



# Kawasaki

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# Environmental

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# Report / 2020

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**Scope**

Kawasaki Heavy Industries, Ltd.  
 However, where the Kawasaki Group (or “the Group”) is described, the scope of reference includes subsidiaries (listed on page 34) that are subject to environmental management criteria.

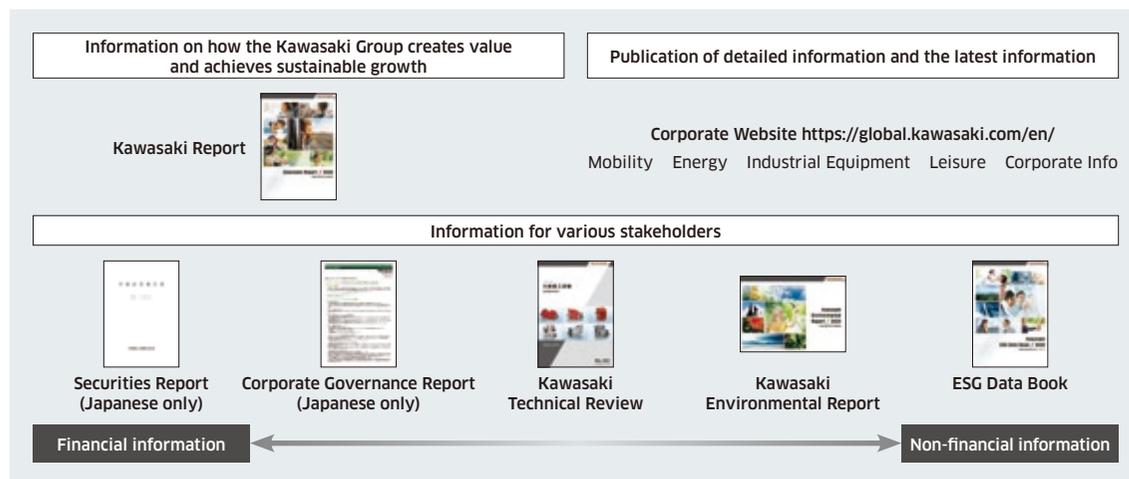
**Period**

The report covers fiscal 2019 (from April 1, 2019 to March 31, 2020). 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.

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## Message from the Chief Environmental Officer



**Sukeyuki Namiki**

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

### Increasingly Frequent Natural Disasters and the Growing Climate Crisis

Around the world, risks created by climate change (such as the occurrence of major typhoons and hurricanes, forest collapse or flooding) are growing. Japan's *Annual Report on the Environment, the Sound Material-Cycle Society and Biodiversity 2020* (published by the Ministry of the Environment, June 2020) addressed increasingly frequent natural disasters, using the expression "climate crisis" for the first time. Going forward, needs related to realizing a sustainable society are only expected to grow. The Kawasaki Group has been engaged in transport, energy, environmental and other industrial machinery-related businesses for more than 120 years, and I believe that its accumulated technologies can contribute greatly to meeting these needs.

### Facing the Climate Crisis

The Kawasaki Group is systematically implementing environmental management aimed at realizing a sustainable society.

#### 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, a 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 designated the three goals of being "CO<sub>2</sub> FREE," "Waste FREE," and "Harm FREE."

#### 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<sub>2</sub> FREE." Purchased electricity accounts for a great deal of the energy used in the Group's business activities. As such, we are unlikely to achieve our vision merely by continuing the kinds of initiatives we have implemented in the past, which focus mainly on saving energy. We are therefore also working to transition to cleaner forms of energy, including renewable solar power and low-carbon energy from onsite LNG power generation facilities that can be fueled by hydrogen.

In addition to reducing CO<sub>2</sub> emissions from business activities, we are working to shrink emissions from product use. In this report, we included new information on green value chains, showing the connections between energy resources, products, and environmental burden (including CO<sub>2</sub> emissions) throughout the life cycles of our products. Emissions during use account for most of the CO<sub>2</sub> released over the life cycles of our products. Addressing this issue, we use Kawasaki-brand Green Products, a system created in 2014, to evaluate and register products with particularly

outstanding environmental performance, and work to provide lower-carbon, higher-efficiency products, including those that utilize hydrogen.

Regarding hydrogen utilization, in 2019 we held a launching ceremony for the world's first liquified hydrogen carrier ship, and in 2020 we began sales of hydrogen liquefaction systems, a first among Japanese manufacturers. Through these and other efforts, we continue to contribute to the spread of technologies for a hydrogen-powered society.

#### Disclosure in Line with the TCFD Recommendations

In addition to continuing to advance concrete initiatives, in September 2019 we officially endorsed the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). Going forward, we will further enhance disclosure to stakeholders, including disclosure of the risks and opportunities related to climate change in Kawasaki's businesses.

### Initiatives in Fiscal 2019

The plan for fiscal 2019, the first year of the 10th Environmental Management Activities Plan (fiscal 2019–2021), was implemented smoothly. In fiscal 2020, we will continue to advance initiatives based on the ISO and other environmental management systems we have built at all our production sites.

### Environmental Report 2020

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.

## 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<sub>2</sub> 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 adopted the CO<sub>2</sub> emissions reduction targets set by the Japanese government for 2030 as our medium-term targets, we will tackle our major goals of achieving "CO<sub>2</sub> 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<sub>2</sub> FREE
- Waste FREE
- Harm FREE

### 2030 Targets

- Reduce CO<sub>2</sub> 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

## 2050 Kawasaki Challenge!

<p><b>CO<sub>2</sub> FREE</b></p> <ul style="list-style-type: none"> <li>• Aim for zero CO<sub>2</sub> emissions in business activities</li> <li>• Provide products and services that greatly curb CO<sub>2</sub> emissions</li> </ul>	<p><b>Waste FREE</b></p> <ul style="list-style-type: none"> <li>• Aim for zero waste emissions in business activities</li> <li>• Thoroughly enforce conservation and the recycling of water resources</li> </ul>	<p><b>Harm FREE</b></p> <ul style="list-style-type: none"> <li>• Aim for zero harmful chemical substance emissions in business activities</li> <li>• Develop business with respect for biodiversity</li> </ul>
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## Three-Year 10th Environmental Management Activities Plan

### Policy for Initiatives

Based on the environmental policy laid out in the Group Environmental Charter,<sup>1</sup> the Group Mission,<sup>2</sup> and assessments of the Ninth Environmental Management Activities Plan,<sup>3</sup> 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<sub>2</sub> FREE," "Waste FREE," and "Harm FREE."

To realize a low-carbon society (CO<sub>2</sub> FREE), we will work to significantly cut CO<sub>2</sub> emissions by weighing the impact of related risks and opportunities<sup>4</sup> for our businesses to expand the provision of low-CO<sub>2</sub> products and further reduce CO<sub>2</sub> 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 long-term perspective.

1. Please refer to p.33, "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](https://global.kawasaki.com/en/corp/sustainability/environment/19_houkokusyo.pdf)

4. Risks:

- Stricter CO<sub>2</sub> 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

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

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

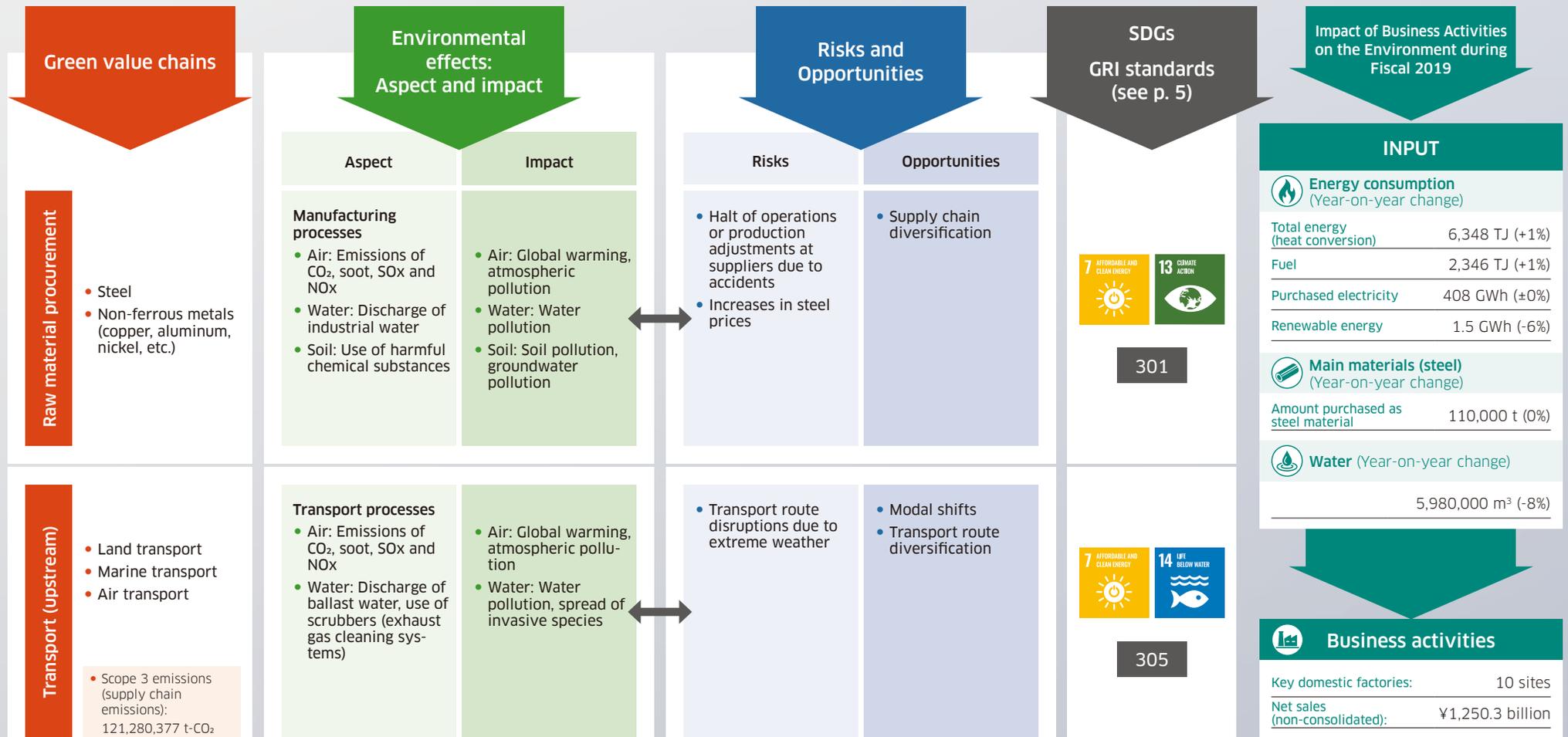


## Kawasaki's Business Processes: Green Value Chains

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)



