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FEATURE

Is Natural Gas The Transportation Fuel Of The Future?

The shale gas revolution has already had a major impact on the power generation, petrochemical and heating and cooling industries. Now it is poised to have a similar impact on the transportation industry because of the tremendous price discrepancy between gasoline and natural gas.

Gasoline has been trading above \$3.30 per gallon while compressed natural gas (CNG) prices have been trading around \$2.13 per gallon as of January 2012, according to the U.S. Department of Energy's most recent Clean Cities Alternative Fuel Price Report.

While there is potential for natural gas vehicles (NGVs) use to expand, there are two major hurdles they must overcome: a lack of fueling infrastructure and vehicle availability along with their greater cost compared with vehicles operating on gasoline and diesel.

"Natural gas vehicles cost more to buy but they cost less to operate. The more miles you put on, the more fuel you use, the faster



your payback," Richard Kolodziej, president of Natural Gas Vehicles for America, told *Midstream Monitor*. Consequently, the focus for both natural gas companies and NGV manufacturers has been on high-use vehicles, such as fleet, return-to-home and point-to-point vehicles.

"The initial cost is more, but if companies can get a three-year payback on these vehicles, they're in," he said. One of the biggest gains for NGVs has been with trash trucks and transit buses, which are experiencing a

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NGL PRICES & FRAC SPREAD

NGL Prices, Margins Continue Downward Spiral

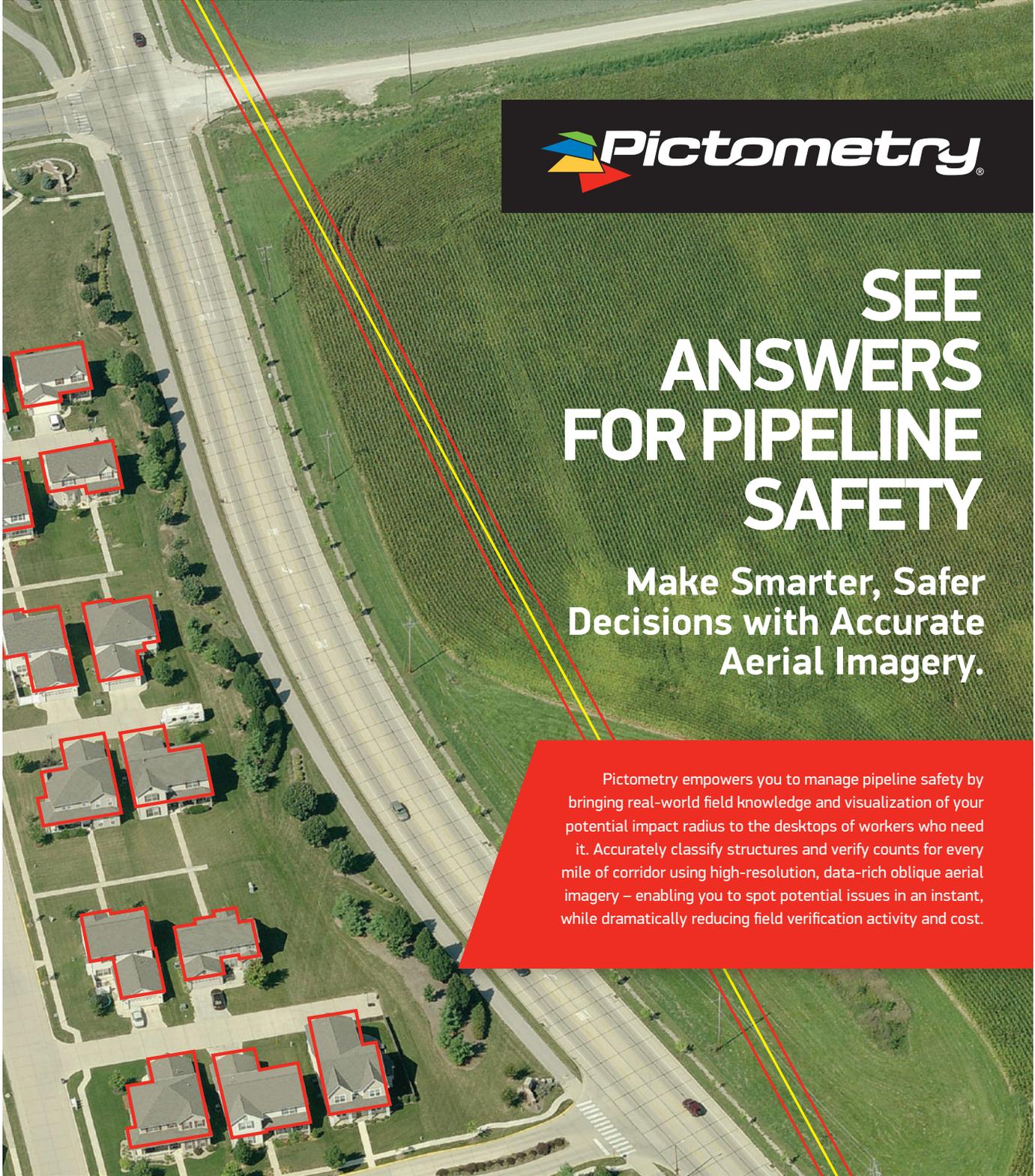
Natural gas liquids (NGL) prices continued to fall for the eighth straight week at both Conway and Mont Belvieu as limited transportation and cracking capacity, increased processing capacity and falling crude oil prices are having negative effects on the market.

The theoretical NGL barrel fell 8% to \$37.73 per barrel (/bbl) with a 9% drop in margin to \$29.82/bbl at Conway and 11% to \$47.04/bbl with a 12% drop in margin to \$39.02/bbl. Frac spread margin decreases were lessened by the decrease in natural gas prices that saw the price drop 2% to \$2.16 per million Btu (/MMBtu) at Conway and 3% to \$2.19/MMBtu at Mont Belvieu.

The NGL that took the biggest hit at both hubs this week was ethane, which fell 20% in value at Mont Belvieu to 38¢ per gallon (/gal) with a 29% drop in margin and 24% in price to 10¢/gal with another big hit in margin that left it theoretically negative at Conway. Factoring in propane's price and margin, E-P mix retained positive margins at the hub.

