

Kawasaki Environmental Report 2014



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• Responding to the ELV Directive, the RoHS Directive, and the REACH Regulation



Period

The report covers fiscal 2014 (April 1, 2013 to March 31, 2014). 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 country of location.

Scope

Kawasaki Heavy Industries, Ltd. (including consolidated subsidiaries for some data).

Frequency of issue: The report is intended as an annual publication to be issued once every year.

Edited and issued by: General Administration Division Environmental Affairs Department

Editorial responsibility: General Manager, General Administration Division

Guidelines

In preparing the report, the editorial office referred to the Environmental Reporting Guidelines (2012 Edition) issued by the Ministry of the Environment and the Sustainability Reporting Guidelines (G3.1 ver.) issued by the Global Reporting Initiative (GRI).

Disclaimer

This report not only describes actual past and present conditions at the KHI 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 the features of future business operations may differ from the content of such statements.

Promoting Environmental Management

Coordinating Environmental Management with Business Management



Chief Environmental Officer (Executive Office and General Manager, General Administration Division)

Shiro Nakabavashi

The concept of environmental management is evolving from current regulatory responses that emphasize reduction of environmental risk into the acquisition of added value directly linked to business management and efforts to solve social issues in core operations.

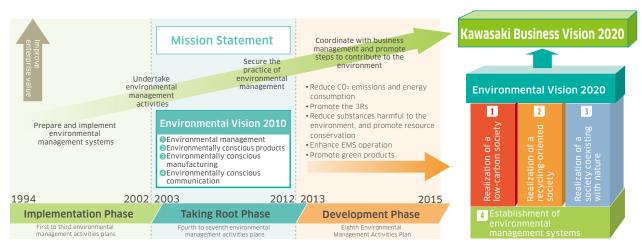
KHI drafted Environmental Vision 2020 to define the Group's identity in 2020 from an environmental perspective in line with its Group Mission: "Kawasaki, working as one for the good of the planet (Enriching lifestyles and helping safeguard the environment: Global Kawasaki)." The environmental management activities plan launched in fiscal 2014 lays out specific measures in four areas—(1) realization of a low-carbon society, (2) realization of a recycling-oriented society, (3) realization of a society coexisting with nature, and (4) establishment of an environmental management system (EMS)—that we will follow to achieve our vision. We seek to accelerate the shift toward greater energy- and resource-saving practices anticipating society's environmental needs and to promote reduced environmental impact through our products.

Recently, as a way to reinforce these measures, KHI initiated a program to promote ISO 14021-compliant Kawasaki Green Products. This program is intended to boost the environmental

performance of products and accelerate the reduction of environmental impact caused by associated manufacturing processes. Toward this end, products which demonstrate particularly excellent environmentally conscious performance undergo a conformity assessment process. Based on their level of compliance with ISO 14021, they are selected as either a Kawasaki Green Product or Kawasaki Super Green Product. KHI then discloses the results of the assessment. Through this program, we will sharpen the competitiveness of products with an underlying environmental focus and roll out solutions to social concerns through our products.

Also, we aim to realize a sustainable society through such steps as the use of an energy visualization system, which was introduced at all key factories in fiscal 2013 and has accelerated progress toward energy and resource savings, and also through enhanced efforts to curb CO_2 emissions, which are a cause of climate change.

Environmental Management Flow



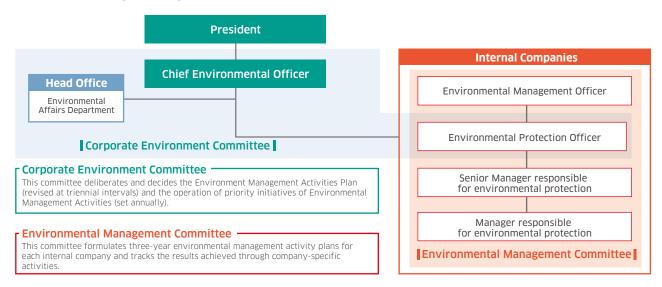
Environmental Management Platform

Environmental and Energy Management Organization

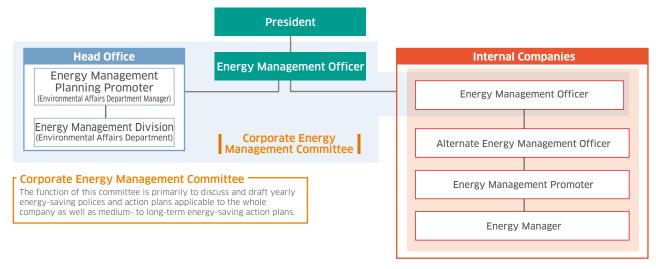
With regard to environmental management, the director responsible for environmental issues at KHI is appointed Chief Environmental Officer and in this position chairs the Corporate Environment Committee, which discusses a variety of important matters related to the environment and makes pertinent decisions. So that each internal company can independently roll out the environmental management activities plan, an Environmental Management Officer, an Environmental Protection Officer, a senior manager responsible for environmental protection, and a manager responsible for environmental protection are appointed to match the structure of each internal company with such activities. Furthermore, management systems are in place to encourage coordinated efforts among all employees to implement environment-oriented initiatives.

In its efforts to promote the efficient use of energy, KHI has established an energy management structure that includes appointing the Chief Environmental Officer to the concurrent position of Chief Energy Officer as well as assigning energy officers matched to the business scale of each internal company. An active approach is taken to promote measures and programs. In addition, environmental management and energy management structures applicable to subsidiaries are being set up under each administrative division (the head office and internal companies) under which the subsidiaries operate.

Environmental Management Organization



Energy Management Organization



Eighth Environmental Management Activities Plan

The Eighth Environmental Management Activities Plan (referred to below as the Eighth Plan), covers the period from fiscal 2014 to fiscal 2016. It lays down a basic policy for coordinating environmental management with business management as well as specific measures in four areas—(1) realization of a low-carbon society, (2) realization of a recycling-oriented society, (3) realization of a society coexisting with nature, and (4) establishment of EMS—that are key to accelerating the shift toward greater energy- and resource-saving practices anticipating society's environmental needs and establishing an appealing Kawasaki environmental brand.

To reinforce these measures, KHI initiated a program in fiscal 2015 to promote Kawasaki Green Products.

Coordination with Business Management and Promotion of Environmental Contribution

Key strategy

Realization of a low-carbon society

CO₂ and energy reduction

Realization of a recycling-oriented society

Promotion of the 3Rs

Realization of a society coexisting with nature

Reduction of environmental load/ promotion of resource conservation

Establishment of environmental management systems

Enhancement of the KHI Group environmental management system

Kawasaki Green Product Promotion Activity

Targets

Use the energy visualization system

By fiscal 2016, have equipment and system in place to reduce annual $\rm CO_2$ emissions and energy consumption by at least 5%

Reduce CO₂ emissions through the contribution from products

Achieve cumulative values equal to or more than the initial plan values for each business segment and disclose the reduction of CO_2 emissions to the public

Promoting reduction in waste generation, greater reuse and more recycling

Reduce total waste emissions per unit of sales, and maintain zero emissions Boost recycling rate above previous years' level

Promoting PCB treatment

Look into and apply better treatment methods for low-concentration PCB waste

Reduce chemical substances

Major VOCs* per unit of sales to be at or below the average of results achieved in the Seventh Plan

Seek to reduce heavy metals to zero, in principle, by fiscal 2021

Continue with forest conservation activity

Carry out forest conservation activity more than twice a year

Conserving Water

Reduce water consumption and amount of wastewater

Reinforce the environmental management ability of KHI and consolidated subsidiaries in Japan

Set reduction targets, and provide appropriate feedback

Reinforce the environmental management ability of overseas consolidated subsidiaries

 $Promote\ information-sharing,\ identify\ issues\ at\ overseas\ locations,\ and\ support\ solutions$

Implementing compliancy evaluation

Thoroughly review compliancy of products for environmental friendliness and establish a system for registering such products

Communicating information within and beyond the Company

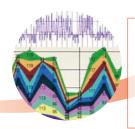
Communicate environmental aspects of products in compliance with ISO 14021

 $^{^*\}text{Main VOCs:} \ \text{For the KHI Group, the major VOCs are toluene, } xylene \ \text{and ethyl benzene.} \ \text{VOCs:} \ \text{Volatile Organic Compounds}$

Group Mission

"Kawasaki, working as one for the good of the planet"

Target Profile of the KHI Group in 2020



• Energy consumption and CO₂ emissions

Major reductions achieved

Contribution from products

Major reductions achieved in CO₂ emissions during utilization



• 3R

Major reductions achieved per unit of sales

Recycling rate more than 97% Zero emissions maintained

PCB treatment

All treatment completed



Major VOCs

Major reductions achieved per unit of sales and in total amount

Heavy metals

Major reduction in amount utilized

Forest conservation activity
 Forest conservation activity
 continued



Establishment of EMS

Establishment completed across the KHI Group as a whole

Environmental Vision 2020

Realization of a low-carbon society

Contribute to the prevention of global warming through our products and manufacturing that use energy without waste

- Reduce 2020 greenhouse gas emissions in line with national targets.
- ② Offer customers energy-efficient products and services and reduce emissions of greenhouse gases on a planetary scale.
- ③ Promote energy conservation in production and logistics processes and reduce emissions of greenhouse gases.