**Manufacturing**

- Factories and other production facilities
  - Energy and water consumption
  - Greenhouse gases (GHGs)
- Scope 1 emissions (direct emissions): 127,189 t-CO<sub>2</sub>
- Scope 2 emissions (indirect emissions from energy): 157,934 t-CO<sub>2</sub>

**Manufacturing processes**

- Air: Emissions of CO<sub>2</sub>, 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 (p. 6-7)
- 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): 121,280,377 t-CO<sub>2</sub>

**Transport processes**

- Air: Emissions of CO<sub>2</sub>, 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



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**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): 121,280,377 t-CO<sub>2</sub>

**Product use**

- Air: Emissions of CO<sub>2</sub>, 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



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**Disposal**

- Scrap

**Disassembly and breakdown**

- Air: Emissions of CO<sub>2</sub> and soot

- Air: Global warming, atmospheric pollution

—

- Increase practice of the 3Rs



**OUTPUT**

**Air** (Year-on-year change)

Greenhouse gases	285,000 t-CO <sub>2</sub> (-5%)
SOx	4t (+100%) *
NOx	129t (-23%)

**Waste** (Year-on-year change)

Total waste	50,200 t (-4%)
Recycled	48,900 t (-5%)
Others	1,200 t (±0%)

**Water** (Year-on-year change)

Total wastewater	4,500,000 m <sup>3</sup> (-2%)
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\* 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

## Risks and Opportunities Related to Climate Change

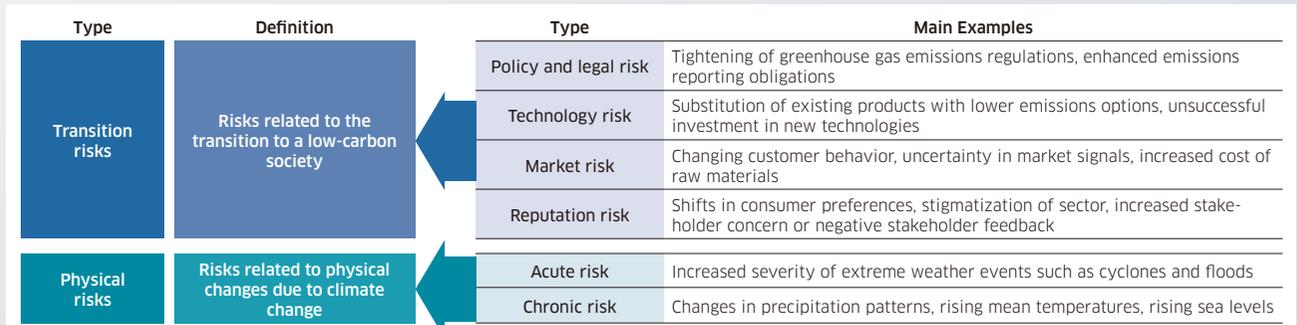
Kawasaki endorsed the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) in September 2019. The TCFD recommends the disclosure of climate change-related information, such as that outlined in the table at right.

This section lays out Kawasaki's analysis of its risks and opportunities related to climate change based on the disclosure provided in response to the CDP climate change 2019 questionnaire.\*

\*The 2019 edition of a survey of corporate initiatives related to realizing a low-carbon society (from both risk and business opportunity perspectives).

### What Are Climate Change-Related Risks?

Climate change-related risks are broadly divided into (1) transition risks, related to the transition to a low-carbon economy, and (2) physical risks, related to physical changes due to climate change.



Source: Prepared by the Ministry of the Environment based on the "Recommendations of the Task Force on Climate-related Financial Disclosures" (final report) from the TCFD.

### Climate Change-related Risks: Transition Risks

Risk Type	Risk	Description	Financial Impact	Risk Management Methods	
Transition risks	Policy	<b>Carbon pricing</b>	Carbon pricing, carbon trading and other regulations (particularly regarding the use of the Company's products after their sale) may be put into place.	Such regulations would apply to almost all of the Company's products and therefore greatly impact net sales.	Assuming carbon pricing, carbon trading and other regulations, we are focusing efforts on energy transition, which includes renewable energy, mainly hydrogen.
	Legal	<b>Act on Promotion of Global Warming Countermeasures</b>	Costs related to responding to the tightening of regulations, such as Japan's Act on Promotion of Global Warming Countermeasures and, overseas, European emissions standards (Euro 4), and ship emissions regulations (the Energy Efficiency Design Index, or EEDI), may emerge.	Kawasaki manufactures products with significant CO <sub>2</sub> emissions, such as transportation equipment and large engines, and any strengthening of current regulations would apply to almost all its products and therefore greatly impact net sales.	We are developing products and technologies to reduce CO <sub>2</sub> emissions ahead of the strengthening of laws and regulations.
	Technology	<b>Transition to hydrogen energy</b>	Realizing a carbon-powered society is part of Japan's national energy strategy, but in the process of realizing such a society, technological development costs will impact business.	If commercializing hydrogen energy proves impossible, there is a risk that R&D expenses made thus far will go to waste. Kawasaki invests approximately ¥50 billion in R&D annually. The portion of this related to hydrogen energy is undisclosed.	To realize a society that makes full use of hydrogen, as specified in Japan's Strategic Energy Plan, we are working with Japanese and Australian governmental authorities and related companies to quickly build a hydrogen supply chain.
	Market	<b>Pressure to transition to renewable energy</b>	Electricity costs may rise due to the strengthening of CO <sub>2</sub> emissions regulations, and pressure to transition to renewables may arise in connection with the government's strategic framework for hydrogen.	Currently, purchased electricity accounts for a large portion of Kawasaki's energy use and procurement costs of approximately ¥10 billion per year. Assuming that adopting an energy mix that includes 26% renewable energy (government target) would result in an extra cost of 15%, the annual cost impact on the Company would be around ¥0.3-0.5 billion.	Kawasaki's Head Office coordinates internal energy procurement, and the Company gathers information and formulates policy and countermeasure proposals under the direction of the Head Office.
	Reputation	<b>Gap between Kawasaki's stance on environmental initiatives and external evaluations</b>	Kawasaki will contribute to the market by providing products and services that help reduce environmental burden, but inadequate disclosure could create the risk of a gap between this stance and external evaluations (such as the CDP evaluation).	If efforts to address climate change are not well received and external evaluations decline, this could lead to divestment from the Company or removal from related stock indices.	We are working to eliminate any gaps between our actual initiatives and external evaluations by honestly answering climate change-related surveys, including that of the CDP, and carrying out appropriate disclosure.

Climate Change-related Risks: Physical Risks

Risk Type	Risk	Description	Financial Impact	Risk Management Methods	
Physical risks	Acute physical risk	<b>Loss of power due to facility damage from super hurricanes, storm surges, etc.</b>	As Kawasaki's shipbuilding and large structure manufacturing sites are located in coastal areas, they are at risk of losing power due to facility damage from super hurricanes, storm surges, etc.	In the event of power outage due to facility damage from a super hurricane, storm surge, or other such event, the Company's operations or supply chains could be halted, greatly impacting net sales.	Kawasaki has formulated business continuity plans (BCPs), established emergency contact systems, and carries out regular inspections and drills, among other measures, in order to minimize the damage caused by major disasters, such as typhoons, earthquakes, floods, and pandemics.
	Chronic physical risk	<b>Prolonged extremely high or low temperatures</b>	Kawasaki's shipbuilding and large structure manufacturing involve outdoor work, necessitating adequate precautions for work in high or low temperatures. If such weather conditions become more prolonged, it could require additional measures to ensure the safety of employees or lead to declines in labor productivity.	The need for additional measures to ensure the safety of employees, declines in labor productivity, or halts in operations due to prolonged extremely high or low temperatures could greatly impact net sales.	In line with business sites' safety management rules and systems, we implement a variety of countermeasures, including promoting awareness of heat stroke prevention measures, posting and sending out information on daily heat stroke risk levels, encouraging employees to intake adequate water and salt, and using spot coolers.

