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Will The 'Circular Economy' Be Unbroken?

By Paul Hart, Hart Energy

Amy Myers-Jaffe: "Already, we're exporting 3½ million barrels per day of petroleum products. The politics is going to change so that we will become globally competitive" in other energy products, including NGLs, LNG and crude oil.

SAN ANTONIO – The energy industry faces a major challenge from an environmental movement determined to sharply reduce—if not end—the use of hydrocarbon fuels, according to author and researcher Amy Myers-Jaffe.

"You don't think like the millennials on energy," she said in her keynote address to the 94th annual Gas Processors Association convention on April 13. "The most powerful part of the movement is consumer

activism" that seeks total use of renewable energy and consumer products—"a circular economy" in which waste and pollution are minimized—even at the cost of economic advancement.

"This is going to become a big feature" in future years, she cautioned the audience of more than 2,400 midstream business leaders.

The circular economy emphasizes biological sustainability, an approach opposite to a traditional linear economy in which resources are found, put to use in an economic system and then disposed. An author and contributor to various news organizations, Myers-Jaffe is now executive director for energy and sustainability at the University of California-Davis. Previously, she was with Rice University's James A. Baker III Institute for Public Policy.

In a wide-ranging address, she compared current world events to predictions she made in a keynote speech at GPA's annual meeting in 2005. "I got out my old computer to look up what I said," she added with a laugh.

Some of her points proved to be correct, for example noting at that time that upstream independents were outspending the majors and super majors on exploration and production.

"At the time, a lot of people said that doesn't matter because the independents didn't have a large role in the industry," said. However, the independents led the breakthrough in development of the unconventional shale plays in North America—something that has fundamentally changed the world energy business.

Another point she made 10 years ago was the historic but growing conflict between the Sunni and Shia sects of Islam in the Middle East. The conflict currently plays out in proxy wars in Yemen, Syria, Iraq and elsewhere between Sunni Saudi Arabia and Shiite Iran.

But the researcher admitted to missing some points a decade ago, such as projecting continuing increases in energy prices into the foreseeable future. The 2008-2009 recession and the current commodity price downturn proved that view to be incorrect.

Instead, "there is a pattern of [energy] industry cycles that go back to the 1800s," she said. "We're seeing it again today, connected to the current global cycle."

There are four causes of these cycles: War, drilling and completion technology breakthroughs, demand destruction due to greater efficiency and price wars caused by producers trying to control the oil market. All four are in play currently, Myers-Jaffe noted, adding humorously that "we're caught between Iraq and a hard place… The result is we're working out of a rather large supply bubble now."

She noted the continuing move of financial markets and equity providers into the oil and gas business appears to be countercyclical but isn't. Rather, it's simple rebalancing of portfolios "that is misread as bullish, they're just recalibrating." But private equity providers seem to be "still optimistic and are putting money into the shales," which probably currently are proving to be more profitable than many projected, despite the current price environment.

Myers-Jaffe said North America's unconventional shales are not the high-cost plays many say they are. Rather, the energy businesses in Australia, Brazil and Russia have higher costs and will suffer the most because of low commodity prices.

"Already we're seeing Venezuela and Russia under pressure. It's clear the U.S. is not going to lose the most," she added.

The U.S. can emerge as a major energy exporter, she said. "Already, we're exporting 3 ½ million barrels per day of petroleum products. The politics is going to change so that we will become globally competitive" in other energy products, including NGLs, LNG and crude oil.

But she cautioned not to discount the nation's environmental movement and its goal of a circular economy without hydrocarbon fuels. She noted the defeat of the Keystone XL Pipeline was a must-win for an environmental movement that felt betrayed when President Obama—who environmentalists supported heavily in the 2008 election—instead turned his attention to health care. Killing Keystone XL was necessary to prove the movement still has significant political clout.

"Pipeline issues are just a litmus to a broader, no-oil agenda," Myers-Jaffe added.

The environmental lobby does have some selling points. She noted a recent study by UC-Davis researchers on her personal car, a gasoline-electric hybrid, determined 99% of her personal driving could be handled by the car's batter power alone without using its gasoline-powered engine.

She told the GPA audience to watch for new environmentalist tactics, such as using local politics for environmentalist goals. "You're going to see continued focus [locally] on pipelines because it has been successful."

Another strategy, just emerging, focuses on divestment in energy stocks by pension plans and investment funds because "they want to remove capital from the equation," she noted.

"No oil will be next… and if we don't change the economy all we will have is shortages," she added.

Keep that no-hydrocarbon, circular-economy goal in mind, she cautioned. Some 5% of the world's oil and gas production goes to plastics. That may grow as the U.S. increasingly moves into ethylene cracking "while other markets are trying to eliminate plastics… this is going to become a big feature. It will affect the demand side" she said.

Will some sort of circular economy occur as the environmental lobby flexes its political muscles? The remains to be seen, Myers-Jaffe said, adding "Maybe I can come back [to the GPA conference] in 10 years with more data on a circular economy."

The New Behemoth On The Block

By Brian Mothersole, Hart Energy

LNG tanker *Kari Elin*, part of the BG LNG asset base that spurred interest from Shell. *Source: BG Group*

In a calculated move, Royal Dutch Shell Plc (NYSE: RDS-A) has thrown its chips on the table. BG Group Plc (OTC:BRGYY, LSE: BG.L) is up for grabs, and it looks like the international oil and gas major will absorb the smaller company in what analysts are predicting might be a wave of new M&A spurred by the lower price of oil.

On April 8, Shell and BG jointly announced a takeover bid to the tune of 47 billion pounds (US$70 billion) in cash and shares. According to the terms of the deal, Shell will pay a value of 1,350 pence per BG share, with 383 pence in cash and 0.4454 of its own B shares. The value represents a premium of 52% on the 90-day volume-weighted average trading price.

LNG A Priority

In addition to synergies and the jewel of deepwater assets off the coast of Brazil, Shell listed LNG as one of the primary factors that led them to the offer.

“I think we will be an absolutely marvelous company when it comes to LNG,” Shell CEO Ben van Beurden said at the presentation explaining the move to investors.

