

North Slope LNG exports require Energy Department, presidential approvals

Before the first cargo load of liquefied natural gas could set sail from Alaska for Asia, the project's export paperwork must be in order.

That paperwork would include a federal agency's finding that exporting the gas would not harm the nation's public interest. The Department of Energy already is pondering that question for Lower 48 projects as companies there push to export U.S. LNG.

The paperwork also would involve a step that applies only to exporting Alaska North Slope production as LNG: The president must declare that shipping the gas out of the United States won't hurt U.S. gas supplies or the price U.S. consumers pay for energy.

Other federal and state authorizations would be required, of course. A biggie would certify the location, safety and environmental soundness of the liquefaction plant. The pipeline to move North Slope gas to the liquefaction plant also could fall under federal regulation. Other approvals likely would involve any dredging of shipping channels, pipeline crossings of streams and wetlands, air emissions, use of government land and the novel design of a pipeline that would be buried in permafrost and carry chilled gas, among other issues.

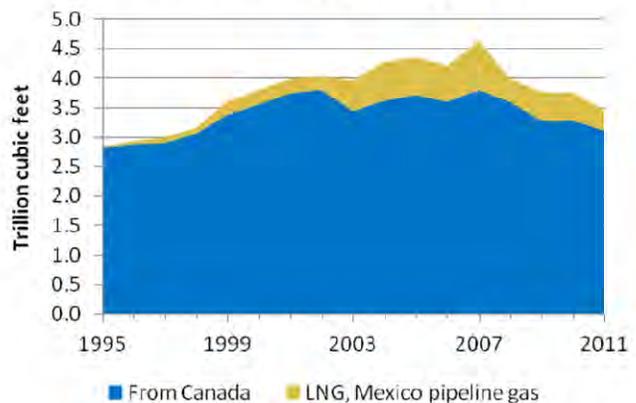
If ExxonMobil, ConocoPhillips, BP and TransCanada decide to move ahead with the multibillion-dollar Alaska LNG project they've begun considering, they will have to hurdle some specific laws about physically exporting U.S. gas production as LNG — laws that until recently seldom attracted much attention.

U.S. imports, exports natural gas daily

Significant amounts of natural gas get imported and exported daily within the United States.

Last year the U.S. received an average of 9.5 billion cubic feet a day of foreign gas — at least twice the volume a major Alaska gas pipeline would carry — and exported 4.1 bcf a day.

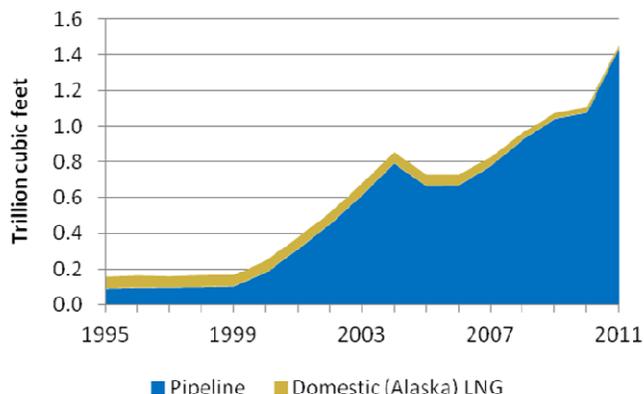
U.S. natural gas imports



Source: U.S. Energy Information Administration

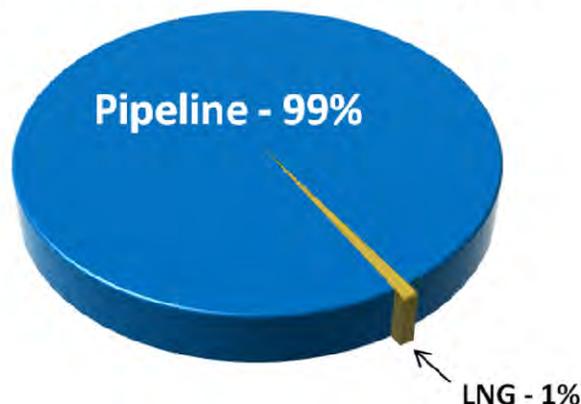
Almost every molecule of that gas entered or exited via pipeline between the United States and Canada or Mexico — mostly Canada. This gas flows easily and abundantly across the borders because of free-trade pacts the United States has with Canada and Mexico. Those pacts mean that requests to import or export gas among the three nations get automatically and quickly approved.

