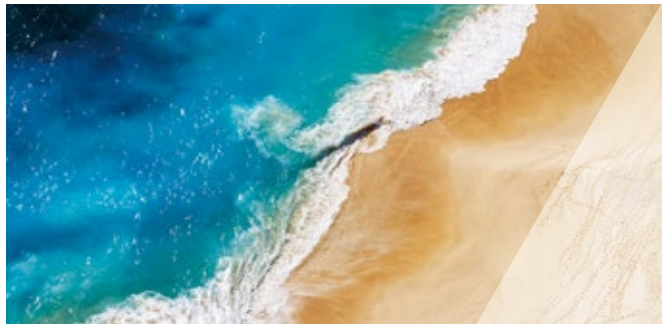
Kawasaki
Powering your potential



Kawasaki Environmental Report / 2021

Scope

Kawasaki Heavy Industries, Ltd.
However, where the Kawasaki Group (or "the Group") is described, the scope of reference includes subsidiaries (listed on page 36) that are subject to environmental management criteria.

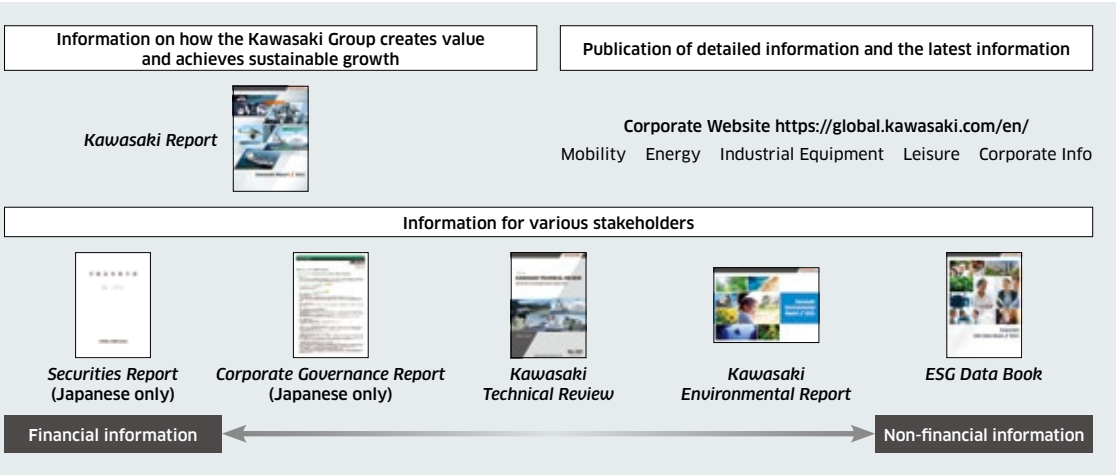
Period

The report covers fiscal 2020 (from April 1, 2020 to March 31, 2021). However, some activities from outside this period are also included. For overseas subsidiaries, the dates of the fiscal year and the period covered by statistics may differ depending on their location.

Guidelines

In preparing the report, the editorial office referred to the Environmental Reporting Guidelines (2018 Edition) issued by the Ministry of the Environment of Japan as well as the Global Reporting Initiative (GRI) Standards.

The Kawasaki Group's Information Disclosure



Disclaimer

This report not only describes actual past and present conditions at the Kawasaki Group but also includes forward-looking statements based on plans, forecasts, business plans, and management policy as of the publication date. These represent suppositions and judgments based on information available at the time. Due to changes in circumstances, the results and features of future business operations may differ from the content of such statements.

Issued

December 2021

Edited and issued by

General Administration Division
Environment & Energy Control Department

Editorial responsibility

Senior Manager, Environment & Energy Control Department

Message from the Chief Environmental Officer

Sukeyuki Namiki
Chief Environmental Officer
(Representative Director, Vice President, and Senior Executive Officer)

Accelerating Our Decarbonization Endeavors

Over the last few years, our society has seen a major turning point in terms of across-the-board decarbonization efforts to counter climate change. For example, in October 2020, the Japanese government declared its target of achieving carbon neutrality (net zero CO_2 emissions) by 2050 and, in April 2021, announced the upward revision of its fiscal 2030 reduction target for CO_2 emissions from 26% to 46% (both compared with the fiscal 2013 level). These national targets are, in turn, prompting businesses in each sector to drastically shift their strategies toward decarbonization.

In 2021, the Kawasaki Group celebrated the 125th anniversary of its founding. The Group has been engaged in transport, energy, environmental, and other industrial machinery-related businesses for many years, and I believe that its accumulated technologies will position it to better fulfill solution needs associated with decarbonization and make an even greater contribution to society.

Responding to Social Needs

The Kawasaki Group is systematically promoting environmental management to help realize a sustainable society via decarbonization, climate change countermeasures, and other endeavors. In particular, our decarbonization efforts are underpinned by our hydrogen strategy. At the 2020 announcement of the Group Vision 2030,* we declared our intention to meet social needs for solutions contributing to decarbonization, with our hydrogen business playing a central role in the field of energy and environmental solutions, one of our three focal fields as defined by the aforementioned vision. Today, our ongoing initiatives involving the verification of hydrogen supply chain technologies are expected to reach a crucial stage. By the end of fiscal 2021, we will begin transporting liquefied hydrogen from Australia to Japan and our plans call for conducting the verification of commercial large-volume transportation and the utilization of liquefied hydrogen by the second half of the 2020s. In conjunction with the verification of these technologies, we have also promoted business negotiations. The launch of the Central Queensland Hydrogen Project has now been agreed upon by six related parties, including Kawasaki. We have also signed an agreement regarding the co-development of hydrogen-fueled vessel engines. Furthermore, we are planning to participate in such forward-looking projects as those aimed at developing hydrogen-fueled aircraft engines. In the field of leisure vehicles, including motorcycles, we will push ahead with incorporating hybrid and electric engines to contribute to decarbonization.

Here, I will elaborate on environmental management initiatives undertaken by the Kawasaki Group.

Environmental Policy

The Kawasaki Group's Environmental Charter lays out environmental management values and principles to be shared across the Group along with action guidelines to steer each individual in their daily work. The Group implements environmental management, the combination of business management and environmental conservation, including efforts to prevent global warming, take action against climate change, reduce environmental impact, and conserve biodiversity.

Long-term Environmental Vision

In 2017, the Kawasaki Group drew up the Kawasaki Global Environmental Vision 2050, an ambitious long-term environmental vision formulated as a roadmap for drafting specific measures to address the immediate as well as the medium- and long-term issues the Group faces. This long-term vision designates three goals: "CO_2 FREE," "Waste FREE," and "Harm FREE." With regard to "CO_2 FREE," discussions are now under way to achieve carbon neutrality at the earliest possible date.

Three-year Environmental Management Plans

Working to achieve the long-term environmental vision, we formulate three-year medium-term environmental management plans to address concrete issues and implement initiatives accordingly. Under the 10th Environmental Management Activities Plan (fiscal 2019–2021), we are focusing on being "CO_2 FREE."

Along with energy-saving activities in the course of daily business operations, we are promoting low-carbon solutions and decarbonization via the waste-to-energy business undertaken by Kawasaki Green Energy, Ltd. (established in April 2021) as well as the introduction of solar panels at Seishin Works. Looking ahead, as we aim to facilitate the social implementation of hydrogen-fired energy, we will establish a pioneering precedent by utilizing our hydrogen-related products ourselves at Kawasaki plants.

In addition to reducing CO_2 emissions from business activities, we are working to shrink emissions from product use. Emissions during use account for most of the CO_2 released over the life cycles of our products. Addressing this issue, we use Kawasaki-brand Green Products, a system introduced in 2014, to evaluate and register products with particularly outstanding environmental performance, thereby pushing ahead with hydrogen utilization. At the same time, we will work to provide lower-carbon, higher-efficiency products expected to become sought after during the period of transition toward decarbonization.

Disclosure in Line with the TCFD Recommendations

In September 2019, we officially endorsed the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). In line with these recommendations, this report features the results of climate change-related scenario analysis targeting operations handled by our industrial plant division (see pages 6–8). Going forward, we will horizontally roll out this initiative so that all the divisions follow suit, with our future plans calling for disclosing analysis results pertaining to Kawasaki's overall operations.

In these and other ways, we will enhance the content of information disclosed to our stakeholders in connection with climate change impact on our business operations.

Initiatives in Fiscal 2020

In fiscal 2020, the interim year of the 10th Environmental Management Activities Plan, the volume of CO_2 emissions fell significantly due to production stagnation amid the COVID-19 pandemic. However, because of the resulting decline in net sales, CO_2 emissions per unit of net sales remained virtually unchanged from fiscal 2019.

Having incorporated "optimizing energy procurement" as an additional measure to be executed under the aforementioned plan in fiscal 2021, efforts are currently under way to achieve the plan's three-year targets.

Environmental Report 2021

Through environmentally harmonious business activities and environmentally conscious Kawasaki-brand products and services, the Kawasaki Group works with a wide range of stakeholders to conserve and improve the natural environment and to contribute to the realization of sustainable society. I hope that the information contained in this report will provide readers with a deeper understanding of the environment-oriented management practices of the Kawasaki Group.

* https://global.kawasaki.com/en/corp/profile/gv2030.html

Global Environmental Vision 2050 and the Three-Year 10th Environmental Management Activities Plan (FY2019–FY2021)

A more advanced version of the Ninth Environmental Management Activities Plan (FY2016–FY2018), which concluded in fiscal 2018, the new plan is aimed at ambitiously taking on the Kawasaki Global Environmental Vision 2050's goals of being "CO_2 FREE," "Waste FREE," and "Harm FREE."

Kawasaki Global Environmental Vision 2050

In 1994, Kawasaki formulated the First Environmental Management Activities Plan, and the entire Company began work on environmental conservation activities. Since then, we have promoted various environmental initiatives, including the establishment of the Environmental Charter in 1999 to demonstrate our commitment to the environment both inside and outside the Company and, looking to the long term, the formulation of the Environmental Vision 2010 in 2003 and the Environmental Vision 2020 in 2010.

In 2017, we formulated the new Kawasaki Global Environmental Vision 2050 with the aim of taking on higher targets for 2050 while basically maintaining the focal points of Environmental Vision 2020. Having set a medium-term target of reducing the volume of CO_2 emissions from our operations by 26% (compared with the fiscal 2013 level) by 2030, we will tackle our major goals of achieving "CO_2 FREE," "Waste FREE," and "Harm FREE." We aim to achieve these goals through the implementation of our Environmental Management Activities Plan, which is reformulated every three years based on a comprehensive review of changes in social conditions and environmental technologies.

Kawasaki Global Environmental Vision 2050
(Established in 2017)
- CO_2 FREE
- Waste FREE
- Harm FREE

2030 Targets
- Reduce CO_2 emissions by 26% (Compared to fiscal 2013 level)

Environmental Vision 2020
(Established in 2010)
- Realization of a low-carbon society
- Realization of a recycling-oriented society
- Realization of a society coexisting with nature
- Establishment of environmental management systems

Environmental Vision 2010
(Established in 2003)
- Environmental philosophy
- Environmental management
- Environmentally conscious products
- Environmentally conscious manufacturing
- Environmentally conscious communication

Environmental Charter
(Established in 1999/ Revised in 2010)

1994- First to Ninth Environmental Management Activities Plans

2019- 10th Environmental Management Activities Plan

1990	2000	2010	2020	2030	2040	2050
• ISO 14001 issued (1996) • COP3 Kyoto Protocol adopted (1997)	• Stockholm Convention adopted (2001) • Principles for Responsible Investment (PRI) (2006)	• COP10 Nagoya Protocol adopted (2010) • Japanese Version of the Stewardship Code (2014) • COP21 Paris Agreement adopted (2015) • Sustainable Development Goals adopted (2015) • Corporate Governance Code (2015) • TCFD Final Report published (2017)		• Japanese Government Target for fiscal 2030 Reduce CO_2 emissions by 26% (Compared to fiscal 2013 level)		• Japanese Government Target for 2050 Carbon neutrality (net zero GHG emission) (2020)

2050 Kawasaki Challenge!

CO_2 FREE
- Aim for zero CO_2 emissions in business activities
- Provide products and services that greatly curb CO_2 emissions

Waste FREE
- Aim for zero waste emissions in business activities
- Thoroughly enforce conservation and the recycling of water resources

Harm FREE
- Aim for zero harmful chemical substance emissions in business activities
- Develop business with respect for biodiversity

Three-Year 10th Environmental Management Activities Plan

Policy for Initiatives

Based on the environmental policy laid out in the Group Environmental Charter,[1] the Group Mission,[2] and assessments of the Ninth Environmental Management Activities Plan,[3] the Kawasaki Group has established key strategies to help meet society's needs (namely, those for ESG investment and information disclosure), realize both environmental conservation and business growth, and achieve the Kawasaki Global Environmental Vision 2050 goals of "CO_2 FREE," "Waste FREE," and "Harm FREE."

To realize a low-carbon society (CO_2 FREE), we will work to significantly cut CO_2 emissions by weighing the impact of related risks and opportunities[4] for our businesses to expand the provision of low-CO_2 products and further reduce CO_2 emissions from business processes. To realize a recycling-oriented society (Waste FREE) and a society coexisting with nature (Harm FREE), we will raise the level of management not just of the Company, but of the entire Group, work to further reduce environmental risk, and restore natural environments damaged by the construction of our plants.

At the same time, to help achieve the Sustainable Development Goals (SDGs), we will work mainly through the energy and environmental businesses to solve social issues from a long-term perspective.

1. Please refer to p.35, "Environmental Charter."
2. The Group Mission of "Kawasaki, working as one for the good of the planet."
3. Please refer to *Kawasaki Environmental Report 2019*.
   https://global.kawasaki.com/en/corp/sustainability/environment/19_houkokusyo.pdf
4. Risks:
   - Stricter CO_2 emission regulations, higher electricity costs, and increased pressure to transition to renewable energy
   - Power outages due to natural disasters

   Opportunities:
   - Green energy generation using Kawasaki-brand products (onsite generation/intra-Group consignment) and hydrogen
   - Growing demand for power generation and dispersed power sources as means of business continuity planning

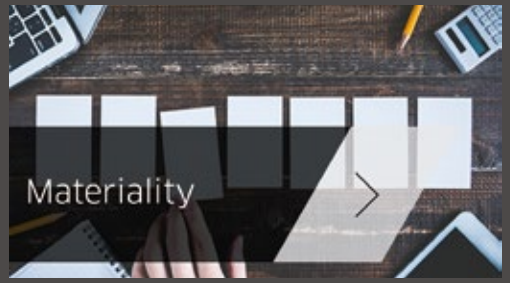
10th Environmental Management Activities Plan: Key Strategies

(1) CO_2 FREE	**10th Plan Target:** Reduce fiscal 2021 CO_2 emissions per unit of net sales by 20% from the fiscal 2013 level (non-consolidated).
Realization of a low-carbon society	**Proactive use of onsite power generation facilities** Consider energy supply and demand for each plant and draft concrete plans to adopt onsite power generation facilities. Consider both purchasing such facilities as internal capital expenditure and selling products for such facilities to energy supply companies and then using their power generation services. **Utilize renewable energy** Purchase electricity from solar power generation facilities on the roofs of our plants **Energy-saving activities** Promote energy saving by utilizing energy visualization systems and replacing aging equipment **Expand the CO_2-reducing effects of Kawasaki-brand Green Products and other products**
(2) Waste FREE	**10th Plan Target:** Maintain ratio of direct-to-landfill waste to total waste generated at less than 1% (non-consolidated)
Realization of a recycling-oriented society	**Further enforce waste sorting and recycling** Improve Group-wide management **Precisely understand water uses and usage volumes** Confirm water resource risks
(3) Harm FREE	**10th Plan Target:** Reduce environmental risk while operating factories with respect for biodiversity
Realization of a society coexisting with nature	**Properly manage harmful chemical substances and consider alternatives (Reduce Group-wide environmental risk)** **Identify the types of trees on factory grounds and, where appropriate, replace with native species while continuing Company-wide forest conservation activities**

This long-term vision also aligns with the material issues the Kawasaki Group has designated in its business activities.
For more information about the Group's process of identifying material issues, please refer to the webpage below.

https://global.kawasaki.com/en/corp/sustainability/

The Kawasaki Group's Material Issues



Kawasaki's Business Processes: Green Value Chains

Kawasaki is a comprehensive heavy industry manufacturer that contributes to the maintenance and development of environmental sustainability through its advanced technological prowess.

Products by Category

- **Transport:** Ships, rolling stock, aerospace
- **Energy:** Cogeneration, energy plants, gas turbines, gas engines
- **Industrial equipment:** Hydraulic machinery, industrial robots, industrial plants, environmental/recycling plants
- **Leisure:** Motorcycles, off-road utility vehicles, JET SKI® personal watercraft (PWC)

Green value chains

Raw material procurement

- Steel
- Non-ferrous metals (copper, aluminum, nickel, etc.)

