



Liquefied Natural Gas (LNG)

*A Bright Present and
a Bright Future*

Background

The United States has an abundance of natural gas. It is clean burning and produces fewer greenhouse gas emissions than other fossil fuels.

Natural gas is a vital energy source and is commonly used to heat homes and run highly-efficient electric power plants; manufacture chemicals and fertilizers; and fuel trucks, locomotives, cruise ships, and cargo vessels.

In the United States, most natural gas is delivered in its gaseous form by pipeline. Natural gas can also be delivered overseas and to places not reachable by pipeline in a liquefied form, called liquefied natural gas (LNG). Thanks to the shale revolution, the United States is now the top producer of natural gas and one of the largest exporters of LNG. To date, the United States has exported LNG to more than 35 countries across five continents.

The U.S. Department of Energy's (DOE) Office of Fossil Energy plays a special role in the natural gas sector as the Nation's regulatory authority



Image Source: Dominion Energy's Cove Point Liquefaction Plant in Lusby, MD.

for natural gas imports and exports, including LNG.

LNG Basics

LNG is natural gas that has been cooled to a liquid by chilling it to about -260 degrees Fahrenheit (-162 degrees Celsius), reducing its volume about 600 times. Liquefying natural gas is a way to move it long distances when pipeline transport isn't feasible. That flexibility helps to create new markets.

Transportation

LNG is most often transported in large, specially designed, double-hulled ships, which keep the cargo safe and insulated from damage. LNG can also reach remote or smaller markets through "virtual pipelines" that transport LNG by rail, truck, barges, or small ships. This broad reach is ideal for locations that don't have a natural

gas pipeline infrastructure, are not near a port that can receive large LNG tankers, or are in small markets such as islands and remote locations.

When it reaches its destination, LNG is converted back into a gas at a receiving terminal. It can then be transported by pipeline to end users.

Customers for LNG Shipments

- Power plants
- Homes and businesses
- Manufacturing facilities
- Vehicle fleet operators
- Refueling stations for LNG and compressed natural gas vehicles
- LNG-powered marine vessels.

Benefits of LNG Exports

Because natural gas is cleaner-burning and the least carbon-intensive fossil fuel, many countries are looking to utilize natural gas and LNG to support global emissions objectives. Some of

the benefits that flow from U.S. LNG exports include:

- Energy security for U.S. allies and trade partners who depend on imports
- Environmental benefits from the use of a low-emissions fuel
- Ability to monetize the gas from remote offshore fields that would be too technically or economically challenging to develop otherwise
- Flexible transportation methods
- Economic benefits, including U.S. jobs and improvements to the balance of trade.

Authorizations

DOE has regulatory authority over LNG imports and exports under the Natural Gas Act. Companies seeking to export LNG from the United States must seek DOE authorization to export both to countries that have free trade agreements (FTA countries) and those that don't have them (non-FTA countries).

Under the provisions of the Natural Gas Act, DOE provides expedited authorization to export LNG to FTA countries and to export LNG to non-FTA countries. DOE conducts a public interest review of applications for authorization. Once an LNG exporter has obtained both an FTA and non-FTA export authorization from DOE, they have maximum flexibility to choose shipping destinations according to market conditions.

To date, DOE has approved over 44 billion cubic feet of natural gas per day for export as LNG, enough to satisfy a large part of the global demand. This approved volume is primarily spread across well over a dozen large-scale U.S. LNG export projects, many of which are in various stages of operation and construction.

Quick links:

- [Summary of LNG Export Applications](#)
- [LNG Monthly Report](#)
- [Semi-Annual Reports](#)
- [Online Docket Room](#)

Growth

The United States is going to remain the largest global producer of natural gas for the foreseeable future. In less than five years of exporting LNG, the United States has become one of the top three exporters in the world.

Engagement

DOE continues to engage with partner countries to facilitate LNG development and open new markets for natural gas and U.S. LNG exports. In coordination with the U.S. Energy Association, DOE developed a comprehensive handbook, [Understanding Natural Gas and LNG Options](#), to serve as a resource for countries that seek to understand the major factors involved in developing their natural gas resources, LNG projects, and associated industries.

For more information, visit Office of Fossil Energy's [Office of Oil and Natural Gas](#) webpage.