New Border-Crossing Pipelines Bring Shale Gas to Mexico

*Pipeline & Gas Journal* Staff Report

U.S. pipeline capacity for natural gas exports to Mexico rapidly expanded in the past few years and stands at 7.3 Bcf/d. This existing cross-border capacity primarily supplies the northeast and central regions of Mexico. New capacity projected to be completed in the next several years will help supply Mexico’s central and northwestern regions.

The expansion of the U.S. cross-border pipeline network into Mexico since that nation’s historic Energy Reform in 2014 has been driven primarily by strong growth in Mexico’s natural gas demand in the power sector, declining domestic production, and the lower prices of U.S. pipeline gas compared with more expensive LNG imports.

In the next three years, U.S. pipeline capacity into Mexico will nearly double. In recent developments, Mexico announced a new joint venture with TransCanada to build and operate a $2.1 billion natural gas pipeline. TransCanada is working on two other new pipelines in Mexico as well.

The 497-mile (800-km), Sur de Texas-Tuxpan pipeline is expected to be in service in the second half of 2018 and will be 40% owned by Sempra. The 42-inch pipeline will begin near Brownsville, TX in the Gulf of Mexico, and terminate in Tuxpan, Veracruz. The pipeline will interconnect with projects from CENAGAS, Tanazychale and Tuxpan-Tula.

“This new project brings our footprint of existing assets and projects in development in Mexico to more than $5 billion, all underpinned by 25-year agreements with Mexico’s state power company,” Russ Girling, CEO and president of TransCanada, told The Financial Post.

In 2017, four U.S. pipeline projects under construction – Roadrunner (Phase II), Comanche Trail, Presidio Crossing (also called Trans-Pecos), and Nueva Era – totaling 3.5 Bcf/d, will supply natural gas to new gas-fired power plants in the states of Chihuahua, Nuevo Leon, Sonora and Sinaloa.

By the end of 2018, two additional pipelines – KM Mier-Monterrey and Neuces-Brownsville – totaling 3.3 Bcf/d, are projected to begin exporting natural gas to Mexico’s northeast and central regions, mainly from the Eagle Ford play in South Texas.

Additionally, a presidential permit was issued June 29 for the 10-inch Burgos Pipeline, a joint venture between NuStar Logistics and an affiliate of Petróleos Mexicanos, that would cross the border between McAllen, TX and Reynosa, Tamaulipas, Mexico. The pipeline is designed to export up to 108,000 bpd of petroleum products.

The expansion of U.S. pipeline export capacity to Mexico has been matched by the growth of Mexico’s domestic pipeline network, which includes 12 additional pipelines with a capacity of 9.7 Bcf/d in development within Mexico. These pipelines are part of the Mexico energy ministry’s (SENER) five-year plan for expansions of the country’s natural gas pipeline infrastructure.

Deliveries from the U.S. to Mexico have more than doubled in the past two years, and Mexico is tied with Chile as the top destination for LNG leaving Louisiana’s coast. Still, U.S. pipeline exports to Mexico are beginning to displace Mexico’s LNG imports.

Natural gas shipments to Mexico have helped to reduce a U.S. supply glut that caused prices to plunge while also cutting energy costs for Mexico’s manufacturers who compete with U.S. companies.

Completion of the Los Ramones Phase I pipeline (2.1 Bcf/d capacity), which went into service in 2014, has already mostly displaced LNG imports at the Altamira terminal with natural gas from the Eagle Ford play. LNG imports at Altamira averaged 0.1 Bcf/d through October, over 50% lower than in 2015.

“Mexico has ambitious goals of improving efficiency and energy access in multiple energy sectors – power, gas, and oil – shifting from dominance by state-sponsored enterprises to increased private sector participation,” said Greg Litra, partner and energy research lead at ScottMadden.

“Needed investment will come as new ‘rules of the road’ are established, and it will also depend upon the outlook for global oil and gas markets. For now, investors will watch to see how structural reforms unfold.”

The completion of Phase II South (1.4 Bcf/d) of Los Ramones pipeline is expected to displace LNG imports at the Manzanillo terminal in the central region, including Mexico City. LNG imports to Manzanillo averaged 0.5 Bcf/d through October.

