Whitepaper

Scaling Up to Face Midstream Market Challenges

Insights from ICF

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Executive Summary

The North American midstream industry is facing significant headwinds from low commodity prices and the retrenchment of the upstream E&P sector, which had been a primary driver of a majority of midstream developments over the past several years. With this sector no longer able to fund the development of new pipelines, midstream developers have had to rationalize investment plans and deal with the impacts of low commodity prices to their own balance sheets.

Challenges to the midstream sector are also coming from increased regulatory and political risks due to growing environmental concerns around new pipeline development, as well as the uncertainty of pending national and state climate regulations. The uncertainty from new regulations and opposition to new development means that companies can benefit from increased scale and diversification.

To navigate this challenging market, midstream companies have increasingly focused on mergers and acquisitions (M&A) activity to bolster their market presence and access new growth opportunities. ICF believes that each midstream deal highlighted below offers substantial benefits for the combined entity that will help them reposition for success in this changing market dynamic.

Midstream Acquisitions Heating Up

ICF believes that midstream companies are facing significant headwinds to their businesses and these market challenges have created an opportunity to evaluate how M&A may be used to reposition themselves in the market to capture growth opportunities and new value that is created from the combined entities.

Despite low commodity prices and tighter capital markets, midstream M&A activity has continued. Since August of 2015, there have been six major natural gas midstream deals announced that ICF believes represent firms adapting and positioning themselves to thrive in changing market conditions. Exhibit 1 highlights these six midstream deals, which have a combined deal value of $61 billion.

As seen in Exhibit 2, the six deals highlighted are serving a broad market region with a wide variety of assets, ranging from Natural Gas and Power Utilities to gas storage assets and long-haul pipelines. In particular, the asset map shows a heavy focus on natural gas pipeline assets with exposure to the growing gas supplies in the Marcellus and Utica shale regions as well as utility service territory that can benefit from this growing low-cost gas resource.

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EXHIBIT 1. SELECT MIDSTREAM TRANSACTIONS

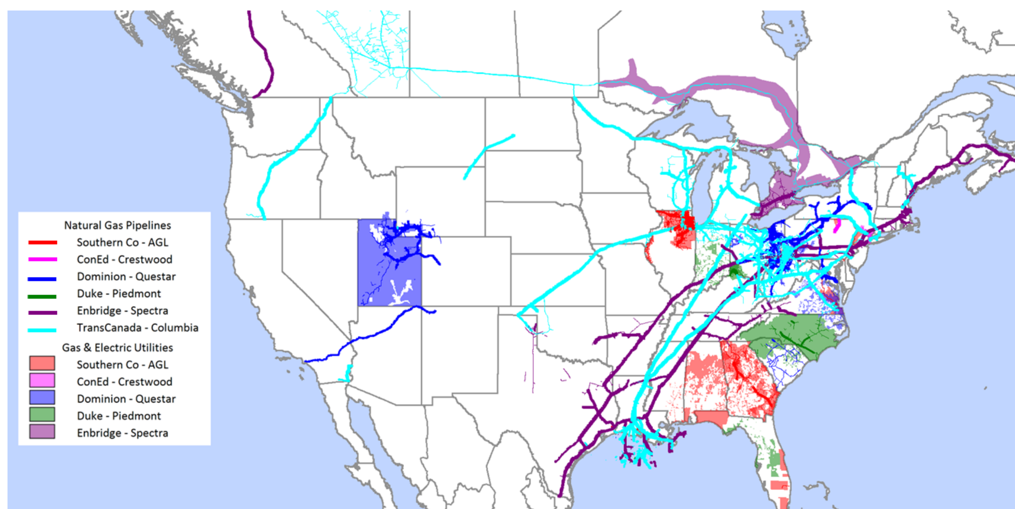
Purchaser/Acquisition	Announce Date	Completion Date	Deal Value (US$ Billion)
Southern Company acquisition of AGL Resources	Aug. 24, 2015	July 1, 2016	$8.0
Duke Energy acquisition of Piedmont Natural Gas	Oct. 26, 2015	Oct. 3, 2016	$6.7
Dominion Resources acquisition of Questar Corp.	Feb. 1, 2016	Sept. 16, 2016	$4.4
TransCanada acquisition of Columbia Pipeline Group	Mar. 17, 2016	July 1, 2016	$13.0
Consolidated Edison acquisition of Crestwood Assets	Apr 21, 2016	June 6, 2016	$1.0
Enbridge Inc. acquisition of Spectra Energy	September 6, 2016	Pending	$28.0