Climate Change-related Opportunities

Opportunity Type	Opportunity	Description	Financial Impact	Opportunity Realization Strategy	
Opportunities	Opportunity 1	<b>Creating green energy, including hydrogen, with Kawasaki-brand products</b>	We aim to create clean energy, including hydrogen, with Kawasaki-brand products. We see opportunities in all sectors, such as energy and infrastructure, related to replacing fossil fuels with hydrogen.	Under Kawasaki's hydrogen business strategy, through new business commercialization, the hydrogen business is planned to account for 5% (¥150.0 billion) of the ¥3 trillion net sales target for fiscal 2030.	To realize a society that makes full use of hydrogen, as targeted in Japan's Strategic Energy Plan, we are working with Japanese and Australian governmental authorities and related companies to quickly build a hydrogen supply chain.
	Opportunity 2	<b>Growing demand for power generation and distributed power sources as means of business continuity planning</b>	In preparation for power outages and supply chain interruptions due to super hurricanes and other natural disasters caused by climate change, demand for distributed power sources is expected to increase, creating opportunities.	Under Kawasaki's business strategy, energy system & plant engineering businesses are planned to account for 20% (¥600.0 billion) of the ¥3 trillion net sales target for fiscal 2030.	In the energy system and plant engineering businesses, we are advancing improvements to power generation equipment, such as gas turbines, combined generation equipment, and gas engines, to increase efficiency and decrease environmental burden.

## Summary of Business Activities in Fiscal 2019

Key Strategies	10th Environmental Management Activities Plan (FY2019-FY2021)		Fiscal 2019 Results	Page Number
<b>CO<sub>2</sub> FREE</b>	<b>Target</b>	Reduce fiscal 2021 CO <sub>2</sub> emissions per unit of net sales by 20% from the fiscal 2013 level (non-consolidated)	228t-CO <sub>2</sub> /billion yen (down 21.6% from the fiscal 2013 level) On-pace to meet the fiscal 2021 target	p. 10-16
	<b>Proactive use of onsite power generation facilities</b>			
	<b>Initiatives</b>	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.	Began working group activities at the Gifu, Kobe, and Akashi plants, where onsite power generation are in use Identified current problems and issues and considered ways to improve existing facilities in terms of system configuration, economic efficiency, and CO <sub>2</sub> reduction	
	<b>Utilize renewable energy</b>			
	<b>Initiatives</b>	Purchase electricity from solar power generation facilities on the roofs of our plants	Established guidelines to promote the adoption of renewable energy (to enter effect from fiscal 2020)	
	<b>Energy-saving activities</b>			
	<b>Initiatives</b>	Promote energy saving by utilizing energy visualization systems and replacing aging equipment	Established guidelines to promote energy saving (to enter effect from fiscal 2020)	
<b>Realization of a low-carbon society</b>	<b>Expand the CO<sub>2</sub>-reducing effects of Kawasaki-brand Green Products and other products</b>			
	<b>Initiatives</b>	Help reduce CO <sub>2</sub> emissions during product use by putting high-efficiency products out into society	Emission reduction effect on CO <sub>2</sub> from product use of 23,140 kt-CO <sub>2</sub> (products sold in fiscal 2019)	
<b>Waste FREE</b>	<b>Target</b>	Maintain ratio of direct-to-landfill waste to total waste generation at less than 1% (non-consolidated)	Landfill disposal rate of 0.2% (target achieved)	p. 17-18
	<b>Further enforce waste sorting and recycling</b>			
	<b>Initiatives</b>	Improve Group-wide management	Gathered, organized, and shared on-site confirmation information on legally designated waste processing contractors	
	<b>Precisely understand water uses and usage volumes</b>			
<b>Realization of a recycling-oriented society</b>	<b>Initiatives</b>	Confirm water resource risks	Carried out detailed surveys of water uses and usage volumes (Company-wide average data availability: 15%)	
<b>Harm FREE</b>	<b>Target</b>	Reduce environmental risk while operating factories with respect for biodiversity	No problems occurred	p. 19-21
	<b>Properly manage harmful chemical substances and consider alternatives (Reduce Group-wide environmental risk)</b>			
	<b>Initiatives</b>	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 almost unchanged year on year So far no prospect of using alternatives to discontinue use	
	<b>Identify the types of trees on factory grounds and, where appropriate, replace with native species while continuing Company-wide forest conservation activities</b>			
	<b>Initiatives</b>	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 conversation activities in Taka, Hyogo Prefecture, and Niyodogawa, Kochi Prefecture,* to make up for shortcomings as measured against the Company's voluntary indicator for green space land area (did not reach the indicator) *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 2019 Business Activity Report

The pages that follow offer a report on business activities in 2019 conducted in line with the key strategies of the 10th Environmental Management Activities Plan (FY2019-FY2021).

### CO<sub>2</sub> FREE

#### Plan target

Reduce fiscal 2021 CO<sub>2</sub> emissions per unit of net sales by 20% from the fiscal 2013 level (non-consolidated)

### 10th Environmental Management Activities Plan

### Waste FREE

#### Plan target

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

### Harm FREE

#### Plan target

Reduce environmental risk while operating factories with respect for biodiversity



# CO<sub>2</sub> FREE



Various global initiatives aimed at controlling global warming are accelerating, including the Paris Agreement reached at the United Nations Framework Convention on Climate Change (with the target of holding the increase in the global average temperature to well below 2°C above pre-industrial levels).

Kawasaki is contributing to the prevention of global warming through products and manufacturing that efficiently use energy.

## 10th Plan Target

Reduce fiscal 2021 CO<sub>2</sub> 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<sub>2</sub>-reducing effects of Kawasaki-brand Green Products and other products

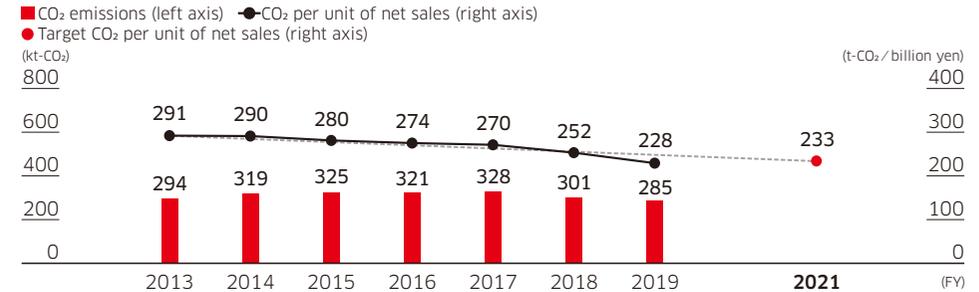


## Reducing CO<sub>2</sub> Emissions

### Reducing CO<sub>2</sub> Emissions from Production Activities

Kawasaki has designated the target of reducing fiscal 2021 CO<sub>2</sub> 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 2019, CO<sub>2</sub> emissions per unit of net sales came to 228 t-CO<sub>2</sub>/billion yen, down 21.6% from the fiscal 2013 level and on-pace to meet our target for fiscal 2021 (Figure 1). The main factors behind this decrease in per-unit CO<sub>2</sub> emissions were restrained energy consumption thanks to energy saving activities and decreases in CO<sub>2</sub> emission factors for purchased electricity.



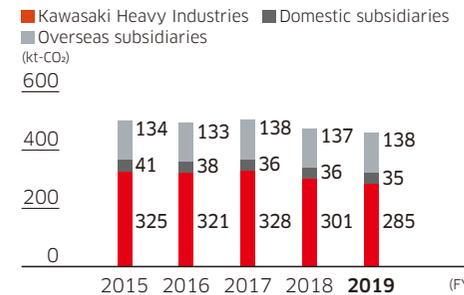
**Figure 1: CO<sub>2</sub> Emissions from Production Activities**

- Notes:
1. Per unit of net sales figures are obtained by dividing CO<sub>2</sub> emissions by net sales.
  2. The fuel and heat CO<sub>2</sub> emission factors used are values published by the Agency for Natural Resources and Energy.
  3. The electricity CO<sub>2</sub> 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<sub>2</sub> Emissions

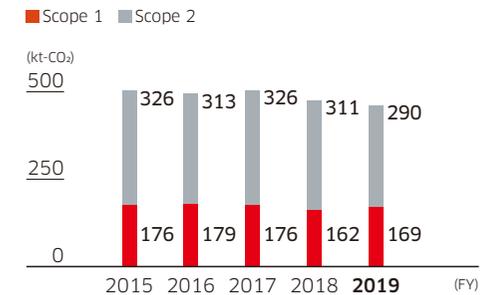
The Kawasaki Group's CO<sub>2</sub> emissions and energy consumption attributable to production activities are shown in Figures 2, 3 and 4. The Group's supply chain CO<sub>2</sub> emissions\* are shown in Tables 1 and 2. The scope that Kawasaki is required to cover in tracking CO<sub>2</sub> emissions 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<sub>2</sub> 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<sub>2</sub> emissions along its supply chain.

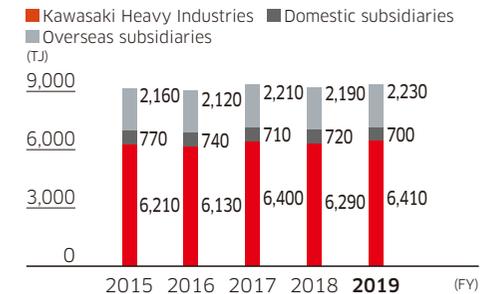


**Figure 2: CO<sub>2</sub> Emissions from Production Activities (by Company)**

- Notes:
1. The CO<sub>2</sub> 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<sub>2</sub> emission factors are the figures published by the Greenhouse Gas Protocol.



