May 2020 Editor's Choice

Dry Gas Strategies

Independent Operators See Opportunities In Dry Natural Gas

By Dan Holder

It has been difficult for the nation's oil and natural gas producers to see beyond the dark clouds that descended on economies around the world this spring, but the glimmer of a silver lining is starting to emerge on the distant horizon.

Thanks to several years of indiscriminate associated gas growth in tight oil plays and abnormally mild weather the past two winters, the rig count in dry gas plays was on a steady decline long before anyone had heard of COVID-19.

That may be about to change dramatically. In late April, Moody's joined a growing chorus of analysts predicting better times ahead for natural gas pricing, with most forecasters calling for prices to rally later this year as the economic recovery picks up steam and the winter heating season draws near.

That is opening opportunities for operators with dry gas leases, particularly in the gas shale plays that slightly more than a decade ago had producers running twice as many gas as oil rigs. In the last week of April, the 81 active natural gas-directed rigs were concentrated in the Marcellus Shale play in Ohio, Pennsylvania and West Virginia and the Haynesville in Louisiana and East Texas, according to the U.S. Energy Information Administration. Those two plays, the agency reports, accounted for 78% of all active U.S. rigs.

U.S. dry natural gas production set a record in 2019, averaging 92.2 billion cubic feet a day, EIA data indicates. However, the agency says it expects domestic gas output to average only 91.7 Bcf/d in 2020, with production falling from 94.4 Bcf/d in March to 87.5 Bcf/d in December as associated gas output declines. EIA sees dry gas production moving in the opposite direction in 2021, driven by higher prices and incremental demand in key sectors such as power generation and liquefied natural gas exports. Accordingly, the agency forecasts that Henry Hub spot prices will average $2.11/MMBtu in 2020, increasing to an annual average of $2.98 next year.

Appalachian Gas

Production in the Appalachian Basin was predicted to drop by as much as 5%, along with a reduction in capital spending, even before Saudi Arabia and Russia began their oil price war on March 7, recalls Douglas Kris, Vice President of Investor Relations for Montage Resources. Their subsequent agreement to cut production and the reduction in U.S. associated natural gas production, supported by slowly recovering economies in many countries and China's agreement to purchase more U.S. natural gas, provide some reasons for optimism over gas demand, he assesses.

Employing technologies in different ways is boosting Montage Resources' Appalachian Basin production. The company says cycle times from well spudding to sale have dropped from 225 days to 140, with completion crews now completing between nine and 12 stages a day on average.

"If you want to put a time frame on something, the second quarter is a throwaway for not only gas and oil but every industry globally, because of what has been going on with the pandemic. As natural gas companies migrate to late in the third quarter and into the fourth quarter, you are going to see robust results from a corporate-level perspective and cash flow generation starting to come out as these gas prices start to get even more teeth in them," he predicts. "We had abnormally hot winters the past two years, so if you get any normalization of a winter, you can see some pretty interesting things happen to gas prices."

Montage, formed in a 2019 merger of Eclipse Resources and Blue Ridge Mountain Resources, is developing its 195,000 net acres in the Utica and Marcellus shale play in Ohio, Pennsylvania and West Virginia. Kris describes the company's holdings as equally split between dry gas and wetter Marcellus.

Across that area, he notes Montage has something that is slightly unusual in the basin and unique to the company: it is a stacked play, with the Marcellus Shale sitting right above the Utica.

The company's initial 2020 operating budget for its acreage in Monroe County, OH., emphasized wet gas, with 75% of production slated to come from the Marcellus formation, he says.

"In late March, Montage noted this change in the macroeconomic environment, and quickly made a strategic change that flip-flopped the activity level to be 75% dry gas and 25% Marcellus. The company has the ability to do that for a number of reasons–its acreage footprint in that stacked play environment, and its acreage with permits ready and pads ready in terms of attacking the acreage from the drill bit perspective at all times. That allows the company to quickly shift," he describes.

According to the company's first-quarter 2020 operational update, Montage's preliminary net production for the first three months of 2020 averaged approximately 611 million cubic feet of gas equivalent a day, with 65% of its 2020 gas production hedged at an average floor price of $2.62/MMBtu. It also has increased its 2021 gas position.

Cutting Cycle Times

Montage turned five Monroe County Utica dry gas wells to sales in 2019. The company is running one rig on its Appalachian Basin acreage, with the midpoint of its 2020 capital spending set at $155 million, Kris says. Its current guided production forecast is between 81%-83% natural gas production, with 65% of its annual capital expenditure frontloaded to the first half of 2020.

"As natural gas prices improve, Montage's leaning would be to use that additional cash flow generation to pay down debt, whether it is buying back bonds in the marketplace or paying down its reserve base lending facility," he reports. "In this environment, you get much more of an evaluation uplift by reducing debt than you do by accelerating activity. What that ultimately means is that even if gas prices improve, you are not going to see the rig count in Appalachia suddenly go up based on pricing. I think companies aren't going to be rewarded for more activity; they will get rewarded for using the cash flow to pay down the debt."

Montage is using several existing technologies in different ways to implement cost savings and efficiencies, Kris says. The company's cycle times from well spudding to sale have dropped from 225 days down to about 140, with completion crews completing between nine and 12 stages a day on average.

"The company tries to have numerous operations going on at the pad. From a production standpoint, you want the production activity ready to go as soon as completions are done. That decrease in downtime allows the company to have those efficiencies on the completion cadence and a reduction in cycle times, which leads to accelerated cash flows," Kris describes.

In developing the stacked formations, he says Montage drills the deeper Utica first, to hold its rights to the shallower Marcellus. The Utica is the more challenging play because it is a higher-pressure formation, the drilling crew must focus on staying in the pay zone, and costs are slightly higher, Kris notes.

Over the course of the past year, Montage has been able to meaningfully lower its drilling and completion costs by at least 20%, recording a 5% cut in 2020 alone, he says. During that time, company executives renegotiated the gas gathering agreement with one of the Appalachian Basin's largest providers and revised a Marcellus processing agreement to lower costs and provide additional payout from ethane sales into the gas stream.

Capital And Cash Flows

Range Resources has cut its 2020 all-in capital budget to $430 million from $520 million, but says it expects to maintain production at 2.3 Bcfe/d for 2020. In its late March announcement, the company said, this continues Range's previous actions and commitment to prioritizing its balance sheet and aligning capital with projected cash flows.

"Having met our firm transportation commitment in the Marcellus, we have flexibility in our development program as evidenced by the 40% reduction in 2020 capital spending compared with last year," assesses Jeff Ventura, Range's chief executive officer. "Given near-term challenges in commodity pricing, having a sustainably low maintenance capital is paramount, and I believe this updated capital budget further demonstrates Range's peer-leading capital efficiency, as our decline rate, well costs and capital spending per unit of operation all remain best-in-class."

Range Resources says its Marcellus Shale inventory includes 3,300 undrilled Marcellus wells across southwestern Pennsylvania, with the company's core acreage targeting the Utica and Upper Devonian as well as the Marcellus.

The company says its first quarter 2020 production has averaged 2.3 Bcfe/d, and it expects to maintain that production for the remainder of the year. Range reported peer-leading capital efficiency results, recording the lowest capital development costs on a per unit basis in Appalachia.

According to Range, its Marcellus inventory includes 3,300 undrilled Marcellus wells alone in southwestern Pennsylvania, which it says equates to decades of development. The company's core acreage also holds significant Utica and Upper Devonian prospects. The company says it has drilled three Utica wells in Washington County, Pa., and its most recent Utica well appears to be one of the best dry gas Utica wells in the basin.

Range is well positioned to survive a period of low commodity prices by maintaining low-maintenance capital paired with improving capital efficiencies. The company says this will help it target free cash flow generation, which is driven by its core Marcellus and Utica assets.

Given the U.S. natural gas base decline rate of 26%, the country needs about 27 Bcf/d of new gas each year to hold production flat. Range predicts that as industry follows a maintenance capital approach, production growth should slow meaningfully for the rest of 2020 and into the next year, if strip prices hold. The company sees total demand growth exceeding 20 Bcf/d through 2025 from LNG and exports to Mexico, backed by industrial and electric power demand growth.

“Looking beyond short-term demand headwinds, we see the potential for meaningful improvements in natural gas and NGL pricing as significant reductions in energy investment across U.S. shale are occurring while global demand for cleaner, efficient fuels like natural gas and NGLs is increasing,” Ventura says.

Cutting Costs

A drilling and completion efficiencies program, supported by midstream cost savings, gives Antero Resources Corp. $600 million in savings in 2020 compared with the previous year’s initial budget. Its 542,000 net acres in the southwestern core of the Marcellus and Utica shales–451,000 acres in the Marcellus play in northern West Virginia and 91,000 acres in eastern Ohio’s Utica Shale–holds 19.0 trillion cubic feet of new proved reserves, the company says.

In addition to its production holdings, Antero owns a 29% interest in Antero Midstream, which owns and operates gathering lines, compression, processing and water handling/treatment assets.

