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FEATURE

Enterprise, Anadarko, DCP To Build DJ Basin NGL Pipeline

Enterprise Products Partners LP (NYSE: EPD), Anadarko Petroleum Corp. (NYSE: APC) and DCP Midstream LLC announced a joint venture to build the 435-mile Front Range natural gas liquids (NGL) pipeline in the DJ basin. The partners will each hold a one-third interest in the pipeline, which will run from Weld County, Colo. to Skellytown, Texas.

The Front Range pipeline will connect to the Mid-America pipeline and the Texas Express pipeline, providing shippers with access to the Gulf Coast. Depending on shipper interest from the binding open commitment period, initial capacity on the system is expected to be approximately 150,000 barrels per day (b/d), which can be readily expanded to approximately 230,000 b/d. Enterprise will construct and operate the pipeline, which is expected to begin service in the fourth quarter of 2013.

“We are very pleased to partner with Anadarko and DCP on this project, which will extend Enterprise’s integrated pipeline



network into the liquids-rich DJ Basin to address the area’s NGL transportation constraints, providing flow assurance and market choice for producers,” Michael A. Creel, Enterprise president and chief executive officer, said in a news statement. “The Front Range project is anchored by NGL volumes produced from facilities operated by affiliates of Anadarko and DCP Midstream.”

“With the success and significant growth expected in Anadarko’s liquids-rich Wattenberg HZ (horizontal) program, Front Range will provide needed access to premium

(continued on page 6)

NGL PRICES & FRAC SPREAD

Propane, Ethane Prices Continue To Fall

Ethane prices fell at both hubs this week due to several ethane crackers remaining down because of scheduled maintenance combined with weak propane prices that are putting pressure on ethane to maintain its status as the most preferred ethylene feedstock.

Lower propane prices aren’t giving ethane prices much room to grow at this time. Ethane’s net margin as a feedstock was 49¢ per pound (/lb) compared to 43¢/lb for propane.

This resulted in the Mont Belvieu price dropping 9% to 43¢ per gallon (/gal), its lowest price since the week of Feb. 8, when it was the same. The margin at Mont Belvieu dropped 13% from last week. The Conway price fell 17% to 16¢/gal, which was the hub’s lowest price since it was 15¢/gal, also the

week of Feb. 8. The margin was down 40% from the previous week.

The Conway price was also negatively affected by a delay in the start of Kinder Morgan’s Cochin pipeline that will transport approximately 13,000 barrels per day (b/d) of E-P mix from Conway to Nova Chemicals’ petrochemical complex in Sarnia, Canada. This delay is being caused by pending regulatory approvals that are expected to be finalized later this month.

Propane prices continued to decrease at both hubs because of excess storage caused by the mild winter. While it is possible that propane inventories will continue to rise and reach record levels in the second half of the year, thus pushing prices further down, it is

more likely that low prices will increase exports before an excessive storage overhang occurs.

The Conway price for propane remained below the \$1.00/gal threshold as it tumbled 6% to 93¢/gal. This was its lowest price at the hub since it was 92¢/gal the week of July 14, 2010. The Conway margin dropped 6% from last week. The Mont Belvieu price dipped 3% to \$1.19/gal, its lowest price since the week of Feb. 15, when it was \$1.18/gal. The Mont Belvieu margin was down 4% from the previous week.

Heavy NGL prices continued to hold firm at both hubs as they continued to keep pace with crude prices, which were up slightly this week. Natural gas prices were down 5% to \$1.83 per million Btu (/MMBtu) at Conway while the Mont Belvieu price rose 1% to \$1.89/MMBtu. This helped the heavy NGLs maintain their status as the most profitable NGLs to make at both hubs.

Due to its close relationship with crude, C₅₊ remained the most profitable NGL to make at both hubs with the Conway

Current Frac Spread (Cents/Gal)				
April 13, 2012	Conway	Change from Start of Week	Mont Belvieu	Start of Week
Ethane	16.30		43.30	
Shrink	12.15		12.55	
Margin	4.15	-39.97%	30.75	-13.02%
Propane	93.32		119.24	
Shrink	16.76		17.31	
Margin	76.56	-6.40%	101.93	-4.23%
Normal Butane	161.23		188.14	
Shrink	18.98		19.60	
Margin	142.25	-1.85%	168.54	-0.63%
Iso-Butane	191.83		205.38	
Shrink	18.23		18.82	
Margin	173.60	1.89%	186.56	-0.20%
Pentane+	232.65		238.92	
Shrink	20.53		21.21	
Margin	212.12	-1.15%	217.71	-0.93%
NGL \$/Bbl	43.16	-3.65%	52.43	-2.56%
Shrink	6.70		6.92	
Margin	36.46	-3.45%	45.51	-3.09%
Gas (\$/mmBtu)	1.83	-4.69%	1.89	1.07%
Gross Bbl Margin (in cents/gal)	82.89	-3.63%	105.21	-3.26%
NGL Value in \$/mmBtu				
Ethane	0.90	-17.09%	2.38	-9.36%
Propane	3.24	-6.10%	4.14	-3.50%
Normal Butane	1.74	-2.19%	2.03	-0.46%
Iso-Butane	1.19	1.23%	1.28	-0.09%
Pentane+	2.97	-1.47%	3.05	-0.76%
Total Barrel Value in \$/mmBtu	10.04	-4.42%	12.88	-3.23%
Margin	8.21	-4.36%	10.99	-3.93%

