Steady As She Goes? – Assessing the Future of U.S. LNG Exports

Exports Rose As New Terminals Came Online, But What Now?

● Although global LNG prices have fallen to record lows and price spreads important to the economics of trade have collapsed in recent months, U.S. exports have climbed steadily as liquefaction trains and export terminals come online in a trend likely to double capacity by 2024.

● The two types of contracts used by U.S. LNG operators make liftings relatively unresponsive to global LNG prices, which nevertheless retain their importance in determining where U.S. cargoes go.

● Other factors, such as costs paid by offtakers, vary greatly and combine with the dynamics of price spreads to make U.S. LNG attractive, at differing times, in a wide range of import locations.

● As of early March 2020, the spread of the coronavirus and the economic downturn had the potential to significantly impact global LNG demand and prices over the next few weeks and months.

1. Introduction

New U.S. liquefaction trains and export terminals have added LNG supply to an oversupplied global market in which international prices are at their lowest levels in several years; price spreads between the U.S. and destination markets have collapsed; and a potential coronavirus pandemic threatens to undermine LNG demand growth. U.S. LNG exports nevertheless have increased with each new liquefaction train that comes onstream and with each new capacity agreement that has taken effect. Prominent among several reasons why U.S. LNG so readily enters a surplus market is that long-term offtake contracts, which anchor more than 90% of liquefaction capacity, make cargo liftings relatively insensitive to global prices.

U.S. LNG exports have increased rapidly in four years. From the first wave of projects, exports began in early 2016 from Cheniere Energy's Sabine Pass Liquefaction in southwestern Louisiana. Since then, Sabine Pass has completed four more trains and five other export terminals, most with multiple trains, have come online. They include Dominion's single-train Cove Point facility in

Maryland; two trains at Cheniere's Corpus Christi, TX, terminal; the first two trains at Sempra's Cameron LNG, also in southeastern Louisiana, and Freeport LNG near Houston; and the first five mini-trains at Elba Liquefaction's terminal in Georgia. Start-ups in 2019 alone included the Cameron, Corpus Christi, Freeport and Elba projects. U.S. terminal operators exported an average 5.6 Bcf/d during 2019, exceeding 10% of global LNG market share for the first time. The highest monthly average in 2019 was 7.7 Bcf/d in December, and exports continued to climb early in 2020 as new trains entered commissioning or commercial operation. The U.S. is second only to Australia in LNG-export growth. And more U.S. liquefaction capacity is in progress. Projects still under construction will add another 6 Bcf/d or so of capacity, including about 2 Bcf/d that is due for completion by the end of 2021. And the U.S. Federal Energy Regulatory Commission has approved construction of 12 projects on which work has not yet begun. Not all those projects will advance past the planning stage soon, if ever, but together they amount to a potential 20 Bcf/d of incremental liquefaction capacity that could be built this decade.

First-wave U.S. LNG export projects — many of them sited at brownfield LNG import terminals — have first-mover advantages. With 93% of their collective liquefaction capacity contracted, many of these facilities' first trains came online while Asian demand was growing rapidly, led by China. The LNG market has since weakened, however, and as of early March 2020, the potential impact of the new coronavirus on the global economy — and LNG demand with it — remain highly uncertain. In addition to the supply gains from new liquefaction capacity in the U.S. and Australia, signs of flagging demand appeared in the Asia-Pacific (APAC) region and Europe, the two biggest LNG importers even before the coronavirus became front-page news. (Japan, China and South Korea lead demand among the APAC countries, while Germany and the UK are the largest gas consumers in Europe.) Gas demand continued to grow in APAC countries in 2019, led by China and other emerging markets. But the pace of growth in China diminished, and nuclear reactor restarts in Japan trimmed demand there last year. In Europe, despite stagnating gas demand, gas imports via LNG and pipeline generally rose in 2019, with native European production having declined for nearly two decades. By October, however, some European storage facilities reported being full.

As Figure 1 illustrates, these regions' respective price indices — Europe's National Balancing Point (NBP; orange line in the graph) and the Japan-Korea Marker (JKM; blue line) — have tumbled in response. In September and October of 2018, the JKM price exceeded $11/MMBtu, and NBP was above $9/MMBtu. But prices in both regions fell through the winter and spring of 2019 as more U.S. liquefaction capacity came online and the market became increasingly oversupplied. By the middle of 2019, NBP prompt-month prices had fallen to the $3.50 to low $4/MMBtu range, while JKM prompt slipped to the $4.25 to $4.75/MMBtu range. As of the second week of March 2020, the NBP and JKM prompts were down to about $2.80/MMBtu and little more than $3.00/MMBtu, respectively.

