

Industry Analysis

U.S. natural gas exports: a reliable supply of energy to the rest of the world

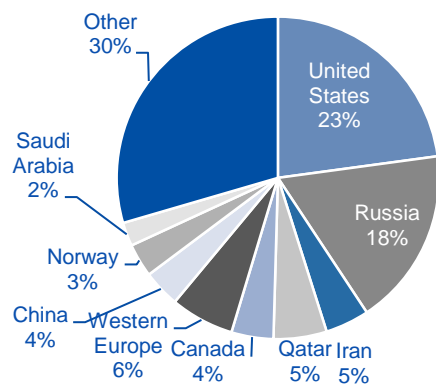
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- **The U.S. is expected to become a net exporter of natural gas sometime between 2017 and 2018**
- **Mexico’s economic development will support pipeline exports**
- **Difficult beginning to liquefied natural gas (LNG) exports, but positive outlook in the long-run due to economic growth and environmental policies**

Introduction

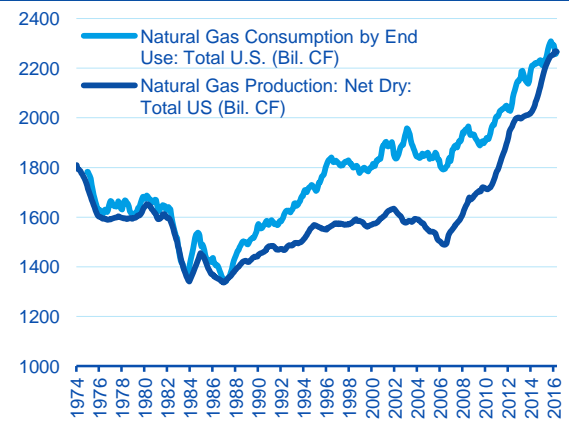
The U.S. is now the largest producer of natural gas in the world. Over the past ten years, net production of dry gas went up from 18 to 27 Tcf. Most of the increase happened in shale and tight oil plays, which make up about 50% of today’s total natural gas production. As production continues to increase and exceeds consumption, the U.S. will turn into a net exporter of natural gas. This change is expected to occur sometime between 2017 and 2018, and promises to have significant economic and political implications for the country and its trading partners. On balance, conditions for U.S. natural gas exports are favorable, but there are challenges to overcome, particularly in the short-term.

Chart 1
Global Production of Natural Gas by Country



Source: Haver Analytics

Chart 2
U.S. Consumption and Production of Natural Gas



Source: Haver Analytics

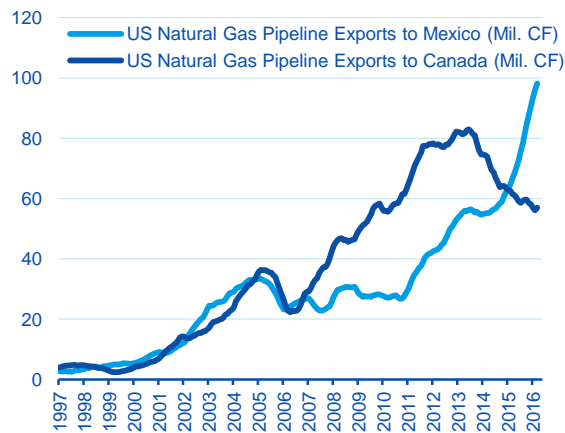
Pipeline exports: A temporary escape valve

Currently, almost 95% of U.S. natural gas exports are moved through pipelines to Mexico and Canada. In the following years, pipeline exports will be driven by robust demand from Mexico. Between 2010 and 2015, pipeline exports to this country went up 216%, reaching 1.05 Tcf. Economic and population growth has increased the demand for electricity in Mexico, leading to significant investments in generation capacity and grid infrastructure.

In addition, declining prices have incentivized the conversion of fuel oil- and diesel-fueled power plants to natural gas. To compensate for the structural decline in domestic production, Mexico has increased its purchases of natural gas from the U.S. Incentives provided by the Mexican Energy Reform of 2013 have resulted in the development of cross border pipeline projects that facilitate the transportation of molecules from U.S. production hubs to the end-users in Mexico.