U.S. gas exports



Source: U.S. Office of Fossil Energy

2011 U.S. pipeline vs. LNG exports



Source: U.S. Office of Fossil Energy

Approvals to export LNG are automatic, too, but only if the destination is one of 16 nations, including Canada and Mexico, with which the U.S. has a free-trade agreement involving natural gas. In the past 20 months, the Energy Department approved eight applications for long-term export of up to 11 billion cubic feet a day of LNG to those nations. The average waiting time from when an application was filed to when the department's Office of Fossil Energy approved it was just 53 days.

But all those approvals for all of that gas are mostly just an academic exercise.

That's because few of those 16 countries actually import LNG. Just one of those nations — South Korea — consumes a significant amount of LNG, none from the U.S. South Korea achieved free-trade status only in March 2012. In 2011, South Korea imported an average of 4.4 bcf a day of LNG from exporters around the world. All the other countries with U.S. free-trade agreements together imported just 444 million cubic feet a day, not counting Canada and Mexico, which don't want U.S. LNG because U.S. pipeline gas is much cheaper.

The prime target market for U.S. LNG exports is non-free-trade destinations, such as Japan, China, Taiwan, India and Europe. Getting U.S. approval to ship LNG to those destinations can be much more difficult, time consuming and political.

Much stricter laws apply to exports to non-free-trade countries.

Export of U.S.-made LNG rarely arises

As it stands now, just a smattering of the U.S. gas trade involves LNG leaving the country.

Last year, only nine loads of home-grown U.S. LNG arrived in foreign ports — eight sent to Japan and one to China. The total volume was 16.4 bcf, or an average of just 45 million cubic feet of gas a day. All of those shipments originated from the ConocoPhillips LNG plant in Nikiski, Alaska, that processes nearby Cook Inlet gas, not North Slope gas.

The Nikiski plant is the nation's only operating LNG maker sanctioned for commercial exports. It was first authorized to send LNG to Japan in 1967 and has been doing so since the plant opened in 1969.

With Nikiski historically the only player, sanctioning commercial export of U.S.-made LNG to non-free-trade countries like Japan and China is about as rare as finding an elephant oil field. Those giant fields do get discovered, but not very often. The same goes for permission to export U.S.-made LNG to such countries — it does happen, just not very often.

In fact, in the past 45 years, the Department of Energy has issued just 11 orders allowing such LNG exports. Nine of them involved the Nikiski plant. One, last year, involves a plant Cheniere Energy Corp. wants to build at its Sabine Pass, La., LNG-import terminal. Cheniere hopes to start the plant in 2015.

The 11th came in 1989. It covered exports from a plant that a now-defunct company called Yukon Pacific Corp. wanted to build in Valdez, Alaska. It would have

2011 U.S. LNG exports				
Date	Volume (bcf)	From	To	Buyer
Jan. 22	1.86	Nikiski	Japan	Tokyo Gas & Tokyo Electric
Feb. 16	1.91	Nikiski	Japan	Tokyo Gas & Tokyo Electric
March 10	1.91	Nikiski	Japan	Tokyo Gas & Tokyo Electric
April 19	1.91	Nikiski	Japan	Kansai Electric
May 12	1.13	Nikiski	China	Shanghai LNG Co.
June 25	1.91	Nikiski	Japan	Tokyo Electric
Aug. 3	1.91	Nikiski	Japan	Tokyo Electric
Sept. 18	1.92	Nikiski	Japan	Kansai Electric
Nov. 24	1.94	Nikiski	Japan	Tokyo Electric

Source: U.S. Office of Fossil Energy

exported significant amounts of LNG made from North Slope gas — a project likely similar in concept to the one ExxonMobil, ConocoPhillips, BP and TransCanada are studying today.

