

Steady As She Goes: Midstream Investments To Remain Strong

Rising capital costs aren't likely to offset the appeal of the midstream to investors.

BY **FRANK NIETO** | EDITOR, MIDSTREAM MONITOR, MIDSTREAMBUSINESS.COM

Concerns remain over the possibility of capital costs increasing, which could hinder continued development of new midstream infrastructure in the coming years. However, a recent UBS report, titled "Where the Puck is Going—Capex Spend to Continue for Several More Years," states that the industry will remain attractive to investors over the next five years.

While natural gas and liquids have traded at lower prices for the past few years, the investment firm anticipates prices to recover as more infrastructure comes online and provides more market outlets for production. In total, the investment firm said its portfolio of master limited partnerships (MLP) has spent approximately \$120 billion over the last eight years for projects aimed at relieving bottlenecks in the North American midstream sector.

The results of these expenditures typically take longer to be realized. The report noted that in 2005 there were large gas storage capacity constraints, but in the years since more capacity has been brought online and there is now a plethora of storage.

According to the report, an increased focus of midstream investments will be on marine vessels and other export infrastructure for



The outlook for capex growth in the midstream looks solid as investments are likely to continue despite costs increasing.

liquefied natural gas (LNG) and liquefied petroleum gas (LPG). UBS anticipates these investments to grow to include Jones Act ships to be used to alleviate crude bottlenecks.

These investments are not only crucial to the long-term financial health of the oil and gas industries, but also have the added benefit of helping the companies backing such projects potentially outperform their competitors.

"We believe investors will need to look outside the typical tool box of pipeline MLPs to achieve outperformance...MLPs without a sizable organic

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HIGHLIGHTS FROM TODAY'S EDITION



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A recent IHS study stated that low natural gas prices could lead to vehicles switching to LNG and CNG in the future.

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Total skid packages from start to finish



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NGL PRICES & FRAC SPREAD | Week in Review

Frigid Temps Cause Conway Propane To Hit 14-Year High

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

A second cold blast in January saw propane prices skyrocket as heating demand was well above normal, which caused a large increase in propane prices, especially at Conway. The price rose as high as \$2.45 per gallon at Conway on January 21, which was the highest price by far of any natural gas liquid (NGL) during the week. This was almost \$1.00 per gallon higher than the Mont Belvieu price of \$1.48 per gallon.

For the week, propane prices increased 31% to an average of \$1.83 per gallon at Conway and 7% to \$1.36 per gallon at Mont Belvieu. This was the highest price at Mont Belvieu since the week of December 28, 2011 when it was \$1.39 per gallon. The Conway price was the

CURRENT FRAC SPREAD (CENTS/GAL)				
January 27, 2014	Conway	Change from Start of Week	Mont Belvieu	Last Week
Ethane	19.50		34.83	
Shrink	30.30		29.77	
Margin	-10.80	9.81%	5.06	386.71%
Propane	183.43		136.43	
Shrink	41.86		41.13	
Margin	141.57	40.52%	95.30	8.04%
Normal Butane	144.88		148.88	
Shrink	47.39		46.56	
Margin	97.49	6.23%	102.32	7.50%
Isobutane	154.85		152.58	
Shrink	45.52		44.72	
Margin	109.33	4.07%	107.86	5.59%
Pentane+	210.25		207.95	
Shrink	50.68		49.79	
Margin	159.57	2.70%	158.16	-1.33%
NGL \$/Bbl	51.04	14.88%	47.60	5.90%
Shrink	16.69		16.40	
Margin	34.34	20.19%	31.20	6.30%
Gas (\$/mmBtu)	4.57	5.30%	4.49	5.15%
Gross Bbl Margin (in cents/gal)	81.59	22.37%	72.92	6.69%
NGL Value in \$/mmBtu (Basket Value)				
Ethane	4.57	5.30%	4.49	5.15%
Propane	81.59	22.37%	72.92	6.69%
Normal Butane	1.48	-4.17%	1.51	0.40%
Isobutane	0.92	1.88%	0.90	1.17%
Pentane+	2.62	0.36%	2.68	0.48%
Total Barrel Value in \$/mmBtu	10.83	-1.32%	11.12	1.05%
Margin	6.49	3.60%	6.85	4.04%

