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Petrie's Perspective: Industry's Future Is A Big Deal

The outlook industry is optimistic, but unforeseen headwinds are likely.

BY **JOSEPH MARKMAN** | HART ENERGY

If Tom Petrie peers into a crystal ball in his home in Colorado, he likely sees clouds. Not dark clouds, necessarily, just enough to mask conventional wisdom.

"One thing I've learned over 40 years is that the future usually turns out differently than the emerging consensus at any one time," the chairman of Petrie Partners told an attentive crowd on Monday at Hart Energy's DUG Midcontinent conference in Tulsa, Oklahoma. "And I think that's likely to prove the case today."

The former vice chairman of both Bank of America and Merrill Lynch is no pessimist—he has overseen more than $200 billion in energy merger and acquisition deals in his career and possesses a keen understanding of the relationship of the industry to global geopolitics. At the moment, he sees a wealth of potential in the North American unconventional oil and gas bounty, but he tempered his rosy outlook with a list of risks and challenges that he believes the industry must recognize and confront.

"The pursuit of those shales and the power of that pursuit has become something of enormous proportions and strategic significance for the U.S.," Petrie said. He noted three major trends that led to today's boom in unconventional exploration and production:

Former Bank of America and Merrill Lynch Vice Chairman Tom Petrie told DUG Midcontinent attendees that the energy industry still faces unknown challenges ahead. (Courtesy Hart Energy)

- Oil price supercycle: "The industry's pricing prospects are very event-driven and many of those events are very geopolitical in nature. And that's something we should not lose track of because it's where the surprises could very well come." Influential events in the past four decades include the Iran-Iraq war, Iranian revolution, OPEC quotas, Iraq's invasion of

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HIGHLIGHTS FROM TODAY'S EDITION

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NGL PRICES & FRAC SPREAD | Week in Review

Frac Spread Margins Crash As Gas Prices Increase

BY **FRANK NIETO** | SENIOR EDITOR, MIDSTREAM BUSINESS

Despite cold temperatures and heavy snow in parts of the country, natural gas liquid (NGL) prices largely fell at both Mont Belvieu and Conway the first week of March as the propane supply shortage from earlier this year has since caught up with demand.

However, the same could not be said of natural gas as prices rose by more than 50% from the previous week to just under $8 per million British thermal unit. These prices will be short-lived as they are highly dependent on heating demand. In fact, April forward prices are trending lower as spring temperatures are expected and the start of the storage injection season will mean that there won't be a shortfall this year.

CURRENT FRAC SPREAD (CENTS/GAL)

March 10, 2014	Conway	Change from Start of Week	Mont Belvieu	Last Week
Ethane	33.50		33.73	
Shrink	51.85		52.44	
Margin	-18.35	N/A	-18.71	-426.73%
Propane	114.00		110.26	
Shrink	71.63		72.46	
Margin	42.37	-50.63%	37.80	-54.57%
Normal Butane	121.68		126.44	
Shrink	81.09		82.03	
Margin	40.59	-42.41%	44.41	-43.98%
Isobutane	137.28		133.68	
Shrink	77.89		78.78	
Margin	59.39	-34.36%	54.90	-38.54%
Pentane+	226.96		214.54	
Shrink	86.72		87.72	
Margin	140.24	-14.94%	126.82	-19.56%
NGL $/Bbl	44.53	-5.12%	43.09	-7.30%
Shrink	28.57		28.90	
Margin	15.96	-43.24%	14.19	-49.57%
Gas ($/mmBtu)	7.82	51.84%	7.91	57.57%
Gross Bbl Margin (in cents/gal)	35.06	-45.80%	31.70	-51.61%
NGL Value in $/mmBtu (Basket Value)				
Ethane	1.84	-4.29%	1.86	-13.53%
Propane	3.96	-14.29%	3.83	-14.66%
Normal Butane	1.31	-1.78%	1.37	-3.73%
Isobutane	0.85	-3.17%	0.83	-4.05%
Pentane+	2.93	2.24%	2.77	0.57%
Total Barrel Value in $/mmbtu	10.90	-6.28%	10.65	-8.75%
Margin	3.08	-52.49%	2.74	-58.81%