With the acquisition, Shell will increase its equity liquefaction capacity by about 80% from its 2014 position to 45 million tonnes per annum (mtpa) by the end of 2018, when all of the terminals under construction will be finished.

Both companies saw this merger as the acceleration and aggregation of future delivered value.

"The combination of our two businesses is a powerful one, which has sound strategic logic," Andrew Gould, chairman of the board at BG, said. "BG's deepwater positions and strengths in exploration, liquefaction and LNG shipping and marketing will combine well with Shell's scale, development expertise and financial strength. In the low price environment that this industry is facing, there is strength in scale."

Scale

Indeed, the new combined entity would be the single largest liquefaction behemoth in the world, almost doubling the next biggest, Exxon Mobil Corp. (NYSE: XOM). Shell currently has positions in Australia at the North West Shelf and Pluto facilities. In Asia, it has significant capacity in Brunei, in Malaysia and at Sakhalin in Russia. Oman and Qatar offer even more LNG, and Nigeria, Trinidad and Tobago and Peru plants round out a truly world-wide portfolio of projects that delivered 34 mtpa last year. BG would add to that portfolio with existing equity capacity from Queensland Curtis LNG in Australia, Egyptian LNG and SEGAS LNG in Egypt and further capacity in Atlantic LNG in Trinidad and Tobago and Nigeria LNG.

What's truly fascinating, however, are the future options the acquisition of BG gives Shell. Shell already is constructing several more projects that will come online in the near future; there is 15 mtpa under construction as part of the proposed 20 mtpa Gorgon LNG project in Australia. Shell is expected to bring the 3.6 mtpa floating LNG vessel *Prelude* to join the party in Australia by the end of 2017, which is already a significant addition to its portfolio, but BG adds further geographical and numerical advantage. BG has the much-touted first mover advantage capacity contracted through tolling agreements with Sabine Pass LNG, which is expected to come online around the turn of the year, and notably, BG has a foothold on the development of Tanzania LNG, which is racing with southern neighbor Mozambique's projects to develop the astounding East African offshore gas fields. BG could help Shell consolidate and move forward in British Columbia, as both companies have proposed liquefaction projects there, and undoubtedly the Lake Charles, La., project, which has not yet taken a final investment decision (FID), offers some potential value to Shell, if it is able to make it through the race of other North American projects.

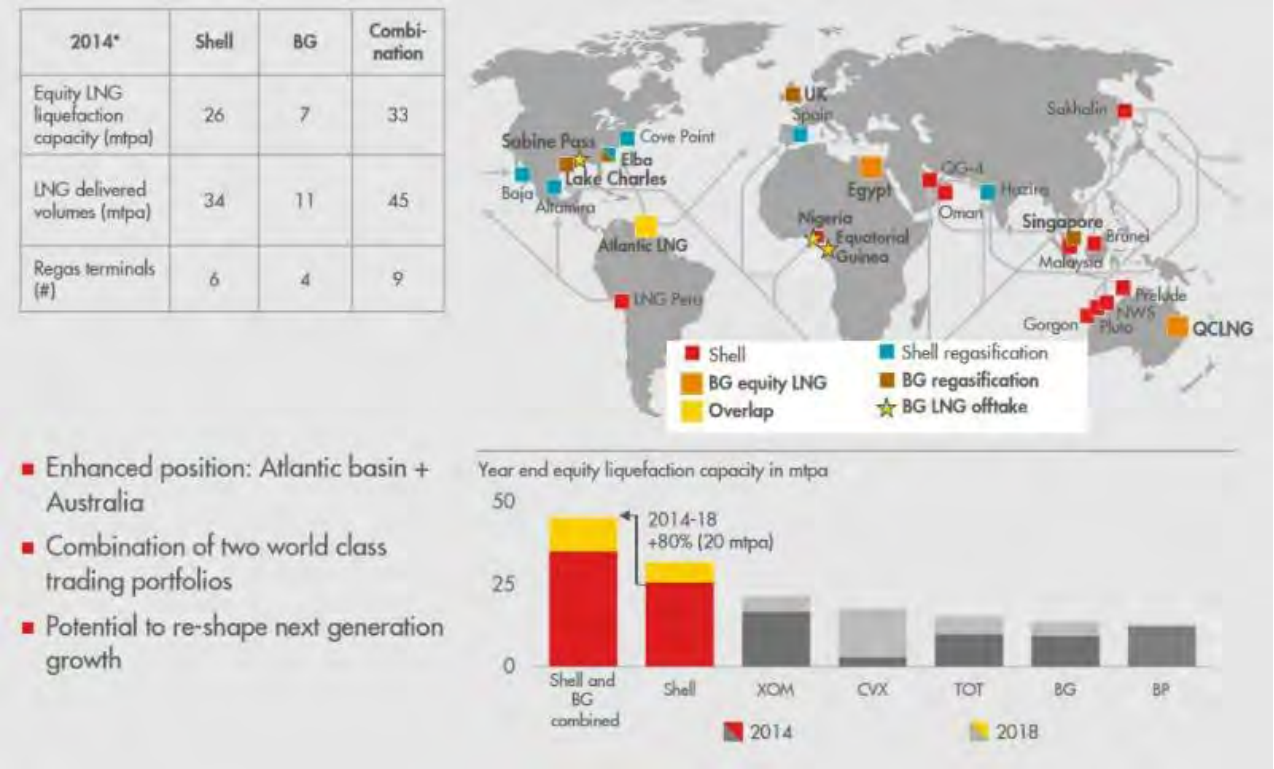
Leaders at the companies believe the new combined business will benefit from the breadth and scale of the enterprise.

"Of course we will be significantly enlarged," van Beurden said, "when it comes to the equity production we have. We will be significantly enlarged at the market outlets that we have."

"Fundamentally," he continued, "and this is where scale really helps, we will now have a long list of supply points and a longer list of demand points, much more optionality to trade in that portfolio, and that's where the real value sits, because as I said earlier, this is a scale business. Our ability to basically reconfigure that portfolio in a dynamic way, the ability to use that portfolio to also launch new projects—that basically is where the extra value comes from."