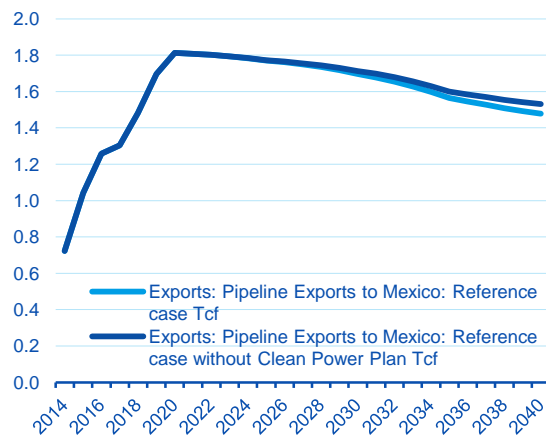
The Energy Information Administration (EIA) expects pipeline exports to Mexico to peak in 2020 at 1.8 Tcf—a 70% increase from 2015 levels. According to Mexico’s Energy Ministry, by 2029, Mexico will import all its natural gas through pipelines, displacing the more costly fraction—around 30% in 2014—that is still purchased in the form of LNG. For the U.S., the benefits of selling more gas to Mexico will be felt mainly at the local level. Although exports to Mexico represent only 4% of total U.S. natural gas production, they are 14% of Texas output. About 80% of pipeline exports and re-exports to Mexico originate in Texas. This is a plus to Texan shale operators who struggle with excess production, very low prices and strong competition in the domestic market; however, in the long-run, pipeline exports to Mexico are expected to flatten and decrease as the country develops its own production capacity.

Chart 3
U.S. Natural Gas Pipeline Exports



Source: Haver Analytics

Chart 4
U.S. Natural Gas Pipeline Exports (Forecast)



Source: Energy Information Administration Annual Energy Outlook 2016 Early Release

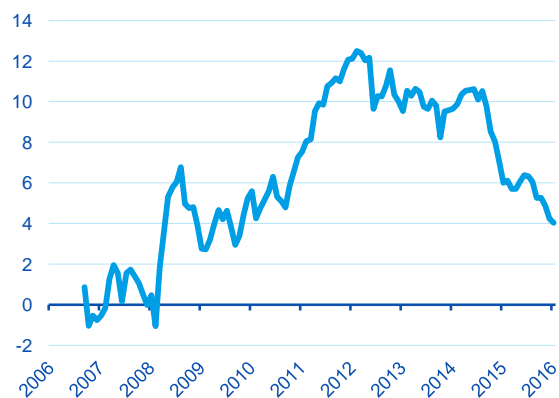
U.S. LNG exports: A difficult starting point

LNG exports are still a small fraction of total gas sold abroad; however, they are expected to increase rapidly and become the main source of natural gas exports from the U.S. This will be possible because of ongoing investments in export terminals and other related infrastructure. The EIA expects net exports of LNG to reach 6.7 Tcf by 2040—about 16% of the country’s total natural gas production. Currently, there are only two fully operational LNG export facilities in the country with a total capacity of 0.9 Bcfd. The Cheniere Terminal in Sabine, Louisiana is the only facility that exports natural gas from the Gulf of Mexico; it dispatched its first LNG vessel in February and by May 6, it had shipped seven cargoes to locations in Argentina, Brazil, UAE, Kuwait, Portugal and India. More terminals are expected to emerge in the following years. As of July 11, there are four import and ten export terminals approved by the federal government in the U.S.—the majority of them located in Texas and Louisiana.

From 2009 to 2014, solid economic growth in China, Korea, India and Southeast Asia increased the demand for natural gas, while imports from Japan got a boost after the Fukushima nuclear disaster. These elements combined with elevated oil prices widened the margins between LNG prices and domestic benchmarks like the Henry Hub, increasing the attractiveness of LNG export projects. However, things have changed rapidly over the last two years. Oil prices collapsed and demand for LNG in the region slowed down due to a weakening industrial sector in China coupled with nuclear capacity additions in Japan and Korea. As a result, LNG prices in the region have gone down, along with margins, presenting a challenge for U.S. export projects that need to be amortized in the following years.