NGL PRICES						
Mont Belvieu	Eth	Pro	Norm	Iso	Pen+	NGL Bbl
Jan. 15 - 21, '14	34.83	136.43	148.88	152.58	207.95	\$47.60
Jan. 8 - 14, '14	29.35	127.32	139.46	144.68	207.64	\$44.95
Jan. 1 - 7, '14	29.69	124.28	138.90	143.00	206.65	\$44.50
Dec. 25 - 31, '13	32.44	126.82	138.10	138.94	216.66	\$45.75
December '13	29.77	127.36	136.86	137.70	213.70	\$45.11
November '13	24.74	118.38	142.70	145.93	207.80	\$43.39
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
Jan. 16 - 22, '13	23.97	82.05	163.25	175.93	210.87	\$41.03
Conway, Group 140	Eth	Pro	Norm	Iso	Pen+	NGL Bbl
Jan. 15 - 21, '14	19.50	183.43	144.88	154.85	210.25	\$51.04
Jan. 8 - 14, '14	16.80	140.50	136.78	148.28	203.50	\$44.43
Jan. 1 - 7, '14	17.00	143.25	142.73	145.55	202.78	\$44.98
Dec. 25 - 31, '13	19.40	144.06	150.64	152.80	220.50	\$47.28
December '13	18.84	137.56	143.70	143.56	212.33	\$45.25
November '13	18.37	119.53	141.53	143.76	200.04	\$42.08
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
Jan. 16 - 22, '13	22.10	77.80	164.73	168.48	216.77	\$40.74

(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.

highest it has been since Hart Energy began compiling weekly NGL prices in 2000.

In addition to heating demand, Midwest prices have been driven higher by increased crop-drying demand for this time of year caused by a late corn harvest last year. According to the Energy Information Administration (EIA), propane inventories in the Midwest fell more than 2 million barrels (Bbl.) the week of November 1, 2013 based on the late harvest. This was the highest single-week stock draw in the month of November since 1993. Since early October, Midwest propane inventory levels have fallen by 12.8 million Bbl. as of early January.

NGL PRICES & FRAC SPREAD | Week in Review

“After the harvest, logistical problems prevented the region from fully replenishing inventories before the onset of winter,” a recent EIA research note said. These logistical challenges included the Cochin Pipeline, which delivers E-P mix from Canada to the Midwest, being down for maintenance for approximately four weeks in November and December. In addition, some rail transport was delayed during this time due to weather impacts.

Although E-P mix continued to trade at low volatility at Conway, the increase in propane demand saw ethane increase in value at both hubs. The Mont Belvieu price rose 19% to 35 cents per gallon due to its close relationship with propane. This was the highest price at the hub since it was 36 cents per gallon the week of August 8, 2012. This increase was largely driven by E-P mix as that price was 37 cents per gallon for the week compared to an average price of 32 cents per gallon for purity ethane at the hub. The Conway price of 20 cents per gallon was the highest since it was about the same level the week of October 23.

Margins remain thin for ethane at Mont Belvieu but firmly negative at Conway due to

gas prices improving as heating demand increased. Prices rose 5% at both hubs with the Mont Belvieu price up to \$4.49 per million British thermal unit (MMBtu) and the Conway price up to \$4.57 per MMBtu.

The only other NGL to experience a downturn in margin at either hub was Mont Belvieu C₅₊ despite a small uptick in price to \$2.08 per gallon. The margin was down 1% at the hub, but was still solidly profitable.

Overall, Conway had the more valuable theoretical NGL Bbl. for the week as it increased 15% to \$51.04 per Bbl. with a 20% increase in margin to \$34.34 per Bbl.

KEY NORTH AMERICAN HUB PRICES	
2:30 PM CST / January 23, 2014	
Gas Hub Name	Current Price
Carthage, TX	5.57
Katy Hub, TX	5.53
Waha Hub, TX	5.18
Henry Hub, LA	5.65
Perryville, LA	5.57
Houston Ship Channel	5.79
Opal Hub, Wyo.	5.04
Blance Hub, NM	4.93
Cheyenne Hub, Wyo.	4.97
Chicago Hub	6.73
Ellisburg NE Hub	3.56
New York Hub	24.43
AECO, Alberta	4.09
AECO, Alberta	3.81

Source: Bloomberg

to \$51.04 per Bbl. with a 20% increase in margin to \$34.34 per Bbl.

RESIN PRICES – MARKET UPDATE – JANUARY 24, 2014					
TOTAL OFFERS: 11,691,732 lbs		SPOT		CONTRACT	
Resin	Total lbs	Low	High	Bid	Offer
HDPE - Inj	4,068,004	0.75	0.8	0.69	0.73
LDPE - Film	2,593,416	0.74	0.83	0.75	0.79
PP Copolymer - Inj	1,638,184	0.82	0.9	0.805	0.845
PP Homopolymer - Inj	1,403,012	0.795	0.89	0.795	0.835
LLDPE - Inj	620,920	0.74	0.79	0.71	0.75
LLDPE - Film	574,736	0.77	0.79	0.69	0.73
HDPE - Blow Mold	449,092	0.735	0.785	0.69	0.73
LDPE - Inj	218,368	0.77	0.79	0.73	0.77
HMWPE - Film	126,000	0.775	0.775	0.72	0.76

Source: Plastics Exchange – www.theplasticsexchange.com

The Mont Belvieu Bbl. price improved 6% to \$47.60 per Bbl. with a 6% increase in margin to \$31.20 per Bbl.