Future Projects

So, where to go from here? During the presentation to analysts, Shell CFO Simon Henry gave some indication of what next steps the company might take as it considers future FIDs in potential worldwide liquefaction projects.



2014*	Shell	BG	Combi-nation
Equity LNG liquefaction capacity (mtpa)	26	7	33
LNG delivered volumes (mtpa)	34	11	45
Regas terminals (#)	6	4	9

Source: Royal Dutch Shell Plc

First, he highlighted additions to brownfield projects, pointing out opportunities in Sakhalin, Nigeria and Gorgon. However, he also said that sometimes while they may be "the most attractive," they are also "likely not the most available," as those ventures are effectively not controlled by Shell.

Going forward, Henry said Shell would favor projects under their control that would give them diversity of supply, a lower capital cost per unit and the right timing. Under those strictures, he labeled Tanzania and Lake Charles as important opportunities, along with Shell's Elba Island, which is "partly in flow," LNG Canada, which has reached its FEED stage, and potentially, the floating projects Browse in Australia and Abadi in Indonesia.

"Those are the key opportunities," Henry said. "Clearly the cost inflation of recent years and the recent oil price fall has led to the reassessment of all of those projects in one way or the other, but I can't actually tell you where all of that will come out, but the key drivers will be brownfield to the extent we can, operative opportunities because they're under our control and most importantly, getting the capital cost down to a level that is robust through cycles."

Repsol LNG

This is not the first time Shell has acquired a smaller energy company with a robust LNG focus. In January last year, Shell announced it had completed the year-long process of integrating Repsol LNG, which delivered volumes from Peru LNG and Atlantic LNG.

"We've integrated the 2013 Repsol LNG acquisition last year," van Beurden said, "which delivered over $1 billion of cash flow in 2014, ahead of Shell's expectations for that deal, and this gives us confidence of a successful integration of the BG portfolio."

Commentary

Analysts have been piling on their predictions and two cents' worth.

Tudor, Pickering, Holt & Co. (TPH) wrote to their clients in a note, "[the deal] is a conscious decision to de-emphasize U.S. shale and to stick to its strengths (deepwater/LNG). It sets Shell apart from the other super-majors by ensuring long-term growth in upstream production but also in terms of LNG volumes. It gives Shell higher oil price gearing and makes it more of a bet on higher oil prices and LNG prices."

TPH thought the deal would be positive for BG's Lake Charles project. "We view BG's LNG growth as a primary motivator for Shell, with Lake Charles standing as the self-proclaimed lowest cost option in the portfolio. Deal a net positive with Shell's existing platform and balance sheet helping project reach FID."

WoodMackenzie noted, "Shell will have unrivalled flexibility and exposure to virtually every major LNG supply source and market globally, which means significant scope for portfolio optimization. The move re-energizes Shell's LNG development pipeline, adding a leading U.S. position, entry to East Africa, and new options to expand an already giant presence in Australia and Canada."

Simmons and Co. thinks the deal "makes immense strategic sense for Shell, if one takes a long-term view on LNG markets and commodity prices. The acquisition will create an LNG behemoth with unmatched scale and flexibility."

The *Wall Street Journal*'s Energy Journal newsletter said the move could provoke a reaction from ExxonMobil, a suspicion that was shared by many other analysts in the sense that the other giant could offer a more attractive offer or go for another, smaller company equal in heft to BG. The Energy Journal also thought that the merger was a bet that Asia and developing countries would continue to rely on natural gas instead of coal.

Whatever other future moves the industry may see from other companies, there stands a new, bigger behemoth around the block, and he has significant added value oriented around LNG.

US Ethane Ready To Go Global

By Frank Nieto, Hart Energy

New above-ground tanks to store ethane and propane, part of the Mariner East 1 project, are under construction at Sunoco Logistics' Marcus Hook Industrial Complex in Marcus Hook, Pa. ***Source: Sunoco Logistics Partners LP***

It would be unfair to call the current approach to handling U.S. ethane an exit strategy, but there is no doubt that the record production levels caused by the development of shale plays requires volumes to "escape" the domestic market.

Though exports of LNG, LPG and condensate have received most of the public's attention, the exporting of domestic ethane might have the largest impact on any single U.S. energy market in the coming years.

While other NGL markets have experienced price improvements in the past two-plus years, ethane prices have consistently traded in the 20 cents per gallon (gal) or lower threshold since the fall of 2012. Some of the downturn is related to cracker turnarounds and expansions, but the primary challenge is the vast amounts of ethane being produced and put into storage.

Light in the tunnel

Though the ethane market has been unprofitable for years, margins turned theoretically positive at both the Conway, Kan., and Mont Belvieu, Texas, trading hubs in late January/early February for the first time in more than year. They had been negative for most of the past two-and-a-half years—but there is light at the end of the tunnel.

The impact of long-term ethane rejection throughout the country is starting to pay dividends as ethane prices have held firm throughout the downturn in crude, gas and other liquids prices.

"The amount of ethane being rejected is certainly helping to balance the market," Peter Fasullo, principal at En*Vantage Inc., a Houston-based advisory and energy investment firm, told *Midstream Business*. "We've seen inventory declines over the last few months, and I think these declines are going to continue for the next several months."

Though exports will become more important in the years to come, Warren Wilczewski, industry economist with the U.S. Energy Information Administration's office of petroleum, natural gas and biofuels analysis, told *Midstream Business* that rejection is currently serving as the primary source of balance in the market.

"When it comes to ethane, rejection is *the* balancing mechanism at the moment," Wilczewski said. "The question, therefore, is not whether rejection has had an impact on balancing the market, but rather to what extent the mismatch between the rate of supply growth and demand growth drove producers to reject ethane into pipeline gas in order to balance the market," he said.

Given the size of this rejection—about 500,000 barrels per day (bbl/d)—there is still much more work to do to achieve true market equilibrium as this production is still more than what the domestic petrochemical industry can consume.