“Our reduced 2020 drilling and completion capital budget highlights the continued momentum in our capital cost savings initiative that was launched in early 2019,” described Paul Rady, the company’s chairman and CEO. “The new $750 million budget is 41% lower than our 2019 capital spend, with no change to our growth target of 9% for 2020.”

Although freshwater is an abundant resource in the Appalachian Basin, Antero is committed to reducing the use of freshwater throughout its operations with an active wastewater recycling program. Antero's freshwater infrastructure consists of more than 350 miles of pipelines and 37 impoundments. The system reduces water truck traffic by 4,500-4,750 truckloads per well and lowers associated greenhouse gas emissions by 30,000 tons of carbon dioxide equivalent annually.

The 2019 initiative lays out a $350 million reduction in gathering, processing and transportation costs through 2023, the company says. The program includes agreements with Antero Midstream Corp. and other third-party midstream providers, as well as an asset sale program targeting $750 million-$1 billion in proceeds in 2020.

The company's first quarter earnings call points out Antero has cut its drilling and completion costs by 26%, from $970 a lateral foot at the beginning of 2019 to $715. Its D&C capital budget for 2020 is $750 million, a $400 million drop from 2019 projections. At the same time, Antero forecasts its net production will stay unchanged, at 3.5 Bcf, with natural gas production at 2.375 Bcf.

Other savings will result from reducing operated rigs from four in early 2020 to one for the remainder of the year, decreasing the number of completion crews from three to one for the rest of 2020, and garnering produced water savings through the Antero Midstream system. For 2020, the company expects to drill 95-100 wells and complete 105.

On the financial side, Antero says it has multiple assets that can be monetized in 2020 to reduce debt. It reports targeting as much as $900 million in asset monetization, including possible sales of undeveloped leaseholds and producing properties. The company adds it has 1.8 Tcfe of natural gas hedges, with a current hedge value of $825 million, as well as an additional 688 billion Btus of gas hedges to calendar 2022 at an average price of $2.48/MMBtu.

Rady points out because of the near-term liquids pricing environment, Antero has deferred 20 well completions into 2021, which he says will lead to a positive cash flow of $175 million for 2020, based on current commodity strip prices.

“We anticipate a maintenance capital spend level in 2021 of $600 million to hold 3.5 Bcfe flat,” Rady offers. “This low-maintenance capital level, combined with the substantial natural gas and liquids production base, enables Antero to have success under various pricing environments.”

Third-Quarter Production

In the second quarter of 2020, Cabot Oil & Gas Corp. says, it will produce as much as 2.25 Bcfe a day, a production decline from the first quarter’s 2.36 Bcfe/d primarily driven by a decision to place only 13 wells on line from the beginning of the year to mid-May. According to the company, about two-thirds of Cabot’s wells are scheduled to be placed on production between May and late August, resulting in a significant sequential production increase in the third quarter.

Since Cabot launched its horizontal drilling program in 2008, its Marcellus Shale position in Northeast Pennsylvania has developed into a cornerstone of its portfolio, with the company drilling 790 net horizontal wells on its 173,000 net acres in the play’s dry gas window. Cabot adds it plans 60-70 net horizontal wells in 2020.

“While natural gas prices are expected to remain challenged in the near term as we manage through an oversupplied market exiting the winter heating season and the unexpected loss in demand resulting from COVID-19, we expect a much healthier supply and demand balance for natural gas later this year and in 2021,” predicts Dan O. Dinges, Cabot’s chairman, president and CEO. He notes the company’s improved outlook for the natural gas markets primarily is driven by expectations of significant declines in natural gas supply in 2020 and 2021 because of continued reductions in natural gas-directed drilling and completion activity and less associated gas production from reduced operating activity in oil basins.

In its production guidance for 2020, Cabot says it is reaffirming its capital program of $575 million.

“The midpoint of our updated production guidance range implies flat production levels year-over-year, with fourth quarter 2020 exit volumes expected to be flat to the fourth quarter of 2019,” Dinges describes.

Cabot’s capital expenditures in the first three months of 2020 totaled $160.3 million, including $158.0 million for drilling and facilities, $900,000 for leasehold acquisition and $1.4 million for other capital expenses.

“As it relates to our outlook for 2021, we are extremely encouraged by the increase in the NYMEX natural gas futures for 2021 from a low of $2.28 per MMBtu in early March to approximately $2.75 per MMBtu,” Dinges said on April 30. “We will continue to assess the natural gas market dynamics, including the impact of COVID-19 and lower crude oil prices on the natural gas supply and demand outlook, before formalizing our plans for 2021.”

Wyoming Production

Depending on market conditions, Jonah Energy will resume drilling in the Jonah Field in Sublette County, Wy., this summer, says Paul Ulrich, the company’s vice president of government and regulatory affairs. About 15% of Jonah’s production is associated condensate, which he notes accounts for 30% of company revenues, but its principal targets remain dry gas.

Jonah Energy operates more than 2,400 wells across the Jonah Field’s 24,000 acres. When it was discovered in the 1990s, the leasehold had an estimated original resource of 19.2 trillion cubic feet, the company reports. Immediately south and west of this play, the Normally Pressured Lance or Jonah Extension Project, encompasses 140,000 acres, with company estimates of as many as 3,500 directionally drilled wells possible.

When gas prices recover, Jonah Energy plans to resume development of the Jonah Extension (Normally Pressured Lance) play, which lies south and west of the Jonah Field. The company says the 140,000 acres in that new play may support as many as 3,500 directionally drilled wells.

The company has seen some slight increases in gas prices and that is positive news for those in Southwest Wyoming who make a living off dry gas, Ulrich says, adding “Forecasts show a steady climb in prices. They certainly are not where we want, but prices are better than they have been. We are hoping that holds as we move forward through the summer and into 2021.”

Future Jonah Field and NPL development will use new vertical and horizontal well technologies, Ulrich says, pointing out the company also is relying on improvements to reduce supply and overall well costs.

“There is growing concern in the industry as a whole about securing capital, particularly for new projects and obviously for ongoing operations,” he says. “This is an area we all need to look at seriously as we chart a path forward. Oil and gas are the bedrocks of Wyoming’s economy and the bedrock of a number of states’ economies. We need to gear up first and foremost to a quick recovery, and then pivot to growth.”

Forecasts for gas prices to bounce to $4/Mcf would allow consideration of developing the NPL play, which he says already has been authorized by the Bureau of Land Management.

“When we stood up Jonah Energy a number of years ago, natural gas prices were hovering in that high $3-low $4 range. That gave the company optimism that it could not only continue developing the Jonah Field, but look at prospects such as the company’s Jonah Extension (NPL),” Ulrich indicates. “Current prices don't support that play as being economic, but if those prices change over the next year or two or beyond, that gives a lot of promise that Jonah Energy might be able to begin in earnest development of that aspect. To me, that is very exciting."

In March, Jonah Energy became the first gas producer to be certified for low methane emissions under Independent Energy Standards Corp.'s TrustWell™ Responsible Gas program. The company says the certification process tracks the leak rate as a percentage of overall production and the reduction in methane footprint versus the industry benchmark.

"This low emissions certification is really important for the market," Ulrich applauds. "Jonah Energy takes pride in differentiating itself as an operator from an environmental and sustainability standpoint. The company works with a number of environmental groups, and without any specific endorsement yet, it has received feedback that this is a very positive step for the natural gas industry."

Adjusting To Demand

While gas demand is staying strong, structural changes in the nation's supply system, including the drop in rig count, eventually will push production down, predicts Tom Ward, chairman and CEO of Mach Resources. He points to EIA projections of gas prices above $4.00/Mcf this winter as cause for optimism.

"I look at the market and see we aren't having the demand destruction in natural gas that we see in crude oil or gasoline because people aren't traveling," he poses. "Industrial demand might be down somewhat but that still is buffeted by usage of natural gas around the world, and we are seeing production declining."

Domestic gas production has been dropping since hitting a peak last October, Ward says, adding that the impacts are increasing as companies shut in production and drill fewer wells. "I don't think there is any doubt prices will go higher in the near term, and then probably much higher out to 2021," he predicts. "There have been projections we will lose 10 Bcf/d of supply by year-end 2021, dropping down to 82 Bcf/d."

Many gas producers still will be standing at years' end, but Ward predicts they will see significant changes in their makeup. Publicly held companies already are saying they are in a restructuring mode, with even a number of healthy firms seeing the need to sell assets to beef up their balance sheets. He says Mach Resources has made seven acquisitions in the past two years, including three deals in the Mississippian Lime and two in the western Anadarko Basin.

"Companies such as Mach Resources, which are seen as distressed buyers and that have a very large operating team and are focused on one particular area, will be the survivors that end up rolling up a lot of production," he projects. "So, whenever we look at a project, we look at it only on the basis of proved, developed, producing reserves at some discount to PV-10. Instead of drilling for excess cash flow, we buy it. To me, it doesn't matter if that is natural gas or oil. I like both."