The most profitable NGL to make at both hubs remained C₅₊ at \$1.60 per gallon at Conway and \$1.58 per gallon at Mont Belvieu. This was followed, in order, by propane at \$1.42 per gallon at Conway and isobutane at \$1.08 per gallon at Mont Belvieu; isobutane at \$1.09 per gallon at Conway and butane at \$1.02 per gallon at Mont Belvieu; butane at 98 cents per gallon at Conway and propane at 95 cents per gallon at Mont Belvieu; and ethane at negative 11 cents per gallon at Conway and 5 cents per gallon at Mont Belvieu.

Natural gas storage levels decreased 107 billion cubic feet to 2.423 trillion cubic feet (Tcf) the week of January 17 from 2.530 Tcf the previous week, according to the most recent data available from the EIA. This was 20% below the 3.021 Tcf figure posted last year at the same time and 13% below the five-year average of 2.792 Tcf.

Storage levels should continue to drop and gas withdrawals should remain strong according to the National Weather Service’s forecast for this week. The forecast is calling for colder-than-normal temperatures in much of the country, including the East Coast, Gulf Coast and much of the Midwest. Heating demand in the Southwest is expected to be lower as temperatures are anticipated to be warmer-than-normal for this time of year.



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Harper Says Keystone Studies Signal Obama Punting

BLOOMBERG

Canada is urging President Barack Obama's administration to make a decision on the Keystone XL pipeline amid signs of further delays in a final ruling on the \$5.4 billion project.

Prime Minister Stephen Harper said in an interview on January 16 that the U.S. move to seek more public comment suggests Obama's government may postpone a decision further, while Canadian Foreign Minister John Baird called on the U.S. to end the "state of limbo" over the project.

"How much consultation do you need to do?" Harper said in an interview in his Ottawa office. "It's clearly another punt."

The U.S. State Department will give the public a second opportunity to comment on the pipeline after an environmental impact review is complete, according to an agency official who spoke on condition of anonymity this week. The agency hasn't said how long it would accept public comments, though adding that step could delay a decision on the project that has been under U.S. review for more than five years.

"The challenges for Keystone are challenges of timing," Harper said. "The current administration continues to delay the decision."

The deferral threatens to increase tension between the U.S. and Canada at a time when oil-sands developers are counting on new pipelines to lift the price of Canadian crude.

"The time for Keystone is now," Baird said in a speech to the U.S. Chamber of Commerce in Washington, D.C. "I'll go further—the time for a decision on Keystone is now, even if it's not the right one. We can't continue in this state of limbo."

Still Waiting

U.S. Secretary of State John Kerry, speaking at a press conference with Baird and Mexican Foreign Secretary José Antonio Meade in Washington, said he's still waiting to receive the environmental impact statement.

"The public has a role in this," Kerry said. "We're all accountable to our publics. The democratic process demands that we do that."

Kerry said that "all the appropriate effort is being put into trying to get this done effectively and rapidly and my hope is that before long that analysis will be available. And then my work begins."

Both the White House and State Department declined to comment on Harper's remarks.

Analyst: Struggling Gas Prices May Create Opportunity for Oil

BY DARREN BARBEE | HART ENERGY



There is growing concern over an oil glut, but these fears are unlikely to take hold for a number of reasons, according to Simmons Co. International.

The prospect of Iran and Libya flooding the world with crude has oil investors a bit skittish as concerns mount that global crude capacity could tank prices for U.S. benchmark West Texas Intermediate (WTI).

Libyan production rose to around 600,000 barrels (bbl.) per day in the week ended January 10 – up from just 200,000 bbl. per day a few weeks earlier, National Oil Corp. data shows. That included 300,000 bbl. per day from the El-Sharara oil field which recently restarted.

While Libya's output remains fragile—in light of ongoing civil unrest—the returning production has been viewed as bearish for most global crude markets year-to-date, according to Bill Herbert, managing director and co-head of securities at Simmons Co. International.

Iran also agreed to curtail its nuclear program—at least for now—and allow more intrusive inspections in exchange for sanctions relief, which may ultimately result in additional crude on the market.

But in the wake of supply-glut fears, there could be opportunity since natural gas prices continue to struggle in the low-\$4 range per million British thermal units, said Bob Brackett, senior analyst for Bernstein Research. Brackett's view is that "oil supply in the U.S. will not increase to the level baked into market projections.

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“We believe upside potential remains with those companies that have core acreage in plays such as the Eagle Ford and Bakken,” he wrote in a January 13 research note.

And the best of the bunch, according to Brackett, includes Houston-based EOG Resources Inc. EOG has grown its oil production 43% annually for the past three years and could become the top U.S. crude oil producer by 2018. The company named Bill Thomas president and chief executive in July 2013, after he had served as president since September 2011.

But EOG Resources is trading down 15% from its 52-week high—prior to recent oil-price worries. With projected cash flow per share at 24% from 2015 and 2014, EOG stands to see a 35% upside—for a company with deep inventory, low costs, advantaged execution and quality management, Brackett said.