NGL PRICES						
Mont Belvieu	Eth	Pro	Norm	Iso	Pen+	NGL Bbl
April 4 - 10, '12	43.30	119.24	188.14	205.38	238.92	\$52.43
March 28 - April 3, '12	47.77	123.56	189.00	205.56	240.74	\$53.81
March 21 - 27, '12	47.68	127.26	192.50	208.14	243.10	\$54.65
March 14 - 20, '12	50.44	125.40	194.45	205.40	245.40	\$55.03
March '12	50.09	125.86	192.84	207.42	245.13	\$54.99
February '12	46.97	122.28	186.50	192.29	239.97	\$52.99
1st Qtr '12	53.93	125.90	192.36	204.32	238.95	\$55.05
4th Qtr '11	84.49	144.13	188.16	227.18	224.44	\$61.34
3rd Qtr '11	76.03	153.87	188.27	208.52	237.59	\$61.59
2nd Qtr '11	75.14	149.59	186.75	202.07	248.23	\$61.42
April 6 - 12, '11	70.88	140.76	187.50	202.40	249.50	\$59.84
Conway, Group 140	Eth	Pro	Norm	Iso	Pen+	NGL Bbl
April 4 - 10, '12	16.30	93.32	161.23	191.83	232.65	\$43.16
March 28 - April 3, '12	19.66	99.38	164.84	189.50	236.12	\$44.79
March 21 - 27, '12	26.34	106.74	172.10	191.70	239.37	\$47.42
March 14 - 20, '12	31.18	107.26	173.28	193.40	240.15	\$48.44
March '12	29.33	107.37	172.94	193.41	241.34	\$48.21
February '12	22.65	100.24	160.71	173.94	227.79	\$44.18
1st Qtr '12	26.93	103.34	168.65	184.75	227.16	\$45.92
4th Qtr '11	34.29	129.43	160.82	204.27	196.08	\$48.23
3rd Qtr '11	46.69	143.07	166.30	199.68	210.98	\$53.06
2nd Qtr '11	52.63	139.38	170.76	192.47	236.00	\$55.34
April 6 - 12, '11	55.88	131.12	175.00	200.55	243.60	\$55.84

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

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

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

margin at \$2.12/gal and the Mont Belvieu margin at \$2.18/gal. This was followed, in order, by isobutane at \$1.74/gal at Conway and \$1.87/gal at Mont Belvieu; butane at \$1.42/gal at Conway and \$1.69/gal at Mont Belvieu; propane at 77¢/gal at Conway and \$1.02/gal at Mont Belvieu; and ethane at 4¢/gal at Conway and 31¢/gal at Mont Belvieu.

Although the Conway ethane margin is on the cusp of unprofitability, the continued strength of Conway propane margins are ensuring that E-P mix, which is the ethane product traded at the hub, remains profitable.

Natural gas in storage for the week of April 6 increased 8 billion cubic feet (Bcf) to 2.487 trillion cubic feet (Tcf) from 2.479 Tcf, according to the Energy Information Administration's (EIA)

latest data. The EIA noted that this lower than normal injection was a result of the producing region reclassifying 10 Bcf. This was 56% greater than the 1.599 Tcf figure reported last year at the same time and 59% greater than the five-year average of 1.567 Tcf.

The National Weather Service's forecast for next week includes warmer than

normal temperatures in the Southeast and parts of the West Coast and Southwest. Cooler than normal temperatures are expected in portions of the Great Lakes, Mountain and Pacific Northwest regions.

– Frank Nieto

Low Natural Gas Prices Helped Improve Margins In March

Despite NGL prices remaining flat throughout the month, a sharp drop in natural gas prices helped support frac-spread margins in March at both Conway and Mont Belvieu.

The price of natural gas fell 24% to \$1.79 per million Btu (/MMBtu) at Conway and 20% to \$1.89/MMBtu at Mont Belvieu. These prices were amongst the lowest at both hubs in a decade, due to the perfect storm of an extremely mild winter and high production rates that has led to very large storage levels.

The drop in NGL prices was minimal by comparison to dry gas prices because of the relationship of NGLs to crude prices as well as the continued strength of the North American petrochemical market. Petrochemical demand remains strong as scheduled maintenance has caused shutdowns at several ethane crackers in the U.S.

Once these facilities come back on-line this spring, prices should experience a slight rebound before several fractionators are taken down for maintenance. However, once these cracker and

fractionator turnarounds are completed, Mont Belvieu ethane prices and margins should experience dramatic improvements.

Even with less cracker capacity, the margin for Mont Belvieu ethane improved 7% in April. By comparison, Conway ethane was the only NGL to experience any real decrease in margin as it tumbled 47% as there is a limited market in the play and limited capacity out of the play. However, Kinder Morgan began to offer transportation capacity for E-P mix (which is how ethane is traded at Conway) out of Conway to Nova Chemicals' ethylene plant in Sarnia, Canada, as April began.

Conway propane margins increased very slightly in March, but enjoyed a 7% improvement at Mont Belvieu for the month. These increases should grow in the next few months as exports are expected to increase, which will help to work off the excess supplies that have built up this

Monthly Frac Spread (Cents/Gal)				
March 2012	Conway	Change from Start of Year	Mont Belvieu	Start of Year
Ethane	21.37		50.38	
Shrink	11.89		12.55	
Margin	9.48	-47.00%	37.83	6.88%
Propane	101.40		125.17	
Shrink	16.40		17.31	
Margin	85.00	0.27%	107.86	7.14%
Normal Butane	166.73		189.25	
Shrink	18.56		19.60	
Margin	148.17	1.05%	169.65	2.30%
Iso-Butane	189.50		205.10	
Shrink	17.83		18.82	
Margin	171.67	7.91%	186.28	5.48%
Pentane+	235.53		238.83	
Shrink	20.08		21.21	
Margin	215.45	0.15%	217.62	-0.14%
NGL \$/Bbl	45.37	-6.23%	54.27	-0.05%
Shrink	6.56		6.92	
Margin	38.81	-2.42%	47.35	3.63%
Gas (\$/mmBtu)	1.79	-23.83%	1.89	-19.57%
Gross Bbl Margin (in cents/gal)	88.54	-2.21%	109.78	3.94%
NGL Value in \$/mmBtu				
Ethane	1.17	-36.21%	2.77	-1.22%
Propane	3.52	-4.61%	4.35	2.43%
Normal Butane	1.80	-2.50%	2.04	-0.50%
Iso-Butane	1.18	3.84%	1.28	2.55%
Pentane+	3.00	-2.47%	3.04	-2.24%
Total Barrel Value in \$/mmBtu	10.68	-7.90%	13.48	0.15%
Margin	8.89	-3.85%	11.59	4.33%

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

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

winter due to the unseasonably warm weather. – Frank Nieto

INSIDE LOOK AT PROCESSING

GPA President Mike Heim: Midstream Advocacy Efforts Growing On Federal, State Levels

Mike Heim has had a busy year what with his one-year tenure as president of GPA (Gas Processors Association) as well

as his promotion from to president and COO of Targa Resources Corp. in December. Heading into the 91st Annual GPA

Convention in New Orleans, La., next week, Heim discussed his tenure, the



Mike Heim, president of GPA and president, COO of Targa Resources. Courtesy: Targa Resources Corp.

future of GPA and the midstream with Frank Nieto, editor of Midstream Monitor.