Realization of a recycling-oriented society

Engage in manufacturing that uses resources without waste to recycle and fully utilize limited resources

- ① Practice design that uses resources effectively and work to make products lighter, more durable and more recyclable.
- ② Practice the 3Rs (reduce, reuse and recycle of waste) in production activities and achieve zero emissions at all plants.
- ③ Completely and appropriately treat all PCB waste and PCB-containing devices

Realization of a society coexisting with nature

Contribute to reduction of the environmental impact and conservation of the ecosystem through manufacturing that is in harmony with the global environment

- Offer customers products and services that prevent air and water pollution, and advance environment improvements and ecosystem protection.
- ② Reduce the use of chemical substances in products and production activities
- ③ Cooperate in regional forest conservation and other activities to protect the environment of ecosystems.

Establishment of environmental management systems

Build a foundation for environmental management that will achieve the Environmental Vision 2020

- Establish EMS at all consolidated subsidiaries in Japan and overseas to promoteenvironmental management Group-wide.
- ② Comply with environmental laws and regulations and regularly follow up on compliance status.
- ③ Communicate environmental data within and beyond the Group and maintain two-way dialogue while protecting the environment.

Fiscal 2014 Results and Evaluation

	Fighth Favironmental Management Activities Plan (FV2014 FV2016)
	Eighth Environmental Management Activities Plan (FY2014-FY2016)
Realization of society a low-carbon society	Specific measure 1. Use energy visualization system Approach Approach Reduce CO2 emissions and energy consumption through improvement activities using an energy visualization system Target By fiscal 2016, reduce annual CO2 emissions and energy consumption by at least 5% 2. Cutting CO2 emissions through product-based contributions Approach Calculate reduced CO2 amount separately for energy-related products, transportation-related products, industrial machinery, and other products Target Achieve cumulative CO2 emissions reduction equal to or more than the initial plan values for each business segment through product-based contributions Specific measure Promoting 3Rs (reduce, reuse, recycle) 1. Promoting reduced waste generation, greater reuse and more recycling
Realization of a recycling-oriented society	Approach Steadily implement measures to reduce total amount of waste generated. Promote high-level treatment and shift away from thermal recycling to material recycling and reuse Target Reduce total amount of CO ₂ emissions per unit of sales, and maintain zero emission status at all business sites 2. Promoting PCB treatment Approach Draft appropriate treatment plans and follow through with stated measures Target Sustain commitment to treatment of high-concentration PCB waste in cooperation with JESCO*. Apply optimum method to treat low-concentration PBC waste *Japan Environmental Safety Corporation
Realization of society coexisting with nature	Approach Specific measure Reduction of substances Approach Switch to either alternative materials that do not contain hazardous substances or materials with low-content concentrations. Reduce emissions into the atmosphere and prevent movement beyond the borders of business sites through such efforts as collection and treatment of chemical substances Target Set major VOC reduction target below the average achieved through the Seventh Plan per unit of sales. Seek to reduce heavy metals to zero, in principle, by fiscal 2021 Specific measure Promoting resource conservation 1. Forest conservation activities Approach Continue to pursue forest conservation activities at least twice a year 2. Conserving Water Approach Promote water conservation programs
Establishment of environmental management systems	Specific measure Enriching scope of environmental management systems in the KHI Group 1. Reinforcing environmental management ability of KHI and affiliated companies in Japan Approach Approach Set reasonable reduction targets and provide appropriate feedback 2. Strengthening overseas affiliated companies' environmental management capabilities Approach Pinpoint environmental data and evaluate environmental performance (impact on environment and effectiveness of measures to limit such impact) Target Identify legal requirements and other criteria, and support efforts to mitigate environmental risk
Establis ma	Specific measure 1. Establishing compliancy evaluation system to assess environmental performance of Kawasaki green products Approach Establish system for self-declared environmental claims regarding products Target Establish system conforming to ISO 14021

Reducting CO- emissions and energy consumption	Results of Fiscal 2014 Activities	Evaluation	Page Number:
Promoting 3Rs (reduce, reuse, recycle)	Reducing CO₂ emissions and energy consumption		
2. Reducting CO₂ emissions through product-based contributions Cumulative CO₂ emissions reduction through product-based contributions reached 741,000+CO₂ in fiscal 2014. ▶ P3 Promoting 3Rs (reduce, reuse, recycle) 1. Promoting reduction in waste generation, greater reuse and more recycling intal waste part of 1% or less. 2. Promoting PCB treatment High-concentration PCB waste continued to be treated at JSSCO. For low concentration PCB waste continued to be treated at JSSCO. For low concentration PCB waste continued to be treated at JSSCO. For low concentration PCB waste information about treatment methods was collected and passed on to each business respendent. Reduction of substances harmful to the environment 1. Reduction femical substances Promoting resource conservation 1. Forest conservation activities in Hyogo Prefecture, Miyagi Prefecture and Kochi Prefecture through the efforts of emiopsyste and their families 2. Conserving water Promoting exource conservation activities in Hyogo Prefecture, Miyagi Prefecture and Kochi Prefecture through the efforts of emiopsyste and their families 2. Conserving water Promoting resource conservation activities in Hyogo Prefecture, Miyagi Prefecture and Kochi Prefecture through the efforts of emiopsyste and their families 2. Reinforcing environmental management ability of affiliated companies in Japan introduced in-house environmental data management system (CICICIP) and began collecting environmental data. Communicate environmental information to stakeholders 2. Reinforcing environmental management ability of affiliated companies overseas identified and tabulated environmental data and encouraged steps to lower environmental risk ▶ P.16 Kawasaki Green Product Promotion Activity 1. Establishing conformity assessment system for Kawasaki green products established system to check for conformity with ISO 14021, from the perspective of product performance and	1. Use of energy visualization system		▶ P.10
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Established system to check for conformity with ISO 14021, from the perspective of product performance and	Kawasaki Green Product Promotion Activity		
	1. Establishing conformity assessment system for Kawasaki green products		▶ P.20

Realization of a Low-Carbon Society

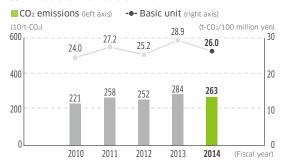
Reduction of Greenhouse Gas Emissions

Our response to climate change is a key issue affecting the continuity of our operations. The reduction of greenhouse gases is particularly important, and we emphasize measures that curb CO_2 emissions generated in our own production work as well as CO_2 emissions released when delivered products are in use.

The KHI Group is committed to contributing to the prevention of global warming worldwide through products and manufacturing that use energy without waste. Under the Eighth Plan, action is directed toward targets set separately for reduction of the CO_2 emissions generated during production and reduction of CO_2 emissions through product-based contributions. The results of fiscal 2014 are presented below.

Through implementing energy-saving measures in working toward our goal of reducing annual CO_2 emissions by at least 5% by fiscal 2016, we cut CO_2 emissions by 3,000 tons in fiscal 2014. CO_2 emissions amounted to 263,000 tons, a result that takes us closer to our goal as we employ further energy-saving measures under the energy visualization system.

CO₂ Emissions and Basic Unit at KHI

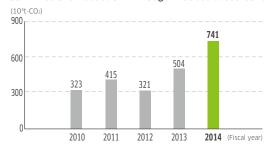


- Notes: 1. The CO₂ emissions value for fiscal 2014 includes a credit adjustment of a 31,500t-CO₂.
 - 2. Basic unit is a measurement obtained by dividing ${\rm CO}_2$ emissions by net sales.
 - CO₂ emissions in logistics processes are calculated from our position as a specified consignor (a Japanese legal designation applied to consigners that ship 30 million ton-kilometers of freight or more per year), under the revised Energy Saving Law.

CO₂ Reduction Through Productbased Contributions

Through products delivered by KHI to its customers, the Company made an estimated annual contribution to CO₂ emissions reduction of 741,000t-CO₂ in fiscal 2014. CO₂ emissions reduction in Energy & Environmental Engineering, Transportation Systems, and Industrial Equipment is shown in the table above right. The reduction effect is based on a comparison with existing models or improved efficiency through the application of new technology.

CO₂ Emissions Reduction* Through Product-based Contributions



*Estimate based on delivery results

- Notes: 1. Emission factors for electricity, heat, fuel and other types of energy were established with reference to the manual for the Law Concerning the Promotion of Measures to Cope with Global Warming.
 - CO₂ emission reduction effect through improved efficiency is based on a comparison with products before replacement or with standard products on the market.
 - 3. All energy derived from the use of waste energy and energy produced from wastes is counted toward the CO₂ reduction effect.