While the outlook looks grim for ethane, En*Vantage claims that the market is overestimating the amount of NGLs that will be produced through new processing plants by anticipating each of these facilities will extract 100% of their capacity. "We are forecasting NGL extraction to increase, but the rate of growth is not likely to be as great as

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some are estimating,” the company said in its Weekly Energy Report.

In addition, the company reported that in advance of scheduled fractionator maintenance at Mont Belvieu in May and June that ethane and E-P mix is being withdrawn from storage at nearly 3 million barrels per month. The petrochemical industry will be able to crack more ethane as several large petrochemical plants in the Gulf Coast come back online this month and next. The scheduled maintenance at these facilities included improvements that will increase the industry’s cracking ability to 1.15 million barrels per day by the close of the year.

Propane prices also had a rough week as they remained below the \$1.00/gal threshold at Conway and dipped below that on Tuesday at Mont Belvieu. The Gulf Coast price tumbled 12% to \$1.03/gal, its lowest price since it was \$1.00/gal the week of Jan. 14, 2010. The margin took a larger hit at 14% this week. The Mid-Continent price fell 8% to 78¢/gal,

Current Frac Spread (Cents/Gal)				
May 11, 2012	Conway	Change from Start of Week	Mont Belvieu	Start of Week
Ethane	10.44		37.45	
Shrink	14.34		14.54	
Margin	-3.90	-329.78%	22.91	-28.75%
Propane	78.36		102.74	
Shrink	19.79		20.06	
Margin	58.57	-9.62%	82.68	-13.69%
Normal Butane	145.44		173.62	
Shrink	22.40		22.71	
Margin	123.04	-8.14%	150.91	-10.28%
Iso-Butane	179.22		190.02	
Shrink	21.51		21.81	
Margin	157.71	-4.45%	168.21	-7.26%
Pentane+	210.24		219.04	
Shrink	24.24		24.57	
Margin	186.00	-7.07%	194.47	-7.30%
NGL \$/Bbl	37.73	-7.62%	47.04	-10.47%
Shrink	7.91		8.02	
Margin	29.82	-9.04%	39.02	-11.92%
Gas (\$/mmBtu)	2.16	-1.82%	2.19	-2.67%
Gross Bbl Margin (in cents/gal)	67.36	-9.14%	89.79	-12.21%
NGL Value in \$/mmBtu				
Ethane	0.57	-23.80%	2.06	-20.47%
Propane	2.72	-7.77%	3.57	-11.74%
Normal Butane	1.57	-7.22%	1.88	-9.36%
Iso-Butane	1.12	-4.14%	1.18	-6.75%
Pentane+	2.68	-6.49%	2.79	-6.80%
Total Barrel Value in \$/mmbtu	8.66	-8.12%	11.48	-11.47%
Margin	6.50	-10.03%	9.29	-13.32%

NGL PRICES						
Mont Belvieu	Eth	Pro	Norm	Iso	Pen+	NGL Bbl
May 2 - 8, '12	37.45	102.74	173.62	190.02	219.04	\$47.04
April 25 - May 1, '12	47.09	116.40	191.54	203.78	235.03	\$52.55
April 18 - 24, '12	47.66	119.22	189.96	202.12	236.22	\$52.92
April 11 - 17, '12	44.37	120.88	189.98	203.98	237.92	\$52.78
April '12	45.55	119.39	189.84	203.99	237.95	\$52.78
March '12	50.09	125.86	192.84	207.42	245.13	\$54.99
1st Qtr '12	53.93	125.90	192.36	204.32	238.95	\$55.05
4th Qtr '11	84.49	144.13	188.16	227.18	224.44	\$61.34
3rd Qtr '11	76.03	153.87	188.27	208.52	237.59	\$61.59
2nd Qtr '11	75.14	149.59	186.75	202.07	248.23	\$61.42
May 4 - 10, '11	82.08	153.44	191.03	208.00	260.80	\$64.18
Conway, Group 140	Eth	Pro	Norm	Iso	Pen+	NGL Bbl
May 2 - 8, '12	10.44	78.36	145.44	179.22	210.24	\$37.73
April 25 - May 1, '12	13.70	84.96	156.76	186.96	224.84	\$40.84
April 18 - 24, '12	11.78	88.74	159.13	188.33	226.90	\$41.28
April 11 - 17, '12	15.10	93.18	161.84	194.20	231.96	\$42.99
April '12	14.42	90.99	160.18	190.26	230.04	\$42.30
March '12	29.33	107.37	172.94	193.41	241.34	\$48.21
1st Qtr '12	26.93	103.34	168.65	184.75	227.16	\$45.92
4th Qtr '11	34.29	129.43	160.82	204.27	196.08	\$48.23
3rd Qtr '11	46.69	143.07	166.30	199.68	210.98	\$53.06
2nd Qtr '11	52.63	139.38	170.76	192.47	236.00	\$55.34
May 4 - 10, '11	57.08	143.34	176.33	199.00	249.25	\$57.91

(Above) Data Provided by Intercontinental Exchange. 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. Source: Frank Nieto

the hub’s lowest price since it was 77¢/gal the week of Sept. 2, 2009. The margin at Conway dipped 10%.

Although propane exports to European countries might be decreasing because of North Sea supplies, the U.S. propane export market should continue to grow in Asia and help work off the storage overhang caused by this year’s weak winter. Another boon for Conway propane will be felt later this month when Kinder Morgan will begin transporting E-P mix on the Cochin pipeline to Sarnia, Canada.

Heavy NGL prices had been able to remain stable compared to the depressed market for light NGLs for the past two months, but this week’s drop in crude oil prices below \$100/bbl saw the heavys fall at similar rates to their lighter counterparts.

Butane had the biggest drop of any heavy this week at both hubs as it fell 9% to \$1.74/gal at Mont Belvieu and 7% to \$1.45/gal at Conway. The Mont Belvieu price was the lowest it had been since it was \$1.70/gal the week of Feb. 9, 2011 while the Conway price was the hub's lowest since it was \$1.45/gal the week of Sept. 22, 2010. In addition to weaker gasoline demand, butane was also affected by weaker demand from crackers given the very favorable economics for ethane.