These applications can take many months to process. Cheniere's application to export to free-trade countries blitzed through to approval in less than one month. But its application to send LNG to non-free-trade countries lingered eight-and-a-half months before approval came on May 20, 2011. Yukon Pacific's approval took 24 months.

Since late 2010, the Office of Fossil Energy has received eight other applications besides Cheniere's for long-term export of U.S. LNG anywhere in the world from Lower 48 ports. An abundant supply of shale gas has glutted U.S. markets and depressed U.S. prices, prompting producers and others to seek new markets — such as exports to LNG users. All of these applications are under review. The Energy Department is awaiting results of an economic-impact study launched last year amid an outcry from gas-user trade organizations, consumer groups, environmentalists and some members of Congress that U.S. fossil fuels should stay in the country, not be exported.

This potential for bruising opposition is a key reason why getting Office of Fossil Energy approval can take so long. The case of LNG exports from Alaska's Nikiski plant illustrates.

No objection to Alaska's early LNG exports

Two federal laws govern gas exports in general.

The Natural Gas Act of 1938 says no gas exports may occur without federal permission, but that permission will be granted unless, after a hearing, the government "finds that the proposed exportation ... will not be consistent with the public interest."

The Energy Policy and Conservation Act says the president can restrict natural gas exports — as well as export of other fossil fuels — unless he determines the exports are "consistent with the national interest." Congress wrote this law in 1975 when a quadrupling of oil prices in three years triggered an energy crisis that staggered U.S. consumers and the economy.

Via some handoffs, the Office of Fossil Energy today rules on the national interest.

An important facet of the decision is that the export permission will be given unless opposition makes the case that exports would be bad for the United States.

In the case of the Nikiski LNG exports, no one contested them for the first couple of decades and they sailed through to easy approval.

It's important to understand that this absence of opposition occurred because there was no other demand for the exported gas in the Nikiski plant's early years.

The plant was born after significant oil discoveries in southern Alaska's Cook Inlet basin during the 1960s. The oil drilling also found a bounty of methane. But there was no local market for the gas.

So entrepreneurs stepped up to create markets.

Locally, power plants converted to natural gas as a fuel, and a local gas company built a network of pipes to supply gas to home and commercial-building furnaces.

But local demand was not enough to sop up all the gas bounty.

U.S. LNG export authorizations

For shipments to non-free-trade-agreement countries

Year	Amount	Who received permission	Duration	From	Destination
1967	50 bcf a year	Phillips/ Marathon	15 years ending May 31, 1984	Nikiski, Alaska	Japan
1982	50 bcf a year	Phillips/ Marathon	5 years ending May 31, 1989	Nikiski, Alaska	Japan
1988	52 bcf a year	Phillips/ Marathon	15 years ending March 31, 2004	Nikiski, Alaska	Japan
1989	660 bcf a year	Yukon Pacific	25 years from first shipment	Valdez, Alaska	Japan, South Korea and Taiwan
1992	64.4 bcf a year	Phillips/ Marathon	Through March 31, 2004 (amended 1988 order)	Nikiski, Alaska	Japan
1993	Up to 10 bcf total	Phillips/ Marathon	2 years from first shipment	Nikiski, Alaska	Anywhere (spot market) - 1 shipment to Japan occurred
1999	64.4 bcf a year	Phillips/ Marathon	5 years ending March 31, 2009	Nikiski, Alaska	Japan
2000	Up to 10 bcf total	Phillips/ Marathon	2 years from first shipment	Nikiski, Alaska	Anywhere (spot market) - 1 shipment to Russia occurred
2008	98.1 bcf total	ConocoPhillips/ Marathon	2 years ending March 31, 2011	Nikiski, Alaska	Pacific Rim countries
2010	Rest of 98.1 bcf authorized in 2008	ConocoPhillips/ Marathon	2 years ending March 31, 2013	Nikiski, Alaska	Anywhere
2011	803 bcf a year	Cheniere Energy	20 years from first shipment	Sabine Pass, La.	Anywhere

Source: U.S. Office of Fossil Energy

That gave rise to two export projects. In 1969, Union Oil Co. of California, a Cook Inlet producer, opened a fertilizer plant that used natural gas as a feedstock. That same year, two other producers — Phillips and Marathon — christened their LNG plant at Nikiski.