NGL PRICES

Mont Belvieu	Eth	Pro	Norm	Iso	Pen+	NGL Bbl
Feb. 26 - March 4, '14	33.73	110.26	126.44	133.68	214.54	$43.09
Feb. 19 - 25, '14	39.01	129.20	131.34	139.32	213.32	$46.48
Feb. 12 - 18, '14	40.31	154.24	138.12	140.96	210.98	$49.90
Feb. 5 - 11, '14	40.01	160.56	150.42	148.32	207.56	$51.21
February '13	38.25	143.12	139.85	143.10	210.70	$48.38
January '13	34.55	139.87	148.36	152.20	208.83	$47.99
4th Qtr '13	26.76	119.81	142.56	145.02	210.66	$44.03
3rd Qtr '13	24.87	102.65	132.06	134.86	215.56	$41.21
2nd Qtr '13	27.12	91.38	124.01	127.46	204.12	$38.82
1st Qtr '13	25.68	86.42	157.72	166.41	222.63	$42.07
Feb. 27 - March 5, '13	27.20	85.46	147.98	150.14	215.65	$40.77
Conway, Group 140	**Eth**	**Pro**	**Norm**	**Iso**	**Pen+**	**NGL Bbl**
Feb. 26 - March 4, '14	33.50	114.00	121.68	137.28	226.96	$44.53
Feb. 19 - 25, '14	35.00	133.00	123.88	141.78	221.98	$46.93
Feb. 12 - 18, '14	30.25	166.16	129.30	149.00	218.18	$50.31
Feb. 5 - 11, '14	20.00	194.54	138.02	161.18	210.16	$52.25
February '13	25.76	160.37	130.93	150.07	216.97	$48.92
January '13	16.65	240.54	146.23	154.88	207.91	$57.28
4th Qtr '13	20.19	122.54	144.49	147.58	205.01	$43.33
3rd Qtr '13	20.80	99.22	129.23	142.77	209.94	$40.07
2nd Qtr '13	20.71	85.37	116.50	123.91	204.86	$36.89
1st Qtr '13	23.94	81.81	153.43	160.39	222.63	$41.11
Feb. 27 - March 5, '13	25.34	81.16	140.78	154.26	219.60	$40.23

(Above) Data Provided by Bloomberg. Individual product prices in cents per gallon. NGL barrel in $/42 gallons | Source: Frank Nieto

(Left) Price, Shrink of 42-gal NGL barrel based on following: Ethane, 36.5%; Propane, 31.8%; Normal Butane, 11.2%; Isobutane, 6.2%; Pentane+, 14.3%, Fuel, frac, transport costs not included. Conway gas based on NGPL Midcontinent zone, Mont Belvieu based on Houston Ship Channel.

Shrink is defined as Btus that are removed from natural gas through the gathering and processing operation.

Although temperatures didn't approach the lows experienced during the polar vortex events earlier this year, prices were at their strongest this past week. This caused frac spread margins to take downturns across the board.

The largest drop was for ethane. Prices fell because there is still a large amount of rejection taking place around the country. Much of this year has seen ethane prices strongly correlate with gas prices, but the sharp spike in gas prices resulted in the obliteration of this connection.

The Mont Belvieu price dropped 14% to 34 cents per gallon, its lowest price since the week of January 8 when it was 29 cents per gallon. The Conway price fell 4% to 34 cents per gallon, which was its

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NGL PRICES & FRAC SPREAD | Week in Review

second-highest price in nearly two years. This relative strength was further evidenced by the fact that prices were even at the two hubs.

While not as weak as ethane, propane also faced headwinds this week with the price dropping 15% to $1.10 per gallon at Mont Belvieu and 14% to $1.14 per gallon at Conway. Margins fell by more than 50% at both hubs. These decreases were due to prices rebalancing after the extreme run-up of the previous month.

Butane and isobutane prices fell at both hubs, but it appears that the bottom may have been hit or is quickly approaching as these decreases weren't as pronounced as the two lighter NGLs, propane and ethane. Both butane and isobutane decreased 4% at Mont Belvieu, falling to $1.26 per gallon and $1.34 per gallon respectively. Midcontinent prices fell at a slightly smaller pace with butane down 2% to $1.22 per gallon and isobutane down 3% to $1.37 per gallon at Conway. Both sets of prices were by far the lowest this year.

Pentanes-plus (C_{5+}) was the lone NGL to experience an uptick in value this week as prices kept pace with crude prices, which also rose this week. According to Hart Energy's *Energy Commodities Report* for March 6, "Increased tensions between Russia and Ukraine drove crude oil futures to their highest close in more than five months on March 3, with prices settling near $105 per barrel (bbl.) amid fears of disruptions to global oil supplies."

On the back of this news, C_{5+} prices rose 1% to $2.15 per gallon at Mont Belvieu and 2% to $2.27 per gallon at Conway. This was the highest price in the Midcontinent since the week of February 20, 2013, when it was $2.30 per gallon. The Mont Belvieu price was the highest since it was the same price the week of December 18, 2013.

KEY NORTH AMERICAN HUB PRICES	
2:30 PM CST / March 6, 2014	
Gas Hub Name	Current Price
Carthage, TX	4.77
Katy Hub, TX	4.75
Waha Hub, TX	4.70
Henry Hub, LA	4.90
Perryville, LA	4.79
Houston Ship Channel	4.77
Opal Hub, Wyo.	4.88
Blance Hub, NM	4.54
Cheyenne Hub, Wyo.	4.90
Chicago Hub	7.04
Ellisburg NE Hub	4.36
New York Hub	5.05
AECO, Alberta	5.11

Source: Bloomberg

RESIN PRICES – MARKET UPDATE – MARCH 7, 2014					
TOTAL OFFERS: 16,476,460 lbs		SPOT		CONTRACT	
Resin	Total lbs	Low	High	Bid	Offer
PP Homopolymer - Inj	3,913,508	0.79	1.69	0.79	0.83
HDPE - Inj	3,426,624	0.715	0.765	0.71	0.75
LDPE - Film	2,888,232	0.745	0.82	0.75	0.79
PP Copolymer - Inj	1,925,380	0.8	0.91	0.8	0.84
HDPE - Blow Mold	1,706,392	0.76	0.79	0.72	0.76
LLDPE - Film	1,163,656	0.75	0.8	0.72	0.76
LDPE - Inj	573,196	0.81	0.81	0.75	0.79
HMWPE - Film	442,736	0.725	0.82	0.76	0.8
LLDPE - Inj	436,736	0.765	0.79	0.73	0.77

