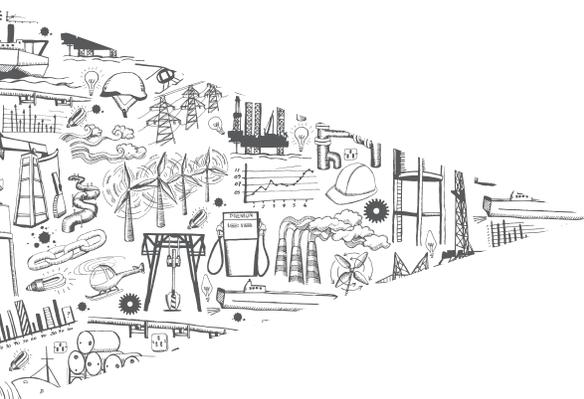


# Hot Topic

Oil & Gas Update



## US LNG exports driven by demand



Global liquefied natural gas (LNG) demand has risen an estimated 7.6% per year since 2000 – a rate almost three times faster than global natural gas demand, which is estimated to have grown by about 2.7% per year over the same period.<sup>1</sup> More than half of total global LNG demand in 2012 can be attributed to three Asian countries – Japan, South Korea and Taiwan – which have been and are expected to remain at the core of the global LNG demand market. Between 2013 and 2020, Moody's Investors Service estimates that Japan will remain the largest importer of LNG and will account for roughly one third of the global LNG market (with South Korea holding steady as the second-largest importer).<sup>2</sup> Additionally, China, India, the Middle East, Europe and South America are becoming players in the LNG demand market as well; however, these demand centers tend to have more available competitive energy options, including coal, oil and other sources of natural gas, and will generally be more price sensitive and less likely to willingly pay supply security premiums than the other markets.

Adding fuel to the fire, LNG demand is expected to average annual growth of around 5% to 6% per year through 2020 (and is anticipated to continue to grow after 2020 at a slightly lower rate). In response to this rising demand, more than 30 countries have proposed plans to build or add LNG import/re-gasification capacity. By 2020, the number of countries with import capacity is projected to double from the 25 countries with import capacity at the end of 2011.

As a natural response to this steady increase in demand, US companies, with access to relatively cheap natural gas, are clamoring to assume a role in providing LNG exports to these premium markets; however, current US law requires, in part, an export license from the US Department of Energy (DOE) in order to export LNG. In general, the exportation of LNG to a nation that has a free trade agreement (FTA) with the United States is considered to be in the public interest and is typically approved without modification or delay; however, when it comes to exporting LNG to non-FTA countries, the DOE has greater latitude in modifying the terms and/or stipulating conditions when considering applications. According to the Office of the US Trade Representative, the United States currently has FTAs with 20 countries, five of which currently import LNG (Canada, Mexico, the Dominican Republic, Chile and South Korea), with a sixth country, Singapore, set to have import capacity later this year.

<sup>1</sup> "Global LNG: Gorgon & the Global LNG Monster," Deutsche Bank Markets Research, 17 September 2012

<sup>2</sup> "The Prospect of US LNG Exports Influences Pricing and Gas Markets Worldwide," Moody's Investor Service, 1 May 2013, p. 7

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A proposed new FTA, the Trans-Pacific Partnership (TPP), which is currently in negotiation between Australia, Brunei, Chile, Canada, Malaysia, Mexico, Singapore, Peru, New Zealand, Vietnam and the United States, would be a game changer for global LNG demand since US LNG exports to new TPP partners would be presumed to be in the US' "public interest." In addition to the aforementioned countries, the Obama Administration notified Congress on 24 April 2013, of its intent to include Japan, the world's largest LNG importer,<sup>3</sup> in the TPP agreement negotiations.<sup>4</sup> Negotiations on the TPP 17th round in May 2013 showed progress as they continue to forge ahead toward their goal. The 18th round of TPP negotiations will be held in Malaysia from July 15th-25th and until an agreement is officially reached, the US LNG export debate will continue at full speed. Even if an agreement is reached, exports to non-TPP countries will be a hot-button issue. In addition, a number of proposals to expand and expedite US LNG exports have been raised in the 113th Congress.

