

Prevention of Global Warming

http://www.cosmo-oil.co.jp/eng/sustainable/07/env/gl_warming.html

We work to prevent global warming through the promotion of energy conservation at every stage of our business.

► Policy

Because the Cosmo Oil Group is involved in the production and sale of petroleum products, we believe that addressing global warming is a crucial issue. Efforts in this area are particularly important at our refineries, which account for more than 60% of total CO₂ emissions produced by the Cosmo Oil Group. Accordingly, our refineries are undertaking energy conservation initiatives with an autonomous target of achieving a 15% reduction in unit energy consumption versus fiscal 1990 levels by fiscal 2010. We are also promoting energy conservation by executing efficient modes of delivery in logistics and introducing solar cell panels at service stations. Additionally, we are promoting efficient global warming countermeasures that utilize mechanisms under the Kyoto Protocol. To augment these initiatives implemented in our business activities, significant efforts are also dedicated to environmental activities that extend beyond our corporate boundaries as part of our total commitment to contribute to the prevention of global warming.

► Kyoto Mechanisms

Greenhouse gas emissions trading, one of the Kyoto mechanisms, serves as a framework for international cooperation to efficiently and effectively address global warming issues. To reduce greenhouse gas emissions, the Cosmo Oil Group participates in GG-CAP¹, the first private scheme for purchasing carbon credits set up by Natsource LLC, a major emissions brokerage, with the aim of acquiring carbon credits arising from CDM²/JI³ projects. By July 2013, we plan to acquire one million tons of CO₂ emission credits.

Notes

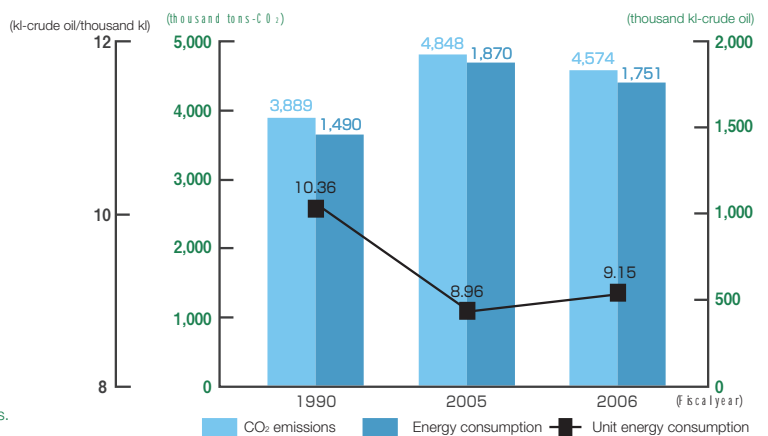
1. GG-CAP: Scheme for acquiring emission credits operated by a subsidiary of Natsource LLC, an organization that specializes in emissions trading
2. Clean Development Mechanism (CDM): A Kyoto mechanism that allows industrialized countries to generate emission credits through investment in emission reduction projects in developing countries
3. Joint Implementation (JI): A Kyoto mechanism that allows developed countries to invest in other developed countries to earn carbon allowances that can be used to meet their emission reduction commitments

► Initiatives at Refineries

Our oil refineries conserve energy by introducing such measures as high-efficiency equipment and improving operating control. In fiscal 2006, we increased and strengthened thermal insulation for heat exchange equipment while also reviewing operating conditions, reducing the volume of steam consumption, and undertaking other measures to improve operating methods. Nonetheless, the refinery fire and other factors caused a decrease in efficiency. In fiscal 2006, unit energy consumption* was 9.15 kl-crude oil/thousand kl, a slight deterioration from the previous year. However, compared with fiscal 1990, this represents an 11.6% reduction, which exceeds the Petroleum Association of Japan's target of attaining a 10% reduction versus fiscal 1990 levels by fiscal 2010.

