

SPECIAL FEATURE 1

INITIATIVES IN THE EXPANDING LNG MARKET

—JGC THE TOP CONTRACTOR IN THIS FIELD—

The environment surrounding energy has begun to undergo significant changes, including the issues of a growing global energy demand, securing a stable supply of energy, and global warming. While the 20th Century was called the “Oil Century,” the 21st Century is being called the “Natural Gas Century.” Liquefied Natural Gas (LNG), a means of transporting natural gas which is an environmentally-friendly energy form, is expected to see an increase in demand over the long term. In light of this trend, we have rejuvenated our LNG business plans.

The LNG market, which has thus far grown primarily in the Pacific region based on exports to Japan, Korea and Taiwan, is expanding to include many countries around the world, including the Americas, countries in Europe, as well as China and India. While there were only eight countries importing LNG in 1990, there are currently 22 countries that import LNG (including countries in the process of constructing LNG receiving

terminals), and the number is expected to increase to 32 countries when countries planning to build receiving terminals are added. This growth is attributable to a number of factors. In Europe, in order to secure a stable supply of energy, countries are looking to diversify the sources of their natural gas imports, rather than depending solely on natural gas pipelines. Meanwhile, in countries such as China and India, energy demand has increased against a backdrop of population growth and further industrialization.

Due to the expectations for increasing LNG demand around the world, since around 2003 many LNG plant construction plans have been advanced in Southeast Asia, the Middle East, Oceania, and Africa. However, over the past several years, new LNG plant development costs have become roughly three times higher than in 2003, due to a marked rise in equipment and materials prices and a shortage of skilled workers. As a result, LNG business developers temporarily postponed any decisions about investments. However, development costs are now gradually declining in conjunction with the global economic slowdown triggered by the financial crisis that started in the U.S. in September 2008, and LNG business developers are beginning to once again aggressively pursue business initiatives. These plans include a wide range of projects. Among them is a project to construct the world’s largest liquefaction facility with annual output of more than 8 million tons of LNG, projects to construct small- to medium-sized LNG plants with annual outputs of between one and two million tons, a plan to build a floating LNG plant that liquefies natural gas at sea as a means of developing small- and medium-sized stranded gas fields located far away from the coast, and most recently an LNG project that will use methane from coalbeds.



LNG carrier



LNG plant, Malaysia

Since completing our first LNG project in Brunei in 1970, which was aimed at exports of LNG to Japan, JGC has built many LNG plants around the world, including Malaysia, Indonesia and Australia, and boasts a 35% market share (as of April 2009) on a global LNG production volume basis, which gives us the largest market share. We are currently constructing LNG plants in Indonesia and Yemen, as well as conducting project feasibility studies and Front End Engineering and Design (FEED) work. In 2008, we received an order to carry out FEED for an LNG plant that INPEX Corporation is working on for INPEX Browse, Ltd. in Australia. We are also conducting feasibility studies on floating LNG plants. Furthermore, JGC is engaged in LNG plant-related technological development and research, working aggressively to make LNG plants even safer and more reliable, reduce costs, and shorten the time needed to complete projects. Such efforts include developing CCS (Carbon Dioxide Capture and Storage) technology to separate, collect and store underground the carbon dioxide contained in natural gas, optimizing the overall lifecycle cost of LNG plants, increasing their operability and safety, and developing electric-motor-driven LNG



LNG plant, Australia

plants (eLNG), the next generation of LNG plants which are environmentally friendly. One example of these efforts is the development of a gas leak and explosion simulation system, which has raised the safety level of LNG plants during operation.

Going forward, JGC will continue to be a leading LNG plant contractor, and satisfy any and all client needs while developing the clean energy of the LNG business and helping to protect the global environment.