Transport (upstream)

- Land transport
- Marine transport
- Air transport

- Scope 3 emissions (supply chain emissions): 123,615,696 t-CO_2

Environmental effects: Aspect and impact

Aspect	Impact
Manufacturing processes • Air: Emissions of CO_2, soot, SOx and NOx • Water: Discharge of industrial water • Soil: Use of harmful chemical substances	• Air: Global warming, atmospheric pollution • Water: Water pollution • Soil: Soil pollution, groundwater pollution
Transport processes • Air: Emissions of CO_2, soot, SOx and NOx • Water: Discharge of ballast water, use of scrubbers (exhaust gas cleaning systems)	• Air: Global warming, atmospheric pollution • Water: Water pollution, spread of invasive species

Risks and Opportunities

Risks	Opportunities
• Halt of operations or production adjustments at suppliers due to accidents • Increases in steel prices	• Supply chain diversification
• Transport route disruptions due to extreme weather	• Modal shifts • Transport route diversification

SDGs

GRI standards (see p. 5)

301

305

Impact of Business Activities on the Environment during Fiscal 2020

INPUT

Energy consumption (Year-on-year change)

Total energy (heat conversion)	5,820 TJ (-8%)
Fuel	2,198 TJ (-6%)
Purchased electricity	372 GWh (-9%)
Renewable energy	1.6 GWh (+7%)

Main materials (steel) (Year-on-year change)

Amount purchased as steel material	110,000 t (0%)

Water (Year-on-year change)

5,630,000 m^3 (-6%)

Business activities

Key domestic factories:	10 sites
Net sales (non-consolidated):	¥1,098.7 billion

Manufacturing

- Factories and other production facilities
- Energy and water consumption
- Greenhouse gases (GHGs)

- Scope 1 emissions (direct emissions): 139,502 t-CO_2
- Scope 2 emissions (indirect emissions from energy): 255,039 t-CO_2

Manufacturing processes

- Air: Emissions of CO_2, soot, SOx and NOx
- Water: Discharge of industrial water (use of groundwater, etc.)
- Soil: Use of harmful chemical substances

- Air: Global warming, atmospheric pollution
- Water: Water pollution (water resource depletion, etc.)
- Soil: Soil pollution, groundwater pollution

- Climate risks (Industrial plants p. 6-8)
- Halt of operations or loss of trust due to accidents

- Use of Kawasaki-brand products
- New market development
- Increasing value added

301 / 302
303 / 305
306

Transport (downstream)

- Land transport
- Marine transport
- Air transport

- Scope 3 emissions (supply chain emissions): 123,615,696 t-CO_2

Transport processes

- Air: Emissions of CO_2, soot, SOx and NOx
- Water: Discharge of ballast water, use of scrubbers (exhaust gas cleaning systems)

- Air: Global warming, atmospheric pollution
- Water: Water pollution, spread of invasive species

- Transport route disruptions due to extreme weather

- Modal shifts
- Transport route diversification

305

Use

- Ships and specialty vessels
- Commercial vessels
- Rolling stock
- Airplanes
- Jet engines
- Energy equipment
- Plant facilities
- Marine propulsion machinery
- Motorcycles
- Utility vehicles and personal watercraft
- General-purpose engines
- Precision machinery
- Robots
- Greenhouse gases (GHGs)

- Scope 3 emissions (supply chain emissions): 123,615,696 t-CO_2

Product use

- Air: Emissions of CO_2, soot, SOx and NOx
- Water: Discharge of ballast water, use of cooling water

- Air: Global warming, atmospheric pollution
- Water: Water pollution
- Soil: Soil pollution

- Claims on manufacturer's liability

- Shift from one-time sale businesses to maintenance and other recurring revenue businesses

305

Disposal

- Scrap

Disassembly and breakdown

- Air: Emissions of CO_2 and soot

- Air: Global warming, atmospheric pollution

—

- Increase practice of the 3Rs

OUTPUT

Air (Year-on-year change)

Greenhouse gases	249,000 t-CO_2 (-13%)
SOx	6t (+61%) *
NOx	120t (-7%)

Waste (Year-on-year change)

Total waste	44,600 t (-11%)
Recycled	43,500 t (-11%)
Others	1,100 t (-13%)

Water (Year-on-year change)

Total wastewater	4,450,000 m^3 (-1%)

* Due to increased test operation of ship engines

Areas covered by GRI standards

301 : Materials 302 : Energy
303 : Water and Effluents 305 : Emissions
306 : Effluents and Waste

Information Disclosure in Line with the TCFD Recommendations (Scenario Analysis)

Kawasaki endorsed the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) in September 2019. The TCFD recommends the disclosure of climate change-related information, including that outlined in Figure 1.

In response, in our *Environmental Report 2020* we featured an article regarding climate change-related risks and opportunities affecting the Company's operations as a whole. In this publication, we report the results of scenario analysis targeting operations undertaken by the industrial plant division.

Recommended disclosure items

The TCFD recommends the disclosure of information regarding the following four items.

Governance	The organization's governance around climate-related risks and opportunities
Strategy	The actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning (including analysis based on the 2℃ scenario)
Risk management	The methods used to identify, assess and manage climate-related risks
Metrics and targets	The metrics and targets used to assess and manage relevant climate-related risks and opportunities

Source: Materials submitted by Mr. Masaaki Nagamura, Tokio Marine Holdings, Inc., at the fifth round of the Domestic Investment Expansion Task Force under the Long-term Climate Change Policy Platform sponsored by the Ministry of Economy, Trade and Industry (the text presented above has been edited for brevity)

Figure 1: Disclosure Items Recommended by TCFD

Governance (the organization's governance around climate-related risks and opportunities)

The Sustainability Committee, a body tasked with planning, promoting and supervising Company-wide sustainability initiatives, is also in charge of deliberating matters associated with and receiving reports on environmental management strategies, including the Company's response to climate change-related risks and opportunities. Within the Company's governance structure, matters deemed material are also reported to and examined by the Board of Directors.

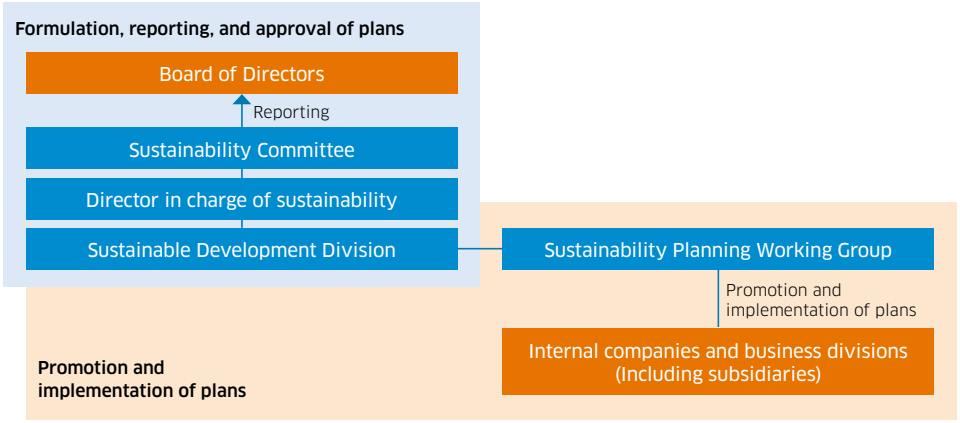


Figure 2: Governance Structure

Strategy (the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning (including analysis based on the 2℃ scenario))

In 2017, we established Kawasaki Global Environmental Vision 2050, which consists of three key strategies, "CO_2 FREE," "Waste FREE," and "Harm FREE," aimed at realizing a sustainable society. We also believe that Kawasaki can contribute in many ways to the realization of the United Nations Sustainable Development Goals (SDGs) via its business operations, for example, by creating clean energy technologies.

Part of these efforts, our hydrogen (decarbonization) strategy is considered a key endeavor in the field of energy and environmental solutions and is one of our three focal fields as defined under Group Vision 2030. With this in mind, the industrial plant division, which plays a central role in our hydrogen strategy, became the first among our business divisions to conduct scenario analysis. This analysis revealed that the division's operations are resilient against foreseeable developments under both the 2°C scenario and the 4°C scenario issued by the Intergovernmental Panel on Climate Change. Descriptions of scenario analysis results, which mainly focus on the 2°C scenario, are featured on pages 7 and 8.

The processes involved in scenario analysis are as presented in Figure 3. Drawing on the conclusions of the scenario analysis undertaken by the industrial plant division, we will horizontally roll out this initiative so that all the divisions can follow suit.

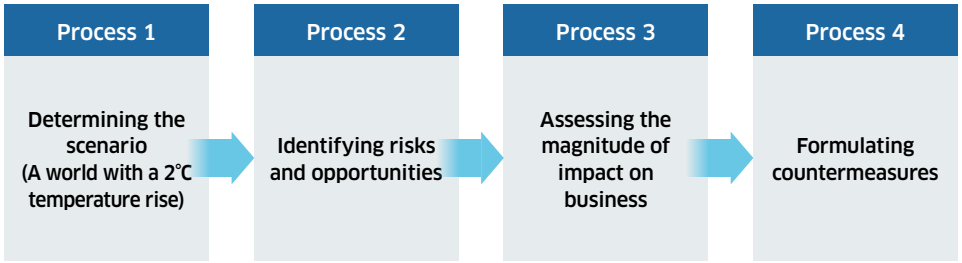


Figure 3: Scenario Analysis Processes

Scenario Analysis Results

Process 1

Determining the Scenario (a World with a 2°C Temperature Rise)

Details of process 2 (identifying risks and opportunities), process 3 (assessing the magnitude of impact on business) and process 4 (formulating countermeasures) are presented on the subsequent page (page 8).

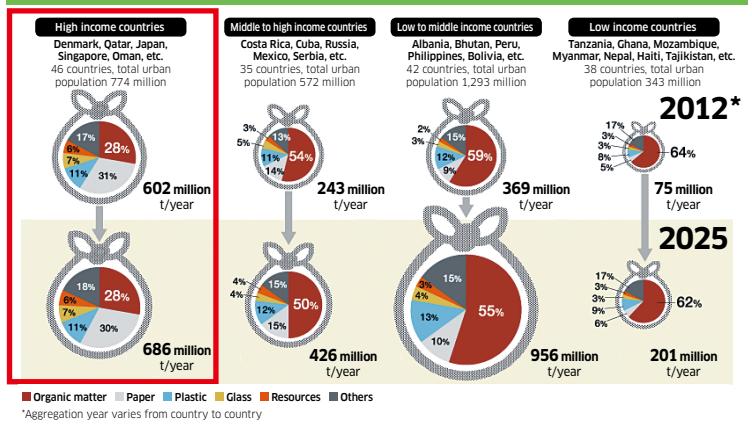
*1 Source: An estimate for 161 countries in 2025 regarding the total volume of waste generated and the composition of said waste by gross national income (Japan International Cooperation Agency) https://www.jica.go.jp/publication/mundi/1805/201805_02_02.html

*2 Source: Changes in the global volume of net LNG exports (Agency for Natural Resources and Energy) https://www.enecho.meti.go.jp/about/special/johoteikyo/kokusaisigensenryaku_02.html

*3 Source: Changes in global demand for petroleum products and future outlook (Agency for Natural Resources and Energy) https://www.enecho.meti.go.jp/about/whitepaper/2017html/1-3-3.html

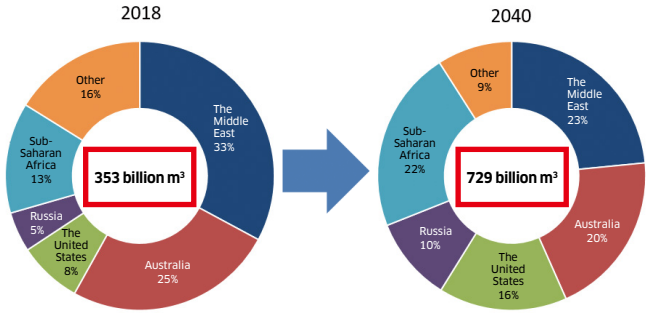
*4 Source: Global coal trade (the volume of coal imports) p. 61 (Institute of Energy Economics, Japan) https://eneken.ieej.or.jp/data/9170.pdf

The overall volume of waste does not decrease in high-income countries*1

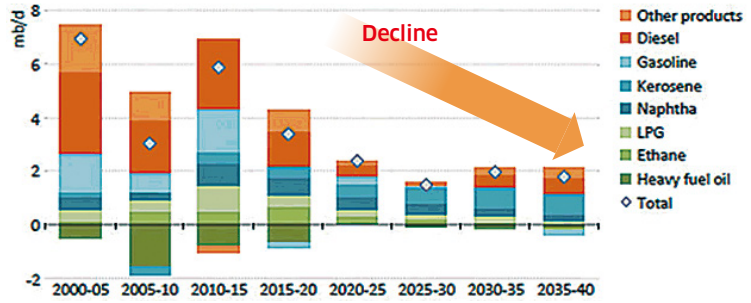


Demand for LNG increases*2

Changes in the global volume of net LNG exports



Petroleum product demand decreases*3



Coal demand increases gradually in developing countries*4

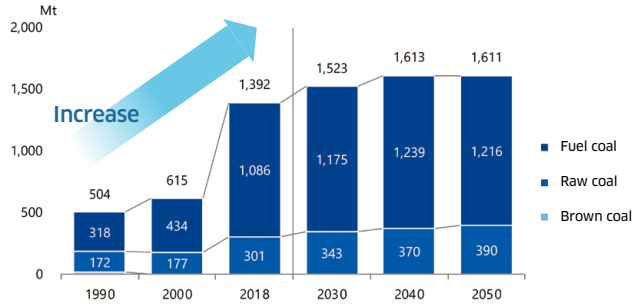


Figure 4: Waste and Resource Projections for 2030 and Beyond

Risk management (the methods used to identify, assess, and manage climate-related risks)

The Sustainability Committee is charged with identifying, assessing and managing climate change-related risks.

Identification is undertaken in accordance with risk categories, such as transition risks and physical risks, as defined by the TCFD. The assessment of these risks is determined by taking their magnitude into account. As for management, among the risks that have undergone assessment, those deemed critical are reported to and discussed by the Board of Directors.

Metrics and Targets (the metrics and targets used to assess and manage relevant climate-related risks and opportunities)

In line with Kawasaki Global Environmental Vision 2050, the Kawasaki Group aims to achieve net zero in terms of CO_2 emissions from its business activities (Scopes 1 & 2). To this end, the 10th Environmental Management Activities Plan (fiscal 2019–fiscal 2021), which is currently being implemented, stipulates a target of curbing CO_2 emissions from business activities by 20% (in terms of emissions per unit of net sales; compared with the fiscal 2013 level).

Although we have yet to formulate our medium- to long-term target for 2030 and the 11th Environmental Management Activities Plan (fiscal 2022–2024), we currently promote hydrogen products, key offerings supporting the transition to decarbonization across society going forward. In this field, we have upwardly revised our sales targets for fiscal 2030 and fiscal 2040, respectively, and announced new targets at the latest Group Vision 2030 progress briefing.* In this way, we strive to help realize decarbonization while continuing our operations.

In addition, more than 90% of the Kawasaki Group's overall emission volume is accounted for by CO_2 emissions attributable to "use of sold products" (Scope 3 Category 11). To curb the volume of these emissions, we will push ahead with a shift from products fueled by conventional petroleum products to those using hydrogen-based alternatives. Moreover, during the course of the transition period until a hydrogen-powered society is realized, we will promote Kawasaki-brand Green Products and other offerings boasting high efficiency and low CO_2 emissions.

