Quick Take

Gas and Oil Infrastructure Opportunities for the Savvy Investors

By Kevin Petak, Hua Fang, and Mike Sloan

Shareables

- While export and production (E&P) companies are unwinding their midstream positions, utilities are increasing their role in midstream development.
- Even though total investment in midstream infrastructure will be at lower levels after 2019, there will still be many opportunities for gathering system and pipeline development in areas where supplies are expected to continue to grow, like the Marcellus and Utica.
- Those participating in infrastructure that provides gas to power plants, LNG export facilities, Mexican markets, and petrochemical plants will continue to benefit from longer term growth in those markets.

Executive Summary

Midstream infrastructure development had been rolling along—that is, until the past year when concerns about market growth and low commodity prices have appeared to derail activity. In response, many analysts have reduced their projections for future activity and some have even pronounced the sector dead.

Having completed a recent study for the INGAA Foundation, *North America Midstream Infrastructure Development through 2035: Leaning into the Headwinds,* ICF does not see things the same way as the doomsayers. While we foresee
(Continued)

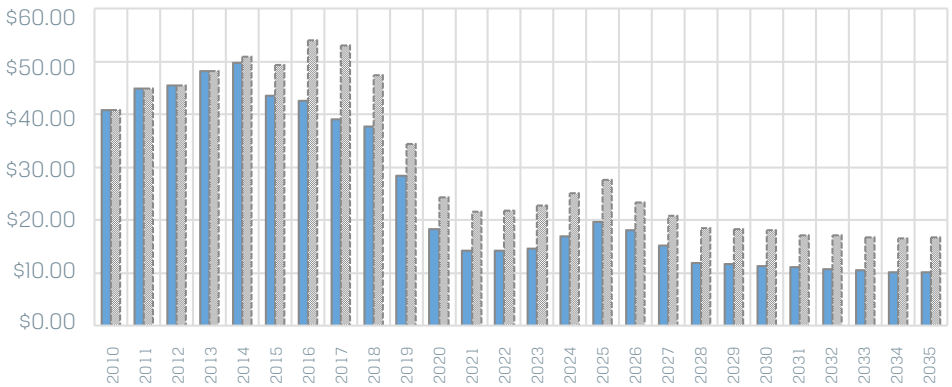
Executive Summary (Continued)

declining activity over the next five years, we still project a relatively robust expenditure for midstream development, albeit at a lower level than what has occurred during the past few years. Further, as per the following discussion, there are likely to be many entities that could prosper from future development, particularly those who participate in development that is aimed at supporting deliveries to power plants, petrochemical facilities, LNG export facilities, and Mexican markets. The old adage, "where there's a will, there's a way," has never been more true—even with the declining activity.

Strong Investments Through 2019

Illuminating the points above, the recently completed study concludes that midstream infrastructure development—comprised mostly of gathering, processing, fractionation, and pipeline facilities—will continue at a strong but declining pace during the next few years. Despite the downturn in activity, the level of midstream development will average between $30 and $40 billion per year over the next five years (Exhibit 1). Activity is supported by a large number of projects that are already underway, particularly from areas like the Marcellus and Utica, South Central Oklahoma Oil Province (SCOOP) and Sooner Trend Anadarko Basin Canadian and Kingfisher Counties (STACK), and West Texas, where hydrocarbon production has been growing robustly. Activity is supported by market development that includes facilities aimed at exporting hydrocarbons, most notably LNG and Mexican export facilities. Further, gas load growth in the power sector supports future infrastructure development.

EXHIBIT 1. PROJECTED CAPITAL EXPENDITURE (CAPEX) FOR NEW MIDSTREAM INFRASTRUCTURE



Source: North America Midstream Infrastructure Development through 2035: Leaning into the Headwinds.

