

North American LNG industry looks for survival through exports

North America's liquefied natural gas industry is gearing up to shift into reverse.

Normally a business in reverse connotes retreat and possibly doom. But LNG ports hope just the opposite will be true, that they will find their future and salvation.

A decade ago the industry was certain North America would be importing billions of cubic feet of gas a day to slake consumers' growing thirst for the fuel in an era of declining domestic production.

Executives of major oil and gas companies hopped on board. Bankers got in line. Politicians pressed regulators to speed up approvals. Even the chairman of the Federal Reserve Board rattled cages about the need for LNG.

And from all that commotion, LNG-import proposals sprang up and multiplied. (Also during this time, 30-year-old plans were revived for an Alaska North Slope pipeline to flow gas to a continent believed to be on the brink of a new energy crisis.)

Before 2000, North America had just two operating LNG-import terminals. But in the next 11 years, two mothballed import terminals restarted and expanded, and eight new terminals were built in the United States, plus one in Canada and two in Mexico.

Collectively, the terminals can feed about 20 billion cubic feet a day of natural gas into the North American pipeline grid, enough to satisfy one-third of U.S. consumption on an average day.

But mostly those terminals are idle, as obsolete as a Rust Belt factory. At least five of them didn't import

a droplet of LNG in 2012 through November.

All the executives, bankers and politicians were wrong. U.S. gas production didn't decline, it grew astoundingly thanks to new techniques to blast oil and gas from stingy strata of shale deep underground.

Now the North American LNG industry's new vision involves exporting that overabundance of gas. It's a radical redirection. It's like Sir Edmund Hillary, part way up Mount Everest, deciding to become a deep-sea diver instead.

The LNG industry's about-face is part of a larger upheaval that the shale oil and gas boom has sparked. Many power plants that once burned coal now favor natural gas. Former oil pipelines plan to carry gas. And, as supply and demand adjust to the new world of shale-gas production, pipelines that once flowed methane south or east now aim to push it north or west.

For the LNG industry, the question has become: Can it pull off its audacious reversal?

EXPORT MANIA

In the United States, one export terminal already is under construction. Cheniere Energy is adding liquefaction production to its mostly idle import terminal at Sabine Pass, La.

Cheniere hopes to produce its first batch of LNG in 2015.

As of mid-January 2013, 16 other U.S. proposals exist at least on paper, based on filings with the U.S.

Sabine Pass Liquefaction Project Trains 1 & 2 Under Construction



Current Facility

- ~1,000 acres in Cameron Parish, LA
- 40 ft ship channel 3.7 miles from coast
- 2 berths; 4 dedicated tugs
- 5 LNG storage tanks (17 Bcf of storage)
- 4.3 Bcf/d peak regasification capacity
- 5.3 Bcf/d of pipeline interconnection to the U.S. pipeline network

Liquefaction Trains 1 & 2

- LSTK EPC contract w/ Bechtel
- Six GE LM2500+ G4 gas turbine driven refrigerant compressors per train
- Gas treating and environmental compliance
- Modifications to the Creole Trail Pipeline for bi-directional service

Significant infrastructure in place including storage, marine and pipeline interconnection facilities; pipeline quality natural gas to be sourced from U.S. pipeline network

CHENIERE

Source: Cheniere

Construction is under way at Cheniere Energy's Sabine Pass, La., LNG export terminal.

Department of Energy. Department approval is required before gas can go to Japan, China, India, Europe or any of the other countries targeted by the applications.

Three of the 16 have applied to the Federal Energy Regulatory Commission for permission to build liquefaction facilities. Five more are doing preliminary work with FERC in advance of applying for authority to build and operate export plants.

In Canada, at least six projects are under active consideration. Five are proposed for the nation's West Coast and one for the East Coast.

All together, the U.S. and Canada projects propose to export up to 30 billion cubic feet a day. That's a breathtaking quantity — equal to roughly a third of

all gas production from the two countries in 2012.

No one thinks that much gas will exit North America. Some proposals will remain nothing more than ideas. Some will get approved but never built for lack of financing or customers.

But the global gas industry abounds in frenzied fascination over the possibility of North American LNG exports. Such exports, especially if sizable, could shake up how gas is bought, sold and priced across the world.

Global LNG consumption averaged about 30 billion to 35 billion cubic feet a day in 2012. That quantity is predicted to grow strongly in coming years as gas demand from China, India and other developing economies blossoms.

Most speculation on how much North America LNG actually gets shipped generally ranges from 5 billion to 10 billion cubic feet a day — or the output from four to six projects.

Two U.S. energy consultancies in October 2012 jointly predicted foreign buyers would want about 10 bcf a day. LCI Energy Insight and Energy Ventures Analysis Inc. were more specific: The winners would be two Lower 48 projects, one in Alaska and three on Canada's West Coast.

As for the predicted winners: "It was deemed that the combination of their transportation advantage (nearness to market), (oil and natural gas) liquids revenues and partnership with either foreign partners or the majors, would provide them with a competitive advantage ... in what appears to be an intensely competitive market," they said.

Separately in October, a Shell executive predicted about 8 bcf a day of exports.

More recently, Kenneth B. Medlock III, an energy economist at Rice University in Houston, said: "I doubt we'll see more than 6 billion."