Mach Resources' April 9 acquisition of the upstream assets of Alta Mesa Holdings and the midstream assets of Kingfisher Midstream moves the company into both Oklahoma's STACK and Eastern STACK plays, Ward says. The deal includes 30,000 barrels of oil equivalent a day from more than 900 operated wells, and 350 million cubic feet a day of processing capacity connected to 450 miles of gas gathering pipelines. "There will be more acquisitions that we make in and around us, as other companies need to consolidate," he notes.

Energy Intelligence

NATURAL GAS WEEK®

MON, APR 20, 2020

US Shale Gas Production in Dramatic Free Fall

Dry gas production in Appalachia and the Haynesville Shale has fallen by 1 billion cubic feet per day since December in a headlong plunge that is not only gaining steam but will be hard to brake.

The Marcellus/Utica Shale region leads the spiral with losses of 777 million cubic feet per day since February, new US Energy Information Administration (EIA) data show. And those losses are accelerating as producers beset by anemic wellhead prices throttle back capital budgets in the name of fiscal discipline.

How low Appalachian Basin dry gas output -- still over 30 Bcf/d -- will go is debatable. "You can't write an obituary for the area because the asset is still there," University of Houston economist Ed Hirs told Energy Intelligence. "The question may be, is it going to deteriorate the way the Barnett Shale has in Texas, with one rig operating and a huge amount of gas remaining in place? But it's way too early to say that about the Marcellus/Utica."

Montage Resources spokesman Doug Kris heartily agrees that sticking a fork in the vast Northeast gas basin is premature. However, the first half of this year will be challenging "no matter what," and attempts to stanch production declines be hampered by demand destruction uncertainty driven by the coronavirus pandemic (NGW Apr.13'20).

Together with free-falling associated gas volumes from oil drilling in the Permian Basin and elsewhere, it's possible that US gas production could be plumbing the low 80s Bcf/d in 2021, Kris told Energy Intelligence. The EIA reported US domestic dry gas output was still above 93 Bcf/d as of last week.

And that could lead to a significant tightening of the market's supply/demand balance, possibly doubling gas prices that have been hovering well below $2 per million Btu (NGW Apr.6'20).

The prospect of sharply falling production is key to the Energy Intelligence Research & Advisory Unit raising its 2021 price forecast to $3.50/MMBtu earlier this month (NGW Apr.13'20). While that is among the more bullish price forecasts for 2021 to date, price outlooks continue to climb as gas supply falls, including the latest EIA 2021 forecast of $2.98/MMBtu, up 47¢ from a month earlier (NGW Apr.13'20).

A falling US gas rig count -- which is below 100 for the first time in nearly four years, according to Baker Hughes -- has been central to declining output, R&A Director Abhi Rajendran said. EIA data show recent production drops in Appalachia began in December when new well output first failed to keep up with natural declines, a trend that accelerated in February.

These steeper declines are linked to the lay-down of roughly 20 gas rigs operating in Appalachia over the past nine months, as production response lags a change in the rig count by roughly four to six months. So this recent fall in the rig count starting in August began to felt in November and took off in February (see chart).

Other factors might have mitigated declines in November-December, Kris explained. For example, Northeast producers typically rev up winter output, bringing on wells to coincide with stronger demand.

Also, early-winter declines might have been muted as producers worked through inventories of drilled but uncompleted wells, lessening the impact of fewer new wells being drilled, Rajendran explained. The sharp drop in new production would indicate that activity has substantially ended, and with little reason for rig counts or capital budgets to toggle back up, "negative momentum will continue through the course of this year," he said.

What is happening now reflects a trend that could see Northeast production plunge some 2% to 5% as almost all producers rein it in, Kris said. A notable exception is Antero Resources, which is raising its output to fill take-or-pay firm transportation commitments, which could cost Antero more if left unfilled (NGW Jun.3'19).

And while most firms are aggressively cutting production, Montage is holding flat, Kris said, and is well-positioned to "reload the drilling process" faster than many of its rivals.

"Our cycle time is relatively short" at 140-145 days from drilling to sales as opposed to a basin average closer to 225-250 days. Montage has fewer wells per pad, which speeds up the process.

Some firms are planning ahead. Cabot Oil & Gas is reportedly picking up permitting activity in preparation of resuming a more robust Appalachia-focused gas drilling program, perhaps by summer 2021, Rajendran said.

However, Kris stressed that once gas prices begin recovering, even north of $3/MMBtu, producers will be in no hurry to plow the additional revenue into increasing output. "They are going to harvest free cash flow to pay down debt ... and not plow it back into wells. That environment has changed significantly with a focus now on liquidity, low leverage and strong balance sheets."

Haynesville Late to the Party

While Appalachian gas output has been diving for six months, the Haynesville in East Texas and Northwest Louisiana only started falling in February, EIA data show.

Why the delay? "The Haynesville has very good economics due to high volumes, high netbacks on price, low lease operating expenses, no severance tax until the earlier of payout or two years and reasonable transportation expenses," Goodrich Petroleum President Robert Turnham told Energy Intelligence.

"Combine these attractive characteristics with companies with deep-pocketed financial sponsors who have hedged a reasonable percentage of production, and the rig count has remained higher than many expected."

The Haynesville's relative resilience is also tied to its proximity to the Gulf Coast market, which has seen rising demand for LNG feedstock and fairly level industrial demand, "which is reflected in better net price realization than the other gas basins," Turnham said.

But the Haynesville is not immune to ills facing the upstream gas sector at large, he added. "I expect production to fall further as the rig count continues to fall until better gas prices in the winter of 2020 through 2021."

Nonetheless, the Haynesville has additional advantages that could keep coming declines in check and aid its recovery, Rockcliff Energy CEO Alan Smith told Energy Intelligence.

First off, the average gathering, processing and transportation costs for major Haynesville producers generally top out at around 25¢ per thousand cubic feet -- a fraction of the 75¢-$2/Mcf costs seen in Appalachia.

Also, the Haynesville's enviable location not only gives its producers access to resilient and growing Gulf Coast markets, but it stands to benefit from the approximately 4 Bcf/d of associated gas that will not be coming to the market due to already announced, substantial budget cuts in the Permian Basin.

Finally, Smith said, the most active drillers in the Haynesville are privately held and will likely continue to drill due to the favorable economics and their significant hedge positions.

"Public company's get rewarded for returning cash flow to their investors not spending free cash flow on production growth," Smith said. "We get rewarded for creating value by turning gas molecules in the ground into cash flow."

Tom Haywood, Houston

Output Falling in US Gas Shale Plays		
(Bcf/d)	**Appalachia**	**Haynesville**
Oct	132*	110
Nov	46	123
Dec	-74	123
Jan	-56	105
Feb	-220	34
Mar	-231	2
Apr	-326	-89

**Net new production minus natural basin decline. Source: US Energy Information Administration*

S&P Global
Platts

GAS DAILY

Thursday, March 7, 2019

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US natural gas in storage set for another bullish pull

- Stocks to fall 146 Bcf: survey
- Would grow deficit for third straight week

ExxonMobil forecasts gas production boost from planned LNG exports expansion

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- Qatar Petroleum key partner in integrated major's growth plans

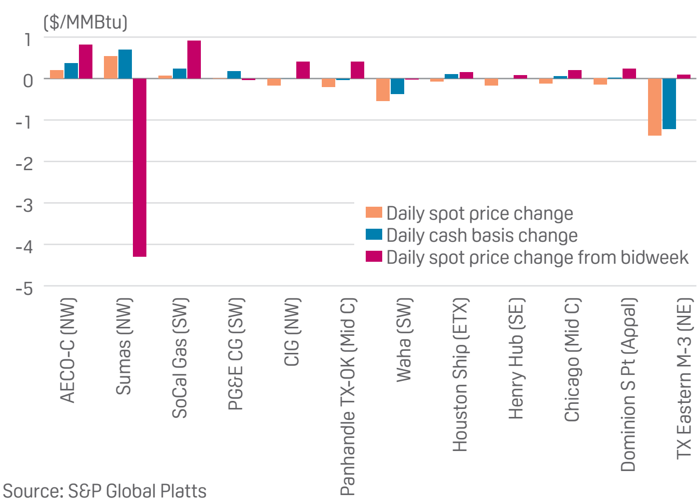
Controversial Colorado oil and gas bill slips through senate committee hearing

- Moves forward from committee with 4-3 vote
- Hearing lasted nearly 12 hours

March US gas-storage forecast drives bullish outlook for 2019 supply

- 210 Bcf draw on storage forecast for week in progress
- Bal-2019 forward curve up 26 cents/MMBtu since early February

SPOT PRICE AND BASIS CHANGES



Source: S&P Global Platts

INSIDE THIS ISSUE

FINAL DAILY PRICE SURVEY - PLATTS LOCATIONS ($/MMBtu)

