Global Energy Monitor

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How Long Does it Take to Build an LNG Export Terminal in the United States?

EXAMINING THE DEVELOPMENT TIMELINES OF EXISTING US PROJECTS

Despite a renewed push by the US government and LNG industry to advance proposed export terminals, new projects are not a viable solution to Europe's near-term gas needs. Analysis by Global Energy Monitor (GEM) shows that such facilities have typically taken three to five years to build in the United States. As GEM has written in its March 2022 report Gas Run Aground, *by the time new projects come online, they will be competing with new and cheaper sources of gas from suppliers such as Qatar, and new and cheaper renewables now being fast-tracked in the European Union (EU). LNG projects commissioned later this decade will also be at odds with tightening climate commitments and calls from the IPCC and IEA for emissions to peak this decade.*

The US and EU announced in late March a framework for cooperation to ensure that the EU has adequate gas supplies over the coming years, as it reduces its reliance on imported gas from Russia due to its invasion of Ukraine. In early March the EU committed to cutting its dependency on Russian imports by two thirds within a year and withdrawing entirely from Russian gas well before 2030. The new US-EU Joint Task Force for Energy Security will focus on ensuring the US and its partners can provide an additional 15 billion cubic meters (bcm) of gas to the EU by the end of 2022, and that the EU will be able to purchase an additional 50 bcm of US LNG annually until at least 2030.

The Biden Administration has committed to "review and expeditiously…permit any additional export LNG capacities," potentially referring to over 20 proposals to build new LNG export facilities in the United States that have been stalled. This move follows weeks of industry lobbying to exploit the crisis in Europe for new oil and gas projects. In early March, groups such as the American Petroleum Institute and Center for Liquefied Natural Gas called for swift permitting of gas projects and regulatory certainty. The CEO of Freeport LNG Terminal said at an industry conference that the crisis in Europe was "unfortunately" creating a strong environment for project expansions.

However, the US government and investors would be wise not to transmute Europe's short-term needs into long-term plans. LNG export terminals are billion-dollar projects that cannot be deployed quickly, as GEM's analysis shows. Even after a project has secured permits, contracts, and financing and taken a positive final investment decision (FID)(i.e., decided to move forward with the project)[1], construction alone takes years. Once deployed, export projects could take decades of LNG shipments to recover returns on investment—far beyond the resolution of Europe's current crisis, and in direct contradiction with international climate goals. For the world to remain on an emissions pathway consistent with the Paris Agreement, the Intergovernmental Panel on Climate Change (IPCC) has called for global methane emissions to decrease 35% by 2030 and the International Energy Agency (IEA) has found that the LNG trade must peak in the middle of this decade.

1. According to McKinsey, a final investment decision, or FID, is "the point in the capital project planning process when the decision to make major financial commitments is taken. At the FID point, major equipment orders are placed, and contracts are signed for [Engineering, Procurement, and Construction]." While pre-FID projects are typically considered proposals that may or may not advance, a positive FID indicates that a project is likely to be built.

As Global Energy Monitor has written in its report *Gas Run Aground*, if any new US LNG projects proceed, in three to five years they are unlikely to enter a gas market nearly as favorable as what developers are seeing today. US projects are positioned to confront a daunting set of market headwinds and regulatory challenges, including competition from lower-priced international producers, tightening climate commitments, and pressure from cheap renewables, especially in a quickly decarbonizing Europe. Recovering billions in investment in such a market is a risky proposition.

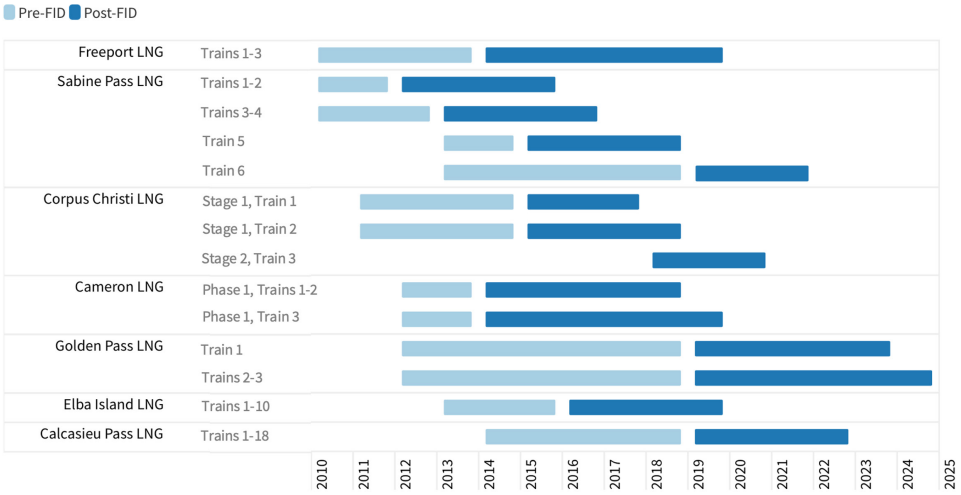
US LNG Export Terminal Development Timelines