Environmentally Conscious Logistics

KHI promotes energy-saving activities and data tracking to curb CO₂ emissions from logistics processes. Evaluating the Company's freight traffic on the basis of freight tonkilometers carried (freight weight multiplied by distance), truck transport accounts for about half, with the balance of the freight carried by train or ship, which exerts less impact on the environment. In fiscal 2014, CO₂ emissions reached 3,840 t-CO₂ and CO₂ emissions per unit of sales totaled 0.379. We will continue to look at ways of boosting the load factor for truck transport and using modal shift from truck to other modes, such as train.

CO2 Emissions from Logistics Processes and Basic Unit



Notes: 1. CO₂ basic unit is a measurement obtained by dividing CO₂ emissions by net sales.

- Emissions in logistics processes are calculated from our position as a specified consignor (a Japanese legal designation applied to consigners that ship 30 million tonkilometers of freight or more per year), under the revised Energy Saving Law
- CO₂ emissions from logistics processes in fiscal 2010 do not include emissions by Kawasaki Shipbuilding Corporation and other subsidiaries before they merged into the Company on October 1, 2010.

Installation of Solar Power Generating Facility

Kawasaki Trading Co., Ltd., a KHI Group company, began

selling power under Japan's Feed-in Tariff Scheme for Renewable Energy. The photo shows the 1,500kW Iwaoka Photovoltaic Power Generation Station, which has annual power generating capacity of about 1,897MWh.



Iwaoka Photovoltaic Power Generation Station

Use of Energy Visualization System

The amount of energy used in a year at all KHI business sites is equivalent to about 150,000kl of crude oil. During MTBP2013, we aim to reduce annual CO₂ emissions and energy consumption by at least 5% by fiscal 2016 as part of our efforts to realize a low-carbon society. To reach this target, we are currently installing an energy visualization system throughout our factory network and making progress in reducing CO₂ emissions and energy consumption.

The underlying objective in introducing this system into our operations is to have all employees participate in saving

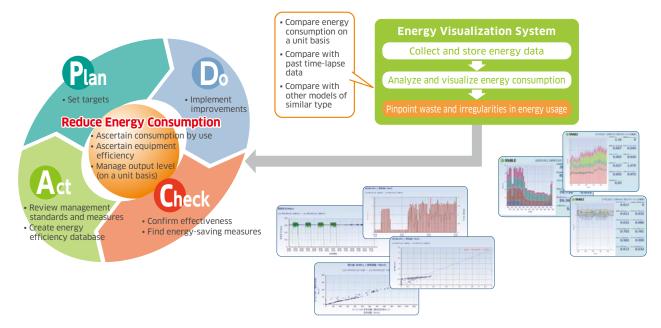
Production equipment accounts for between 70% and 80% of Company-wide energy consumption. Each factory has between several hundred and several thousand pieces of equipment, presenting an extremely varied assortment of features and many different methods of use. A limited number of energy managers cannot possibly deal with all of the energy-efficiency issues associated with such a vast array of equipment. That is why we rely on the people at each facility within a factory—those who typically use the equipment-to track energy consumption. It is these efforts by individuals that underpin greater energy savings overall. And for this reason, it is important to be able to see possible waste at a glance. The energy visualization system meets this need.

In fiscal 2013, we installed an energy visualization system at the Kakokawa Works, ahead of other factories. The system allowed us to compare and analyze the amount of energy used by similar types of machines and equipment, in operation and in standby mode, which led to the identification of discrepancies in settings and conditions and facilitated adjustments to achieve optimal performance. In addition, we were able to discover air leaks and other problems through continuous data confirmation on the amount of compressed air used. Over a one-year period, such energy-saving measures had an energy consumption reduction effect of about 10%.

In fiscal 2014, an energy visualization system was installed in test areas (see next page) at key factories in Japan. In addition to energy measurements, the system was used to track the flow volume of water, for example, and at factories emphasizing water conservation, the system led to a huge reduction in usage because leaks were found and fixed and a more appropriate level of water consumption was achieved. We will be promoting similar approaches at other factories

In fiscal 2015, we will begin the process of extending measurement areas throughout our factories.

PDCA Cycle for Energy-Saving Improvement Activities





Realizing a Low-Carbon Society: Reduced CO₂ Emissions and Energy Use

Rolling out energy visualization system

Toward realization of a low-carbon society, we aim to reduce CO₂ emissions and energy consumption through energy-saving approaches. To achieve this end, we are rolling out the energy visualization system to factories throughout the KHI Group and have launched energy-saving activities that have the participation of all employees.

Why are energy visualization systems necessary?

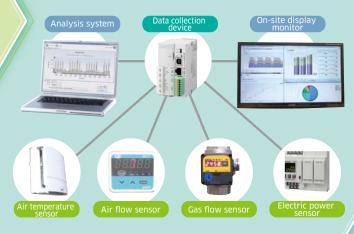
We had already made considerable progress through energy-saving improvements at factories, supported by the efforts of energy-management departments to monitor utility equipment, such as power receiving-and-distribution and transformer facilities, pneumatic compressors, air conditioning equipment and lighting. In fact, due to such progress, we reached a point where it became difficult to achieve further reduction in energy consumption. Production facilities consume somewhere between 70%-80% of total corporate energy applications, and over and above the fact that each location has several hundred to several thousand electric power-drawing units, there is an extremely wide variety of equipment and the features and methods of use are very different. To promote energy savings, it was important to know where energy was being wasted.



Production facilities consume about 70%-80% of total corporate energy applications

K-SMILE the KHI Group's energy visualization system

The energy visualization system "sees" utilization conditions for the different types of energy used at factories and pinpoints in real time such information as where, when, and how much energy is being consumed. The system reveals energy waste and irregularities and contributes to the reduction of energy consumption.



K-SMILE is a registered trademark of Kawasaki Technology Co., Ltd.

Development of K-SMILE Energy Visualization System

K-SMILE is being developed as an energy visualization system for the KHI Group. Development began with configuration of a system that could tally demand for electricity at each factory in response to the tight supplyand-demand situation that arose in the wake of the Great East Japan Earthquake in March 2011. Today, it is being extended as a corporate system providing at-a-glance measurement data from major factories in Japan and utilizing it as a factory system for detailed analysis of energy savings achieved at each location.

K-SMILE is one strategy that will help us reach our goal to reduce CO₂ emissions and energy consumption by more than 5% annually. In conjunction with measures to promote energy-saving improvements at factories, we will create a visualization system with greater sophistication.



- Roll out energy visualization system to all operating
- Create database with standardized cases on energy
- Promote energy-saving activities with participation from all employees

Energy-saving activities using K-SMILE

Promote environmental contribution

In conjunction with energy visualization system development, we put corporate activity know-how into an energy-savings database. We will encourage the use of the system and database in energy-saving activities involving all employees, especially those in manufacturing, energy, and administrative divisions.



System Verification at Kakogawa Works Leads to Full Corporate Roll-out

In fiscal 2011, we installed the energy visualization system at the Kakogawa Works to evaluate its potential in enhancing energy savings.

Through regular data checks on the amount of compressed air used, we discovered waste-air leaks-and through a comparison of energy consumed by similar equipment and facilities and subsequent analysis, we found additional waste, which we were able to address with appropriate responses. As a result, total energy consumption over one year dropped by about 10%, validating system potential for energy savings. Given this proof of improvement, a decision was made to install the system at all of KHI's principal facilities to expand the range of measurement data.



Realization of Recycling-Oriented Society

Waste Reduction

Promoting Resource Saving and the 3Rs

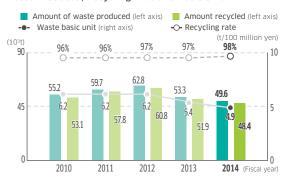
We use wisely and repurpose the limited resources that are needed to make our products and facilitate the manufacturing process so that these materials are consumed without waste. We emphasize designs that use resources effectively, and we seek to create products that are more lightweight, durable and recyclable. In addition, we advocate the 3Rs-reduce, reuse and recycle-in our manufacturing activities and seek zero emission status at all factories.

Zero Emission Activity and Higher Recycling Rate

At KHI, we define zero emissions as a final disposal ratio of 1% or less. In fiscal 2014, all key factories achieved zero emission status and the recycling ratio edged up one point, to 98%.

In fiscal 2014, total waste decreased about 7% year on year, to 49,600 tons, and we reached our Company-wide target for reduction per unit of sales, with a 0.52 point improvement over fiscal 2013.