NATIONAL AVERAGE PRICE: 3.240
Trade date: 06-Mar
Flow date(s): 07-Mar

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		Midpoint	+/-	Absolute	Common	Vol.	Deals
Northeast							
Algonquin, city-gates	IGBEE21	6.985	-2.450	6.250-8.000	6.550-7.425	243	62
Algonquin, receipts	IGBDK21	3.090	-1.105	3.050-3.100	3.080-3.100	1	3
Dracut, Mass.	IGBDW21	6.500	-2.550	6.500-6.500	6.500-6.500	15	1
Iroquois, receipts	IGBCR21	3.285	-0.325	3.150-3.500	3.200-3.375	278	77
Iroquois, zone 1	IGBRP21	3.560	-1.165	3.450-3.670	3.505-3.615	21	7
Iroquois, zone 2	IGBEJ21	6.690	-3.225	5.750-7.500	6.255-7.130	184	55
Niagara	IGBCS21	3.095	-0.230	3.090-3.100	3.095-3.100	38	14
Tennessee, z5 (200 leg)	IGBRQ21	3.920	-1.100	3.750-4.020	3.855-3.990	67	5
Tennessee, z6 (300 leg) del.	IGBJC21	—	—	——	——	—	—
Tennessee, zone 6 del.	IGBEI21	6.575	-2.485	5.800-8.000	6.025-7.125	136	48
Tennessee, zone 6, del. North	IGBRR21	7.220	-1.975	6.500-8.000	6.845-7.595	25	13
Tennessee, zone 6, del. South	IGBRS21	6.430	-2.470	5.800-7.250	6.070-6.795	111	35
Tx. Eastern, M-3	IGBEK21	3.050	-1.375	2.980-3.100	3.020-3.080	499	113
Transco, zone 5 del.	IGBEN21	3.090	-0.995	3.020-3.250	3.035-3.150	670	112
Transco, zone 5 del. North	IGCGL21	3.105	-0.880	3.050-3.150	3.080-3.130	96	20
Transco, zone 5 del. South	IGCHL21	3.090	-1.000	3.020-3.250	3.035-3.150	574	92
Transco, zone 6 N.Y.	IGBEM21	3.100	-1.430	3.010-3.180	3.060-3.145	144	47
Transco, zone 6 non-N.Y.	IGBEL21	3.085	-1.185	3.000-3.250	3.025-3.150	660	108
Transco, zone 6 non-N.Y. North	IGBJS21	3.085	-1.185	3.000-3.250	3.025-3.150	660	108
Transco, zone 6-non-N.Y. South	IGBJT21	—	—	——	——	—	—
Northeast regional average	IGCAA00	**4.310**					
Appalachia							
Columbia Gas, App.	IGBDE21	2.830	-0.235	2.780-2.950	2.790-2.875	1399	224
Columbia Gas, App. non-IPP	IGBJU21	—	—	——	——	—	—
Dominion, North Point	IGBDB21	2.865	-0.130	2.800-2.885	2.845-2.885	152	35
Dominion, South Point	IGBDC21	2.855	-0.145	2.750-2.980	2.800-2.915	1048	182
Lebanon Hub	IGBFJ21	2.945	-0.120	2.900-3.000	2.920-2.970	132	31
Leidy Hub	IGBDD21	3.150**	-0.150	3.150-3.150	3.150-3.150	0	0
Millennium, East receipts	IGBIW21	2.965	-0.080	2.930-2.980	2.955-2.980	91	30
Tennessee, zone 4-200 leg	IGBJN21	2.900	-0.090	2.850-2.970	2.870-2.930	600	121
Tennessee, zone 4-300 leg	IGBFL21	2.885	-0.110	2.800-2.910	2.860-2.910	234	56
Tennessee, zone 4-313 pool	IGCFL21	2.920	-0.100	2.900-2.950	2.910-2.935	77	18
Texas Eastern, M-2 receipts	IGBJE21	2.800	-0.165	2.600-2.880	2.730-2.870	854	124
Transco, Leidy Line receipts	IGBIS21	2.960	-0.120	2.900-3.000	2.935-2.985	91	24
Appalachia regional average	IGDAA00	**2.915**					
Midcontinent							
ANR, Okla.	IGBBY21	2.865	-0.125	2.800-2.900	2.840-2.890	176	48
Enable Gas, East	IGBCA21	2.805	-0.280	2.780-2.850	2.790-2.825	107	22
NGPL, Amarillo receipt	IGBDR21	2.925	-0.160	2.880-2.950	2.910-2.945	140	30
NGPL, Midcontinent	IGBBZ21	2.750	-0.075	2.725-2.860	2.725-2.785	464	85
Oneok, Okla.	IGBCD21	2.825	-0.105	2.770-2.890	2.795-2.855	189	36
Panhandle, Tx.-Okla.	IGBCE21	2.855	-0.195	2.810-2.900	2.835-2.880	804	165
Southern Star	IGBCF21	2.870	-0.285	2.850-2.900	2.860-2.885	36	9
Tx. Eastern, M-1 24-in.	IGBET21	—	—	——	——	—	—
Midcontinent regional average	IGEAA00	**2.840**					
Upper Midwest							
Alliance, into interstates	IGBDP21	2.960	-0.115	2.920-3.010	2.940-2.985	1409	186
ANR, ML 7	IGBDQ21	2.965	-0.105	2.960-2.980	2.960-2.970	42	3
Chicago city-gates	IGBDX21	2.975	-0.115	2.930-3.000	2.960-2.995	587	117
Chicago-Nicor	IGBEX21	2.965	-0.110	2.930-3.000	2.950-2.985	144	33
Chicago-NIPSCO	IGBFX21	2.975	-0.115	2.945-3.000	2.960-2.990	168	33
Chicago-Peoples	IGBGX21	2.975	-0.125	2.970-3.000	2.970-2.985	274	51
Consumers city-gate	IGBDY21	2.965	-0.100	2.930-3.000	2.950-2.985	443	84
Dawn, Ontario	IGBCX21	3.000	-0.415	2.940-3.105	2.960-3.040	692	96
Emerson, Viking GL	IGBCW21	2.975	-0.090	2.920-3.050	2.945-3.010	186	38
Mich Con city-gate	IGBDZ21	2.925	-0.100	2.895-3.000	2.900-2.950	484	89
Northern Bdr., Ventura TP	IGBGH21	2.995	-0.070	2.920-3.050	2.965-3.030	175	35
Northern, demarc	IGBDV21	2.965	-0.115	2.930-3.015	2.945-2.985	310	54
Northern, Ventura	IGBDU21	3.015	-0.070	2.920-3.080	2.975-3.055	790	118
REX, Zone 3 delivered	IGBRO21	2.950	-0.115	2.900-3.010	2.925-2.980	872	147
Upper Midwest regional average	IGFAA00	**2.970**					

Power burn demand for Midwest sat at 2.5 Bcf/d on Wednesday, but is expected to fall 831 MMcf/d to 1.67 Bcf/d by March 10, according to Platts Analytics. The backing off of the cold weather and decrease in power burn may contribute to the downward trend in deal count seen after the spike on March 1.

— Arsalan Syed

Newly formed Montage poised to access gas, NGL markets

- **Montage Resources holds more than 500 MMcf/d of capacity on interstate gas pipelines**
- **In-basin demand seen to grow for ethane produced with gas**

The drive to complete pipeline infrastructure to move both natural gas and natural gas liquids out of the Appalachian Basin will work to the advantage of a newly formed exploration-and-production company that has producing assets in both the wet- and dry-gas producing regions of the basin, a company official said this week.

Douglas Kris, head of investor relations for Montage Resources, on Monday said that with multiple options to move either its gas or liquids to downstream markets, the producer has the optionality to focus on the production of one or the other commodity, depending on realized prices for the different products.

"Our acreage position is 50% dry gas, 50% liquids so we could swing one way or the other depending upon the commodity price," Kris said.

Kris said, from Montage's perspective, currently there is adequate pipeline capacity to move gas and liquids out of the basin. "We're well-positioned for what we need," he said. "You don't want to have 100% capacity that equals your gross volumes, because then you have no optionality. What you want is more of a balanced portfolio where you are out-producing the firm transportation that you have on the books."

He said the biggest change seen over the past year and a half to two years has been the dramatic narrowing of basin differentials. As a result, "there are times when it's better to flow in-basin and not flow on your firm transportation," he said.