Butane's sister product, isobutane, had a slower decrease in price as it fell 7% to \$1.90/gal at Mont Belvieu with a 7% drop in margin. The price was the lowest at the hub since the week of Feb. 15, when it was also \$1.90/gal. The Conway price dropped 4% to \$1.79/gal, the hub's lowest price since it was \$1.73/gal the week of Feb. 22. The margin fell 5% in the Mid-Continent.

Perhaps the heavy NGL that had the largest impact from lower crude prices was C₅₊, which has the closest relationship of any NGL to crude. The Mont Belvieu price was the lowest it had been since just before the close of 2011 and experienced a 7% drop in margin. The

Conway margin was also down 7% from the previous week after its price took a 6% downturn to \$2.10/gal.

Despite these negatives, C₅₊ remained the most profitable NGL to make at both at \$1.86/gal at Conway and \$1.95/gal at Mont Belvieu. This was followed, in order, by isobutane at \$1.58/gal at Conway and \$1.68/gal at Mont Belvieu; butane at \$1.23/gal at Conway and \$1.51/gal at Mont Belvieu; propane at 59¢/gal at Conway and 83¢/gal at Mont Belvieu; and ethane at a theoretical minus-4¢/gal at Conway and 23¢/gal at Mont Belvieu. As we've noted in the past, Conway ethane is not being rejected because it is not traded on a purity basis but rather as an E-P mix at the hub.

Natural gas in storage for the week increased 30 billion cubic feet to 2.606 trillion cubic feet (Tcf) from 2.576 Tcf the previous week. This was 44% greater than the storage figure of 1.807 Tcf reported last year at the same time and 45% greater than the five-year average of 1.803 Tcf.

After a winter season that saw heating demand remain below par, there has been a combination of good news on the

injection front. Storage injection levels have been slower than normal thanks to a nice turn in the weather last month that extended heating demand by a few weeks, which helped to somewhat eliminate the "dead zone" between the heating and cooling demand seasons this year.

In addition, low gas prices are providing utilities with an extra incentive to switch fuels for their power generation from coal to gas, which will create further demand avenues. Though storage levels will remain high throughout the remainder of 2012, it is possible that the corner has now been turned for the better.

The forecast from the National Weather Service anticipates a return to warmer weather next week which should increase cooling demand. The Northeast, Great Lakes, Midwest and Southwest are expected to experience warmer than normal temperatures. Only Florida and parts of the Pacific Northwest can anticipate cooler than normal climates for this time of year.

– Frank Nieto

INSIDE LOOK AT PROCESSING

Crosstex To Enter Utica Shale Through Clearfield Acquisition

Crosstex Energy LP (NASDAQ: XTEX) signed a definitive agreement to acquire Clearfield Energy Inc., a crude oil, condensate and water services company operating in the Utica shale, for \$210 million. The company is also planning to invest a further \$50 million into Clearfield for expansions.

The agreement is expected to close in July and will provide Crosstex Energy with entry into the Utica shale. Clearfield Energy transports approximately 30% of the oil production in Ohio and 55% of the oil production in West Virginia.

Clearfield owns a 4,500-barrel-per-hour crude barge loading terminal on the Ohio River, along with a rail loading terminal that will have a 40-car, 56,000 barrel per day capacity by the close of the year. In addition the company owns 200 miles of 6- and 8-inch crude pipelines in Ohio and West Virginia along with 2,500 miles of unused right of way holdings in what is projected to be the oil and rich-gas sections of the Utica.

"We believe we have found a unique opportunity in a hypercompetitive environment...We are very excited about

the transaction, which is a big stack and helps us execute our strategy to grow and diversify our business by providing us with a new geographic footprint and expanded offerings to our customers," Barry Davis, president and chief executive of Crosstex Energy, said during a conference call to discuss the company's Q1 2012 earnings.

Crosstex has been interested in entering the Utica for almost two years now, he said. "We began to look at organic opportunities to build something there. As we always do when we look at new

areas, we looked around at other things that would be platforms. From the beginning we started seeing this opportunity and entered into discussions through existing relationships.”

In addition to gaining access to the Utica, the agreement will also provide Crosstex with new services that it can provide to its existing customers in other plays. He added that the acquisition is expected to be accretive in 2012.

Outside of the Utica, Clearfield also holds attractive assets for Crosstex, including in Texas and Louisiana. “With this acquisition, we are adding a core asset in another part of the country that is supported by solid legacy production and will provide us with access to the Eunice [La.] fractionation and production region,” Davis said.

This acquisition is part of the company’s projected \$622 million capex spend-

ing in 2012 and 2013. This program, which includes its \$230 million Cajun Sibon NGL pipeline expansion, features fee-based projects that are designed to provide diversified services, as well as increasing the company’s scale.

– Frank Nieto

Rex Energy Announces Sale Of Midstream Assets

Rex Energy Corp. (Nasdaq:REXX) announced that it, together with its partners in Keystone Midstream Services, LLC, entered into an agreement and plan of merger with a subsidiary of MarkWest Energy Partners L.P. pursuant to which MarkWest will acquire Keystone for a purchase price of \$512 million.

Rex Energy holds a 28% interest in Keystone and expects net proceeds from the sale (after taxes and subject to customary post-closing adjustments and escrows) to be approximately \$120 million, exceeding the previously announced range of \$90 to \$110 million in combined expected proceeds from the sale of its midstream and Rockies assets. The transaction is subject to customary conditions, including clearance under the Hart-Scott-Rodino Antitrust Improvements Act, and is expected to close during the second quarter of 2012. Evercore Partners advised Keystone Midstream Services, LLC with respect to this transaction.

Keystone owns and will operate two cryogenic gas processing plants with a combined 90 million cubic feet per day (MMcf/d) of capacity, a gas gathering system and associated field compression in Butler County, Pennsylvania. Rex Energy, together with its non-operating partner, Sumitomo, currently holds approximately 68,400 gross acres (46,000



net) in its Butler operated area. In connection with the merger, MarkWest and affiliates of Rex Energy and Sumitomo will enter into a new gathering, processing and NGL fractionation arrangement whereby MarkWest will gather and process the rich gas from Rex Energy wells within Butler County and certain surrounding areas.