Source: Plastics Exchange – www.theplasticsexchange.com

The theoretical NGL bbl. fell at both hubs with the Conway price down 5% to $44.53 per bbl.—a staggering 43% drop in margin to $15.96 per bbl. The Mont Belvieu price tumbled 7% to $43.09 per bbl. with a 50% drop in margin to $14.19 per bbl.

The most profitable NGL at both hubs was C_{5+} at $1.40 per gallon at Conway and $1.27 per gallon at Mont Belvieu. This was followed, in order, by isobutane at 59 cents per gallon at Conway and 55 cents per gallon at Mont Belvieu; propane at 42 cents per gallon at Conway and butane at 44 cents per gallon at Mont Belvieu; butane at 41 cents per gallon at Conway and propane at 38 cents per gallon at Mont Belvieu; and ethane at negative 18 cents per gallon at Conway and negative 19 cents per gallon at Mont Belvieu.

Natural gas storage levels fell by 152 billion cubic feet to 1.196 trillion cubic feet (Tcf) the week of February 28, according to the most recent data available from the Energy Information Administration, from 1.348 Tcf the previous week. This was 43% below the 2.104 Tcf reported last year at the same time and 39% below the five-year average of 1.954 Tcf.

There could be another late push-up in gas prices the week of March 10 as the National Weather Service is forecasting colder-than-normal weather for the Midwest and East Coast. This will be slightly tempered by warmer-than-normal temperatures along the West Coast.

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Midstream Deal Count Falls, But Value Surged In 2013

BY **DARREN BARBEE** | HART ENERGY

The A&D sector took a beating in 2013, but midstream deals aimed at carrying away shale resource production hit a record $62 billion, a 16% increase in worldwide, according to IHS.

While deal activity fell, master limited partnerships (MLPs) made up the difference, as did expansion projects aimed at serving developing U.S. shale energy plays.

Take away the $32 million midstream component of 2011's Kinder Morgan/El Paso transaction, 2013 was a high point for midstream transactions, said Cynthia Pross, midstream transactions analyst at IHS Energy and principal author of the *IHS Herold Year-End 2013 Midstream Transaction Review*.

"There is no reason to expect this upward trend to wane in the next several years as the pool of midstream assets continues to grow in response to shale play expansion," she said.

According to the IHS review, midstream assets—including gas and oil gathering and processing facilities and pipelines, along with oil tankers, LNG vessels and diversified holdings—included 54 deals with values exceeding $10 million. Fourteen of deals were at the multi-billion dollar level.

MLPs were responsible for nearly two-thirds of midstream total transaction value and seven of the 10 largest deals in 2013. Drop-down transactions that moved assets from midstream operating companies to MLPs as a tax-advantage strategy constituted a major contribution to transaction value in 2013, the IHS review noted.

The largest midstream deal in 2013 was Spectra Energy Corp.'s $11 billion drop-down sale of its remaining U.S. pipeline and storage assets to Spectra Energy Partners LP. Kinder Morgan Inc. also dropped down $1.7 billion in diversified midstream assets it acquired from El Paso in 2011 to Kinder Morgan Energy Partners LP to generate cash to pay down debt associated with the acquisition.

Total gathering and processing transaction value rose to a five-year high in 2013 and accounted for 45% of global midstream deal value in 2013.

MLPs were huge players in the sector, buying more than $27 billion of the nearly $28 billion in gas and oil gathering and processing assets to increase distributions to their limited partners. The transactions were spread over a dozen U.S. shale plays.

The midstream A&D market was down in 2013, but the deals that did take place reported a record value level, according to an IHS Herold report.

"MLPs used the M&A market to rapidly expand their geographic footprint in developing shale plays or to gain operational synergies by adding assets in locations where they already operate," Pross said.

Several MLPs are emerging as dominant players through multiple asset acquisitions or significant corporate mergers. Energy Transfer Equity LP has been very active in midstream sector M&A, particularly since 2011, and contributed almost 20% of total midstream sector transaction value in 2013.

Its largest transaction in 2013 was the $5.5 billion agreement by its partially owned Regency Energy Partners LP to merge with PVR Partners. It also sold $3.8 billion in assets from its earlier Southern Union and Sunoco acquisitions to its affiliated Energy Transfer Partners. Crestwood Energy Partners LP and Inergy Midstream entered into a $2.2 billion merger agreement. The deal created a combined MLP to be called Crestwood Midstream Partners LP, with an expanded portfolio of midstream services and an enterprise value of about $8 billion.

Kinder Morgan Energy Partners LP also expanded its portfolio of midstream services in 2013 by entering into the tanker business, agreeing to acquire two tanker companies that transport crude and refined products within the U.S. market. The $962 million cash deal was struck by affiliates of the Blackstone Group and Cerberus Capital Management.