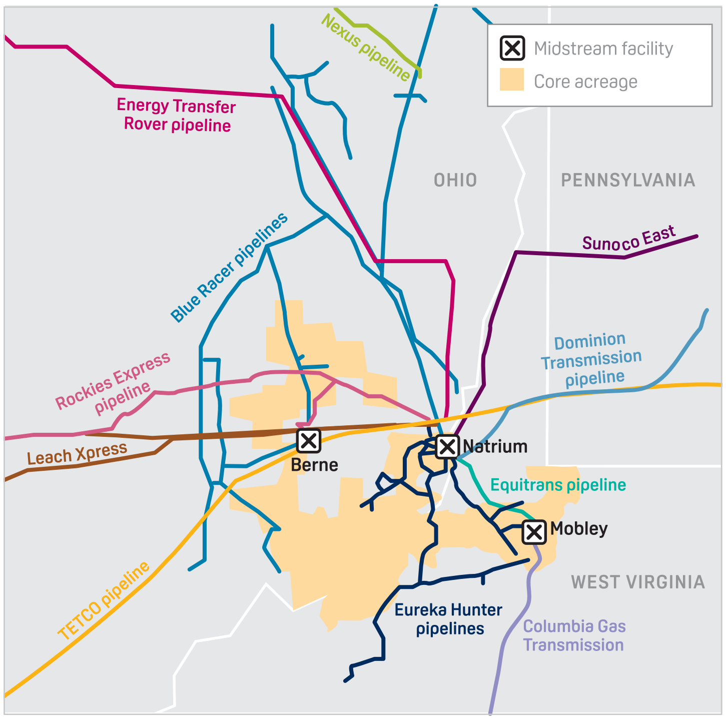
Because the company, formed from the recent merger of Eclipse Resources and Blue Ridge Mountain Resources, is producing gas and NGLs in excess of its firm transportation commitments, "There's an opportunity for us as the new company to look at our portfolio of production and see where we can optimize that portfolio."

The merger brought together the gas transport capacity held by each of the formerly independent companies for a total of about 500 MMcf/d of long-term firm transportation contracts, according to S&P Global Platts Analytics.

Eclipse Resources held a combined 355 MMcf/d of firm transportation capacity, including 150 MMcf/d on Rover Pipeline to move gas from eastern Ohio to the Southeast region in Trunkline Zone 1A, as well as 205 MMcf/d of capacity on Columbia Gas Transmission, transporting gas to the TCO Pool hub, Platts Analytics said.

Blue Ridge Mountain Resources, through its previous incarnation as Magnum Hunter Resources and its subsidiary Triad Hunter LLC, held a combined 150 MMcf/d of takeaway capacity, including 100 MMcf/d of westbound capacity on Rockies Express Pipeline and 50 MMcf/d on the Equitrans system, which delivers into Rockies Express Pipeline in eastern Ohio.

MONTAGE RESOURCES MIDSTREAM AND MARKETING PORTFOLIO



Source: Montage Resources

NGL marketing opportunities

In addition to its gas transportation options, "there are a lot of opportunities from the NGL perspective," Kris said. For example, the producer is expected to benefit from the recent opening of Energy Transfer's Mariner East 2 (ME2) pipeline, in marketing the ethane it produces in association with its gas output in its southwestern Appalachia region.

The 345,000 b/d pipeline, which came online in late December, transports ethane, propane and butane from processing plants in Ohio across West Virginia and Pennsylvania to the company's Marcus Hook Industrial Complex in eastern Pennsylvania. "We'll get some pricing uplift from that," he said.

As a combined company Montage is also expected to see some pricing uplift, "given the fact that Blue Ridge Mountain Resources didn't reject any of their ethane so we're able to receive the higher NGL price."

Another source of NGL demand in the southwestern Appalachian Basin is expected to come online in the next several years with the completion of the 86,000 b/d world-scale ethane cracker that Shell is building in western Pennsylvania. Montage has an agreement to provide ethane to the project when it is completed, Kris said.

In production guidance released last week, Montage said in 2019 it expects to produce net volumes of between 500 MMcfe/d and 525 MMcfe/d, comprising about 76% gas and 24% from oil and NGLs. The company's core assets are divided between the liquids-rich Utica and

Marcellus shales in southeastern Ohio and West Virginia and the dry-gas north-central Pennsylvania Marcellus play.

Kris said Montage's assets are well-positioned geographically to take advantage of the existing or planned pipeline takeaway capacity coming online to transport both gas and liquids, as well as new sources of in-basin demand being created for NGLs.

Like many of its Appalachia producer peers, Montage has adjusted its 2019 operational plans to focus on quickly returning cash to its investors. For example, the producer will reduce its planned lateral lengths to an average of 11,700 feet and reduce its initial development pad size to about four wells per pad.

These operational changes will result in shorter cycle times, allowing the company to "get cash in the door as quickly as possible," Kris said.

— Jim Magill, Eric Brooks

Pennsylvania well permitting plummets on spending cuts

- **EQT, Range Resources dialing back spending**
- **Pennsylvania production declined during last two months of 2018**

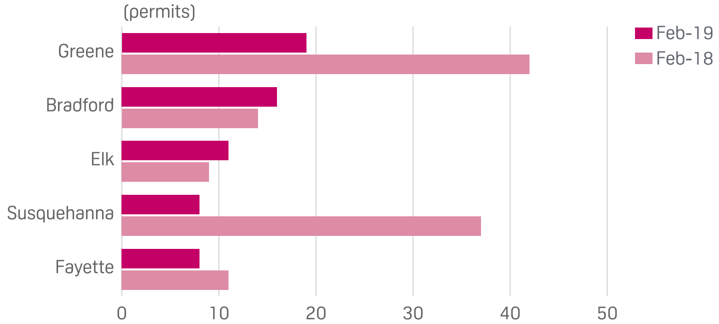
The number of new permits for shale gas wells in Pennsylvania dropped 59% in February from the previous month as producers slowed their drilling to stay within tighter budgets for 2019.

Several counties that have historically been the most productive showed sharp drops in new permits year-over-year. Only seven permits were issued Washington County just south of Pittsburgh, for instance, a 65% drop from February 2018 and an 85% drop from the January, according to March 6 data from the Pennsylvania Department of Environmental Protection.

The bulk of the double-digit declines in new permits in the big production counties south of Pittsburgh — Greene and Washington — can be traced to large declines in the number of permits pulled by EQT and Range Resources as those companies dial back their spending to conserve cash for shareholders. EQT pulled 16 permits in February, a 57% decline year over year, while Range pulled only five new permits, an 84% drop from February 2018.

At current prices for NYMEX gas futures contracts, "[r]educed 2019

PENNSYLVANIA WELL PERMITTING PLUMMETS AS DRILLERS CUT SPENDING



Source: Pennsylvania Department of Environmental Protection

capex guidance and production outlook should allow [Range to] generate more than $100 million of [free cash flow]," Stifel Nicolaus & Co. shale oil and gas analyst Jane Trotsenko said in a recent note. "[Range] updated its 2019 capital budget to $756 million, representing a 31% reduction to the previously provided capital spending of $1.1B for 2019."

Permitting also slowed 78% from January to February in Susquehanna County, the state's largest producer, largely because Cabot Oil & Gas receiving just six permits, a 74% decline from February 2018 and a 40% drop from the 10 it received in January.

Pennsylvania gas production volumes were already declining during the last two months of 2018, according to state data. Activity slowed throughout the state after a summer rush to ramp up volumes to fill newly opened pipelines such as Energy Transfer's Rover Pipeline and Williams' Atlantic Sunrise pipeline.

— Bill Holland, S&P Global Market Intelligence

Ohio well permitting increases again in February

- **Ascent led in gas production**
- **Equinor becomes more active**

Driven largely by a high rate of activity at Ohio's top shale gas producer Ascent Resources, the number of permits for new Utica Shale wells in the state increased 62% in February compared with the same month

LOUISIANA ENERGY CONFERENCE
2019 ALL THINGS ENERGY
MAY 28-31 THE RITZ-CARLTON NEW ORLEANS

2019 Preliminary Agenda as of 4-27-19

Listing of Confirmed Panelist Companies and Panelists; Additional Panelists Pending

Tuesday, May 28	**Opening Key Note Speaker and Reception: Ritz-Carlton Hotel**
4:00 - 5:30 pm	*Scott Schnipper - JPMorgan Private Bank*
JPMorgan	*Head of Foreign Exchange, Commodities & Rates*
	"Prosperity Promised? The Fed, OPEC and the Intersection of Macro and Energy Markets"
Wednesday, May 29	
7:45 – 8:00 am	Welcome
8:00 – 8:40 am	**Deep Water and Deep Shelf GOM**
Societe Generale	*GulfSlope Energy, Inc. (GSPE)*
	John Seitz, Chairman, CEO & Interim President & COO
	Murphy Oil Corporation (MUR)
	Gregory Hebertson, Vice President Global Exploration
	Beacon Offshore Energy (Private)
	Joseph Leimkuhler, Chief Operating Officer
	LLOG Exploration Co. (Private)
	Eric Zimmermann, Vice President of Geology
8:40 – 9:10 am	**Offshore Supply Vessels**
Pareto Securities	*Hornbeck Offshore Services, Inc. (HOS)*
	Todd Hornbeck, Chairman, President & CEO
	Tidewater, Inc. (TDW)
	John Rynd, President and Chief Executive Officer
	Laborde Marine, LLC (Private)
	Peter Laborde, Managing Member/Owner
9:10– 9:45 am	**U.S. Onshore E&P: The Permian**
Seaport Global	*Abraxas Petroleum Corporation (AXAS)*
Mike Kelly	*Robert Watson, President and Chief Executive Officer*
	Lilis Energy Inc. (LLEX)
	Ronald Ormand, Chairman and Chief Executive Officer
	Rosehill Resources Inc. (ROSE)
	Brian Ayers, Senior Vice President A&D and Geology
	Surge Energy America, LLC (Private)
9:45 - 10:25	**Presentation: Pareto Securities**
Pareto Securities	*Nadia Martin Wiggen, Partner & Analyst Oil & Gas Research*
Nadia Martin Wiggen	*"The Outlook for Oil Markets in a Turbulent Political Climate: Will the Growth in U.S. Shale Alter the Outlook for the Offshore Industry?"*
10:25- 10:40 am	Break: Sponsored by Postlethwaite and Netterville
10:40 – 11:20 AM	**U.S. Onshore E&P: Natural Gas focus**
	Goodrich Petroleum Corporation (GDP)
	Rob Turnham, President and Chief Operating Officer
	Montage Resources Corporation (MR)
	Douglas Kris, Vice President of Investor Relations
	Indigo Natural Resources LLC (Private)
	George Francisco, Executive Vice President and Chief Financial Officer
11:20 am – 12:00 pm	**Oil Field Services: US onshore**
Simmons Energy, a division of Piper Jaffray & Co.	*Flotek Industries (FTK)*