**Figure 3: CO<sub>2</sub> Emissions from Production Activities (Scopes 1 and 2)**



**Figure 4: Energy Consumption in Production Activities (by Company)**

**Table 1: Fiscal 2019—the Kawasaki Group's Scope 1 and Scope 2 Calculation Results**

Category	Calculation Targets	Calculation Results (kt-CO <sub>2</sub> /year)
<b>Scope1</b>		
Direct emissions	Direct emissions through use of fuel at Kawasaki and associated industrial processes	169
<b>Scope2</b>		
Indirect emissions from the generation of purchased energy	Indirect emissions accompanying use of electricity and heat purchased by Kawasaki	290

**Table 2: Fiscal 2019—Kawasaki's Scope 3 Calculation Results**

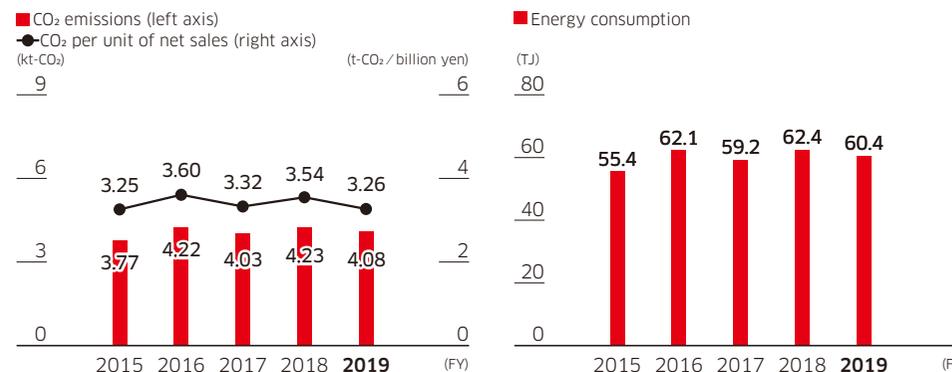
Category	Calculation Targets	Calculation Results (kt-CO <sub>2</sub> /year)
<b>Scope 3 (Other indirect emissions): Upstream</b>		
1. Purchased goods and services	Emissions associated with activities up to production of raw materials, parts, purchased goods, and sales-related materials	1,940(1.6%)
2. Capital goods	Emissions from construction and production of Kawasaki's capital goods	238(0.2%)
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	37(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	8(0.0%)
5. Waste generated in operations	Emissions associated with transportation and processing of waste generated by Kawasaki	12(0.0%)
6. Business travel	Emissions associated with business travel by employees	13(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%)
<b>Scope 3 (Other indirect emissions): Downstream</b>		
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 <sup>1</sup>
11. Use of sold products	Emissions associated with use of products by consumers and companies	118,550(98.0%)
12. End-of-life treatment of sold products	Emissions associated with transportation and treatment of products upon disposal by consumers and companies	Excluded <sup>1</sup>
13. Downstream leased assets	Emissions associated with operation of assets leased to other companies	Excluded <sup>2</sup>
14. Franchises	Emissions by franchisees	Excluded <sup>2</sup>
15. Investments	Emissions related to operation of investments	173(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<sub>2</sub> Emissions in Logistics Processes**

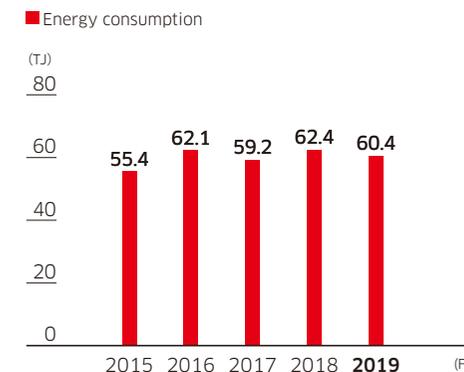
Kawasaki takes steps to pinpoint CO<sub>2</sub> emissions and promote energy-saving activities in its logistics processes, which cover some of its supply chain (Scope 3, Category 4 “Upstream transportation and distribution”), to realize continuous reduction in CO<sub>2</sub> emissions.

In fiscal 2019, CO<sub>2</sub> emissions decreased by 4% year on year, to approximately 4,100 tons (with energy consumption at approximately 60,000 GJ), due to a decrease in long-distance cargo transport by ship. Amounts for the past five years are shown in Figure 5 and Figure 6.



**Figure 5: CO<sub>2</sub> Emissions from Logistics Processes and CO<sub>2</sub> Emissions Per Unit of Net Sales**

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



**Figure 6: 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 7 and 8). Under the 10th Environmental Management Activities Plan, we have begun 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<sub>2</sub> emissions.

In fiscal 2019, focusing mainly on plants where onsite power generation facilities are in operation, we identified current issues and began looking into replacing or newly installing such facilities. Taking into account the demand for electricity and heat at each plant, economic efficiency, and the current issues identified, we are advancing basic considerations of the power generation output and facility configurations that would best enable efficient energy use when optimally combined and balanced with purchased electricity and heat

generated by boilers. Once we have finished these basic considerations, we will formulate concrete plans for specific facility configurations and installation methods and put them into action.

In addition, Kawasaki has designated the target of reducing 2030 CO<sub>2</sub> emissions by 26% from the fiscal 2013 level. As greater CO<sub>2</sub> emissions reductions will be required to achieve this target, we are considering the implementation of onsite power generation facilities that use hydrogen fuel and thus emit no CO<sub>2</sub> during use.



Figure 7: Onsite power generation facilities at Akashi Works (gas turbine)



Figure 8: Onsite power generation facilities at Kobe Works (gas engine)

## Renewable Energy

### Utilizing Renewable Energy

The Kawasaki Group is making its production and other equipment more energy efficient and advancing the use of renewable energy to reduce the CO<sub>2</sub> emissions from its plants. We are installing solar power generating systems at our plants, and currently have a total solar power generation capacity of 4,178 kW (Table 3).

In fiscal 2019, these systems generated 4,883 MWh (Figure 9), of which 1,526 MWh was used in-house.\*

\*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 <sup>1</sup>	Sold via FIT <sup>2</sup>	1,505
Nagoya Works	Used in-house	750
Seishin Photovoltaic Power Generation Station <sup>1</sup>	Sold via FIT	701
Nishi-Kobe Works	Used in-house	505
Nishi-Kobe Photovoltaic Power Generation Station <sup>1</sup>	Sold via FIT	422
Akashi Works	Used in-house	140
Sakaide Works	Used in-house	50
Kakogawa Photovoltaic Power Generation Station <sup>1</sup>	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
<b>Total</b>		<b>4,178</b>

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

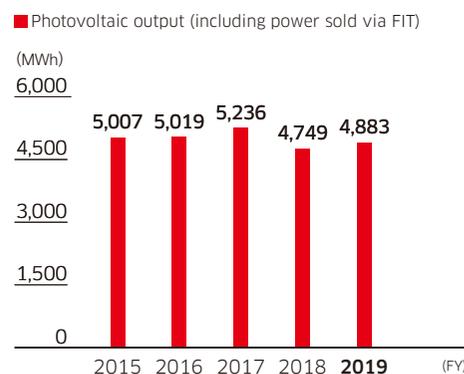


Figure 9: Photovoltaic Output (Including Power Sold via FIT)



Figure 10: Nagoya Works 1: 750-kW power generation facility



Figure 11: Nishi-Kobe Works: 927-kW power generation facility (of which 422 kW is sold via FIT)

## Energy-Saving Promotion Activities

### Energy-Saving Promotion Activities

The Company has established an energy-saving promotion structure for each business segment and implements various Company-wide energy-conservation initiatives.

In fiscal 2019, Kawasaki awarded the Plant Energy-saving Grand Award to the Nishi-Kobe Works, part of the Precision Machinery Business Division, for its heat source

energy-saving initiatives. This award praised multiple improvements that realized significant energy-saving effects without requiring large capital expenditure thanks to creative efforts at manufacturing worksites. One such improvement is highlighted below.



Figure 12: Work Area Before Improvements

In a large building where products are tested prior to shipping, the heat generated by testing equipment made the adjacent work area too hot (Figure 12).

The plant's employees considered the problem and realized that they could address it without installing additional air conditioning units, simply by more effectively using the

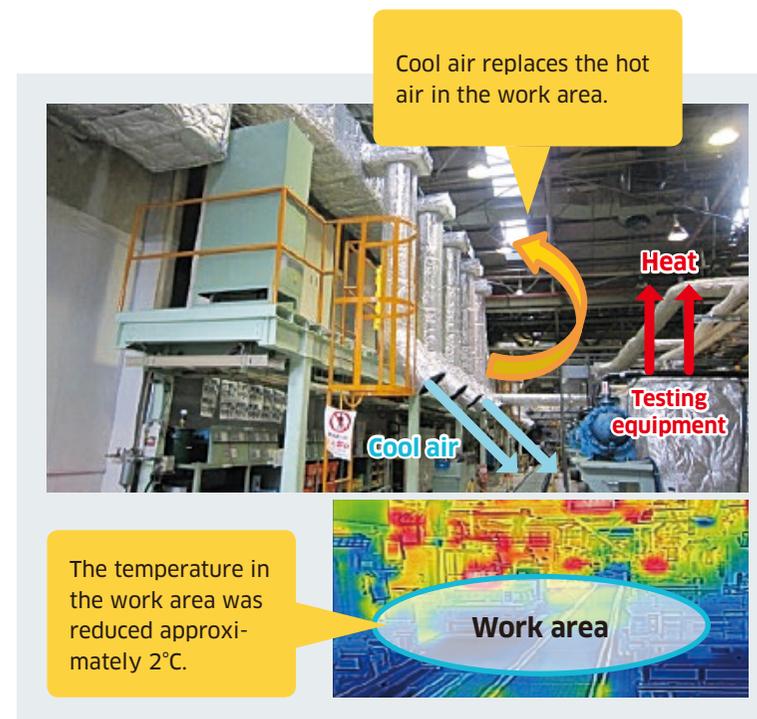


Figure 13: Work Area After Improvements

cool air from the existing units. By changing the position and angle of the cool air vents, they were able to effectively replace hot air in the work area with cool air, solving the problem (Figure 13).