BROWNFIELD VS. GREENFIELD

To better understand the proposed export projects and their prospects of success, it can be helpful to grasp some industry jargon.

The projects are either "brownfield" or "greenfield."

Brownfield is an industry term for projects where some, if not much, of the infrastructure already is in place. Export projects proposed for sites where import terminals stand are brownfield.

By contrast, greenfield projects start from scratch, developing a new site.

If you're trying to play in the LNG export game, you've got a big advantage if you propose a brownfield project.

Brownfield proposals already have expensive tanker berths, high-tech LNG storage tanks, pipeline connections, roads and utilities installed. The major extra infrastructure they need is muscular machinery that superchills methane to minus 260 until the vapor becomes liquid. Liquid gas takes up less space

than a vapor, making it easier to ship in bulk across oceans.

Lower 48 brownfield projects might cost half as much to build as greenfield — perhaps \$5 billion to \$10 billion for big brownfield projects, compared with possibly \$20 billion and up for big greenfield LNG terminals.

Another real advantage in a world where time is money: Typically brownfield can be permitted more quickly than greenfield.

Of the pending U.S. export proposals, seven would be brownfield projects. Almost every U.S. import terminal is maneuvering to add export services.

Another nine big U.S. proposals — and all of the Canadian projects — involve greenfield development. (The Canadian West Coast projects, however, lie much closer to Asia's major LNG markets — Japan, South Korea, China and Taiwan — than the U.S. brownfield projects, all of which lie along the Gulf of Mexico or East Coast. Their advantage lies in that proximity and the resulting lower cost of transporting LNG to Asia.)

Cheniere's Sabine Pass export project under construction illustrates how a brownfield project can get approvals quickly.

Cheniere obtained FERC permission to build its import terminal in 2004. Years of construction ensued and the terminal took its first LNG cargo in 2008.

But by 2008 it was becoming clear the terminal wouldn't be very busy. Shale-gas production was catching on and North America needed far less imported LNG than predicted just a couple of years earlier.

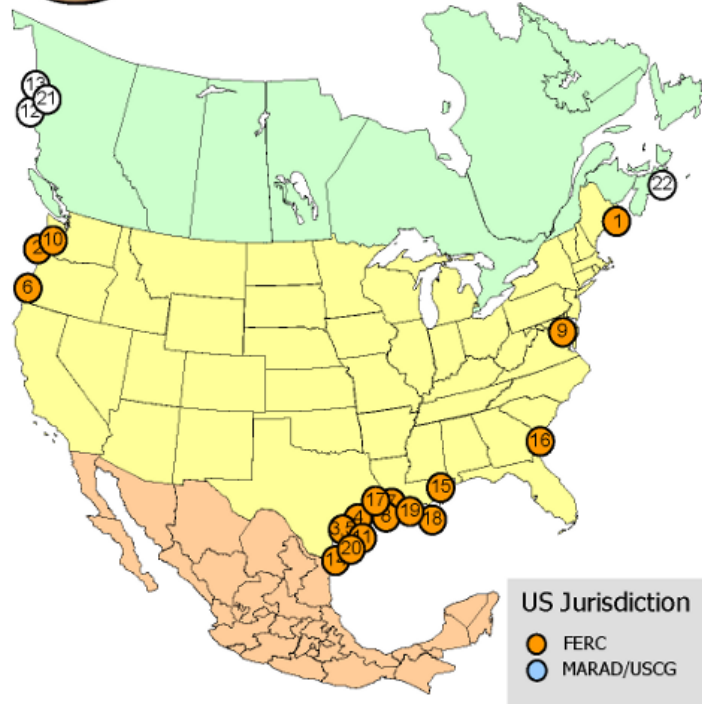
Almost immediately, Cheniere applied for and received Energy Department permission to "re-export" LNG. A Sabine Pass customer would buy a cargo of foreign-made LNG, offload it to hold in cold storage, then pipe it back onto a tanker for delivery to a foreign buyer when the price was right.

But occasional re-export cargoes is a poor long-term business strategy for a multibillion-dollar investment.

In 2011, Cheniere took the next step in its evolution.



North American LNG Import/Export Terminals *Proposed/Potential*



Import Terminal

PROPOSED TO FERC

1. **Robbinston, ME:** 0.5 Bcfd (Kestrel Energy - Downeast LNG)
2. **Astoria, OR:** 1.5 Bcfd (Oregon LNG)
3. **Corpus Christi, TX:** 0.4 Bcfd (Cheniere - Corpus Christi LNG)

Export Terminal

PROPOSED TO FERC

4. **Freeport, TX:** 1.8 Bcfd (Freeport LNG Dev/Freeport LNG Expansion/FLNG Liquefaction)
5. **Corpus Christi, TX:** 2.1 Bcfd (Cheniere - Corpus Christi LNG)
6. **Coos Bay, OR:** 0.9 Bcfd (Jordan Cove Energy Project)
7. **Lake Charles, LA:** 2.4 Bcfd (Southern Union - Trunkline LNG)
8. **Hackberry, LA:** 1.7 Bcfd (Semptra - Cameron LNG)
9. **Cove Point, MD:** 0.75 Bcfd (Dominion - Cove Point LNG)
10. **Astoria, OR:** 1.30 Bcfd (Oregon LNG)
11. **Lavaca Bay, TX:** 1.38 Bcfd (Excelerate Liquefaction)