Although more than 20 non-FTA applications for US LNG export have been submitted to the DOE, only two applications have received approval, the first from Cheniere's Sabine Pass Liquefaction LLC over two years ago, and recently on 17 May 2013, conditional authorization of Freeport LNG Expansion, L.P. and FLNG Liquefaction, LLC (Freeport).<sup>5</sup> Subject to environmental review and final regulatory approval, the facility is conditionally authorized to export at a rate of up to 1.4 billion cubic feet of natural gas a day (Bcf/d) for a period of 20 years.<sup>6</sup> The conditional approval is viewed as a first step in other authorizations for the export of LNG to non-FTA countries. After approving Cheniere's Sabine Pass Liquefaction export application, the DOE had delayed the issuance of additional non-FTA authorizations, pending a two-part economic study commissioned by the DOE's Office of Fossil Energy (DOE/FE) to determine how LNG exports might affect US supply and global markets. The two-part study was performed by the Energy Information Agency (EIA) and a private contractor, NERA Economic Consulting (NERA). Part one of the study, performed by the EIA, was released in January 2012 and considered 16 scenarios under different assumptions

on gas supply, demand and exports.<sup>7</sup> The EIA study identified as the four primary impacts of increased natural gas exports (1) higher domestic natural gas prices, (2) increased domestic natural gas production, (3) reduced domestic natural gas consumption and (4) increased natural gas imports from Canada via pipeline.<sup>8</sup>

In December 2012, NERA issued a report in connection with the second part of the study on the potential macroeconomic impact of US LNG exports on the US economy under a wide variety of assumptions regarding levels of exports, global market conditions and the cost of producing natural gas in the United States. NERA analyzed several scenarios for global supply and demand and concluded that under any of the scenarios, US LNG exports would not harm the US economy, but, instead, the overall impact of US LNG exports would be a net positive.

Below are the key findings in NERA's report:<sup>9</sup>

- 1. Impacts of LNG exports on US natural gas prices.** To the extent that the US exports LNG, domestic natural gas prices will typically increase; however, the global market limits the amount of such an increase since importers will not purchase US exports if US wellhead prices rise above the cost of competing supplies.
- 2. Macroeconomic impacts of LNG exports are positive in all cases.** Under each of the scenarios considered by NERA, the United States was projected to gain net economic benefits from allowing LNG exports. Additionally, for each scenario examined, net economic benefits increased as the level of LNG exports increased. Furthermore, across the scenarios (including scenarios in which there are unlimited exports), US economic welfare consistently increases as the volume of natural gas exports increased.



<sup>3</sup> "Japan's 2012 LNG imports at record high on nuclear woes," Reuters, [www.reuters.com/article/2013/01/24/energy-japan-mof-idUSL4NOAT00Y20130124](http://www.reuters.com/article/2013/01/24/energy-japan-mof-idUSL4NOAT00Y20130124), 3 May 2013

<sup>4</sup> "Obama Administration Notifies Congress of Intent to Include Japan in Trans-Pacific Partnership Negotiations," Office of the US Trade Representative, [www.ustr.gov/about-us/press-office/press-releases/2013/april/congressional-notification-japan-tpp](http://www.ustr.gov/about-us/press-office/press-releases/2013/april/congressional-notification-japan-tpp), 24 April 2013

<sup>5</sup> "Summary of LNG Export Applications," US Department of Energy, [fossil.energy.gov/programs/gasregulation/reports/summary\\_lng\\_applications.pdf](http://fossil.energy.gov/programs/gasregulation/reports/summary_lng_applications.pdf), 2 April 2013

<sup>6</sup> "Energy Department Authorizes Second Proposed Facility to Export Liquefied Natural Gas," US Department of Energy, <http://www.rw.doe.gov/articles/energy-department-authorizes-second-proposed-facility-export-liquefied-natural-gas>, 17 May, 2013

<sup>7</sup> Steven Miles and Thomas Eastment, "US debate on LNG exports centered at Energy Department," *Oil & Gas Journal*, 1 April 2013, p. 100

<sup>8</sup> "Effect of Increased Natural Gas Exports on Domestic Energy Markets," US Energy Information Administration, January 2012

<sup>9</sup> "Macroeconomic Impacts of LNG Exports from the United States," NERA Economic Consulting, [www.fossil.energy.gov/programs/gasregulation/reports/nera\\_lng\\_report.pdf](http://www.fossil.energy.gov/programs/gasregulation/reports/nera_lng_report.pdf), 3 December 2012

3. **Sources of income would shift.** Although the report shows that LNG exports result in higher total US income, the expansion of LNG exports may raise energy costs, and, as a result, depress both real wages and the return on capital in all other industries. However, allowing LNG exports to non-FTA countries could also create two additional sources of income: (i) higher export revenues and wealth transfers from incremental LNG exports at higher prices paid by overseas purchasers and (ii) natural gas resource income or rents. The study showed that the benefits derived from export expansion outweighed the losses from reduced capital and wage income to US consumers; hence, LNG exports were found to have net economic benefits in spite of higher natural gas prices.
4. **Some groups and industries will experience negative effects of LNG exports.** Although different socioeconomic groups depend on different sources of income, an increasingly large number of workers are able to share in the benefits of higher income to natural resource companies through retirement savings and investment. Nevertheless, impacts will not be positive for all groups in the economy. Households with income solely from wages or government transfers, in particular, may not participate in these benefits.