## Reducing CO<sub>2</sub> Emissions through Product-Based Contributions

### Reducing CO<sub>2</sub> Emissions through Product-Based Contributions

More than 90% of CO<sub>2</sub> 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<sub>2</sub> emissions during their use.

To reduce products' post-sale CO<sub>2</sub> 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<sub>2</sub> emissions are listed in Figure 14. In fiscal 2017, we revised our rules for calculating CO<sub>2</sub> 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<sub>2</sub> emissions reduction through products we sold in fiscal 2019 was about 23.1 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 M7V Series motors for HSTs,<sup>1</sup> which boast world-leading output control.

Aerospace Systems	Energy System & Plant Engineering	Precision Machinery & Robot	Transportation
<ul style="list-style-type: none"> <li><b>Airplanes and Space</b> <ul style="list-style-type: none"> <li>Boeing 787 (component production)</li> <li>BK117 helicopters</li> </ul> </li> <li><b>Jet Engines</b> <ul style="list-style-type: none"> <li>Trent 1000 for the Boeing 787</li> <li>Trent XWB for the Airbus A350 XWB</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Energy System</b> <ul style="list-style-type: none"> <li>Gas engines for power generation, including the M1, M5, and M7 series industrial-use gas turbines</li> <li>Heated boilers (U-KACC,<sup>2</sup> ICFB<sup>3</sup>), non-heated boilers (plant waste heat, waste incineration waste heat), floating plants (FLNG<sup>4</sup>)</li> </ul> </li> <li><b>Plant Engineering</b> <ul style="list-style-type: none"> <li>Chemical plants (GTG<sup>5</sup>), LNG tanks</li> <li>Shield machines and crushing machine plant (CK Mill<sup>6</sup>)</li> </ul> </li> <li><b>Marine Propulsion</b> <ul style="list-style-type: none"> <li>Marine propulsion systems (E-series Rexpeller<sup>7</sup>)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Precision Machinery</b> <ul style="list-style-type: none"> <li>Hydraulic systems for construction and industrial machinery (K8V Series pumps for HSTs, M7V Series motors for HSTs, etc.)</li> <li>High-pressure hydrogen regulators for fuel cell vehicles</li> </ul> </li> <li><b>Robot</b> <ul style="list-style-type: none"> <li>duAro dual-arm SCARA robot, NT420 general-purpose clean robot</li> <li>BX200L spot welding robot, KJ264/314 large painting robots</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Ship &amp; Offshore Structure</b> <ul style="list-style-type: none"> <li>LNG carriers, LPG carriers, car carriers</li> <li>Ship operation support system (SOPass<sup>8</sup>)</li> </ul> </li> <li><b>Rolling Stock</b> <ul style="list-style-type: none"> <li>Standard railcars (efACE<sup>9</sup>)</li> <li>Active suspension system, track material monitoring device</li> </ul> </li> <li><b>Motorcycle &amp; Engine</b> <ul style="list-style-type: none"> <li>Ninja 250, Ninja ZX-6R, Ninja H2</li> <li>Versys 650, Versys 1000</li> </ul> </li> </ul>

**Figure 14: Key Products That Contribute to Reducing CO<sub>2</sub> Emissions During Use (by Segment)**

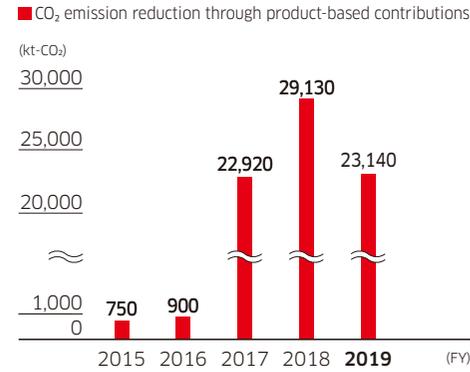
- HST: Hydrostatic transmission: A non-stage transmission comprising a hydraulic pump and hydraulic motors.
- U-KACC: Upgrade Kawasaki Advanced Clean Combustion (boiler fueled by combustion-resistant petroleum residues).
- ICFB: Internal Circulation Fluidized Bed Boiler (boiler fueled by underutilized biomass).
- FLNG: Floating Liquefied Natural Gas facilities.
- GTG: Gas To Gasoline plant (a plant that synthesizes gasoline from methanol synthesized from natural gas).
- CK Mill: Named after the companies that jointly developed it, Chichibu Cement Co., Ltd. (now Taiheiyo Cement Corporation) and Kawasaki.
- Developed with a focus on three Es: energy saving, easy maintenance, and environmentally friendly.
- SOPass: Ship Operation and Performance analysis support system.
- efACE: Environmentally Friendly Advanced Commuter & Express train.
- Please refer to the "Guideline for Quantifying Greenhouse Gas Emission Reduction Contribution" (Ministry of Economy, Trade and Industry, March 2018).

### 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<sup>10</sup> 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<sub>2</sub> emissions between our products and industry standard class products over the entire period of use.

In order to quantify the contributions of highly energy efficient products to the mitigation of global warming, products included in the calculation of CO<sub>2</sub> 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<sub>2</sub> emissions.

CO<sub>2</sub> emission reductions for the past five years are shown in Figure 15. Particularly notable products that have had a large cumulative effect are shown in Figure 16.



**Figure 15: CO<sub>2</sub> Emission Reduction through Product-Based Contributions**

- Notes:
1. Kawasaki uses CO<sub>2</sub> emissions factors provided in the list of calculation methods and emissions factors published by Japan's Ministry of the Environment.
  2. The CO<sub>2</sub> 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<sub>2</sub> emissions reduction effect through product-based contributions.



**Figure 16: Particularly Notable Products That Contribute to Reducing CO<sub>2</sub> 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 generation 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 Generation

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.

In fiscal 2019, by making changes to product packaging, we reduced waste and eliminated 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) are shown in Figure 17. The landfill disposal rate was 0.2%, achieving the target of 1% or less.

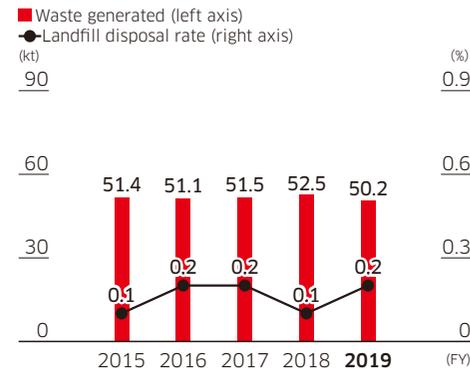


Figure 17: Waste Generated and Landfill Disposal Rate

#### Reference: Response to Japan's Resource Circulation Strategy for Plastics

Kawasaki recycles and properly treats the waste plastics that it produces as industrial waste. In 2019, the Japanese government formulated a strategy for plastic use that includes the basic principles of "3Rs + Renewable." Going forward, Kawasaki will consider how these principles apply to its businesses in areas other than waste management as it works to help solve social issues.

### 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 2019 came to 5,983,000 m<sup>3</sup> (Figure 18). 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.

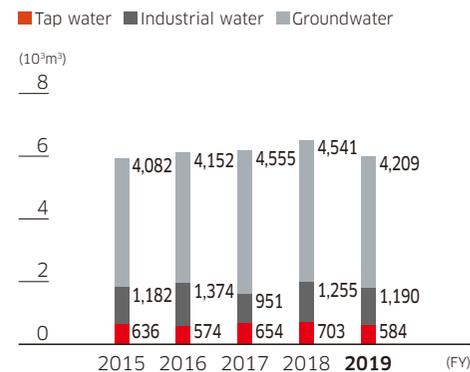


Figure 18: Water Consumption

# 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





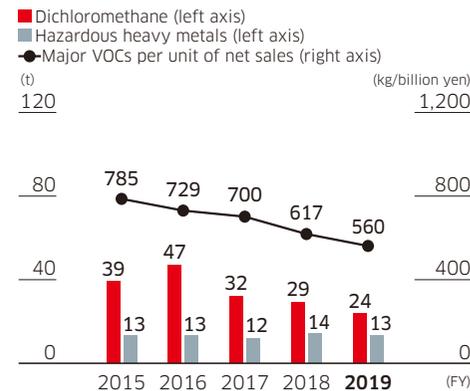
## Chemical Substances

### 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.

Figure 19 shows Kawasaki's fiscal 2019 handling volumes of major VOCs (toluene, xylene and ethylbenzene), dichloromethane, and hexavalent chromium compounds.

Going forward, we will continue to properly manage chemical substances while aiming to reduce their use.



**Figure 19: Emissions and Handling Volume of Managed Chemical Substances**

- 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 two locations: Hyogo Prefecture and Kochi Prefecture.

In Hyogo Prefecture, we have participated in the prefecture's corporate forest restoration project since December 2008. Our forest conservation activities started out at a community forest that we named Kawasaki Heavy Industries Nagomi-no-Mori, in the town of Taka.

Since the start of our forest conservation activities in 2008, the number of participating employees and their family members has reached a cumulative total of approximately 2,400 people, and approximately 2,840 trees consisting of 47 varieties, including Japanese red pine, konara oak, and mountain cherry, have been planted. Since fiscal 2018, we have shifted focus to the maintenance of trees planted in previous years. In fiscal 2019, we cleared undergrowth and trimmed trees.

In addition, in Kochi Prefecture, we have participated in a prefecture-organized forest restoration project aimed at forest regeneration since 2007, implementing activities in the town of Niyodogawa. Every year, new employees of the Company conduct forest conservation activities, mainly forest thinning, deepening our level of exchange with the local community.