Ethylene demand

Even as the U.S. petrochemical and manufacturing industries increase demand for ethylene, and cracking capacity has been operating at near or full rates since the end of 2014, the industry will not achieve balance until 2018, according to Fasullo. This is when new crackers are will be brought online and will increase capacity by 600,000 bbl/d. The increase in export capacity and optionality between now and 2016 will be nearly as important an event for the market.

For decades, the U.S. has been a net importer of hydrocarbons, but the shale revolution is quickly changing this landscape.

The first talk of hydrocarbon exports was of LNG, though these terminals, which take years and billions of dollars to build, or to turnaround existing facilities, are just preparing to come online now. Instead, the first U.S.-produced hydrocarbon to really dip its toe into the export market was propane.

Propane was experiencing a similar storage overhang in the fall of 2013 to the one currently experienced by the ethane market. The propane market was quickly balanced and, for a time, undersupplied in the winter of 2014 with frigid temperatures around the U.S. There was also increased demand from Asia and Europe that saw export volumes rise.

While exports will have a major impact on ethane prices, there is little chance that ethane exports will have a similar ramp-up in value since propane can be exported both by pipeline as well as very large gas carrier ships to terminals around the world. Though ethane can also be transported in these ways, there aren't as many import terminals that can accept waterborne exported ethane as can LPG. Consequently, the primary destination for ethane exports will be to Canada via pipeline.

Between Sunoco Logistics' Mariner West pipeline from Houston, Pa., to Sarnia, Ontario, and Pembina Pipeline Corp.'s Vantage pipeline from Tioga, N.D., to Alberta, there will be more than 100,000 bbl/d of ethane shipping capacity added from the U.S. to Canada.

"I think waterborne exports are going to start off niche since very few crackers in Europe or Asia can crack ethane. It will require those crackers along the coast that have the economies of scale that can spend capital to build ships and the logistics to receive the ethane and revamp their plants," Fasullo said.

The infrastructure problem

"There's just so much infrastructure that has to be built for waterborne ethane exports to grow," he continued. "So it's not going to be as extensive as LPG exports anytime soon. I'd be very surprised if the marine export market for ethane is above 250,000 bbl/d by 2020. We could easily be above 1 million bbl/d of propane exports by that time."

While European ethane exports will come online first, the Asian market may be larger despite the longer journey since companies are considering using ethane as both a fuel and a petrochemical feedstock. In addition, India's Reliance Industries Ltd. is building a world-scale ethane cracker at its Jamnagar petrochemical complex in Gujarat. The company will ship 1.5 million tons per year of ethane from its U.S. shale joint ventures in the Marcellus and Eagle Ford to the facility.

The size of the Marcellus-Utica means that ethane extraction from the region could grow up to 600,000 bbl/d by 2020, according to Fasullo. This would provide enough ethane to support both waterborne and pipeline exports by itself.

The companies with the most to gain from the nascent ethane export market are Sunoco Logistics and Enterprise Products Partners LP, which are both set to begin operations of waterborne ethane export terminals in the next two years.

Mariner East

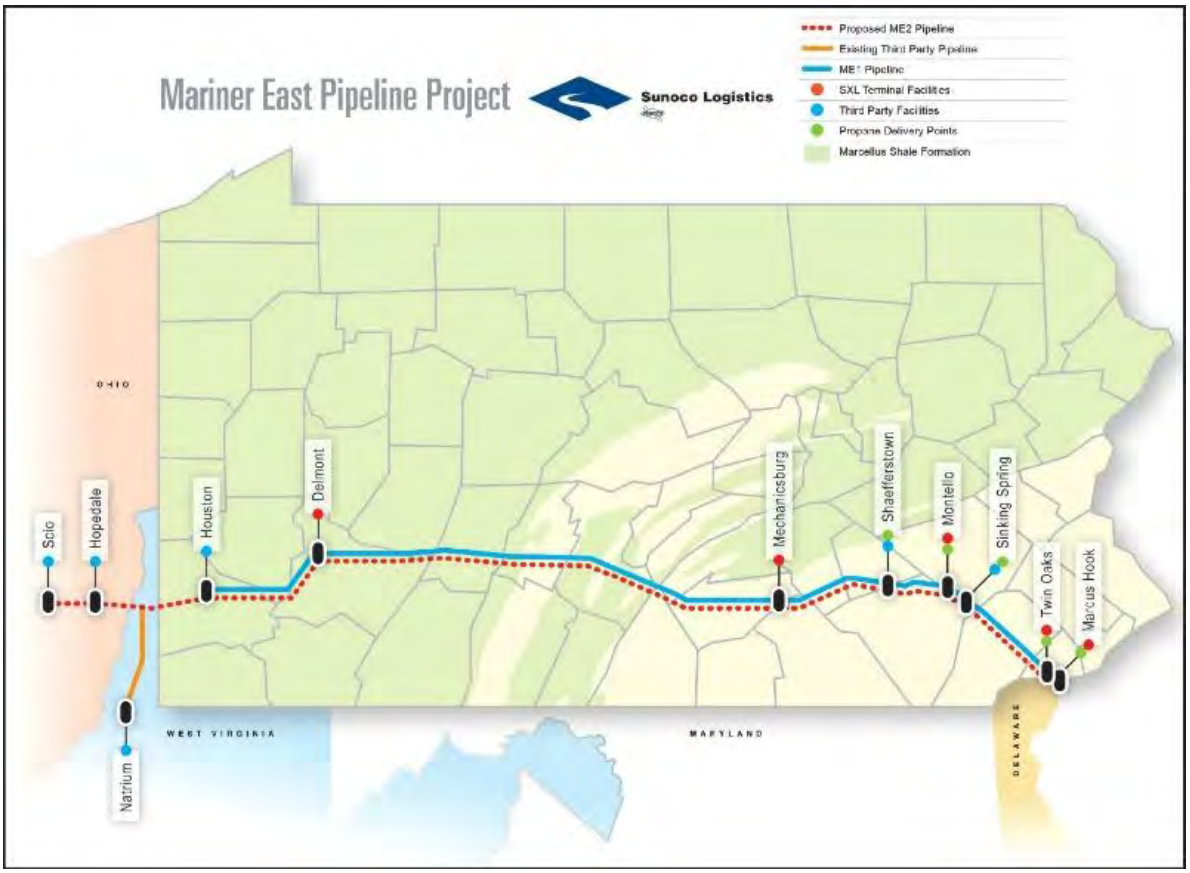
Sunoco Logistics' Mariner East project includes a 70,000 bbl/d ethanepropane terminal at its Marcus Hook, Pa., complex along the Delaware River outside of Philadelphia. This terminal has been shipping LPG since secondquarter 2014 and is scheduled to begin shipping both ethane and propane in the second-half of this year.

