Liquefied Natural Gas: How It Works

Overview

Natural gas is an important source of energy, but many gas reservoirs are located far from the areas that need it. The challenge: How to transport natural gas across the ocean where there are no pipelines? The answer is technology.

By liquefying natural gas, it can be shipped safely and efficiently around the world.

How It Works

Step 1

Natural gas produced from offshore fields is sent through pipelines to a facility onshore.

Step 2

When chilled, natural gas transforms into a liquid 600 times smaller than its original size.

Step 3

LNG [liquefied natural gas] ships are specially designed with double hulls and heavy insulation.

Step 4

At its destination, LNG is warmed, changing it from a liquid back into a gas.

Step 5

Natural gas is delivered directly to customers through a network of pipelines.

Step 6

Power plants and industry use most of the natural gas produced worldwide.

Step 7

Natural gas that was once half a world away also is used in homes.

Transporting LNG

The world holds a lot of natural gas, but much of it is considered “stranded” because it is located in areas far from the regions that use it. Liquefying natural gas makes it possible to ship this valuable energy source around the world.

United States

The United States is the world’s largest natural gas consumer. Natural gas accounts for one-quarter of all energy used in the country.

Traditionally, the U.S. has imported natural gas through pipelines from Canada. But with new regasification terminals, the capacity to receive LNG imports has increased sharply.

Japan

Most of the world’s LNG is used in Asia. With limited energy resources, Japan must rely on imports for its natural gas needs and is the the world’s largest LNG importer.

Nigeria

Nigeria is the largest natural gas reserve holder in Africa and among the largest in the world.

Nigeria uses less than half of the natural gas it produces. A significant portion of its natural gas is processed into LNG and transported to markets in Europe and the United States.

Australia

The North West Shelf offshore Western Australia is one of the country’s largest natural gas producing areas. It’s believed to hold more than 60 trillion cubic feet of probable reserves.

Due to the great distances between Australia and key natural gas markets, there are no options for transporting gas by pipeline. By transforming natural gas into LNG, it can be shipped to Japan, South Korea and other countries.