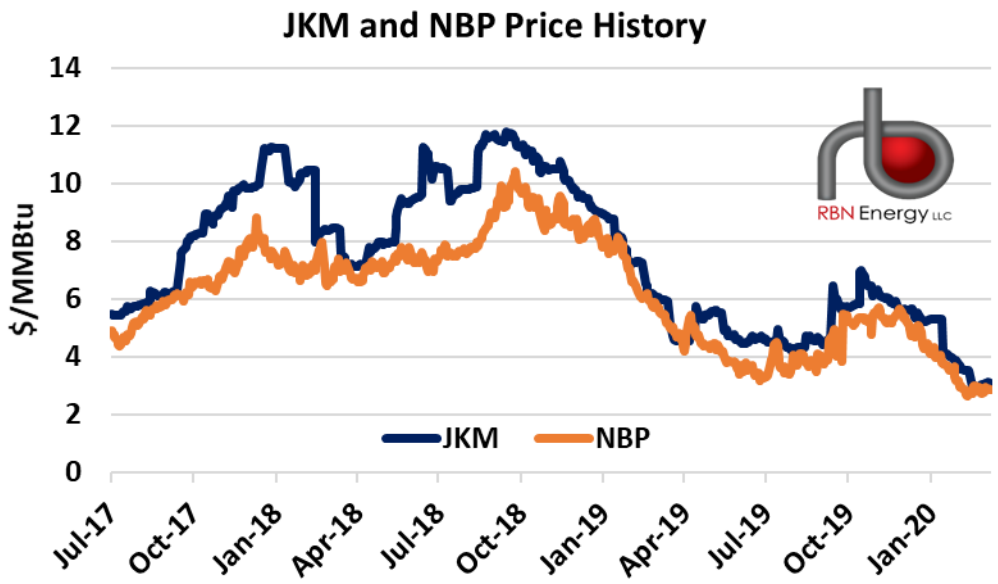

Figure 1 – JKM and NBP Daily Prompt-Month Settles; Sources: NYMEX, Morningstar

As the NBP and JKM indices fell during most of 2019 and into 2020, they also converged with each other, and price spreads relative to Henry Hub, the important U.S. marker, tightened. NBP, which had traded at more than $6/MMBtu above Henry Hub in 2018, dropped to just more than $1/MMBtu above Henry in February and March 2020, while JKM, which carried almost a $9/MMBtu premium to Henry Hub in 2018, came down to $1.30/MMBtu above Henry. The premium disparity reflects the difference between U.S.-Asia and U.S.-Europe shipping costs. The travel time for the Asian trip is about twice that of the trip to Europe. Shipping rates fluctuate and can be negotiated; in general, however, the cost to ship roughly follows the price trend of the markets. When shipping costs are low, JKM only needs to be slightly above NBP to attract marginal U.S. cargoes. Based on the lowest spot shipping rates of 2019, JKM would need to be only about $0.30/MMBtu above NBP for Asia to look more desirable for U.S. cargoes. But, when shipping costs are relatively high, JKM would need to be $1/MMBtu or more above NBP for Asia to have a clear advantage over European destinations. The tightening of international spreads made the two destinations more competitive and closely tied. When prices in one market run up for an extended period, prices in the other market tend to follow in order to remain competitive globally. Despite their differing market influences, therefore, the regional prices trend together.

The LNG price slide of 2019 was interrupted by a sharp but short-lived run-up in September as the market digested news of specific potential supply/demand changes in the mid- to long-term. On September 10, three major regulatory announcements sent NBP prompt-month prices up $0.73/MMBtu in a day; it was the largest single-day gain in over 10 years. Prices continued to climb throughout that week, with the October contract rising to nearly $5/MMBtu before settling back to about $4 the following week.

The price rally was driven, in part, by news that French utility EDF would be conducting inspections that might lead to nuclear plant shutdowns with potential to bolster gas demand in Europe. Also on September 10, the government of the Netherlands said it was advancing its timetable for shutting down the Groningen gas field to 2022, from 2030 previously. The Netherlands is currently the second-largest gas producer in the European Union, producing over 3 Bcf/d in 2018. Groningen accounts for more than half that output. While Groningen is the largest gas field in Europe, its production has been in forced decline since around 2013, when seismic

activity from drilling led the government to impose restrictions on the field and to plan for its eventual shutdown. Although production is scheduled to decline to zero by 2022, the field will remain open for intermittent flow until 2026 to help meet winter peak demand if needed.