PROPOSED CANADIAN SITES IDENTIFIED BY PROJECT SPONSORS

12. **Kitimat, BC:** 0.7 Bcfd (Apache Canada Ltd.)
13. **Douglas Island, BC:** 0.25 Bcfd (BC LNG Export Cooperative)

POTENTIAL U.S. SITES IDENTIFIED BY PROJECT SPONSORS

14. **Brownsville, TX:** 2.8 Bcfd (Gulf Coast LNG Export)
15. **Pascagoula, MS:** 1.5 Bcfd (Gulf LNG Liquefaction)
16. **Elba Island, GA:** 0.5 Bcfd (Southern LNG Company)
17. **Sabine Pass, TX:** 2.6 Bcfd (ExxonMobil - Golden Pass)
18. **Plaquemines Parish, LA:** 1.07 Bcfd (CE FLNG)
19. **Cameron Parish, LA:** 0.16 Bcfd (Waller LNG Services)
20. **Ingleside, TX:** 1.09 Bcfd (Pangea LNG (North America))

POTENTIAL CANADIAN SITES IDENTIFIED BY PROJECT SPONSORS

21. **Prince Rupert Island, BC:** 1.0 Bcfd (Shell Canada)
22. **Goldboro, NS:** 0.67 Bcfd (Pieridae Energy Canada)

As of December 5, 2012

Office of Energy Projects

Source: Federal Energy Regulatory Commission

The company asked for permission to liquefy U.S. natural gas for export. In less than nine months, the Energy Department authorized exports anywhere in the world, provided FERC sanctioned construction. FERC gave its OK in 2012, 15 months after getting Cheniere's application.

Before acting, FERC conducted an environmental assessment. Assessments are less comprehensive and take less time than full-blown environmental impact statements, which can run into the thousands of pages and cost an LNG-project developer hundreds of millions of dollars.

The assessment tallied 142 pages, plus attachments. FERC staff did an assessment instead of an environmental impact statement "because all the proposed facilities would be within the footprint of the existing LNG terminal, which was previously the

subject of an EIS, and the relevant issues that needed to be considered were relatively small in number and well-defined," FERC said.

Other permitting agencies took a similar tack. Because the import terminal was rarely used, the air emissions, ship traffic and other issues for an export terminal would be no greater than allowed already.

In general, with some exceptions, FERC has environmental assessments planned or under way for the proposed brownfield export projects that have applied to the agency so far, and full EISs for the greenfield sites.

WILL LNG BUYERS STEP UP?

All of the export frenzy, the engineering and marketing under way, the possible tens of billions of

construction dollars needed, they're all based on a simple premise:

LNG can be made cheaply in North America and sold at a profit in Asia and Europe.

That premise is rock solid in describing today's market and prices. But not everyone believes the premise has staying power.

The raw material of LNG — methane — is available at ultra-low prices right now in North America because so much shale gas is flooding the market. Last year, the market price at the Lower 48's Henry Hub averaged \$2.75 per million Btus (roughly 1,000 cubic feet of methane). That was the lowest average since 1999. (The price has risen in the past several months, reaching \$3.50 as of mid-January and climbing to \$4 in the futures market for deliveries next winter.)

But overseas, LNG spot market prices are sky high. They average \$15 to \$18 in Asia at present, according to trade journal Heren Global LNG Markets. Spot gas prices in Europe range from \$10 to \$12. (Deliveries under long-term contracts can cost less than these prices.)

That gap between low North America prices and high prices elsewhere has created what finance professionals call an "arbitrage opportunity" — profiting when the same commodity fetches different prices in different markets. Profits amass by buying in one market and selling in another.

Even after adding possibly \$5 to \$7 in cost to liquefy North American gas and ship it long distances from the Lower 48, the arbitrage opportunity remains — at today's prices.

Unfortunately for those who would like to take this arbitrage profit now, they can't. The sole working U.S. LNG export plant — ConocoPhillips' 44-year-old plant at Nikiski, Alaska — is small and winding down operations as its federal export authority expires in March. The only other plant authorized for exports to anywhere in the world is Cheniere's Sabine Pass site, which is under construction and won't be ready to ship before 2015.

Cheniere and other LNG export entrepreneurs are gambling that the price gap will remain wide enough,

and long enough, to make their industry's new direction viable. (In all cases, the proposed North American export terminals merely plan to liquefy somebody else's gas — called "tolling services" within the industry — while the gas sellers and/or buyers would bear risk of guessing wrong on commodity prices.)

But forecasting future natural gas prices is as maddening and impossible as accurately predicting earthquakes.

Since 2000, the average annual U.S. price has been \$5.33 per million Btu. Within those years, however, the annual average has swung between an \$8.86 high in 2008 to a \$2.75 low in 2012. The daily average soared and plunged like a runaway rollercoaster, from a high of \$18.48 to a low of \$1.69 during that span.

Asian and European price swings have been nearly as wild. For a time in mid-decade, North American prices even exceeded gas prices overseas.

No one forecasted all that price volatility, although thousands of consultants, market watchers, investors and industry professionals tried.