Enterprise Products Partners is building the largest ethane export terminal in the world with a 240,000 bbl/d capacity along the Houston Ship Channel. The effective capacity is 200,000 bbl/d, the 240,000 bbl/d capacity is the loading rate if ships moved around the clock. The project is scheduled to come online in the third quarter of 2016.

Similar to pipelines, both projects are already nearly fully subscribed for capacity on long-term contracts. In addition, Enterprise's ATEX Pipeline will provide 190,000 bbl/d capacity to transport ethane from the Marcellus to the Gulf Coast once it is at full capacity in 2018. The pipeline began running

at reduced capacity in early 2014; however, a rupture on the line in January caused Enterprise to run the system at reduced pressure and rates.

The 2018 time frame for the market to rebalance depends upon crude prices returning to the $80 to $100 per bbl level, according to Fasullo.



Sunoco Logistics' Mariner East project includes a 70,000 barrel per day ethane/propane terminal at its Marcus Hook, Pa., complex along the Delaware River outside of Philadelphia. ***Source: Sunoco Logistics Partners LP***

"If crude prices were to stay at current levels for an extended period of time, then it becomes real challenging to try to forecast exactly when things get balanced. Drilling would drop dramatically, which could affect the amount of gas that plants process, therefore the amount of ethane that can actually come on the market. On the other side of the coin, you don't have the economics to export ethane in a very low crude price environment. It's a little bit more challenging to know what side is going to get hurt the most, whether it's going to be supply side or the demand side," he said.

Wilczewski added that there are other factors to consider in terms of market rebalancing once this new infrastructure is brought online, but that price would indeed be the deciding factor.

Ethane as a feedstock

"The ability for the market to rebalance will depend on a variety of factors, including the desirability of ethane as a feedstock by the end of this time period," Wilczewski said. "In addition, there are a wide range of available options for ethane recovery: plant-level decisions to recover more and reject less ethane, the construction of infrastructure to bring ethane currently stranded to the consuming region, investment in more deep-cut plants capable of higher ethane recovery rates and development of resources that yield higher ethane fractions. All of these options are highly dependent on ethane economics. Therefore, a rebalancing can take place at various levels of supply and demand and is highly dependent on price."

In the years ahead, nearly every NGL will look to exports of some kind in order to bring equilibrium to their market. This will usher in the largest change since the shale revolution as U.S. energy markets have traditionally been disconnected from global markets. Moving toward a system that is increasingly international in scope is a huge change as balance will depend on West Texas Intermediate and Brent crude prices and arbitrage prices in the LNG, LPG and ethane markets.

"We need to get back to a certain level where our shale plays are consistently turning out supplies, that we are a lower cost supplier of energy than what you see in Europe or in Asia, so that arb is wide enough that it maximizes our export capability," Fasullo said.

The development of new supply basins serving as the primary source for ethane, specifically the Marcellus-Utica, creates a new challenge for margins as transportation and fractionation (T&F) fees are also increasing. This will require prices to be higher to reach positivity.

Gulf Coast prices

"As much as 40% of NGL supply could be sourced from the Marcellus-Utica, Bakken and Rockies," Fasullo said. "These are the plays that are located the farthest from the market, and they have very high T&F fees that could be between 20 cents and 30 cents per gal," Fasullo said. This would require the ethane frac spread on the Gulf Coast to be above 30 cents per gal to encourage the extraction of ethane supplies down from the Bakken, which should represent the most marginal supply of ethane.

However, it is important to note that there is no absolute when it comes to NGL prices and frac spread margins, especially when it comes to ethane, Wilczewski said.

"Even in years when ethane was priced significantly above natural gas, we still had pipeline gas at 1,018 to 1,023 Btu per standard cubic foot (scf), and that's not pure methane. Methane is about 1,010 Btu per scf, so if you just had methane plus some CO2 and nitrogen, which always make their way into the pipeline, you would have gas below 1,000 Btu. We haven't seen Btus at those levels in decades. There is something else in the stream adding value, and that component is generally ethane. This means there is a lot of ethane moving around gas pipeline systems, and it's up to producers whether or not they choose to recover it," Wilczewski said.

Navigator Holdings reached an agreement to transport ethane from Marcus Hook, Pa., to Borealis' cracker in Stenungsund, Sweden, via one of its four 35,000 cubic meter ethane/ethylene carriers currently being constructed. The company has the capability to transport ethane via nine carriers, including the *Navigator Saturn. Source: Navigator Holdings Ltd.*

Similarly, ethane is still extracted from the gas stream in certain locations even when it is not profitable on paper. This may be due to contract or pipeline specifications as well as the spot price increasing at a location due to a shortage.

More from Sarnia

As ethane supplies grow, the likelihood of new cracking capacity being built also increase with the most likely destinations being the Gulf Coast and the Northeast. While the Gulf Coast currently has six crackers under construction, no ground has been broken in the Northeast on a new cracker. There have been multiple locations mentioned for a cracker in the Marcellus-Utica. These have typically been focused on areas of Pennsylvania, Ohio and West Virginia, but an interesting city to crack volumes for the region could be Sarnia.

"Canada acts as the 51st state, so to speak, as far as crackers are concerned because it's much easier to transport ethane from the Marcellus-Utica to Sarnia than all the way down to the Gulf Coast," Fasullo said. The addition of cracking capacity in Sarnia would most likely be through the expansion of existing facilities, he said, rather than greenfield construction.