*https://www.khi.co.jp/ir/pdf/etc_210601-1j.pdf (Japanese only)

Risks and Opportunities Associated with Each Product (Business)

			Process 2		Process 3	Process 4
			Identifying risks and opportunities		Assessing impact on business	Formulating countermeasures
Business category	Product name	Product features	Risks	Opportunities	Impact on business	Countermeasures
Plant engineering (waste processing)	Kawasaki Advanced Stoker System	Equipment that incinerates waste to reduce its bulk and prevent pollution. Heat produced from incineration is utilized in power generation and other operations.	Policy and legal risks • Enforcement of regulations on CO_2 emissions from waste incineration	Opportunities (products and services) • Realization of higher added value through CO_2 capture and recycling technology (KCC, etc.)	• Rises in product prices due to the incorporation of CO_2 reduction measures (the development of CO_2 capture equipment)	• Shift auxiliary fuel for incineration from heavy oil to non-fossil alternatives • Promote the development of CCS and CCUS (CO_2 capture, utilization and storage) technologies • Enhance heat recovery efficiency
Industrial machinery plants (industrial plants, chemical plants, transportation plants, civil engineering machinery, ash handling systems)	Conch Kawasaki Kiln (CKK) System	The system produces cement while incinerating waste. It induces calcination, an essential process for the manufacture of cement for construction use (concrete, etc.), by utilizing heat produced from the incineration of both fuel and waste.	Policy, legal risks and technology risks • Pressure to curb waste heat arising from cement calcination and CO_2 emissions from cement production (issues confronting customers) • Enforcement of regulations on CO_2 emissions from waste incineration (same as risks associated with Kawasaki Advanced Stoker System)	Opportunities (products and services) • Realization of higher added value through CO_2 capture and recycling technology (KCC, etc.)	• Rises in product prices due to the incorporation of CO_2 reduction measures (the development of CO_2 capture equipment)	• Devise solutions capable of simultaneously capturing CO_2 emitted by chemical reactions in the course of cement production as well as CO_2 emitted from waste incineration for heat recovery (same as countermeasures associated with Kawasaki Advanced Stoker System)
	Gas-to-Gasoline (GTG)	A plant designed to modify natural gas to gasoline, which boasts higher added value.	Policy, legal, market and reputational risks • A decline in gasoline demand due to the widespread use of EVs, etc.	Opportunities (resource efficiency) • Although existing GTG modifies natural gas into gasoline, the technology can be utilized to modify natural gas into basic chemicals (currently undergoing R&D)	• A decrease in opportunities to take on new orders (corporate reputation will decline if we take on new orders) • Growing demand in a new field due to a switchover of applications	• Deliberately curb sales of existing GTG • Promote R&D aimed at realizing the modification of natural gas to produce methanol, xylene, and hydrogen (NEDO project)
	Equipment for treating ash from coal-fired power generation	Equipment for collecting, transporting, storing and discharging coal ash from coal-fired power generation facilities	Policy, legal, market and reputational risks • Shrinkage of market size due to signifi-cant decline in coal demand	• Recognize no opportunities in line with our environmental management policies, despite expected demand in developing countries	• A decrease in opportunities to take on new orders (corporate reputation will decline if we take on new orders)	• Our ash handling system is based on the dry clinker processing system, which processes ash without using water; in anticipation of risks arising from the shrinkage of demand for coal-fired power generation facilities, consider introducing this system at waste treatment facilities or marketing it to replace customers' existing ash handling facilities
	LNG tanks	Tanks for storing liquefied natural gas	Policy, legal, market and reputational risks • Despite ongoing demand for use of LNG as a low-carbon fuel, regulations on CO_2 emissions will be tightened in step with social transition to decarbonization	Opportunities (resource efficiency) • Main energy source in 2030	• Growth in product demand (however, demand will begin decreasing once the transition to decarbonization progresses)	• None (continue with existing operations while staying vigilant against future regulatory risks)
	Transportation equipment (stacker/reclaimer, Flow Dynamics Conveyor (FCD))	Equipment for transporting coal mined via the mountain top removal method	Policy, legal, market and reputational risks • Shrinkage of market size due to signifi-cant decline in coal demand	• Recognize no opportunities in line with our environmental management policies due to growing pressure to promote decarbonization	• A decrease in opportunities to take on new orders (corporate reputation will decline if we take on new orders)	• None
(Currently under-going R&D)	KCC (Kawasaki CO_2 Capture)	A system that separates and captures CO_2 from coal-fired power generation facilities. It is becoming a sought-after technology and actively being developed to realize a low-carbon society via CO_2 capture.	Policy, legal, market and reputational risks • A decline in demand in step with transition to decarbonization (in the event that regulations are imposed on thermal and other power generation methods that entail CO_2 emissions)	Opportunities (market, products and services) • A technology to separate and capture CO_2 emitted not only from thermal power generation facilities but also waste and other incineration facilities, will become sought after in the face of growing social trend toward decarbonization	• Growth in product demand (however, demand will begin decreasing once the transition to decarbonization progresses)	• Continue R&D and accelerate efforts to commercialize the technology and reduce related costs
Low-temperature plants (hydrogen)	Hydrogen liquefaction systems	A system that compresses and liquefies hydrogen (with resulting volume as small as 1/800 of hydrogen gas)	Market risk • Development of hydrogen transportation and storage methods other than liquefac-tion (e.g., organic hydride method, ammonia)	Opportunities (energy source) • A promising method that could possibly contribute to large-scale transportation and storage	• Growth in product demand	• Accelerate efforts to popularize hydrogen energy (cut back on manufacturing costs by securing larger facility scale) • Strive to popularize hydrogen infrastructure
	Hydrogen storage tanks, transportation containers	Equipment necessary to store and transport compressed and liquefied hydrogen	Market risk • Development of hydrogen transportation and storage methods other than liquefac-tion (e.g., organic hydride method, ammonia)	Opportunities (energy source) • A promising method that could possibly contribute to large-scale transportation and storage	• Growth in product demand	• Accelerate efforts to popularize hydrogen energy (cut back on manufacturing costs by securing larger facility scale) • Strive to popularize hydrogen infrastructure

Summary of Business Activities in Fiscal 2020

Key Strategies		10th Environmental Management Activities Plan (FY2019–FY2021)	Fiscal 2020 Results	Page Number
CO_2 FREE	Target	Reduce fiscal 2021 CO_2 emissions per unit of net sales by 20% from the fiscal 2013 level (non-consolidated)	226 t-CO_2/billion yen (down 22.2% from the fiscal 2013 level) Despite a significant decrease in the volume of CO_2 emissions under the influence of the COVID-19 pandemic, emissions per unit of net sales remained virtually unchanged from the fiscal 2019 level due to a decline in net sales.	p. 11-17
Realization of a low-carbon society		**Proactive use of onsite power generation facilities**		
	Initiatives	Consider energy supply and demand for each plant and draft concrete plans to adopt onsite power generation facilities. Consider both purchasing such facilities as internal capital expenditure and selling products for such facilities to energy supply companies and then using their power generation services.	Plans for the reconfiguration and upgrading of onsite power generation facilities were drafted by two plants. Also, discussions concerning the utilization of exhaust heat and the in-house wheeling of energy as means to effectively utilize our existing facilities began.	
		Utilize renewable energy		
	Initiatives	Purchase electricity from solar power generation facilities on the roofs of our plants	Initiated the enforcement of guidelines to promote the adoption of renewable energy Installed solar panels provided by KYOCERA and Tokyo Century at Seishin Works by employing the PPA* * Power Purchase Agreement under which a business operator makes the rooftops of its facilities available for use by a solar energy supplier for the generation of solar energy using solar panels and purchases the output of such panels. Such an agreement relieves the business operator of the burden of initial investment.	
		Energy-saving activities		
	Initiatives	Promote energy saving by utilizing energy visualization systems and replacing aging equipment	Initiated the enforcement of guidelines to promote energy saving	
		Expand the CO_2-reducing effects of Kawasaki-brand Green Products and other products		
	Initiatives	Help reduce CO_2 emissions during product use by putting high-efficiency products out into society	Emission reduction effect on CO_2 from product use of 24,050 kt-CO_2 (products sold in fiscal 2020)	
Waste FREE	Target	Maintain ratio of direct-to-landfill waste to total waste generated at less than 1% (non-consolidated)	Landfill disposal rate of 0.4% (target achieved)	p. 18-19
Realization of a recycling-oriented society		**Further enforce waste sorting and recycling**		
	Initiatives	Improve Group-wide management	Shared on-site confirmation information on waste processing contractors, thereby improving the quality of management; carried out the aggregation of data from Group companies (fiscal 2020 transactions involved 77 contractors, with a total of 15 processing sites confirmed)	
		Precisely understand water uses and usage volumes		
	Initiatives	Confirm water resource risks	Created documentation protocols governing the utilization and management of water, helping 10 plants in Japan organize relevant issues; conducted a quick risk assessment encompassing Group companies	
Harm FREE	Target	Reduce environmental risk while operating factories with respect for biodiversity	No problems occurred	p. 20-23
Realization of a society coexisting with nature		**Properly manage harmful chemical substances and consider alternatives (Reduce Group-wide environmental risk)**		
	Initiatives	Maintain proper management of dichloromethane, hexavalent chromium, and major VOCs Continue to consider alternatives that can help discontinue use	Maintained proper management of dichloromethane, hexavalent chromium, and major VOCs Usage volumes were unchanged or slightly increased year on year	
		Identify the types of trees on factory grounds and, where appropriate, replace with native species while continuing Company-wide forest conservation activities		
	Initiatives	Properly manage green spaces at plants Use off-site Company-wide forest conversation activities to make up for shortcomings as measured against the Company's voluntary indicator for green space land area* *Calculated by directly applying the green space ratio specified in the Factory Location Act, not taking into account regulatory easing provisions, etc.	Continued proper management of green spaces at plants Carried out forest conservation activities in Taka and Ono, Hyogo Prefecture, Machida, Tokyo, and Niyodogawa, Kochi Prefecture,* to make up for shortcomings as measured against the Company's voluntary indicator for green space land area (target achieved) *Not included in Company-wide activities	

Notes: 1. Per unit of net sales figures are calculated based on non-consolidated net sales.
2. Major VOCs: For the Kawasaki Group, the major VOCs are toluene, xylene, and ethylbenzene. VOCs: Volatile Organic Compounds.

Fiscal 2020 Business Activity Report

The pages that follow offer a report on business activities in 2020 conducted in line with the key strategies of the 10th Environmental Management Activities Plan (FY2019–FY2021).

CO_2 FREE

Plan target

Reduce fiscal 2021 CO_2 emissions per unit of net sales by 20% from the fiscal 2013 level (non-consolidated)

Waste FREE

Plan target

Maintain ratio of direct-to-landfill waste to total waste generated at less than 1% (non-consolidated)

Harm FREE

Plan target

Reduce environmental risk while operating factories with respect for biodiversity

10th Environmental Management Activities Plan

CO_2 FREE

In October 2020, the Japanese government declared its target of achieving carbon neutrality by 2050, to this end raising its fiscal 2030 reduction target for CO_2 emissions from 26% to 46% (both compared with the fiscal 2013 level) in April 2021. This is but one example of decisions made by countries around the globe amid the accelerating trend toward across-the-board decarbonization and the realization of a low-carbon society.

In response, Kawasaki is striving to utilize hydrogen-fired power generation and natural energy resources while promoting products and manufacturing practices that efficiently use energy, with the aim of contributing to the transition to decarbonization and realization of a low-carbon society.

10th Plan Target

Reduce fiscal 2021 CO_2 emissions per unit of net sales by 20% from the fiscal 2013 level (non-consolidated).

Realization of a Low-Carbon Society

Proactive use of onsite power generation facilities
Consider energy supply and demand for each plant and draft concrete plans to adopt onsite power generation facilities. Consider both purchasing such facilities as internal capital expenditure and selling products for such facilities to energy supply companies and then using their power generation services.

Utilize renewable energy
Purchase electricity from solar power generation facilities on the roofs of our plants

Energy-saving activities
Promote energy saving by utilizing energy visualization systems and replacing aging equipment

Expand the CO_2-reducing effects of Kawasaki-brand Green Products and other products

Reducing CO_2 Emissions

Reducing CO_2 Emissions from Production Activities

Kawasaki has designated the target of reducing fiscal 2021 CO_2 emissions from production activities per unit of net sales by 20% from the fiscal 2013 level. To achieve this target, we are advancing the key strategies of proactively utilizing onsite power generation facilities and utilizing renewable energy while continuing to implement ongoing energy-saving activities.

In fiscal 2020, CO_2 emissions per unit of net sales came to approximately 226 t-CO_2/billion yen, down 22.2% from the fiscal 2013 level and on-pace to meet our target for fiscal 2021 (Figure 5). Despite lower net sales under the influence of the COVID-19 pandemic and other factors, CO_2 emissions per unit of net sales remained virtually unchanged year on year because of a significant decline in the volume of CO_2 emissions due to production adjustments, restrained energy consumption thanks to energy-saving activities, and decreases in CO_2 emission factors for purchased electricity.

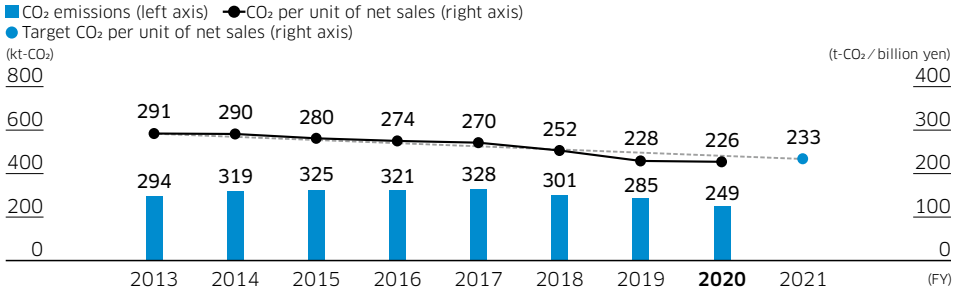


Figure 5: CO_2 Emissions from Production Activities (Overall Emission Volume/Emissions per Unit of Net Sales)

Notes: 1. Per unit of net sales figures are obtained by dividing CO_2 emissions by net sales.
2. The fuel and heat CO_2 emission factors used are values published by the Agency for Natural Resources and Energy.
3. The electricity CO_2 emission factors used are values published by Japan's Ministry of the Environment for each power provider in each fiscal year.

Estimating Supply Chain CO_2 Emissions

The Kawasaki Group's CO_2 emissions and energy consumption attributable to production activities are shown in Figures 6, 7, and 8. The Group's supply chain CO_2 emissions* are shown in Tables 1 and 2. The scope that Kawasaki is required to cover in tracking CO_2 emissions is expanding toward the inclusion of not only its own operations but also those of its supply chain. Within the entire supply chain, the greenhouse gas (GHG) effect accompanying the use of Kawasaki-sold products is extremely high. We have been making progress in reducing CO_2 emissions through product-based contributions, but, going forward, we will take an even more proactive approach.

* The standards for calculating emissions along our supply chain include the Corporate Value Chain (Scope 3) Accounting and Reporting Standard, established by the Greenhouse Gas Protocol, an internationally accepted set of greenhouse gas (GHG) calculation and reporting guidelines. In Japan, the Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain—a Japanese version of Scope 3—were prepared by the Research/Study Committee on Standards for Accounting and Reporting Organizations' GHG Emissions throughout the Supply Chain, established jointly by the Ministry of Economy, Trade and Industry and the Ministry of the Environment. Using these basic guidelines, Kawasaki calculates CO_2 emissions along its supply chain.

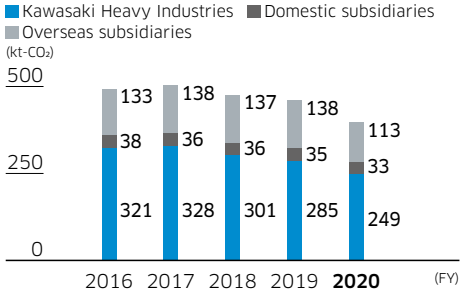


Figure 6: CO_2 Emissions from Production Activities

Notes: 1. The CO_2 emission factors are the figures published by Japan's Ministry of the Environment for each power provider in each fiscal year.
2. For overseas sites, the CO_2 emission factors are the figures published by the Greenhouse Gas Protocol.

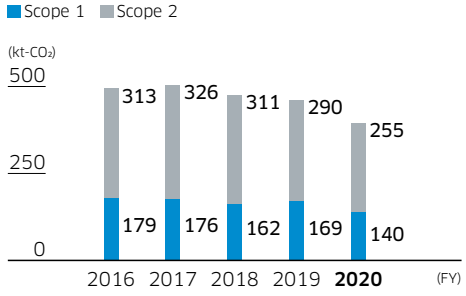


Figure 7: CO_2 Emissions from Production Activities (Scopes 1 and 2)

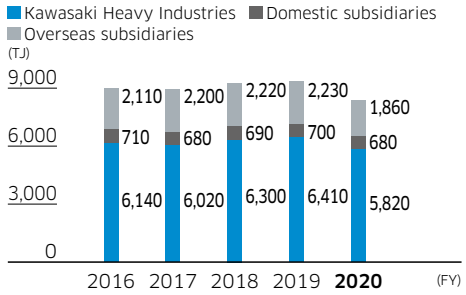


Figure 8: Energy Consumption in Production Activities

Table 1: Fiscal 2020—the Kawasaki Group's Scope 1 and Scope 2 Calculation Results

Category	Calculation Targets	Calculation Results ($kt\text{-}CO_2$/year)
Scope 1		
Direct emissions	Direct emissions through use of fuel at Kawasaki and associated industrial processes	140
Scope 2		
Indirect emissions from the generation of purchased energy	Indirect emissions accompanying use of electricity and heat purchased by Kawasaki	255

Table 2: Fiscal 2020—Kawasaki's Scope 3 Calculation Results

Category	Calculation Targets	Calculation Results ($kt\text{-}CO_2$/year)
Scope 3 (Other indirect emissions): Upstream		
1. Purchased goods and services	Emissions associated with activities up to production of raw materials, parts, purchased goods, and sales-related materials	1,465 (1.2%)
2. Capital goods	Emissions from construction and production of Kawasaki's capital goods	128 (0.1%)
3. Fuel- and energy-related activities not included under Scope 1 or Scope 2	Emissions associated with procurement of fuel from other providers and procurement of fuel required to generate power, such as electricity and heat	35 (0.0%)
4. Upstream transportation and distribution	Emissions associated with logistics of raw materials, parts, purchased goods, and sales-related materials up to delivery to Kawasaki	9 (0.0%)
5. Waste generated in operations	Emissions associated with transportation and processing of waste generated by Kawasaki	11 (0.0%)
6. Business travel	Emissions associated with business travel by employees	5 (0.0%)
7. Employee commuting	Emissions associated with transportation of employees between their homes and their worksites	7 (0.0%)
8. Upstream leased assets	Emissions associated with operation of assets leased by Kawasaki (excluding those included in Scope 1 or Scope 2 calculations)	0 (0.0%)
Scope 3 (Other indirect emissions): Downstream		
9. Downstream transportation and distribution	Emissions associated with transportation, storage, cargo handling, and retail sales of products	0 (0.0%)
10. Processing of sold products	Emissions associated with processing of intermediate products by companies	Excluded[1]
11. Use of sold products	Emissions associated with use of products by consumers and companies	121,814 (98.5%)
12. End-of-life treatment of sold products	Emissions associated with transportation and treatment of products upon disposal by consumers and companies	Excluded[1]
13. Downstream leased assets	Emissions associated with operation of assets leased to other companies	Excluded[2]
14. Franchises	Emissions by franchisees	Excluded[2]
15. Investments	Emissions related to operation of investments	146 (0.1%)

1. Excluded from calculation target because Kawasaki is unable to confirm reference data at this time.
2. Excluded from calculation target because it is outside of the scope of our business.