Waste Produced, Recycling Rate and Basic Unit



Appropriate Treatment of PCB Waste

In accordance with the Law concerning Special Measures for Promotion of Proper Treatment of PCB Wastes, KHI reports to the appropriate prefectural governor by June 30 each year any polychloride biphenyl (PCB) wastes located at its operating sites. Also, in accordance with the Waste Management and Public Cleansing Law and related Cabinet and ministerial ordinances, we appoint an industrial waste manager at each relevant business location and store waste with the utmost care in line with applicable storage standards

High-Concentration PCB Waste

In fiscal 2012, KHI began outsourcing treatment and disposal of high-concentration PCB waste to the Japan Environmental Safety Corporation (JESCO) in accordance with regulations. To date, about 1,100 condensers have been processed. We will continue with appropriate treatment in the years ahead.

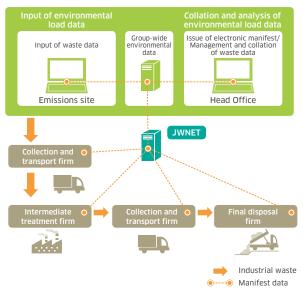
Low-Concentration PCB Waste

For low-concentration PCB waste, as well, treatment has commenced and so far about 180 transformers have been processed. This came after we had calculated treatment costs and secured an appropriate budget, confirmed that the provider is certified to treat low-concentration PCB and tracked treatment trends, and verified through on-site observation that the certified provider executes treatment in an appropriate manner. We will continue to promote appropriate treatment of low-concentration PCB waste.

Installing an Electronic Manifest System

To ensure the appropriate treatment of waste, KHI uses an environmental data management system (ECOKEEP), linked to the electronic manifest system operated by the Japan Industrial Waste Information Center, to self-determine the flow of industrial waste treatment outsourced to the companies that collect and transport waste and treat it. We began Company-wide use of this system in fiscal 2013, with all factories covered by the system as of fiscal 2014.

Environmental Data Management System (ECOKEEP)





Realization of a Society Coexisting with Nature

Chemical Substance Reduction

It is KHI's stated goal to contribute to reduced environment impact and conservation of the ecosystem through manufacturing that is in harmony with the global environment. KHI undertakes activities to achieve this goal. To reduce chemical substances, we have set targets for major VOCs (toluene, xylene and ethylbenzene), dichloromethane and hazardous heavy metals in each business segment, and progress is being made in reducing these substances.

We present data on the release and transfer of chemical substances designated under the PRTR Law*.

*PRTR law: Pollutant Release and Transfer Register law (Order for Enforcement of the Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof)

Major VOCs

With regard to major VOCs, KHI promoted the switch to low-VOC paints, such as water-based paint, and improved coating efficiency through electrostatic coating, while reducing its use of cleaning solvents by installing solvent recovery equipment. We achieved a slight reduction in emissions from the fiscal 2013 level. In the future, however, we will strive to curb emissions through such measures as the wider application of alternative products, including water-based paints and high-solid paints.

Dichloromethane

Dichloromethane is often found in the paint strippers that KHI uses in its operations. Emissions were reduced compared to fiscal 2013. Going forward, KHI will strive to further reduce emissions, especially through replacement of paint strippers and enhancement of dichloromethane recovery methods.

Hexavalent Chromium Compounds

Hexavalent chromium is employed in special surface treatments, but we are working to introduce technology that makes it possible to avoid its use. Although the amount handled was on a par with the previous fiscal year, we will implement planned reductions.

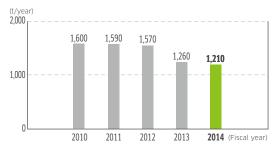
Lead

Lead is often found in paint, so KHI's efforts have focused on switching to lead-free paint. The amount handled was higher than the level recorded in the previous fiscal year, owing to an increase in the volume of products that require special paint.

Amounts of Chemicals Subject to Reduction Handled and Emitted (t/vear)

	Substance	Fiscal 2014	Increase or decrease from fiscal 2013
CS	Toluene	324	-19%
Major VOCs	Xylene	430	-20%
jo	Ethylbenzene	188	-8%
ž	Total	942	-18%
Dichl	oromethane	42	-13%
dous vy tals	Hexavalent chromium compunds	15	0%
zar hea me	Lead	2	42%
Ha	Cadmium	0.02	-78%

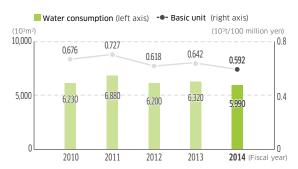
Release and Transfer of Chemical Substances Designated under the PRTR Law



Conserving Water

Concern over risk to water sources is growing worldwide. KHI places a priority on appropriate use of water and reduced consumption in the course of its business pursuits. Currently, we target a 1% reduction in water usage per unit of sales each year and verify the status of consumption restrictions. Going forward, we will pinpoint water consumption on a Group-wide basis and consider activities that assume the existence of risk to water sources in all regions.

Water Consumption and Basic Unit



Biodiversity-Friendly Society

A short-term target in Japan's national biodiversity strategy, which was revised in 2010, is to analyze the state of biodiversity to get a clearer picture of conditions and, based on this knowledge, to promote activities that protect biodiversity. We will support efforts to achieve this objective by implementing the activities listed below at all business sites with biodiversity protection in mind.

We also undertake activities such as greening programs on corporate premises that take into account location or other characteristics specific to each operating site.

Efforts to Reduce the Environmental Load from Business **Activities**

- 1) Promote measures to cut greenhouse gas emissions
- 2 Reduce the amount of industrial waste for final disposal
- 3 Decrease the environmental load from wastewater and chemical substances

Non-Business Activity

- 1) Promote cleanup events around business sites
- 2 Implement greening programs and other activities based on analysis of and insight into biodiversity conditions on corporate premises and the surrounding area
- 3 Embrace collaborative opportunities to protect biodiversity with local groups, such as creating corporate forests

Responding to the ELV Directive*1, the RoHS Directive*2, and the **REACH Regulation*3**

Since 2000, laws and regulations related to chemical substances have been strengthened in the European Union (EU) by the establishment of such controls as the ELV Directive, the RoHS Directive, and the REACH Regulation. The ELV Directive focuses on automobiles, and while motorcycles are not subject to the content of this directive, the Motorcycle & Engine Company has embraced the voluntary actions espoused by the Japan Automobile Manufacturers Association (JAMA). The Precision Machinery Company also applies this directive to some of our products. The RoHS Directive covers electric and electronic products, and within the KHI structure, the Precision Machinery Company, which includes the Robot Division, complies with the directive for some of its products.

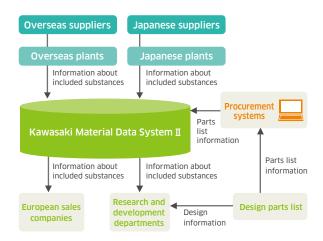
The REACH Regulation went into effect in June 2007 and applies to all chemical substances manufactured in and imported by the EU. Enterprises that manufacture or import one ton or more of chemical substances a year are required to register the chemical substances. As KHI products are mainly molded articles, only a limited number need to be registered. Registration and notification are, however, compulsory for all substances that are deliberately emitted and all substances that are carcinogenic or otherwise of high concern. In addition to registration and notification, regulations exist for the evaluation, authorization, restriction and communication of information regarding chemical substances, necessitating a system to identify information about the chemical substances in products throughout our entire supply chain.

Laws and regulations related to chemical substances have been strengthened not only in the EU but in many countries around the world. As requirements vary by country, for instance regarding substances and products covered, we believe that our response must be based on a firm understanding of the law.

KHI practices CSR procurement and responds to requests from customers to gather chemical substance information. In addition, the Motorcycle & Engine Company has created the Kawasaki Material Data System II^{*4} to collect data about chemical substances and respond to REACH and other applicable chemical substance regulations.



Response to REACH by the Motorcycle & Engine Company



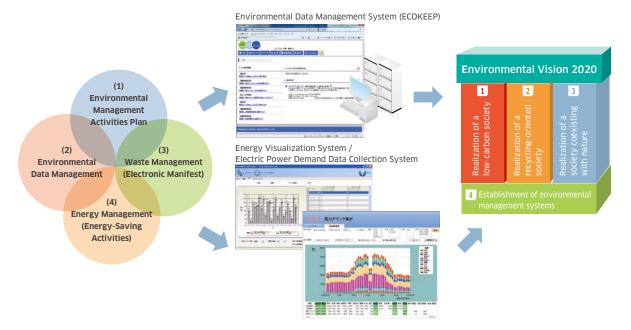
- *1 FLV Directive: End of Life Vehicles Directive
- *2 RoHS Directive: Directive on Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment
- *3 REACH Regulation: Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals
- *4 Kawasaki Material Data System II: Currently switching to IMDS (International Material Data System: A reporting system encompassing 26 finished automakers in Europe, the United States, Japan and South Korea which enables suppliers to identify the composition of materials in respective parts delivered to the automotive industry)

Establishment of Environmental management System

Using IT Systems

KHI uses the Environmental Data Management System, also known as ECOKEEP, to manage target values for its environmental management activities plan. The system manages environmental data through an electronic manifest. We also use an energy visualization system,

designated K-SMILE, which is designed to reduce energy consumption mainly through energy-saving approaches. Because environmental management activities are an important element of business operations, we strive to fully realize Environmental Vision 2020 while undertaking quantitative assessments based on cooperative IT systems.