What have been the focal points of your tenure as GPA President?

The majority of my time has been spent on advocacy and to a lesser degree on what has historically been the meat of the GPA activities, safety and research. I can focus on the first area because our great staff does a wonderful job of making sure that the essential every-day work gets done.

The need for GPA advocacy is a result of a regulatory environment that is continuously proposing or instituting new rules and regulations on the midstream facilities that we build in order to keep up with producer drilling and downstream demands for merchantable natural gas and natural gas liquids. All the states that the GPA is active in had legislative sessions in 2011, and the GPA worked hard to educate and lobby for the interests of the midstream industry. Thankfully, many of our states' sessions have closed for this year or will soon, and Texas won't be back in session until January of 2013. That only means we have to be preparing now for what we expect to be another intense anti-midstream year in 2013.

The GPA's Executive and Finance Committee along with the GPA staff and the

full Board of Directors have been very busy. GPA has facilitated fundraisers for U.S. congressmen, co-hosted question-and-answer session lunches with the three registered Republican candidates for the Texas Railroad Commission, worked with staff to review drafts of Amicus briefs for cases before the Texas Supreme Court, and is facilitating a fundraiser for the Louisiana Republican Party associated with Governor Jindal's address to our dinner on April 17. This is in addition to the many issues that our Advocacy, Environmental and Pipeline Safety Committees have been following, writing draft legislation on, and educating legislative members about. Our restructuring with the Advocacy Steering Committee has been extremely effective.

The industry's efforts to help meet the country's energy needs are also being threatened on several fronts. The midstream industry's ability to use condemnation in Texas is under scrutiny after two rulings from the Texas Supreme Court. We are battling to keep compression going because of EPA rules like RICE MACT and new designations of non-attainment areas that are unfortunately based upon the EPA's conjecture and not good science. Permitting for new treaters, processing plants, compression stations and fractionators are all being unduly drawn out and delayed because of bickering between the states and the EPA, or the EPA's new role as a permit writer for greenhouse gas emissions.

What was the most fulfilling aspect of your tenure as GPA president?

I don't really look at it as my tenure because that has been relatively short. I measure it over the past four presidents' tenures. There has been a great collective effort since the early 2000s to transition the GPA into an organization that is recognized and effective in Washington, D.C., and about a dozen state capi-

KEY NORTH AMERICAN HUB PRICES	
2:30 PM CST / April 12, 2012	
Gas Hub Name	Current Price
Carthage, TX	1.84
Katy Hub, TX	1.86
Waha Hub, TX	1.84
Henry Hub, LA	1.87
Perryville, LA	1.87
Houston Ship Channel	1.81
Agua Dulce, TX	2.64
Opal Hub, Wyo.	1.80
Blance Hub, NM	1.76
Cheyenne Hub, Wyo.	1.76
Chicago Hub	1.99
Ellisburg NE Hub	2.16
New York Hub	2.05
AECO, Alberta	1.69

Source: Bloomberg

tols when legislation or new rules are proposed or enacted that affect gathering, treating, compression, processing and fractionation -- the midstream industry. GPA has not only its great staff, which has been expanded to specifically address advocacy, but we also have engaged contract lobbyists on the federal and state levels. This recent aspect of the GPA has been a success story for its member companies.

Can you talk about this transition that GPA has had from representing processors to the midstream?

I don't really see it as a transition but a case of semantics. Most onshore processors were also gatherers, had treating facilities and compression, and many had local fractionation. Many of the straddle plants along the Gulf Coast have bought gathering pipelines from the interstate and intrastate pipelines that no longer wanted to be offshore. Today, most of the large fractionators in the Midcontinent and along the Gulf Coast are owned by

companies that have significant gathering and processing businesses.

Has this refocus helped to increase the awareness of the GPA?

I think that most midstream companies, no matter what phase of the business they were in, were aware of the GPA because of its long-standing support of safety and research. Over the past ten years we have seen the sale of midstream assets to both established and “start up companies.” There have been so many changes that you almost need to have a program to keep up with what company owns the various assets. The real increase in awareness of “who and what the GPA is” is among our legislatures, regulators and the courts.

What regions will the midstream focus on in the next few years?

God didn't discriminate when he scattered the shale deposits throughout

North America. It's amazing how once the technology was developed to drill and fracture the shales, that the producing community began to exploit resource plays from British Columbia, Alberta, the Rockies, the Permian, North and South Texas, the Midcontinent, Louisiana, Mississippi, and throughout Appalachia. New facilities will have to be built in all of these basins.

In what ways has the increased focus of producers on liquid-rich plays altered the midstream industry's plans and what new opportunities have they presented to the midstream?

The thing that has surprised everyone in the midstream industry is that all of the traditional facilities have filled up due to increasing quantities of the rich gas that is being produced. The fractionators were first, followed by the y-grade pipelines, and now many processing

plants and the residue take-away pipelines are reaching their capacities. All types of midstream facilities are being expanded.

Outside the expansion of traditional facilities, many of us didn't think we would ever see expansions of ethane crackers in North America much less construction of new world-class crackers. That is happening! Technology and global economics are favoring our industry. We are benefitting from petrochemical expansion in North America to consume a growing ethane supply and global demand for propane and normal butane. With propane and butane price arbitration open to the Far East and many other global areas, two current export facilities are being expanded and others are being promoted around the international community. Appalachia is a game-changer! New pipelines, new plants,

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maybe new ethane crackers and export facilities, could be built in the area.