In fact, this usage of Canada as an extension of the domestic market is an indication of the coming of globalization into U.S. energy markets. Rather than closing one door and opening another, U.S. ethane is set to open a door to new markets while maintaining the benefits of the domestic market and the cost advantages found at home.

No Time Change For Gas Trading Day

By Paul Hart, Hart Energy

The Federal Energy Regulatory Commission (FERC) moved ahead on April 16 with efforts to improve coordination between the wholesale natural gas and power-generation markets. The issue has gained importance as gas-fired generating stations supply a growing percentage of the nation's electricity.

The FERC final rule, together with prior commission actions, are intended to ensure reliable and efficient operation of both the interstate gas transmission system and electric utilities, the commission said.

FERC voted to maintain as standard procedure that the U.S. gas trading day starts at 9 a.m., Central time, waiving a proposal to move the start of the trading day back to 4 a.m., Central time.

"The commission concluded that, while certain efficiencies could be achieved through a better alignment of the natural gas and electric operating days, the record in this proceeding does not justify changing the start time for the nationwide natural gas day," FERC said in statement. "The final rule recognizes that several regional efforts continue to address the misalignment between the gas day and the regional electric days."

Don Santa, president and CEO of the Interstate Natural Gas Association of America, the major trade organization representing interstate pipeline operators, lauded the FERC's decision.

"We are gratified that the Federal Energy Regulatory Commission listened to the entire natural gas industry, including the interstate pipeline operators represented by the Interstate Natural Gas Association of America," he said.

The ruling represents the culmination of more than three years of FERC efforts to evaluate whether changes are needed to scheduling practices of the gas and electric industries in order to better ensure reliable and efficient operations of gas pipelines and power generators.

In a March 2014 Notice of Proposed Rulemaking, the commission proposed changes to the nomination timeline for gas pipelines but provided the two industries a year to consider revisions to the proposal.

The commissioners did adopt two proposals submitted by the Houston-based North American Energy Standards Board to revise the gas nomination timeline and related trading standards. The private organization is a trade group seeking to better coordinate the needs of gas suppliers and power generators.

Related to the decision, the FERC adopted a proposal to move the Timely Nomination Cycle deadline for scheduling gas transportation from 11:30 a.m., Central time, to 1 p.m., Central time, and a proposal to add a third intraday nomination cycle during each gas operating day to help shippers adjust scheduling to reflect changes in power demand. The final rule takes effect 75 days after publication in the Federal Register.

Frac Spread: NGL Prices Fail To Follow Crude's Lead

By Frank Nieto, Hart Energy

NGL prices were largely flat the week of April 8 despite an upswing in West Texas Intermediate (WTI) crude prices. It is possible that the stagnant nature of heavy NGL prices was a reflection of this strength since demand for these products tends to dip in the spring shoulder season. However, should the crude uplift continue, it would be surprising if NGL prices did not start to improve as well.

WTI crude prices hit their 2015 high of $56.51 per barrel (bbl) on April 15 as fears over the Cushing, Okla., hub reaching full capacity have subsided. In addition, there have been positive signs from the geopolitical realm as several OPEC members including its richest member, Saudi Arabia, are reporting financial strains related to the cabal's decision to continue with high production levels in the face of decreased crude prices.

Saudi Arabia posted its largest deficit in history—$106 billion, according to Jadwa Research, a Saudi Arabian research firm. This is its first deficit since 2011 and much greater than the $39 billion projected by the government. Another crude producing Arabian country, Yemen, is also facing security issues as insurgents captured an oil terminal in the nation.

In addition, uncertainty remains over the U.S. reaching an agreement to allow the construction of nuclear power plants in Iran. Should an agreement be reached, trade sanctions against Iran would lift, allowing greater trade of the country's crude oil on the global market. However, failure to reach an accord would see the current sanctions continue against Iran.

Heavy NGL prices have yet to experience the same uptick as WTI crude. Instead heavy NGL prices were a decidedly mixed bag with C_{5+} down 2% to $1.20 per gallon (gal) at Mont Belvieu and up very slightly at $1.15/gal at Conway. It is likely that the downturn at Mont Belvieu is related more to the large surge in price to close March and the subsequent price rebalancing at the hub after the shortage in product to meet contractual demand was met. A price improvement in the coming week is anticipated if crude continues to improve.

Butane and isobutane prices were also a mixed bag. Mont Belvieu prices were largely flat, while Conway prices were down due to depressed demand for the products as refiners switch from blending winter-grade gasoline to summer-grade gasoline.

Propane prices managed to hold firm despite the fact that demand for the product seems to be flat at best. Storage levels continue to increase along the Gulf Coast and in the Midcontinent while LPG exports fell, according to En*Vantage. The investment firm reported that LPG exports were down by 127,000 bbl/d to 638,800 bbl/d the week ending April 10, based on monitoring of ships at major export terminals. The firm anticipates a further decrease of 3,000 bbl/d for the week ending April 17. Given this lessening demand and increase in storage it is likely that propane may be facing another price correction in the weeks ahead.

Though ethane prices have showed resilience for much of 2015, prices took a tumble this past week as several crackers, including Chevron Phillips Chemical Co.'s Unit 22 in Sweeny, Texas, and Dow Chemical Co.'s (NYSE: DOW) Unit 1 in Port Charles, La., underwent turnarounds. This resulted in a 9% decrease at Conway to 15 cents/gal and a 2% drop to 16 cents/gal at Mont Belvieu. Both prices were the lowest for 2015. Until cracking capacity runs at full throttle for a sustained period it will be hard for ethane prices to make a full recovery.

Given these prices, the theoretical NGL bbl failed to keep pace with gains posted by WTI crude as the Mont Belvieu price fell 1% to $21.98/bbl with a 1% gain in margin to $12.67/bbl. The Conway price decreased 2% to $20.69/bbl with a 1% drop in margin to $12.18/bbl.