The new fee-based agreement will replace the current arrangement with Keystone, which is structured on a percent of proceeds (POP) model.

Based on current commodity strip prices, Rex Energy estimates that the long-term economic effects of the new fee-based terms will be similar to its current POP agreement. Fees for 2012 are projected to fall within the company’s previous estimates and are not expected to alter the range for full-year lease operating expense guidance.

To facilitate the new gathering and processing agreement, MarkWest is pro-

posing to extend its planned natural gas liquids (NGL) pipeline from its Houston, Pennsylvania complex into Butler County. The pipeline is currently expected to be completed in the first half of 2014. Once completed, the pipeline will transport Y grade NGLs from the Butler processing facilities to the Houston complex and is expected to reduce the company’s NGL transportation costs.

Once commissioned, the MarkWest NGL pipeline will also provide Rex Energy with the means to transport ethane out of the Butler facilities to MarkWest’s Houston complex. The expansion of the pipeline will provide access to additional markets through the Houston plant’s outlets, enabling the company to commit to one or more new markets for its ethane production. Based on these plans, Rex Energy anticipates securing a market and to begin selling its additional ethane during the first half of 2014.

MarkWest has announced its intention to expand Keystone’s gathering and processing facilities, with current estimates of capital expenditures of up to \$500 million over the next five years. Given the announced capital commitment from MarkWest and Rex Energy’s projected drilling program, the company has made additional volume commitments for 100 MMcfd gross priority

processing capacity at the planned expansion or additional plants.

“This transaction marks a critical step forward for the continued development of our core assets in Butler County,” Tom Stabley, Rex Energy’s chief executive and CFO, said in a news release. “Rex Energy is very excited about our new partnership with MarkWest. We believe that MarkWest’s dynamic and broad midstream experience will enable Rex Energy to fully unlock the value and potential of our Butler holdings. Working together, we will further advance the responsible development of Rex Energy’s acreage in our Butler operating area.”

In addition to the agreements relating to the Keystone transaction, Rex Energy and MarkWest Utica EMG, an affiliate of MarkWest, are exploring opportunities for similar gathering and processing services for portions of the company’s Ohio Utica acreage.

“We are looking forward to cultivating a long-term, mutually beneficial relation-

ship with MarkWest,” continued Stabley. “I would also like to thank Keystone for its role in the early development of our Butler operating area, and the successes we have shared together.”

“We are also extremely excited about the Keystone acquisition and our opportunity to support Rex and Sumitomo in the development of their rich Marcellus, Utica and Upper Devonian acreage,” said Frank M. Semple, chairman, president and chief executive of MarkWest Energy Partners. “Rex has a great team, high quality assets and a proven track record of success and we look forward to helping them create long term value.”

Rex Energy’s lenders have increased the borrowing base under the company’s senior secured credit facility from \$255 million to \$265 million. The company’s continued success in its drilling program, combined with strong growth in its reserves and production, provided solid support for the increase despite the challenging pricing environment for natural gas.

Under the terms of the credit facility, the bank group re-determines the borrowing base semi-annually utilizing the bank’s estimates of reserves and future oil and gas prices. The company’s next re-determination is set for August of 2012.

The bank group is comprised of KeyBank N.A., which continues to lead and serve as Administrative Agent of the facility; Royal Bank of Canada; Manufacturers and Traders Trust Company; Capital One, N.A.; Bank of Montreal; Union Bank, N.A.; Wells Fargo Bank, N.A.; U.S. Bank National Associates; and SunTrust Bank.

The company is actively engaged in the marketing process for its Rockies assets and, with the assistance of its financial advisor, continues to evaluate alternative transaction structures, including sale and joint venture opportunities. Management currently expects to conclude the process in the second half of the year.

KBR To Construct Shale Gas Processing Facility In Canada

KBR announced it was awarded a general works contract for the construction of a 200 million standard cubic feet per day (SCFD) sweet natural gas processing plant near Fort St. John, British Columbia, Canada.

KBR’s Canadian subsidiary, KBR Wabi, will execute all mechanical, structural, architectural, concrete (structural and

other), electrical and instrument works for the project which will monetize recent shale gas discoveries.

“KBR is fully committed to supporting the client’s objectives for the project and drawing upon our skilled resources in the region, and we are prepared to construct a safe and fully operational natural

gas processing plant,” said Karl Roberts, Senior Vice President, KBR Canada.

“This award also builds upon our portfolio of solid construction execution, positioning KBR Canada to capitalize on the rapidly increasing shale gas market in British Columbia,” he concluded.

– **Business Wire**

PIPELINES & TECHNOLOGY

TransCanada Submits Presidential Permit For Keystone XL

TransCanada Corp. (TSX:TRP) (NYSE:TRP) submitted a Presidential Permit application to the U.S. Department of State (DOS) for the Keystone XL Pipeline from the U.S./Canada border in Montana to Steele City, Nebraska. TransCanada will supple-

ment that application with an alternative route in Nebraska as soon as that route is selected.

“The multi-billion dollar Keystone XL pipeline project will reduce the United States’ dependence on foreign oil and

support job growth by putting thousands of Americans to work,” Russ Girling, TransCanada’s president and chief executive officer, said in a news release. “Keystone XL will transport U.S. crude oil from the very large Bakken supply basin

in Montana and North Dakota, along with Canadian oil, to U.S. refineries.

“Our application for a Presidential Permit builds on more than three years of environmental review already conducted for Keystone XL,” Girling added. “It was the most comprehensive process ever for a cross-border pipeline and that work should allow our cross border permit to be processed expeditiously and a decision made once a new route in Nebraska is determined.”

Girling points out the 10,000 pages of review already completed for Keystone XL concluded the project would have minimal impact on the environment. Using this existing research and analysis also satisfies President Obama’s call to speed infrastructure development through more efficient and effective permitting and review.