**Table 4: Fiscal 2019 Achievements**

Activity location	Taka, Hyogo Prefecture	Niyodogawa, Kochi Prefecture
Activity content	Pruning trees, clearing undergrowth, making coasters, making and attaching tree tags	Tree thinning, environmental education
Participants	Employees and their families, and others (195 people)	Employees and others (64 people)
Achievements	Area: 0.5 ha CO2 absorbed: 0.97 t Trees planted: 0	Area: 0.3 ha CO2 absorbed: 15.0 t
Number of events	3	1



**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 2019 Achievements**

Activity content	Aim	Date
Making coasters (Figure 20)	Learn about the importance of the functions of forests (Participants gained a firsthand understanding of the necessity of tree thinning as part of regular forest maintenance in order to enhance forests' capacity to recharge water resources, prevent soil erosion and mitigate global warming.)	April 2019
Making and attaching tree tags (Figure 21)	Interact with nature and learn about the importance of forests (Participants used wood from tree thinning to make tree tags—labels indicating species—then learned to identify the species traits of previously planted trees, which they then tagged. They also took measures to keep deer away from new growth.)	November 2019



Figure 20: Making coasters (with the cooperation of the Hyogo Mori no Club, an NPO)



Figure 21: Making and attaching tree tags (with the cooperation of the Hyogo Mori no Club, an NPO)

**Biodiversity**

**Initiatives in Food: Sustainable Seafood**

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<sup>1</sup> and ASC certified.<sup>2</sup>

By including sustainable seafood in the cafeteria's offerings, we are providing opportunities to think about water resource depletion and the impact of global warming through food—an integral part of daily life.

1. A certification system for sustainable fishing and fishery products



2. A certification system for responsible aquaculture and fishery products



Figure 22: Tomato keema curry with fried fish



Figure 23: Cafeteria bustling with people



Figure 24: Sign explaining sustainable seafood



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## Risk Management

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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,<sup>1</sup> RoHS Directive,<sup>2</sup> and REACH Regulation,<sup>3</sup> as well as the Euro 4 regulation on motorcycle exhaust emissions.

In fiscal 2019, 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

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

In fiscal 2019, there were no incidents that resulted in administrative disciplinary action or guidance from the authorities or complaints from local residents.

Within its environmental management regulations, Kawasaki has established internal rules regarding the handling of abnormalities and has set up a framework for quickly reporting to the Head Office, via specified procedures, in the event of an administrative disciplinary action or guidance or a complaint from local residents.

## 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.



Figure 25: E-learning content for managerial staff



Figure 26: 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 plans	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. 2,800 (for all target employees)	Implementation: October-December 2020 Participants: Approx. 800 (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. 1,000	Implementation: April 2021 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 27: President's message for Environment Month



Figure 28: Forestation activity report

### 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 2019 is shown in Table 7. In addition, as an internal qualification, we offer training for internal ISO 14001 environmental management and environmental auditors, through which approximately 136 employees acquired qualifications in fiscal 2019.

Table 7: Employees with Legal Qualifications

Pollution control managers	Air	97
	Water	82
	Noise, vibration	36
	Others	78
	Total	293
Energy managers		88

## 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.

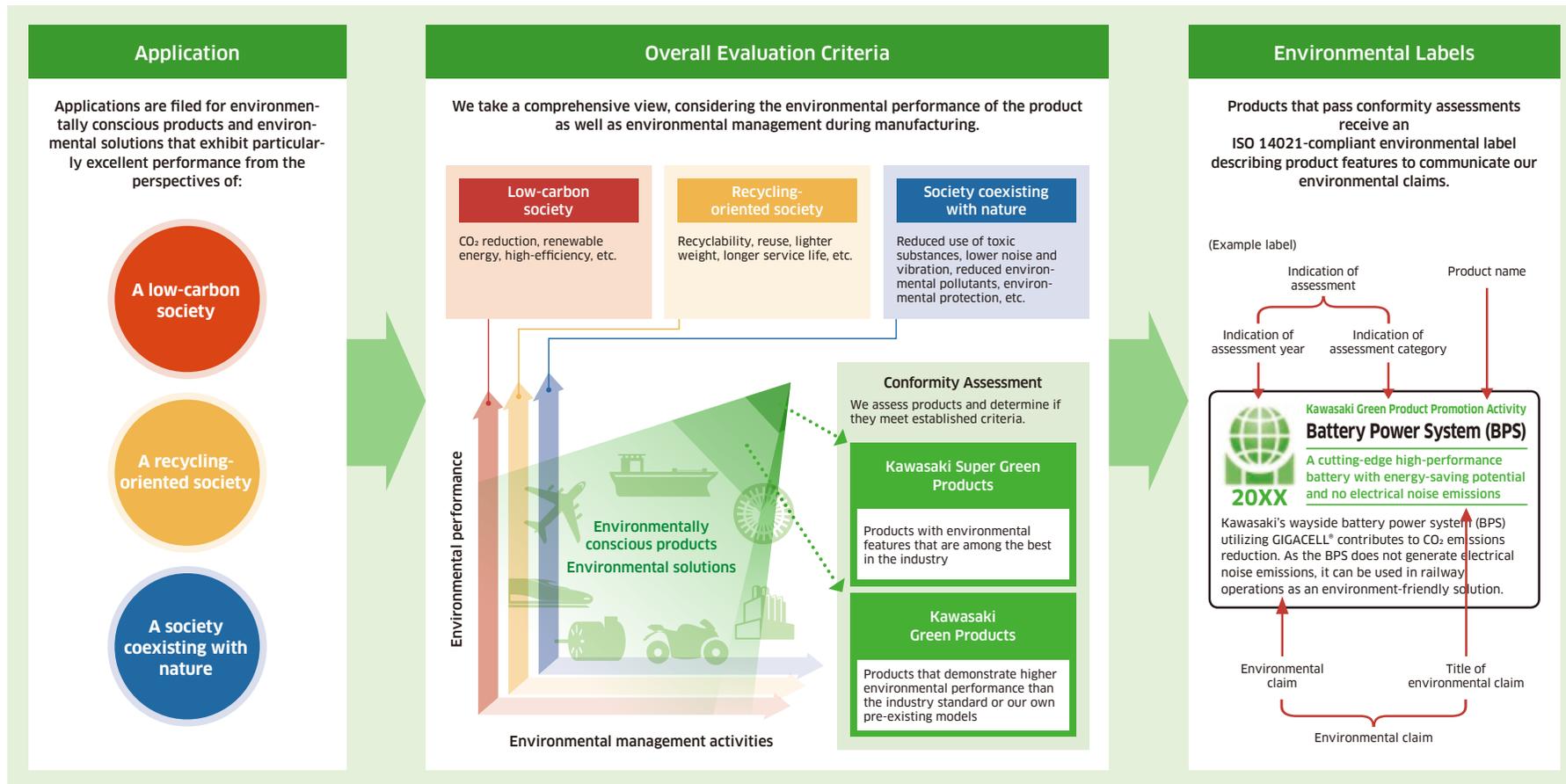


Figure 29: Conformity Assessment Procedure

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 30: Program logo

## 2020 Kawasaki-brand Green Products

### Newly Registered Products



Gas To Gasoline Plant



Mega Tunnel Boring Machine (TBM)



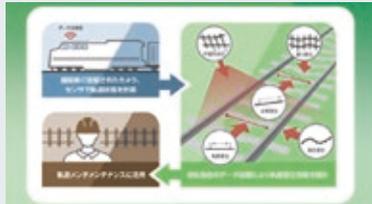
ECO SERVO® Controller N-ECST



Kawasaki Robot ANSHIN Lifecycle Support K-COMMIT®



New Thermal Insulation Panel for LNG Tank



Autonomous Track Geometry Measurement System



Diesel Electric Locomotives (for main line operation and shunting)



Z H2 (2020MY)



Z900 (2020MY)



LNG Floating Power Plant

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



BK117 D-2 Helicopter (Airbus Helicopters Model:H145)



M1A-17D Gas Turbine



Green Gas Engine



MAG Turbo



CKK System



Oil-Free Kawasaki Centrifugal Compressor



LNG Tank (New safety factor applied)



HST Pump K8V Series



HST Motor M7V Series



Hydraulic Pump for Excavators (K7V)



Extra-Large Payload Robot MG Series



Spot Welding Robot (BX200L)



Large LNG Carrier with Newly Developed Tank



eFACE Standard Railcar



Battery Power System (BPS)

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](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 evaluation organizations send us questionnaires, including the CDP climate change questionnaire; Dow Jones Sustainability Index (DJSI) surveys; the Sompo Japan Nipponkoa Asset Management Co., Ltd. (SNAM) Environmental 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 2019 Evaluation Results**

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

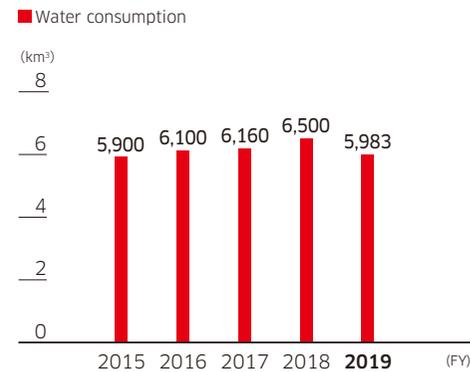
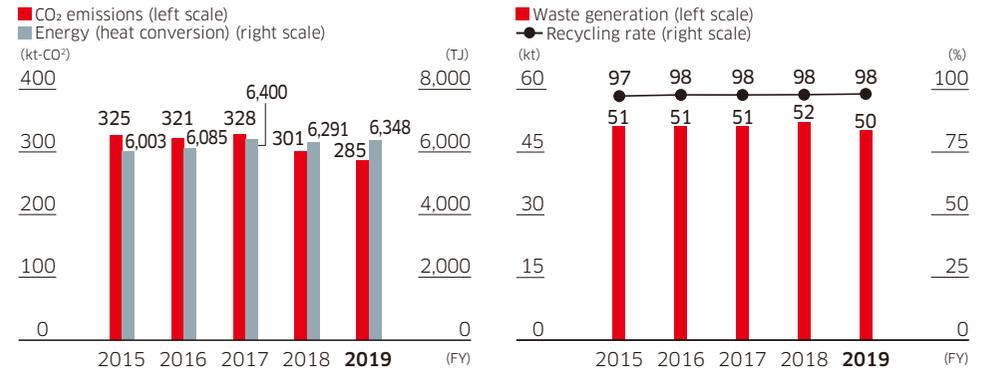
Environmental Data for Kawasaki