The initial approval allowed the Nikiski plant to export LNG to utilities in Japan for 15 years.

Back then, exporting gas as LNG was a novel, breakthrough idea. The world's first commercial shipment, from Algeria to England, occurred only a few years earlier.

Through Nikiski, the United States pioneered LNG shipments to Asia, the destination last year of about 65 percent of the world's LNG production. Producers

in Malaysia, Indonesia, Brunei, Qatar, Australia and Russia now dominate the Japan trade. The Nikiski plant is a bit player today.

The U.S. government extended the Nikiski plant's export authority three times between the early 1980s and the early 1990s. Each time the export application sailed through uncontested.

But the Phillips/Marathon application on Dec. 31, 1996, seeking to continue exports through 2009 sparked a maelstrom of opposition.

A late-1990s donnybrook on Alaska exports

The battled raged for 27 months before the Office of Fossil Energy on April 2, 1999, concluded, in double-negative legalese, that the exports have "not been shown to be inconsistent with the public interest."

The fight over this authorization reflected two factors converging by the late 1990s in Cook Inlet. First, demand for gas had grown to where it consumed all production. Second, the 1960s-era gas fields were old and production was on the brink of fizzling away.

Worries of a local natural gas shortage surfaced.

Exports of Nikiski LNG through 2009? Terrible idea, opponents argued.

Unocal said exports would jeopardize the gas flow to its fertilizer plant. ENSTAR Natural Gas Co., the local gas utility, argued it would need the exported gas to feed local furnaces. Aurora Gas Inc., a marketer of Cook Inlet gas, worried it couldn't supply customers if LNG exports occur. They wanted a trial-type hearing. They wanted a public airing of the topic in Anchorage.

Continued exports "would be inconsistent with the public interest," they argued in fat filings.

The Office of Fossil Energy also heard from Alaska U.S. Sens. Ted Stevens and Frank Murkowski, 17 state legislators, the cities of Anchorage and Kenai, and 21 other interested parties, most supporting the exports for creating Alaska jobs, paying local taxes and royalties, stimulating local gas production and helping the U.S. trade imbalance.

Phillips and Marathon, the LNG plant owners, argued Cook Inlet had plenty of gas to supply all users through 2009. If the gas wasn't exported, the local market

Pending applications for U.S. LNG exports

Long-term exports to non-free-trade nations

Freeport LNG Expansion and FLNG Liquefaction

Amount	1.4 billion cubic feet a day
Duration	25 years
Export site	Freeport, Texas
Date applied	Dec. 17, 2010
Companies involved include ...	Dow Chemical, Osaka Gas, ConocoPhillips

Lake Charles Exports

Amount	2 billion cubic feet a day
Duration	25 years
Export site	Lake Charles, La.
Date applied	May 6, 2011
Companies involved include ...	BG Group, Southern Union Co.

Dominion Cove Point LNG

Amount	1 billion cubic feet a day
Duration	25 years
Export site	Cove Point, Md.
Date applied	Oct. 3, 2011
Companies involved include ...	Dominion Resources

Carib Energy (USA) *

Amount	10 million cubic feet a day
Duration	25 years
Export site	Various Southeast U.S. cities
Date applied	Oct. 20, 2011
Companies involved include ...	EFG Industries, Argosy Transportation Group

* Carib would send truckload-sized volumes to small Latin America users

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Pending applications for U.S. LNG exports (continued)

Freeport LNG Expansion and FLNG Liquefaction*

Amount	1.4 billion cubic feet a day
Duration	25 years
Export site	Freeport, Texas
Date applied	Dec. 19, 2011
Companies involved include ...	Dow Chemical, Osaka Gas, ConocoPhillips