Source: Company Filings

Key Value Propositions Driving the Deal

While each midstream transaction is supported by each firm's unique strategic outlook and position in the market, ICF has observed several common themes across these transactions that we believe will have an impact on future market developments.

EXHIBIT 2. MAP OF PIPELINE & UTILITY TERRITORY IN SELECT DEALS



Source: ABB Velocity Suite

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Focus on Steady and Predicable Cash Flows

Recent midstream deals have focused on acquisition targets that possess predictable future cash flows derived from regulated entities and rate-based assets.

Piedmont, AGL, Spectra, Columbia, and Questar each have regulated natural gas distribution assets, which offer a guaranteed rate of return. Columbia, Crestwood, Spectra, and Questar each own and operate transportation and storage assets, which have long-term subscription contracts that have been approved by federal and state regulators.

Regulated assets reduce the risk of dramatic fluctuations in cash flows and lower exposure to change in commodity prices. As a result, these low-risk regulated assets can be considered in a similar fashion as an annuity, which guarantees a rate of return on the company's investment. One measure of this reduced risk profile has been the limited variance in revenues from the acquired companies from 2012 to 2015. Despite Henry Hub fluctuating by an average of 30% year-on-year, the change revenues from the acquired companies shown in Exhibit 3 below have exhibited significantly less volatility.

EXHIBIT 3. HISTORIC REVENUE BY COMPANY VS. HENRY HUB PRICE

Year	Henry Hub	Spectra	Piedmont	Questar	CPG
	($/MMBtu)	($Millions)			
2012	$2.75	5,542	1,148	285	1,036
2013	$3.73	6,087	1,307	272	1,253
2014	$4.37	6,323	1,504	268	1,438
2015	$2.62	5,058	1,409	268	1,478

Source: SNL

Outstanding Potential for Growth

The target company in each midstream deal is either currently well-positioned in a key supply growth area that will enhance the purchaser's overall position in the market or will benefit from the changing regulatory landscape and gas demand drivers.

Several of the target companies own and operate assets that process and transport gas from the Marcellus and Utica shale. Con Edison's purchase of Crestwood positions the company to access a substantial amount of gathering and processing as well as storage services across the Marcellus and Utica area. Columbia and Spectra both possess a major presence in the Marcellus and Utica region and have a number of new pipeline projects either under construction or in an advanced stage of development, as shown in Exhibit 4.

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A number of target companies are expected to benefit substantially from market demand growth. The U.S. Southeast is expected to see substantial natural gas demand growth from coal plant retirements and overall load growth. Both Piedmont and AGL are well positioned in this growing market, and Duke and Southern will be able to capture a larger share of this market growth while also offsetting some of the potential risks in their current portfolios of generating assets.

In the U.S. Rockies (Colorado, Wyoming and Utah), ICF expects there to be forthcoming changes in the power generation mix, as more than 70 percent of the area's generation (over 100 Twh of energy) is generated from coal plants. Current environmental regulations, along with pending environmental legislation such as the Clean Power Plan (CPP), are likely to continue to support the retirement of coal plants and increase reliance on gas generation. Questar's gas transmission and distribution assets, in particular, are well positioned to benefit from these trends.