"Integrated oil companies (IOCs) have also been active in midstream M&A, divesting midstream operations to free up capital for upstream investment or spinning off midstream operations into an MLP," Pross said.

Repsol sold its non-North American liquefied natural gas (LNG) business to Shell for $5.4 billion as part of its plan to divest assets to reduce debt following the nationalization of YPF, and to fund

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expanding upstream operations. The transaction allowed Shell to further solidify its dominance in the global LNG market by expanding its geographic footprint.

Total S.A. continued its $15 billion to $20 billion asset sale program to fund upstream development with a $3.3 billion agreement to sell its French gas transport and storage business, TIGF, to a consortium led by Italian midstream company Snam.

Other announced midstream divestments included QEP Resources' plans to spin off its midstream unit, QEP Field Services Co.; and Devon Energy's announcement that it plans to form a publicly traded midstream MLP by combining its midstream assets with Crosstex Energy in a $4.8 billion transaction. The selection of the Trans-Adriatic Pipeline to transport production in Azerbaijan to markets in Europe led several global IOCs, including BP and Total, to exercise their options to acquire interests in the pipeline.

Private equity firms were also active in the midstream sector in 2013, acquiring more than $1 billion in midstream assets, and investing more than $2 billion in capital.

"We expect midstream transaction value to remain at high levels for several years as the universe of assets grows with the build-out of the U.S. midstream grid, as IOCs and exploration and production companies spin off assets into separate entities to free capital, and as shale plays continue to be developed on a global basis in areas that currently lack sufficient midstream infrastructure," Pross said.

Economist: Shale Gale Could Have 'Unintended Consequences'

BY STEVE TOON | HART ENERGY

The chief economist of the Paris-based International Energy Agency warns against exuberance when interpreting the global impact of the U.S. shale oil revolution, and that a continued message suggesting Middle Eastern producers will play a lessened role could have unintended consequences.

"If we keep on giving the wrong signal that Middle East oil may not be needed as much as we thought before, investments may not flow into Middle East fields," said Dr. Fatih Birol, speaking recently at Rice University's Baker Institute for Public Policy in Houston. "We may well see a slowing down of investments, and in the 2020s we may be challenged to see new oil coming from the Middle East."

Such a scenario would inevitably result in a global oil-demand crisis, he warned.

Birol, presenting findings from the IEA's *World Energy Outlook 2013* report published in October, forecast production of U.S. shale oil to increase into the mid-2020s, then to peak and begin tapering. This domestic production growth is a boon for the U.S. and will likely almost completely eliminate the U.S.' need for crude imports for a time. "It's good news for the U.S.," he said.

However, oil demand growth worldwide—particularly in China and Japan, and increasingly India—by then will far surpass the crude volumes left unclaimed by the U.S.

"Yes, shale oil is going to meet almost all of U.S. consumption, but there is a world beyond the United States when it comes to global oil demand."

In its 2011 World Energy Outlook report, the IEA predicted the U.S. would overtake Saudi Arabia as the world's leading oil producer by 2017, a date it has since revised to 2015. But that does not reverse the roles of the two countries in the global oil marketplace, as it has been interpreted in the U.S., he emphasized.

"To be the largest oil producer is something; to be the largest oil exporter is something different," he said. "You can be the largest producer, but you're not going to be the largest exporter if you consume a lot of this oil at home. We need to be very careful when interpreting the results of the shale oil revolution in the United States."

Birol is adamant to correct the record.

"Asian oil demand growth is increasing substantially, and there is one major address that can meet that growth—the Middle East. Many people thought the role of the Middle East in the global market is diminished. This is completely wrong. In order to meet the growth of world oil demand, we need to see a significant increase from Middle Eastern countries."

On the natural gas front, however, the U.S. shale gas revolution could shake up world markets, he said.

Enbridge To Undertake $7 Billion Mainline Replacement Program

Enbridge Inc. and Enbridge Energy Partners LP received shipper support for a $7 billion investment in their Canadian and U.S. crude oil mainline system running from Edmonton, Alberta to Superior, Wisconsin. The Line 3 Replacement (L3R) Program will complement the existing Line 3 segment replacement program and include all remaining segments of Line 3 between Hardisty, Alberta and Superior.

The L3R Program is targeted to be completed by the second half of 2017. Mainline shippers agreed to support surcharges on all barrels

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moving on the mainline to provide an appropriate return on the additional capital required. It will be subject to customary regulatory approvals.

Under the L3R Program, all segments of the line between Hardisty and Superior will be replaced with new pipe using the latest available high-strength steel and coating technology. Long-term integrity costs to maintain the line will be substantially reduced and the reliability of service will be enhanced.

Initial development work is under way to support the regulatory applications that will be submitted in late 2014. This includes an extensive public consultation process with landowners, Aboriginal and Native American communities, municipalities and counties and other stakeholders along the Line 3 right of way. Further information on the project will be shared with the public in the near future through mail-outs and public meetings.

