Crude Oil Production, Transport, and Stockpiling

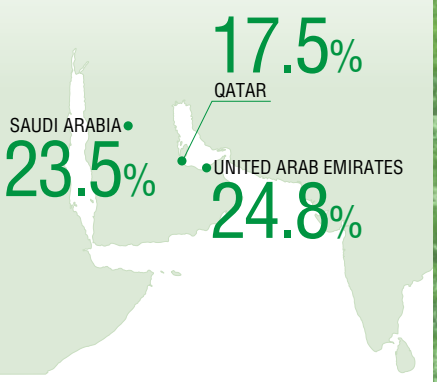
原油生産･輸送･備蓄

We are making a ceaseless effort through all stages of crude oil production, transport and stockpiling, by reducing environmental impacts in the oil-producing country. We also make environmental considerations through the transport process so as to protect the marine environment, and even improve the fuel consumption ratio of our tankers.

Importing Crude Oil

We import crude oil primarily from the Middle Eastern countries, such as the United Arab Emirates and Saudi Arabia. We are making efforts to diversify the supply sources of crude oil to attain a steady delivery of energy.

In 1968, we established Abu Dhabi Oil through which we also develop our own crude oil supply.

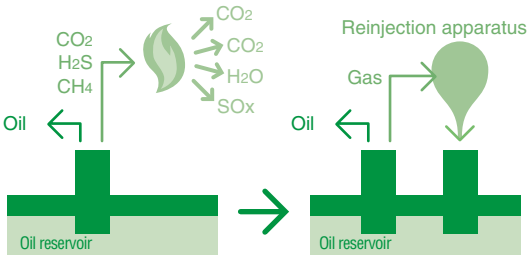


Benefit of the Zero Flare Project

During crude oil production, the associated gases such as H_2S and CO_2 are generated. Zero Flare, a state where there are no emissions of SOx or CO_2, was achieved in May 2001 at the Mubarraz, the Umm Al Ambar and the Neewat Al Ghalan oil fields all of which are operated by Abu Dhabi Oil's 100% owned company, a group company of the Cosmo Oil Group. Zero Flare was made possible by reinjecting the whole volume of associated gas, which had previously been burnt off into the air, into the oil reservoir with the help of a large compressor (flare refers to the flame arising from burning the associated gas).

The success of this project not only contributes to prevention of air pollution, but also reduces greenhouse gases by the equivalent of 200,000 tons of CO_2 per year. This is equivalent to a forest absorbing about 12,000 times the volume of CO_2 that could be held by the Tokyo Dome.

Concept Sketch of Zero Flare Project



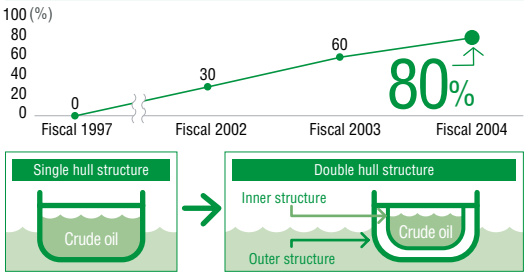
CO_2 : Carbon dioxide
SOx : Sulfur oxide
H_2O : Water
CH_4 : Methane
H_2S : Hydrogen sulfide

The first stage of Zero Flare, the sour gas injection project, was highly praised by the Abu Dhabi National Oil Company (ADNOC). It was awarded 1st prize among 62 entrants in the ADNOC HSE Awards in 2000.

Prevention of Oil Spills by Double Hull Structure in Case of Accidents

Since 1998, we have been converting the ad-hoc structure to the double hull structure in order to be ready for maritime accidents. The double hull tanker is characterized by the double structure, and even if it gets damaged in the event of accidents, the oil does not leak from the oil tank, located within its inner section. As of March, 2005, the double hull structure has been introduced into 8 VLCC (Very Large Crude Carriers) on regular line among ten such carriers.

Trend in Ratio of the Double-hulled Tankers on Regular Line



Prevention of Impact on the Marine Environment

Crude oil is transported by crude oil tankers through the Straits of Malacca to Japan. The tankers are navigated by highly experienced crews. The most advanced technologies such as collision avoidance systems and the double hull structure have been incorporated into the vessels so as to prevent oil spills caused by marine accidents. We also pay careful attentions to how we can best conserve the marine environment by taking cautionary measures such as the regular use of oil booms during loading and unloading. Furthermore, ballast water is exchanged in the outer sea in accordance with the restrictions and preferences of the oil-producing country in order to minimize the impact on the sea's ecosystem.

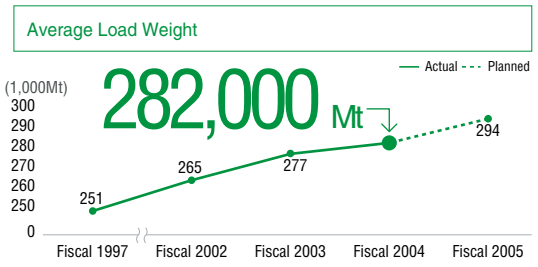
Efficiency in Transport

It takes 20 days for oil tankers from the oil producing countries to reach Japan. The amount of crude oil a 300,000-ton class tanker can carry fulfills Japan's total oil demand for half a day. In order to increase the efficiency of our transport operations, we are pursuing economies of scale by switching from 200,000-ton to 300,000-ton class tankers. Furthermore, we make efforts to achieve efficient transportation by combining shipments with the Nippon Oil Corporation, with which Cosmo Oil established the Nippon Global Tanker Co., Ltd. Such upsizing and more efficient transportation tanker also serve to improve the fuel consumption as a whole.

Stockpiling of Crude Oil

In order to secure a stable supply during emergencies, Japanese oil importers and refiners are required to maintain a stockpile of 70 days' supply of petroleum products. As of the end of March 2005, the stockpile is 74 days' supply, while the government maintains a stockpile of 92 days' supply. The total private and public stockpile is equivalent to 166 days' supply of oil consumption in Japan.

Average Load Weight



Mt : metric tons