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John Chisholm, Chief Executive Officer
NCS Multi Stage Holdings Inc. (NCSM)
Ryan Hummer, Chief Financial Officer
Danos (Private)
Eric Danos, Chief Executive Officer
Fairfield Geotechnologies (Private)
Charles (Chuck) Davison Jr., President and Chief Executive Officer

Lunch Panel
JPMorgan
Joseph Bonavita

Credit Facilities, M&A, A&D and Investment Banking
JPMorgan
Jeff Stadler, Managing Director, Head of Middle Market Oilfield Services and LA Commercial Banking
Seaport Global Securities LLC
Michael Schmidt, Managing Director
Societe Generale
Sal Patoli, Managing Director

1:30– 2:10 pm
Northland
Jeff Grampp

US Onshore E&P
Evolution Petroleum Corporation (EPM)
David Joe, Senior Vice President and Chief Financial Officer
Northern Oil and Gas Inc. (NOG)
Brandon Elliott, Interim President
Pacific Energy Development Corp. (PEDEVCO) (PED)
Douglas Schick, President

2:10– 2:50 pm
Jones Walker
J. Marshall Page

Capital Availability: PE Opportunities in a Tight Public Debt Market
Angelo, Gordon & Co.
Damon Putman, Managing Director
BlackGold Capital Management
Shalin Patel, Director of Research
The Carlyle Group
Stuart Page, Head of Oil Field Services
HPS Investment Partners, LLC
Eliot Javanmardi, Managing Director
Riverstone Credit Partners, LP
Jamie Brodsky, Managing Director

2:50 - 3:20
RS Energy Group

Presentation: RS Energy Group
Trevor Slone, Executive Director and Co-Head of Research
"Thriving Through Industry's Digital Transformation"

3:20 - 3:35 pm

Break: Sponsored by Postlethwaite and Netterville

3:35 – 4:15 pm
Johnson Rice
Ron Mills

U.S. Onshore E&P: Attractive Plays Beyond the Permian in Today's Price Environment
Chaparral Energy, Inc. (CHAP)
Earl Reynolds, Chief Executive Officer
Lonestar Resources US, Inc. (LONE)
Frank Bracken, Chief Executive Officer
Penn Virginia Corporation (PVAC)
Ben Mathis, Vice President, Operations
Sundance Energy Australia Limited (SNDE)
Eric McCrady, Managing Director & CEO

2019 ALL THINGS ENERGY
MAY 28-31 THE RITZ-CARLTON NEW ORLEANS

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4:15– 4:45 pm John Herrlin	**John Herrlin 26th Annual 2018 F&D Cost Study and E&P Analysis**
6:00 – 9:30 pm W. David de Roode and Lockton Partners Preng and Associates	**WWII Museum: Buffet-style dinner, entertainment and networking** **New Orleans Warehouse District 945 Magazine Street** Mini-bus transportation from main entrance of Westin on Iberville Street to/from museum beginning at 6:00 pm
Thursday, May 30	
8:00 – 8:35 am Johnson Rice Daniel Burke	**U.S. Onshore Oil Services** *Independence Contract Drilling, Inc. (ICD)* *Philip Choyce, Executive Vice President and Chief Financial Officer* *Mammoth Energy Services, Inc. (TUSK)* *Don Crist, Director of Investor Relations*
8:35– 9:15 am Seaport Global Michael Schmidt	**Gulf of Mexico Basin E&P: It's Getting Increasing Attention from Wall Street** *Talos Energy Inc. (TALO)* *Tim Duncan, Founder, President and Chief Executive Officer* *W&T Offshore, Inc. (WTI)* *Tracy Krohn, Founder, Chairman, CEO and President* *Cantium (Private)* *Ken Beer (Chief Financial Officer)* *Upstream Exploration, LLC (Private)* *Michael Willis, President*
9:15 - 9:50 am Duff and Phelps Martin Rubio	**Private Equity: A Perspective on Middle Market Energy Services**
9:50 – 10:25 am	*Presentation pending*
10:25 - 10:40	Break
10:40 - 11:20 am Energy Capital Research Group Mark Rossano	**Hedging Panel** *Gunvor USA* *Carl Altoe, Senior Natural Gas Trader* *Morgan Stanley* *Grant Brady, Managing Director* *PerPetro Energy, LLC (Private)* *Joe Leblanc, Co-Founder and Chief Financial Officer* *Shell Trading Risk Management* *Kevin Hulsey, Director Risk Management Energy Commodities*
11:20 am – 12:00 pm Houlihan Lokey Jerry Eumont	**Parent/Child Drilling Issues / Conventional vs. Nonconventional** *Netherland Sewell and Associates, Inc.* *Scott Rees, Chairman & CEO*
Lunch Panel Deloitte LLP Patrick Brandau	**Capital Markets: What Happened to All the Energy IPOs?** *Deloitte LLP* *Andrew Slaughter, Executive Director* *Kroll Bond Rating Agency, Inc.*

2019 Preliminary Agenda as of 4-27-19

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	Lockton Partners, LLC
	W. David de Roode, Partner, Lockton Partners, LLC
	Nasdaq
	Oslo Børs (Stock Exchange)
	Øivind Amundsen
	Simmons Energy, a division of Piper Jaffray & Co.
	Paul Steier, Managing Director
1:30– 2:15 pm	**International OFS: The Recovery Has Begun**
Jones Walker	*Dril-Quip, Inc. (DRQ)*
Curtis Hearn	*Jeffrey J. Bird, Senior Vice President - Production Operations and CFO*
	Frank's International N.V. (FI)
	Michael Kearney, Chief Executive Officer
	Qmax (Private)
	Alex Church, Vice President, International Sales
2:15 - 3:00 pm	**Private Equity**
Jones Walker	*Bayou City Energy Management, LLC*
Britton Seal	*Mark Stoner, Partner*
	Lime Rock Partners
	Gary Sernovitz, Managing Director
3:00 - 3:45 pm	**Wrap-up Presentation / Where Are We Headed Now? 2019-20 Outlook**
6:00 - 8:00 pm	**Post closing cocktails and hors d'oeuvres in the French Quarter**
Friday, May 31	**FIELD TRIPS**
	Two field trip opportunities are currently planned:
	Shallow Water Gulf of Mexico: Crew boat trip to visit an Upstream Exploration production platform in Breton Sound
	Airboat trip to view marshland production facilities

Confirmed E&P and OFS Companies

Abraxas Petroleum Corporation
Beacon Offshore Energy
Cantium
Chaparral Energy, Inc.
Danos
Dril-Quip, Inc.
Earthstone Energy, Inc.
Evolution Petroleum Corporation
Fairfield Geotechnologies
Flotek Industries
Frank's International N.V.
Goodrich Petroleum Corporation
GulfSlope Energy, Inc.
Gunvor USA
Hornbeck Offshore Services, Inc.
Independence Contract Drilling

MARCELLUS / UTICA / SHALE DAILY / NGI THE WEEKLY GAS MARKET REPORT / NORTHEAST

Appalachian Dilemma: Too Much NatGas With Nowhere to Go

Jamison Cocklin

October 30, 2015

RELATED ARTICLES

At an industry conference Wednesday in Canonsburg, PA -- what some think of as the Northeast's little Houston -- the story remained the same: there is too much natural gas in the Appalachian Basin and not nearly enough ways to move it to market.

Since June 2014, when oil began its rapid fall ahead of 2015, which has been marked by sub-$3 gas, Appalachian production has increased by more than 3 Bcf/d, according to one estimate presented at the Penn State Natural Gas Utilization Conference. This, even as production during the same time declined in every major onshore basin with the exception of fields in the Rockies, which have gained less than 1 Bcf/d in the last 16 months.