What section of the industry is showing the greatest growth in GPA membership?

From what we have seen, after our dues base change to categorize members by operational work hours, we are seeing some growth from our O3 (between

50,000 and 200,000 operational work hours) and O4 (less than 50,000 work hours) companies. In other words, we are seeing growth in the smaller players and start-up companies. If you think about it, it makes sense. Most of the bigger players in our industry are members, and have been members for a long time. The smaller companies may have just been

introduced to GPA because of advocacy or technical activities. I can tell you, the money GPA saved the midstream industry just with its RICE MACT work alone will pay a company's membership dues for a long, long time.

— Frank Nieto

Enterprise, Anadarko, DCP To Build DJ Basin NGL Pipeline... (continued from page 1)

markets, which enables us to capture the highest wellhead netbacks. When combined with the recent announcement by Western Gas Partners, LP to construct the Lancaster Plant in the DJ Basin, Front Range provides significant value to Anadarko and its stakeholders," Danny Rea, Vice-President of Midstream for Anadarko, added. "We are pleased to have the opportunity to partner with two quality companies like DCP and Enterprise in the Front Range project."

Bill Waldheim, president of DCP Midstream's NGLs, Gas and Crude Oil Logistics business unit, said, "The DJ Basin for several years has been an attractive liquids-rich resource. Now, with the introduction of horizontal drilling and this new phase of oil-driven development, the volumes and the infrastructure needs are accelerating. In anticipation of growing volumes, DCP remains focused on the liquids transportation needs of the basin. Given the plant development under way

in the DJ, DCP has a strategic need to provide open access transportation services to the higher-valued Mt. Belvieu market."

The open season began on April 12 and will continue until May 14. Requests for additional information may be directed to Buford Barr at (713) 381-8354 or bbarr@eprod.com, as well as Bryan McFarland at (713) 381-2468 or bmcfarland@eprod.com.

PVR Partners To Acquire Marcellus Gathering System From Chief Gathering

Penn Virginia Resource Partners, L.P. ("PVR") announced that it has signed a definitive agreement to acquire Chief Gathering LLC for \$1.0 billion. Chief Gathering, which is owned by Chief E&D Holdings LP, is a midstream pipeline company with operating assets serving Marcellus Shale natural gas producers primarily in northeastern Pennsylvania.

This transaction, when closed, will result in a major expansion of PVR's pipeline systems in the gas-rich Marcellus Shale.

The transaction is expected to close in the second quarter of 2012, subject to regulatory clearances and other customary closing conditions.

Chief Gathering's assets include six natural gas gathering systems serving over 300,000 dedicated acres in Bradford, Lycoming, Sullivan, Susquehanna, Wyoming and Greene Counties, Pennsylvania and Preston County, West Virginia.

Additionally, Chief Gathering is currently constructing a new 750 MMcfd trunkline, anticipated to be in service in the third quarter of 2012, extending from northern Wyoming County to Luzerne County with a connection to Transco's interstate pipeline. PVR currently owns two gathering systems in Lycoming and Wyoming Counties, with a third system

in early stage development in Susquehanna County.

William H. Shea, Jr., Chief Executive Officer of PVR's general partner, said, "The acquisition of the Chief Gathering systems is a transformational transaction for PVR. We expect that by year-end 2013 our midstream business unit will account for almost 75% of PVR's EBITDA, up from 40-45% today. These assets, together with our Lycoming and Wyoming County gathering assets, position us well to capture significant midstream opportunities in six of the most prolific counties in the northeastern area of the Marcellus Shale."

ONEOK Partners To Build Bakken Shale To Cushing Crude Pipeline

ONEOK Partners, L.P. (NYSE: OKS) plans to invest \$1.5 billion to \$1.8 billion between now and 2015 to build a 1,300-mile

crude-oil pipeline with the capacity to transport 200,000 barrels per day (b/d). The Bakken Crude Express Pipeline will

transport light-sweet crude oil from the Bakken Shale in the Williston Basin

in North Dakota to the Cushing, Okla., crude-oil market hub.

“As producers continue to aggressively develop crude oil from wells in the Bakken Shale, more crude-oil pipeline takeaway capacity will be required,” Terry K. Spencer, ONEOK Partners president, said. “This proposed pipeline will provide producers with efficient and reliable transportation of their product directly to one of the largest crude-oil market hubs in the U.S.”

“It also represents our entry into the crude-oil transportation business and utilizes our existing core capabilities of transporting and storing natural gas, natural gas liquids and refined petroleum products,” he said. “Many of the supply commitments under negotiation are with the same producers in the Williston Basin that we currently serve.”

GPA Legislative Committee Works To Get The Message Out

The past several years have seen tremendous growth in the Gas Processors Association (GPA) as it has broadened its mission to focus on the entire midstream, most notably as an industry advocate. GPA has sought to become both more proactive as well as expansive in its advocacy work as it is involved in working on the state, regional, and federal levels.

“We’ve organized ourselves to be more inclusive. At the last annual legislative meeting, we agreed to meet every two weeks with lobbyists for GPA companies in several states as well as get reports from those states on a regular basis,” said Steve Johnson, vice chairman of the GPA Legislative Committee and director of Government Affairs at ONEOK.

The association focuses on nine states that represent the core of the oil and gas industries: Texas, Louisiana, Colorado, Oklahoma, Kansas, Wyoming, Pennsylvania, New Mexico, and North Dakota.

Supply commitments for the proposed pipeline are in various stages of negotiation. Following receipt of all necessary permits and compliance with customary regulatory requirements, construction is expected to begin in late 2013 or early 2014 and be completed by early 2015. Based on supply commitments prior to construction, the capacity can be increased.

Additionally, the proposed pipeline route will be well-positioned to transport crude-oil production from the Niobrara Shale.

The proposed pipeline route is expected to parallel more than 80% of the partnership’s existing and planned natural gas liquids pipelines. It will be designed, constructed and operated using proven technology, pipeline control systems and continuous safety monitoring.

This focus is likely to grow in the future to include other shale producer states such as Arkansas, Ohio, Kentucky, and West Virginia that are experiencing midstream growth.