KHI Group EMS

All of KHI's consolidated domestic production sites have acquired ISO 14001 status.

Of the Company's 39 consolidated subsidiaries in Japan, a certain number were required to establish EMS, have either obtained ISO 14001 certification or simplified EMS certification from other standards organizations, such as Kobe Environmental Management System (KEMS), or else established EMS through self-declaration. Companies that have completed the establishment of EMS will now collect environmental data through the in-house ECOKEEP system and set reduction targets.

Of our 25 overseas consolidated subsidiaries required to establish EMS, 24 have done so through acquisition of ISO 14001 or through self-declaration. The one remaining company is working to establish EMS.

Current Situations for Acquiring ISO 14001 (JIS Q 14001) Certification for KHI Production Bases

Internal co	Internal companies		Registration
Ship & Offshore	Kobe Works	Aug. 2002	DNV GL
Structure Company	Sakaide Works	Aug. 2000	DNV GL
Rolling Stock Comp	oany	Feb. 2002	LRQA
Aerospace Compar	ny	Feb. 2002	BSK
Gas Turbine & Machinery Company	Gas Turbine Division	Mar. 2000	LRQA
	Machinery Division	Dec. 2000	NK
Plant & Infrastructure Company		Nov. 1999	JICQA
Motorcycle & Engine Company		Feb. 2000	DNV GL
Precision	Nishi-Kobe Works	Feb. 1998	DNV GL
Machinery Company	Robot Division	Mar. 2011	DNV GL

LRQA: Lloyd's Register Quality Assurance Limited., JICQA: JIC Quality Assurance Ltd., NK: Nippon Kaiji Kyokai (ClassNK), BSK: Bouei Kiban Seibi Kyoukai (Defences Structure Improvement Foundation), DNV GL: DNV GL

Status of EMS Establishment at Consolidated Subsidiaries

(Number of companies)

	Domestic (39 companies)		Overseas (25 companies)	
Number of sites	Manufacturing sites	Non- manufacturing sites	Manufacturing sites	Non- manufacturing sites
	14 companies	25 companies	14 companies	11 companies
ISO14001	10	11	9	1
Simplified EMS	3	7	_	_
Self-declared	1	7	4	10
Implementation in progress	0	0	1	0
Establishment rate	100%		96	5%

Compliance with Laws and Regulations

Legal Compliance Status in Japan

In fiscal 2014, there were no incidents that incurred administrative penalties for the KHI Group. However, some construction work at a factory led to the outflow of wastewater exceeding the allowable pH level for wastewater whenever rain added to wastewater discharge. An administrative warning was issued by the authorities. We gave this situation additional attention and endeavored to prevent recurrence of the problem through several approaches, including a tougher allowable pH level for wastewater prior to discharge.

Risk Management

In addition to approaches based on Company-wide risk management structures, we hold liaison conferences at appropriate intervals for environmental management officers from within the Group, who work with the secretariat—the Environmental Affairs Department—to ensure that environmental laws and regulations are obeyed and that legal revisions are widely known and understood, and to enhance the abilities of managers with environmental responsibilities. These conferences emphasize compliance with environmental laws and regulations to preempt environmental accidents.

In fiscal 2014, we gathered environmental management officers together to discuss such topics as thorough compliance and risks that manifest when compliance status is broken, partial revisions to the Water Pollution Prevention Law and subsequent trends, the status of PCB waste treatment and associated responses, and measures to mitigate environmental risk.

Promoting Environmental Communication

Raising Environmental Awareness

The KHI Group runs publicity campaigns designed to raise the environmental awareness of each and every employee. We undertake these campaigns continually to promote environmentally conscious conduct not only in the workplace but also in the community and at home.



"Eco Mind," featured in the Group magazine Kawasaki



Message from the President concerning environmental management

Environmental e-Learning

To maintain and improve environmental awareness among employees throughout the domestic Group, we offer environmental e-learning opportunities to new employees. This ongoing process is aimed not only at new employees at KHI but also those at domestic consolidated subsidiaries. In fiscal 2014, approximately 1,650 people participated in the environmental e-learning courses. The attendance rate was 97%.

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. In addition, as an internal qualification, we offer training for internal ISO 14001 auditors, through which 114 employees qualified as internal auditors in fiscal 2014.

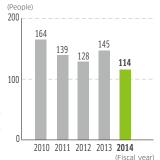
Number of Qualified Pollution **Control Managers**

Air	76
Water	75
Noise, vibration	44
Others	83
Total	278

Number of Qualified Energy

Managers	
Energy managers	60

Number of Completed Training of Internal Environmental Auditors (ISO 14001)

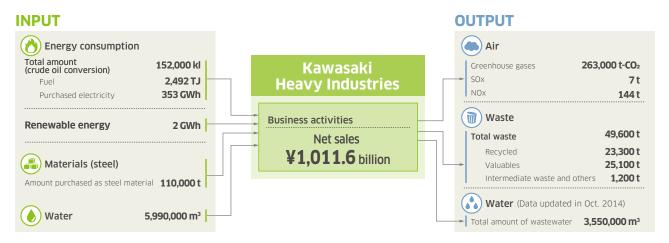


External Information Disclosure

At KHI, we are committed to information disclosure as indicated by our cooperation with many external evaluation organizations conducting surveys, such as the CDP investors' information request "CDP Japan 500," published by the CDP (Carbon Disclosure Project), the Nikkei Environmental Management Survey, conducted by Nikkei Research, Inc., the Toyo Keizai CSR Survey, the Dow Jones Sustainability Index Asia Pacific category, and the environmental survey by Sompo Japan Nipponkoa Risk Management Inc.

Material Balance of Business Activities for Fiscal 2014 (Overall Picture of the Environmental Impact)

KHI has drawn up a summary of the impact of our business activities on the environment during fiscal 2014. We undertake activities to reduce the amounts of raw materials, energy and water used in the manufacturing of our many products, and we strive to curb the emission of substances that adversely affect the environment.



Environmental Accounting Calculations for Fiscal 2014

In compiling the statistics, reference was made to the Japanese Ministry of the Environment's Environmental Accounting Guidelines (2005 edition).

					(Millions of yen)
	Item			Environmental costs	Economic effects
Global warming prevention (Save energy, reduce greenhouse gas emissions, stop ozone layer destruction, etc.)		1,055	3,332	Energy-saving cost reduction 266	
		of raw materials, her resources	49	137	Resource-saving cost reduction 33
Business area costs	Resource- recycling activities	Resource- recycling activities	152	513	Income from recycling 460
		Waste disposal costs	9	391	Waste disposal cost reduction
	Environmental risk control		206	652	0
	Subtotal		1,470	5,025	764
	Year-on-year	comparisons	80%	85%	87%
Upstream/downstream costs		5	36	2,801	0
Management activity costs		3	421	0	
R&D costs		108	9,152	0	
Social activity costs		56	178	0	
Environmental remediation costs		0	27	0	
		Total	1,673	17,603	764
	Year-on-	year comparisons	81%	100%	87%

	(Millions of yen)
Item	Total
Total investments	62,497
Total R&D costs	39,124

Item	Proportion
Percentage of investments (environmental investments 1,673 / Total investments 62,497)	3%
Percentage of R&D costs (environmental R&D costs 9,152 / Total R&D costs 39,124)	23%

Kawasaki Green Product Promotion Activity

Kawasaki Green Product Conformity Assessment

To realize our Group Mission: "Kawasaki, working as one for the good of the planet," we will draw on high-level, comprehensive technological capabilities over the KHI Group's extensive range of business pursuits to create new value for coexisting with nature and building a brighter, more comfortable future for generations to come.

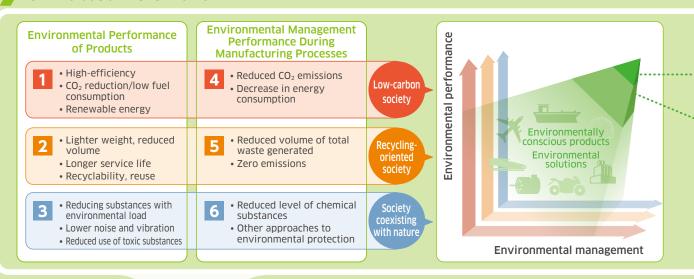
* Please refer to page 15-18 of the Kawasaki Report 2014 digest and full report.

Product Applications, Overall Evaluation Criteria

Of KHI's environmentally conscious products and environmental solutions, those boasting particularly outstanding performance from the perspective of contribution to a low-carbon society, a recycling-oriented society and a society coexisting with nature may be submitted by any division within the Company for consideration in the Kawasaki Green Products program.

Products undergo comprehensive evaluation to ensure that they meet all criteria established by KHI for environmental performance as well as environmental management during manufacturing processes, in each of three key areas crucial to global environmental sustainability—a low-carbon society, a recycling-oriented society and a society coexisting with nature.

