THE NEXT BIG DISRUPTOR

Sarah Bairstow, Mexico Pacific Limited, Australia, reviews the emergence of North American LNG onto the global LNG stage and makes the case for Mexico to play a significant role in the future.

North America has taken the global LNG market by storm, propelled forward by technology that unleashed the shale revolution in 2011 and pivoted the US to a net exporter of natural gas by 2017. North American LNG export terminal developers have historically concentrated projects in the Gulf of Mexico, given its close proximity to Henry Hub and access to waterways that can accommodate the sizeable LNG tankers required for transport.

What many were not expecting was the next evolution of the global LNG market. By essentially optimising the Gulf of Mexico model, Mexican LNG is becoming the next big disruptor, and is very attractive for Asian markets. Asia-Pacific buyers are highly dependent on LNG imports for energy security, as LNG is critical for power generation and home heating across the region.

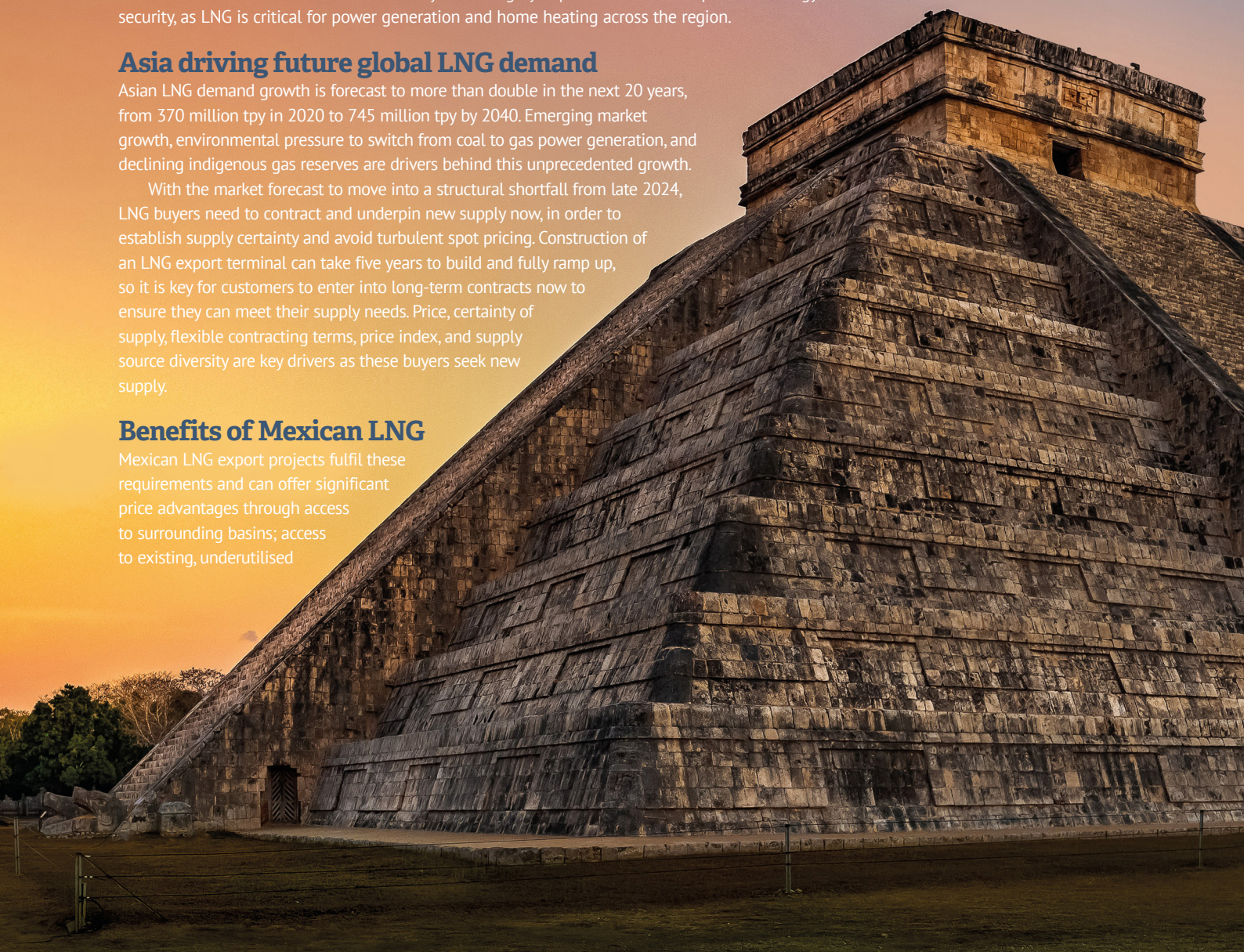
Asia driving future global LNG demand

Asian LNG demand growth is forecast to more than double in the next 20 years, from 370 million tpy in 2020 to 745 million tpy by 2040. Emerging market growth, environmental pressure to switch from coal to gas power generation, and declining indigenous gas reserves are drivers behind this unprecedented growth.