The Canadian L3R Program, between Hardisty and Gretna, Manitoba, currently is estimated to cost approximately $4.2 billion and will be undertaken by Enbridge's wholly owned subsidiary, Enbridge Pipelines Inc. The U.S. L3R Program, between Neche, North Dakota, and Superior, is estimated to cost approximately US$2.6 billion. The U.S. Program will be undertaken by Enbridge Energy Partners LP (EEP) with funding provided jointly by Enbridge and EEP at participation levels to be finalized and approved by the EEP Special Committee. The program will result in the elimination of $1.1 billion of Line 3 integrity capital, which would otherwise be required by 2017, as well as elimination of additional post-2017 integrity capital.

The surcharge on barrels moving on the U.S. mainline will be set to recover a return on the incremental U.S. L3R capital. The surcharge will be based on EEP's existing Facilities Surcharge Mechanism cost of service methodology. A separate surcharge will apply to all barrels moving on the Canadian mainline at the Canadian local toll, and another surcharge will apply to the international joint toll (IJT) applicable to all barrels that travel on both the Canadian and U.S. mainlines. The IJT surcharge will be set at a level that will cover the U.S. surcharge plus enough, together with the Canadian local toll surcharge, to provide an appropriate return on the incremental Canadian L3R Program capital.

The capital costs on which the surcharges will be based will reflect detailed estimates to be finalized in the first quarter of 2014. Shippers will have the option to cancel the L3R Program in the event that the detailed cost estimate exceeds the current preliminary estimate by more than 15%. In the event of such cancellation, all development costs incurred to that date would be recoverable from shippers.

Line 3 is a 1,031 mile, 34-inch diameter pipeline that has been in operation since 1968. It is one of six crude oil pipelines that make up the Enbridge mainline system.

Enterprise Products Loses $319 Million Pipeline Verdict

BLOOMBERG

Energy Transfer Partners LP (ETP) was awarded $319 million by a Texas jury that found Enterprise Products Partners LP wrongfully dropped it from plans for an oil conduit to compete with the Keystone XL project's southern leg.

Enbridge Inc., which was also a defendant in the month-long trial, was found not to have conspired with Enterprise, according to the verdict read in court by state Judge Emily Tobolowsky in Dallas. Enterprise's total liability could be as much as $595 million if ETP pursues a disgorgement claim against it.

The proposed ETP pipeline, called the Double-E, would have carried crude oil from a Cushing, Oklahoma, hub to the Gulf of Mexico, vying for business with the southern branch of TransCanada Corp.'s Keystone XL conduit.

Enbridge is Canada's largest transporter of crude oil. TransCanada, that nation's second biggest pipeline business, is seeking U.S. government approval to build the American part of the 1,179-mile northern leg of the Keystone XL to connect Hardisty, Alberta, with Steele City, Nebraska.

TransCanada's plans were delayed last month by a Nebraska judge's ruling throwing out the statute relied on to set the pipeline's path through the state. The state is appealing the decision.

ETP claimed it had an agreement with Enterprise Products to build the Double E, plus a commitment from Chesapeake Energy Corp. to use the pipeline to ship at least 100,000 barrels of oil a day, at the time that Enterprise announced it was pulling out of the project in August 2011.

Williams Partners Completes Canadian Assets Acquisition

BUSINESS WIRE

Williams Partners L.P. completed its transaction to acquire Williams' currently in-service Alberta, Canada, operations for $1.2 billion. The partnership announced the agreement on February 26.

The assets include an oil sands off-gas processing plant near Fort McMurray, approximately 260 miles of natural gas liquids (NGL) and olefins pipelines, as well as an NGL/olefins fractionation facility

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Williams Partners made a large investment by acquiring its' general partner's Alberta, Canada in-service midstream assets.

and butylene/butane splitter facility at Redwater. Williams Partners also acquired an in-progress expansion project at the Redwater facility. The expansion will provide additional fractionation business to Williams Partners related to development of off-gas processing at the CNRL Horizon upgrader facility retained by Williams.

These Canadian operations have unique competitive advantages and long-term contracts. Williams Partners expects the addition of these assets via this acquisition will be accretive to distributable cash flow, on a per-unit basis for the partnership's unitholders. Williams funded the acquisition with the issuance to Williams of 25.6 million Class D payment-in-kind (PIK) limited-partner units, $25 million in cash and an increase to the general partner`s capital account to maintain Williams' 2% general-partner interest.

Upon conversion of the PIK units, Williams expects to gain increased distributions from Williams Partners, which support Williams' dividend growth strategy. Following this transaction, Williams owns approximately 66% of Williams Partners, including the general-partner interest.

Philadelphia Agrees To $1.86 Billion Sale Of PGW

The city of Philadelphia, represented by Ballard Spahr, signed an agreement to sell the assets of the Philadelphia Gas Works (PGW) to UIL Holdings Corp. (UIL) for $1.86 billion. The sale, which will enhance the city's financial health by injecting at least $424 million in net proceeds into its pension fund, must be approved by City Council and the Pennsylvania Public Utility Commission prior to closing.

PGW is one of the largest municipally owned utilities in the country, and the sale is the largest transaction ever conducted by the city.