The arbitrage opportunity began opening up around 2009 or 2010.

Asian buyers and others are starting to move on it. Companies from Japan, South Korea, China, India and Malaysia have recently invested in North American gas fields or LNG export plays. It's partly a matter of protecting themselves against high LNG prices.

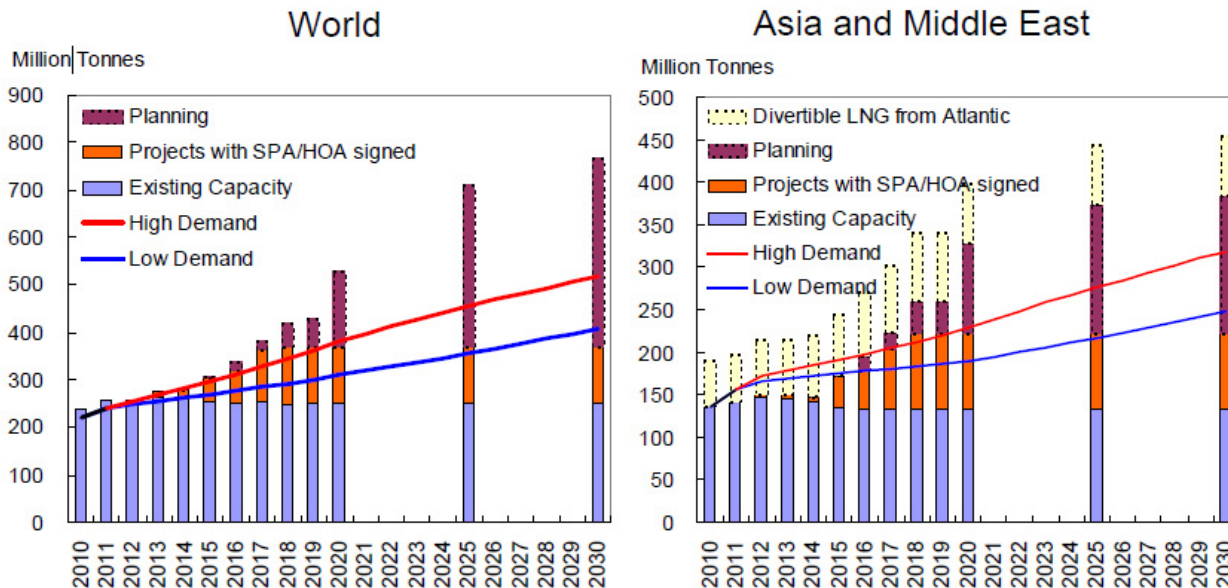
Japanese, Korean and Taiwanese officials told foreign LNG makers in September 2012 that their prices are out of whack given what's going on in North America. Japan is enduring its first trade deficit since the early 1980s in part due to paying high LNG prices.

Some think today's price gap could narrow quickly.

As one former Energy Department official told The New York Times recently, "I know the pitch about our price differentials will justify the high costs of LNG. We will see. Gas by pipeline is a good deal. LNG? Not so clear."

Medlock, the Rice University energy economist,

LNG Outlook



Source: IEEJ

- Ample supply potential, but timely investment is the key
- Divertible LNG from Atlantic to balance the Asian demand for short-term

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2

Source: Institute of Energy Economics Japan

published a paper in 2012 predicting North American LNG exports will lose money.

Today's extremely low North America prices are an aberration due to the new-found glut of shale gas, Medlock argued. Producers and markets will adjust, prompting the price to rise.

Today's extremely high prices elsewhere, especially in Japan, the world's top LNG buyer, also are an aberration due LNG prices linked to soaring oil prices, exacerbated by a demand spike after Japan's Fukushima nuclear power plant disaster in 2011, Medlock said.

Today's extremes cannot last. Other countries will start producing shale gas. More pipelines will get built to supply China, freeing more LNG for Japan and South Korea. New liquefaction projects could sprout in Russia, East Africa and elsewhere besides

North America.

When prices migrate to more reasonable and sustainable levels, the arbitrage opportunity will vanish, he said.

The global gas price differences will not be "sufficient to support long-term baseload LNG exports from the U.S. Gulf Coast to these regions (Asia and Europe)," he said.

North American export sites could be profitable as seasonal suppliers or as providers of storage capacity for European and Asian markets. "In fact, it would not be surprising to see Asian utilities taking storage positions in the U.S. to hedge seasonal price fluctuations. ... This is a distinctly different type of arrangement from a baseload LNG supply deal," Medlock said.

Cheniere Energy, the first mover to add liquefaction to its Louisiana import terminal, has found buyers for all of its 2-bcf-a-day output. British trader BG Group, Spain's Gas Natural Fenosa, Korea Gas Corp. and GAIL (India) have signed 20-year contracts.

Cheniere's 2011 annual financial report says that collectively the four companies have committed to pay \$2.3 billion annually for liquefaction services.

For Charif Souki, Cheniere CEO, to shift to liquefaction is an act of survival.

The company was near bankruptcy, he told a London gas conference in October 2012. He needed to find a way to salvage Cheniere's investment in storage tanks, tanker berths and the rest.

"For us it was a matter of life and death," Souki said.