* This request is in addition to the applicant's 2010 filing

Cameron LNG

Amount	1.7 billion cubic feet a day
Duration	20 years
Export site	Cameron Parish, La.
Date applied	Dec. 21, 2011
Companies involved include ...	Sempra Energy

Gulf Coast LNG Export

Amount	2.8 billion cubic feet a day
Duration	25 years
Export site	Brownsville, Texas
Date applied	Jan. 10, 2012

Jordan Cove Energy Project

Amount	800 million cubic feet a day
Duration	25 years
Export site	Coos Bay, Ore.
Date applied	March 23, 2012
Companies involved include ...	Veresen Inc.

Source: U.S. Office of Fossil Energy

would be glutted, they said. The two companies packed the file with studies backing their predictions.

Domestic need for gas, reliability of supply, impact on price, job creation and U.S. energy security are key decision points on where the public interest lies.

In its decision, the Office of Fossil Energy blasted opponents of Nikiski exports between the eyes. They simply didn't make a case that invalidated the evidence Phillips and Marathon presented that Cook Inlet had plenty of gas for all.

The Natural Gas Act "creates a statutory presumption in favor of approval of an export application, and the Department must grant the requested export extension unless it determines the presumption is overcome by evidence in the record of the proceeding that the proposed export will not be consistent with the public interest," the decision said. "Opponents of an application bear the burden of overcoming this presumption."

LNG exports mean Alaska's energy resources will be developed efficiently to the benefit of producers and consumers, the decision said.

Besides whittling the trade deficit, the department said it "believes that the public interest in free trade generally supports approval of proposed exports. ... Competition in world energy markets promotes the efficient development and consumption of energy resources, as well as lower prices, whereas economic distortions can arise from artificial barriers to the free flow of energy resources."

U.S. grows cautious on LNG exports

In January 2007, ConocoPhillips and Marathon applied for a two-year extension of exports — to 2011.

That same month, the Nikiski plant briefly stopped taking gas delivery so that the gas could be diverted to meet local demand during a cold snap.

Also by this time, the fertilizer plant had shut down; its owner, Agrium U.S. Inc., had bought the plant from Unocal in 2000 but started curtailing production three years later for lack of reliable gas supplies. Agrium closed the plant in 2006.

Agrium opposed the export application, arguing its factory should get the gas because it could provide more jobs than the LNG plant.

A local power utility, Anchorage-based Chugach Electric Association, told the Office of Fossil Energy it wanted assurances that local gas needs would be met before any LNG exports happened.

ENSTAR, the gas utility, initially opposed the application but withdrew after ConocoPhillips and Marathon ensured ENSTAR an adequate supply.

In June 2008, 17 months after the application, the Office of Fossil Energy approved the exports. Again, the office said, the opponents failed to show that allowing the exports would be "inconsistent with the public interest."

Among other points, the office said keeping the LNG plant open helps ensure local needs are met by allowing the plant's gas supply to be diverted to meet local needs during winter's harshest spells.

In 2010, the Office of Fossil Energy extended the Nikiski plant's export authority through March 31, 2013.

As for Cheniere Energy's bid to export LNG from its Sabine Pass, La., site, the office similarly dismissed opponents when it authorized exports last year.

But since then, the Office of Fossil Energy has become cautious on the eight pending applications to export LNG from Lower 48 sites.

As a Fossil Energy official told Congress last November during a hearing on the wisdom of gas exports, "Mindful of the growing interest in exporting domestically produced LNG, DOE recognized in the Sabine Pass order that the cumulative impact of Sabine Pass and additional future LNG export authorizations could pose a threat to the public interest. DOE stated that it would monitor the cumulative impact and take such action as necessary in future orders."

As for future export of North Slope gas as LNG, Alaska U.S. Sen. Lisa Murkowski has tried to create a separation between Alaska exports and any controversy swirling about Lower 48 exports.