"If you can't move natural gas, you can't use natural gas," said Tony Cox, director of UGI Energy Services Inc. midstream business development.

For about 10 years now, the Marcellus has boomed. Over the last five years, the Utica has risen to new heights, propelling the Northeast gas juggernaut higher. Yet the infrastructure rhetoric continues. Canonsburg is a regional home to many of the basin's leading operators. In addition to UGI, representatives from Williams and Spectra -- two of the Northeast's leading midstream companies -- told the crowd that most of their projects in the region have been prompted by strong demand pull.

While the downturn has forced the Northeast's gas growth needle backward only slightly, Williams Director of Engineering and Construction Glenn Koch said his company still predicts that Northeast supply will reach 35 Bcf/d by 2025.

One industry analyst estimated that there are more than 2,000 shut-in wells in the basin -- representing "billions" of cubic feet of stranded gas -- hindered by a lack of takeaway, markets and depressed prices. A casual observation would seem to tie-in to that estimate; many of the basin's leading producers have talked recently about a backlog of 25-50 or more wells that they'll use to ramp production next year while drilling rigs await better times in the industrial dooryards of the downturn.

Cabot Oil & Gas Corp. curtailed 500 MMcf/d alone in the second quarter, mainly over a lack of takeaway in Northeast Pennsylvania (see *Shale Daily*, July 24). It produced 142.1 Bcfe in the third quarter (see *Shale*

Daily, Oct. 23). Spokesman George Stark said the company is currently capable of producing another 2.2 Bcf/d of natural gas.

A component of today's prices is obviously supply, said Eclipse Resources Corp. VP of Investor Relations Douglas Kris. Liquefied natural gas (LNG) exports; Mexican gas exports; coal-to-gas switching; the petrochemical industry, and, most importantly, pipelines were among the options discussed to work it off.

A precursor to new and expanding markets is pipelines, Kris acknowledged, saying it remains unclear if the Northeast bottleneck would start to break beginning late next year and heading into 2017 as more infrastructure is expected to come online.

The political and regulatory process has in some ways hindered coal-to-gas switching, he said, noting the apprehension that surrounds the Obama administration's Clean Power Plan. There's more and more opposition to pipeline projects -- risking delays -- and gas growth projections have been upended by the uncertainty of the downturn.

Dominion Senior Policy Advisor for Federal Affairs Bruce McKay noted the hurdles his company has had to jump over to even get construction started on Dominion Cove Point LNG, saying 250,000 comments were filed with the Federal Energy Regulatory Commission in opposition, while just 100,000 were filed in support.

"We need a better 'why,'" Mckay said of the midstream process, adding that the "dynamics have changed in dealing with landowners.

"You have to be ready to answer the same questions over and over again. The playbook to delay [projects] is out there for anyone to see." He added that the industry needs to focus on landowners who have not made up their minds about the possible dangers of fossil fuel projects.

"You're just not going to convince extremists," said another attendee who spoke about the escalating pipeline opposition across the country.

But the markets do exist, and others appear to be growing. TRC Companies Inc. VP Mitchell Bormack said Shell Chemical Appalachia LLC's proposed ethane cracker for Western Pennsylvania would, on its own, consume about 85 MMcf/d of natural gas. He urged attendees to consider Philadelphia's depressed industrial complex as the next horizon for the petrochemical and LNG export sectors (see *Shale Daily*, Oct. 28).

Director of Northeast Business Development for Spectra Energy Corp. Erin Petkovich said 75% of her company's U.S. transmission projects are based on demand pull. Expansions and tie-ins, she said, would ultimately increase Texas Eastern Transmission's capacity by 4 Bcf/d by 2017. The Marcellus Shale is currently flowing about 5 Bcf/d into the 10.38 Bcf/d system. About 30% of all Appalachian supply flows into Texas Eastern, she said.

Appalachian gas has uses at all four points of the map, presenters said. McKay said 96% of the proposed Atlantic Coast Pipeline, which has been designed to move gas to the Southeast, is subscribed by power generators and utilities.

Small things could help, too. Bormack added that efforts are being considered in Southeast Pennsylvania to build up the virtual pipeline to help store and move more LNG and propane by road. That, he said, could help eat some supply and prevent the propane shortage and wild price spikes that occurred during the brutal winter of 2013-2014.

"As we think about the year we're walking out of, there's been a number of challenges. No. 1 in that is lower prices, I think most would agree," said Penn State Marcellus Center for Outreach and Research Director Tom Murphy. "But it also speaks about the number of opportunities we have for creating better markets...This is very much a global area, too."

Nearly 250 people attended the fifth annual utilization conference. That was up from last year, reflecting interest in end-use markets -- even during the commodities downturn -- according to organizers.

Cove Point terminal on schedule to help relieve gas glut

http://triblive.com/business/headlines/9334718-74/gas-power-prices

MCT

Pipes at the Cove Point facility, Lusby, Md.

BY DAVID CONTI | Wednesday, Oct. 28, 2015, 5:24 p.m.

Shale gas producers squeezed by prices that hit new three-year lows this week can look to the sky above Lusby, Md., for a sign of coming relief.

Dominion soon expects to have 50 cranes working there on its Cove Point liquefied natural gas export terminal, the company's senior policy adviser for federal affairs, Bruce McKay, told industry leaders Wednesday in Cecil.

Five such LNG terminals coming online over the next few years, along with more exports to Mexico and an increasing conversion of coal-fired power plants to gas, will boost demand to meet the supply glut that has kept prices so low, several speakers said at the gathering.

"Demand is only going up," Tony Cox, director of midstream business development for UGI Energy Services, said during Penn State University's fifth annual Natural Gas Utilization Conference in Southpointe.

Low prices driven by huge shale production and limited pipelines to take gas to lucrative markets constitute the No. 1 challenge facing the industry, said Tom Murphy, director of Penn State's Marcellus Center for Outreach and Research and an organizer of the conference.

Exports won't raise prices alone because there's plenty of supply. John Hilfiker, an analyst with Bentek Energy, estimated that just connecting shale wells that have been drilled but not completed could add up to 16 billion cubic feet of production per day to Appalachia's current output of 19 billion cubic feet.

Combined with use by petrochemical manufacturers and power plants, exports present a "potential catalyst to higher prices," said Douglas Kris, a vice president at State College-based producer Eclipse Resources.

The first five LNG terminals, starting soon with Sabine Pass on the coastal border between Texas and Louisiana, will export more than 8.1 billion cubic feet of gas per day by 2020, he said.

Cove Point is "on time and on budget" with construction 33 percent done for a 2017 launch, McKay said. That terminal will ship Marcellus gas to India and Asia.

Pipelines that can take the gas to those terminals and other demand centers on the Gulf Coast, New England, Southeast and Upper Midwest are increasingly coming online. The process was slowed by regulatory hurdles and a need for long-term commitments from both producers and users, said Glenn Koch, director of engineering and construction for pipeline builder Williams Cos.

"You need to have enough critical mass ... whether it's from producer push or market pull," he said.

More pipelines will make it easier to ship gas over the borders to Canada and to Mexico, which Kris said "remains an excellent export market" as it switches to gas-fired power plants.

Smaller pipeline projects are taking gas right to converted power plants in Appalachia.

UGI is building a 35-mile, 20-inch line to Shamokin Dam in Snyder County. Dallas-based Panda Power Funds announced earlier in the day that it was financing the construction of the Hummel Station there on the site of a shuttered coal plant. The natural gas-fired plant will come online in 2018 and produce enough electricity to power 1 million homes.

"We're ready to take what we've learned in Pennsylvania and apply it to other coal-fired projects across the nation," Todd W. Carter, president and senior partner of Panda Power Funds, said in announcing the project.

David Conti is a staff writer for Trib Total Media. He can be reached at 412-388-5802 or dconti@tribweb.com (mailto:dconti@tribweb.com).

Gas drillers eyeing Utica shale's promise

http://triblive.com/business/headlines/9345059-74/utica-wells-marcellus

Andrew Russell | Tribune-Review

A worker tends to a drill pad near Majorsville in West Virginia.

BY DAVID CONTI | Sunday, Nov. 1, 2015, 9:40 p.m.

Big results from recently drilled Utica shale wells have several Marcellus producers eyeing a possible push into the deeper rock, though not every driller is sold on its promise.

Executives at Downtown-based EQT Corp. and Consol Energy Inc. in Cecil spent a chunk of time during quarterly earnings calls in the past two weeks discussing the potential of the layer, pegged by some to be more prolific than the Marcellus, which runs above it.

"If the deep Utica works, it is likely to be larger than the Marcellus over time," said EQT CEO David Porges, who discussed plans to drill 10 to 15 Utica wells next year in Southwestern Pennsylvania and West Virginia. Pennsylvania's No. 5 shale gas producer is halting drilling outside its core Marcellus area while natural gas prices remain low.