EXHIBIT 2. AVERAGE ANNUAL CAPEX FOR NATURAL GAS ASSETS PROJECTED IN THE INGAA FOUNDATION STUDY

(Billions of 2015 $/1)	Current Study Low Case	Current Study High Case	Prior Study Base Case
Gas Transmission Mainline Pipe	$2.2	$3.6	$4.2
Laterals to/from Power Plants, Gas Storage, and Processing Plants	$1.5	$2.4	$2.2
Gathering Line (pipe only)	$1.4	$1.6	$1.7
Gas Gathering Line Compression	$1.1	$1.4	$1.1
Gas Lease Equipment	$1.1	$1.3	$1.3
Gas Pipeline and Storage Compression	$0.6	$0.9	$0.5
Gas Storage Fields	$0.1	$0.2	$0.5
Gas Processing Capacity	$1.3	$1.7	$1.2
LNG Export Facilities	$3.4	$3.7	$2.2
Total Capital Expenditures	**$12.7**	**$16.8**	**$14.9**
Total with IM and NOX Control	**$13.8**	**$17.9**	**$14.9**

Capital expenditures reported in the prior study were converted from 2012$ to 2015$ using 4.3 percent inflation factor

Source: North America Midstream Infrastructure Development through 2035: Leaning into the Headwinds, INGAA Foundation, April 12, 2016

As noted in Exhibit 2, the projected trends, while robust, suggest that a declining trend is in the works and the development window for new infrastructure is closing. By 2020, much of the buildout that is required for burgeoning supply areas, such as the Marcellus and Utica, will be complete, ushering in a less robust period of development after 2020.

Nevertheless, development will continue in order to satisfy ongoing gas load growth in the power sector, where gas generation will continue to gain market share while coal plants retire; as integrity management and NOX control programs continue to foster replacement and retrofit of existing infrastructure; and as gas load requirements increase at petrochemical facilities. Further, it is worth noting that the INGAA study does not include capital expenditures for replacement and refurbishment of facilities that wear out over time. Those expenditures, which will be mostly for "small package" compressors used to gather and process hydrocarbons, are likely to be very significant.

How Bankruptcies Impact the Investment Outlook

The INGAA projections are not without risk, and infrastructure development is likely to continue to face a challenging environment over the next 24 months. Most notably, the recent surge in E&P bankruptcies is creating uncertainty for infrastructure development.

To understand why E&P bankruptcies are creating problems for midstream development, one has to take a step back. Historically, most pipeline capacity has been contracted by gas utilities and marketers. In the last decade, however, much of the new pipeline capacity has been contracted by producers looking to move growing supplies from constrained supply areas to liquid market points. Thus, much of the recent pipeline development, unlike in the past, has been backstopped by contracts with producers. This is especially true for much of the newer pipeline capacity from the Marcellus and Utica, the Bakken, West Texas, and other supply areas where supply has been growing. Further, new gathering and processing assets have been contracted almost entirely by producers, which has historically been the norm.

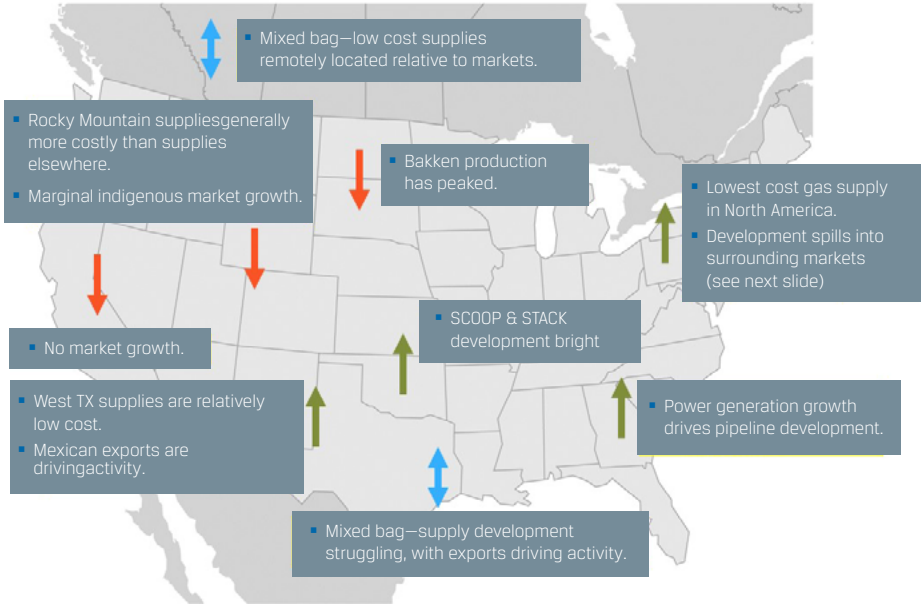
So, the recent spate of producer bankruptcies is generally making capital for new midstream infrastructure more difficult to obtain. This is most certainly becoming evident with gathering and processing facility development and may very well spill over into pipeline development.