The central region has been experiencing natural gas shortages and has had to purchase additional LNG to make up the difference. Once Los Ramones Phase II South begins operation and ramps up to full capacity, more U.S. shale gas is expected to displace LNG imports at the Manzanillo terminal.

**Auctions Ongoing**

Mexico hosted a new round of auctions on June 19 with the results for shallow water blocks exceeding projections as oil majors, including Italy’s Uni, Russia’s Lukoil, Total SA and Royal Dutch Shell took part.

Mexico awarded 10 of the 15 blocks that were offered. Energy Minister Pedro Joaquín Coldwell said the results could attract combined investment of $8.2 billion, while analysts estimated the 10 blocks could lead to production of 170,000 boe/d, beginning in 2018 or 2019.
MIDWEST PIPE COATING INC.

WITH AGE COMES EXPERIENCE and OUR REPUTATION FOR QUALITY


50 Years of Quality Pipe Coating Since 1965

Midwest Pipe Coating has the production capacity, experienced professionals and logistics capabilities needed to manage your protective coating requirements. Our convenient proximity to rail lines, highways, and the ports of Indiana and Chicago make Midwest your ideal location for quality plant-applied pipe coating.
An auction for more highly sought deep-water blocks, held in December, was the most successful to date, with ExxonMobil, Chevron, Total SA, Statoil and BP claiming the rights to blocks just across the maritime border from offshore fields in U.S. waters.

In late May, London’s Premier Oil, Houston’s Talos Energy and Mexico’s Sierra Oil & Gas began offshore drilling on the joint venture that represented the first time a private well had been drilled in Mexico in almost 80 years.

The Zama-1 well is in the Sureste Basin off the shores of Tabascois and is estimated by Premier Oil to hold 100-500 MMbbls of crude oil. The JV bought the rights at auction in 2015. Drilling is expected to be completed by the end of August.

Mexico’s National Hydrocarbons Commission said in April the nation’s proved oil and gas reserves have fallen 10.6% to 9.16 Bboe since the beginning of 2016. For the same period, proved oil reserves declined 7% to 7 Bbbs.

EIA data show the country’s crude oil production dropping since 2005 due to natural production declines from offshore fields. However, it projects that new international project schedules and firmer price declines will begin to dissipate after 2020. P&GJ

Mears is a single-source project solution for Horizontal Directional Drilling and Direct Pipe®. Guided by our engineering expertise, we overlap the design and construction phases of a project to minimize risk, abbreviate the delivery schedule and provide the optimum solution for your project.

- Conventional HDD Crossings
- Marine crossings (Water-to-Water and Shore Approaches)
- Hard Rock Drilling
- Design/build
- Engineering, Procurement and Construction
- Direct Pipe®

Mears Design/Build: Engineering solutions developed to meet geographical, environmental and climatic challenges head-on.

Certified in Safety, Quality, and Environmental:
- OHSAS 18001:2007
- ISO 9001:2015
- ISO 14001:2004

www.mearsHDD.net

Certified in Safety, Quality, and Environmental:
- OHSAS 18001:2007
- ISO 9001:2015
- ISO 14001:2004
Samalayuca-Sasabe Pipeline Looks to Bring Power to North Mexico

By Mauro Nogarin, Latin America Correspondent

The Samalayuca-Sasabe project’s main objective is connecting the federal gas network to the northern states of Chihuahua and Sonora in order to supply energy to the power-generation plants located in the north and northeast of Mexico.

According to the work schedule, the project is expected to start operations next April with a $916 million total investment. This is one of the most important projects in recent years in terms of energy integration at a national level.

The Federal Electricity Commission (CFE) commissioned the construction to a consortium formed by Mexico-based Grupo Carso and the Spanish company, FCC, through a venture called AFIG (CICSA 45%, FCC Industrial 45% and Nuova Ghizzoni SPA 10%), which includes the 390-mile (630-km), 36-inch gas pipeline, a temporary dynamic discharge valve (DDV) between 10-15 meters and a strip of 5 meters on each side of the duct shaft. As of July, the completion rate is at 21%.