EXHIBIT 4. PENDING PIPELINE PROJECTS BY MIDSTREAM COMPANY

Combined Company	Project Name	Capacity (MMcfd)	Status	Estimated Cost ($M)
Dominion-Questar	Clarington Project	250	Construction	77
	Supply Header Project	1511	FERC APL	500
Dominion-Questar & Duke Piedmont	Atlantic Coast Pipeline	1500	FERC APL	5100
Enbridge-Spectra	Appalachian Lease Project (TEAL)	950	FERC APL	185
	Gulf Markets Expansion	400	FERC APV	26.5
	Access South	320	FERC APL	256
	Access Northeast	925	FERC Pre-Filing	3000
	NEXUS	1500	FERC APL	2000
SouthernCo-AGL & Enbridge-Spectra	PennEast	1107	FERC APL	1130
TransCanada-CPG	WB XPress	1300	FERC APL	850
	Rayne Xpress	621	FERC APL	400
	Mountaineer XPress	2700	FERC APL	2030
	Leach Xpress Project	1530	FERC APL	1400

Source: Point Logic, Pipeline Websites, * FERC APL – FERC Application Filed. FERC APV – FERC Approved.

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Operational Synergy and Optimization Potential

There are a number of operational synergies and much optimization potential for each of the acquisitions.

- Duke and Southern will be able to optimize the respective supply portfolios of Piedmont and AGL to better utilize the assets across their increased footprint, which will likely lead to reductions in power plant fuel costs.
- Con Edison could reduce its supply costs by directly participating in Marcellus development.
- Dominion should be able to leverage its vast experience with gas assets in the East, applying best practices to enhance the value of the newly-acquired Questar supply, transportation, storage, and distribution assets, which share similarities with Dominion's assets.
- TransCanada and Enbridge, both pipeline companies, should find sufficient synergies and efficiencies to own and operate the gas transportation and storage assets that they are taking on to enhance and increase the size of their footprint and geographic reach.

Exhibit 5. Synergistic Benefits by Midstream Deal

Deal	Operational Synergies	New LDC Service Areas	Vertical Integration
Southern / AGL		X	X
Duke / Piedmont		X	X
Dominion / Questar	X	X	
TransCanada / Columbia	X		
Con Edison / Crestwood		X	X
Enbridge / Spectra	X		

Diversification and Risk Reduction

A number of these transactions offer significant diversification across different commodities, markets, and geographic areas and enhance each company's scale. Given that market risks have increased in recent years from low commodity prices and pending national regulations, diversification and risk reductions are increasingly important factors. Examples of how the combined entities will see reduced risk profiles are provided below.

- The enhanced portfolio of Duke and Southern will result in each firm becoming a "one-stop energy shop" for their customers, providing more flexible and enhanced service options to both electric and gas customers.

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- The combined gas transportation assets of TransCanada and Columbia cover different regions and could provide their shippers greater access to upstream production sources and as well as new demand centers.
- Spectra's natural gas heavy portfolio of assets provide Enbridge, which is more leveraged to oil and liquids transportation assets, greater commodity diversification and access to new regions.

About the Authors

Dr. Hua Fang is a Technical Director with ICF International. She has expertise 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, portfolio strategies and risks exposure by modeling the interaction of natural gas market components, including production, demand, pipeline infrastructure and LNG imports; and in assessing natural gas assets, such as pipelines, storage facilities and LNG imports/exports facilities, as well as the inter-dependency of natural gas and electric markets. Dr. Fang holds a MA and a Ph.D. in Economics from the University of Virginia and a BA from Renmin University of China in Beijing.

Kevin Petak is a Vice President of Gas Market Modeling in ICF International has over 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, LNG imports/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. These analyses have been widely used to support facilities/fuels/contracts management and planning, mergers and acquisitions, investment decisions, risk management, and hedge strategies. Mr. Petak has directed gas market modeling work for the National Petroleum Council, America's Natural Gas Alliance, the American Gas Foundation, and the Interstate Natural Gas Association of America. In the past few years, Mr. Petak has completed a number of studies that have assessed the economic benefits of new midstream infrastructure. Mr. Petak has a M.S. in Business from the University of Texas at Dallas and a B.S. in Petroleum and Natural Gas Engineering from the Pennsylvania State University.

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