Six Evaluation Benchmarks





The program logo embodies KHI's commitment to environmental sustainability through products and manufacturing. The three pillars in the logo represent our primary business areas-land, sea and air transport systems, energy and environmental engineering, and industrial equipment- and the innovative and advanced technological capabilities in these respective areas form a firm foundation for these pillars, which together support the global environment.



wasaki Green Product Promotion Activity

Program logo

Product Application, **Overall Evaluation Standard**

After careful evaluation by the team, comprising members in each field of expertise, the Green Product Committee, with participation from members of the Management Committee including the president, determines the conformity assessment level of the products according to ISO 14021.

Products are placed into two categories: Kawasaki Green Product, which exceeds either the industry standard for environmental performance or the level reached by pre-existing models of KHI products; and Kawasaki Super Green Product, which has some of the most outstanding environmentally conscious features in the industry today.

Environmental Label

To promote compliance with ISO 14021, two labels-designated as either a Kawasaki Green Product label or a Kawasaki Super Green Product label, indicating levels of environmental performance—are given to products based on their conformity assessment level.

The label shows the registration year. Content is reconfirmed every three years, and labels are renewed accordingly.



Kawasaki **Green Product**

Kawasaki **Super Green Product**



What is ISO 14021?

ISO 14021 is an international standard developed by the International Organization of Standardization for "Environmental labels and declarations-Self-declared environmental claims (Type II environmental labeling)." This standard enables companies to set their own standards and label products that meet these standards. The environmental claims are therefore self-declared by the company that makes said products. Environmental labels that comply with ISO 14021 are called Type II environmental labels.

First Kawasaki Green Products Announcement 2014

Battery Power System (BPS)

Super.

Kawasaki **Green Product**





Introducing a cutting-edge high-performance battery with energy-saving potential and no electrical noise emissions

Kawasaki's wayside battery power system (BPS) utilizing GIGACELL® contributes to CO2 emissions reduction. The fact that the BPS does not generate electrical noise emissions, it can be used for application in railway operations as an environment-friendly solution.





Product Description

The BPS consists of Kawasaki's nickel metal hydride GIGACELL®, which connects directly to the main DC power line (i.e., an overhead catenary line or third rail) without any inverters or converters, and as a result, it has the advantage of high response time during power load fluctuations in the railway system, as well as ensuring safety during operation.

Special Features

- Benefits of installation Energy savings, peak demand reduction, regenerative energy use, line voltage drop prevention, substitution for substations, and provides emergency power to move trains when main power fails
- System features Direct connection to the main power line without inverters or converters. facilitating good cost performance, high energy conversion efficiency, high charging and discharging efficiency, and no noise

BK117 C-2 Helicopter

Super.

Kawasaki **Green Product**





World's Most Quiet Helicopter

The C-2 achieves a large margin (6.7 EPNdB: approx. 50% reduction) from the external noise regulation standard set by Japan's Civil Aeronautics Act, making it one of the quietest helicopters in its class.

Main Features of the BK117 C-2

Product Description

The BK 117 is a twin-engine, multi-purpose, high-performance helicopter, jointly developed with Airbus Helicopters Deutschland (AHD) of Germany. It was certified in 1982 by JCAB as the first domestically manufactured helicopter in Japan. As the latest model, the C-2 features improved performance, owing to composite materials and a one-piece cabin frame, among others.

Special Features

- The quietest helicopter in the world. 3.8EPNdB external noise reduction compared with C-1 model
- Weight reduction through introduction of composite materials and one-piece cabin frame. 25% weight reduction per unit area compared with C-1 model
- 3% improved fuel consumption compared with C-1model
- Reduced environmental impact through introduction of chrome-free primer and sealant

M1A-17D Gas Turbine

Super A

Kawasaki Green Product 2014





Highest power generation efficiency in its class with lowest NOx emissions, made possible by KHI's integrated technology

With improved generating efficiency (2.4% higher than the previous model), the M1A-17D is among the most efficient gas turbines in its power class and has the industry's lowest level of NOx emissions, at 35 ppm (converted at 0% O2).







Results of compressor computational fluid dynamics analysis

Product Description

Power generation gas turbine boasting higher efficiency, thanks to a change in the flow passage geometry of the compressor and turbine as well as structural improvements along with a DLE (Dry Low Emission) combustion system, which ensures low-NOx emissions

Special Features

- Highest performance in its class, thanks to enhanced efficiency through aerodynamically optimized design for compressor and turbine
- Among the industry's highest levels of environmental performance, thanks to low NOx achieved through improvements to combustor burner and passage shape
- Highly reliable, thanks to adoption of previous model's basic structure

Green Gas Engine

Super.

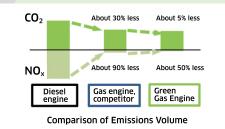
Kawasaki **Green Product**





The world's highest power generation efficiency in its class

The Green Gas Engine boasts the world's highest power generation efficiency at 49.0%, with a variable turbine nozzle area (VTA) turbocharger in addition to optimized combustion performance.



Product Description

Using clean natural gas, the Green Gas Engine achieves the world's highest level of power generation efficiency in its class and low NOx emissions, owing to resourceful efforts to optimize the shape of the combustion chamber, achieve a leaner burn and optimize the control system.

Special Features

- The world's best in terms of power generation efficiency-49.0%in its class, as of April 1, 2014
- Top level in environmental performance, with NOx emissions at less than 200 ppm
- Wide continuous operation range at 30%-100% and maintains high power generation efficiency, even at partial loads

MAG Turbo

Super 2



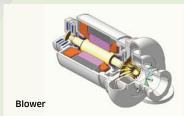




Domestic industry's highest level of efficiency and low environmental impact achieved through use of magnetic bearings

Featuring a high-speed motor with magnetic bearings, the MAG Turbo outperforms overall efficiency of existing sewage aeration blowers in all air volume ranges domestically.

Furthermore, the MAG Turbo does not require the use of lubricant, minimizing environmental impact.



Product Description

This new type of sewage aeration blower has an impeller attached directly to the rotor shaft of an inverter-driven, high-speed motor. The rotor levitates by magnetic bearings. This mechanism allows high-speed rotation without mechanical loss.

Special Features

The following features are possible because of the blower's inverter-driven, high-speed motor with magnetic bearings.

- High efficiency (a maximum of about four points higher than existing models, according to Japan Sewage Works Agency specifications)
- No lubricant or cooling water necessary
- Low noise, low vibration

Centrifugal Chiller Using Water as Refrigerant

Super.

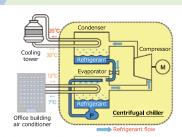
Kawasaki **Green Product**





Epoch-making HFC-free, high-efficiency chiller cuts greenhouse gas emissions

This HFC-free chiller, using water as a refrigerant, delivers efficiency comparable to existing chiller models. Its compact design makes it a viable alternative to existing chillers.



Refrigerant Explanatory Drawing

Product Description

This centrifugal chiller uses water as the refrigerant and is therefore free of hydrofluorocarbons. This choice of refrigerant can contribute to protection of the ozone layer while preventing global warming. The chiller features a new type of compressor as well as key components developed in-house. Its compact design facilitates its use as a replacement model for existing equipment.

Special Features

- Water refrigerant
 - Selected for potential to protect the ozone layer and prevent global warming
- - Developed new type of compressor, boasting high performance and high pressure ratio
- Compact design
 - Key components developed in-house and compact size, excellent as a replacement model for existing equipment

CKK System

Super 4

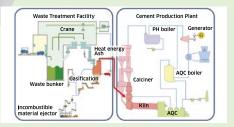
Kawasaki Green Product 2014





Conserving energy and resources through effective use of waste

"The CKK System-Conch Kawasaki Kiln System-" integrates a waste incinerator into existing cement plants, requiring 70% fewer components than the installation of a waste incinerator alone would require. It effectively uses heat energy and ash generated from waste incineration to reduce CO2 emissions.



Product Description

The CKK System integrates a waste incinerator into an existing cement plant, thereby combining cement manufacturing with waste processing, and effectively utilizes the heat energy and ashes resulting from the incineration of waste as fuel and raw materials, respectively, for cement-making operations.

Special Features

- Lower fuel costs
 - By effectively utilizing the heat energy generated during gasification of waste as a power source for cement production, fuel costs for cement calcination have gone down 5%.
- Reduced volume

Since a cement plant can process exhaust gas and ashes at existing facilities, this combined structure requires far less in the way of equipment than a stand-alone waste incineration facility would need.

Ninja ZX-6R

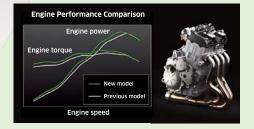
Kawasaki **Green Product**





New model revamped for lower CO2 emissions and enhanced recyclability

Starting with the 2009 model, the Ninja ZX-6R's displacement was increased by 37cm3 for greater output while fuel consumption was trimmed by 3%. The model was also designed for better environmental performance, particularly enhanced recyclability.