Fiscal 2019

		Unit	Company-wide	Comparison with Fiscal 2018	
INPUT	Total energy (heat conversion)	TJ	6,348	+1%	
	Purchased electricity	MWh	407,548	±0%	
	Fuel	TJ	2,346	+1%	
	Renewable energy	MWh	1,526	-2%	
	Main materials (steel)	10,000t	11	±0%	
	Water	1,000m <sup>3</sup>	5,983	-8%	
OUTPUT	Air	CO <sub>2</sub> emissions from energy sources	t	285,123	-5%
		SOx	t	4	+78%
		NOx	t	129	-23%
		Soot and dust	t	6	-7%
	Water	Wastewater	1,000m <sup>3</sup>	4,497	-2%
		COD	t	7	+24%
		Nitrogen	t	24	+12%
		Phosphorus	t	Under 1	+1%
	Waste	Total emitted	t	50,181	-4%
		Recycled	t	48,933	-5%
		Others (incinerated/landfill)	t	1,247	+4%
	Others	CO <sub>2</sub> emissions during transport	t	4,081	-4%

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](https://global.kawasaki.com/en/corp/ir/library/annual_report.html)



Water Consumption (Non-consolidated)

## Environmental Data by Business Site 1/3

## Fiscal 2019

		Unit	Gifu Works	Nagoya Works 1	Kobe Works	Hyogo Works	Nishi-Kobe Works	
INPUT	Total energy (heat conversion)	TJ	1,434	522	462	227	941	
	Purchased electricity	MWh	82,245	53,121	25,134	18,654	88,125	
	Fuel	TJ	631	10	219	43	86	
	Renewable energy	MWh	0	800	16	24	508	
	Water	1,000m <sup>3</sup>	4,044	58	183	72	233	
OUTPUT	Air	CO <sub>2</sub> emissions from energy sources	t	71,986	24,653	21,040	8,572	33,824
		SO <sub>x</sub>	t	Under 1	Under 1	3	0	Under 1
		NO <sub>x</sub>	t	22	Under 1	95	Under 1	Under 1
		Soot and dust	t	Under 1	Under 1	2	Under 1	Under 1
	Water	Wastewater	1,000m <sup>3</sup>	3,254	15	121	54	73
		COD	t	6	Under 1	Under 1	Under 1	Under 1
		Nitrogen	t	21	Under 1	Under 1	Under 1	1
		Phosphorus	t	Under 1	Under 1	Under 1	Under 1	Under 1
	Waste	Total emitted	t	6,796	1,262	6,188	4,949	6,545
		Recycled	t	6,766	1,262	6,187	4,949	6,544
		Others (incinerated/landfill)	t	30	0	1	0	0

## Fiscal 2019

		Unit	Seishin Works	Akashi Works	Kakogawa Works	Harima Works	Sakaide Works	
INPUT	Total energy (heat conversion)	TJ	357	1,736	136	204	283	
	Purchased electricity	MWh	29,472	55,333	6,536	17,842	27,044	
	Fuel	TJ	71	1,158	72	30	21	
	Renewable energy	MWh	0	172	0	5	0	
	Water	1,000m <sup>3</sup>	116	827	14	92	341	
OUTPUT	Air	CO <sub>2</sub> emissions from energy sources	t	13,469	80,768	5,863	7,557	15,463
		SO <sub>x</sub>	t	—	0	0	Under 1	0
		NO <sub>x</sub>	t	2	9	0	Under 1	0
		Soot and dust	t	—	4	—	Under 1	0
	Water	Wastewater	1,000m <sup>3</sup>	71	537	7	49	316
		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 emitted	t	1,540	8,222	2,482	2,904	9,293
		Recycled	t	1,539	8,220	2,478	2,904	8,084
		Others (incinerated/landfill)	t	0	2	5	0	1,209