Frac spread margins showed greater strength than the overall NGL price due to a downturn in natural gas prices based on limited heating and cooling demand. The Conway price fell 3% to $2.33 per million Btu (MMBtu) and the Mont Belvieu price was down 4% to $2.55/MMBtu.

The most profitable NGL to make at both hubs remained C_{5+} at 89 cents/gal at Conway and 92 cents/gal at Mont Belvieu. This was followed, in order, by isobutane at 40 cents/gal at Conway and 39 cents/gal at Mont Belvieu; butane at 34 cents/gal at Conway and 36 cents/gal at Mont Belvieu; propane at 26 cents/gal at Conway and 30 cents/gal at Mont Belvieu; and ethane at negative 1 cent/gal at both hubs.

According to the U.S. Energy Information Administration, natural gas storage levels increased by 63 billion cubic feet (Bcf) to 1.539 trillion cubic feet (Tcf) the week of April 10. This was 82% higher than the 847 Bcf posted last year at the same time and 9% lower than the five-year average of 1.684 Tcf. Storage levels should increase further as cooling demand will continue to be limited the week of April 22 when the National Weather Service anticipates colder-than-normal temperatures throughout the country.

NGL PRICES						
Mont Belvieu	Eth	Pro	Norm	Iso	Pen+	NGL Bbl
April 8 - 14, '15	16.40	53.08	62.42	64.60	119.88	**$21.98**
April 1 - 7, '15	16.65	52.95	63.33	64.58	122.73	**$22.25**
March 25 - 31, '15	17.52	54.04	63.22	64.16	137.54	**$23.50**
March 18 - 24, '15	18.36	50.64	59.36	60.44	112.20	**$21.20**
March '15	18.15	54.72	64.30	65.48	119.85	**$22.57**
February '15	18.19	57.06	68.02	69.98	116.61	**$22.95**
4th Qtr '14	20.22	76.90	96.73	98.28	149.25	**$30.10**
3rd Qtr '14	23.19	103.92	123.69	128.39	212.20	**$40.27**
2nd Qtr '14	29.26	106.55	124.12	130.23	222.81	**$42.31**
1st Qtr '14	34.50	129.51	137.62	141.49	212.60	**$46.16**
April 9 - 15, '14	29.50	111.48	124.74	131.26	229.38	**$43.44**
Conway, Group 140	Eth	Pro	Norm	Iso	Pen+	NGL Bbl
April 8 - 14, '15	14.98	47.54	58.52	63.48	115.00	**$20.69**
April 1 - 7, '15	16.55	47.28	59.60	66.10	114.55	**$21.01**
March 25 - 31, '15	17.45	48.46	60.42	65.42	114.84	**$21.35**
March 18 - 24, '15	18.35	46.60	56.90	64.10	106.92	**$20.51**
March '15	17.81	49.99	61.09	72.97	110.31	**$21.52**
February '15	17.56	53.62	67.06	82.14	113.63	**$22.69**
4th Qtr '14	18.69	78.64	102.72	113.19	146.37	**$30.77**
3rd Qtr '14	20.38	104.99	123.51	140.07	207.90	**$40.18**
2nd Qtr '14	26.26	105.44	121.26	163.00	221.62	**$42.62**
1st Qtr '14	25.46	169.48	132.08	147.10	216.86	**$49.93**
April 9 - 15, '14	24.50	113.32	121.84	163.60	230.78	**$43.94**

CURRENT FRAC SPREAD (CENTS/GAL)				
April 17, 2015	**Conway**	**Change from Start of Week**	**Mont Belvieu**	**Last Week**
Ethane	14.98		16.40	
Shrink	15.45		16.91	
Margin	-0.47	-173.34%	-0.51	44.92%
Propane	47.54		53.08	
Shrink	21.34		23.36	
Margin	26.20	3.56%	29.72	3.65%
Normal Butane	58.52		62.42	
Shrink	24.16		26.44	
Margin	34.36	-1.02%	35.98	0.35%
Isobutane	63.48		64.60	
Shrink	23.21		25.40	
Margin	40.27	-4.56%	39.20	2.66%
Pentane+	115.00		119.88	
Shrink	25.84		28.28	
Margin	89.16	1.39%	91.60	-1.87%
NGL $/Bbl	20.69	-1.54%	21.98	-1.19%
Shrink	8.51		9.32	
Margin	12.18	-0.55%	12.67	0.81%
Gas ($/mmBtu)	2.33	-2.92%	2.55	-3.77%
Gross Bbl Margin (in cents/gal)	27.25	-0.37%	28.83	1.09%
NGL Value in $/mmBtu (Basket Value)				
Ethane	0.82	-9.49%	0.90	-1.50%
Propane	1.65	0.55%	1.84	0.25%
Normal Butane	0.63	-1.81%	0.67	-1.44%
Isobutane	0.40	-3.96%	0.40	0.03%
Pentane+	1.48	0.39%	1.55	-2.32%
Total Barrel Value in $/mmbtu	4.99	-1.96%	5.37	-1.03%
Margin	2.66	-1.10%	2.82	1.60%

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.

RESIN PRICES – MARKET UPDATE – APRIL 17, 2015					
TOTAL OFFERS: 15,508,520 lbs		SPOT		CONTRACT	
Resin	Total lbs	Low	High	Bid	Offer
HDPE - Inj	3,130,256	0.57	0.69	0.58	0.62
HDPE - Blow Mold	2,857,612	0.575	0.635	0.57	0.61
LLDPE - Film	2,788,232	0.565	0.66	0.58	0.62
LDPE - Film	2,275,956	0.61	0.725	0.6	0.64
PP Homopolymer - Inj	1,598,852	0.635	0.76	0.66	0.7
HMWPE - Film	970,024	0.59	0.635	0.6	0.64
LLDPE - Inj	961,656	0.58	0.635	0.61	0.65
LDPE - Inj	837,748	0.575	0.655	0.63	0.67
PP Copolymer - Inj	88,184	0.77	0.77	0.68	0.72

Source: Plastics Exchange – www.theplasticsexchange.com

Enable Midstream Completes Bradley Processing Plant

Business Wire

Enable Midstream Partners LP (NYSE: ENBL) completed the Bradley processing plant in Oklahoma, and it is fully operational, the company said April 16.