The third piece of news that moved the market on September 10 was a European Union high court ruling that prevents Russian state-owned gas marketer Gazprom from purchasing additional capacity — and curtails existing flows — on Opal, a key German pipeline. In addition to reducing gas movement from Russia into Germany, the ruling seemed to jeopardize negotiations among Russia, Ukraine and the EU on replacement of the gas-transit pact expiring at year-end. On December 21, however, Russia and Ukraine agreed to a 5-year deal, extendible to 10 years, under which Russia would move at least 65 Bcm, or ~2,300 Bcf, of gas across Ukraine to Europe in 2020 and 40 Bcm, or ~1,400 Bcf, in subsequent years. The court ruling also raised a hurdle for completion of the Nord Stream 2 pipeline, which would double, to 110 Bcm/year, or ~10.6 Bcf/d, Russia's capacity to move gas across the Baltic Sea to a connection with Opal in Germany. Russia appealed the ruling.

By the end of 2019, these regulatory boosts to LNG prices had run their course, the fundamentals of oversupply had reasserted their influence, and the novel coronavirus was making its first appearance in China. During the first months of 2020, the disease steadily spread outside its country of origin and by early March, there still was no certainty about how long the contagion would elude control and how much worse the economic fallout would become. U.S. LNG exports continued to increase through most of the period, nevertheless. A record-high 74 vessels departed U.S. terminals in January, the fifth consecutive record-setting month for exported cargoes (Figure 2). Correspondingly, feedgas rates set records, too. Feedgas to U.S. liquefaction plants reached a single-day high of 9.3 Bcf/d on January 29, and January was the first month ever in which feedgas averaged above 8 Bcf/d.

Resistance to LNG cargoes began to appear late in February, however, when a Chinese buyer invoked *force majeure* on some of its LNG contracts in connection with the coronavirus and reports emerged of cancelled U.S. cargoes. In early March, these events were considered pieces of an illness-related economic disruption rather than early signs of widespread U.S. cargo cancellations.

Something else is worth noting. U.S. LNG exports represent demand for domestically produced natural gas that so far has expanded regardless of price. Feedgas for liquefaction thus has behaved like baseload demand for the U.S. gas market. Especially when combined with rising baseload gas demand from the power generation sector in recent years, feedgas for LNG exports will make the U.S. gas market increasingly susceptible to price spikes and volatility.

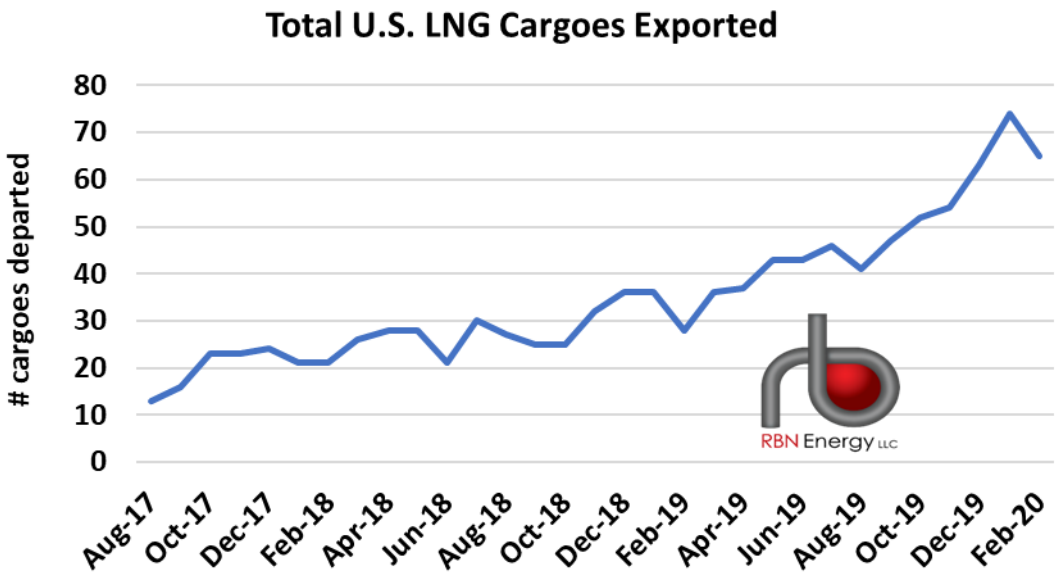

Figure 2 – Total U.S. LNG Cargoes Exported; Source: RBN LNG Voyager

U.S. LNG shipments are expected to continue rising in 2020 as still more liquefaction trains are completed. The narrowing of global LNG price spreads has not deterred U.S. exports. Price differentials, along with shipping costs, do influence export economics and cargo destinations. On balance, however, evidence points to the pace of exports being driven more by terminal construction and commissioning schedules, as well as maintenance events, than by the global LNG market.

In this Drill Down Report, we show how contract design and offtake patterns thus far have kept U.S. LNG flowing to international markets — seemingly in defiance of price relationships — and how LNG exports are contributing to a reshaping of the domestic market in a way that is likely to make gas prices increasingly volatile.

The Table of Contents for "Steady As She Goes? – Assessing the Future of U.S. LNG Exports" is included on the following page.

Table of Contents