IMPORT MANIA

Ten years ago, the world looked very different to Souki and other industry executives.

They were joining the stampede to build or expand LNG import terminals.

"At one point in the early 2000s there were over 47 regasification (import) terminals with certification for construction, which was a clear signal regarding industrywide expectations for significant declines in future U.S. production," Medlock said.

U.S. production did drop. From 2001 to 2005, production fell 8 percent, the equivalent of 4.3 bcf a day.

The pressure was on to bring more supply to U.S. consumers.

In late 2002, while considering an application for the Cameron LNG terminal eventually built in Hackberry, La., FERC made a significant decision: It would not take into consideration the financial viability of LNG projects brought to the commission. The project developer and its customers would bear the "economic risk." FERC would focus on environmental impacts,

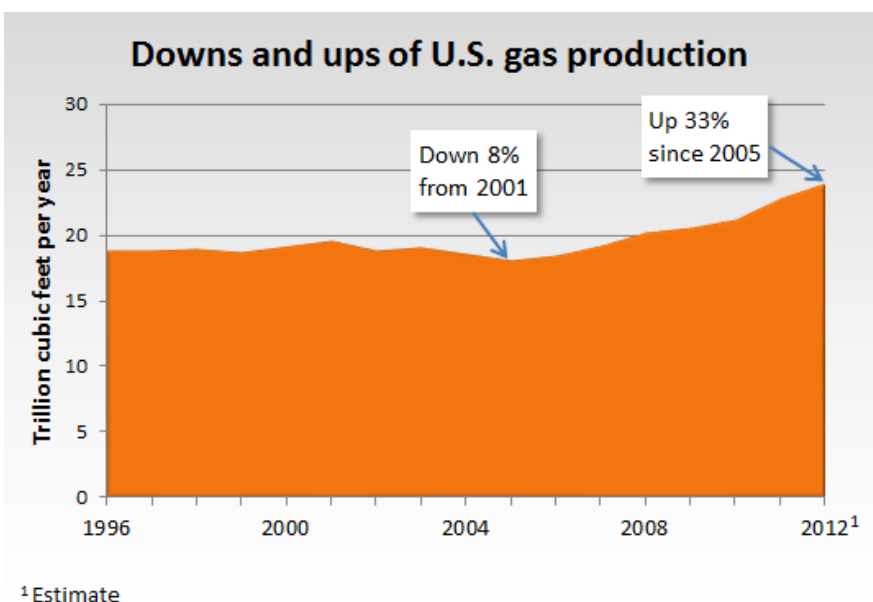
operational safety and other matters. The new policy lowered the hurdle a project needed to clear to get FERC's blessing.

Applications to build or expand LNG import terminals flooded in. Big names backed some of them: producer ExxonMobil; global gas trader BG Group; pipeline companies Veresen, Trunkline and El Paso; gas utility Sempra Energy.

In a 2004 letter to FERC's chairman, U.S. Sen. James Inhofe, R-Okla., chairman of the Committee on Environment and Public Works, urged quick action in the face of a looming "energy crisis" from falling gas production and rising demand. "The government can help the country meet its energy challenges by increasing access to new LNG sources and permitting new LNG receiving terminals in the communities that want them," he wrote.

Federal Reserve Chairman Alan Greenspan said "our limited capacity to import LNG effectively restricts our access to the world's abundant supplies of natural gas," and that "we need to get in place, as soon as we can, the capability of fairly substantial imports that enable our manufacturers who use natural gas to compete internationally."

In 2006, a FERC official reported to the commission that the agency had approved 14 projects — 11 new terminals and three expansions — that could supply North American consumers with up to 25 bcf a day



Source: U.S. Energy Information Administration; Office of Federal Coordinator estimate

of imported LNG.

That wasn't all. FERC had pending applications for 10 more new terminals and two expansions, with nine other sites in preliminary planning for terminals. Another federal agency that oversees offshore LNG terminals was considering eight proposals.

LNG started pouring into the United States. Imports more than tripled from 2002 to 2007, when they reached more than 2 bcf a day — averaging about a ship every other day.

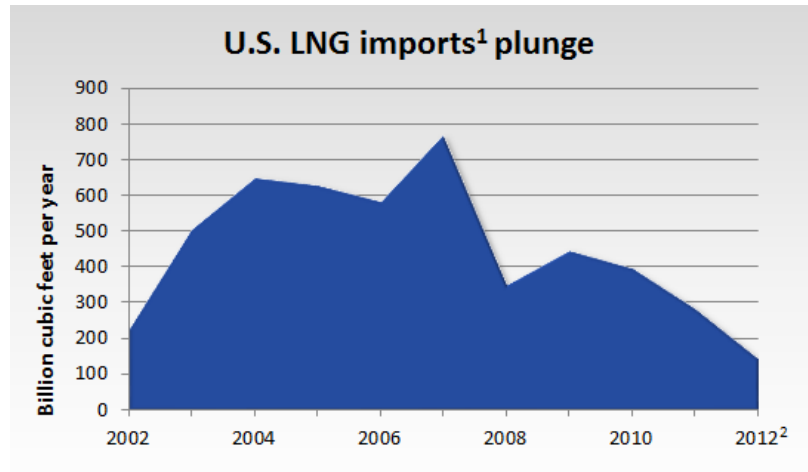
Import terminal construction continued with a rose-tinted view of the future. It turned out the optimism was misguided. Unfortunately for investors, import terminals take years to build and the momentum was too strong for some projects to stop work even when it became clear the market was changing.