Product Description

This motorcycle features an engine that combines both improved performance in the low- to mid-speed range and better fuel efficiency, thanks to extra engine displacement over the previous model, which scored successes on the racetrack as well as the road. The Ninja ZX-6R also boasts advanced suspension, electronic traction control and a low environmental impact exterior, while allowing riders to enjoy high performance with greater confidence.

Special Features

Lower fuel consumption

Good balance of improved performance and better fuel efficiency Lower CO₂ emissions

Less environmental impact

Better recyclability Less paint used following review of surface treatment

Traction control, motorsport-responsive ABS

Hydraulic Pump for Excavators (K7V)

Super,

Kawasaki **Green Product**





A world leader in environmental performance, offering higher efficiency and lower noise

The K7V's pump efficiency is improved by 1.5 points and its noise level reduced by 3 dB (A) compared with the K3V series, its widely popular predecessor, to make it one of the world's top environmental performers on both counts.







Pump Casing Deformation Analysis

Product Description

Used widely in construction machinery, particularly hydraulic excavators, the K7V series of hydraulic pumps meets recent market requirements for high efficiency, low noise, compact size and high reliability.

Special Features

- Improved efficiency, because leakage from sliding parts and torque loss are reduced
- Lower noise and vibration, thanks to suppression of surge pressure and higher casing rigidity
- Complete review of dimensional data resulted in shorter total length
- Longer service life achieved through use of thicker shaft and large-capacity bearings

Spot Welding Robot (BX200LS)

Super.

Kawasaki **Green Product**





Industry's lightest, slimmest and most compact spot welding robot minimizes footprint

The BX200LS has a smaller footprint and is more lightweight than any comparable model in the industry. Since cables and hoses can be stored in the robot's arm and wrist, interference with adjacent robots or peripheral devices is minimized. This allows for installation in higher-density applications



Product Description

This energy- and resource-saving spot welding robot facilitates higher density installation and boosts production efficiency, which leads to lower production equipment costs. It is high-speed, compact and lightweight, and its cables are internally routed between the robot's wrist and base.

Special Features

Internally routed cables

Hollow arm and wrist of robot reduces area of interference where exposed cables and hoses would get in the way

Compact

Installation area is less than 60% of same-class products in the industry

Lightweight

Optimized design and reduced number of components make this the industry's most lightweight spot welding robot in its class

Other activities

Product Assessment

For newly developed and designed products, as well as for particularly important products, KHI assesses products according to such criteria as resource and energy savings and recycling potential, with the goal of reducing the environmental impact of our products during their life cycles. Because specific evaluation techniques vary depending on the type of product, each business segment draws up product assessment rules appropriate to the characteristics of the respective product. The main evaluation items of product assessment are shown below.

- 1 Product weight reduction
- Product energy saving
- 8 Longer product life
- 4 Product safety and environmental conservation effectiveness
- 5 Measures for product disposal and recycling
- 6 Environmental impacts when problems or other extraordinary circumstances occur
- Provision of information for use and maintenance
- 8 Compliance with regulations.



2 Approach by the Motorcycle & Engine Company

Cleaner Exhaust Gas

In fiscal 2014, we continued to tackle technologies that make exhaust from motorcycles cleaner, from a world standard perspective, and launched sales of the Ninja 1000 (Z1000SX), matching the appeal of a supersport model with practical features. The Ninja 1000 (Z1000SX) conforms to European emission standards, thanks to improvements in the air intake and exhaust systems, and demonstrates high environmental performance. Within the air intake system, the electronic fuel injection system

is equipped with dual throttle valves*1 for precise fuel control. matching all types of riding conditions. This ensures superior engine performance while producing cleaner exhaust gas.



Ninia1000 (Z1000SX)

Promoting the 3Rs

Since October 2004, we have operated an independent motorcycle recycling system in cooperation with three other motorcycle manufacturers and 12 importers in Japan. In fiscal 2014, we achieved a recycling rate of 97.1%. Since October 2011, the user burden of recycling costs has become completely free of charge.

For new-model motorcycles, we emphasize environmentally conscious designs highlighting reduced materials and more recycling, right from the development phase. We conduct preliminary evaluations of efforts related to the 3Rs-reduce, reuse and recycle-before commencing design, prototyping and mass production phases. In particular, we seek to increase recyclability through greater use of materials that are easy to recycle

and we have achieved a potential recycling rate exceeding 90% on every model, with most models exceeding 95%. This potential recycling rate was calculated based on the Guidelines for Definition and Calculation Method on the Recyclability Rate for New Vehicles (1998 Japan Automobile Manufacturers Association).

Reducing and Eliminating Environmental Substances of Concern

For new-model motorcycles sold in Japan, we already meet the voluntary targets of reduced environmental substances of concern (lead, mercury, hexavalent chromium and cadmium) set by the Japan Automobile Manufacturers Association, and we have also achieved voluntary targets for older models still being sold.

For general-purpose engines and JET SKI watercraft, there are no Japanese regulations such as the JAMA voluntary reduction targets, but we are making elimination and reduction efforts that follow those applied to motorcycles, and we had achieved voluntary reduction targets for lead, mercury and cadmium by fiscal 2008. Hexavalent chromium had been contained to a very small amount, but we completed its elimination in fiscal 2009.

Source: Japan Automobile Manufacturers Association, **Reduction Targets for Environmental Substances of Concern** for New Vehicles

Substance	Reduction target
Lead* ²	Use 60 g or less in and after January 2006 (for 210-kg weight vehicle)
Mercury	Use prohibited in and after October 2004 (Exception for the use of minute quantities in parts that are necessary for traffic safety*3)
Hexavalent chromium	Use prohibited in and after January 2008
Cadmium	Use prohibited in and after January 2007

 $^{^{\}star 2}$ Used batteries are already recycled and excluded from the target values

^{*1} Dual throttle valve: a device that achieves optimal control of air intake volume through coordination between an electronically operated throttle and a manually operated throttle.

^{*3} Combination lamps, discharge headlamps, etc.

Environmental Data

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●Kobe Works	
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● Domestic	
● Overseas	



KHI Environmental Load Data (Fiscal 2014)

			Unit	Whole group	Change from previous fiscal year
INPUT		Total energy consumption (crude oil conversion)	kl	152,496	102%
		Purchased electricity	MWh	352,866	113%
		Fuel	TJ	2,492	91%
		Renewable energy	MWh	1,887	106%
		Materials	10,000 t	11	79%
		Water	1,000 m ³	5,991	95%
		CO₂ emissions volume from energy sources	t-CO ₂	262,599	92%
		SOx	t	7	85%
	Air	NOx	t	144	85%
		Soot and dust	t	2	110%
		PRTR regulated substance	t	864	82%
		Wastewater	1,000 m³	3,545*	91%*
		COD	t	9	88%
	Water	Nitrogen	t	20	69%
DUTPUT		Phosphorus	t	0.1	136%
		PRTR regulated substance	t	1	120%
		Total emitted	t	49,578	93%
		Recycled	t	48,410	93%
		Intermediate waste	t	1,032	89%
	Waste	Final disposal volume	t	136	70%
		Specially controlled industrial waste in above total	t	1,461	78%
		PRTR regulated substance in above total	t	231	101%
	Others	CO ₂ emissions during transport	t-CO ₂	3,837	89%

Waste and Other Emissions Volume and Recycling Volume (Fiscal 2014)

Type of waste	Total emissions volume	Recycling (material recycling)	Recycling (thermal recycling)	Recycling rate	Intermediate treatment	Final disposal
General waste						
Paper scrap	2,421	1,843	578	100%	0	0
Wood scrap	656	402	254	100%	0	0
Others	308	289	19	100%	0	0
Subtotal	3,384	2,533	851	100%	0	0
Industrial waste						
Sludge	2,114	1,753	189	93%	93	78
Waste oil	6,432	2,402	4,024	100%	7	0
Waste acid	203	190	13	100%	0	0
Waste alkali	469	440	29	100%	0	0
Waste plastics	3,122	643	1,589	71%	889	0
Wood scrap	3,221	1,620	1,601	100%	0	0
Fiber scrap	179	0	179	100%	0	0
Metal scrap	1,001	1,001	0	100%	0	0
Glass, concrete debris and ceramics	256	256	0	100%	0	0
Slag	2,591	2,438	96	98%	0	57
Rubble (waste construction materials)	40	40	0	100%	0	0
Soot and dust	0	0	0	100%	0	0
Others	10	10	0	97%	0	0
Subtotal	19,637	10,792	7,719	94%	989	135
Specially controlled industrial	waste					
Waste oil	572	431	141	100%	0	0
Waste acid	520	498	16	99%	9	0
Waste alkali	211	180	31	100%	0	0
Infectious waste	0.5	0.1	0	20%	0	0.4
Hazardous industrial waste	158	117	7	100%	35	0
Subtotal	1,461	1,226	195	97%	43	0.4
Valuables (metal scrap, etc.)	25,094					
Total	49,578	39,645	8,765	98%	1,032	136