The agreement requires that all PGW employees be offered employment at UIL. If an employee decides to retire or accept a job elsewhere, that position may go unfilled, but total employment may not dip below 1,350 employees for at least three years. Once the sale is complete, UIL plans to operate dual corporate headquarters in Philadelphia and New Haven, Connecticut. UIL currently serves about 706,000 electric and natural gas customers in Connecticut and Massachusetts and has combined assets of more than $4 billion.

PGW has annual revenues of more than $600 million, serves upwards of half- a-million residential, commercial and industrial customers, and employs more than 1,600 people. PGW was seen as particularly valuable because of its proximity to the Marcellus Shale deposits and its liquefied natural gas facilities. Thirty-three entities expressed interest in the utility when a sale was announced last year.

Williams Partners Makes Progress on Transco Project

Williams Partners' Transco reported a key regulatory milestone on two related projects designed to increase natural gas delivery capacity to Brooklyn and Queens in time for next winter's heating season.

The Federal Energy Regulatory Commission (FERC) on February 28 published its final environmental review of Transco's Rockaway Lateral and Northeast Connector expansions. The FERC action is a key step toward the commission's decision on the projects, which is expected this spring. Transco would expect to begin construction in May and bring the projects into service in November this year.

The Rockaway Lateral and Northeast Connector are among some $5 billion of energy-infrastructure investments that Williams Partners expects to make in the Transco system over the 2013-to-2017 time frame to connect growing market demand with new natural gas supplies. Those expansions are designed to add more than 50% to Transco's capacity to deliver natural gas.

This winter already has been a record-setter for Transco, with peak-day delivery records on three separate occasions. On those days, the demand for natural gas deliveries on Transco's system was above and

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beyond the peaks that were attributed to the effect of the polar vortex and other brutal cold weather across all of the pipeline's market areas.

On its Rockaway Lateral and Northeast Connector projects, Williams Partners plans to spend approximately $280 million for 3.2 miles of new Transco pipeline and related facilities in New York, as well as equipment to increase compression at three existing Transco facilities in New Jersey and Pennsylvania. With a daily delivery capacity of 647,000 dekatherms (dth), the Rockaway Lateral will provide an additional supply-delivery connection into the National Grid distribution system, which delivers natural gas to 1.25 million customers in Brooklyn and Queens.

The Rockaway Lateral is designed to enhance the security and reliability of supply for Transco's customer, National Grid. It also increases by about 10% the amount of natural gas that the Transco system can deliver to the National Grid.

Ahead of the these two projects, Transco's most recent expansion of natural gas delivery capacity in the Northeast U.S. came online last fall, in the early days of the current winter heating season. That project, the Northeast Supply Link, was Transco's first major expansion specifically designed to deliver new natural gas supplies from the Marcellus production area. In response to demand from customers in Pennsylvania, New Jersey and New York, Transco brought half of that project's 250,000 dth of daily delivery capacity online three months ahead of schedule.

For the Rockaway Lateral, Transco made its initial regulatory filing with the FERC in March 2009 and last year filed its certificate applications for both projects.

Jones Act Keeps Texas Fuel From Reaching East Coast

BLOOMBERG

As freezing weather drained stockpiles of propane to their lowest seasonal level in two decades on the U.S. East Coast this month, shivering New Englanders couldn't tap abundant supplies sailing out of Texas. They had to look 4,000 miles away to more-expensive heating fuel from Europe.

The reason? The Jones Act, a 94-year-old law that prohibits non-U.S. ships from transporting cargoes between the country's ports. With pipelines full and not a single eligible propane tanker to deliver fuel from Houston to states such as New York, consumers have had to pay more than $100 a metric ton extra for propane from across the Atlantic.

Propane prices may not have risen as high as they did last month if Jones Act regulations made it easier for LPG to reach Northeast ports.

"It's kind of a crazy thing, where we're sending ships to Europe and then in return, at some point in time, Europe is sending propane cargoes back to us," Peter Fasullo, a principal at energy consultant EnVantage Inc. who has been following the natural gas liquids market for over 30 years, said by phone from Houston. "You have to think, isn't there a more efficient way of doing this?"

This costly two-way propane trade is the latest example of how the unforeseen U.S. boom in shale oil and gas has left energy consumers and producers, such as Houston-based Enterprise Products Partners LP (EPD), complaining about outdated laws and infrastructure.

Trading in growing domestic supplies of heating oil and gasoline has also been inhibited by the Jones Act. Oil drillers are lobbying the government to allow crude exports, currently banned under a different 39-year-old law.

The Jones Act has a broad support group among U.S. shipyards, vessel owners and labor unions, such as the Washington, D.C.,-based American Maritime Partnership, which said in an e-mailed statement on Thursday that it is critical for the U.S. economy and national security.

MPLX LP To Acquire Additional Interest In MPLX Pipe Line

MPLX LP will acquire an additional 13% interest in MPLX Pipe Line Holdings LP (from a subsidiary of Marathon Petroleum Corp. for $310 million. This transaction represents MPLX's second acquisition following its initial public offering in October 2012. This acquisition will increase MPLX's interest in Pipe Line Holdings to 69% from the 56% interest it held previously. Pipe Line Holdings owns a 100% interest in Marathon

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Pipe Line LLC and Ohio River Pipe Line LLC. MPL and ORPL own one of the largest networks of common carrier crude oil and product pipelines in the U.S. based on total volume delivered; a barge dock on the Mississippi River; and crude oil and product storage facilities.