Although EOG holds 320,000 net acres in the Permian basin, including 113,000 in the Midland basin and 207,000 in the Delaware, the operator does not view it as the next Bakken or Eagle Ford.

Thomas, who is a geologist, said he has already “lived twice” in the Permian and this is his third time to work the area. The EOG executive doesn’t believe the reservoir will live up to the Bakken and Eagle Ford, noting its lower horizontal production than the Bakken or Eagle Ford when they were at the same level of development. While initial oil results appear promising, Thomas predicts the reservoir will quickly become gassier as the pressure declines.

Still, the company and oil industry are dealing with skepticism.

EOG and Brackett share the view that the market is overestimating coming U.S. crude production. The Bakken and Eagle Ford were the two major drivers of horizontal crude growth between 2005 and 2013, and account for 79% of current horizontal crude production.

The company plans to continue using rail assets to choose between WTI-based Cushing, Oklahoma, crude and the LLS-based (Light Louisiana Sweet) St. James, Louisiana, grade, despite narrowing spreads. Long-term, EOG said it expects the WTI-LLS spread to range between \$3 per bbl. and \$4 per bbl.

And while natural gas may be the fuel of the future, EOG remains unattached until at least 2018—the earliest LNG exports could begin—and hopes to drill “zero dry-gas wells in 2014.”

According to Thomas, gas prices would need to be about \$5.50 per thousand cubic feet in order to compete with oil for EOG’s capital expenditures.

Direct Energy Completes Sale Of Power Plants To Blackstone

Direct Energy completed the previously announced sale of three gas-fired power generation facilities in Texas to Blackstone.

The facilities, located in Bastrop, Mission and Paris, are part of the Electric Reliability Council of Texas’ North and South zones and total approximately 1,295 megawatts of capacity.

As part of the transaction, an affiliate of Direct Energy has entered into a three-year call option arrangement for an equivalent amount of capacity with Blackstone.

Shell Announces Sale Of Wheatstone LNG Stake

Shell agreed to sell its 8% equity interest in the Wheatstone-Iago Joint Venture and 6.4% interest in the 8.9 million tonnes per annum Wheatstone liquefied natural gas (LNG) project in Western Australia for a cash consideration of US\$1.135 billion to the Kuwait Foreign Petroleum Exploration Co. (KUFPEC).

Shell Chief Executive Officer Ben van Beurden said: “Shell will remain a major player in Australia’s energy industry. However, we are refocusing our investment to where we can add the most value with Shell’s capital and technology. We are making hard choices in our world-wide portfolio to improve Shell’s capital efficiency.”

The agreement with KUFPEC, an existing Wheatstone joint-venture partner, ensures there will be no impact on existing commercial agreements.

GE To Acquire Cameron Division

GE Oil & Gas and Cameron, a Houston-based provider of flow equipment, systems and services, announced that GE agreed to acquire Cameron’s Reciprocating Compression division for \$550 million.

The division provides reciprocating compression equipment and aftermarket parts and services for oil and gas production, gas processing, gas distribution and independent power industries. Cam-

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eron's reciprocating compression division, which generated sales of approximately \$355 million in 2012, has approximately 900 employees and operates from 20 global locations. The acquisition is expected to close later this year, subject to regulatory approval.

High-speed reciprocating compressors are used in several applications from gas gathering, gas lift and injection, as well as transmission and storage. The development of shale oil and gas fields, particularly in North America, increased demand for high-speed reciprocating compressors. As shale continues to develop in other regions of the world, such as Asia and South America, the acquisition will position GE to serve the industry globally.

After closing, Cameron's reciprocating compression division will become part of the recently formed downstream technology solutions business of GE's Oil & Gas in order to better serve the \$11 billion downstream and distributed gas segments. The new business is designed to deliver products, services and packaged solutions for both the traditional downstream and the evolving unconventional oil and gas space.

The acquisition complements GE's Oil & Gas' existing high-speed reciprocating (HSR) business, which focuses in low-horsepower units that are used predominately in gas lift applications. Cameron's reciprocating compression division portfolio complements GE's business by adding higher horsepower models used in gas gathering, processing and transmission.

Despite Freeze, Gas Inventory Unlikely To Dip Greatly

Despite frigid weather that prompted record U.S. natural gas draws, gas prices are likely to remain relatively subdued, reflecting the view that production can crank up to meet any demand, Goldman Sachs Group Inc. analyst Samantha Dart said in a report.

Even production freeze-offs that caused supply losses due to extreme low temperatures across the country were offset to pipeline imports from Canada, Dart said.

Taking into account current weather forecasts through January 31, the overall impact of weather deviations on inventory draws will add up to almost 600 billion cubic feet (Bcf), assuming normal weather in February and March. That would be 228 Bcf beyond Goldman estimates from mid-December. However, low-end predictions for March

inventory would eliminate the need for any price-induced coal-to-gas substitution in the summer.