Reduction of CO_2 Emissions in Logistics Processes

Kawasaki takes steps to pinpoint CO_2 emissions and promote energy-saving activities in its logistics processes, which cover some of its supply chain (Scope 3, Category 4 "Upstream transportation and distribution"), to realize continuous reduction in CO_2 emissions.

In fiscal 2020, CO_2 emissions increased by 7.4% year on year, to approximately 4,400 tons (with energy consumption at approximately 65,000 GJ), due to the substantially higher volume of cargo transported by small trucks. Amounts for the past five years are shown in Figure 9 and Figure 10.

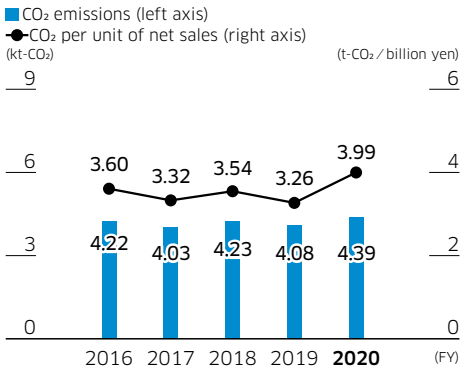


Figure 9: CO_2 Emissions from Logistics Processes and CO_2 Emissions Per Unit of Net Sales

Notes: 1. Per unit of net sales figures are obtained by dividing CO_2 emissions by net sales.
2. The CO_2 emissions factors used are values published by the Agency for Natural Resources and Energy.

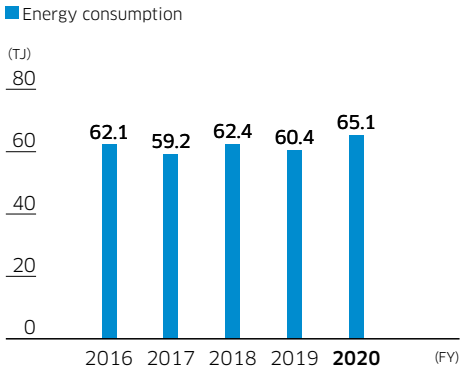


Figure 10: Energy Consumption in Logistics Processes

Onsite Power Generation

Onsite Power Generation

Kawasaki utilizes gas turbine and gas engine onsite power generation facilities as part of efforts to efficiently use energy at its plants (Figures 11 and 12). Under the 10th Environmental Management Activities Plan, we are currently considering the implementation of high-efficiency gas turbines and gas engines as well as ways to make greater use of waste heat in order to further reduce CO_2 emissions.

In fiscal 2020, we drafted plans for upgrading some onsite power generation facilities. Once completed, these upgrades are expected to curb the annual volume of CO_2 emissions by 6,000 t-CO_2 by optimizing the proportions of output accounted for by onsite power generation facilities and externally procured energy sources while raising the efficiency of energy and heat utilization.

In addition, Kawasaki has designated the target of achieving net zero in terms of CO_2 emissions in 2050. As part of measures to realize this target, we are considering the implementation of onsite power generation facilities that use hydrogen fuel and thus emit no CO_2 during use.

Figure 11: Onsite power generation facilities at Akashi Works (gas turbine)

Figure 12: Onsite power generation facilities at Kobe Works (gas engine)

Renewable Energy

Utilizing Renewable Energy

The Kawasaki Group is advancing the use of renewable energy to reduce the CO_2 emissions from its plants. To this end, we are installing solar power generating systems at our plants. In fiscal 2020, KYOCERA and Tokyo Century provided solar panels with a total capacity of 728 kW that were installed at Seishin Works in accordance with a PPA.[1] Currently, we have a total solar power generation capacity of 4,996 kW (Table 3, Figure 14, and Figure 15). In fiscal 2020, these systems generated 5,000 MWh (Figure 13), of which 1,637 MWh was used in-house.[2]

1 Power Purchase Agreement under which a power company or other energy supplier utilizes the rooftops or premises of the energy consumer's facilities to install and operate solar panels and subsequently supplies the output of such panels to the latter.

2 Equivalent to 0.3% of Kawasaki's total energy consumption.

Table 3: The Kawasaki Group's Solar Power Generation Capacity

Name	Power Usage	Generation Capacity (kW)
Iwaoka Photovoltaic Power Generation Station[1]	Sold via FIT[2]	1,505
Nagoya Works	Used in-house	750
Seishin Works	Used in-house via PPA	728
Seishin Photovoltaic Power Generation Station[1]	Sold via FIT	701
Nishi-Kobe Works	Used in-house	505
Nishi-Kobe Photovoltaic Power Generation Station[1]	Sold via FIT	422
Akashi Works	Used in-house	230
Sakaide Works	Used in-house	50
Kakogawa Photovoltaic Power Generation Station[1]	Sold via FIT	48
Hyogo Works	Used in-house	25
Kobe Works	Used in-house	20
Kawasaki Thermal Engineering Co., Ltd.	Used in-house	6.6
Harima Works	Used in-house	5
Total		**4,996**

1. Power generation facility operated by Kawasaki Trading Co., Ltd.
2. FIT: Feed-in tariff; a program in which renewable energy is bought back at a fixed rate

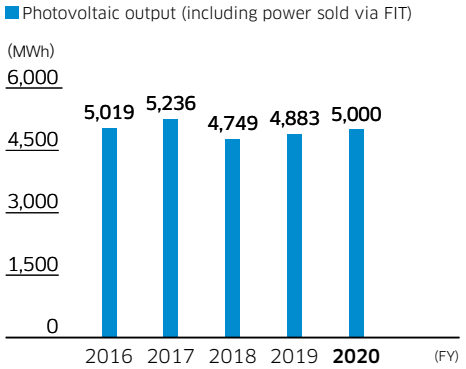


Figure 13: Photovoltaic Output (Including Power Sold via FIT)

Figure 14: Nagoya Works 1: 750-kW power generation facility

Figure 15 : Seishin Works: 728-kW power generation facility

Energy-Saving Promotion Activities

Energy-Saving Promotion Activities

The Company has established an energy-saving promotion structure for each internal company and implements across-the-board energy-conservation initiatives on various fronts.

In fiscal 2020, Kawasaki awarded the Plant Energy-saving Grand Award to the Kobe Works, part of the Marine Machinery Business Division, for initiatives that considerably reduced the plant's energy consumption by clearly defining standards for shutting off large processing machinery units and incorporating non-operational periods into the construction schedule. The details of these initiatives follow.

Some large processing machinery units employed by Kawasaki require recalibration when coming back online after shutdown in order to restore machining precision. Because of this, completely shutting these units down when not in use can be highly inconvenient. Leaving the machinery on, however, means that standby power is consumed, an energy-saving issue that has long needed to be addressed.

The operators at the Kobe Works confirmed the machining precision requirements for large processing machinery units and discovered that the degree of precision required differs largely by product.

This finding led to the realization that under certain conditions in which precision requirements are not stringent and recalibration thus unnecessary, shutting off these machinery units is acceptable. Based on this realization, the operators have clearly defined standards for shutting off these machinery units that lay out in detail the conditions that need to be met and necessary preparations and measures to be taken as well as the scope of the machinery units affected.

Acting on these standards, it was made a rule that non-operational periods for large machinery units must be incorporated into the construction schedule (as illustrated in Figure 16).

These practices enable the Kobe Works to shut off large processing machinery units at times other than long vacation periods, and standby power consumption was considerably reduced. Energy consumption during the three summer months before and after these improvements is shown in Figure 17 and Figure 18.

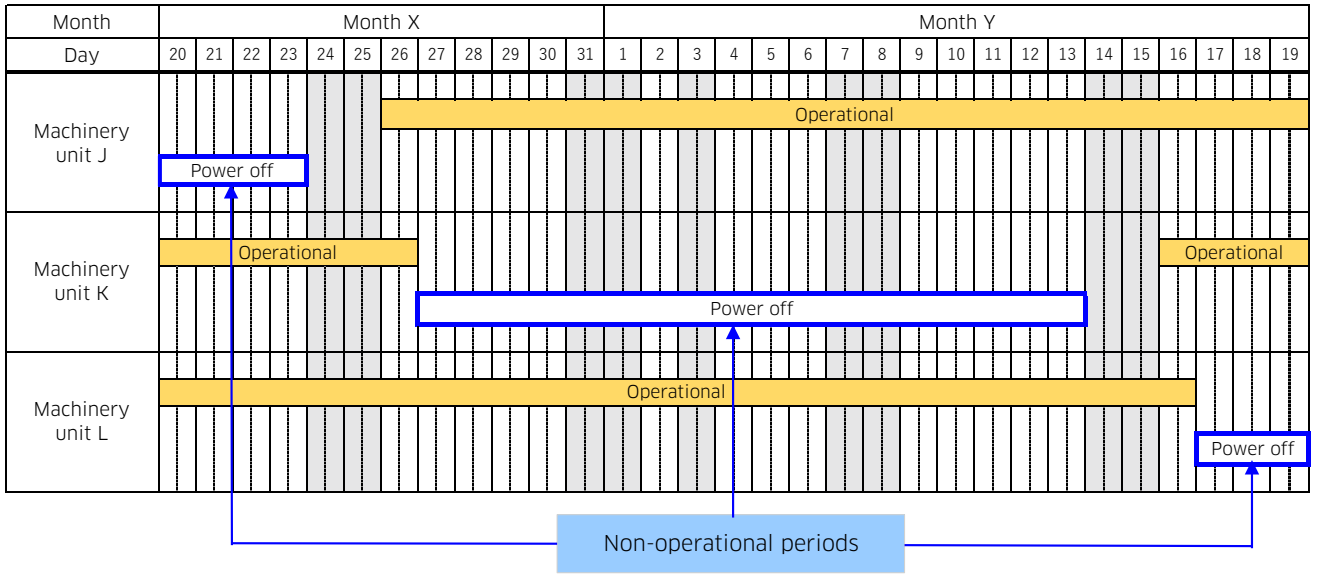


Figure 16: Improved Construction Schedule

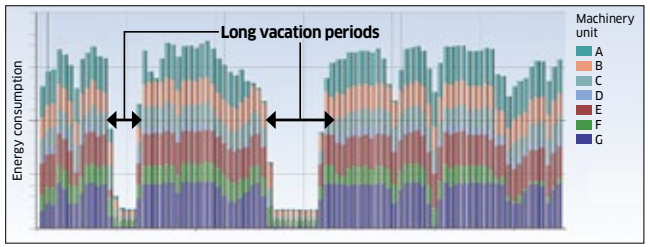


Figure 17: Energy Consumption before Improvements

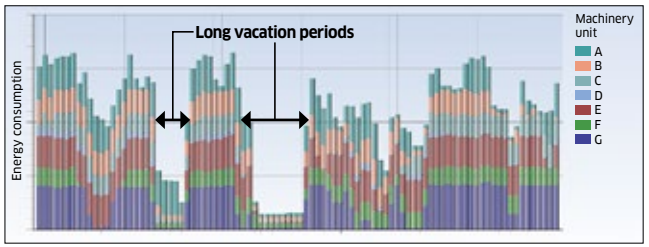


Figure 18: Energy Consumption after Improvements

Reducing CO_2 Emissions through Product-Based Contributions

Reducing CO_2 Emissions through Product-Based Contributions

More than 90% of the CO_2 emitted during the life cycles of our products is released during the period of their use after they are sold. Therefore, the Company seeks to realize a low-carbon society by providing products that produce only low CO_2 emissions during their use.

To reduce products' post-sale CO_2 emissions, in addition to increasing product energy efficiency, we are advancing electrification and modal shifts when replacing existing products in our product lineup and expanding our lineup of products that utilize exhaust heat, waste, and renewable energy. Key products that help reduce CO_2 emissions are listed in Figure 19. In fiscal 2017, we revised our rules for calculating CO_2 emissions reductions through product-based contributions in order to better quantify the contributions of such products to the mitigation of global warming.

Calculations based on these rules showed that the CO_2 emissions reduction through products we sold in fiscal 2020 was about 24.05 million tons. Large contributions were made mainly by the M7A Series gas turbines for power generation, Kawasaki-brand Green Products boasting excellent reliability, economy, and environmental friendliness, and the KC-MB-20, a controller for use in construction machinery to improve its fuel efficiency via the application of superior controlling technologies.

Aerospace Systems

Airplanes and Space
- Boeing 787 (component production)
- BK117 helicopters

Jet Engines
- Trent 1000 for the Boeing 787
- PW1100G-JM for the Airbus A320neo

Energy System & Plant Engineering

Energy System
- Gas engines for power generation, including the M1, M5, and M7 series industrial-use gas turbines
- Non-heated boilers (plant waste heat, waste incineration waste heat)

Plant Engineering
- LNG tanks
- Crushing machine plant (CK Mill[1])

Marine Propulsion
- Marine propulsion systems (E-series Rexpeller[2])

Precision Machinery & Robot

Precision Machinery
- Hydraulic systems for construction and industrial machinery (K8V Series pumps for HSTs, M7V Series motors for HSTs, KC-MB-20 controller for construction machinery, etc.)
- High-pressure hydrogen regulators for fuel cell vehicles

Robot
- duAro dual-arm SCARA robot, NT420 general-purpose clean robot
- BX200L spot welding robot, KJ264/314 large painting robots

Transportation

Ship & Offshore Structure
- LNG carriers, LPG carriers
  Ship operation support system (SOPass[3])

Rolling Stock
- Standard railcars (efACE[4])
- Mainline/switcher diesel electric locomotives

Motorcycle & Engine
- Ninja 250, Ninja ZX-6R, Ninja H2
- Z900, Z H2

Figure 19: Key Products That Contribute to Reducing CO_2 Emissions During Use (by Segment)

1. CK Mill: Named after the companies that jointly developed it, Chichibu Cement Co., Ltd. (now Taiheiyo Cement Corporation) and Kawasaki.
2. Developed with a focus on three Es: energy saving, easy maintenance, and environmentally friendly.
3. Ship Operation and Performance analysis support system.
4. Environmentally Friendly Advanced Commuter & Express train.

Calculation Rules

- Products to be assessed: Kawasaki-brand Green Products, products that use waste, waste heat, and renewable energy, as well as cogeneration systems and rolling stock pertaining to modal shifts, etc., were selected for assessment.
- Period of assessment: Until fiscal 2016, we used a one-year period of assessment. However, in line with the revision of the calculation rules, since fiscal 2017, we have adopted a flow-based approach[5] in which the period of assessment is the estimated useful life of products sold in the fiscal year, because the estimated useful lives of our products are long. This allows us to better calculate the difference in CO_2 emissions between our products and industry standard class products over the entire period of use.

5. Please refer to the "Guideline for Quantifying Greenhouse Gas Emission Reduction Contribution" (Ministry of Economy, Trade and Industry, March 2018)

In order to quantify the contributions of highly energy efficient products to the mitigation of global warming, products included in the calculation of CO_2 emissions reduction through product-based contributions include power generated through waste heat, waste, renewable energy, and so forth. As a result, some of the products included differ from those included in the calculation of Scope 3, Category 11, which covers only energy-derived CO_2 emissions.

CO_2 emission reductions for the past five years are shown in Figure 20. Particularly notable products that have had a large cumulative effect are shown in Figure 21.

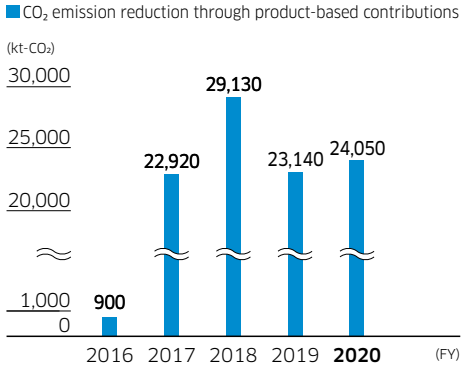


Figure 20: CO_2 Emission Reduction through Product-Based Contributions

Notes:
1. Kawasaki uses CO_2 emissions factors provided in the list of calculation methods and emissions factors published by Japan's Ministry of the Environment.
2. The CO_2 emission reduction effect through product-based contributions achieved through the higher energy efficiency of products is based on a comparison using industry standard products.
3. The application of waste heat, waste, and renewable energy is counted toward the CO_2 emissions reduction effect through product-based contributions.