The application includes the already reviewed route in Montana and South Dakota. In April, legislation was passed in Nebraska and signed into law by Governor Heineman that enabled TransCanada to re-engage with Nebraska’s Department of Environmental Quality (DEQ), allowing the company to continue to work collaboratively in determining an alternative route for Keystone XL that avoids the Sandhills. Alternative routing corridors and a preferred corridor were submitted to the DEQ April 18. The DEQ will now help determine a specific route and oversee the public comment and re-

view process. Once a route is finalized, it will be submitted as part of the Presidential Permit application.

TransCanada maintains its commitment to build Keystone XL as safely and reliably as possible. To that end, the company will adopt and comply with 57 special conditions developed by the U.S. federal pipeline regulator PHMSA (Pipeline and Hazardous Materials Safety Administration) that provide an even greater confidence in the operation and monitoring of the pipeline, including: a higher number of remotely controlled shut-off valves, increased pipeline inspections and pipe that is buried deeper in the ground. The Final Environmental Impact Statement for the project issued in August 2011 concluded the incorporation of the 57 special conditions ‘would result in a project that would have a degree of safety over any other typically constructed domestic oil pipeline system under current code’

Shipper interest remains strong, with Keystone XL currently having firm, long-term contracts in place to transport in excess of 500,000 barrels per day (b/d) of Western Canada Sedimentary Basin (WCSB) crude oil to existing U.S. Gulf Coast refineries. Bakken Marketlink, using facilities which form part of the proposed project; currently has firm, long-term contracts to transport 65,000 b/d of Bakken crude oil from the Williston Basin in North Dakota and Montana.

KEY NORTH AMERICAN HUB PRICES	
2:30 PM CST / May 10, 2012	
Gas Hub Name	Current Price
Carthage, TX	2.29
Katy Hub, TX	2.34
Waha Hub, TX	2.28
Henry Hub, LA	2.36
Perryville, LA	2.32
Houston Ship Channel	2.31
Agua Dulce, TX	1.88
Opal Hub, Wyo.	2.20
Blance Hub, NM	2.23
Cheyenne Hub, Wyo.	2.18
Chicago Hub	2.38
Ellisburg NE Hub	2.47
New York Hub	2.47
AECO, Alberta	1.97

Source: Bloomberg

This is clear evidence the market needs this pipeline. Keystone XL has an initial capacity of 830,000 b/d, oil that will be processed in American refineries. TransCanada expects to begin construction of Keystone XL in the first quarter of 2013, with completion slated for late 2014 or early 2015. Construction of the \$2.3 billion Gulf Coast Project (Cushing, Oklahoma to Nederland, Texas) is expected to begin this summer, with an in-service date of mid to late 2013.

Is Natural Gas... (continued from page 1)

12- to 18-month payback. Consequently, nearly 40% of all trash trucks and 25% of all buses in the U.S. use natural gas.

Although every major automobile manufacturer makes NGVs, there is only one commercially available NGV in the United States – the Honda Civic Natural

Gas. Currently there are approximately 1,000 natural gas fueling stations nationwide compared with 150,000 gasoline refueling stations, which makes it harder for consumers to make the switch. There is a lot of competition for alternative fuels, such as electric and hybrids, in the

light-duty market. But there is no competition among alternative fuel-powered, heavy-duty vehicles, according to Kolodziej.

“We’re still a long way from being able to offer the kind of refueling convenience that people are used to with gaso-

line,” Richard Bohr, president, Whitetail Natural Gas Services, said. “That doesn’t mean that it’s an impossibility. In fact, one of the things that favors the adoption of natural gas as a transportation fuel is that CNG fueling pumps can be located at existing pump stations as well as be installed in people’s homes through home-fueling units.”

Bohr said that CNG stations represent an opportunity for midstream players and utilities to open new revenue streams by providing gathering and compression services from the wellhead to these pumps. CNG pumps require above-ground infrastructure, whereas petroleum products require underground tanks

The midstream players could tie their systems into new fueling stations for high-use vehicles. “There’s an opportunity to use gathering systems as the supply point for CNG fueling stations,” he said.

Since high-use vehicles typically either don’t travel great distances or they travel the same corridors, it makes it easier to build fueling stations for their use.

Return-to-home vehicles return to a depot at the end of the day and can utilize a refueling station at its home rather than depend on refilling its tank at a third-party owned station. The same is basically true for point-to-point vehicles, which travel along the same corridors on a regular basis.

High-use vehicles, primarily tractor trailers, can also benefit from a similar approach, he says. “Truck fleets have depots all across the country. They move a trailer from San Diego to New York. The tractor goes home and the trailer goes across the country. The trailer goes from San Diego to New York, but the tractor doesn’t. That tractor goes from San Diego to a depot in Reno and picks up a trailer going east.”

Kolodziej stated that Dillon Transport in Texas uses LNG for its fleet of trucks and has realized tremendous savings. “Their trucks drive basically 23 hours per day. They’re using 50,000 gallons per truck per year. If they’re saving \$2.00 per gallon, that’s \$100,000 per truck,” he said.

Another advantage that high-use vehicles have is that their larger frames can fit more CNG and LNG tanks onboard. “Pickup trucks and heavy duty vehicles have plenty of space underneath the carriage and behind the cabs to store tanks. You can put as much range and fuel capacity CNG-wise as you would want or as you’re used to right now in those vehicles,” Bohr said.

Chesapeake Energy Drinking Its Own Milk

Chesapeake Energy Corp. is putting its money where its mouth is by converting its fleet vehicles to NGVs.

“Our industry, and our company, must lead by example. That’s why Chesapeake is committed to converting its more than 5,000 vehicle fleet to run on natural gas. While we believe it’s our role to support the market and showcase a successful conversion story, we are also recognizing strong economic and environmental benefits from running our vehicles on CNG,” Nate Pumphrey, director, fleet operations at Chesapeake, told *Midstream Monitor*.

The company said that the return-on-investment (ROI) for these vehicles is approximately 19 months in Oklahoma, Louisiana and West Virginia and other states offering tax credits for converting to natural gas. “This is at a fuel savings cost of \$1.50 per gallon. As gasoline prices continue to increase, our savings – and ROI – will accelerate,” Pumphrey said.