"Although we believe this scenario would be consistent with a gas price level higher than our current \$4.25 per million Btu (MMBtu) forecast for 2014, and likely closer to \$4.40-4.50 per MMBtu, we prefer to hold off on changing our associated natural gas price forecast for now, given the weather uncertainty for the remainder of the winter," Dart said.

Even with the major impact of weather so far this winter, inventories are still far from a "stock-out" event, she said.

"It would take a rather steep drop in overall U.S. inventory levels to generate a spike in Nymex natural gas prices to oil price levels at \$15 per MMBtu or higher, with the inventory threshold for such a price response likely below 1,100 Bcf," Dart said.

Just how likely? Goldman Sachs worked out probabilities based on historical data.

But additional weather shocks in the February-March period could push inventory levels down to a point where a more significant increase in production is required during the summer.

Ending winter at 1,100 Bcf would still lead to sustainably higher prices during the summer. Prices would rise, at a minimum, to the \$4.50 to \$5.00 MMBtu – and potentially above, depending on how long it would take for gas rig counts to increase from current levels.

Getting to those prices could still prove to be difficult.

Growing supply and storage capacity has made for more flexibility in the gas system. In addition to surges in production, U.S. gas storage capacity has increased more than 700 Bcf since the 2002-2003 winter.

Lower volatility in Henry hub cash prices relative to Nymex natural gas also suggests a more flexible system with lower deliverability risks.

"We believe 1.2 Bcf/d of additional production growth beyond what we currently expect would be required to restore inventories to comfortable levels by October 2014," Dart said.

Mitchell To Join Devon Energy

Devon Energy Corp. announced that Thomas L. Mitchell will be joining the company as executive vice president and chief financial officer.

Mitchell brings to Devon more than 30 years of experience in the oil and gas industry. Most recently, after playing an instrumental role in taking Midstates Petroleum Co. public, Mitchell served as vice president, CFO and as a director of Midstates. From 2006 to 2011,

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he served as senior vice president and chief financial officer of Noble Corp. Prior to joining Noble, he was employed by Apache Corp. for 18 years in various financial and commercial roles.

In a related move, Devon's incumbent CFO, Jeff Agosta, is leaving to pursue other interests. His departure is not related to any issues regarding financial disclosures, accounting matters or other business issues.

Hunter Elected Chairman Of The Texas Pipeline Association

Southcross Energy Partners LP announced that Michael T. Hunter, vice chairman and chief commercial officer of Southcross' general partner, was elected chairman of the Texas Pipeline Association. He has nearly 40 years of experience in the energy industry, having held various management and board positions in several energy companies.

In addition to serving as the chairman of the Texas Pipeline Association, Hunter currently serves as the vice chairman of the Texas Energy Reliability Council.

Williams Partners Announce Changes To Board

Williams Partners LP announced changes to the board of directors of its general partner, Williams Partners GP LLC. Williams owns approximately 64% of Williams Partners, including its general partner interest.

Laura A. Sugg has been appointed to the board, effective January 17. Sugg succeeds Thomas F. Karam, who has served as a director since May 2012. Sugg, who previously served on the general partner's board between 2011 and 2012, will serve as an independent director on the audit committee. Formerly a senior executive at ConocoPhillips, Sugg

also will continue to serve on Williams' board of directors, which she joined in 2010.

Katulak Named President, CEO Of GDF SUEZ Gas North America



GDF SUEZ Gas North America named Frank Katulak as its new president and chief executive.

GDF SUEZ Gas North America named Frank Katulak as its new president and chief executive.

Katulak has been working in the natural gas and LNG industries for more than 30 years, with the last 15 years of his experience in GDF SUEZ's U.S. liquefied natural gas (LNG) business. Most recently, he oversaw the operations of the Everett Marine Terminal as president and chief operating officer of Distrigas of Massachusetts LLC. While in that position, he served as a key advocate of LNG's importance to the terminal's tradi-

tional Northeast customer base of gas utilities and power producers; to potential new retail LNG customers in the marine, trucking, and commercial-industrial sectors; and to the international market.

The company also named Eric Bradley as its new senior vice president of strategy.

In addition to heading the strategy function for the company, Bradley will also oversee acquisitions and financial analysis, communications, government and regulatory affairs, and new business incubation within GSENA.

Bradley has been with GDF SUEZ Energy North America since 2010, where he has been responsible for defining business priorities for GSENA's gas and power interests in the U.S., Canada, and Mexico.

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U.S. Chamber's Energy Institute Unveils Comprehensive New Energy Platform

The U.S. Chamber of Commerce's Institute for 21st Century Energy unveiled its comprehensive new Energy Works for US platform that reflects the new reality of America's energy revolution.

Energy Works for US consists of 64 specific, actionable recommendations in nine key areas. The plan will form the basis for the chamber's energy advocacy across the country in 2014 and beyond.

