

Toward Realizing a Low-carbon Society

Measures are required worldwide to deal with global warming, which has had a serious impact on the ecosystem and humans. It is vital to take measures to reduce CO₂ emissions through improvement of the products' environmental performance and promotion of efficiency of manufacturing processes.

In identifying materiality of CSR this time, we decided that both "the realization of a low-carbon society (product-based contributions)" that mitigates warming through improvement of environmental performance of products and "the realization of a low-carbon society (business activities)" which indicates CO₂ reduction in business activities including manufacturing processes, have a high level of importance from the perspectives of both "the level of importance for society and stakeholders" and "the level of importance for the Company."

Realization of a Low-carbon Society

Product-based Contributions

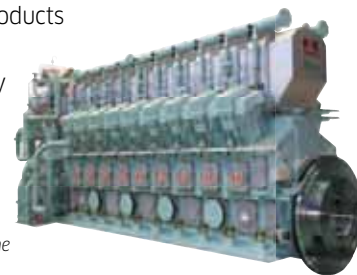
Reduction of CO₂ Emissions Through Product-based Contributions

About **22.9 million tons of CO₂**

About 90% of CO₂ emitted during the lifecycles of our products is released during the period of their use after they are sold. Thus, the Company seeks to realize a low-carbon society by providing products that produce only low CO₂ emissions during their use. We established a new rule for calculating the CO₂ emission reduction through product-based contributions, in order to quantify contributions of highly energy efficient products to the mitigation of global warming.



for products that meet self-established standards such as high energy efficiency. The number of registered products has continued increasing every year, totaling 50 in 2018.



Green Gas Engine



CKK System (a system combining cement manufacturing with waste processing)

Calculations based on this rule showed that the CO₂ emission reduction through products we sold in fiscal 2018 was about 22.9 million tons. Large contributions were made mainly by the Green Gas Engine, which achieved the world's highest power-generation efficiency in its class, and the CKK System, which reduced cement calcination fuel by combining cement manufacturing with waste processing. We started the Kawasaki-brand Green Products* in-house registration program in 2013

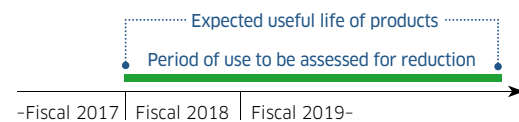
*The details of Kawasaki-brand Green Products are disclosed on our website. https://global.kawasaki.com/en/corp/sustainability/green_products/index.html

Calculation Rule

We established a new calculation rule with reference to the Guideline for Quantifying Greenhouse Gas Emission Reduction Contribution (Ministry of Economy, Trade and Industry, March 2018).

● **Products to be assessed:** Kawasaki-brand Green Products, products that use renewable energy, waste and waste heat, as well as cogeneration systems and rolling stock pertaining to modal shift, etc., were selected for assessment.

● **Period of assessment:** The difference in CO₂ emissions between our products and industry standard class products over the period of use was calculated by newly adopting the Flow Base Approach. The period of assessment was the expected useful life of products sold in the fiscal year, instead of one-year period assessment used until fiscal 2017.



Realization of a Low-carbon Society

Business Activities

CO₂ Emissions

About **328,000 tons** CO₂ emissions from business activities (planning, development, design, production, etc.)

We are promoting various energy-saving activities to curb CO₂ emissions from business activities, with the view to realizing a low-carbon society. Emissions from business activities were about 328,000 tons in fiscal 2018, as a result of reducing about 15,000 tons of CO₂ mainly through energy-saving activities.

CO₂ Emission Reduction Effect Through Energy-saving Activities

About **15,000 tons of CO₂**

The Company established an energy-saving promotion structure for each business segment and makes various energy-conservation improvements in an effort to reduce CO₂. These include a shift of pumps and fans to inverter types, raising the efficiency of lighting, air conditioning, production and other equipment, and making improvements in the production process.

One example is the improvement of the process of removing resin stuck inside a gear pump before the repair procedure (Nishi-Kobe Works,

Precision Machinery Business Division).

Before the improvement, high-temperature incineration of resin in the furnace for many hours turned the resin into ashes, and then power tools and other equipment were used to polish them. After the improvement, a method was established to use solvents that are effective in removing stuck resin by immersing and cleaning. As a result of this, energy that had been used for heating and power tools was reduced, leading to a reduction of CO₂.

Before improvement: Heating incineration of resin



After improvement: Removal of resin using solvents

As part of our energy-saving activities, we started the **Energy-saving Awards Program** from fiscal 2018 with an eye to all staff members' participation in energy-saving activities. A characteristic of the Company's Energy-saving Awards Program is the two-tier awards consisting of the Intra-Division Award, which recognizes activities in each operating division of the Company, and the Company-wide Award, which is decided based on company-wide voting on each improvement recommended per division. As such, this program recognizes various energy-saving initiatives ranging from small improvements made by individuals to major ones by teams and plants.

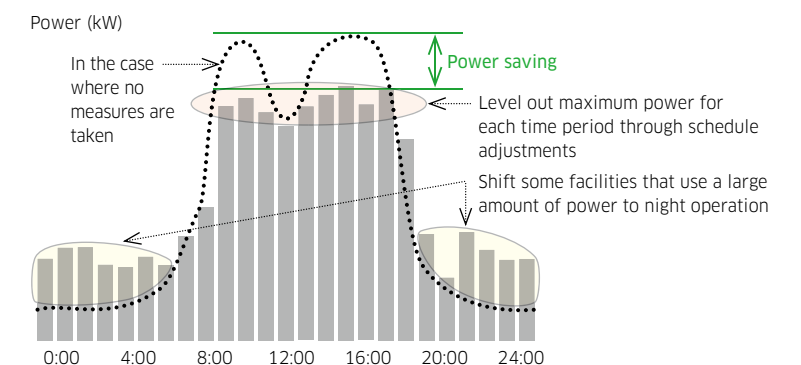
The grand award of the Company-wide Award for fiscal 2018 was given to "an improvement that 'prevented excess contract power' through implementation of 'measures to reduce peak power consumption' by 'full staff participation' (Gifu Works/Nagoya Works, Aerospace Systems Company)." The winner was found to be outstanding in its improvement effect, return on investment, potential for horizontal development, and creativity and originality.

This improvement prevented excess power demand. It involved concerted efforts by plants through the implementation of the following four steps to curb about 4,000 kW of power in times of tight power supply-demand situations during summer.

1. Spreading out in advance the operation schedule for facilities that consume large amounts of power.

2. Staggering operation times, coordinating by telephone on that day, in cases where overlapping operations occur.
3. In times of tight power demand even after those arrangements, increasing the output of cogeneration power-generation facilities or stopping several air conditioners in rotation.
4. In times of further tightness of power demand, saving energy through full staff participation by issuing an emergency-power conservation announcement in the plant in two stages.

Change in Production Facility Power over Time (1 day)



Energy-saving Effect of Full Staff Participation by Emergency-power Conservation Announcements