Chesapeake is spending \$9,000 to convert each vehicle, but the company said

that these costs are declining yearly as the NGV market expands. As these costs drop, the company will realize even greater savings for their conversions. Chesapeake is also exploring conversion opportunities for its drilling rigs and pressure-pumping equipment used in the field.

“We believe it is important to the country’s energy future to grow natural gas as a transportation fuel. The market requires a foundational level of adoption for economies of scale to take over. Our industry can and should help provide that foundation,” Pumphrey said. “It is in the best interest of our nation to grow the natural gas market to decrease our reliance on OPEC oil, create a healthier environment, and cut our fuel costs in half while keeping more dollars in America.”

The majority of Chesapeake’s fleet vehicles being converted are heavy-duty pick-up trucks. As part of this conversion, the company worked with Ram Trucks through the Natural Gas Consortium to find a work-truck model to fit their needs. The vehicle selected was the Ram 2500 Crew Cab with a 5.7 liter Hemi bi-fuel engine with a towing capacity of 7,650 pounds and a payload of 1,580 pounds. The truck, which retails for \$11,000 more than the diesel version, has a driving range of approximately 255 miles on the 18.2-gallon CNG engine, which is further increased to approximately 780 miles when the 35-gallon gasoline tank is included.

Chesapeake sought a crew cab pickup because of its capability to transport a larger number of workers to a site, its four-wheel drive capability and the storage offered by the vehicle’s eight-foot bed.

While some natural gas companies have onsite filling stations or access to public CNG fueling stations, many com-

panies wanted the option to switch to gasoline in case CNG was not available. To add convenience, the switch from gasoline to CNG or vice versa is automatic.

“We took our 5.7 liter Hemi engine and worked with them. What is unique is we are actually manufacturing this product within our assembly plant,” Bob Hegbloom, director of the Ram Brand at Chrysler, told *Midstream Monitor*. “Our CNG truck can go down the line next to a diesel- or gasoline-powered truck. Other manufacturers have to ship their CNG vehicles to an up-fit center where they update it for CNG.”

Although the Ram CNG truck was designed with Chesapeake and other natural gas producers in mind, it has generated interest from other companies for their fleet vehicles. The company’s sales target for the truck was 2,000 vehicles, but they have already exceeded this figure.

“We won’t constrain any of our shipments. We’ll have them available for our dealers to sell to companies. If the infrastructure continues to grow, we’ll look at expanding the line further to other Chrysler brands and vehicle types,” Hegbloom said.

While fleet vehicles remain the primary focus for NGVs, there is progress being made toward the consumer mar-

ket. By 2013, Honda and Chrysler will be joined by General Motors in offering fully integrated CNG vehicles. Ford will also offer natural gas prep-ready vehicles next year that can be converted to run on natural gas.

Chesapeake is involved in helping to expand both ends of the NGV supply chain through its work with auto manufacturers to develop CNG vehicles as well as its partnership with fuel retailers, including OnCue Express and Love’s Travel Stops & Country Stores in Oklahoma.

“We are expanding this program to other operating regions throughout the country with major partnerships to be announced in the next three to four years. At that point, we expect CNG fueling infrastructure to be greatly expanded by both our efforts and the market’s recognition and adoption of this affordable, domestic fuel,” Pumphrey said.

Incentives offered by states are helping to grow the market, but there is a consensus among those in the natural gas and NGV industries that federal incentives are required to really jump-start the NGV market.

“The federal government argues that they shouldn’t be picking winners and losers, but since the Nixon administration there has been a loser picked – and that’s foreign oil. Since Nixon, it has been

our national policy to diminish the use of foreign oil,” Kolodziej said.

He anticipates federal support for natural gas as a transportation fuel to be backed by the federal government soon through the passage of the NAT GAS Act. This legislation would help to lower the incremental costs of natural gas vehicles and home-fueling stations through incentives.

There are those that view natural gas as a bridge fuel and therefore don’t fully support the adoption of it as a transportation fuel source. Bohr challenged this notion by pointing out that there is more than 100 years of natural gas supplies in North America. “One hundred years from now, natural gas will be still be here and we’ll still be finding ways to use it,” he said.

Although there is still a ways to go toward the widespread adoption of natural gas-powered vehicles, Kolodziej is upbeat. “I’ve been involved in NGVs since 1996 and for most of that time we’ve been pushing a rock up a hill. Every once in a while we win. Every once in a while the rock wins. Now all of a sudden the rock is on the other side of the hill and we’re now running to catch up with the rock.”

– Frank Nieto

MarkWest Signs Long-Term Gathering & Processing Deals In West Virginia

MarkWest Energy Partners, L.P. (NYSE: MWE) announced the execution of two major agreements related to its ongoing development of the hydrocarbon-rich area of the Marcellus shale.

The first agreement is a long-term fee-based arrangement with affiliates of Chesapeake Energy Corp. (NYSE:CHK) to expand its Marcellus gas processing ca-

capacity to support Chesapeake’s rapidly growing rich natural gas production in an approximately 185 square mile dedication area, which includes portions of Brooke, Ohio, and Marshall Counties in northern West Virginia and Washington County in southwestern Pennsylvania.

The second agreement is a long-term fee-based arrangement with Antero Re-



sources Appalachian Corp. to install significant gathering facilities in support of Antero's rapidly growing rich natural gas production in Doddridge and Harrison Counties in northern West Virginia.

In support of the agreement announced today with Chesapeake, MarkWest will expand the gas processing capacity at its Majorsville, West Virginia processing complex by 400 million cubic feet per day (MMcf/d) from 670 MMcf/d to approximately 1.1 billion cubic feet per day (Bcf/d). This expansion capacity is being provided in exchange for the significant dedication of acreage made by Chesapeake to the Majorsville processing complex. MarkWest will construct two new 200 MMcf/d cryogenic gas plants that are expected to be completed in late 2013 and mid 2014.