Evan Hanson, director of the GPA Legislative Committee and director of State Government Affairs at Williams, said this work is divided by requesting that GPA member companies that are active in these nine states to act as a state coordinator. “The intent is for state coordinator to work with the other member companies to cooperatively work out issues within those states when they occur and then report on the progress and status during our bi-weekly calls.”

Hanson added that two of the biggest issues the committee has been working on include eminent domain and air quality in several states. The eminent domain issue is obviously a very important tool for pipeline operators to have the abil-

The partnership has previously announced that it is investing \$2.8 billion to \$3.5 billion through 2014 in growth projects. Of these projects, it is investing \$1.6 billion to \$2 billion in projects related to the Bakken Shale that include the 500-mile NGL pipeline, the Bakken Pipeline; a 270-mile natural gas gathering system and related infrastructure in Divide County, N.D.; and three 100 MMcf/d natural gas processing facilities – Garden Creek plant, Stateline I plant and Stateline II plant – and related infrastructure. The Garden Creek plant went into service in December 2011.

Additionally, the partnership has a \$1 billion-plus backlog of unannounced growth projects that will be announced when sufficient supply commitments are completed.



Evan Hanson, director of the GPA Legislative Committee and director of State Government Affairs at Williams Courtesy: Williams

ity to use due to the significant costs involved in rerouting a project.

“In Texas, the courts have ruled that if you’re not a common carrier, you don’t have the benefit of eminent domain. That’s an obvious concern to the midstream industry because it puts a bind in

the permitting process to build pipelines for gathering facilities,” Hanson said.

The coordinated efforts by the GPA Legislative Committee enables discussion of similar issues and the exchange of data, and therefore better use knowledge and experiences on issues across the country. This coordination also helps GPA have a unified voice when it comes to midstream concerns in state and federal legislative issues.

“It is so valuable for us to be able to have a common unified voice. These legislative bodies and regulatory agencies aren’t just hearing different companies, but 120-member companies linked together. When we speak in conjunction with other associations, it really conveys a strong message,” Hanson said.

The ability to use the expertise of its membership allowed GPA to help to shape the update of the Pennsylvania oil and gas act this past year. The update, called Act 13, was the first major update of the state’s oil and gas act in 30 years.

“GPA worked with the Marcellus Shale Coalition on that effort because although much of the regulations would impact our segment of the industry, the largest im-

RESIN PRICES – MARKET UPDATE – APRIL 13, 2012					
TOTAL OFFERS: 20,923,708 lbs		SPOT		CONTRACT	
Resin	Total lbs	Low	High	Bid	Offer
HDPE - Inj	3,789,820	0.69	0.73	0.67	0.71
LDPE - Film	3,532,624	0.73	0.82	0.72	0.76
LLDPE - Film	2,821,888	0.7	0.775	0.68	0.72
LDPE - Inj	2,217,680	0.7	0.8	0.7	0.74
HDPE - Blow Mold	2,089,588	0.665	0.75	0.66	0.7
PP Homopolymer - Inj	2,031,864	0.77	0.83	0.76	0.8
PP Copolymer - Inj	1,964,484	0.8	0.86	0.78	0.82
HMWPE - Film	1,322,760	0.715	0.76	0.69	0.73
LLDPE - Inj	538,000	0.69	0.74	0.68	0.72
GPPS	425,000	0.86	0.86	0.87	0.92
HIPS	190,000	1.03	1.03	0.98	1.03

Source: Plastics Exchange – www.theplasticsexchange.com

pact will be on producers. So we wanted to work with all the parties rather than just as GPA for this act,” Hanson said.

Education is a key component in working with politicians and regulators, Johnson said. This is particularly true in the case of regions where the oil and gas industry hasn’t been very active.

“We’ve got to get there far ahead because folks in some of the big shale plays aren’t as familiar with the industry. So

education ahead of time is extremely important,” Johnson said.

“You’ve got to have relationships with these people so they can better understand what we do. I compare it to the people who think milk comes from the grocery store, not understanding or appreciating all it takes to get that gallon of milk to the store. The same is true for natural gas,” Hanson said.

– Frank Nieto

PIPELINES & TECHNOLOGY

Spectra Energy Names TEAM 2014 Expansion Anchor Shippers

Spectra Energy Corp’s (NYSE: SE) Texas Eastern Transmission, LP named Chevron U.S.A. Inc. and EQT Energy, LLC, a gas marketing subsidiary of EQT Corp., as anchor shippers for its recently announced Texas Eastern Appalachia to Market (TEAM) 2014 Expansion Project, an expansion of the company’s existing Texas Eastern system that will deliver additional emerging Appalachian shale natural gas supplies to diverse markets in the Northeast, Midwest and Southern U.S.

Under the TEAM 2014 project, Chevron and EQT will ship a combined quantity of

600 million cubic feet per day (MMcf/d). The estimated capital investment for the project is approximately \$500 million, with a targeted in-service date of fourth quarter 2014. A term of the TEAM 2014 project is that a shipper is required to commit to a minimum volume of 300 MMcf/d to qualify as an anchor shipper.

TEAM 2014 is part of a major ongoing expansion strategy being undertaken by Spectra Energy to connect growing supply basins to premium markets in the Northeast, Midwest and Southeast U.S. It follows the successful TEAM 2012 project

currently under construction, a capacity expansion of 200 MMcf/d for two shippers, Range Resources and Chesapeake Utilities, to be placed into service this fall.

“The TEAM expansion program offers the opportunity for moving emerging natural gas supplies from the growing Marcellus and Utica shale plays in the Appalachian supply basin to premium markets in the Northeast, Midwest and Southeast U.S. These new regional supplies will significantly add to the reliability, security, diversity and optionality of supply for these high-demand markets,

especially when combined with traditional supply sources,” said Bill Yardley, group vice president, Spectra Energy Transmission, Northeast.