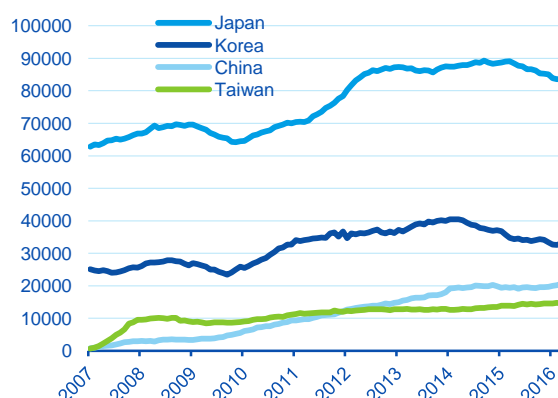
In the meantime, competition has also intensified. Australia has become big player in the Pacific. Qatar—the world’s largest LNG exporter—and potentially Iran will compete for markets in Southeast Asia, India, Africa and Europe, while Russia, which currently supplies 33% of Europe’s natural gas needs, will try to consolidate and expand its market share. This has led some analysts to believe that natural gas exporters are about to engage in a price war that will lead to a drastic reduction in margins.

Chart 5
Asian LNG Prices* Minus Henry Hub (\$/MMBtu)



* Japan, South Korea, Taiwan and China. Source: Haver Analytics

Chart 6
Asian LNG Demand (Thous. Tons, 12-Month MA)



Source: Haver Analytics

This situation is prompting U.S. exporters to diversify and look beyond Asian markets. In this context, Europe is seen as a viable alternative given its market size, interest in diversification and relatively well-distributed system of import terminals. In 2014, natural gas provided 21% of the EU-28’s total energy needs. About 66% of inland consumption had to be imported, with eight European countries importing 100%. Likewise, there were 23 import terminals on the continent with the capacity to process 7.1 Tcf. These terminals operate at very low capacity (25% in 2014), suggesting that there is room to absorb U.S. LNG.

As Asian prices go down and converge with European ones, Europe will become more attractive, aided by additional factors like the de-carbonization of electricity and geostrategic considerations. This may be the beginning of a new reality for Europe’s energy market, which not so long ago, was perceived as a destination of last resort given the region’s slow growth, mature economy and strong dependency on the Gazprom supply of natural gas.

LNG exporters are also expected to continue targeting smaller buyers in order to compensate for lower sales in traditional markets. For example, in 2015, Egypt, Jordan, Pakistan and Poland began importing LNG. The share

of countries using natural gas to supply their energy needs is projected to increase. Consequently, the use of floating storage and regasification units has become more frequent as it allows exporters to access markets (i.e. Argentina, Brazil, Indonesia, Israel, Jordan, Egypt, and Lithuania) where the cost of developing onshore regasification facilities is deemed too high. In a more competitive and volatile environment, exporters are also expected to engage in more opportunistic trade as opposed to long-term contracts. In 2015, about one third of contracts were flexible (spot and short-term).

As international trade of natural gas intensifies, market participants become more exposed to unexpected changes in energy policy. The U.S. is not immune to this, given the often-partisan views on energy. In this sense, the ratification of the Trans-Pacific Partnership (TPP) and the Transatlantic Trade and Investment Partnership (TTIP) could benefit U.S. LNG exports by reducing the amount of time that it takes to get an export permit. Natural gas exports are regulated by the Natural Gas Act, which requires exports to be authorized by the Department of Energy. If there is a free trade agreement (FTA) between the U.S. and the importing country, the application is automatically considered of “public interest” and its approval is expedited. The TPP, for example, would give FTA status to Japan, one of the main markets for U.S. LNG exports. In addition, both the TPP and TTIP would provide more certainty to contracts as they would protect parties from drastic changes in domestic regulations.

Bottom line

As more export terminals and pipelines become operational in the upcoming years, the world will benefit from a vast and reliable supply of affordable natural gas coming from the U.S. The outlook for U.S. natural gas exports is moderately optimistic. In the short-run, prospects are good for pipeline exports to Mexico given its increasing demand for electricity. However, as the country continues to develop its own production capacity, imports of natural gas may reach a plateau and decline in the mid-term. LNG exports, on the other hand, have the capacity to expand into new markets and represent the future of U.S. natural gas exports. The industry is experiencing a challenging starting point due to low prices, excess supply, regulation and competition. The TPP and TTIP agreements could expand LNG trade and provide certainty to the U.S.; however, their ratification is threatened by growing skepticism on free trade. In any case, prospects look more positive in the long-run due to economic growth, particularly in emerging markets, as well as environmental policy aimed at reducing carbon emissions to the atmosphere. Although challenged by the development of renewables, natural gas is expected to become the fastest growing fossil fuel and one of the primary sources of energy given its abundance, affordability and lower environmental costs.

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Natural Gas Statistics

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