyers Alliance

Toho Titanium joined 14 companies including Tokyo Gas Co., Ltd. in launching the Carbon Neutral LNG Buyers Alliance in March 2021. The alliance brings together Tokyo Gas and other companies that purchase carbon-neutral LNG (CNL) in an effort to realize a sustainable society, expand the use of CNL, and increase the value of its utilization. CNL is liquefied natural gas (LNG) that is regarded as producing no CO₂ emissions on a net global basis when burned, because the greenhouse gases produced in the process from the mining of CNL to its combustion are offset with CO₂ credits (carbon offsets). In the future, we aim to make CNL widely known worldwide, improve its reputation among investment institutions, and establish its position in various environment-related systems.

Introduction of carbon offset LPG

We are in the process of switching to carbon offset LPG at sites that use LPG in the manufacturing processes. Carbon offset LPG uses carbon credits to offset the greenhouse gas emissions that occur when it is burned. We started implementing it at one location in Japan in October 2022.



Providing Products Beneficial to the Environment and Safety

Our Group responds to the emerging demands of our customers and promotes the development of new processes and new products that contribute to reducing global environmental impact (p.25). We are also keenly aware of how we can help achieve the SDGs through the raw materials we use, our manufacturing processes, and our product applications, thereby contributing to the development

of a sustainable society. The introduction of pilot equipment for WEBTi, a new material that will contribute to building a hydrogen energy based society, is progressing as planned, and sample work is currently underway with the goal of full-scale commercialization within FY2025.

Sustainable resource utilization

Effective Use of Water Resources

Our Group is working to improve operations and promote water recycling, as well as identify regions with high water risks and reduce water intake. In addition to meeting the permit standards for water quality and quantity in each region and complying with laws and regulations, we have confirmed that there are no business sites

experiencing water stress as of FY2022 based on the water stress level survey results *1 in the "Aqueduct Water Risk Atlas" *2.

*1 <https://www.toho-titanium.co.jp/csr/data/>
*2 A tool published by the World Resources Institute (WRI) for measuring water risks in various regions around the world.

Promotion of Waste Reduction and Reuse

While controlling amounts of waste generated at each business site as much as possible, we are also enhancing our sorting of waste to render it valuable and recyclable. When waste disposal is the only option left, we do so properly and in compliance with the Waste Disposal and Public Cleansing Act.



Investigating Where to Dispose of Sludge Generated at the Wakamatsu Plant

With regards to the sludge generated from the Wakamatsu Plant that is disposed of in landfills, we will continue to consider switching disposal contractors so that we can recycle waste, and plan to develop measures to reduce the chlorine concentration in the sludge.

Promotion of Waste Plastic Reuse

Continuing from the previous fiscal year, we are promoting initiatives to recycling waste by changing the outsourcing company for waste treatment and adopting a recycling process. This fiscal year, we are increasing the number of departments within the Chigasaki Plant that recycle waste plastic and carrying out activities that contribute to environmental conservation.