Due to its strategic positioning in the Marcellus and Utica shale plays in Ohio, West Virginia and Pennsylvania, as well as its historical deliverability into the major markets of the Northeast U.S., Texas Eastern is situated to capture these supplies and connect them to growing markets to meet consumer demand. In addition to the slate of TEAM projects, Spectra Energy has announced other supply-driven initiatives that are under development, including the Ohio Pipeline Expansion Network (OPEN) and the Northeast Expansion Transmission Project (NEXT). Each of these

projects is uniquely designed to provide producers with access to distinct, diverse and growing markets.

The TEAM 2014 and OPEN Projects also support Spectra Energy’s other expansion initiatives that will serve markets in the Southeast U.S. The company is actively pursuing market development attracted to the supply diversity that Texas Eastern offers, as demonstrated by its recent announcement of the Renaissance Gas Transmission (Renaissance) project, a new pipeline system that will link growing natural gas supplies from the Marcellus and Utica shale regions to high-demand power generation and distribution markets in Georgia, Alabama and Tennessee. The Renaissance pipeline will begin at an interconnect with Texas

Eastern’s 30-inch system in its Market Zone 1, which will enable the TEAM 2014 and OPEN shippers to make deliveries into that system.

“The strength of these various expansion efforts comes down largely to what Texas Eastern offers to both ends of the supply/demand equation. Texas Eastern provides access to all the supply basins — whether it’s the Gulf Region, Rockies gas, LNG and shale — so there’s tremendous supply optionality, and then our customers have access to premium markets, including fast-growing power generation markets in the Midwest, mid-Atlantic and Southeast, and the chemical industry and potential LNG exports of the Gulf Coast,” said Yardley.

Kinder Morgan Completes Trans Mountain Expansion Open Season

Kinder Morgan Energy Partners L.P. (NYSE: KMP) will proceed with its proposed expansion of the Trans Mountain crude oil pipeline in British Columbia, Canada following a successful open season that garnered 660,000 barrels per day (b/d), 20-year commitments. When completed, the proposed expansion will increase capacity on Trans Mountain from the existing capacity of 300,000 b/d to 850,000 b/d.

“We are extremely pleased with the strong commercial support that we received through the open season, which reinforces the appeal of our project and our approach,” Ian Anderson, president of Kinder Morgan Canada, said in a news statement. “This strong commercial support shows the market’s enthu-

siasm for expanding market access for Canadian crude by expanding an existing system.” This support from the market better defines the project and enables Kinder Morgan Canada to fully engage the local communities.

“We are still early in the engagement process of the project,” Anderson continued. “We share respectful, open relationships with many communities and organizations interested in our business. We are committed to an 18 to 24 month inclusive, extensive and thorough engagement on all aspects of the project with local communities along the proposed route and marine corridor, including First Nations and Aboriginal groups, environmental organizations and all other interested parties. We will also

consider providing financial support to local communities for environmental initiatives. We have been planning for this day for many years and we are keen to start in depth engagement this summer.”

The \$5 billion project includes preliminary scope of the proposed project includes twinning the existing pipeline within the existing right-of-way; building new pump stations along the system; increasing the number of storage tanks at existing facilities; and expanding the Westridge Marine Terminal.

The company anticipates submitting a facilities application for a regulatory review with Canada’s National Energy Board in 2014. If approved, construction could begin in 2016 with operations beginning by 2017.

Ukraine Supports Trans-Caspian Pipeline Project

Ukraine is ready to invest up to EUR 790 million (US\$1.035 billion) into the trans-Caspian gas pipeline project. The investment will be made under the condition

that an offshoot to the Georgian oil port of Kulevi in the eastern coast of the Black Sea is built.

The country plans to transport liquefied natural gas from Kulevi by tankers to south Ukrainian LNG Terminal Yuzhny, reported press office of the Prime Minis-

ter of Ukraine Mykola Azarov. The new gas pipeline is supposed to go through the territory of Azerbaijan and Georgia, bypassing Russia.

During the meeting with the President of Azerbaijan Ilham Aliyev the Azarov expressed the country's intention to participate in construction of the trans-Caspian gas pipeline, provided all the parties involved reach an agreement, reported press office of the Ukrainian prime minister.

The projected transporting capacity of the trans-Caspian gas pipeline is 30 billion cubic meters per annum. It will allow transferring gas from Turkmenistan to Nabucco - the alternative pipeline to the Russian South Stream. The latter is

known to be lobbied by Gazprom. The overall cost of the trans-Caspian gas pipeline project is estimated at EUR 7.9 billion (US\$10.35 billion).

Russia was reported to be reluctant to the trans-Caspian gas pipeline project. Russia's foreign ministry argued that Baku and Ashgabat had no right to build a pipeline without consent of all Caspian littoral states due to the undecided legal status of the Caspian Seabed. Azerbaijan insists that it can solve this problem by making a bilateral agreement with Turkmenistan.

Conveniently, Ukraine completed the feasibility study of the LNG terminal Yuzhny last week. As a result, the project worth

EUR 846 million (US\$1.1 billion) has been offered to foreign investors. The expected gas transfer capacity of the terminal is 10 billion cubic meters per year with the prospect of doubling its capacity later on. The design and construction phase of the project is estimated at 49 months.

Notably, in September 2011 the President of Ukraine Viktor Yanukovich offered Russia to run the South Stream gas pipeline through southern Ukraine. This could decrease its construction cost five times - from EUR 25 billion (US\$32.8 billion) to EUR 5 billion (US\$6.6 billion). Currently, the pipeline is designed to go through the Turkey's waters of the Black Sea.

Gazprom, Kogas Discuss Natural Gas Pipeline To South Korea

Moscow hosted a meeting between Alexander Medvedev, deputy chairman of the Gazprom Management Committee and Young Sung Park, executive vice president of Korea Gas Corp. (Kogas).

The negotiations centered on pipeline supplies of Russian natural gas to South

Korea via North Korea. Special attention was paid to commercial parameters of the project. The parties achieved progress in developing the efficient solutions needed for failsafe operation of the future gas transmission system.

Based on the negotiations results, a decision was taken to expand engineering cooperation between the two companies and to arrange visits by dedicated experts to key gas transmission facilities in Russia and South Korea for their thorough inspection.