M7V Series motors for HSTs

Industrial-use gas turbines (M7A Series, etc.)

KC-MB-20 controller for construction machinery

Kawasaki Green Gas Engine

Modal shift by railcars (subway railcars for the LTA in Singapore)

Cement plant waste heat power generation facilities

Figure 21: Particularly Notable Products That Contribute to Reducing CO_2 Emissions During Use

Waste FREE

Efforts to curb the consumption of natural resources and reduce waste have acquired greater social urgency, reflecting wider economic activity and population growth.

By promoting resource efficiency in its products and manufacturing processes, Kawasaki takes great care to effectively utilize and recycle the planet's finite resources.

Through ongoing initiatives in our business activities and efforts to promote their penetration in workplaces, we have maintained landfill disposal and recycling rates at our target levels.

10th Plan Target
Maintain ratio of direct-to-landfill waste to total waste generated at less than 1% (non-consolidated)

Realization of a Recycling-Oriented Society
Further enforce waste sorting and recycling Improve Group-wide management
Precisely understand water uses and usage volumes Confirm water resource risks

Waste Sorting and Recycling

Reduction of Total Waste Generated

We are continuing activities to achieve our targets to reduce waste generated through our manufacturing processes per unit of net sales by using resources effectively and to achieve zero waste disposed of in landfills through the promotion of recycling.

Since fiscal 2019, by making changes to product packaging, we have striven to reduce waste and eliminate the need to sort cardboard and foam, facilitating recycling. Total waste generated and the landfill disposal rate (the ratio of waste disposed of in landfills to total waste generated) in fiscal 2020 are shown in Figure 22. The landfill disposal rate was 0.4%, achieving the target of 1% or less.

In fiscal 2020, the volume of total waste generated decreased due to a slowdown in production activities under the influence of the COVID-19 pandemic. On the other hand, the landfill disposal rate deteriorated by 0.2 of a percentage point as the cleaning of a shipbuilding dock resulted in the collection of a quantity of sludge that was unsuitable for recycling. It was confirmed that this figure does not suggest an overall setback in waste sorting and recycling initiatives.

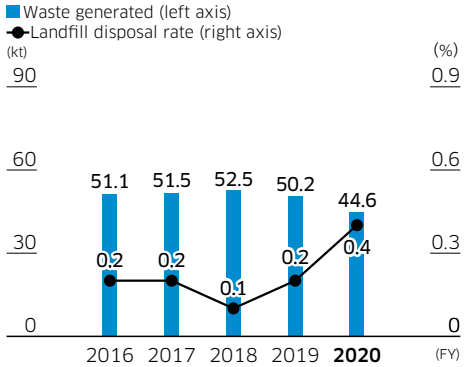


Figure 22: Waste Generated and Landfill Disposal Rate

Promoting PCB Treatment

The disposal of PCB (polychlorinated biphenyl) waste is proceeding worldwide, in line with the Stockholm Convention, which includes stipulations on the proper treatment of PCBs. In Japan, disposal is undertaken in a systematic manner, mainly by the Japan Environmental Storage & Safety Corporation (JESCO), which was established by the Ministry of the Environment. The phased disposal period for high-concentration PCB waste is scheduled to end in 2022, and that for low-concentration PCB waste will end in 2027. We are undertaking the treatment of our PCBs, aiming for completion ahead of the national schedule. To achieve our disposal targets, we are steadily ceasing use of equipment that contains PCBs (low-concentration PCB waste), putting such items into storage, and working with treatment service providers.

Water Resource Conservation and Recycling

Precisely Understanding Water Uses and Usage Volumes

To more effectively use water resources, Kawasaki is advancing efforts to precisely understand water usage at each of its plants.

Water consumption in fiscal 2020 came to 5,633,000 m^3 (Figure 23). We are reexamining our uses of water, such as in production activities and boilers, as we explore ways to promote more efficient and effective water use. By rolling out these initiatives across the Group, we will reduce water-related risk.

Reducing Water-Related Risk

Seishin Works, which had been using municipal tap water as its sole water source for plant operations, began incorporating groundwater to disperse risks associated with water intake. This move ensures that the facility will be able to continue plant operations, albeit at a minimum level, via the use of groundwater when the supply of tap water is suspended at times of emergency, such as when a natural disaster occurs. The flow of water through the facility's intake and supply system, which combines groundwater and tap water, is shown in Figure 24.

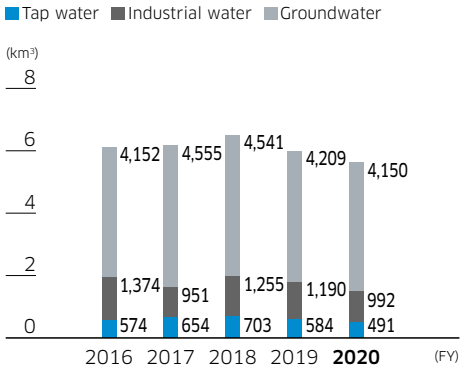


Figure 23: Water Consumption

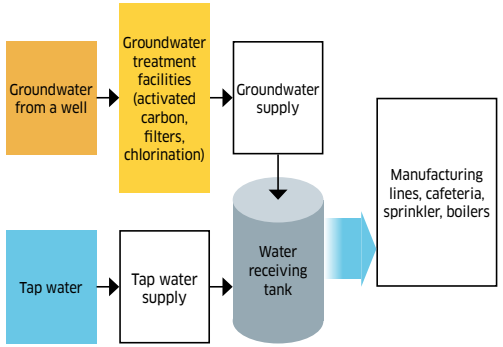


Figure 24: Water Flow through the Intake and Supply System

Harm FREE

Modern society is maintained by the value provided by natural ecosystems, including material cycles and the regeneration of air, water, and soil environments.

Kawasaki strives to reduce its environmental impact through products and manufacturing processes that exist in harmony with the global environment and contributes to the protection of ecosystems.

10th Plan Target
Reduce environmental risk while operating factories with respect for biodiversity

Realization of a Society Coexisting with Nature
Properly manage harmful chemical substances and consider alternatives (Reduce Group-wide environmental risk)
Identify the types of trees on factory grounds and, where appropriate, replace with native species while continuing Company-wide forest conservation activities

Chemical Substances

Harmful Chemical Substance Reduction

Kawasaki properly manages and looks for alternatives to chemical substances that present a risk of negatively impacting human health or the environment.

In Figure 25, Kawasaki's emission volumes of major VOCs (toluene, xylene and ethylbenzene) per unit of net sales, along with handling volumes of dichloromethane, and hazardous metals (hexavalent chromium compounds) up to fiscal 2020 are illustrated. Going forward, we will continue to properly manage chemical substances while aiming to reduce their use.

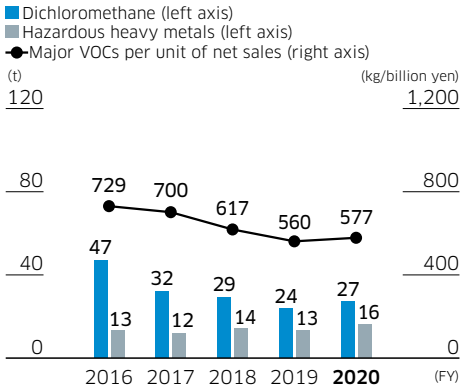


Figure 25: Handling Volume of Managed Chemical Substances and VOC Emission Volumes per Unit of Net Sales

Notes: 1. Major VOCs per unit of net sales figures are obtained by dividing VOC emissions by net sales.
2. Figures for hazardous heavy metals represent the combined amounts of hexavalent chromium compounds. Reduction activities are undertaken separately for each substance.

Forest Conservation Activities

Forest Conservation Activities

We are engaged in forest conservation activities in Taka and Ono, Hyogo Prefecture; Machida, Tokyo; and Niyodogawa, Kochi Prefecture. In fiscal 2020, we reduced the scope of these activities by, for example, canceling some events, in light of the COVID-19 pandemic while implementing measures to prevent the spread of the virus among participants.

Hyogo Prefecture

Since December 2008, we have participated in the prefecture's corporate forest restoration project. These activities began in the town of Taka and, in fiscal 2020 were expanded to Ono City, giving employees and their families the opportunity to get involved in forest conservation activities (trimming and clearing undergrowth) in two locations.

Tokyo

Kawasaki became a participant in the "Tokyo Green Ship Action," and employees and their families joined forest conservation activities (clearing undergrowth) in Machida City for the first time under this campaign.

Kochi Prefecture

Since 2007, we have participated in a prefecture-organized forest restoration project, with new employees implementing such activities as forest thinning in the town of Niyodogawa. Although we refrained from directly participating in activities in fiscal 2020, we served as a co-sponsor to support local efforts.

Table 4: Fiscal 2020 Achievements

Activity location	Taka, Hyogo Prefecture	Ono, Hyogo Prefecture	Machida, Tokyo	Niyodogawa, Kochi Prefecture
Activity content	Tree trimming, clearing undergrowth	Tree planting, trimming, clearing undergrowth, nature observation	Clearing undergrowth, nature observation	Co-sponsoring local activities
Participants	Employees and their families, and others (23 people)	Employees and their families, and others (73 people)	Employees and their families, and others (28 people)	Refrained from employee participation due to the COVID-19 pandemic
Area covered	6.8 ha	10.0 ha	10.14 ha	70.0 ha
Number of events	1	1	1	0
Notes	Volume of CO_2 absorbed: 0.19 t/CO_2 (subject to a third-party certification for absorption volume)	Commemorative tree planting: four trees planted		Volume of CO_2 absorbed: 45.0 t/CO_2 (subject to a third-party certification for absorption volume)

Environmental Education through Forest Conservation Activities

We carry out forest conservation activities, such as forest development and experiential learning, every year to provide opportunities for thinking about the environment.

Table 5: Fiscal 2020 Achievements

Activity content	Aim	Date
Nature observation (Ono, Hyogo Prefecture)	Interact with nature and learn about the importance of forests • Learn about the necessity of forest maintenance by observing the gradually growing number of trees succumbing to Japanese oak wilt • Observe thriving wild grasses, insects and birds as part of a natural ecosystem in a thick forest of evergreen trees	November 2020
Nature observation (Machida, Tokyo)	Interact with nature and learn about the importance of forests • Observe insects and grasses constituting a natural ecosystem in a location where a forest of *Quercus serrata* (jolcham oak) and *Quercus acutissima* (sawtooth oak) thrives alongside an orchard and a bamboo forest • Take a close look at new growth sprouting from tree stumps to learn about the inherent capabilities of trees to regenerate themselves and, eventually, restore the forest as a whole	November 2020

Nature observation

A tree that is being treated to prevent Japanese oak wilt

Figure 26: Activity in Ono, Hyogo Prefecture

Nature observation

Thinning out new growth sprouting from a tree stump

Figure 27: Activity in Machida, Tokyo

Biodiversity

Initiatives at Akashi Works

Biotope

In 2019, Akashi Works built a biotope near its south gate as part of efforts to increase greenery on its premises and preserve biodiversity. This biotope includes a pond utilizing water from wastewater treatment facilities operated within the premises. Since wandering into the Akashi Works' water channels, a school of Japanese rice fish, a rare species, have called the pond home and the plant staff has worked to preserve them.

With a number of young fish born every year, the biotope also provides a welcome respite to visitors from the neighborhood and those who pass by as part of facility tours. In addition, we have confirmed the presence of a thriving and varied population of creatures in the biotope, including wild birds that like to bathe at the water's edge as well as such insects as butterflies and honeybees seeking nectar from the flowers growing there.

Looking ahead, we will promote the development of greenery in a way that gives due consideration to local natural ecosystems, thereby pursuing plant operations that harmonize with regional communities.

Figure 28: A view of the biotope

Figure 29: Japanese rice fish immediately after hatching

Figure 30: A female blue rock thrush (*Monticola solitarius*) bathing at the pond

Opening a Violet Garden to Employees

Every spring, a great number of violets blossom at the Akashi Works' heliport. Such a thriving colony of naturally seeded violets within the premises of a plant is considered quite rare by botanists. To share this asset with plant employees and help them learn about the importance of greenery development, in 2014 Akashi Works decided to invite them into the violet garden each year during the blooming season, opening the heliport, which is otherwise off-limits, to them. The heliport not only boasts thriving vegetation, it attracts wild birds, giving them a place to rest.

Although the number of employees who applied to visit the garden was around 30 when we started this initiative, the number increased to nearly 250 in recent years, suggesting that environmental awareness has grown among employees.

Going forward, Akashi Works will pursue environmentally friendly plant operations while pushing ahead with the development of greenery within its premises.

Figure 31: Employees visiting the violet garden

Figure 32: A thriving colony of naturally seeded violets

Initiatives in Food: Providing Lunches Using Wild Venison

In support of Hyogo Prefecture's efforts to counter vegetation damage caused by wild animals through the utilization of wild venison, lunch boxes titled "*gibier** lunches" were offered to employees at the Kobe Head Office, which lacks a cafeteria or in-house store.

We received a number of favorable comments from those who purchased the lunch boxes, such as "Venison is easy to eat and far more delicious than expected" and "I hadn't known about the damage caused by wild deer until I bought this lunch." As such, the provision of these lunches also served as a good opportunity for employees to think about biodiversity. Drawing on this experience, we are planning to continue initiatives to help raise employee awareness regarding biodiversity preservation.

* "*Gibier*" is French for game.

Figure 33: A lunch featuring grilled wild venison

Figure 34: A lunch featuring a wild venison cutlet

Figure 35: A lunch featuring roasted wild venison

Initiatives in Food: Sustainable Seafood Included on the Cafeteria Menu

As part of activities aimed at the realization of a society coexisting with nature, in February 2020, the cafeteria of the Tokyo Head Office began serving sustainable seafood that is MSC certified and ASC certified with the cooperation of Kobe Foods Co., Ltd.

In this way, we are providing employees with opportunities to think about water resource depletion and the impact of global warming through food—an integral part of daily life.

MSC: A certification system for sustainable fishing and fishery products

ASC: A certification system for responsible aquaculture and fishery products

Figure 36: Tomato keema curry with fried MSC-certified fish

Figure 37: Tokyo Head Office's cafeteria

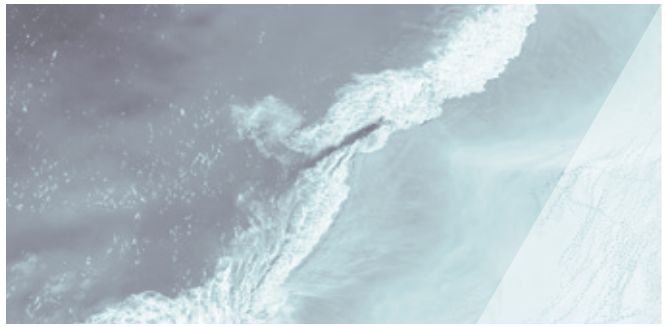
Figure 38: Sign explaining sustainable seafood

Striving for Waste Reduction and Biodiversity through Business Operations: Promoting "My Bag"

To help resolve marine plastic problems and in conjunction with the July 2020 enforcement of a government request for stores to charge customers for single-use plastic bags, the Kobe Head Office presented its employees with shopping bags made of sustainable materials.

As the Kobe Head Office is not equipped with a cafeteria or an in-house store, many of its employees bring in food purchased outside the facility, such as at convenience stores, for lunch. By offering these shopping bags for use by such employees, we are helping to reduce single-use plastic bag usage.

Figure 39: Shopping bags distributed to employees




Other Reporting

Environmental Data

The Kawasaki Group Environmental Management Promotion Structure

Risk Management

In addition to approaches based on our risk management structures, we hold liaison conferences as needed for personnel with environmental responsibilities to ensure adherence to environmental laws and regulations, the dissemination and full understanding of legal revisions, and the enhancement of their capabilities. These conferences, which are held under the direction of the Head Office Environmental Management Division, serve as opportunities for working with Group personnel to preempt environmental accidents and other compliance-related problems.

In recent years, we have implemented initiatives in response to laws and regulations related to chemical substances, such as the European Union's ELV Directive,[1] RoHS Directive,[2] and REACH Regulation,[3] as well as the Euro 4 regulation on motorcycle exhaust emissions.

In fiscal 2020, as there were no revisions to relevant laws, we did not implement any new risk countermeasures.

1. ELV Directive: End of Life Vehicles Directive
2. RoHS Directive: Directive on Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment
3. REACH Regulation: Regulation on Registration, Evaluation, Authorization and Restriction of Chemicals

Compliance with Laws and Regulations

The Kawasaki Group strives to implement environmental management activities in compliance with environmental laws and regulations.