The gathering facility expansion to support Antero Resources will expand MarkWest's existing gathering operations in southwestern Pennsylvania into a key part of West Virginia and includes the installation of two large high-pressure gathering headers and associated compressor stations in Doddridge and Harrison Counties, West Virginia. The new gathering system will have the capacity to initially deliver more than 300 MMcf/d of Antero's rich gas to MarkWest's Sherwood gas processing complex. The first phase of the gathering system will be completed in the third quarter of 2012 in conjunction with the completion of the 200 MMcf/d Sherwood I processing facility. MarkWest previously announced the expansion of the Sherwood processing complex to include the construction of the 200 MMcf/d Sherwood II processing facility, which is expected to come online in the second quarter of 2013 and will increase the total capacity of the Sherwood gas processing complex to 400 MMcf/d.

The Majorsville expansion will increase MarkWest's total processing

RESIN PRICES – MARKET UPDATE – MAY 11, 2012					
TOTAL OFFERS: 22,960,484 lbs		SPOT		CONTRACT	
Resin	Total lbs	Low	High	Bid	Offer
LDPE - Film	4,884,072	0.65	0.76	0.68	0.72
HDPE - Inj	3,376,164	0.62	0.69	0.61	0.65
HDPE - Blow Mold	3,132,484	0.62	0.78	0.61	0.65
PP Homopolymer - Inj	2,886,852	0.72	0.78	0.69	0.73
LLDPE - Film	2,492,944	0.66	0.80	0.65	0.69
LDPE - Inj	1,796,208	0.66	0.75	0.67	0.71
PP Copolymer - Inj	982,196	0.75	0.86	0.71	0.75
GPPS	950,000	0.82	0.90	0.85	0.90
HIPS	950,000	0.97	1.03	0.97	1.02
HMWPE - Film	939,564	0.64	0.73	0.65	0.69
LLDPE - Inj	570,000	0.68	0.69	0.65	0.69

Source: Plastics Exchange – www.theplasticsexchange.com

capacity in the rich gas area of the Marcellus to more than 2.1 Bcf/d, essentially all of which is supported by long-term agreements with MarkWest's producer customers. All of the natural gas liquids (NGLs) recovered at MarkWest's four large Marcellus processing complexes in southwest Pennsylvania and northern West Virginia are or will be connected through MarkWest's extensive NGL gathering system for delivery to its Houston, Pennsylvania fractionation, storage, and marketing complex. MarkWest previously announced that, to support its significant Marcellus expansions, it is constructing a second fractionation complex in Harrison County, Ohio, in conjunction with its Utica shale expansion and associated Utica shale joint venture. The Houston, PA and Harrison, OH fractionation complexes will be connected through MarkWest's NGL gathering system to provide significant reliability, flexibility and critical downstream marketing options. Following the completion of its announced Marcellus and associated Utica gas gathering, processing and fractionation facilities, MarkWest and its affiliates will have the capacity to produce approximately 155,000 barrels per day (Bbl/d) of purity ethane and 120,000 Bbl/d of propane and heavier NGLs.

This represents more than 10 percent of the total US supply of purity ethane and more than 5 percent of the total US supply of propane. The first phase of MarkWest's purity ethane facilities are expected to come online in mid 2013 in conjunction with the completion of Mariner West, a pipeline project jointly developed by MarkWest and Sunoco Logistics L.P. (NYSE: SXL) to deliver Marcellus ethane to petrochemical markets in Sarnia, Ontario, Canada.

Both of the projects announced today were included in MarkWest's previously announced 2012 capital investment estimates. MarkWest will discuss both projects in more detail at the Partnership's first quarter earnings call.

"We are excited to expand our existing relationships with Chesapeake and Antero," said Frank Semple, Chairman, president and chief executive of MarkWest. "MarkWest continues to focus on providing best of class fully integrated midstream services that are critical to the rich-gas development in the northeast United States and we are pleased to further strengthen our leading midstream presence in the liquids-rich area of the Marcellus."

– Business Wire

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SemGroup, Chesapeake Finalize Glass Mountain Pipeline Joint Venture Agreements

SemGroup (NYSE: SEMG), an affiliate of Chesapeake Energy Corp. (NYSE: CHK) and Gavlion LLC announced the formation of Glass Mountain Pipeline LLC and the signing of definitive agreements to build the previously announced 210-mile crude oil pipeline. Construction of the pipeline is expected to begin this summer and be commissioned in the fall of 2013.

The new pipeline, constructed by SemGroup, will have an initial capacity of approximately 140,000 barrels per day and 440,000 barrels of intermediate storage. The pipeline will consist of two laterals.

One lateral will originate near the town of Alva in Woods County, Oklahoma. The second lateral will originate near the town of Arnett in Ellis County, Oklahoma. The pipeline will increase in diameter where the laterals intersect near Cleo Springs in Major County, Oklahoma and continue east to Cushing, Oklahoma.

The pipeline will terminate at Gavlion's Cushing facility, where the joint venture will own one million barrels of crude oil storage. Following pipeline construction, Rose Rock Midstream, LP (NYSE: RRMS), SemGroup's master

limited partnership, will serve as the pipeline operator.

Chesapeake Energy has entered into a long-term transportation agreement with Glass Mountain Pipeline to provide the economic incentive to construct the pipeline. The pipeline system is expected to meet growing and diverse midstream requirements resulting from the drilling activity in western Oklahoma and the Mississippi Lime play.

— Business Wire

NEWS & TRENDS

BLM Issues Proposal To Regulate Hydraulic Fracturing On Public Lands

The U.S. Department of Interior's Bureau of Land Management (BLM) announced a proposal to regulate hydraulic fracturing on public lands. The proposal requires producers to disclose the ingredients for their fracturing fluids, but does include a concession to producers by only requiring the chemicals in the fluids be disclosed after drilling has started. Previously, the composition of these fluids were to have been disclosed 30 days prior to drilling.

The proposal also includes regulations to ensure the stability of the well casings as well as ensuring that fracturing fluids and waste water don't leak into the surrounding soil.

Such measures have largely been opposed by the industry, which has pointed out states and municipalities already have hydraulic fracturing regulations in place and many companies voluntarily disclose the chemicals in their fracturing fluids.

"We will be doing a thorough review of the proposal but at first glance it indicates that the Department of the Interior and, in particular the Bureau of Land Management, may not fully appreciate the significant regulatory steps already undertaken by states such as Colorado, Texas, Wyoming and others to oversee the safe and responsible development of natural gas through the use of hydraulic fracturing," Tom Amontree, executive

vice president of America's Natural Gas Alliance, said in a news release.