Higher natural gas prices resulting from LNG exports may have negative effects on output and employment in sectors that make intensive use or consumption of natural gas, while other sectors (e.g., natural gas production, transportation and liquefaction facilities construction) could benefit.

Overall, declines in output in other sectors are accompanied by similar reductions in wages in such sectors, indicating that some shifting of labor between different industries may result; however, the study said that employment reductions wouldn't be more rapid than normal turnover in any of the sectors it analyzed. In fact, the study hypothesizes that most of the changes in real worker compensation would likely be in the form of lower-than-expected real wage growth, due to the increase in natural gas prices relative to nominal wage growth.

5. **Peak natural gas export levels and resulting price increases are not likely.** According to the study, net benefits to the United States would be highest if (a) the United States becomes able to produce large quantities of shale gas at low cost, (b) world demand for natural gas rapidly increases and (c) LNG supplies from other regions are limited. If any of these factors are substantially absent, the United States would not likely export LNG, and, under such conditions, allowing exports of LNG would likely cause no change in natural gas prices and do no harm to the overall economy.

Natural gas price fluctuations attributable to LNG exports remained in a narrow spread across the entire range of scenarios. Since the costs of liquefaction, transportation and re-gasification are expected to keep US prices well below those in importing regions, under none of the scenarios analyzed in the study did US wellhead prices become linked to oil prices in the sense of rising to oil price parity, even if the United States allows exports to regions where natural gas prices are linked to oil.

6. **Serious competitive impacts are likely to be confined to narrow segments of industry.** Approximately 10% of US manufacturers have both material exposure to foreign competition and energy expenditures greater than 5% of the value of their output. Such energy-intensive, trade-exposed industries, which, for the most part, process raw natural resources into bulk commodities, account for one-half of 1% of total US employment. NERA's study found that under no scenario were energy-intensive industries as a whole projected to have a loss in employment or output greater than 1% in any year, which is less than normal rates of turnover of employees in the relevant industries.
7. **Even with unlimited exports, there would be net economic benefits to the United States.** NERA also estimated economic impacts associated with unlimited exports. Under such a scenario, US natural gas prices did not rise to oil parity or to levels observed in consuming regions, and net economic benefits to the United States increased as compared to corresponding cases with limited exports. Significantly, the study found that scenarios with unlimited exports always had higher net economic benefits than corresponding cases with limited exports.

## Implications

Prior to receipt of the Freeport approval, the industry and markets were left in a state of suspense, eagerly waiting to learn how the two-part study would impact the stagnant queue of LNG export applicants; however, even after the release of the reports and the conditional approval for Freeport, anyone expecting to hear of bright lines being drawn or even a more transparent approval process will likely be disappointed, as the DOE/FE has provided that LNG export applications will be considered only on a “case-by-case basis” in light of the economic conclusions of the study<sup>10</sup> and that it will evaluate the cumulative impact of each authorization to determine if the authorization could pose a threat to the public interest.<sup>11</sup> Nevertheless, the Freeport authorization (albeit conditional) broke a lengthy standstill in DOE authorizations, Commentators have surmised that the “case-by-case” approach suggests that projects higher in the processing queue will have a distinct advantage over those behind them. Since “a cumulative review could effectively raise the public-interest standard that must be met by each subsequent application, applications further down the list not only will take longer to be considered, but they will also face greater scrutiny.”<sup>12</sup>

Continued monitoring is necessary as public and private forces continue to put pressure on Congress to expand the list of FTA countries and expedite the approval process for US LNG exports; meanwhile, the industry eagerly awaits in hopes of a additional approvals.

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<sup>10</sup> “2012 LNG Export Study,” 77 Fed. Reg. 73, 627, 73, 628, US Department of Energy, 11 December 2012

<sup>11</sup> Sabine Order, pp. 32-33

<sup>12</sup> Steven Miles and Thomas Eastment, “US debate on LNG exports centered at Energy Department,” Oil & Gas Journal, 1 April 2013, p. 104

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