* Unit energy consumption is expressed as the total energy consumption divided by crude oil equivalent throughput taking into account the complexity of refining techniques. The unit is kl-crude oil/thousand kl. Note that different types of energy consumed are converted into a common denominator of kl-crude oil equivalent.

Energy Consumption and CO₂ Emissions at Four Refineries



Beginning with fiscal 2006 results, the method of CO₂ calculation was revised as stipulated by the Law Concerning the Promotion of the Measures to Cope with Global Warming.



Detailed data
http://www.cosmo-oil.co.jp/eng/sustainable/07/env/gl_warming.html

► Activities at Service Stations

Installing solar cell panels is one approach being taken to realize more environmentally compatible service stations. Currently, 37 service stations use solar energy. In fiscal 2006, we installed and measured the effect of energy-efficient lighting to illuminate service stations.

▶ Initiatives in Distribution

The Cosmo Oil Group has long pursued energy conservation voluntarily by achieving greater efficiency in its logistics system. In fiscal 2006, amendments to the Energy Conservation Law were enacted to clearly define cargo shippers' responsibility.

Adhering to the revised law, Cosmo Oil firmly ascertained the volume of its domestic shipping (ton-kilometers) and the volume of CO₂ emissions. During fiscal 2006, we were engaged in the transport of 6,395,890 ton-kilometers of freight, and CO₂ emissions amounted to 160,535 tons.

We will continue to pursue energy conservation based on safe and reliable transportation.

Land Transportation: Tanker Trucks

Utilizing large trucks and maintaining a high stowage rate resulted in a 30% increase in transportation volume per vehicle versus fiscal 1990 levels. To further conserve energy, our efforts to promote efficiency will focus on systematic delivery and independent unloading.

Domestic Marine Transportation: Coastal Tankers

Coastal tankers used to deliver our main and semi-processed products between sites are affected by the operational status of refineries, weather conditions, and other factors. To meet our dual objectives of preventing accidents and making environmental considerations, we work to reduce energy consumption by using larger tankers and maintaining a high stowage rate.

Average Stowage Rate

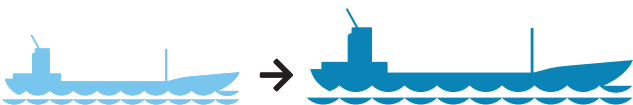
Tanker Truck (White Oil)

FY1990	Average vehicle capacity 15.0 kl Stowage rate 94.3%	FY2006	Average vehicle capacity 19.4 kl Stowage rate 94.6%
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Coastal Tanker

FY1990	Average ship capacity 1,536 kl Stowage rate 90.0%	FY2006	Average ship capacity 2,922 kl Stowage rate 92.7%
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C O L U M N

Preventing Impacts on the Marine Environment from Crude Oil Transportation

Ballast Water

When sailing without a load from Japan and other oil-consuming countries to oil-producing countries, crude oil tankers must hold sea water inside as ballast to maintain ship stability. This sea water is then discharged before crude oil is loaded. To prevent the disruption of the coastal ecosystems and pollution of oil-producing countries, this ballast water is discharged off the coast in accordance with local regulations and requirements.

Double-Hull Structure

The Cosmo Oil Group employs 10 Very Large Crude Carriers (VLCCs) with a double-hull structure as protection against accidents. These tankers, under a long-term charter, are equipped with both inner and outer hulls. In the event the outer hull is breached, this double-hull structure diminishes the risk of damage to the inner crude oil tank to prevent oil leaks.



Detailed data Trends in Regularly Chartered Double-Hull Tankers
http://www.cosmo-oil.co.jp/sustainable/eng/07/env/gl_warming.html

Environmental Measures at Service Stations

Introducing Hydrocarbon Vapor Recovery Units

To prevent hydrocarbon vapor from being diffused when being unloaded from tanker trucks, we promote the installation of hydrocarbon vapor recovery units.

Hydrocarbon Vapor Recovery Unit