"State regulatory bodies have repeatedly proven that they have the understanding of their state's own unique geologic conditions, the on-the-ground expertise needed to oversee this important work, and most importantly, the ability to respond to rapid change. The proposal as drafted would create reporting requirements, regulatory impediments and certifications that could substantially affect the ability to produce resources that are placed in the BLMs stewardship for the benefit of all American," he added.

Crosstex Expands Crude Oil Terminal Business At Riverside Fractionation Facility

Crosstex Energy, L.P. (NASDAQ: XTEX) is increasing its capacity to transload crude oil from rail cars to both barges and pipelines at its Riverside fractionation facility in southern Louisiana from approximately 4,500 barrels of crude oil per day to approximately 14,500 barrels of crude per day. Construction of the

Phase II expansion project at Riverside, located on the Mississippi River, will be operational in the first quarter of 2013. The Partnership has entered into a long-term supply agreement which fully underwrites the expansion.

The Phase II development at Riverside will include new storage tank fa-

cilities, upgraded pipeline connections and improved barge delivery capabilities on the Mississippi River. The Phase I modification of the Riverside facility, which allowed crude as well as natural gas liquids (NGL) to be transloaded from rail to barge, has been in operation since January 2012. The expansion project is

expected to cost approximately \$16 million. The average annual cash flow from Phases I and II is estimated to be approximately \$10 million.

“We continue to execute on our growth strategy by expanding and up-

grading our existing assets to take advantage of crude opportunities,” said Barry E. Davis, Crosstex president and chief executive. “We are in an ideal physical location to take advantage of premium markets in southern Louisiana and grow-

ing domestic crude supply. This represents substantial fee-based margin for us, and we’re continuing to evaluate additional projects that would develop this business further.”

– Business Wire

TransCanada Completes Successful Keystone Hardisty Terminal Open Season

TransCanada Corp. (TSX:TRP) (NYSE:TRP) concluded a successful open season for the Keystone Hardisty Terminal project. Sufficient firm commitments were secured from parties interested in accessing the new terminal at the starting point of TransCanada’s Keystone Pipeline System.

“The open season held earlier this year for the Keystone Hardisty Terminal was very successful and confirms strong

demand from Western Canadian producers for new infrastructure to allow them to move crude oil into the Keystone System,” said Russ Girling, TransCanada’s president and chief executive. There is overwhelming industry support to transport crude oil safely and reliably to markets across North America.”

Binding, long-term commitments in excess of 500,000 barrels per day were received during the open season, leading to

the opportunity to expand the proposed two million barrels of crude oil batch accumulation tankage and pipeline infrastructure to a 2.6 million barrel terminal. TransCanada intends to proceed with the necessary regulatory applications for approvals to construct and operate this terminal at Hardisty, Alberta. Subject to regulatory approvals, the project is expected to be in service by late 2014 and cost approximately \$275 million.

Bahrain Expects Announcement Of Winning LNG Terminal Contract By Year’s End

Abdul Hussein bin Ali Mirza, Bahrain’s energy minister, said that the country plans on awarding a contract to build a liquefied natural gas (LNG) terminal in the country by year’s end. Speaking at the Middle East Petroleum & Gas Conference in Bahrain, he said that the project has nine finalists to select the winning bid after receiving 21 total bids. Mirza

said that the project would cost between \$300 million and \$1 billion depending on which bid is selected.

The facility would allow the country to import LNG for domestic use, but would not be completed before the end of 2014 or early 2015. Mirza previously stated that the country planned on importing an average of 400 million cubic feet per

day (MMcf/d) from Gazprom’s export terminal in Russia along with other supply sources. “We have many other parties interested in supplying us with gas if we need it,” he said at the conference.

This facility is part of the country’s Vision 2030 that is designed to cut the country’s dependence on oil. – Frank Nieto

SNAPSHOT

Private Equity On The Road, Raising Nearly \$27 Billion

Some dozen private-equity fund companies that invest in energy—oil and gas, services and midstream—are wearing out the shoe leather, raising new capital this year. If all of them succeed, some \$26.7 billion will have been raised from institutions—double the previous high.

Five entities aim to raise more than \$3 billion each: Riverstone Holdings, NGP Capital Management, Goldman Sachs, The Blackstone Group and Energy & Minerals Group. Denham Capital just closed on its new \$3-billion fund.



That’s according to an industry tally presented by EnCap Investments managing partner D. Martin (Marty)

Phillips, speaking to a joint IPAA/Tipro lunch meeting in Houston recently.

Houston-based EnCap is also in the market now, raising its second midstream fund, with a target of at least \$1.25 billion, Phillips said. This is the company’s 16th fund since inception.

How to get private-equity money?

“At the end of the day, people matter most for managing risk and creating value,” Phillips said.

“Adaptability is absolutely critical. You have to have the ability to proac-

tively address changing markets. It can be a difficult thing to assess when we're going into a new relationship, but looking back, we can see it's been the most important thing."

Since its founding in 1988, EnCap has backed 190 companies in the upstream and midstream space and monetized 141, for an internal rate of return of 57%, and it's made a 2.7-times return on investment (ROI).

Two big EnCap-backed monetizations were set to close this quarter: Cor-

dillera Energy Partners III is being sold to Apache Corp. for \$2.8 billion on the basis of its huge Granite Wash position, and Caiman Energy Partners' Marcellus shale midstream assets in Pennsylvania are going to Williams for \$2.5 billion.

EnCap currently manages five funds and has 49 active companies in the portfolio. More than half of these are managed by repeat management teams. They are operating from North Dakota's Bakken play to West Texas to the Gulf Coast to the Marcellus.

Just since 2008, EnCap has invested \$4.5 billion in the oil and gas industry, and 28 of its portfolio companies have been sold for an aggregate of almost \$17 billion—six of these were monetized for at least \$1 billion in 8/8ths proceeds each.

"That is not net to EnCap because we have partners and other obligations," Phillips emphasized.

—Leslie Haines

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