In fiscal 2020, there were no serious incidents involving legal violations. However, a preliminary soil inspection that was voluntarily undertaken at a site earmarked for facility renovation revealed the presence of cadmium and hexavalent chromium in a quantity exceeding the statutory standards defined by the Soil Contamination Countermeasures Act. On the other hand, a groundwater inspection conducted at the same site confirmed that none of these substances exceed environmental standards regarding groundwater contamination. Based on guidance from administrative authorities, we will address this issue to ensure the appropriate management of contaminated soil in conformity with the Soil Contamination Countermeasures Act.

We have also received two complaints from residents of neighboring communities with regard to noises from our manufacturing facilities. Having implemented measures to fix the issue and prevent recurrences, both of these complaints were resolved.

Environmental Communication

Environmental Education

Previously, the Kawasaki Group implemented environmental education via e-learning as part of training for new hires. To better implement environmental management, however, in fiscal 2019 we overhauled both the range of employees to whom environmental education is provided and the content of such education (Table 6).

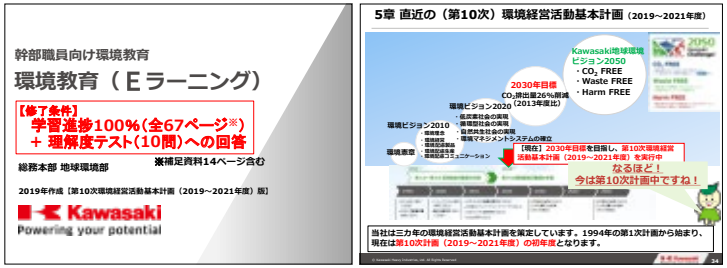


Figure 40: E-learning content for managerial staff

Figure 41: Pamphlet for general employees

Table 6

Target	Content (format)	Frequency	Period of the 10th Environmental Management Activities Plan (FY2019–2021)		
			Fiscal 2019 results	Fiscal 2020 results	Fiscal 2021 plans
Managerial staff	Mainly environmental management (e-learning)	Content will be updated with the formulation of each three-year Environmental Management Activities Plan and education carried out within the period of the plan	Implementation: February 3–14, 2020 Participants: Approx. 2,600 (for all target employees)	Implementation: November 9–20, 2020 Participants: Approx. 3,600 (cumulative total: around 98% of target employees) (for target employees who did not participate in fiscal 2019 and newly eligible employees)	Implementation: October–December 2021 (for target employees who did not participate in fiscal 2020 and newly eligible employees)
General employees	Practical implementation of environmental management (distribution of pamphlets)	Content will be updated with the formulation of each three-year Environmental Management Activities Plan and distributed to all general employees upon such update and to new hires thereafter	Implementation: March 2020 Recipients: Approx. 20,000	Implementation: April 2020 Recipients: Approx. 150 (separately, around 1,000 copies of pamphlets were distributed at the end of fiscal 2019 to new hires expected to join the workforce in April 2020)	Implementation: April 2020 Recipients: Approx. 1,000

Raising Environmental Awareness

We are engaged in communications activities aimed at enhancing the perception and awareness of environmental issues among each and every employee of the Group. We conduct ongoing awareness raising activities, including the publication of environment-related articles in the Kawasaki Group internal bulletin, distribution of the President's message for Environment Month, and distribution of information (environmental data, case examples of energy saving, forestation activity reports, etc.) through our intranet, so that employees can put environmentally conscious activities into practice not only at the workplace, but also in their local communities and homes.

Figure 42: President's message for Environment Month

Figure 43: A report on energy-saving best practices

Cultivating Qualified Managers

To enrich management activities emphasizing energy and the environment, we are striving to cultivate individuals with legal qualifications required under laws and regulations related to energy and the environment. The number of employees with qualifications in fiscal 2020 is shown in Table 7. In addition, although we have offered training for internal ISO 14001 environmental management and environmental auditors on an annual basis as part of an internal qualification program, the fiscal 2020 round of this training was canceled due to the influence of the COVID-19 pandemic.

Table 7: Employees with Legal Qualifications

Pollution control managers	Air	97
	Water	85
	Noise, vibration	37
	Others	78
	Total	297
Energy managers		95

Kawasaki Green Product Promotion Activity

Kawasaki-brand Green Products is a program in support of the Group Mission, "Kawasaki, working as one for the good of the planet," and aims to boost the environmental performance of products and accelerate the reduction of environmental impact caused by associated manufacturing processes. The products selected for this program must meet criteria established by the Company and are categorized as either Kawasaki Green Products or Kawasaki Super Green Products. The products thus categorized are then publicized in compliance with ISO 14021.

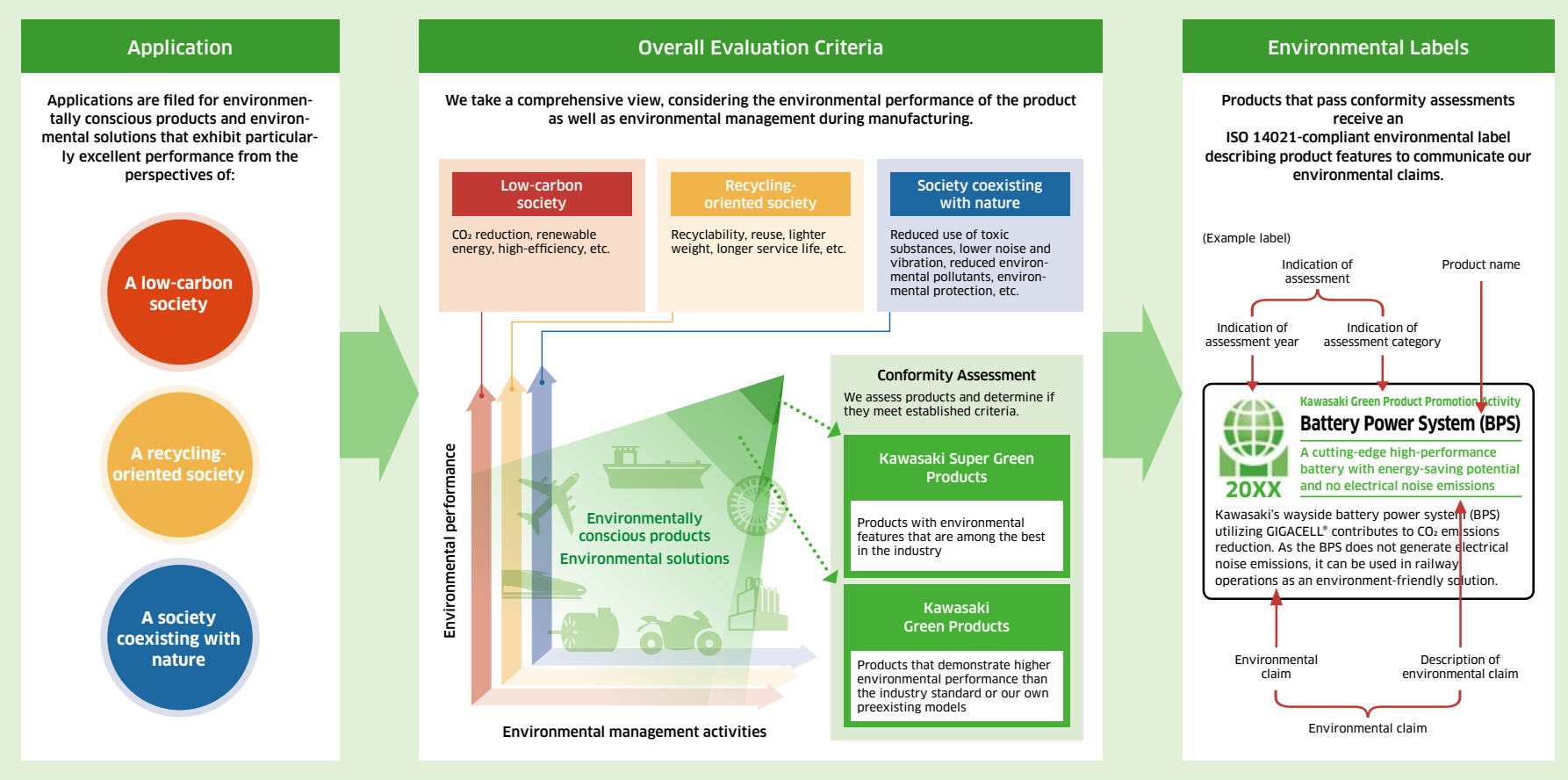


Figure 44: Conformity Assessment Procedure

The program logo embodies the Group's commitment to environmental sustainability through products and manufacturing. The Kawasaki Group's primary business areas—land, sea, and air transport systems, energy and environmental engineering, and industrial equipment—each with innovative and advanced technological capabilities, form three solid pillars that together support the global environment.

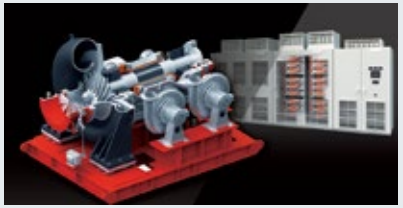
Figure 45: Program logo

2021 Kawasaki-brand Green Products

Newly Registered Products

Autonomous Underwater Vehicle "SPICE"
"Subsea Precise Inspector with Close Eyes"

Kawasaki Electric and Hybrid Propulsion Systems



MAG Turbo (Model:M55)

Kawasaki Green Gas Engine KG-18-T

Hydrogen Liquefaction System

Liquefied hydrogen loading/unloading terminal (~10,000㎥ storage tank)

Waste to Energy-Smart Automatic Running System WtE-SAURS

Multifunctional Controller for Construction Machinery KC-MC-20

Small Painting Robot KJ155

Renewed Registrations

After registration, products are reassessed every three years, and registration is renewed for products that meet the necessary criteria.

LPG Powered Large LPG Carrier

Track Material Monitoring Device

E-series Rexpeller (Azimuth Thruster)

M5A-01D Gas Turbine

FLNG Boiler

Ninja 400/Ninja 250

Electric Joystick ERU2-7.0

F60 Controller

LNG-Fueled Pure Car and Truck Carriers

Straight Tube LED Lamps for Rail Cars

M7A-03D Gas Turbine

Versys 650

Hydraulic Pump for Mobile Machinery K3VLS85

KC-MB-20, Multifunctional Controller for Construction Machinery

ECO SERVO

Painting Robot KJ264/314

Clean Robot NT series

Ratio of Kawasaki-brand Green Product sales to net sales (non-consolidated basis): 23%*

* Of non-consolidated sales of Kawasaki Heavy Industries totaling ¥1,098.7 billion, sales of Kawasaki-brand Green Products account for ¥255.6 billion.

Details about the above products are available on Kawasaki's website at the URL below.
https://global.kawasaki.com/en/corp/sustainability/green_products/index.html#box03

External Information Disclosure

Kawasaki discloses information about its environmental management activities to its stakeholders through such means as the *Kawasaki Report*, the *Environmental Report* (this document), and its website. In addition, a number of external organizations send us questionnaires, including the CDP climate change questionnaire; Dow Jones Sustainability Index (DJSI) surveys; Sompo Asset Management Co., Ltd. (SAM) ESG Survey; and Toyo Keizai Inc's Toyo Keizai CSR Survey. We view these as the voices of stakeholders representing investors, and we proactively disclose environmental information by responding to such questionnaires.

The results of evaluations based on such questionnaires are shown in Table 8.

Table 8: Fiscal 2020 Evaluation Results

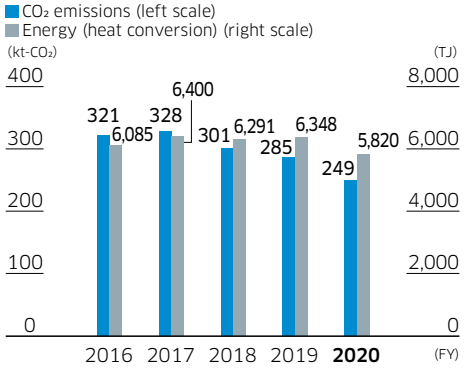
Questionnaire	Result
CDP 2020	B-
Dow Jones Sustainability Index (DJSI) 2019	Selected for inclusion in the DJSI Asia Pacific Index for a eighth consecutive year
SOMPO Sustainable Investment Fund	Selected for inclusion for a seventh consecutive year

Environmental Data for Kawasaki

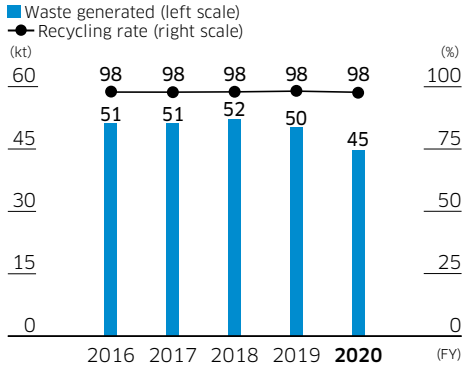
Fiscal 2020

			Unit	Company-wide	Comparison with Fiscal 2019
INPUT		Total energy (heat conversion)	TJ	5,820	-8%
		Purchased electricity	MWh	371,833	-9%
		Fuel	TJ	2,198	-6%
		Renewable energy	MWh	1,637	+7%
		Main materials (steel)	10,000 t	11	±0%
		Water	1,000 m^3	5,633	-6%
OUTPUT	Air	CO_2 emissions from energy sources	t	248,604	-13%
		SOx	t	6	+61%
		NOx	t	120	-7%
		Soot and dust	t	5	-4%
	Water	Wastewater	1,000 m^3	4,445	-1%
		COD	t	5	-30%
		Nitrogen	t	17	-29%
		Phosphorus	t	Under 1	-7%
	Waste	Total generated	t	44,578	-11%
		Recycled	t	43,487	-11%
		Others (incinerated/landfill)	t	1,091	-13%
	Others	CO_2 emissions during transport	t	4,385	+7%

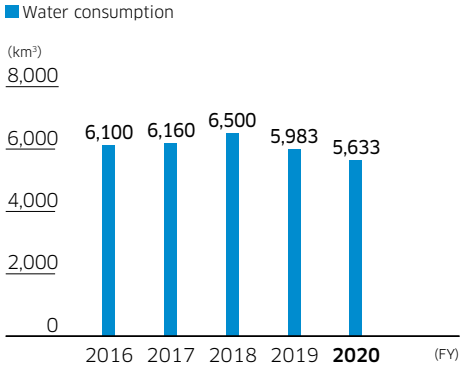
Note: For more details about financial information, including the net sales figures used to calculate per-unit information, please refer to the *Kawasaki Report*, Kawasaki's integrated report, which combines financial and non-financial information.
https://global.kawasaki.com/en/corp/ir/library/annual_report.html



CO_2 Emissions (Non-consolidated)



Waste Generated (Non-consolidated)



Water Consumption (Non-consolidated)

Environmental Data by Business Site 1/3

Fiscal 2020

			Unit	Gifu Works	Nagoya Works 1	Kobe Works	Hyogo Works	Nishi-Kobe Works
INPUT		Total energy (heat conversion)	TJ	1,365	375	403	225	964
		Purchased electricity	MWh	77,241	38,149	23,806	18,397	89,555
		Fuel	TJ	610	7	173	44	95
		Renewable energy	MWh	0	751	24	15	449
		Water	1,000 m^3	3,905	51	174	66	255
OUTPUT	Air	CO_2 emissions from energy sources	t	66,631	16,703	17,181	8,263	33,352
		SOx	t	Under 1	Under 1	5	0	Under 1
		NOx	t	21	Under 1	88	Under 1	Under 1
		Soot and dust	t	Under 1	Under 1	3	Under 1	Under 1
	Water	Wastewater	1,000 m^3	3,301	13	127	53	101
		COD	t	4	Under 1	Under 1	Under 1	Under 1
		Nitrogen	t	15	Under 1	Under 1	Under 1	1
		Phosphorus	t	Under 1	Under 1	Under 1	Under 1	Under 1
	Waste	Total generated	t	3,509	654	5,738	5,242	6,438
		Recycled	t	3,509	654	5,738	5,242	6,438
		Others (incinerated/landfill)	t	0	0	0	0	0

Fiscal 2020

			Unit	Seishin Works	Akashi Works	Kakogawa Works	Harima Works	Sakaide Works
INPUT		Total energy (heat conversion)	TJ	323	1,579	127	143	267
		Purchased electricity	MWh	26,838	50,830	6,126	11,474	25,194
		Fuel	TJ	63	1,085	68	30	21
		Renewable energy	MWh	146	246	0	4	0
		Water	1,000 m^3	95	730	13	75	266
OUTPUT	Air	CO_2 emissions from energy sources	t	11,738	72,448	5,412	5,256	11,589
		SOx	t	—	0	0	Under 1	Under 1
		NOx	t	2	8	0	Under 1	Under 1
		Soot and dust	t	—	2	—	Under 1	Under 1
	Water	Wastewater	1,000 m^3	58	499	6	37	251
		COD	t	—	—	Under 1	Under 1	Under 1
		Nitrogen	t	Under 1	—	Under 1	Under 1	Under 1
		Phosphorus	t	Under 1	—	Under 1	Under 1	Under 1
	Waste	Total generated	t	1,375	6,951	2,071	3,108	9,492
		Recycled	t	1,375	6,950	2,059	3,108	8,415
		Others (incinerated/landfill)	t	0	2	12	0	1,077

