

# Brunei LNG Project

Energy Business



## Overview of LNG Business

In comparison with oil or coal, liquefied natural gas (LNG) emits less carbon dioxide (CO<sub>2</sub>), which is a greenhouse gas emitted from combustion. LNG also produces fewer nitrogen oxides (NO<sub>x</sub>) and sulfur oxides (SO<sub>x</sub>), both of which cause air pollution. Because of its relatively lower impact on the environment, there is growing worldwide demand for LNG as an environmentally friendly source of energy.

MC began importing LNG from Alaska in 1969. This endeavor helped pave the way for the company's later involvement in the Brunei LNG project, which encompasses a variety of businesses ranging from natural gas liquefaction to LNG transport. Since MC's first encounter with LNG in 1969, the company has participated in LNG projects throughout the globe including projects in Malaysia, Indonesia, Australia and Oman. Current projects include the Sakhalin II Project and the Indonesia Tangguh Project, as well as a gas field exploration project in Brunei. In addition to securing natural gas rights, the company is also involved in LNG-receiving terminal operations in the United States, in response to the increasing globalization of LNG trade.

The global volume of LNG trade is estimated at 130 million tons per year. In fiscal 2005, Japan imported approximately 56 million tons of LNG, of which MC handled around 25.8 million tons. The company's share of the global market for LNG trade is around 20%, and it handles approximately 46% of the LNG destined for Japan.

## Brunei LNG Project

The Brunei LNG Project is a joint venture project between the Bruneian government (50% share), Royal/Dutch Shell Group of Companies (25% share) and MC (25% share). The main business of the Brunei LNG Project is natural gas liquefaction and sales.

MC's participation in the Brunei LNG Project came about through a decision to partner with Shell for LNG production and export to Japan. Shell had discovered promising gas fields off the shores of Brunei in 1963. The partnership between the two

companies led to the establishment of Brunei LNG Sdn. Bhd. (Brunei LNG) in December 1969 together with full support and investment from the Bruneian government. The newly established company set about building an LNG infrastructure with facilities ranging from a natural gas liquefaction plant and pier-docking facilities for ship transport to LNG pipelines. The joint venture's first LNG shipment from Brunei to Japan arrived in 1972 and a stable supply has been provided ever since.

In fiscal 2005, Brunei LNG supplied 6.23 million tons of LNG to Japan, accounting for 11% of all LNG imported to Japan. In addition to providing an environmentally friendly source of energy to Japan, the Brunei LNG Project also plays an important role in the Bruneian economy.

## Contributing to Economic Diversification in Brunei

Brunei is endowed with rich oil and natural gas resources, which have helped the nation to maintain a stable economy through oil and natural gas exports. Due to its strong traditional dependence on energy resources, the nation has found it somewhat difficult to develop other industries. With the strong relations it has forged with the Bruneian government through the Brunei LNG Project, MC has been searching for ways to contribute to Brunei's economic diversification from the beginning. One such venture is McFarm Sdn. Bhd., which was established by MC in 1978 as an experimental farming project. The project involved importing cattle to be bred and raised for beef and eventually proved that it was technically feasible to breed livestock in tropical rainforest conditions. As a result of this initiative, calves and breeding cattle have been supplied to local cattle breeders.

The scope of the project was expanded in 1986 to encompass experimental hydroponic farming of vegetables such as tomatoes and cucumbers. The hydroponic farming venture has developed to the point where it now provides a stable supply of produce for consumers. In addition to contributing to the development of the agricultural industry in Brunei, the McFarm project also plays a meaningful role in local education by hosting field trips for



elementary and junior high school students.

MC also plans to launch a chemical fertilizer project designed to promote Brunei's petrochemical industry. This project will not only help Brunei to better utilize its rich oil and natural gas resources but also will help to fulfill the Bruneian government's vision for economic diversification.

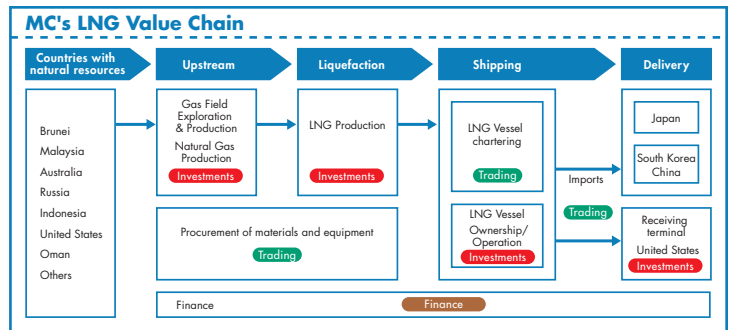
### Environmental Initiatives

Brunei LNG formulates an annual environmental management plan in accordance with ISO14001. Under the plan, the company sets various management targets and implements environmental reviews. The main management targets are for emissions of substances such as CO<sub>2</sub>, methane gas and hydrocarbons (crude oil that emerges in natural gas production). Brunei LNG monitors and reduces these emissions by identifying the source of emissions and implementing necessary improvements. In addition the company conducts third party environmental audits every three months.

Brunei LNG has implemented initiatives to recirculate and reuse water used to cool natural gas to minus 162 degrees, which is part of the natural gas liquefaction process. The measures have reduced intake and discharged water to 5% (150 tons of water per hour) of its overall water usage. The company takes every possible precaution to minimize the ecological impact of wastewater on local waters. Environmental initiatives at Brunei LNG also extend to its supply chains. For instance, local companies bidding on facility repairs must satisfy certain environmental requirements to be awarded contracts.

### Overseas Educational Initiative for Japanese Students

MC sponsors an educational initiative which is organized by the *Yomiuri Shimbun*, a Japanese newspaper. The initiative enables Japanese high school students to experience local cultures abroad while introducing them to the overseas business of a general trading company. The first time the program was run in August of 2005, eight high school students were invited to visit Brunei. The students visited an LNG plant, witnessed experimental agriculture and learned about tropical rain forests first-hand. The students were also exposed to local lifestyle and culture, and interacted with Bruneian students.



### Community Initiatives

Brunei LNG is actively involved in safety and health management for its employees. In addition to monitoring industrial accidents and occupational sickness, the company implements a health management program that includes regular physical check-ups for employees. The company also constructed a recreation center that is open to employees and local residents, helping to promote and maintain the health of the surrounding community.

Brunei LNG also contributes to local communities in other ways. Its initiatives include opening an oil and natural gas museum aimed at educating younger generations on the history of economic development in resource-rich Brunei. The company also supports the education of elementary and junior high school students. MC itself supports the preservation and development of Bruneian culture, and supports short-term school exchange programs for senior high school students.

### Manager's View

#### Kazumi Mori



Manager, Brunei Project Unit  
Natural Gas Business Div. A, Energy Business Group

Natural gas may not be a familiar topic to the average household, but it actually has a role in the everyday lives of Japanese consumers in the form of gas supplied to their homes. We consider it our mission at MC to provide a continuous and steady supply of natural gas for consumers in resource-scarce Japan. We approach our daily work with a sense of responsibility and pride in fulfilling this mission.