"America now has the opportunity to become an energy superpower, but our national energy policy is stuck in the past. The platform will allow us to realize our full potential," said Tom Donohue, president and CEO of the U.S. Chamber of Commerce.

The new platform provides a complete update to the Energy Institute's Blueprint for Securing America's Energy Future, which was released in 2008. America's energy and economic picture now looks much different, necessitating a new plan that reflects our current situation.

Energy Works for US would open up access to oil and natural gas resources on federal lands for production, further lowering the need for imports of these fuels. It also calls for an end to the regulatory assault on one of our most affordable and secure sources of energy by maintaining coal as an integral part of America's energy mix and investing in technology to make its use cleaner. And it would expand emission-free sources like nuclear and renewables and press for greater gains in energy efficiency.

Free trade in energy is another feature of the plan—for oil, natural gas, coal and nuclear technologies. The platform also addresses structural impediments that trap critical energy infrastructure projects in a maze of regulations and needlessly cumbersome permitting processes. And the platform highlights new, 21st century energy challenges, like the growing need for a more skilled energy work force and looming cybersecurity threats that demand a forward-thinking policy response.

"What separates Energy Works for US is the breadth of its recommendations—which cover a variety of energy sources and address a wide range of federal policies," said Karen Harbert, president and chief executive of the Chamber's Institute for 21st Century Energy. "In addition, our platform provides very specific, direct recommendations to actually implement the solutions we are proposing. We believe it's something the business community and the American people can rally around and use to influence lawmakers, some of whom have not adjusted to today's energy reality."

Industries, DOT Agree Prevention Is Key To Improving Rail Safety

After a January 16 meeting in Washington with Secretary of Transportation Anthony Foxx, federal regulators, and representatives from the railroad industry, API President and Chief Executive Jack Gerard made the following statement:

"Rail safety is vitally important. As Secretary Foxx said today, prevention must be part of our focus by keeping trains on the tracks and preventing rail accidents in the first place. Strong rail cars are an important part of the equation, but the first step is to address the root causes of rail accidents."

Gerald went on to say that API has supported the building of new cars that exceed federal standards since 2011. It is estimated that safer tank cars will make up 60% of the crude tank car fleet by 2015.

"The domestic energy revolution has given Americans a unique opportunity to take control of our energy future. Families and workers across the country are benefitting from new jobs, greater revenue to the government and our strengthening energy security."

The meeting was held to discuss ways to improve the safety of transporting crude oil by rail.

Clean Energy Opens First LNG Station In Florida

Clean Energy Fuels Corp. opened the first liquefied natural gas (LNG) fueling station in Florida. The company also announced the opening of its America's Natural Gas Highway stations in Pontoon Beach, Illinois; and Fontana, California to fuel heavy-duty natural gas trucks. The company also announced select deals in the transit and refuse sectors, building on its portfolio of natural gas fuel customers across the country.

Appalachian Resins Names Vice President - Marketing

Jim Cutler, chief executive of Appalachian Resins, announced that Harvey "Corky" Gilmore was named as vice president—marketing for Appalachian Resins, Inc. Gilmore will report to Robert Mifflin, Appalachian Resins' president. Gilmore has more than 30 years of

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experience in the petrochemical, commodity trading and midstream industries. He will be responsible for developing and implementing polyethylene off-take arrangements.

Old Is New

BY **MARK WEIDMANN** | SPECIAL TO HART ENERGY

As pump demand grows, pump manufacturers are having problems keeping up with demand from existing pipeline companies that need more capacity or are adding new pipeline operations. The midstream pipeline business is booming and pump manufacturers cannot keep up with the demand. Lead times are getting longer and longer.

To resolve this problem, many pipeline operators are turning to a new reality in the pump supplier business: remanufactured pumps. With the advent of sophisticated hydraulic engineering tools, a midstream operator can take existing pump inventory and capitalize on it by having pumps remanufactured to meet new specifications.

Similarly, many pump suppliers have an inventory of pre-owned pumps that can be remanufactured to meet an existing or new application. Whether the pump comes from a customer's inventory or from the supplier's inventory, the remanufacturing process is the same. The process addresses all aspects of the pump, including materials of construction, internal fits and running clearances and mechanical and hydraulic design.

One of the major benefits realized from using remanufactured pumps is the utilization of existing pump assets no longer required in original service. As sustainability and recycling become more dominant in corporate culture, reusing existing pump inventory can add to a company's economic and environmental portfolio. With the ability to have a remanufactured pump available in 12 to 18 weeks, a midstream pipeline operator is no longer subject to the longer delivery schedule of a new pump manufacturer—which can take as long as a year.

Surplus to useful

Whether it is a 4 kilowatt (kW) (5 horsepower) single stage unit or a 2,250 kW (3,000 horsepower) high-speed, multistage unit, a remanufactured pump can help achieve a fast turnaround. The challenge in the remanufacturing process is to remanufacture a pump from a used or surplus piece of equipment to something that will meet or exceed the mechanical, hydraulic and service life requirements of the end user.