The last two terminals started up in 2011: The Qatar Petroleum/Exxon Golden Pass project at Sabine Pass, Texas, (practically next door to Cheniere's terminal) and the Kinder Morgan/GE Energy terminal at Pascagoula, Miss.

Neither of those terminals received any LNG in 2012. Both have applied to add export capability.

Some projects, however, do have cash flow, despite little or no gas moving through the plant. Customers have reserved import capacity whether or not they use it. Those contracts allowed developers to obtain construction money.

For example, Chevron and Total each are obligated to pay Cheniere \$125 million



¹ Excludes re-exported foreign LNG. ² Through November

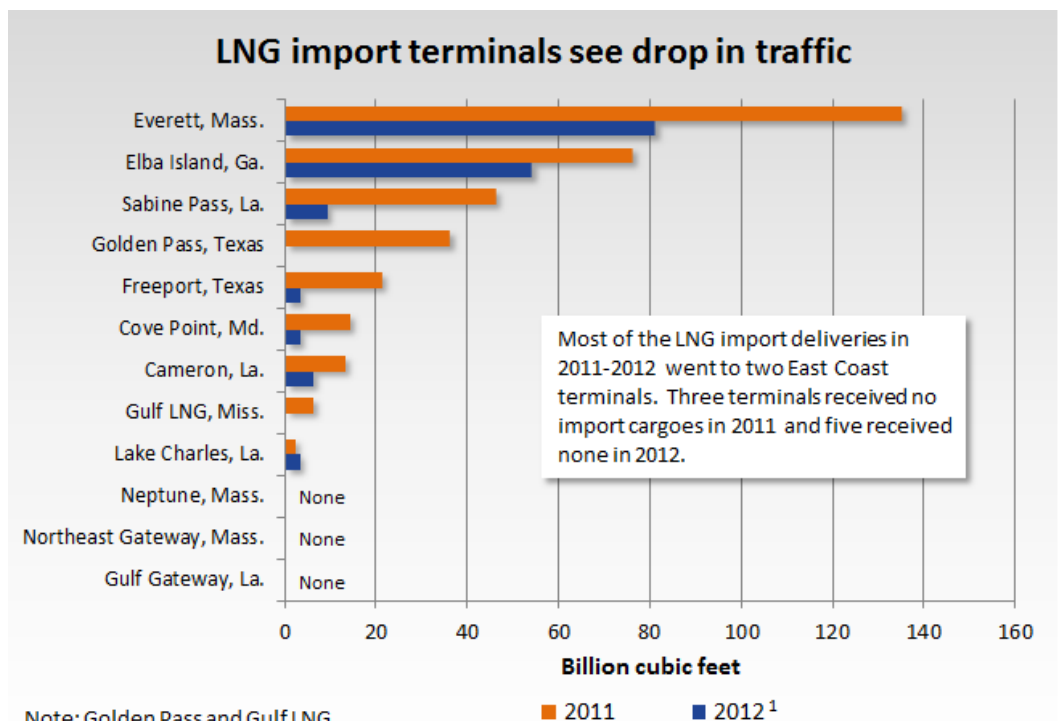
Source: U.S. Office of Fossil Energy

a year to 2029 for rights to its Louisiana plant, according to Cheniere's annual financial report.

But mostly Cheniere's and the other plants stand idle.

As it turned out, 2007 was the peak year for LNG imports — at roughly 4 percent of U.S. supply.

In 2012, net LNG imports averaged about 0.4 bcf a



¹ Through November

Source: U.S. Office of Fossil Energy

day, or less than 1 percent of supply. Half went to New England, where gas-pipeline constraints cause a bigger demand for LNG.

A FUTURE OF EXPORTS?

As was said, Cheniere hopes its first LNG will depart its plant in 2015, with more production trains (or units) to come online in 2016 and 2017.

Soon thereafter, sponsors of other proposed Louisiana plants as well as some targeted for Texas, Maryland and Oregon hope to start up.

First they'll need regulatory approval.

The Department of Energy, which authorizes exports, expects to be busy this year processing applications now that its economic impact studies of exports are drafted. The reports concluded exports would cause U.S. consumers to pay somewhat more for natural gas but that virtually any amount of exports would boost the nation's economy more than they would hurt.

FERC authorizes LNG plant construction and operation. As of early January it had formal environmental reviews under way for three proposed projects and preliminary environmental work begun on a handful of others.

Authorizations take a project only so far, however. Projects need customers so they can convince the financial community to lend or invest the billions needed for construction.

Cheniere's Louisiana project is the sole terminal to have customers locked in.

Some proposals have struck tentative deals with possible buyers, for example a Freeport, Texas, project with two Japanese utilities, and a Hackberry, La., project with multinational Japanese and French trading companies.

Separately, Japanese, Korean, Chinese and Malaysian companies have talked of investing in West Coast Canada export proposals.

North American projects, including one under consideration in Alaska, aren't alone in believing there's money to be made supplying the world with LNG.