Global Energy Monitor has consolidated data on how long existing US LNG export facilities have taken to develop, from initial project proposals, to FIDs, to project completions. Figure 1 plots the pre-FID and post-FID development timelines of facilities, broken down by project (i.e., phase of development). This list of projects includes those that are operating and in construction. Because several proposed US LNG projects claim to be approaching FID, the post-FID development timeline is more relevant for evaluating the proposition of whether they can support Europe's energy security in the near-term. Table 1 shows post-FID project development timelines in greater detail.

Global Energy Monitor has identified the following findings:

- US LNG export projects have typically taken three to five years to build after a FID.
- Five US facilities have had projects (i.e., phases of development) that took four or more years to complete after a FID: Cameron, Corpus Christi, Elba Island, Freeport, and Sabine Pass LNG Terminals.
- Only two US LNG export projects have been completed in under three years, both of which were expansions: Corpus Christi Stage 2 (2 years, 10 months) and Sabine Pass Train 6 (2 years, 8 months). Calcasieu Pass LNG Terminal was the fastest greenfield facility in the world to be commissioned (2 years, 5 months), but it is not yet complete.
- It is highly unlikely that pre-FID US LNG terminals could be deployed quickly enough to meet Europe's short-term gas needs.

Figure 1: Timelines for Developing Existing US LNG Terminals before and after Final Investment Decisions (FIDs)



Source: Global Gas Infrastructure Tracker, Global Energy Monitor. Image designed with support from Flourish. Dates for project proposals, FIDs, and project completions are rounded to the nearest year. Note: Calcasieu Pass and Golden Pass LNG Terminals are still undergoing construction and completion dates are based on current expectations.

Table 1: Timelines for the Development of Existing US LNG Export Projects

"Facility" hyperlinks lead to GEM.wiki, and "Year" hyperlinks lead to news sources.

Facility	Project	Status	Year Project Proposed	Year & Month of FID	Year & Month Project Completed	Time from FID to Project Completion
Cameron LNG Terminal	Phase 1, Trains 1–2	Operating	2012	August 2014	August 2019	5 years
	Phase 1, Train 3	Operating	2012	August 2014	August 2020	6 years
Corpus Christi LNG Terminal	Stage 1, Train 1	Operating	2011	May 2015	November 2018	3 years, 6 months
	Stage 1, Train 2	Operating	2011	May 2015	July 2019	4 years, 2 months
	Stage 2, Train 3	Operating	2018	May 2018	March 2021	2 years, 10 months
Elba Island LNG Terminal	Trains 1–10	Operating	2013	November 2016	October 2019–August 2020	3 years, 9 months
Freeport LNG Terminal	Trains 1–3	Operating	2010	November 2014	December 2019–May 2020	5 years, 6 months
Sabine Pass LNG Terminal	Trains 1–2	Operating	2010	July 2012	May–September 2016	4 years, 2 months
	Trains 3-4	Operating	2010	May 2013	March–October 2017	4 years, 5 months
	Train 5	Operating	2013	July 2015	March 2019	3 years, 8 months
	Train 6	Operating	2013	June 2019	February 2022	2 years, 8 months
Calcasieu Pass LNG Terminal	Trains 1–18	Operating/ Construction	2014	August 2019	January 2022–late 2022/early 2023	~3 and a half years (expected)*
Golden Pass LNG Terminal	Train 1	Construction	2012	February 2019	2024 (expected)	~5 years (expected)
	Trains 2–3	Construction	2012	February 2019	2025 (expected)	~6 years (expected)

Source: Global Gas Infrastructure Tracker, Global Energy Monitor and references hyperlinked throughout the table. Note: the "Time from FID to Project Completion" column uses the final date of project completion in cases where a range of months is presented.

*Calcasieu Pass LNG Terminal produced its first LNG in January 2022, making it, according to Venture Global, the fastest large-scale, greenfield LNG export facility ever to be built. As of early March, six of eighteen trains were online, with full commissioning expected in late 2022 or early 2023.

About Global Energy Monitor

This briefing was written by Robert Rozansky of Global Energy Monitor. Global Energy Monitor is a nonprofit research organization developing information on fossil fuel projects and alternatives worldwide. GEM data is used by the International Energy Agency (IEA), OECD Environment Directorate, UN Environment Programme, US Treasury Department, World Bank, Economist Intelligence Unit, and Bloomberg New Energy Finance. GEM data is also licensed by Bloomberg LP and UBS Evidence Lab.