

Reduction of CO₂ emissions aiming for emission neutral

Our group implements measures to reduce CO₂ emissions by considering the life cycle of construction machines, aiming for achievement of emission neutral

Emission neutral

Hitachi Group set a target of emission neutral by 2015 in "Environmental Vision 2015". In emission neutral, the environmental impact of products is reduced considering the entire life cycle of products, aiming for the direct environmental impact (the amount of CO₂ emitted through the period from the production of materials to the distribution of the completed products) to be equal to the reduction in CO₂ emissions generated during the use and disposal of products, which will be materialized through development of eco-products. We are making efforts to reduce the direct environmental impact and increase the proportion of eco-products in order to meet the target early. Our group will implement measures to reduce CO₂ emissions to achieve the target from fiscal 2008.

Activities to cut CO₂ emitted during production

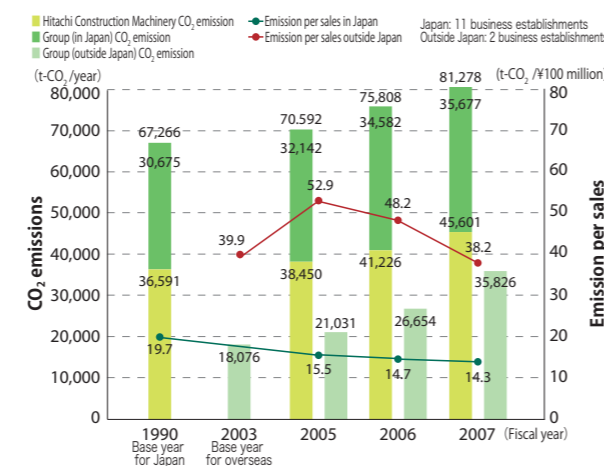
Our group is increasing the number of business establishments which are subject to emission control, to include all business establishments causing significant environmental impact, including Tsuchiura Works and the business establishments of group companies in Japan and other countries, in order to reduce the amount of CO₂ emitted during production. Our group is endeavoring to reduce CO₂ emissions by changing some of our energy requirement from crude oil to electricity and by implementing energy conservation measures, as shown in the right table. However, because of a rapid rise in production since fiscal 2003, energy consumption increase has exceeded energy reduction.

In fiscal 2007 Hitachinaka Works came on line, so total emissions reached 81,278 t-CO₂/year in Japan, with emission per sales of 14.3 t-CO₂/¥100 million. Comparing with fiscal 2006, total emissions rose by 5,470 t-CO₂/year (about 7%), but the emission per sales dropped by 0.4 t-CO₂/¥100 million (about 3%). Comparing with 1990, the base year of the Kyoto Protocol, the emission per sales declined by 27 percent due to efforts to reduce energy consumption, but total emissions increased by 21 percent because of a

rapid rise in production. We will continue efforts to cut energy consumption during production. In addition, our group will endeavor to reduce CO₂ emissions throughout the life cycle of products based on emission neutral, including developing products which require less resources and energy.

Emissions of group companies outside Japan amounted to 35,826 t-CO₂/year, with emission per sale of 38.2 t-CO₂/¥100 million. Comparing with fiscal 2006, emissions increased by 9,172 t-CO₂/year (about 34%) because of increased production in China, but the emission per sales dropped by 10.0 t-CO₂/¥100 million (about 25%) due to efforts to reduce energy consumption.