Alaska is unconnected to the vast North American gas pipeline grid and shouldn't get sucked into the Lower 48 debate, she reminded the Obama administration in an April 27 letter. Think instead of Alaska gas as a potential source of cleaner, sustainable and reliable energy "to our friends in Japan," she wrote the president.

The president must sign off

The president plays a specific role in allowing or disallowing export of North Slope gas to somewhere other than Canada or Mexico.

In 1976, Congress passed the Alaska Natural Gas Transportation Act to help spur development of a pipeline system that would flow North Slope gas through Canada down into Lower 48 markets. To date, the northern two-thirds of the system — from Alaska into Canada — hasn't been constructed. But the law remains active.

Section 719j of that law says that if North Slope gas exports exceed 1 million cubic feet a day to somewhere other than Canada or Mexico, "the President must make and publish an express finding that such exports will not diminish the total quantity or quality nor increase the total price of energy available to the United States."

How much is 1 million cubic feet per day? Not much — the furnaces of roughly 1,600 Anchorage homes burn through that amount on a typical January day. A pretty low threshold to trigger the presidential finding.

On Jan. 12, 1988, LNG exports of North Slope gas got such a presidential finding. The Yukon Pacific project was pending then, but President Ronald Reagan's finding doesn't specifically mention that project. It simply declares generically that it's OK to export the gas.

"There exist adequate, secure, reasonably priced supplies of natural gas to meet the demand of American consumers for the foreseeable future," Reagan decreed. "This demand can be met by lower-48 production and already-approved Canadian imports. If necessary, this demand also can be met at lower delivered energy cost by coal, oil, imported liquified natural gas (LNG), natural gas from Mexico, and other energy sources.

"Given these facts, exports of Alaska natural gas would represent a judgment by the market that the energy demands of American consumers can be met adequately from other sources at comparable or lower prices. Exports of Alaska natural gas would not diminish the total quantity or quality of energy available to U.S. consumers because world energy resources would be increased and other more efficient

supplies would thus be available. Finally, exports would not increase the price of energy available to consumers since increased availability of secure energy sources tends to stabilize or lower energy prices."

It's unclear whether this 1988 finding could still apply to an export project circa 30 or 40 years later. U.S. natural gas markets have evolved considerably since the 1980s. Yet the language echoes eerily of today's market: Adequate supplies, reasonable prices, demand that can be met using other energy sources.

The 1976 Alaska gas law also bars federal authorizations that could hobble construction of the Alaska gas pipeline project through Canada — called the Alaska Natural Gas Transportation System, or ANGTS. Only the southern one-third of that project got built — from Alberta to the Lower 48.

Would allowing LNG exports of North Slope gas impair construction of the northern two-thirds?

The federal government didn't think so in the late 1980s.

"I do not believe this finding should hinder completion of the Alaska Natural Gas Transportation System," Reagan's finding said.

The Office of Fossil Energy also considered the topic when authorizing the Yukon Pacific LNG exports in 1989. Sponsors of the shelved pipeline project to Canada objected to the exports, saying exports will

leave too little gas to make its project viable. Canadian officials, through diplomatic channels, expressed angst about the LNG exports.

The office brushed away the objection and authorized the exports anyway, saying:

"The approval neither commits any natural gas supplies to Yukon Pacific nor creates any regulatory impediments to other North Slope natural gas projects, including ANGTS. Rather, the approval is intended to spur competition to develop North Slope natural gas efficiently, with the marketplace determining the course of development. The public interest lies in bringing this immense energy resource to market in an efficient and timely manner."

The office tossed opponents a bone, though. It said the opponents had valid concerns that the Yukon Pacific project could make the Canadian pipeline more costly or harder to build: "(T)he proximity of the (Yukon Pacific) pipeline to ANGTS in many locations creates the potential that ANGTS may become significantly more expensive, or even impossible to construct and operate."

But that possibility can be managed, the office said. It barred the Yukon Pacific project from "taking any action that would compel a change in the basic nature and general route of ANGTS or otherwise prevent or impair in any significant respect is expeditious construction and initial operation."



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