

# The impact of rising US LNG exports on global markets

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The US' journey to become one of the world's largest exporters has been a key talking point in recent years. Though the US has long exported LNG from its Alaska terminal, the start-up of the Sabine Pass terminal in 2016 led the country to become the 6th largest exporter of LNG in 2017, overtaking Trinidad and Tobago and Russia. Earlier this year, the opening of Cove Point marked a turning point for US LNG exports, and the US is already 5th in the 2018 export ranking, after outstripping Indonesian send-out volumes.

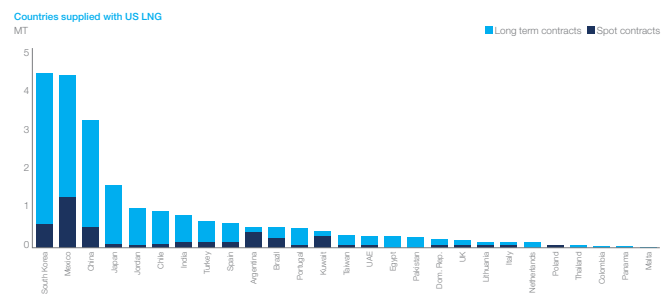
What can we learn from this rapidly evolving export market? To find out, we analyzed data for 2017 through June 2018 by using McKinsey Energy Insights' LNGFlow, a proprietary advanced analytics solution that provides extremely granular data to help monitor the global LNG market. From that analysis, three key themes emerged:

- **Demand:** US LNG has served a diverse range of countries and is already competing in the backyards of the world's top producers
- **Supply:** Although there have been start-up issues in certain trains, US export terminals have been well utilized and not just for firm contracted volumes
- **Pricing:** US LNG has managed to be price-competitive in a range of markets, and the unprecedented price transparency and price-setting influence are a step change for the global market

## Demand: US LNG has served a diverse range of countries and is already competing in the backyards of the world's top producers

Since 2017, the US has supplied a large number of countries with LNG—26 countries in total, representing 70% of global importers.

**Exhibit 1: Total LNG exports from January 2017 to April 2018 by destination country**



The two largest importers were South Korea and Mexico, which each absorbed roughly 20% of exports over the period. In Mexico, rising gas demand and the inability of US piped export infrastructure to keep up led LNG terminals to see this substantial increase in imports from the US. Japan, Korea, and Taiwan together with China make up another 40% of US volumes.

Another 10% of total volumes from the US went to Argentina, Brazil, the Dominican Republic, and Chile—which leads with 4% of total volumes from the US. While trade to Latin America would seem logical due to competitive shipping distances from the US or the Atlantic Basin in general, this has not necessarily resulted in higher imports. Countries like Argentina have recently been favoring Qatari imports, with Argentina importing ~1 MT from Qatar from January to June 2018.

US LNG has also been imported by Turkey, Egypt, Jordan, the UAE and Kuwait, and India—all within striking distance of Qatar, the world's largest LNG exporter. Heading into summer 2018 with Chinese and

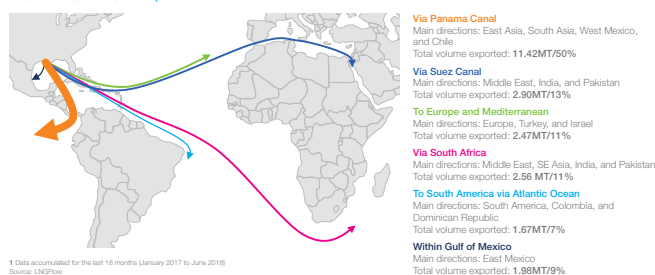




Indian gas demand increasing and absorbing much of the Pacific Basin slack, the US is well-positioned to continue to grow its presence in the Middle East.

## Exhibit 2: Major routing choices: Panama Canal impact

Direction of travel of US LNG exports<sup>1</sup>



Of all the US LNG exported during the period, 50% traveled through the Panama Canal, and nearly 70% of volumes destined for Asian markets traveled through the Panama Canal. This is unsurprising given that the Panama passage saves 6,000 to 7,000 miles on a voyage from the US Gulf to Japan and South Korea. That said, we've seen close to 25% of US LNG destined for Asia go the "long way" without using either the Suez or the Panama Canals.

Of all LNG deliveries that have used the Panama Canal during the period, 84% of the vessels originated in the US. Given that there is more than 40 mtpa of liquefaction capacity currently under construction in the US, we expect to see Panama Canal slot availability become an increasingly top-of-mind for producers and traders alike as the world's largest sellers book several months in advance.

