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Enciende Mi Fuego (Light My Fire)—Opening Up Mexico's LPG Market

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U.S.-based companies soon may have expanded opportunities in Mexico's liquefied petroleum gas market—not just in supplying LPG from U.S. natural gas processing complexes and oil refineries but in storing and delivering the propane/butane mix to customers. The emerging opportunities are tied largely to Mexico's efforts to open up and deregulate its energy sector, whose LPG sub-sector has long been dominated by the government-owned Petroleos Mexicanos and hamstrung by LPG price controls. Today, we conclude our series on propane/butane supply, demand and infrastructure South of the Border.

LPG (mostly propane but including some butane, two members of the natural gas liquids – NGL – family) is relatively inexpensive—at least it is right now—but delivering it to market isn't easy. LPG has a low boiling point (somewhere between 30 degrees Fahrenheit and -43 degrees F, depending on the propane/butane mix), and it has to be kept under pressure to remain a liquid for cost-effective transportation. That means delivering LPG in pressurized pipelines, ships, railcars and/or trucks, and ultimately (when delivered to residential and small commercial customers) by truck-mounted hoses into mounted or buried tanks or by hand in small, pressurized tanks similar to those attached to millions of U.S. barbecue grills. Delivering LPG in Mexico can be particularly challenging; LPG pipeline infrastructure there is modest (at best), and the common use of LPG for cooking and heating--even in many major metropolitan areas—means the retail truck supply chain is extensive.

As we said in **Episode 1**, Mexico is the world's seventh-largest consumer of LPG; it uses 280 Mb/d, on average, about 60% of that use is residential, 14% commercial and 9% industrial, including petrochemical production (another 10% is for LPG use as a fuel for trucks and cars). About two-thirds of the LPG consumed in Mexico is produced there; the rest (about 93 Mb/d) is imported, with about 70% of imports (66 Mb/d; or nearly one-fourth of Mexico's total needs) coming from the U.S. We also discussed the Mexican government's plan—part of a larger energy sector deregulation effort—to eliminate (in January 2016) the current mandate that Petróleos Mexicanos (Pemex) serve as the middleman on all LPG imports to Mexico, and to end (in January 2017) the long-standing practice of a government-set retail LPG price.

Source: Pemex (Click to Enlarge)

Episode 2 detailed the rapid rise in U.S. propane production (now topping 1.4 MMb/d), noting the fact that about half of current production can be consumed domestically (or stored for future use), and that the other half has to find a home in export markets. The resulting propane export boom has created tremendous opportunities for midstream companies like Enterprise Products Partners, Targa Resources, and ETP/Sunoco Logistics, which have expanded or built export dock facilities together capable to ship up to about 840 Mb/d of LPG (propane, butane or both) to Latin America, Asia and Europe (rising to more than 1 MMb/d by year-end 2015). Mexico has several LPG import terminals along the Gulf of Mexico, including Tampico, Tuxpan and Pajaritos, the last of which is the country's largest and near the proposed site of what would be Latin America's first underground

salt cavern storage capacity for LPG (capacity 1.8 MMBbl—big enough to handle regular delivery of LPG to Pajaritos via Very Large Gas Carriers, or VLGCs). There are also at least two LPG receiving terminals on Mexico's West Coast: Ensenada (just south of San Diego, CA and Tijuana) and Manzanillo (way down the coast, south of Puerto Vallarta). In **Episode 3**, we looked at existing and planned LPG pipelines from the U.S. into Mexico (combined capacity 76 Mb/d, expandable to 88 Mb/d), and at plans for two pipeline projects (one new, the other a conversion of an existing light-naphtha pipeline) that would add 172 Mb/d of LPG-carrying capacity.