Projects proposed in East Africa, Israel and Russia are getting at least preliminary looks, adding to the seven export terminals under development in Australia.

As with the plethora of North American projects, handicappers don't believe all can proceed in the next decade.

Meanwhile, in the United States, a diverse set of groups oppose LNG exports.

Environmental groups say exports will encourage more shale-gas drilling, leading to the potential for greater air and water pollution. They oppose individual projects on specific grounds. For example, before FERC authorized Cheniere's construction, two groups attacked from 360 degrees: They said tanker ballast water will harm aquatic life, construction will throw dust into the air, wastewater will impair drinking-water quality, air emissions will worsen atmospheric ozone formation, hurricane storm surges will flood the site, and LNG-tanker traffic will tax Coast Guard resources.

Terminal neighbors worry about industrial activity worsening their quality of life.

Gas utilities warn that exporting domestic gas will raise U.S. prices and burden consumers.

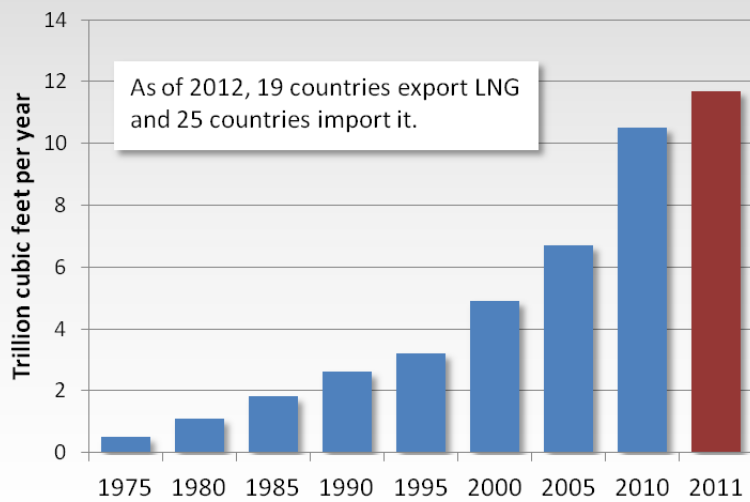
The chemical industry cautions that higher prices for its gas feedstock could dampen their desire to expand U.S. operations.

For the Cheniere project, FERC considered all of the concerns before approving the project. The commission generally held that the environmentalist concerns were ill-founded or speculative. The commission did acknowledge that if a cluster of neighboring LNG projects all apply, they could have a collective environmental impact that FERC needs to consider.

At least four other proposed export projects lie in the same "air quality control region" as Cheniere's plant, the commission said. But none had applied to FERC for a construction certificate when the commission sanctioned the terminal.

"The project sponsors have not yet filed an application or started the pre-filing process at the commission, and construction timelines and in-

Global LNG trade grows fast



Source: U.S. Office of Fossil Energy

service dates are unknown," FERC said in its Cheniere order. "It is speculative to assume construction emissions would overlap. In addition, each facility can vary by size and proposed power source for the liquefaction equipment, which can greatly vary the

resulting operating emissions of criteria and greenhouse gas pollutants.

"Thus, without additional information regarding equipment sizes and fuel sources, we are unable to identify these other facilities' operating impact on air quality or climate change."

For LNG export entrepreneurs, the stakes of their new direction are big — multibillion-dollar big.

A decade ago they looked out over the horizon and saw a fantastic future of inbound LNG tankers queued up to deliver liquid methane to needy North American consumers. The fleet never set sail, and nothing but blue breakers came to shore.

The vision was a chimera, but it left room for a new vision, one of outbound tankers, laden with North American LNG, steaming to distant ports to help feed the world's growing appetite for natural gas.



For more information, please visit our website: www.arcticgas.gov

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Major proposed LNG export projects