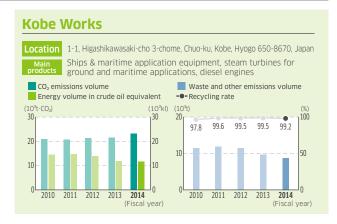
Release and Transfer Volume of Chemical Substances (Fiscal 2014)

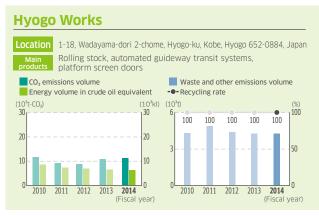
Government			Volume	Volume transferred							
ordinance no.	Name of substance	Air	Water	Soil	Subtotal	Sewer	Waste				
Class I designated chemical substances: annual volume handled 1t or above											
053	Ethylbenzene	188	0	0	188	0	10				
080	Xylene	430	0	0	430	0	68				
086	Cresol	0	0.14	0	0.14	0	1				
087	Chromium and chromium (III) compounds	0	0.02	0	0.02	0	10				
144	Inorganic cyanide compounds	0	Under 0.01	0	Under 0.01	0	1				
186	Dichloromethane	42	0	0	42	0	2				
238	Hydrogenated terphenyl	0	0	0	0	0	0.8				
240	Styrene	0.2	0	0	0.2	0	0.3				
296	1,2,4-trimethylbenzene	11	0	0	11	0	0.4				
297	1,3,5-trimethylbenzene	4	0	0	4	0	0.3				
300	Toluene	324	0	0	324	0	71				
349	Phenol	0	0	0	0	0	1				
374	Hydrogen fluoride and its water- soluble salts	0.3	0	0	0.3	0	13				
412	Manganese and its compounds	1	0	0	1	0	13				
Special Class I designated chemical substances: annual volume handled 0.5t or above											
088	Chromium (VI) compounds	Under 0.01	Under 0.01	0	Under 0.01	0	4				
309	Nickel compounds	0	Under 0.01	0	0.5	0	7				

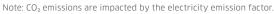
Environmental Load Data by Business Site (Fiscal 2014) 1/2

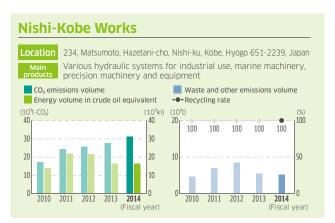
			Unit	Gifu Works	Nagoya Works 1	Kobe Works	Hyogo Works	Nishi-Kobe Works
		Total energy consumption (crude oil conversion)	kl	35,435	10,855	11,911	5,834	16,635
		Purchased electricity	MWh	71,242	41,733	32,332	18,341	59,903
INPU	Т	Fuel	TJ	678	16	148	46	62
		Renewable energy	MWh	0	998	28	30	588
		Water	1,000 m ³	3,984	46	326	98	148
		CO₂ emissions volume from energy sources	t-CO ₂	61,596	16,628	23,438	11,213	31,604
		SOx	t	1	Under 0.1	6	0	0
	Air	NOx	t	52	0.5	80	0.5	1
		Soot and dust	t	0.6	Under 0.1	2	Under 0.1	Under 0.1
		PRTR regulated substance	t	133	4	88	127	47
	Water	Wastewater	1,000 m ³	2,335*	9	120	98	45
		COD	t	7	0.2	Under 0.1	Under 0.1	0.3
		Nitrogen	t	17	Under 0.1	Under 0.1	Under 0.1	0.7
OUTPUT		Phosphorus	t	Under 0.1	Under 0.1	Under 0.1	Under 0.1	Under 0.1
		PRTR regulated substance	t	1	0	0	0	0
	Waste	Total emitted	t	4,794	536	8,530	4,310	4,967
		Recycled	t	4,794	536	8,465	4,310	4,967
		Intermediate waste	t	0	0	0	0	0
		Final disposal volume	t	0	0	58	0	0
		Specially controlled industrial waste in above total	t	132	15	215	128	44
		PRTR regulated substance in above total	t	57	2	22	44	29

Gifu Works (Including Nagoya Works 1) Location 1, Kawasaki-cho, Kakamigahara, Gifu 504-8710, Japan Transport airplanes, helicopters, spacecraft, component parts for airplanes CO₂ emissions volume Waste and other emissions volume Energy volume in crude oil equivalent -O- Recycling rate $(10^3 kl)$ $(10^{3}t)$ 100 100 100 100 80 2011 2012 2014





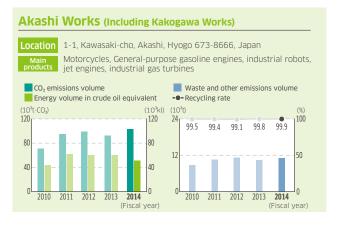


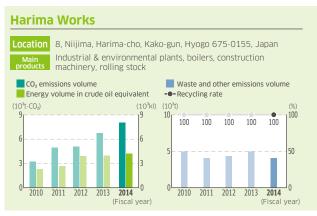


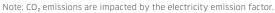
Environmental Load Data by Business Site (Fiscal 2014) 2/2

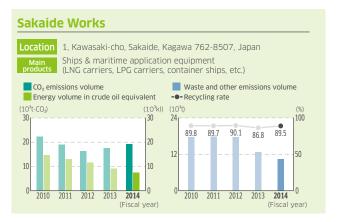
			Unit	Seishin Works	Akashi Works	Kakogawa Works	Harima Works	Sakaide Works
INPUT		Total energy consumption (crude oil conversion)	kl	7,809	47,559	3,894	4,292	7,541
		Purchased electricity	MWh	24,602	52,549	7,402	13,575	27,113
		Fuel	TJ	64	1,334	79	33	27
		Renewable energy	MWh	0	170	0	5	68
		Water	1,000 m ³	83	901	11	76	318
		CO₂ emissions volume from energy sources	t-CO ₂	14,949	97,588	7,544	8,229	19,350
		SOx	t	0	0	0	0	0
	Air	NOx	t	1	9	0	0.2	Under 0.1
		Soot and dust	t	Under 0.1	Under 0.1	0	Under 0.1	Under 0.1
		PRTR regulated substance	t	8	98	0	42	317
	Water	Wastewater	1,000 m ³	63	561	5	41	268
		COD	t	0.5	1	Under 0.1	Under 0.1	0.3
		Nitrogen	t	0.6	1	Under 0.1	Under 0.1	0.3
OUTPUT		Phosphorus	t	Under 0.1	Under 0.1	Under 0.1	Under 0.1	Under 0.1
		PRTR regulated substance	t	0	0.2	0	0	0
	Waste	Total emitted	t	1,000	9,053	1,934	3,984	10,433
		Recycled	t	1,000	9,047	1,929	3,984	9,328
		Intermediate waste	t	0	0	0	0	1,032
		Final disposal volume	t	0	6	0	0	73
		Specially controlled industrial waste in above total	t	124	717	0	0	43
		PRTR regulated substance in above total	t	2	61	0	3	11

Seishin Works Location 8-1, Takatsukadai 2-chome, Nishi-ku, Kobe, Hyogo 651-2271, Japan Component parts for jet engines and gas turbines CO₂ emissions volume Waste and other emissions volume Energy volume in crude oil equivalent --- Recycling rate (10³t-CO₂) 30 — — (10³kl) 130 2.0 100 100 100 99.2 100 10 2010 2011 2012 2013 **2014** (Fiscal year) 2010 2011 2012 2013 2014







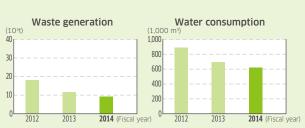


Environmental data of Consolidated Subsidiaries

Domestic

Total of domestic subsidiaries CO₂ emissions (10³t-CO₂) 140 — — 120

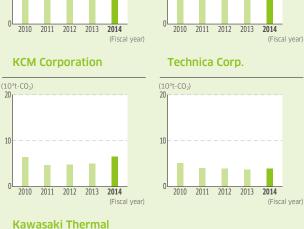


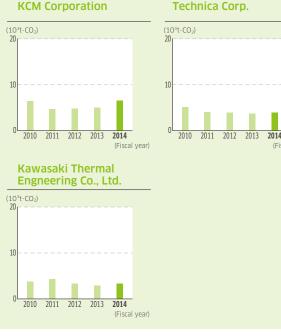




CO2 emission of domestic major subsidiaries







CO₂ emission of overseas major subsidiaries



Note: the CO₂ emissions coefficients used in graphs are in principle those indicated below

- Japanese Ministry of the Environment website: press releases: publication of emissions coefficients for each fiscal year.
- For CO₂ emissions volume through overseas electricity consumption, the figures published by the Greenhouse Gas Protocol are used. *Data updated in Oct. 2014