Environmental Data by Business Site 2/3

Gifu Works

Location 1, Kawasaki-cho, Kakamigahara, Gifu 504-8710, Japan

Main products Transport airplanes, helicopters, spacecraft, component parts for airplanes

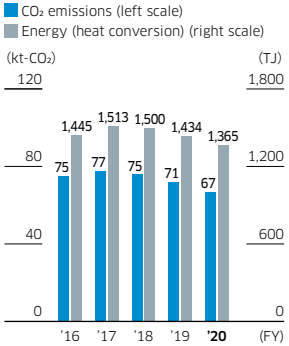


Figure: CO_2 emissions

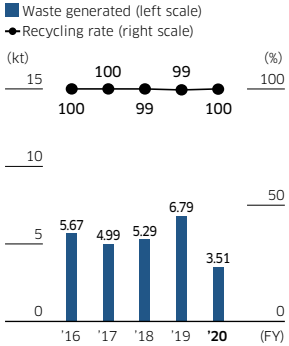


Figure: Waste generated

Nagoya Works 1

Location 20-3, Kusunoki 3-chome, Yatomi, Aichi 498-0066, Japan

Main products Component parts for airplanes

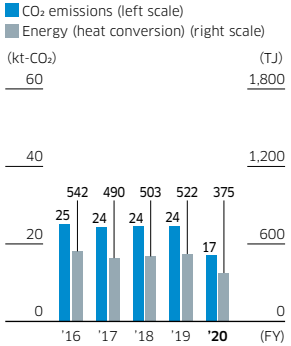


Figure: CO_2 emissions

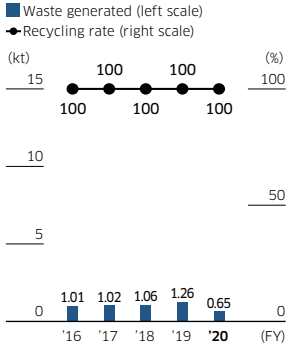


Figure: Waste generated

Kobe Works

Location 1-1, Higashikawasaki-cho 3-chome, Chuo-ku, Kobe, Hyogo 650-8670, Japan

Main products Ships & maritime equipment, steam turbines for ground and maritime applications, diesel engines

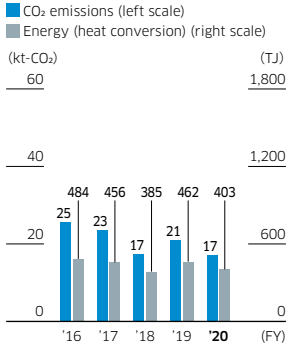


Figure: CO_2 emissions

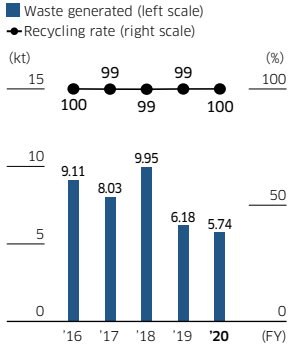


Figure: Waste generated

Hyogo Works

Location 1-18, Wadayama-dori 2-chome, Hyogo-ku, Kobe, Hyogo 652-0884, Japan

Main products Rolling stock, automated guideway transit systems, platform screen doors

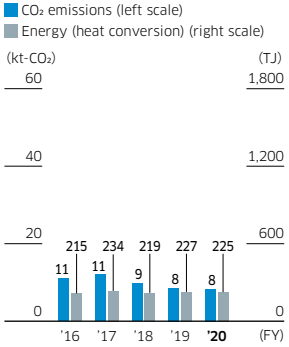


Figure: CO_2 emissions

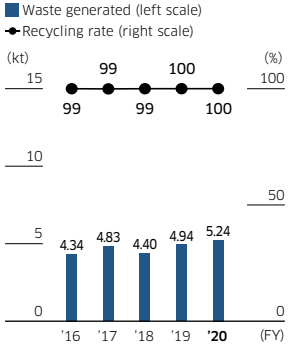


Figure: Waste generated

Nishi-Kobe Works

Location 234, Matsumoto, Hazetani-cho, Nishi-ku, Kobe, Hyogo 651-2239, Japan

Main products Various hydraulic systems for industrial use, marine machinery, precision machinery and equipment

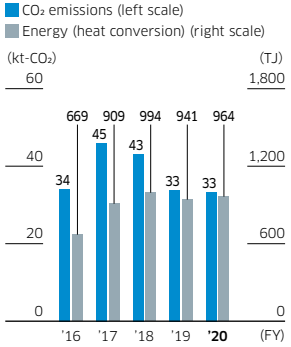


Figure: CO_2 emissions

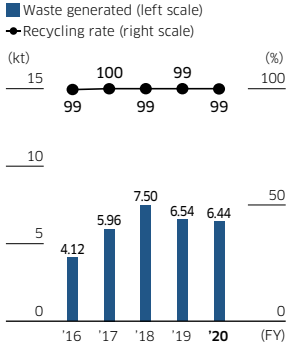


Figure: Waste generated

Environmental Data by Business Site 3/3

Seishin Works

Location 8-1, Takatsukadai 2-chome, Nishi-ku, Kobe, Hyogo 651-2271, Japan

Main products Component parts for jet engines and gas turbines

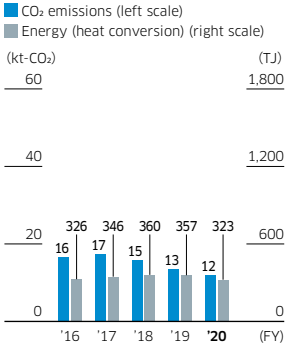


Figure: CO_2 emissions

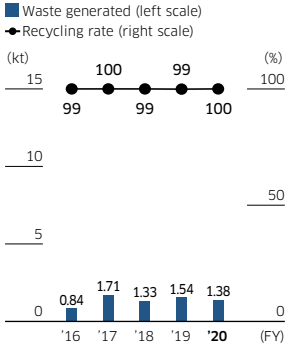


Figure: Waste generated

Akashi Works

Location 1-1, Kawasaki-cho, Akashi, Hyogo 673-8666, Japan

Main products Motorcycles, general-purpose gasoline engines, industrial robots, jet engines, industrial gas turbines

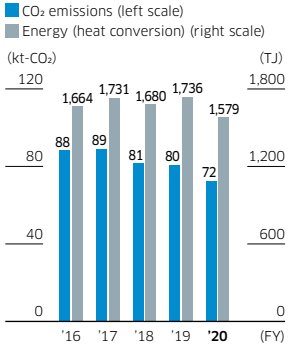


Figure: CO_2 emissions

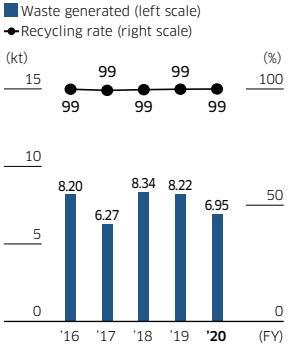


Figure: Waste generated

Kakogawa Works

Location 170, Yamanoue Mukohara, Hiraoka-cho, Kakogawa, Hyogo 675-0112, Japan

Main products Cast aluminum motorcycle components

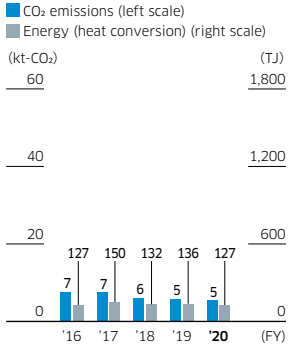


Figure: CO_2 emissions

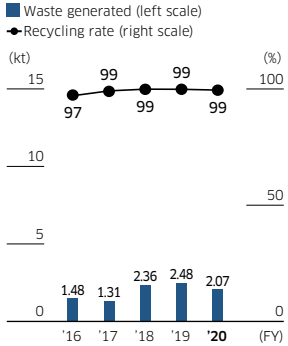


Figure: Waste generated

Harima Works

Location 8, Niijima, Harima-cho, Kako-gun, Hyogo 675-0180, Japan

Main products Industrial plants & environmental conservation facilities, boilers, construction machinery, rolling stock

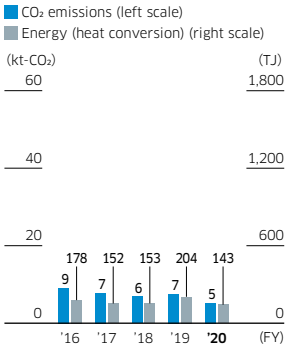


Figure: CO_2 emissions

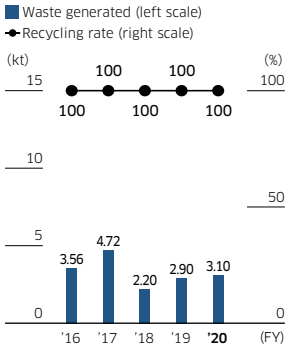


Figure: Waste generated

Sakaide Works

Location 1, Kawasaki-cho, Sakaide, Kagawa 762-8507, Japan

Main products Ships & maritime equipment (LNG carriers, LPG carriers, container ships, etc.)

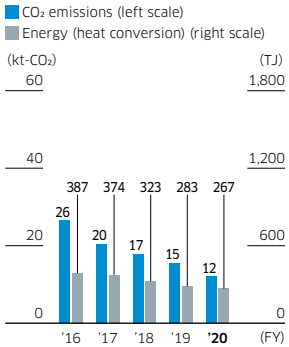


Figure: CO_2 emissions

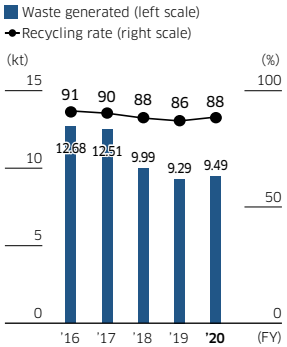
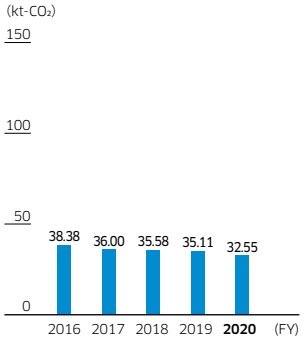


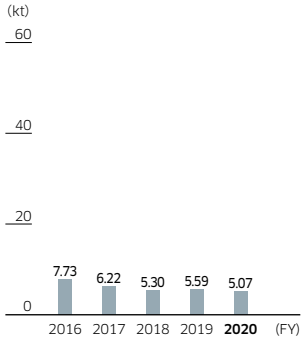
Figure: Waste generated

Environmental Data of Group Companies

Totals for Domestic Group Companies



CO_2 Emissions



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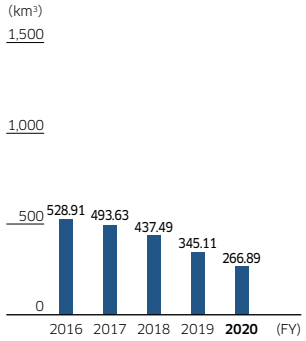
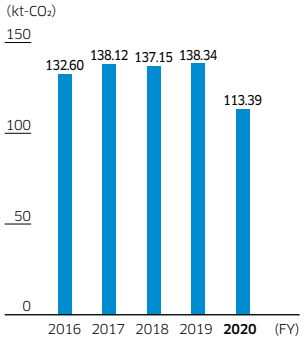
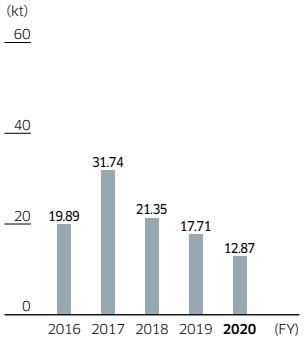


Water Consumption

Totals for Overseas Group Companies



CO_2 Emissions



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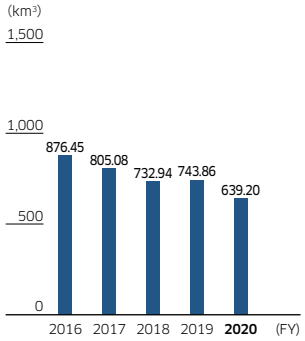
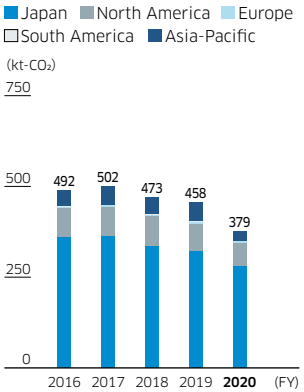


Water Consumption

Regional Data

CO_2 Emissions by Region (Kawasaki and Group Companies)



CO_2 Emissions

The Kawasaki Group Environmental Management Promotion Structure (fiscal 2020)

Environmental Charter (established 1999, revised 2021)

Environmental Philosophy

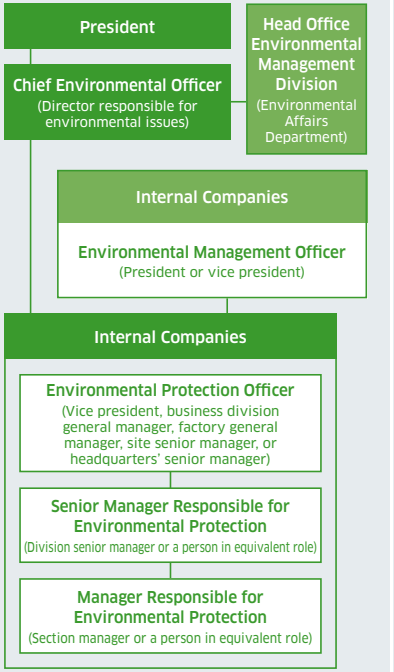
The Kawasaki Group pursues business activities globally in key industries related to land, sea and air, guided by the desire to contribute to the development of society through *monozukuri* manufacturing. In this effort, as a group, we emphasize the "realization of a carbon-neutral society," "realization of a recycling-oriented society," and "realization of a society coexisting with nature" to help solve global environmental issues, and we strive to help build a sustainable society through environmentally harmonious business activities and environmentally conscious Kawasaki-brand products and services.

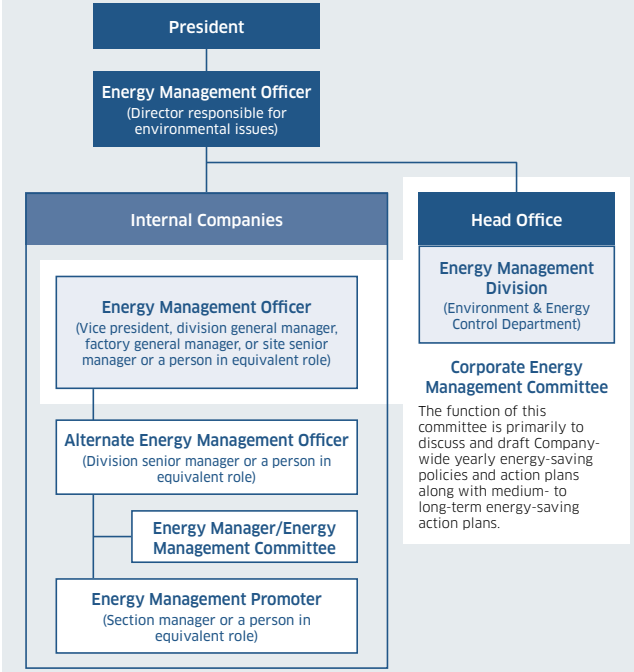
Conduct Guidelines

1. Global environmental problems are serious issues shared by people around the world and, making it a management priority to ensure that business activities are conducted in harmony with the environment, we will strive willingly and vigorously toward this goal.
2. We will endeavor to conserve resources, save energy, recycle, and reduce industrial waste in production stages, and we will promote efforts to limit the impact of our operations on the environment.
3. We will carefully consider environmental impact during product planning, R&D, and design stages to limit as much as possible any environmental impact caused during procurement, production, distribution, utilization, and disposal stages of the products we make and market.
4. We will strive to minimize the impact our business activities have on ecosystems and engage proactively in efforts to protect these ecosystems.
5. In seeking solutions to global environmental issues, we will develop and provide new technologies and new products that effectively contribute to environmental protection and reduced consumption of energy and natural resources.
6. Going beyond environment-related laws, regulations, conventions, and self-established action plans in related industries, we will implement our own environmental control standards, as appropriate, and strive to improve environmental management.
7. Through environmental training and public relations activities, we will strive to elicit greater awareness of global environmental issues among all employees and will encourage employees to perform a self-improvement review and participate in social contribution activities.
8. We will implement an environmental management system for environmental protection activities, hold regular conferences on environmental protection activities, undertake reviews, and strive to achieve continual improvement in our environmental protection activities.