Gulf Coast	Key sponsor(s)	Location	Quantity	Existing LNG import terminal	DOE (export) status	FERC (construction) status
Sabine Pass Liquefaction	Cheniere Energy	Sabine Pass, La.	Up to 16 million metric tons per year, or 2.2 bcf per day	Yes	Exports approved May 29, 2011	Construction approved April 16, 2012. Construction under way.
Freeport LNG Expansion I & II	Dow Chemical, Osaka Gas	Quintana Island near Freeport, Texas	Up to 13.2 million metric tons per year, or 1.8 bcf per day	Yes	Dec. 17, 2010, and Dec. 19, 2011, applications pending to export to non-Free Trade Agreement countries.	Aug. 31, 2012, application pending for certificate to build; environmental assessment under way.
Cameron LNG	Sempra Energy	Hackberry, La.	Up to 12 million metric tons per year, or 1.6 bcf per day	Yes	Dec. 21, 2011, application pending to export to non-Free Trade Agreement countries.	Dec. 7, 2012, application pending for certificate to build; environmental assessment under way.
Corpus Christi LNG	Cheniere Energy	Corpus Christi, Texas	Up to 15 million metric tons per year, or 2 bcf per day	No	Aug. 31, 2012, application pending to export to non-Free Trade Agreement countries.	Aug. 31, 2012, application pending for certificate to build; environmental assessment under way.
Lake Charles Exports	BG Group, Southern Union/Trunkline	Lake Charles, La.	Up to 15 million metric tons per year, or 2 bcf per day	Yes	May 6, 2011, application pending to export to non-Free Trade Agreement countries.	Pre-application status with FERC since April 2012; preliminary environmental work begun.
Excelerate Liquefaction Solutions	Excelerate Energy, RWE (German utility)	Point Comfort, Texas	Up to 10 million metric tons per year, or 1.3 bcf per day	No	Oct. 5, 2012, application pending to export to non-Free Trade Agreement countries.	Pre-application status with FERC since November 2012; preliminary environmental work begun.
Golden Pass Products	Qatar Petroleum, ExxonMobil	Sabine Pass, Texas	Up to 15.6 million metric tons per year, or 2.1 bcf per day	Yes	Oct. 26, 2012 application pending to export to non-Free Trade Agreement countries.	No filings as of mid-January 2013.
Gulf LNG	Kinder Morgan, GE Energy Financial Services	Pascagoula, Miss.	Up to 11.5 million metric tons per year, or 1.5 bcf per day	Yes	Aug. 31, 2012, application pending to export to non-Free Trade Agreement countries.	No filings as of mid-January 2013.
Gulf Coast LNG Export	Michael Smith (helped develop Freeport LNG import site)	Brownsville, Texas	Up to 16 million metric tons per year, about 2.1 bcf per day	No	Jan. 10, 2012, application pending to export to non-Free Trade Agreement countries.	No filings as of mid-January 2013.
Pangea LNG	Daewoo (South Korea), D&H Solutions (Norway), NextDecade International (Netherlands), possibly Statoil (Norway)	Ingleside, Texas	Up to 8 million metric tons per year, or 1.1 bcf per day	No	Dec. 19, 2012, application pending to export to non-Free Trade Agreement countries.	No filings as of mid-January 2013.
Main Pass Energy Hub	Freeport McMoRan	16 miles offshore Louisiana	Up to 24 million metric tons per year, or 3.2 bcf per day	No	Application expected to export to non-Free Trade Agreement countries.	No filings as of mid-January 2013.
Magnolia LNG	Liquefied Natural Gas Ltd. (Australia)	Lake Charles, La.	Up to 4 million metric tons per year, or 0.5 bcf per day	No	Application expected to export to non-Free Trade Agreement countries.	No filings as of mid-January 2013.
CE FLNG	Cambridge Energy Group	Onshore Louisiana near mouth of Mississippi River	Up to 8 million metric tons per year, or 1.1 bcf per day	No	Sept. 21, 2012, application pending to export to non-Free Trade Agreement countries.	No filings as of mid-January 2013.

East Coast	Key sponsor(s)	Location	Quantity	Existing LNG import terminal	DOE (export) status	FERC (construction) status
Dominion Cove Point	Dominion Resources	Lusby, Md.	Up to 5 million metric tons per year, or 0.7 bcf per day	Yes	Oct. 3, 2011, application pending to export to non-Free Trade Agreement countries.	Pre-application status with FERC since June 2012; preliminary environmental work begun.
Southern LNG Co.	Kinder Morgan	Elba Island, Savannah, Ga.	Up to 4 million metric tons per year, or 0.5 bcf per day	Yes	Aug. 31, 2012, application pending to export to non-Free Trade Agreement countries.	No filings as of mid-January 2013.

West Coast*	Key sponsor(s)	Location	Quantity	Existing LNG import terminal	DOE (export) status	FERC (construction) status
Jordan Cove Energy Project	Veresen (Canada)	Coos Bay, Ore.	Up to 6 million metric tons per year, or 0.8 bcf per day	No	March 23, 2012, application pending to export to non-Free Trade Agreement countries.	Pre-application status since March 2012; preliminary environmental work begun.
Oregon LNG	LNG Development Co.	Warrenton, Ore.	Up to 9 million metric tons per year, or 1.2 bcf per day	No	July 16, 2012, application pending to export to non-Free Trade Agreement countries.	Pre-application status since July 2012; preliminary environmental work begun.

Canada West Coast	Key sponsor(s)	Location	Quantity	Existing LNG import terminal	Status
Kitimat LNG	Chevron, Apache	Kitimat, B.C.	Up to 8.9 million metric tons per year, or 1.2 bcf per day	No	Has export authority but needs other government authorizations
LNG Canada	Shell, Korea Gas, Mitsubishi, PetroChina	Kitimat, B.C.	Up to 24 million metric tons per year, or 3.2 bcf per day	No	Pending application for export authority; needs other government authorizations
BC LNG	Haisla Nation	Kitimat, B.C.	Up to 0.7 million metric tons per year, or 0.1 bcf per day	No	Has export authority but needs other government authorizations
Pacific Northwest LNG	PETRONAS (Malaysia)	Lelu Island near Prince Rupert, B.C.	Up to 7.2 million metric tons per year, or 1 bcf per day	No	Needs government authorizations
BG Group	BG Group (United Kingdom)	Prince Rupert, B.C.	TBA	No	Preliminary stage of project assessment

* Neither of two possible Alaska export projects, one sponsored by ExxonMobil, ConocoPhillips, BP and TransCanada, the other by the Alaska Gasline Port Authority, have applied to DOE for non-Free Trade Agreement exports or to FERC.