

Liquefied Natural Gas (LNG) Exports

September 2021

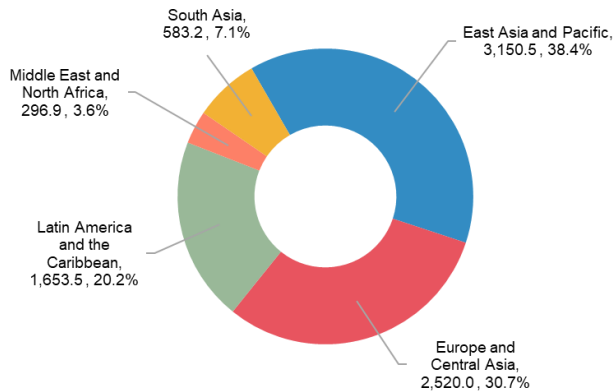
The United States produces more natural gas than it uses, and several LNG export terminals are operating or being built to deliver gas overseas. Seven have begun export operation. DOE's Office of Fossil Energy and Carbon Management (FECM) monitors U.S. LNG trade through its regulatory role under the Natural Gas Act (NGA).

Overview

The United States has become the world's largest producer of natural gas, creating the opportunity for exports. Companies that want to export natural gas must get authorization from FECM. The [Natural Gas Act¹](#) requires FECM to make public interest determinations on applications to export LNG to countries without free trade agreements with the U.S.

FECM also publishes information on LNG exports in its [LNG Monthly Report²](#). LNG exports from the Lower 48 started in 2016. As of July 2021, U.S. export terminals have sent cargos to 40 countries on five continents, mostly from large-scale facilities. Small shipments have been exported since 2016 in cryogenic ISO containers, to Barbados, the Bahamas, Haiti, Jamaica, and Nicaragua.

LNG Exports by Region
February 2016 through July 2021
(Bcf, %)



LNG Export Application Process and Activity

There are two standards of review under the NGA, based on the intended destination of LNG. Where countries have a free trade agreement with the U.S. (FTA countries), exports are deemed automatically in the public interest. The NGA directs DOE to evaluate LNG export applications to non-FTA countries. DOE is required to grant requested export authority for non-FTA countries, unless it finds the proposed exports will be inconsistent with the public interest, or where trade is prohibited by law or policy (for example, Cuba, North Korea and Iran). DOE acts on long-term applications to non-FTA countries after completing a public interest review that involves several criteria, such as economic and environmental reviews, including examination under the National

Environmental Policy Act (NEPA). DOE is typically a cooperating agency for review under NEPA, with the Federal Energy Regulatory Commission (FERC) acting as the lead agency.

Obtaining a DOE authorization to export LNG to non-FTA countries is an important step for most projects in their path toward financing and construction. After comprehensive reviews, DOE has issued a total of 45 long-term LNG or compressed natural gas (CNG) authorizations for any country in the world not prohibited by U.S. law or policy, in a cumulative amount of 48.6 billion cubic feet per day (Bcf/d), as of September 30, 2021. DOE has also issued several authorizations under its Small Scale Rule, as summarized

Foundational Studies for DOE's Public Interest Reviews of LNG Exports

Economic Studies

DOE has commissioned a series of economic studies that were submitted for public comment. Following studies in 2012 and 2014/15, the most recent study was conducted in 2018: NERA Economic Consulting examined the probability and macroeconomic impact of various lower-48 sourced LNG export scenarios, with exports levels determined by market forces.

Environmental Studies

DOE has commissioned multiple environmental studies on LNG that have been carried out by the National Energy Technology Laboratory. The studies help underpin the environmental portion of DOE's public interest review of lower-48 LNG exports. The *Addendum to Environmental Review Documents Concerning Exports of Natural Gas from the United States* surveyed potential environmental impacts from unconventional natural gas production. The *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States* and its 2019 update assessed the potential greenhouse gas (GHG) impacts of U.S. LNG exports vs. alternatives. The studies found that U.S. LNG exports will not increase global GHG emissions vs. examined alternatives. DOE is currently conducting a Supplemental Environmental Impact Statement for the Alaska LNG project that will assess similar issues for that unique project.