NEWS & TRENDS

Williams Olefins Awards \$300M Contract To CB&I For Petrochemical Plant

Williams Olefins LLC awarded CB&I (NYSE: CBI) a \$300 million contract for construction of a 1.95 billion pounds per year ethylene cracker expansion in Geismar, La.

The contract includes the license and basic engineering for the ethylene technology, the supply of the cracking

furnaces, and the detailed engineering, and procurement.

"We are very pleased to be selected for this important U.S. ethylene project," Philip K. Asherman, president and chief executive of CB&I, said in a news release. "The petrochemicals market is re-emerging in the U.S. due to the

abundance of lower cost ethane feedstock, directly attributable to increased shale gas production. This award reflects the industry's confidence in CB&I's ability to provide both proven technology and EPC services to the petrochemicals market."

New PERC, GPA Five-Year Propane Outlook Study Available

A new propane study, underwritten by the Propane Education and Research Council (PERC) and directed by the Gas Processors Association (GPA) NGL Market Information Committee, takes a close look at the

propane supply/demand picture in North America over the next five years.

PERC sent its request for the study to GPA Executive Director Mark Sutton, who then brought PERC's request

to GPA's NGL Market Information Committee. An ad hoc committee task force was charged with writing the request for proposal (RFP), sending the RFP to consulting firms, and awarding the contract

to prepare the study. After evaluating the proposals, the task force selected Petral Worldwide Inc. (PWI) to prepare the study.

The study's geographic focus included the US and Canada, with emphasis on regional markets and supply/demand trends in the US. PWI evaluated historic supply/demand trends and developed supply/demand forecasts for the following US regions: East Coast, Mid Continent, Gulf Coast, Rocky Mountain, and West Coast markets.

PWI also evaluated historic trends and developed forecasts for propane consumption in all major consuming end uses for all regional markets, including residential, commercial and resellers, agriculture, motor fuel, industrial, and petrochemical.

Lastly, PWI evaluated historic trends and developed forecasts for propane supply by region for all major supply sources, including gas processing, refining and imports/exports.

According to PWI founder Daniel Lippe, the results of the study can be summarized with the following points:

1. North America has substantial natural gas resources. The techno-

logical advancements in horizontal drilling and hydraulic fracturing will enable gas exploration companies to significantly increase natural gas production. Growth in natural gas production generally results in increasing throughput rates in gas processing plants in North America.

2. Some new sources of natural gas are NGL rich; some are dry. The value of NGLs has encouraged gas exploration companies to emphasize development of NGL rich gas plays. As NGL rich gas production increases, recovery of NGLs including propane will continue increase.
3. Demand for propane in traditional retail markets (residential/commercial, agriculture, and motor fuel) declined about 18% during 2003-2010. Based on detailed evaluation of the various factors in each market segment, the study concluded that demand in traditional retail markets will continue to decline during 2012-2016.
4. Demand for propane in the ethylene feedstock market also declined during recent years due to displace-

ment by ethane. Since ethane has only one market and since ethane supply will also increase during 2012-2016, the study concluded demand for propane in the ethylene feedstock market will be stagnant at best.

5. As propane supply will increase but demand within North America will continue to decline, NGL marketers will export increasing volumes of propane into international markets via export terminals in the Gulf Coast. Chemical companies will also construct special plants to convert propane to propylene.

"This study is significant because it confirms what most of the industry experts believe: that there will be strong supplies of domestic propane around to fuel any additional demand that the propane industry is successful at creating," Sutton said. "It also highlights the excellent working relationship between GPA and the Propane Council."

This study is available to GPA and Gas Processors Suppliers Association members. Call Judy London, GPA, to request a copy: (918) 493-3872.

Vitol SA, KOMIPO Sign Long-Term LNG Agreement

Vitol SA signed a long-term supply and purchase agreement with KOMIPO, a major South Korean power company, for the annual supply of 400,000 tons of liquefied natural gas (LNG) for 10 years starting in 2015.

The projected 400,000 tons per annum is equivalent to about 17% of KOMIPO's annual consumption volume based on 2011 figures.

The KOMIPO contract for the direct import of LNG from an overseas supplier

is the first of its kind signed by a Korean power company, who require LNG for power generation. Until now, Korea Gas Corporation has been the sole supplier of LNG for domestic public power companies.

New Paper Quantifies What It Will Take To Get Sustained Benefits From Natural Gas

A new scientific paper published in the Proceedings of the National Academy of Sciences (PNAS) offers an enhanced method for assessing climate impacts from natural gas development and use

using a new approach called "Technology Warming Potential." Specifically, this approach reveals the inherent climatic trade-offs of different policy and investment choices involving electric-

ity and transportation. It illustrates the importance of accounting for methane leakage across the value chain of natural gas (i.e. production, processing and delivery) when considering fuel-switching

scenarios from gasoline, diesel fuel and coal to natural gas.

A new methane leakage model released today, created by Environmental Defense Fund (EDF) and based on the science described in the PNAS paper, allows anyone to test a range of scenarios to quantify the climate benefits, or damages, of natural gas production and usage given specific methane leakage rates. Users can vary the key system attributes independently to see how they affect net radiative forcing (the primary index used to quantify the effect of greenhouse gases [GHGs] on global temperatures) from U.S. emissions over time.

Natural gas burns cleaner than other fossil fuels when combusted, but methane leakage from production and transportation of natural gas has the potential to remove some or all of those benefits, depending on the leakage rate. Methane is the main ingredient in natural gas and a greenhouse pollutant many times more potent than carbon dioxide (CO₂), the principal contributor to man-made climate change. The paper uses the best available estimates on methane emissions from the Environmental Protection Agency (EPA). At the same time, EDF is working to obtain extensive empirical data on methane released to the atmosphere across the natural gas supply chain, since the climatic bottom line of fuel switching scenarios involving natural gas is very sensitive to this parameter.

“Measuring how much gas is lost to the atmosphere and where the leaks are occurring will help to further target leak reduction opportunities to ensure that natural gas will help mitigate climate change. Such a strategy could yield enormous environmental and health benefits,” says Steve Hamburg, EDF’s chief scientist and coauthor of the paper.