In addition, cost-effective supplies are continuing to cannibalize "out of the money" supplies, creating a less certain environment for those looking to subscribe to new capacity. Thus, contracts for new capacity are less certain than they were a few years ago. Also, some of the pipeline and midstream companies that are developing new infrastructure are also facing difficult times because some of their existing assets are not well-positioned or linked to the lower cost supplies, making cost recovery difficult for some of their core assets. In short, all of these problems are generally making infrastructure development much less certain. As a result, some infrastructure development is being delayed, and it is not helping matters that a number of projects are facing significant opposition and experiencing great difficulty in the approvals process.

Along with these problems, the continental playing field for infrastructure development is very uneven, making regional diversification extremely important.

Exhibit 3 shows that some areas like the Marcellus and Utica are likely to continue to fare well for new infrastructure because the cost of supply is so low, while other areas like the Rocky Mountains may not fare quite as well because the supplies are much costlier to develop. Some areas also face significant hurdles despite having cost-effective supplies, for example, Western Canada where supplies are far removed from markets. These observations suggest that careful study is needed before investments are undertaken in new infrastructure.

EXHIBIT 3: GEOGRAPHIC BREAKDOWN OF ACTIVITY



Source: ICF

Opportunities – Who Will Prosper

Despite the challenges and risks, there are many opportunities in the midstream space. Many midstream projects still have momentum, particularly in areas where transport of supply is constrained. As mentioned, such areas include the Marcellus and Utica, the SCOOP and STACK, and west Texas. Price differentials from these areas and midstream projects are still underway, despite the projected downturn in activity. For example, in the Marcellus and Utica, there are still a large number of projects either underway or on the drawing board. The total pipeline capacity proposed (and we believe supported) for the area is in the 20 Bcfd ballpark (EXHIBIT 4). Major projects include Rover and NEXUS to the Midwest; Mountain Valley, ACP, and Western Marcellus Expansion to the Mid-Atlantic; numerous Gulf Coast reversals of capacity; and AIM and Access Northeast to New England.

EXHIBIT 4. PIPELINE EXPANSIONS OUT OF THE MARCELLUS AND UTICA AREA

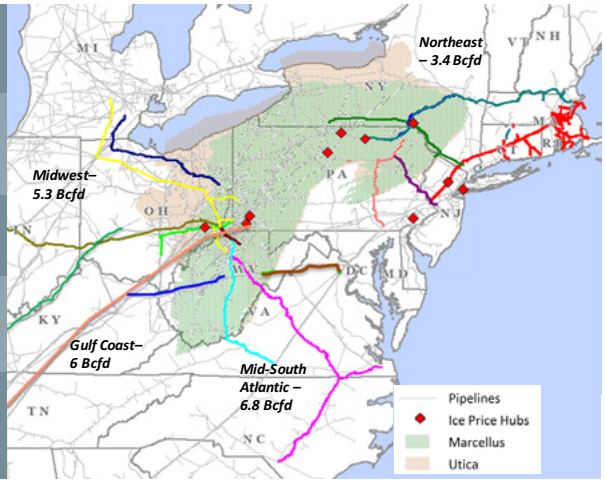
A significant amount of pipeline capacity is scheduled to come-on line in the next couple of years.

LDC and power utility driven expansion expected to be on-schedule after clearing regulatory and environmental hurdles.

Producer driven pipelines could be delayed.

Northeast Marcellus production growth could be limited by incremental take-away capacity.

Southwest Marcellus/Utica production growth accommodated by infrastructure proposals.