Many midstream pipeline companies have new pump expenditures budgeted into their purchasing plans. So while cost might not

be a factor in the purchase of a new pump, the delivery schedule might be a hindrance.

Remanufactured pumps are also ideal to use if a pipeline needs more capacity or is changing over to other products. For example, if a midstream customer is looking to double the capacity of a pipeline, then pump flow needs to be doubled. A remanufactured pump can be supplied, tested and delivered in a shorter lead time. Most remanufacturing companies will accept a used pump as a trade-in toward a newly remanufactured pump.

To fully understand the benefits of a remanufactured pump, it is important to note the distinction between a remanufactured pump and a repaired pump. A remanufactured pump is not just a repaired, used piece of equipment with a new coat of paint. Within the remanufacturing process, repairs are commonly made to renew certain parts, but the overall process is very comprehensive and involves much more than just repairing or replacing parts.

The remanufacturing process starts with a surplus pump that is repurposed for new or existing service. Some pumps may require only minor upgrades while other pumps may require complete refurbishing of major components. In either case, the goal of the remanufacturing process is to return all pumps to like new condition.

The process

Each pump selected for remanufacturing goes through several steps before it is deemed ready for use. These steps include: disassembly, inspection of all parts including case/barrel, impeller, shaft, bearings and bearing housings and wear parts; engineering review including hydraulic design evaluation, pump construction and manufacturing routing assembly; and performance testing.

- **Disassembly**—The disassembly procedure is a critical step in the remanufacturing process. During disassembly, important information is collected that will ensure the pump selected is correct for the intended service. Care must be taken to avoid damaging any components that may be used in the manufacture of the new pump. After initial inspection, the pump is dismantled for cleaning.
- **Inspection**—During this process, critical dimensions are inspected for size, concentricity and overall condition, and critical components are inspected. These components include the case/barrel, impeller, shaft, bearing housings, bearings and wear parts.

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SNAPSHOT | Industry Insight

IHS: Lower Gas Prices Could Lead To Increased Vehicle Fuel Switching

BY JACK PECKHAM | HART ENERGY

A new report by energy consulting group IHS predicts that U.S. retail natural gas prices would average about half the price of U.S. retail diesel or gasoline from now until 2035—providing an incentive for more heavy-duty vehicles and (eventually) passenger cars to switch to compressed natural gas (CNG) or liquefied natural gas (LNG).

“Low natural gas prices resulting from the development of unconventional gas resources in North America will hold for the long term, creating opportunities to expand the economic benefits and cost savings to consumers through greater direct natural gas use,” according to IHS.

The report, “Fueling the Future with Natural Gas,” predicts that the U.S. Henry hub wholesale price of natural gas is expected to remain in the range of \$4 to \$5 per million British thermal units (mmBtu) in constant 2012 dollars on an annual average through 2035.

“IHS expects that [U.S.] residential natural gas prices (which include the cost of gas plus the costs of transmission and distribution) will remain below \$11 per mmBtu (constant 2012 dollars) on average for 2012-2035,” according to the report.

“The projected retail costs of gasoline and diesel fuel will be approximately twice the natural gas price on a Btu-equivalent basis. Such a sustained price differential will help to increase the attractiveness of natural gas as a transportation fuel,” according to the consultants.

However, other energy forecasters foresee a decline in global crude-oil prices over the coming decade, while natural gas prices are expected to increase. This would undercut the rationale for fleets to switch from diesel to natural gas.

“The [U.S.] market potential for NGVs [natural gas vehicles] is quite large,” according to the study. “However, the actual market penetration of natural gas into the [U.S.] transportation market is very small at present. Of the 230 million LDVs [light-duty vehicles] on the [U.S.] road in 2012, only an estimated 100,000 were fueled with natural gas. A number of challenges face natural gas in penetrating the LDV market. These include high up-front costs, limited refueling facilities, limited driving range, uncertain vehicle resale value, limited consumer awareness, limited manufacturer supplier base, rapidly increasing fuel efficiency standards for new vehicles and an absence of policy support.

“Prospects are brighter for natural gas penetration of the HDV market, where the high vehicle-miles traveled reduces payback times



More vehicles could switch to CNG and LNG as natural gas supplies increase and prices remain low.

to three years of less given the expected lower cost of LNG fuel as compared to diesel fuel costs.

The report noted that LNG fueling infrastructure is in its infancy, with 66 stations providing LNG as of February 2013, but this was expected to double or even triple by the end of 2013.

“IHS estimates that fewer than 250 [LNG] fueling stations would be needed to blanket the U.S. lower-48-states’ entire interstate system at 300-mile intervals. This represents a required investment of \$250 million to \$375 million, at a cost between \$1 million to \$1.5 million per station minimum.