The project travels through the states of Chihuahua and Sonora, supplying natural gas to the point of delivery for a future connection to the Agua Prieta Natural Gas Transportation System and the existing Sásabe- Guaymas Gas Pipeline, both located in the state of Sonora, along with the San Isidro-Samalayuca Gas Pipeline. The work is an administrative concession under operation, management and maintenance through a contract signed between CARSO and the CFE.

From a technical point, one highlight of the project is the geological and topographic diversity of the region. Chihuahua’s terrain is typically desert and offers few complications for excavation, whereas the Sierra Madre Occidental contains a high water table that might complicate transportation of heavy machinery during the rainy season.

In the state of Sonora, again the area is mostly comprised of desert with the presence of some pastures. Another challenge is the considerable difference in altitude of the path, with the highest point of the mountain range 1.4 miles (2,250 meters) and its lowest point 1 mile (1,600 meters).

The pipeline will start southwest of Ciudad Juárez, (Chihuahua) and end at Pitiquito (Sonora), where it will be interconnected to the Compression Station in Ciudad Juárez. The gas will be transported from its reception point in Ciudad Juárez to the delivery point in the town of Sásabe. The route of the gas pipeline runs through 17 cities, 12 of which are in Sonora and five in Chihuahua.

The Samalayuca-Sasabe will have a transportation output of 472 MMcf/d of natural gas at a maximum allowable operating pressure of 1,440 psig and a temperature between 10°C and 50°C. For this reason, a 36-inch API 5L carbon steel pipe with a 15mm wall thickness has been implemented. The pipeline includes 23 sectioning valves (MLV), six of them with pneumatic-hydraulic drive and 17 with electric motor drive, and 10 traps for maintenance and internal inspection of the pipeline.

The steel tubes forming the conduction

DATA
Length: 390 miles, 630 km
Capacity: 472 MMcf/d
Diameter: 36 inches
Investment: $916 million
Source: FCC
BUY American.

Buy Service.

Buy Quality.

Buy Technology.

Buy Speed.

BUY PumpWorks.

PumpWorks manufactures a full line of centrifugal pumps for all of your processes.

API 610 | ANSI B73.1 | Industrial

Made Right in the USA

www.pumpworks.com | 1-800-405-0209
are joined by electric arc welding by both manual and automatic processes. However, the implementation of the CRC automatic welding allowed large yields to reach 2,000 linear meters per day of welded pipe.

All of the pipeline's welded joints are subjected to non-destructive tests to ensure quality. This is done through radiographic methods or ultrasound, as the case requires. The protection against corrosion is double: passive by fusion-bonded epoxy (FBE) coating and activated by cathodic protection by printed current.

Due to railway lines along the pipeline, engineers plan to construct 18 overpasses, most of which will rely on horizontal drilling.

Starting in Juárez, the first of the project's five segments runs 171 miles (275-km) to the city of Janos. In addition to the 175-km of pipelines, 11 mainline valves will be installed in this segment. Segment 2 continues to the 192-mile (310-km) point of the pipeline in Agua Prieta, Sonora. This segment runs across the mountains that divides the two federal states, and due to the rugged terrain, specialized personnel were contracted.

Segment 3 continues to the 260-mile (418-km) mark, also in Sonora. It is a 67-mile (108-km) segment, comprised of three geological areas and irregular topography mixing light mountain terrain with semi-desert geology.

Segment 4 runs to the 295-mile (475-km) point in Imuris, Sonora, with a stretch of (57-km) through mountains and some valleys.

Finally, Segment 5 arrives in the village of Pitiquito, Sonora. It is a section containing desert and semi-desert terrain. Pitiquito is where the measurement and regulation station to the final pipeline interconnection will be located. 

Laying of welded pipe in trench.
With the power of the PipeWIZARD® system, STANLEY Inspection provides customers around the world with today’s fastest and most accurate AUT girth weld inspection services. 

Under any conditions.

All STANLEY Inspection PipeWIZARD operators are UT-certified Level II or higher.
Exporting Natural Gas to Mexico:
An Opportunity for Texas?