¹ <http://www.energy.gov/sites/prod/files/2013/04/f0/2011usc15.pdf>

² <https://www.energy.gov/fe/listings/lng-reports>

[here](#).³ Currently, U.S. export capacity is nearly 11 Bcf/d, and a total of over 15 Bcf/d of capacity is in various stages of operation and construction. Some of the companies that have LNG export authorizations from DOE have not reached final investment decisions (FID) on their projects. Construction of large facilities takes years to complete and can cost billions of dollars. A complete list of long-term LNG export applications and their current status can be found in DOE's [Summary of LNG Export Applications](#).⁴

LNG Facilities

Seven facilities are using authorizations for export, six large and one small. Two other large-scale terminals with DOE authorizations are under construction. Terminals that have DOE authorizations report their status and construction progress to the Department twice per year, and these [Semi-Annual Reports](#)⁵ are available on DOE's website. Customers wishing to purchase LNG from the United States can contact one of the companies authorized or seeking export authority, as listed in FE's [Online Docket Room](#).⁶

NORTH AMERICAN LARGE-SCALE LNG EXPORT PROJECTS WITH NON-FTA EXPORT AUTHORITY FROM DOE						
	Project	Volume (Bcf/d)			Initial Operation (or est.)	Construction Status
		Authorized	Under Construction	Operating		
1	Sabine Pass <i>Cameron, LA</i>	4.14	0.69	3.45	Feb. 2016	Trains 1-5 operating, Train 6 under construction
2	Dominion Cove Point <i>Calvert Cty, MD</i>	0.77	0	0.77	Mar. 2018	Operating
3	Cameron <i>Hackberry, LA</i>	3.53	0	2.1	May 2019	3 trains operating, 2 trains awaiting FID
4	Corpus Christi <i>Corpus Christi, TX</i>	3.7	0	2.1	Dec. 2018	3 trains operating, 7 trains awaiting FID
5	Elba Island <i>Chatham County, GA</i>	0.36	0	0.36	Dec. 2019	10 trains operating
6	Freeport <i>Quintana Island, TX</i>	2.86	0	2.14	Sept. 2019	3 trains operating, 1 train awaiting FID
7	Golden Pass <i>Sabine Pass, TX</i>	2.21	2.21	0	2025	Under construction
8	Venture Global Calcasieu Pass <i>Cameron, LA</i>	1.70	1.70	0	2022	Under construction
9	Lake Charles <i>Lake Charles, LA</i>	2.33	0	0	N/A	Pending FID
10	Magnolia <i>Lake Charles, LA</i>	1.08	0	0	N/A	Pending FID
11	Delfin <i>Gulf of Mexico</i>	1.80	0	0	N/A	Pending FID
12	Port Arthur <i>Port Arthur, TX</i>	1.91	0	0	N/A	Pending FID
13	Driftwood <i>Calcasieu Parish, LA</i>	3.88	0	0	N/A	Pending FID
14	Gulf LNG <i>Jackson County, MS</i>	1.53	0	0	N/A	Pending FID
15	Venture Global Plaquemines <i>Plaquemines Parish, LA</i>	3.40	0	0	N/A	Pending FID
16	Rio Grande LNG <i>Brownsville, TX</i>	3.61	0	0	N/A	Pending FID
17	Texas LNG <i>Brownsville, TX</i>	0.56	0	0	N/A	Pending FID
18	Jordan Cove <i>Coos County, OR</i>	1.08	0	0	N/A	Pending FID
19	Alaska LNG <i>Kenai Peninsula, AK</i>	2.55	0	0	N/A	Pending FID
	U.S. TOTAL	43.00	4.60	10.92		
20	Bear Head <i>Nova Scotia, Canada</i>	0.81	0	0	N/A	Pending FID
21	Goldboro <i>Nova Scotia, Canada</i>	0.80 ⁷	0	0	N/A	Pending FID
22	Mexico Pacific Limited <i>Sonora, Mexico</i>	1.7	0	0	N/A	Pending FID
23	Energia Costa Azul <i>Ensenada, Mexico</i>	1.74	0.44	0	Late 2024	Phase 1 under constr. Phase 2 FID Pending
24	Epsilon LNG <i>Sonora, Mexico</i>	1.08	0	0	N/A	Pending FID
	NORTH AMERICA TOTAL	48.33⁸	5.04	10.92		

For more information, please visit [energy.gov/fe/services/natural-gas-regulation](https://www.energy.gov/fe/services/natural-gas-regulation)

³ <https://www.energy.gov/fe/articles/lng-trades-markets>

⁴ <http://energy.gov/fe/downloads/summary-lng-export-applications-lower-48-states>

⁵ <https://www.energy.gov/fe/semi-annual-reporting-requirements-lng-exporters-2010-2019-dockets>

⁶ <http://energy.gov/fe/downloads/electronic-docket-room-e-docket-room>

⁷ Exports authorized to the Goldboro project are not additive to the volumes authorized to the Bear Head LNG project

⁸ Approved amounts do not include non-FTA authorizations issued to small-scale LNG projects which bring the non-FTA total to 48.6 Bcf/d