“By locating stations where interstates cross, this investment could be considerably lower.

“IHS estimates that HDV consumption of natural gas in the U.S. could grow to more than 4 billion cubic feet per day by 2035.”

That would represent about 7% of the total U.S. vehicle fuel volume in 2012, but less-than 7% of the expected U.S. vehicle fuel volume in 2035.

According to the consultants, “about 900 trillion cubic feet (Tcf) of unconventional gas resources—nearly one-third of the total recoverable resource base—can be produced economically at a Henry hub price of \$4 per thousand cubic feet (Mcf) or less.

“Natural gas use in transportation—currently in its infancy—represents a high-potential growth area, particularly in terms of trucks. Oil’s dominance in the on-road vehicle market is more vulnerable to competition from natural gas vehicles (NGVs) than at any other time due to a wide price difference between oil and natural gas that is expected to continue,” according to the study.

LEAD STORY | From The Front

Continued from **Page 1** growth project pipeline will likely be ascribed relative valuation discounts by investors, who will likely pay a sizable premium for growth in an environment where interest rates are likely to increase,” the report said.

The investment firm anticipates that LPG exports will remain the primary solution to lessen the storage overhang and help balance the market with approximately 270,000 barrels (Bbl.) per day of LPG exports expected in 2015. The biggest possible headwind facing LPG exports is the possibility of so many new projects resulting in overcapacity, but this is a small possibility since demand is increasing in Latin America and China.

Although the U.S. has the most integrated midstream network in the world, the actual logistics of this system require new infrastructure due to production flow changes. These changes are pushing out Canadian and LNG imports and increasing the need for transportation capacity from new basins to both new and established end-use markets and hubs, as well as increased capacity to export volumes to Mexico and to other markets via LNG terminals.

While there have been 20 total projects seeking permission to export LNG to countries without U.S. Free Trade Agreements (FTA), thus far only Cheniere Energy’s Sabine Pass has received approval by both the U.S. Department of Energy (DOE) and the Federal Regulatory Energy Commission (FERC) to export LNG to non-FTA countries. Additionally, the Freeport LNG terminal, Lake Charles LNG terminal and Dominon’s Cove Point terminal all received DOE approval, but await FERC approval.

“We believe that the DOE will take care in the speed at which it gives approvals judging the cumulative level against the criteria set out in its study scenarios. We opine that the DOE may limit approvals to 10% of average U.S. natural gas production, currently running close to 75 billion cubic feet per day, as the DOE may want to evaluate the impact of exports on pricing,” the report said. Under such a scenario, UBS anticipates one or two more export licenses being granted before DOE pauses to review the impact of LNG exports.

In this case, the amount of U.S. LNG available on the global market will not be large enough to have a notable impact on prices. “As U.S. natural gas prices sit well below international prices, many expect North American exports to change the pricing dynamics of the global industry. However, we believe Henry hub pricing equilibrium to be above current levels and in the future the pricing advantage will not be that substantial,” the report said.

UBS estimates that Henry hub prices will increase from an average of \$2.79 per million Btu (MMBtu) to an average of \$5.50 per MMBtu from 2016 to 2020. The U.K. price is expected to increase from an average \$9.37 per MMBtu in 2012 to \$10.35 per MMBtu from 2016 to 2020. Tariffs, capacity charges and shipping costs will add to the price and lessen the profitability of exports. The European contract price differential is expected to drop even further as the average price is forecasted to fall from \$13.84 per MMBtu in 2012 to \$11.46 per MMBtu in 2020. LNG exports will still remain attractive to investors, but the market may not be as robust as anticipated.

LPG export capacity will increase in the coming years and UBS anticipates more projects to focus on exporting other NGLs, including ethane and C5+. In the past year, propane exports have increased by 74% while butane exports have increased by 18%, which has helped to push their domestic prices upwards.

“Ethane supply/demand presents one of the largest infrastructure challenges in the U.S. Ethane has typically represented 42% of the NGL bbl. and with the switch to directional drilling, ethane production has surged despite few places for it to go.”

Currently the bulk of the excess ethane production is being rejected back into the gas stream and pipeline networks via waivers. According to the report, the ethane issue will be resolved through the construction of new steam crackers, possible exports, continued rejection and using boilers in place of gas in the power process.

The investment firm anticipates new crackers increasing incremental ethane demand by 100,000 bbl. per day from 2013 to 2015 and an additional aggregate of 600,000 bbl. per day by 2020 when it is likely to reach equilibrium.

While ethane is currently taking place through LNG exports, there are multiple headwinds facing the increase of such exports. “There would [need to be] extensive multi-year capex...to convert crackers to ethane, whereas using more propane would involve limited capex. To shoulder a large capital burden, the companies would likely require a long-term pricing contract to ensure project returns. While the mathematics of exporting ethane could be interesting, the complexities lead us to conclude that increasing propane consumption is likely the route forward for European chemical companies,” the report said.

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