With the market forecast to move into a structural shortfall from late 2024, LNG buyers need to contract and underpin new supply now, in order to establish supply certainty and avoid turbulent spot pricing. Construction of an LNG export terminal can take five years to build and fully ramp up, so it is key for customers to enter into long-term contracts now to ensure they can meet their supply needs. Price, certainty of supply, flexible contracting terms, price index, and supply source diversity are key drivers as these buyers seek new supply.

Benefits of Mexican LNG

Mexican LNG export projects fulfil these requirements and can offer significant price advantages through access to surrounding basins; access to existing, underutilised



pipeline capacity; price diversification; and a significantly shorter shipping route to Asia.

Close proximity to prolific natural gas supply from the nearby Waha hub in West Texas, US, provides significant cost benefits, with Waha pricing often trading at a significant discount to Henry Hub, the alternative consumer gas market for Permian gas. On average, Waha is forecast to average a price discount to Henry Hub of close to US$1/million Btu across the period 2025 - 2040. This differential is primarily driven by available production, available takeaway pipeline capacity, the cost to transport the gas to the East coast consumer market, and Permian natural gas being a byproduct of liquids drilling and therefore produced at low cost – the Permian Basin alone has 600 trillion ft^3 of natural gas reserves remaining, of which approximately 90% are at break-even prices below US$0/million Btu (EIA, RSEG). As Permian production economics are oil driven, natural gas is a byproduct, and without a market may need to be flared. Providing an outlet for what would be otherwise stranded gas provides an alternative for producers to avoid flaring, compounding the environmental benefits. Access to an abundant gas supply also avoids the need to drill for new reserves and thus removes reserves reliance risk. Having the ability to buy gas from the market also underpins buyer access to volume flexibility, which has proven key in responding to unforeseen demand fluctuations and is something reserved-based integrated gas to LNG projects cannot offer.

Mexico is also connected to the Permian basin by a robust network of existing natural gas pipelines that have underutilised capacity and can be easily expanded, further minimising costs and environmental impact. Why send gas east to the Gulf of Mexico only to have to ship it all the way back west via tanker? Existing pipeline takeaway capacity from the Permian to the West coast of Mexico enables the direct flow of gas west, closer to Asian end markets.

Henry Hub was the first step in providing LNG pricing diversification away from the traditional Brent-indexed terms of global contracts. Buyers continue to seek diversification away from oil-linked contracts and are actively pursuing further US gas diversification, including Waha indexation, which serves as an ideal natural hedge to high oil prices given Permian gas is an associated byproduct to oil. When oil prices increase, production in the Permian increases, which subsequently drives down associated gas Waha pricing for LNG customers. Mexican LNG projects not only offer access to advantageous Waha pricing, they also facilitate geographical supply source diversification from the often congested and weather affected projects in the Gulf of Mexico.

Beyond the benefits of access to low cost gas, Waha indexation, and existing pipelines, strategically located LNG export terminals on the West coast of Mexico almost halve the shipping cost to Asia and avoid the increasingly congested Panama Canal and weather impacts suffered by Gulf of Mexico projects. Northern West coast Mexican LNG projects provide on average a 10 day shorter shipping distance to Asia when compared with the Gulf of Mexico – and that is assuming the Gulf Coast projects are not encountering any Panama Canal disruptions or weather delays. Shipping rates have recently exploded to an all-time high of US$350 000/d, further highlighting the economic benefits of the shorter shipping distance. In addition to the financial impact, LNG tankers are in transit for a shorter period of time, and in turn produce fewer emissions.

Asian buyers are also looking for alternatives to avoid transiting through the Panama Canal, which is becoming increasingly congested, with a recent tanker delay of 11 days in late 2020 as it awaited a transit slot. Using an average of US$100 000/d for a ship charter (assumes deliveries into Japan, 0.10% boil-off, speed 18 knots), this buyer would have incurred an additional US$1.1 million in costs and likely contractual penalties with its downstream customer for failing to meet its subsequent end market arrival time obligation. For those choosing the Cape of Good Hope as an alternative, approximately 14 days are added to the journey – assuming favourable weather conditions. The financial impact of delays are significant, and with no Panama Canal expansion currently planned and increasing Gulf Coast LNG production, a solution is not currently on the horizon to resolve the forecasted congestion, making Mexican projects even more attractive from a pricing and risk perspective.