Trends in CO₂ emission and emission per sales



Major energy conservation measures

Category	Major energy conservation measure	CO ₂ emission reduction
1 Efficiency improvement	Inverter compressors, amorphous transformers, high efficiency metal halide lights, inverter-type hydraulic pumps	345 t-CO ₂ /year
2 Changing energy	Use LNG gas instead of LPG and type A heavy oil	550 t-CO ₂ /year
3 Automatic control, appropriate operation	On/off control of machine tools and cutting devices, strengthening of thermal insulation of devices, appropriate temperature control, automatic lighting adjustment	203 t-CO ₂ /year
4 Reduction in standby power consumption	Lighting and ventilation equipment operation using timers, controlling air conditioners with timers	107 t-CO ₂ /year
5 Air-related measures at factories	Modifying air blowing, regular measures for air leaks	79 t-CO ₂ /year

Battery forklift sales rise

TCM, which manufactures forklifts at Shiga works, made efforts to increase sales of battery forklifts from the aspect of reducing CO₂ emissions. They succeeded in increasing sales by 17 percent in fiscal 2007 compared with the previous year. TCM will continue to endeavor to raise sales of battery forklifts in fiscal 2008. In addition, they increased the number of battery forklifts in use at the works by eleven.



Battery forklift

Expansion of use of battery forklifts

In fiscal 2007, Hitachi Kenki Logistics Technology increased the number of battery forklifts for use at Tsuchiura Works to 22, thereby reducing CO₂ emissions by about 17.3t. Tadakiko also gradually replaced eleven of their seventeen forklifts with battery forklifts. They developed a device to change batteries quickly, together with Sumitomo Nacco Materials Handling Co., Ltd. They will increase use of battery forklifts with the newly developed device.



Changing the batteries of battery forklifts

Trial of a biodiesel forklift

The Shiga plant of Hitachi Construction Machinery Tierra started trials of a biodiesel forklift and collecting used edible oil in April 2007. The forklift has been operating problem-free for a year. They collected about 390 liters of used edible oil — a raw material of biodiesel fuel — from employees and the company canteen. They will use two biodiesel forklifts from April 2008. They will increase the proportion of biodiesel in the fuel from 5 to 10 percent to raise the severity of the trial.



Collecting used edible oil

Fitting trucks with digital tachometers

Hitachi Kenki Logistics Technology installed digital tachometers in their trucks and ensured they were driven in a fuel-saving manner. Fuel consumption of 2.72 km/liter before fitting the tachometers rose to

3.10 km/liter — a rise in fuel consumption of about 15 percent. They will request contractors to use digital tachometers and ensure energy-saving driving.

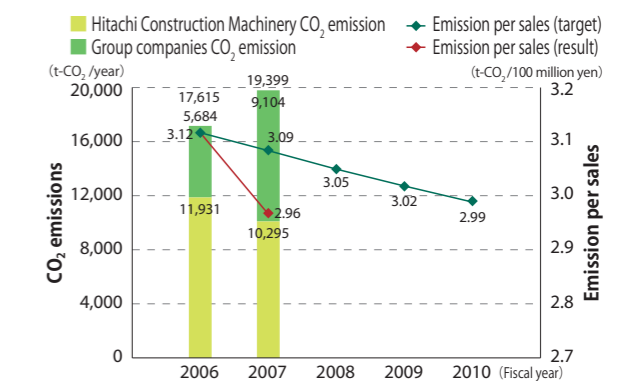


Installing a digital tachometer

Energy conservation measures for product transportation

In fiscal 2007, We were appointed as a specific consignee under the revised Law concerning the Rational Use of Energy. Even though the volume to transport is increasing, we improved emission per sales by 5 percent by using appropriate vehicles and ensuring energy-saving driving.

CO₂ emitted during transportation



Sales increase of "Be Next" controllers to reduce energy consumption for air conditioners and freezers

Hitachi Construction Machinery Trading sells controllers designed to reduce energy consumption. They developed the controller based on the fact that 90 percent of the electricity consumed by air conditioners and freezers is operating the compressor. The controller stops the compressor for between 3 and 9 minutes every 30 minutes, without any noticeable change in temperature, thereby reducing energy consumption by between 10 and 30 percent. They are promoting sales of the controllers because the controllers reduce CO₂ emissions; 55 were sold in fiscal 2006 and 62 in fiscal 2007. They will continue to endeavor to raise sales.



Energy saving controller "Be Next"