Source: ICF and ABB Ventyx

Entities with capital and strong balance sheets can benefit in this uncertain environment by participating in projects concentrated in "hot spots." In fact, one such sector where many entities are in good position to take advantage of the E&P downturn is the utility sector. Gas and electric utilities, unlike companies concentrated in E&P, have rate-baseable assets that provide continuous and more certain cash flows. Further, unlike many E&P companies, utilities are generally much less exposed to commodity price risk, and some have even benefitted from lower commodity prices. They generally have much stronger balance sheets and, as such, a number of them have taken a more active role in the midstream space during the past few years.

Examples of such activity include the following:

- **Washington Gas Light (WGL)—**In 2013, WGL formed a midstream entity to participate directly in midstream development.
- **Dominion Energy—**In 2014, Dominion formed Dominion Midstream to participate directly in midstream development.
- **ConEd—**Formed a midstream subsidiary in early 2016 to participate directly in electric and gas transmission projects and later (April 2016) announced a joint venture with Crestwood to own and develop Crestwood's natural gas pipeline and storage business. ConEd has also signed up for Mountain Valley Pipeline capacity.
- **Southern Company—**Purchased AGL Resources in 2015.
- **Duke Energy—**Purchased Piedmont Natural Gas in late 2016.
- **Dominion, Duke, Piedmont, and AGL—**Subscribed to Atlantic Coast Pipeline capacity to support gas deliveries to power plants.
- **Eversource and National Grid—** Eyeing pipeline capacity into New England markets.
- **DTE Energy, Union, and Enbridge—** Acquiring new capacity from the Marcellus to serve their market areas.
- **Florida Power and Light—** Participating in Sabal Trail Pipeline.

About ICF

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Like utilities, private equity firms, pension plans, and other financial entities could also benefit from the downturn in activity. Deals in both the upstream and midstream were slow to take shape in 2015, primarily because of relatively large bid-ask spreads and unrealistic valuations for assets. In short, many sellers had not quite come to grips with the new market environment that is evolving.

If anything, the downturn in activity and evolving uncertainty surrounding future development has created a better sense of realism regarding value and risks for midstream assets, bringing the interests of "financial players" more closely in line with interests of sellers. Opportunities always exist when interests align, and "where there's a will, there's a way" to make things happen.

So, while we recognize that the trend will be generally down for development and that the current environment for development is troubling, there are still plenty of opportunities to play in the sector's upside potential, particularly as markets grow and commodity prices rebound. While it will take some time, the bankruptcies will be resolved and assets will move to companies with stronger balance sheets. So, now is as good as any time for those with capital to benefit from the current struggles in the midstream space.

About the Authors

Michael Sloan has more than 30 years of experience in the energy field. He provides a wide variety of market trend analysis and demand forecasting services to the propane industry. As part of his propane supply analysis, Mr. Sloan tracks and projects a variety of supply trends impacting propane supply, including natural gas liquids (NGL) production, refinery activity, propane imports and exports, and propylene demand and production trends. He also provides regulatory and market analysis services to the natural gas industry, including market assessments, gas supply planning services, and natural gas storage valuation.

Dr. Hua Fang is an expert in fundamental market assessment, price and basis forecasting, stochastic simulations, energy derivative asset pricing and econometrics modeling. She has led many engagements in assessing natural gas market trends and estimate the value of natural gas assets, such as pipelines, storage facilities and LNG imports/exports facilities. She also studied the interdependency of natural gas and electric markets. Dr. Fang holds an M.A. and a Ph.D. in Economics from the University of Virginia and a B.A. from Renmin University of China in Beijing.

Kevin Petak is an expert in gas market modeling and has more than 30 years of experience in the energy industry. He has directed numerous energy market analyses to support strategic planning needs at energy companies. The analyses have investigated the impact of gas production, gas storage, liquefied natural gas (LNG) exports, and pipeline expansions on gas prices, the effect of weather and oil prices on gas markets, and the impact of carbon control strategies on gas markets. They have been widely used to support facilities/fuels/contracts management and planning, mergers and acquisitions, investment decisions, risk management, and hedge strategies.