The acquisition price represents an approximate 10 times multiple of the assets` forecasted next twelve months earnings before interest, taxes, depreciation and amortization. The transaction is expected to close effective March 1, 2014, and be immediately accretive to distributable cash flow. MPLX intends to fund the acquisition through a combination of $40 million of cash on hand and a $270 million borrowing on its $500 million revolving credit facility.

Osaka Gas, Chubu To Invest $600 Million Each In U.S. LNG Project

BLOOMBERG

Osaka Gas Co. and Chubu Electric Power Co., utilities serving central and western Japan, will invest $600 million each for half the equity of the first unit of a U.S. liquefied natural gas (LNG) plant.

The companies will each get 25% in Train 1 of a plant in southeast Texas operated by Houston, Texas-based Freeport LNG Development LP, the Japanese utilities said in a joint statement. The LNG plant's first unit will produce about 4.4 million metric tons a year and is scheduled to begin operating in 2018.

The investment, which will be finalized in the second half of the year after the project wins a construction permit, follows a 20-year supply contract Freeport signed with the Japanese firms in 2012. Converting gas into liquid was scheduled to begin in 2017, the partners said at the time.

Japan is increasing LNG imports after the Fukushima nuclear disaster forced the shutdown of atomic plants and increased reliance on gas-fired generators. Japan's trade deficit widened to a record last month on rising import costs.

The bulk of Japan's LNG imports are handled by domestic trading houses led by Mitsubishi Corp.

The Freeport deal, which may use Japanese public institutions for financing, is among the first direct investments by Japanese utilities in overseas LNG facilities.

Access Midstream To Acquire MidCon Compression Assets

Access Midstream Partners, L.P. agreed to acquire certain midstream compression assets from MidCon Compression, L.L.C, a wholly owned subsidiary of Chesapeake Energy Corp., for $160 million.

The planned acquisition adds natural gas compression assets, historically leased from MidCon, in the rapidly growing Utica shale and Marcellus shale regions. This transaction provides the opportunity to in-source a key cost element of the partnership's business model at an approximate eight times forward EBITDA multiple and adds future organic growth to the portfolio. The assets include more than 100 compression units with a combined capacity of approximately 200,000 horsepower.

Exterran Partners L.P. entered into an agreement to purchase MidCon's assets in the partnership's other operating areas. The partnership agreed to long-term compression service arrangements with Exterran in those areas. The acquisition will be funded with borrowings on the partnership's revolving credit facility and is expected to close by March 31, 2014.

Devon Energy Acquires Eagle Ford Assets

BUSINESS WIRE

Devon Energy Corp. completed its previously announced acquisition of Eagle Ford assets from GeoSouthern Energy. Devon acquired 82,000 net acres located in DeWitt and Lavaca counties in Texas.

"Our Eagle Ford acquisition is one of several bold steps we have recently taken to upgrade our portfolio and improve the growth trajectory and profitability of our business," said John Richels, president and chief executive officer. "We were able to acquire these premier Eagle Ford assets at a price well below our current EBITDA multiple, resulting in immediate accretion to Devon shareholders on virtually every metric, including cash flow per debt-adjusted share."

Devon plans to invest approximately $1.1 billion in the Eagle Ford this year and will drill more than 200 wells. For its 10 months of ownership in the play this year, the company's net production is expected to average between 70,000 and 80,000 barrels of oil equivalent per day.

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Praise For Colorado's Collaborative Effort On Air

BY **SUSAN KLANN** | HART ENERGY

George Shultz, former secretary of state under President Ronald Reagan, came to the third annual Vail Global Energy Forum in early March with a clear message for the stakeholders in attendance. Global warming is a reality, he said, "so we need to take out an insurance policy." Shultz challenged individuals to undertake what they could "do, and do now."

That message was a rallying point at the forum held on March 1 and 2. Speakers discussed the potential impacts of soaring domestic oil and natural gas production and U.S. energy independence; the role of natural gas as a bridge fuel and its place in world energy markets; China's influence and position in global climate change; the outlook for solar, wind and other renewables; and the public's attitudes toward energy.

Speakers heralded the February approval of new rules made by the Colorado Air Quality Control Commission to reduce air pollution from oil and gas drilling—including regulations to reduce methane emissions—as a model for other states. A panel made up of Fred Krupp, the 20-year head of the Environmental Defense Fund (EDF), Colorado Gov. John Hickenlooper, and oil and gas executives Chuck Davidson, chairman and CEO of Noble Energy Inc.; Brad Holly, vice president of Rockies operations for Anadarko Petroleum Corp.; and Doug Suttles, president and chief executive of Encana Corp., celebrated and provided insight into the groundbreaking, collaborative process in which they took part.

The rules are the most stringent for any state in prescribing reductions in "fugitive" methane emissions. Operators have to perform frequent checks for leaks, using infrared cameras and other technologies, and move quickly to repair them. The rules also address methane leaks from storage tanks and other equipment.