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

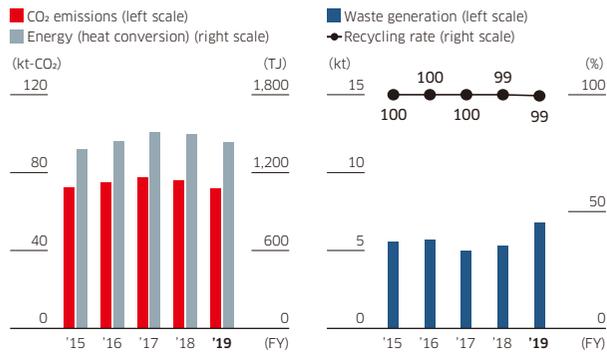


Figure: CO<sub>2</sub> emissions

Figure: Waste generation

Nagoya Works 1

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

**Main products** Component parts for airplanes

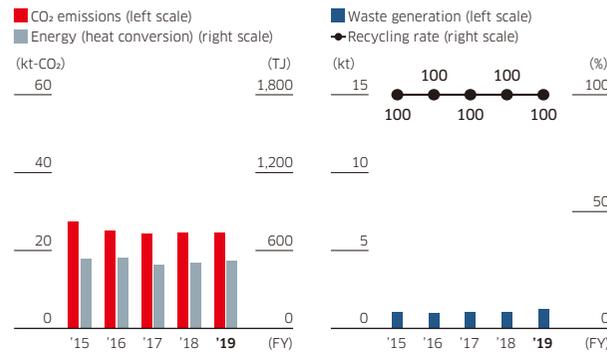


Figure: CO<sub>2</sub> emissions

Figure: Waste generation

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

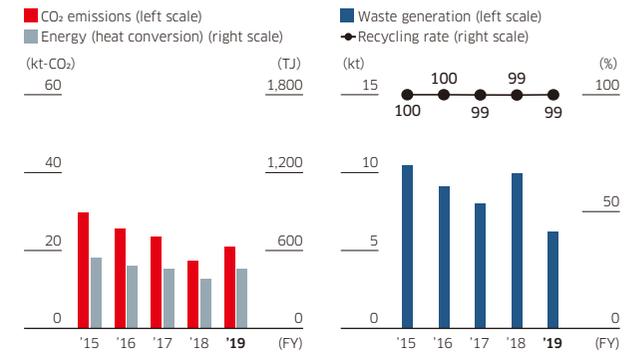


Figure: CO<sub>2</sub> emissions

Figure: Waste generation

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

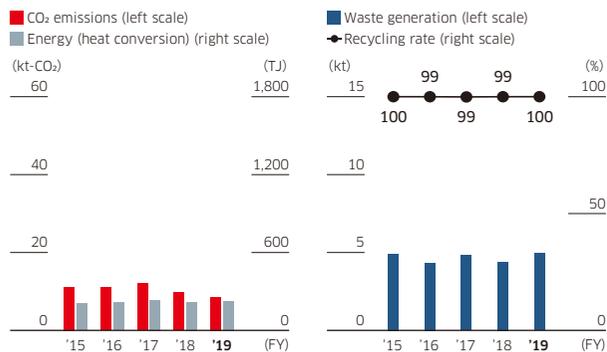


Figure: CO<sub>2</sub> emissions

Figure: Waste generation

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

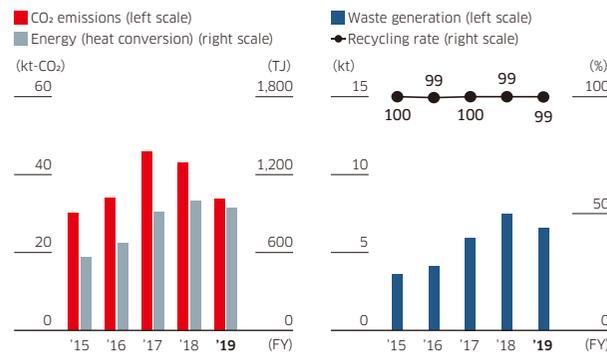


Figure: CO<sub>2</sub> emissions

Figure: Waste generation

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

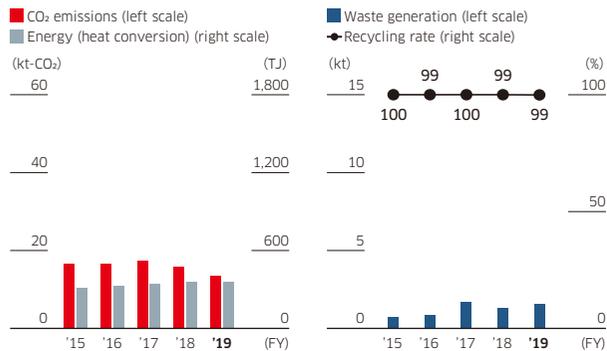


Figure: CO<sub>2</sub> emissions

Figure: Waste generation

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

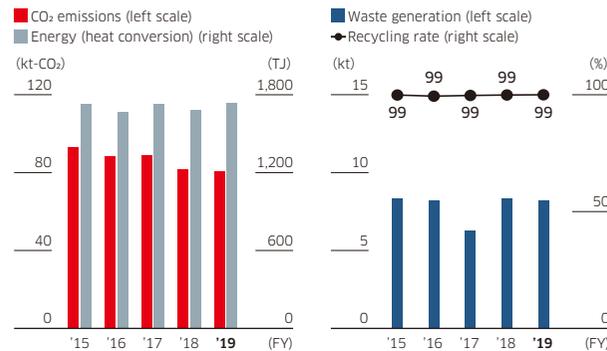


Figure: CO<sub>2</sub> emissions

Figure: Waste generation

Kakogawa Works

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

**Main products** Cast aluminum motorcycle components

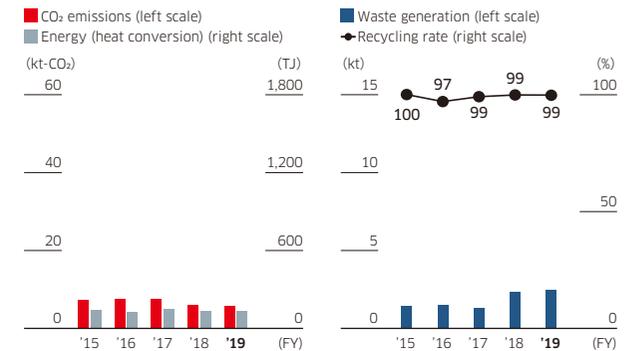


Figure: CO<sub>2</sub> emissions

Figure: Waste generation

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

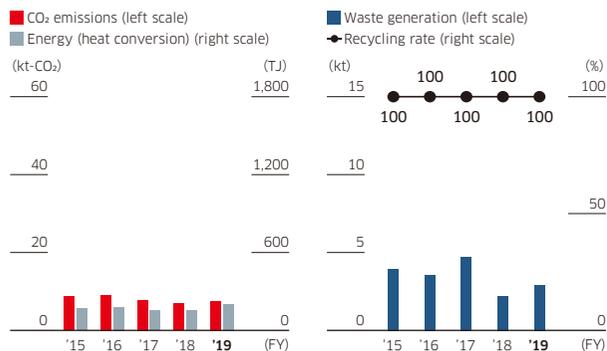


Figure: CO<sub>2</sub> emissions

Figure: Waste generation

Sakaide Works

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

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

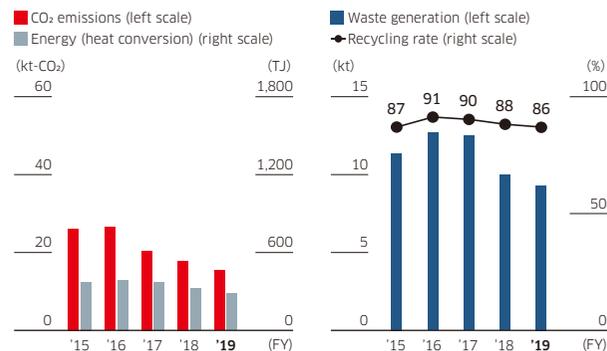
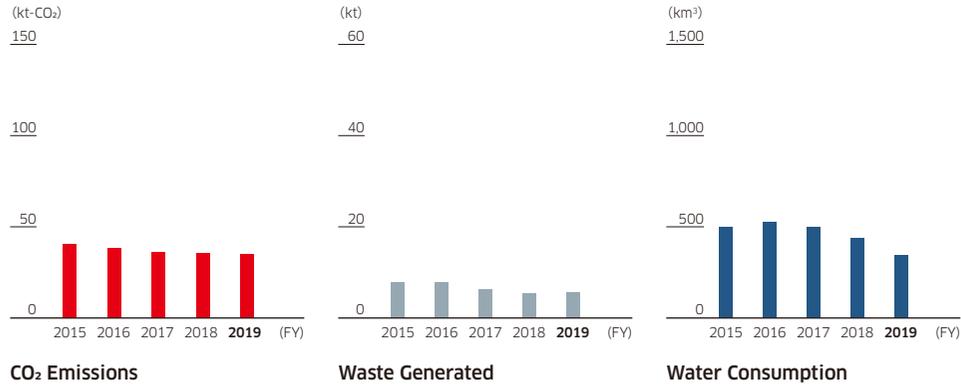


Figure: CO<sub>2</sub> emissions

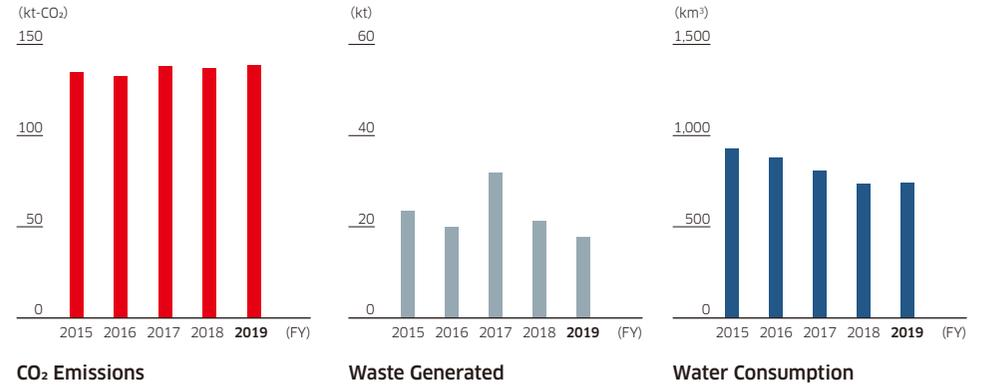
Figure: Waste generation

Environmental Data of Group Companies

Totals for Domestic Group Companies



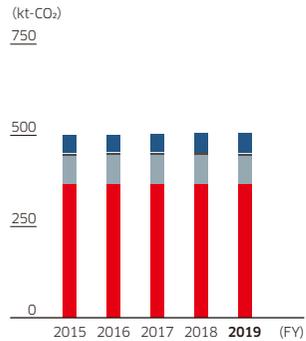
Totals for Overseas Group Companies



Regional Data

CO<sub>2</sub> Emissions by Region (Kawasaki and Group Companies)

■ Japan ■ North America ■ Europe  
 □ South America ■ Asia-Pacific



CO<sub>2</sub> Emissions



Establishment of Environmental Management Systems

Domestic (Kawasaki and Group Companies)

Company	Assessment/registration institutions <sup>1</sup>	EMS level <sup>2</sup> /Date of establishment
<b>Aerospace Systems Company (Aerospace Business Division)</b>	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
Kawaju Akashi Engineering Co., Ltd.		1 Mar. 2000
<b>Aerospace Systems Company (Aero Engine Business Division)</b>	BSK	1 Mar. 2000
<b>Energy System &amp; Plant Engineering Company (Energy Solution/Marine Machinery Business Division)</b>		NK
Kawasaki Thermal Engineering Co., Ltd.	1 Apr. 2002	
Kawasaki Machine Systems, Ltd.	1 Mar. 2000	
Kawasaki Prime Mover Engineering Co., Ltd.	1 Dec. 2002	
Kawasaki Naval Engine Service, Ltd.	3 Aug. 2016	
<b>Energy System &amp; Plant Engineering Company (Plant Engineering Business Division)</b>	JQA	
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
<b>Precision Machinery &amp; Robot Company (Precision Machinery Business Division)</b>		DNV GL
Kawasaki Hydromechanics Corporation	1 Jun. 2007	
<b>Precision Machinery &amp; Robot Company (Robot Business Division)</b>	DNV GL	1 Apr. 2012
Kawasaki Robot Service, Ltd.		1 Apr. 2012

Domestic (Kawasaki and Group Companies)

Company	Assessment/registration institutions <sup>1</sup>	EMS level <sup>2</sup> /Date of establishment	
<b>Ship &amp; Offshore Structure Company</b>	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	
<b>Rolling Stock Company</b>	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	
<b>Motorcycle &amp; Engine Company</b>	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	
<b>Head Office</b>			2 Apr. 2020
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 <sup>2</sup> /Date of establishment
<b>Energy System &amp; Plant Engineering Company (Energy Solution/Marine Machinery Business Division)</b>	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 Jul. 2009
<b>Energy System &amp; Plant Engineering Company (Plant Engineering Business Division)</b>	KHI Design & Technical Service Inc.	Philippines	3 Nov. 2011
<b>Precision Machinery &amp; Robot Company (Precision Machinery Business Division)</b>	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
<b>Precision Machinery &amp; Robot Company (Robot Business Division)</b>	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
<b>Rolling Stock Company</b>	Kawasaki Rail Car, Inc.	U.S.A.	3 Jul. 2015
<b>Motorcycle &amp; Engine Company</b>	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	
<b>Head Office</b>	KHI (Dalian) Computer Technology Co., Ltd.	China (PRC)	3 May 2013

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

**GHG Emissions Verification Statement** 

19 August 2020  
Statement No : SGS20/025

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 Scope3 emissions.  
The period subject to report is from 1 April 2019 to 31 March 2020.  
Refer to the attached sheet for the detailed scope of verification.

**Procedure of Verifications**  
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 Harima Works and EARTH TECHNICA CO., LTD. Yachiyo 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. 3.0.

**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




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**SGS**

attached sheet  
19 August 2020  
Statement No : SGS20/025

**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 ② Excluding the vehicles which run outside of the sites.	The Organization, its 24 domestic subsidiaries, and its 24 overseas subsidiaries.	Scope1: 168,959t-CO <sub>2</sub> Scope2: 289,848t-CO <sub>2</sub>
2 Scope3 (category 1, 11) ②-Category 11: products that contribute to energy savings	The Organization	Category 1: 1,940,483t-CO <sub>2</sub> Category 11: 118,850,385t-CO <sub>2</sub>

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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 2019

- Scope 1 and 2 greenhouse gas emissions associated with business activities at Kawasaki and 24 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