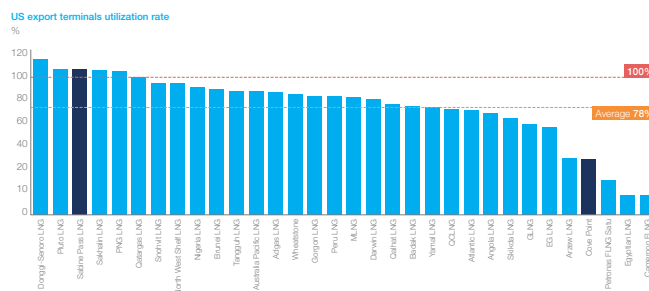
While the entry of the US into the club of LNG exporters is contributing to a transition away from the point-to-point sales of the past, market imperfections do persist. Perhaps the one point of demand that seems solidly out of reach (for now) of US LNG producers is the US Northeast. During the winter of 2018, the Everett terminal near Boston not only imported spot cargoes from Trinidad and Nigeria but also re-loaded cargoes from the Isle of Grain facility in the UK and Dunkerque in France. The average price paid for these spot volumes was ~USD7.2/mmbtu—USD1.6/mmbtu above the cost of loaded spot LNG at the Sabine Pass. The core restriction

preventing traders from capitalizing on this arbitrage is the Jones Act, which places extra requirements on vessels traveling between two US ports.

## Supply: Although there have been start-up issues in certain trains, US export terminals have been highly utilized and not just for firm contracted volumes

Cheniere's Sabine Pass was the first terminal online, with Trains 1 and 2 starting up in 2016 and Trains 3 and 4 in 2017, adding 18 mtpa to the market. Sabine's utilization since January 2017 has been high compared to other LNG producers, but that does not mean that the plants have been without issues.

## Exhibit 3: Utilization rates of liquefaction terminals



In January 2018, a tank at Cheniere's LNG Sabine Pass plant in Louisiana released LNG into the annular space between the inner and outer walls of one of the tanks, which then caused a crack in the outer walls and allowed LNG to pool in the secondary containment area.

The Cove Point facility on Chesapeake Bay in Maryland, owned by Dominion, is the second major plant commissioned in the US. While Cove Point was expected to be in service at the end of 2017, it was not until March 2018 that the first commissioning cargo was sent out. Delays in LNG production have resulted in a slower-than-expected ramp-up, though not entirely atypical for new facilities.

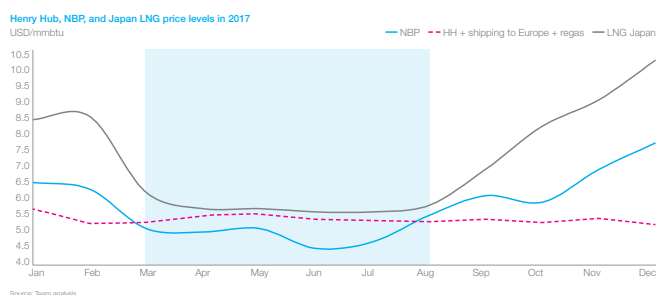


## Pricing: US LNG has managed to be price-competitive in a range of markets, and the unprecedented price transparency and price-setting influence are a step change for the global market

US LNG since early 2017 appears to have been priced FOB at, on average, ~USD3.6/mmbtu above Henry Hub. With Henry Hub prices mostly in the USD2.5-3.5/mmbtu range for most of the period, US LNG has had a price point that allowed it to be globally competitive.

Beyond that competitive pricing, what has really been a game-changer for the global LNG market is the enhanced price transparency that the rise of US LNG exports has afforded. The combination of market price transparency and delivery flexibility [ref. Figure 1 for share of spot vs. contracted flows] is also helping US LNG drive price setting in other key market geographies, such as Europe.

### Exhibit 4: Price relationship across regions



Looking at 2017, with only a portion of US LNG future volumes in production, markets like the UK showed pricing behavior at their reference National Balance Point (NBP) in line with expected fundamentals—with US LNG prices acting as a ceiling during summer months and prices decoupling during the winter season.

The resulting flow destinations of US LNG then appear as a natural consequence of the emerging price dynamics across the globe's macro-regions; the view that European markets would be inundated with US shale gas

has not played out. Exports to Europe constituted 11% of US send-out volumes in 2017—just enough to drive price influence—and are actually decreasing (3% in 2018 year-to-date). Spain and Portugal are the main destinations, but even in those markets, US LNG constitutes a small percentage of their imports (Spain: 5% in 2017, Portugal: 14% in 2017, 7% in 2018 YtD).

To summarize, the analyses considered in this article offer clear evidence of the growing relevance of US exports in the global LNG market from many angles: flow reach into diversified set of market destinations, successful supply ramp-up, and rising influence on setting more transparent prices globally in a sector which has been historically secretive.

### About the authors

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