Methane has become a significant factor in the debate about the role of natural gas in energy supply. The EDF says that while natural gas produces half the CO2 of coal when combusted and offers advantages for local and regional air quality compared to coal, this benefit can be undermined by methane leaks throughout the gas supply chain, including during production. "Methane is at least 28 times more powerful than CO2 as a greenhouse gas over the longer term and at least 84 times more potent in the near term," the EDF says. "Likewise, oil and gas operations are the largest source of man-made volatile organic compound (VOC) emissions in Colorado, contributing to smog formation."

Speakers at the Vail Global Energy Forum commended Colorado's regulations on fugitive methane emissions despite the state being a large oil and gas producer.

Just a day after the forum concluded, an independent analysis by ICF International reported that the onshore segment of the U.S. oil and gas sector could significantly reduce emissions of methane using currently available technologies and at a low annualized cost. "By adopting proven emissions-control technologies, industry could cut methane emissions by 40% below projected 2018 levels at a cost of less than one cent per thousand cubic feet [Mcf] of produced natural gas," the ICF said. Some measures would pay for themselves through the sale of captured natural gas, according to its findings. The EDF commissioned the report.

The Colorado governor began laying the groundwork for collaboration a year and a half before the rulemaking by emphasizing that the rules would be more robust if the many stakeholders collaborated. Encana's Suttles recalled being "encouraged" by the governor's proactive stance, noting that "it was a real dialogue. The issues need a smart solution … otherwise, there was the risk of driving oil and gas out of Colorado"—along with lost tax revenues, jobs and more. Industry leaders sat down with regulators and environmental groups with the premise that the expectations of all involved could be met.

The coalition's proposed rules, largely unchanged in the final form, were approved 8 to 1 by the commission. The end result: the removal of about 90,000 tons of smog-forming VOCs and 100,000 tons of methane, overall, from Colorado air annually, according to EDF estimates. Colorado was a strong prospect to lead methane emission control efforts not only because of overall concerns about global warming but also because its "brown cloud" of pollution hovering over the Front Range of the Rockies has been a significant issue for decades.

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Kuwait, OPEC production cutbacks, the 9-11 terror attacks, "peak oil" fears, "fiscal cliff" concerns and the Syrian civil war.

- Three M&A consolidation waves: The first was in the first half of the '80s; another occurred in the late '90s with the creation of oil supermajors; and the third and most important in 2001-2005 resulted in a major consolidation of publicly traded independent companies. This last consolidation freed up a lot of intellectual capital that went back to work for private equity and played a major role in the rapid pursuit of shale opportunities.
- Evolution of technology: "The power of that notion that the old model was giving way to a new one." M. King Hubbert built his projections of peak oil on the old model, one that involved multiple risks of generating hydrocarbons, having them migrate in a timely way, be captured in highly productive reservoirs and have a good seal. Multiplying out each of those factors creates an industry formula for wildcat success of one chance in eight.

The result: "Unlocking hydrocarbons from tight shales and doing it economically, making sure the energy in is meaningfully above the energy out, and doing it with the now-evolved state of technology where we can drill deep, go horizontal, stay in zone and achieve an unlocking of those hydrocarbons with ever-more-effective fracking designs, well seals and so on—it is, in fact, incredibly transformational."

Petrie compiled his life's worth of insights into a recently published book, *Following Oil: Four Decades of Cycle-Testing Experiences and What They Foretell about U.S. Energy Independence* (University of Oklahoma Press). He paints a picture of today's industry with these main elements:

- Powerful production increases
- Land rush is over for this phase of the cycle
- Efficiencies in stimulation
- High-grading projects is the new priority
- Avoidance of pitfalls still matters –
- Tremendous potential

Petrie cited research in *The Future of Natural Gas*, published by the MIT Energy Initiative in 2011, for his argument in favor of U.S. natural gas exports. One of the study's co-chairs was Ernest Moniz, now the U.S. secretary of energy.

"This is a critical pressure release valve," he said. "If one just poses the alternative of not allowing gas exports, which is clearly off the table at this point, one would realize that, in the absence of this pressure relief valve, we'd be snuffing out one of the great economic opportunities of this century, or the first half of this century."

The MIT study reinforces a favorite theme of Petrie's: The interaction of seemingly disparate events and how they influence the course of actions.

"If you look at this forecast that was done in 2010, there was a big component forecast by MIT for Haynesville," he said. "We're falling well short of that. What's happened is the Marcellus, coming on in the way it has and with its potential to actually exceed the productivity of the state of Qatar later in this decade, squeezing down productivity and the prospectivity, at least for a while, for both the Haynesville and the Fayetteville. And it's that kind of interaction – that dependent interaction, if you will – that I think is going to characterize some of the other plays as we go forward. It's worth keeping an eye on that."

Petrie warned of a number of risks that demand attention by the industry. Fugitive methane is a major one. He also focused on opposition from environmental entities opposed to hydraulic fracturing.

"We really need to take the anti-fracking initiatives in Colorado and elsewhere quite seriously," he said. "The fact is, if they gain momentum as in the past, we could begin to change the supply prospects later in this decade and certainly in the decades beyond."

And that's a future that Petrie does not want to see.

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