The plant, in Grady County, has 200 million cubic feet per day (MMcf/d) of natural gas inlet capacity, the company added.

The plant removes water, condensate and liquids from natural gas in the Scoop play, creating transmission-quality natural gas, stabilized condensate and NGL.

Construction contracts for the plant were signed in August 2013 and construction began in October that year. The inlet, residue and refrigeration compression have a combined 30,250 horsepower.

In 2014's fourth quarter, the company's board of directors approved building a second 200 MMcf/d plant in Grady County. It is under construction and expected to be operational in 2016's first quarter.

Then, the company's superheader processing system will be connected to nine plants and have a capacity of almost 1.7 Bcf/d.

Oklahoma City-based Enable Midstream Partners owns, operates and develops domestic natural gas and crude oil infrastructure assets.

Sunoco LP Increases Revolving Credit Facility

Sunoco LP (NYSE: SUN) increased its revolving credit facility and aggregate credit commitments to $1.5 billion, up from $1.25 billion, the company said April 10.

The facility with a syndicate of banks matures in September 2019.

The expansion will provide additional financing flexibility and liquidity to fund future growth capex, the company said.

Sunoco LP is a MLP that distributes motor fuel to commercial businesses.

Next Wave Energy Partners Receives $500 Million In Equity

Next Wave Energy Partners LP received up to $500 million in equity capital from Energy Capital Partners, the company said April 14. Next Wave's senior management joined in the investment, the company added.

The money will support acquisition, development and operations of midstream and downstream petrochemical and fuel assets in the U.S. and Canada. Next Wave handles NGL toll processing and manufacturing, among other projects.

Next Wave's founders Patrick Diamond, Michael Bloesch, Dan Fahey and Sean Diamond collectively have nine decades' experience in energy, focused on midstream, petrochemicals and fuel value chains.

Patrick Diamond is executive chairman; Bloesch is president and CEO; Fahey is vice president of engineering and technology. Sean Diamond is vice president of operations and commercial.

Previously, Patrick Diamond worked at Plains All American Pipeline LP and its predecessors. Bloesch worked at TPC Group; Fahey was site manager for an isobutylene production facility owned by Enterprise Products Partners LP, and also worked at TPC. Sean Diamond worked at TPC and Plains All American Pipeline.

Vinson & Elkins LLP advised Next Wave. Latham & Watkins LLP represented Energy Capital Partners.

Next Wave Energy Partners LP is based in Houston.

Energy Capital Partners is based in Short Hills, N.J.

Magellan Midstream, TransCanada Pursue Houston Pipeline Connection

Magellan Midstream Partners LP (NYSE: MMP) and TransCanada Corp. (NYSE: TRP, TO: TRP) entered into a joint development agreement for a pipeline connecting Magellan's East Houston terminal to TransCanada's Houston tank terminal, the companies said April 14.

The project is estimated to cost US$50 million.

A 9-mile, 24-inch pipeline would connect the terminals, giving TransCanada's Keystone and Marketlink shippers access to Magellan's Houston and Texas City crude oil distribution system, they said. Magellan will likely develop additional infrastructure at the East Houston terminal to accommodate movements from the new pipeline.

The companies would each hold 50% ownership interest.

Subject to agreements, rights-of-way, permits and regulatory approvals, the pipeline is scheduled to be operational by late 2016.

Magellan will be construction manager and the pipeline's operator.

"Magellan is excited about the prospect of further enhancing our crude oil connectivity in the Houston market. This connection would provide our customers with additional supply options for the Houston Gulf Coast refining region, with access to crude oil from the Cushing storage hub," said Michael Mears, Magellan's president and CEO.

"TransCanada is committed to developing energy infrastructure solutions for our customers in Canada and the U.S., and this project would allow us to directly connect to key refineries in the Houston and Texas City area," said Russ Girling, TransCanada's president and CEO. "This is another great example of a project that would help to bolster North American energy security and independence."

Magellan Midstream Partners LP is based in Tulsa, Okla.

TransCanada Corp. is based in Calgary, Alberta.

Canada Seeks New Crude Customers As Keystone Languishes

Bloomberg

Canada is seeking new customers for its crude oil as a U.S. review of the Keystone XL Pipeline drags on and oil prices languish near $50 a barrel, the country's Natural Resources Minister Greg Rickford said.

Canada sells nearly all of its oil and natural gas to the U.S., a partnership that amounts to a $140 billion a year business, Rickford said Tuesday at the Bloomberg New Energy Finance Future of Energy Summit in New York. A downturn that has seen oil prices fall about 50 percent will cost Canada $40 billion a year, according to data compiled by Bloomberg.

"Ninety nine percent of our oil goes to the United States right now - 98 percent of our natural gas," Rickford said. "I don't think anyone in business would want just one customer."

Lower crude prices have "reduced our fiscal flexibility," he added.

Oil exports to the U.S. will rise, peaking at 7 million to 8 million barrels a day, Rickford said. Even as sales to its largest customer increase, Canada is seeking to diversify exports.

Future oil sales to the U.S. depend in part on TransCanada Corp.'s planned Keystone XL pipeline, a project first proposed in 2008 that is awaiting a U.S. presidential permit.

Keystone, which has stalled over environmental concerns, would enhance U.S. energy security by displacing exports from countries like Venezuela, Rickford said in speech at Tuesday's summit.

The pipeline "will ensure that U.S. refineries have access to a secure supply," Rickford said.

Keystone would transport 830,000 barrels of oil a day from Alberta to Steele City, Neb. As the U.S. State Department continues its review, alternative pipelines have been proposed to Canada's west coast to enable exports to Asia.

U.S. oil imports are expected to decline through 2020 because of rising domestic production from shale formations, the U.S. Energy Information Administration said Tuesday in its 2015 Annual Energy Outlook. Net imports of petroleum and other liquids are expected to drop from 26% in 2014 to 15% in 2025 and then rise to 17% in 2040.

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