Figure 1. Existing pipeline infrastructure connectivity to Mexico Pacific Limited (MPL).

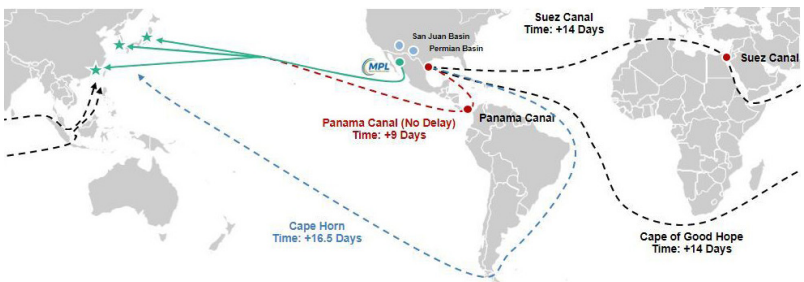


Figure 2. LNG shipping routes to Asia.

The Gulf of Mexico also presents challenges due to its propensity for hurricanes and fog. 2020 was the most active hurricane season on record, a historic year with eight landed storms along the Gulf of Mexico, impacting shipping traffic and cargo timing. Furthermore, a record five named storms made landfall in the US state of Louisiana in 2020.

Backed by strong fundamentals, Mexico is the next emerging market for LNG supply, providing: the lowest landed North American LNG price into Asia; a highly competitive landed price globally; and a more direct and de-risked shipping route into Asia, avoiding the Panama Canal, Calcasieu Channel, and highly-impacted hurricane prone areas.

The next generation of North American LNG

Energía Costa Azul (ECA) LNG announced its Final Investment Decision (FID) in November 2020 for the company's LNG export project located in Baja California, Mexico. The terminal,

which will be operated by Sempra LNG and IEnova, will include a single-train liquefaction facility with a nameplate capacity of 3.25 million tpy of LNG production, underpinned by long-term contracts with Total and Mitsui. The Pacific Coast project is designed to link natural gas supplies from Texas and the Western US to markets in Mexico and countries across the Pacific Basin. First LNG production from ECA LNG Phase 1 is expected in late 2024. This was the only LNG project in the world to reach FID in 2020, further validating the advantages of a West coast Mexico-based LNG export project.

The next Mexican project to watch is an LNG export terminal being developed in Puerto Libertad, Sonora, Mexico, by Mexico Pacific Limited (MPL). The company's anchor project, Mexico Pacific LNG, is a 12.9 million tpy export terminal with the compelling advantages outlined earlier in this article. The advanced stage project has received all major permits required to construct and operate the facility and MPL is already in advanced commercial negotiations with Asian customers. FID is expected later this year or in early 2022, with commercial operations due to commence in 2025, aligned with the forecasted period of LNG market shortfall. With only 4.3 million tpy to sell under MPL's initial Phase 1, the project is well placed to take its share of the 75 milion tpy incremental supply which is required by 2030 and the 375 million tpy required by 2040.

MPL's project site is well situated to quickly expand and achieve up to approximately 26 million tpy of liquefaction capacity in the future. As the 12.9 million tpy anchor project and layout represents less than 300 acres of a larger 1100 acre site, the base train design is repeatable; and advanced permitting and future permit modifications can accelerate growth plans.

Figure 3. Rendering of MPL's anchor project – Mexico Pacific LNG – a 12.9 million tpy LNG export terminal.

Conclusion

As the world continues its path of energy transition, LNG will continue to play a material role as a transition fuel while alternative energy and storage solutions for wind and solar options are sought. Energy transition is critical for Asia's future. According to the UN's Sustainable Development Report 2020, if China were to reduce its emissions to 2 tpy of CO_2 per capita (equivalent to a total reduction of 69.2% from current levels), the world would be 31% closer to achieving the Sustainable Development Goals target on CO_2 emissions. With much of Asia's carbon net-neutral targets heavily reliant on coal-to-gas switching whilst new technologies are being proven, it is key for new LNG projects to be sanctioned in order to achieve these targets. Mexico-based projects offer not only economic benefits for Asia-Pacific gas buyers, but significant environmental benefits too. **LNG**