The PNAS paper provides illustrative calculations with EPA’s current estimate of the methane leakage rate. The model allows users to plug in different variables and observe the outcome. Thus the paper does not draw hard and fast conclusions about the future implications of any kind of fuel shifting, nor does it answer the question of whether natural gas generation or natural gas-powered vehicles will be better or worse for the climate. What it does do is provide those answers in terms of the leak rates at which fuel switching produces climate benefits at all points in time. It introduces the science required to accurately identify where the challenges lie.

Key findings of the PNAS paper, based on the best available estimates on methane emissions from the EPA, include:

- Assuming the Environmental Protection Agency’s (EPA) 2009 leakage rate of 2.4% (from well to city), new natural gas combined cycle power plants reduce climate impacts compared to new coal plants; this case is true as long as leakage remains under 3.2%.
- Assuming EPA’s estimates for leak rates, compressed natural gas (CNG)-fueled vehicles are not a viable mitigation strategy for climate change because of methane leakage from natural gas production, delivery infrastructure and from the vehicles themselves. For light-duty CNG cars to become a viable short-term climate strategy, methane leakage would need to be kept below 1.6% of total natural gas produced (approximately half the current amount for well to wheels – note difference from well to city).
- Methane emissions would need to be cut by more than two-thirds to immediately produce climate benefits

in heavy duty natural gas-powered trucks.

- At current leakage rate estimates, converting a fleet of heavy duty diesel vehicles to natural gas would result in nearly 300 years of climate damage before any benefits were achieved.

A number of scientific papers on the climatic implications of natural gas production and use have been published in the last year, inadvertently figuring into a growing sense of confusion due to conflicting conclusions. The PNAS paper tries to clear up some of this confusion by addressing the analytical challenge of comparing the time-dependent effects on climate of methane by using the Technology Warming Potential approach. The paper specifically illustrates this approach to compare the climate influence (i.e. changes in radiative forcing) of fuel switching scenarios involving natural gas.

“Failing to reduce methane leaks has the potential to eliminate much, if not all, of the greenhouse gas advantage of natural gas over coal,” said Steven Hamburg, EDF’s chief scientist and coauthor of the paper. “If we want natural gas to be an accepted part of a strategy for achieving energy independence and moving to a clean energy future, it’s critical that industry, regulators and other stakeholders work together to quantify the existing methane leakage rate and commit to reducing it to one percent or below if, as expected, the leakage is currently higher than that. One percent is the magic number.”

EDF is currently collaborating with partners on a major scientific study designed to quantify the methane leakage rate across the natural gas value chain in five discrete modules, the first of which – emissions from the production sector – has already been launched. EDF

aims to complete the entire study by December 2013.

Authors of the paper include: Ramón A. Alvarez (EDF), Stephen W. Pacala (Princeton University), James J. Wine-

brake (Rochester Institute of Technology), William L. Chameides (Duke University) and Steven P. Hamburg (EDF). The full text of the PNAS paper is available at [\[tent/early/2012/04/02/1202407109\]\(http://www.pnas.org/content/early/2012/04/02/1202407109\) and EDF's methane leakage model is available at \[edf.org/methaneleakage\]\(http://edf.org/methaneleakage\).](http://www.pnas.org/con-</p>
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SNAPSHOT

ERCC: EPA Power-Plant CO₂ Rule Likely To Spark Natural Gas Price Rally

A new analysis of the U.S. Environmental Protection Agency (EPA) proposed rule forcing all new power plants to meet natural gas combined-cycle (NGCC) carbon dioxide (CO₂) limits inevitably will help spike future natural gas prices, according to U.S.-based Electric Reliability Coordinating Council (ERCC).

Reacting to the EPA proposal, ERCC executive director Scott Segal on March 27 issued the following public statement:

"We have begun the process of reviewing the Administration's current proposal to establish rules for greenhouse gas (GHG) emissions from power plants," Segal said.

"At first blush, we believe that the proposal is short-sighted and marks a real departure from the [U.S. President Barack Obama] Administration's goal of an 'all of the above' energy strategy. The rule would effectively ban the future of almost half of our current electric portfolio. Here are some points to consider:

"1. The GHG rule must be placed in the context of many other rules – such as the air toxics rule, the visibility rule, and the interstate rule – that have the effect of increasing the price of energy for consumers by double digits in some areas, and have the effect of making industry less competitive and destroying jobs as each plant closes.

"2. EPA says that it has no current plans to regulate existing power plants for GHGs. We have little confidence that the Administration will



adhere to this view, particularly after the election is over.

"3. The Administration claims that there is a 'path forward' for coal in this rule. However, the path runs through installation of carbon capture and storage (CCS) technology – which makes it treacherous indeed. CCS technology is still highly speculative, likely expensive, and EPA has provided no assurance that it will help with inevitable permit delays.

"4. EPA says its rule is doing nothing to future coal-fired projects that low market costs for natural gas aren't already doing. And yet, if the Administration succeeds with the multiple agency initiatives to regulate hydraulic fracturing and if demand strategies like [natural gas] vehicle use, power production, or chemical production continue to expand, static price assumptions for gas may prove highly unreliable.

"5. Many environmentalists have criticized existing coal-fired power plants for failure to keep up with the times, even in light of the billions spent on environmental compliance by the sector. However, if EPA essentially bans the future for the sector, the incentive to further innovate will decline, and reliance on existing technology may continue. All of this is at cross purpose with EPA's stated goals.

"6. Last, the alleged statutory purpose of the regulation is to reduce global warming. However, by banning the future of efficient and effective coal in the United States, coal may instead be exported and used overseas thus eliminating any supposed environmental benefit while retaining tremendous energy cost, job loss, and squandered energy security here at home."

—Jack Peckham

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Contact Information:

FRANK NIETO Editor
fnieto@hartenergy.com



HART ENERGY

1616 S. Voss, Suite 1000 • Houston TX 77057-2627 • USA
www.hartenergy.com | www.midstreambusiness.com

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E-mail: scochran@hartenergy.com

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