Special to Pipeline & Gas Journal

As partners in the Houston office of the law firm Jones Walker LLP, Jennifer D. Hamer and Amy L. Vazquez have a front-row perspective on the legal and business issues surrounding the export of natural gas from the United States (through Texas) to Mexico.

Hamer: A broad business practice in energy, real estate and finance transactions, focusing on the development, operation and financing of domestic and international energy infrastructure projects. Vazquez concentrates her practice on energy litigation, energy and natural resources matters, oil and gas law, eminent domain and complex business litigation. They provide counsel to oil and gas companies at every step in the process of energy exploration, development, production and distribution.

P&GJ: Why might this be a good time for U.S. energy companies, and Texas companies in particular, to consider exporting natural gas to Mexico?

Vazquez: We’re seeing several forces acting at once. In Mexico, government-led energy reforms include unbundling the state-owned power utility, promoting competition, reducing prices and attracting investment for cleaner forms of energy. By 2024, the Mexican government would like to see 35% of its energy supply coming from cleaner and renewable sources, including natural gas, solar and wind, and it has been actively opening up new avenues for natural gas projects. Thanks to the shale boom in the United States, a surplus of natural gas may be used to meet the demand coming from Mexico, which does not currently possess the necessary infrastructure to supply domestic natural gas at this level.

Hamer: Since Texas already has most of the needed hub infrastructure in place, companies in the United States are able to gear up fairly quickly to export natural gas to Mexico. This should create a win-win for Texas energy providers otherwise unable to find domestic buyers for their surplus natural gas, and for Mexico as they switch to cleaner energy at lower prices. All of that said, however, each company must evaluate the data and make its own decision as to whether exporting gas to Mexico — or anywhere else — is the right option.

P&GJ: What are some of the main considerations for Texas companies?

Hamer: First, you’ll need to ensure compliance with all state and federal regulations. Texas has various regulatory permits required by the Texas Railroad Commission and other agencies. Pipeline companies must show that the pipeline will transport natural gas for public use and negotiate a fair price with landowners in order to obtain easement rights over their property.

Vazquez: Even though intrastate pipelines would be primarily regulated by the state of Texas, federal approval would be required at certain points, particularly where pipelines cross the U.S.-Mexico border. These activities are regulated by the Federal Energy Regulatory Commission (FERC). In addition, other agencies, such as the U.S. Army Corps of Engineers, would need to approve certain aspects of these initiatives.

Hamer: In addition to what Amy just described, environmental, noise and other issues would require review, as is typical with any infrastructure project. In the case of new pipelines, however, this might open the door for environmental or community groups to request expanded inquiries into activities elsewhere in the state that are in some way connected with the new project. There are also some very real political tensions between the United States and Mexico at this time.

While they are unlikely to break an otherwise strong economic relationship, escalation or de-escalation of such cross-border disputes might impact the speed with which government approvals can be achieved. And finally, the business case for pursuing export opportunities relies in part on market conditions: natural gas supply and pricing. If these were to change, the opportunity might not appear as attractive over the long term.

P&GJ: What might be the impact on Texas communities of expanding natural gas exports to Mexico?

Vazquez: As with any infrastructure project, jobs would be created to support the necessary work, which in turn would benefit the local economy. To be frank, job growth is unlikely to be on a vast scale, and some of those jobs will go away once the pipelines are completed. But a certain number of employees will be required to maintain ongoing operations - and even a temporary injection of activity into a community can provide significant benefits.

Hamer: Landowners and local governments also stand to benefit directly from pipelines that cross their properties, through easements and tax revenues.

P&GJ: Texas companies are only half of the equation: they must work with partners on the Mexican side of the border. What advice do you have for those working with government entities and businesses in Mexico?

Vazquez: We would strongly advise identifying and working with legal counsel in Mexico, in addition to your regular advisors in your home jurisdiction. That’s something we would say to any company seeking to conduct business anywhere in the world, whether a natural gas company, a retailer or a manufacturer. It’s also the same message we give to foreign companies or businesses headquartered in other U.S. states that want to enter the Texas marketplace: There is simply no substitute for having boots on the ground and firsthand insights into the business, legal, regulatory and cultural issues you are likely to face.