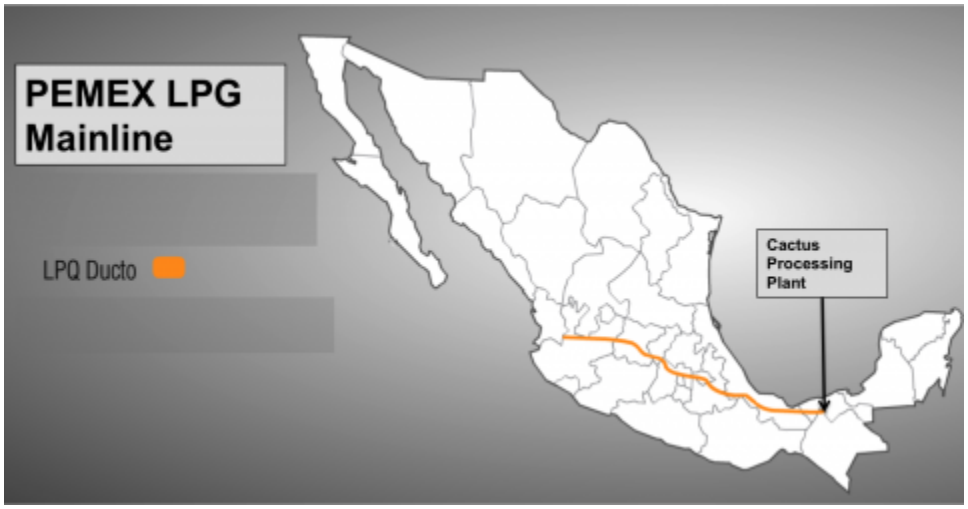

Figure 1; Pemex's Cactus-Guadalajara LPG Pipeline; Source: Pemex (Click to Enlarge)

There are two primary LPG pipelines solely within Mexico—that is, pipelines not built to connect to pipelines from the U.S. By far the longer of the two is Pemex's LPG mainline, a pipeline of up to 24 inches in diameter that runs about 760 miles between the Cactus natural gas processing complex in Chiapas State in southeastern Mexico (right or eastern end of orange line in Figure 1 above) and an LPG storage and distribution center in Guadalajara State in west-central Mexico (left or western end of orange line). There are several other gas processing complexes that feed the pipeline along the eastern half of the route, as well as several other LPG storage and distribution facilities along the pipeline's western half. (Gasoductos de Chihuahua—currently a joint venture of Pemex and Sempra Energy's IEnova subsidiary, but soon to be wholly owned by IEnova—owns four 20 MBbl LPG storage tanks at the western end of Pemex's Cactus-Guadalajara line and a 10-bay truck loading facility there.)

Speaking of Gasoductos de Chihuahua, it also owns the other major LPG pipeline in Mexico: the 118-mile, 12-inch-diameter TDF LPG Pipeline (red line in Figure 2; capacity 30 Mb/d) that runs between Pemex's Burgos natural gas processing complex in Mexico's Tamaulipas State (blue square to the right or east) and an LPG storage (40 MBbl) and distribution center in Monterrey in Nuevo Leon State (blue square to left or west).

Figure 2; TDF Pipeline; Source: Gasoductos de Chihuahua (Click to Enlarge)

As we noted in the series opener, Pemex also is looking to develop (with a partner to be determined) what it calls the Transoceanic Corridor Project, the primary element of which is a 186-mile, 200 Mb/d pipeline to move LPG across the skinniest part of Mexico from the LPG-receiving port of Pajaritos on Mexico's southern Gulf Coast to the West Coast port of Salina Cruz (in the state of Oaxaca). There, LPG could be loaded onto ships for export to Asian and (western) Latin American markets—bypassing the Panama Canal in the process. (In other words, some future U.S. LPG exports to Mexico could in fact be headed—ultimately—to other countries.)

Important considerations from all of this for U.S. NGL producers, LPG/propane/butane exporters and midstream companies are that:

1. Mexico will likely continue to need a lot of imported LPG to supplement its own

propane and butane production;
2. The U.S. expects to continue producing far more propane and butane than it needs domestically (see our latest Drill Down report for **Backstage Pass** members "**Next To You: A Transformation In Propane Markets**"; and
3. The Mexican rules that have been holding back deeper U.S. involvement in the LPG business south of the border (Pemex as LPG middleman and government-set LPG prices) are being phased out. In addition, Pemex is said to be open to divesting some of its midstream assets (its 50% stake in the TDF LPG Pipeline, for example) and in partnering with foreign companies on new LPG pipeline projects (such as the proposed Transoceanic Corridor Project).

We've already seen U.S.-based midstream companies become very involved in developing natural gas pipelines in Mexico and U.S. gas producers send increasing amounts of gas "down Mexico way" (see **As We Send Gas Through the Streets of Laredo**). It therefore seems logical that U.S. midstream expertise—and surplus NGL production—could be put to good use in Mexico's LPG sector too

"Light My Fire" was an important 1967 hit by The Doors; it spent three weeks at the top of the Billboard Hot 100, and was later ranked by Rolling Stone magazine as the 35th Greatest Song of All Time. In 1968, José Feliciano released his cover of the song; his version peaked at Number 3 on the Billboard Hot 100.

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