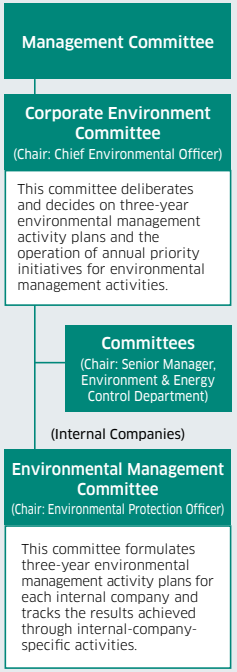
Environmental Management Promotion Structure

Environmental Management System/ Energy Management System

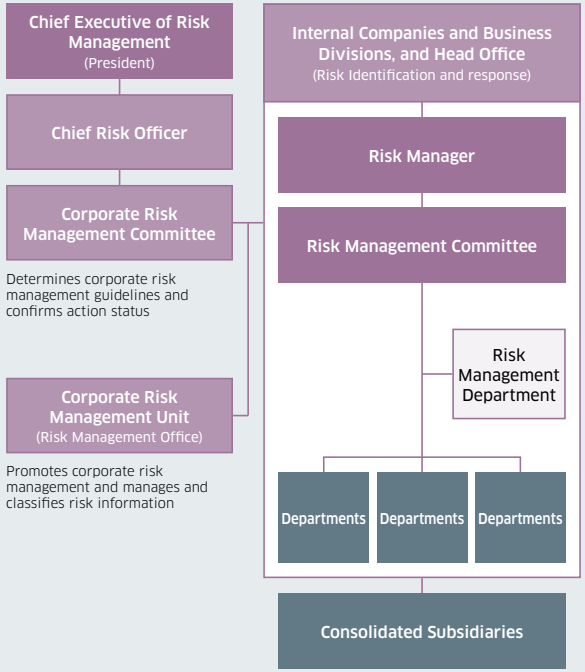




Operational System



Risk Management System



Establishment of Environmental Management Systems

Domestic (Kawasaki and Group Companies)

Company	Assessment/ registration institutions[1]	EMS level[2]/Date of establishment	
Aerospace Systems Company (Aerospace Business Division)	BSK	1	Feb. 2002
Kawaju Gifu Engineering Co., Ltd.		1	Feb. 2002
Kawaju Gifu Service Co., Ltd.		1	Feb. 2002
KGM Co., Ltd.		1	Feb. 2002
NIPPI Corporation		1	Dec. 2006
Aerospace Systems Company (Aero Engine Business Division)	BSK	1	Mar. 2000
Kawaju Akashi Engineering Co., Ltd.		1	Mar. 2000
Rolling Stock Company	DNV GL	1	Feb. 2002
Alna Yusoki-Yohin Co., Ltd.		2	Nov. 2017
Kawasaki Rolling Stock Component Co., Ltd.		1	Aug. 2002
Kawasaki Rolling Stock Technology Co., Ltd.		1	Aug. 2002
Kansai Engineering Co., Ltd.		3	Aug. 2002
Sapporo Kawasaki Rolling Stock Engineering Co., Ltd.		2	Jun. 2011
NICHIJO CORPORATION		2	Oct. 2005
Energy Solution & Marine Engineering Company (Plant Engineering Business Division)	JQA	1	Nov. 1999
KEE Environmental Construction, Co., Ltd.		1	Dec. 2003
EarthTechnica M&S Co., Ltd.		3	Apr. 2013
Kawasaki Environmental Plant Engineering Co., Ltd.		1	Jun. 2002
Kawaju Facilitech Co., Ltd.		2	Jul. 2013
Kawasaki Engineering Co., Ltd.		3	Oct. 2009
EarthTechnica Co., Ltd.		1	Sep. 2000
Energy Solution & Marine Engineering Company (Energy Solution Business Division) (Marine Machinery Business Division)	NK	1	Dec. 2000
Kawasaki Prime Mover Engineering Co., Ltd.		1	Dec. 2002
Kawasaki Machine Systems, Ltd.		1	Mar. 2000
Kawasaki Thermal Engineering Co., Ltd.		1	Apr. 2002
Kawasaki Naval Engine Service, Ltd.		3	Aug. 2016

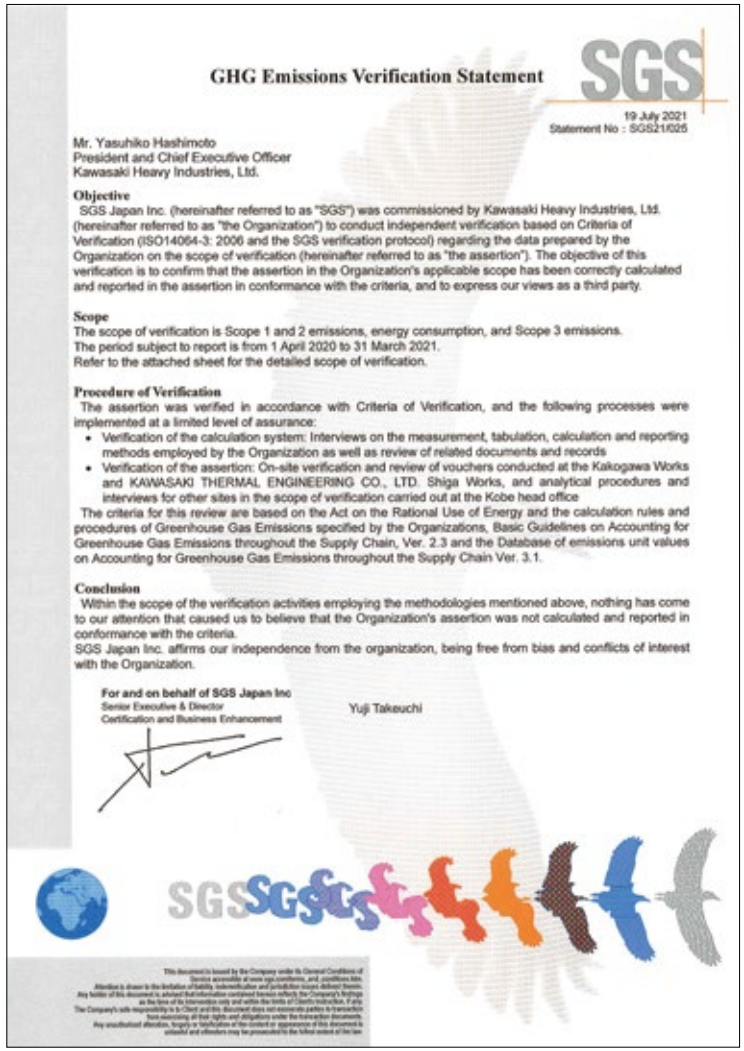
Domestic (Kawasaki and Group Companies)

Company	Assessment/ registration institutions[1]	EMS level[2]/Date of establishment	
Energy Solution & Marine Engineering Company (Ship & Offshore Structure Business Division)	DNV GL	1	Aug. 2000
Kawaju Support Co., Ltd.		2	Dec. 2005
Kawasaki Marine Engineering Co., Ltd.		3	Apr. 2013
KHI JPS Co., Ltd.		3	Mar. 2008
Precision Machinery & Robot Company (Precision Machinery Business Division)	DNV GL	1	Feb. 1998
Kawasaki Hydromechanics Corporation		1	Jun. 2007
Precision Machinery & Robot Company (Robot Business Division)	DNV GL	1	Mar. 2011
Kawasaki Robot Service, Ltd.		1	Apr. 2012
Motorcycle & Engine Company	DNV GL	1	Feb. 2000
Kawasaki Motors Corporation Japan		1	Feb. 2008
K-Tec Corp.		1	Dec. 2014
Technica Corp.		3	Mar. 2012
Autopolis		2	Dec. 2011
Union Precision Die Co., Ltd.		1	Jul. 2006
Head Office		2	Apr. 2002
Kawasaki Trading Co., Ltd.		1	Dec. 2004
Kawaju Service Co., Ltd.		1	Feb. 2000
Kawasaki Technology Co., Ltd.		3	Oct. 2011
Kawasaki Life Corporation		2	Jul. 2006
K Career Partners Corp.		2	Mar. 2007
Benic Solution Corporation		2	Feb. 2006

Overseas (Group Companies)

Oversight organization	Company	Location	EMS level[2]/Date of establishment	
Rolling Stock Company	Kawasaki Rail Car, Inc.	U.S.A.	3	Jul. 2015
Energy Solution & Marine Engineering Company (Plant Engineering Business Division)	KHI Design & Technical Service Inc.	Philippines	3	Nov. 2011
Energy Solution & Marine Engineering Company (Energy Solution Business Division) (Marine Machinery Business Division)	Kawasaki Gas Turbine Asia Sdn. Bhd.	Malaysia	3	Mar. 2013
	Kawasaki Gas Turbine Europe GmbH	Germany	3	Mar. 2013
	Wuhan Kawasaki Marine Machinery Co., Ltd.	China (PRC)	1	Jun. 2009
Precision Machinery & Robot Company (Precision Machinery Business Division)	Kawasaki Precision Machinery (Suzhou) Ltd.	China (PRC)	1	Jun. 2008
	Kawasaki Precision Machinery (UK) Ltd.	UK	1	Nov. 2001
	Kawasaki Chunhui Precision Machinery (Zhejiang) Ltd.	China (PRC)	1	Nov. 2012
	Wipro Kawasaki Precision Machinery Private Limited	India	1	Dec. 2019
	Flutek, Ltd.	South Korea	1	Nov. 2005
Precision Machinery & Robot Company (Robot Business Division)	Kawasaki Robotics (Tianjin) Co., Ltd.	China (PRC)	3	Nov. 2012
	Kawasaki Robotics GmbH	Germany	3	Nov. 2012
	Kawasaki Robotics (U.S.A.) Inc.	U.S.A.	1	Feb. 2006
Motorcycle & Engine Company	Kawasaki Motors Corp., U.S.A.	U.S.A.	3	Mar. 2013
	Kawasaki Motors Pty. Ltd.	Australia	3	Mar. 2013
	PT. Kawasaki Motor Indonesia	Indonesia	3	Jan. 2012
	Kawasaki Componants da Amazonia Ltda	Brazil	3	Jun. 2013
	Kawasaki Motores do Brasil Ltda.	Brazil	3	Jun. 2013
	Kawasaki Motors Europe N.V.	Netherlands	3	Feb. 2014
	Kawasaki Motors (Phils.) Corporation	Philippines	3	Jan. 2012
	Kawasaki Motors Manufacturing Corp., U.S.A. (MRV)	U.S.A.	1	Nov. 2008
	Kawasaki Motors Manufacturing Corp., U.S.A. (LNC)	U.S.A.	1	Apr. 2003
	Kawasaki Motors Enterprise (Thailand) Co., Ltd.	Thailand	1	Dec. 2011
	Canadian Kawasaki Motors Inc.	Canada	3	Feb. 2013
Head Office	KHI (Dalian) Computer Technology Co., Ltd.	China (PRC)	3	May 2013

1. Assessment/registration institutions: BSK: Defense Structure Improvement Foundation; DNV GL: DNV GL Group; JQA: Japan Quality Assurance Organization; NK: Nippon Kaiji Kyokai (ClassNK)
2. EMS levels: Level 1: ISO 14001 registration Level 2: Simplified EMS certification Level 3: Self-declaration of EMS establishment



GHG Emissions Verification Statement

SGS

19 July 2021
Statement No : SGS21/025

Mr. Yasuhiko Hashimoto
President and Chief Executive Officer
Kawasaki Heavy Industries, Ltd.

Objective

SGS Japan Inc. (hereinafter referred to as "SGS") was commissioned by Kawasaki Heavy Industries, Ltd. (hereinafter referred to as "the Organization") to conduct independent verification based on Criteria of Verification (ISO14064-3: 2006 and the SGS verification protocol) regarding the data prepared by the Organization on the scope of verification (hereinafter referred to as "the assertion"). The objective of this verification is to confirm that the assertion in the Organization's applicable scope has been correctly calculated and reported in the assertion in conformance with the criteria, and to express our views as a third party.

Scope

The scope of verification is Scope 1 and 2 emissions, energy consumption, and Scope 3 emissions.
The period subject to report is from 1 April 2020 to 31 March 2021.
Refer to the attached sheet for the detailed scope of verification.

Procedure of Verification

The assertion was verified in accordance with Criteria of Verification, and the following processes were implemented at a limited level of assurance:

- Verification of the calculation system: Interviews on the measurement, tabulation, calculation and reporting methods employed by the Organization as well as review of related documents and records
- Verification of the assertion: On-site verification and review of vouchers conducted at the Kakogawa Works and KAWASAKI THERMAL ENGINEERING CO., LTD. Shiga Works, and analytical procedures and interviews for other sites in the scope of verification carried out at the Kobe head office

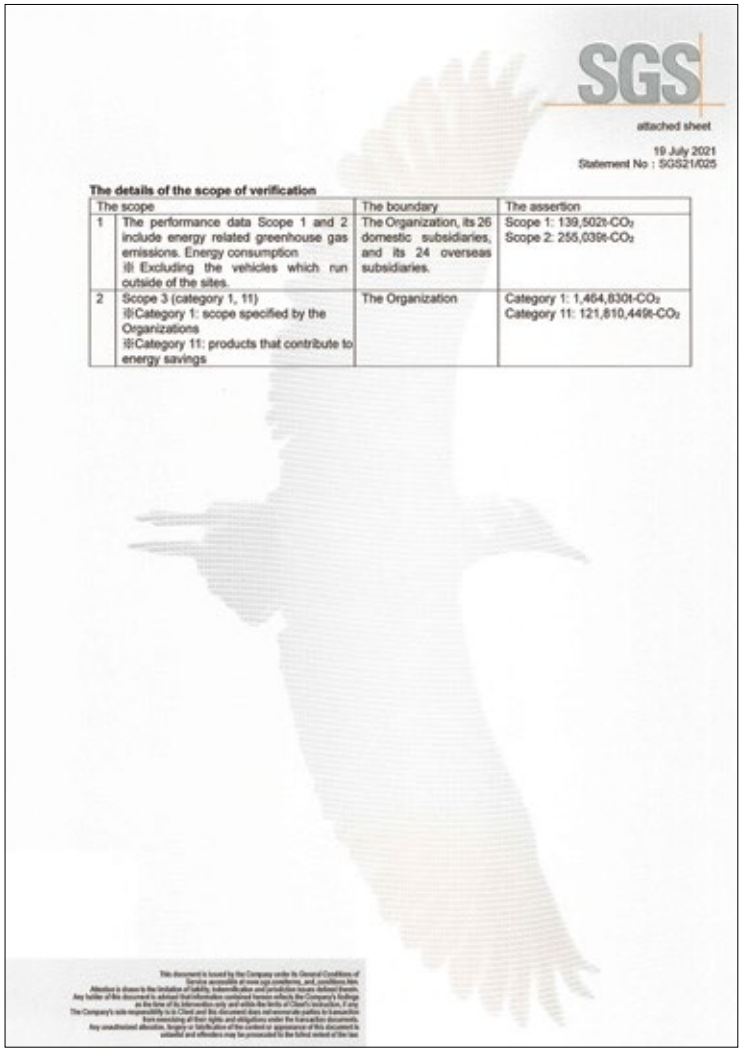
The criteria for this review are based on the Act on the Rational Use of Energy and the calculation rules and procedures of Greenhouse Gas Emissions specified by the Organizations, Basic Guidelines on Accounting for Greenhouse Gas Emissions throughout the Supply Chain, Ver. 2.3 and the Database of emissions unit values on Accounting for Greenhouse Gas Emissions throughout the Supply Chain Ver. 3.1.

Conclusion

Within the scope of the verification activities employing the methodologies mentioned above, nothing has come to our attention that caused us to believe that the Organization's assertion was not calculated and reported in conformance with the criteria.
SGS Japan Inc. affirms our independence from the organization, being free from bias and conflicts of interest with the Organization.

For and on behalf of SGS Japan Inc
Senior Executive & Director
Certification and Business Enhancement

Yuji Takeuchi



SGS

attached sheet

19 July 2021
Statement No : SGS21/025

The details of the scope of verification

The scope		The boundary	The assertion
1	The performance data Scope 1 and 2 include energy related greenhouse gas emissions. Energy consumption ※Excluding the vehicles which run outside of the sites.	The Organization, its 26 domestic subsidiaries, and its 24 overseas subsidiaries.	Scope 1: 139,502t-CO_2 Scope 2: 255,039t-CO_2
2	Scope 3 (category 1, 11) ※Category 1: scope specified by the Organizations ※Category 11: products that contribute to energy savings	The Organization	Category 1: 1,464,830t-CO_2 Category 11: 121,810,449t-CO_2

For the purpose of ensuring credibility, the Kawasaki Group received a third-party verification from SGS Japan Inc. of its greenhouse gas emissions data.

Scope of Verification

Greenhouse gas emissions associated with business activities in fiscal 2020

- Scope 1 and 2 greenhouse gas emissions associated with business activities at Kawasaki and 26 domestic and 24 overseas subsidiaries
- Category 1 (purchased products and services) and Category 11 (use of sold products) greenhouse gas emissions, which account for a large percentage of Kawasaki's Scope 3 emissions