"We're highly encouraged by the success we have seen in the Utica to date and over the next two to three years expect the dry Utica to become the primary focus of our development plan," said Tim Dugan, chief operating officer for gas at Consol, which announced good initial results from a well in Monroe County, Ohio. Consol is fracking and completing wells but has stopped all drilling until 2017.

The Utica is less explored in Pennsylvania — development has centered on Ohio — but could hold as much or more recoverable gas than the Marcellus, a government report found this year. Companies pinched by the lowest gas prices in three years and extra costs for pulling low-priced liquids from so-called wet gas are lured by the possibility of getting more bang for their buck in the dry gas gushers, industry leaders and analysts say.

"Eventually, when we have a place to take it, it's going to be very good," retired U.S. Steel CEO John Surma told financial and industry leaders during an energy summit in Pittsburgh last week, acknowledging the pipeline constraints that have contributed to depressed prices. Surma, a onetime Marathon Oil executive, serves on the boards of driller Concho Resources and Marathon Petroleum's pipeline partnership.

Given the wells' costs, though, committing to their development likely will hinge on how they compete with cheaper Marcellus wells.

"It all boils down to the well economics of the play," said Doug Kris, a vice president at State College-based Eclipse Resources, which is producing from the Utica near Consol's first wells in Monroe County.

Range Resources Corp., Pennsylvania's fourth-largest shale driller, over the past year completed two Utica wells in Washington County that it says are among the top 10 producing wells in Appalachia. But it doesn't make sense to commit to such expensive wells — Range's third Utica well will cost $15.9 million — when $6 million wells in the more proven Marcellus are producing more gas than ever, company leaders said last week.

"We're excited and encouraged by what the Utica could be. But in the short run, you're going to see our focus be totally on the Marcellus," CEO Jeff Ventura told analysts Thursday, saying the company would monitor results from Utica wells as a potential complement.

Consol's and EQT's initial Utica wells cost upwards of $25 million. Both companies said they're cutting that cost on subsequent wells. Consol reduced the amount of time it took to drill a Utica well on its Monroe County pad by 60 percent.

“This confirms our view that drilling and completion costs in the Utica will follow the same downward trend as the Marcellus as we move up the learning curve,” Dugan said.

Companies can further reduce costs if they drill Utica wells from existing Marcellus pads.

The proximity and availability of pipelines and processing facilities also will play a role in whether and where companies push into the Utica. Monroe County is served by several interstate pipelines that can carry the gas to markets such as the lucrative Midwest, Kris noted.

Spectra Energy's Ohio Pipeline Energy Network comes online this quarter and hits the heart of that state's Utica fields. Erin Petkovich, director of Spectra's Northeast business development, said that line and others can be expanded quickly if drillers increase production there.

“Where the dry Utica is picking up, a lot of our projects are heading there,” said Glenn Koch, director of engineering and construction for pipeline operator Williams Cos.

EQT is targeting an area stretching from southern Allegheny County to Wetzel County, W.Va., that coincides with its core Marcellus area, where its midstream business has been building gathering systems and pipeline for years.

Such high-producing wells would require even more pipe, though.

“If we see things consistent with those early results in future wells, I think we're probably going to be looking at takeaway limitations for a while,” Porges told analysts.

David Conti is a staff writer for Trib Total Media.

Longest Onshore Lateral Drilled in Guernsey County

Published: July 24, 2016 7:00 AM

Holly Bilyeu

Recently two oil and gas companies teamed up to drill a 124-stage lateral well in Guernsey County, thought to be the longest onshore lateral ever drilled in the United States, if not the world. Pennsylvania-based Eclipse Resources and Houston's Nine Energy Services worked collaboratively to drill the elongated well, known as the Purple Hayes.

The well was drilled to 7,663 vertically with a total true measure depth of 27,048. The length of the completable lateral well section is 15,544.

"Most operators have trouble running casing or pumping down perf guns and plugs to depths half of the Purple Hayes well," said Douglas Kris, VP of Investor Relations. "Because of that, Eclipse's engineers had to run very complex and interactive calculations for the optimal well design."

Nine Energy Services designed the plug and perf system on the well.

According to Kris, it would take most operators at least 40 days considering the length of the lateral well.

"A Highly efficient Nine Energy's wireline operation as well is extremely reliable Halliburton equipment, coupled with excellent water logistics provided by Eclipse's completions group resulted in over five frac stages per day average, which is an aspirational number for most of our competitors in shorter and less complex wells," said Kris.

The well was spud earlier this year in January and drilled to its total depth in 17.6 days. Completions operations were finished in April.

"It took Eclipse's engineering team as well as service companies' technical experts over 60 days to design, run simulations, and plan the execution of this project," said Kris.

The company recently issued a press release in which Benjamin W. Hulburt, Chairman, President, and CEO, commented on the current production of the well.

"The Purple Hayes well continues to produce at its managed choke target rates with flat production, shallower pressure declines, and no change in the condensate yield to date. The Company believes this to be indicative of better than anticipated performance and remains optimistic with the results to date, although no assurances can be given as to the long-term performance of the well at this juncture," said Hulburt."

The longer lateral design drives down the cost of finding a well site in an area steep with rugged terrain.

Eclipse Resources is an independent exploration and production company engaged in the acquisition and development of oil and natural gas properties in the Appalachian Basin, including the Utica and Marcellus Shales. For more information, please visit the company's website at eclipseresources.com.

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UTICA UPSTREAM

If you want a clear forecast of what 2016 will bring for the Utica Shale energy business, you will want to attend.

Date: Wednesday, April 6, 2016
Time: 8 a.m. – 2:30 p.m.
Location: Pro Football Hall of Fame

Utica Upstream is sponsored by:

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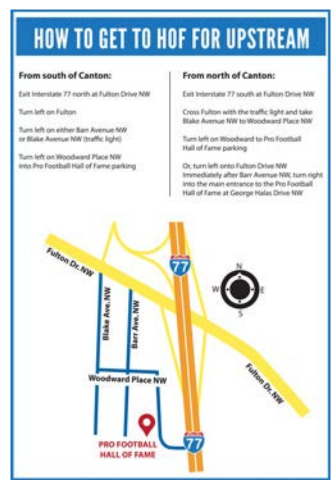

MEDIA PARTNER:
Kallanish Energy

These speakers will present at Utica Upstream at the Pro Football Hall of Fame.

Maria Cortez

Upstream Analyst, Wood Mackenzie

BIO: Maria Cortez of Houston, Texas, is an upstream analyst with Wood Mackenzie, a global energy, metals and mining research and consultancy group.

Jackie Stewart

State Director, Energy in Depth

Callum Streeter

Chief Operating Officer, EdgeMarc

BIO: Jackie Stewart is state director for Energy in Depth, a research, education and public outreach campaign focused on getting the facts out about the promise and potential of responsibly developing America's onshore energy resource base.

BIO: Callum Streeter, a native of New Zealand, is chief operating officer at EdgeMarc, an oil and gas exploration and production company working in the Utica.

Rick Simmers

Chief, Ohio Department of Natural Resources' Division of Oil and Gas Management

BIO: Rick Simmers is chief of the Ohio Department of Natural Resources' Division of Oil and Gas Resource Management.

Dr. Iryna Lendel

Economist, Cleveland State University

BIO: Dr. Iryna Lendel is a Cleveland State University economist who co-authored a new research report on the future of Utica economic development, supply chain opportunity and workforce needs.

Jeff Sunderland

Rick Stouffer

Assistant Vice President, Marketing and Business Development, Wheeling & Lake Erie Railway

BIO: As assistant vice president of marketing and business development, Jeff Sunderland is responsible for economic and industrial development with particular focus on locating new customers in the Marcellus and Utica Shale plays.

Energy Editor, Kallanish Energy

BIO: Rick Stouffer brings more than three decades of experience to his job as Energy Editor of Kallanish Energy, an all-Internet, Monday-through-Friday publication.

Bryce Custer

NAI Spring

BIO: Bryce Custer is one of the most active commercial real estate agents in the Utica Shale region and has helped assemble property for major projects. He’s optimistic about Utica and will tell you why.

Douglas Kris

Vice President for Investor Relations, Eclipse Resources

BIO: Douglas Kris is responsible for corporate and financial communications at the State College, Pa., company that has been drilling in Guernsey, Harrison and Monroe counties.

Frederick Shepperd

Managing Director, Shepperd Investors AG

CLICK HERE to view Frederick's presentation: "Utica & The Zero Economy: The World and Global Capital flows back to Ohio"

Nicole Decker

Equity Sector Strategist, UBS

CLICK HERE to view Nicole's presentation: "North American Energy Independence: A bump in the road"

Bruce McKay

Senior Policy Advisor, Federal Affairs, Dominion

CLICK HERE to view Bruce's presentation: "LNG Export Overview"

Jonathon Winslow

Vice President of Development, Advanced Power

CLICK HERE to view Jonathon's presentation: "Riding the Shale Gas Wave: Consumer Perspectives"

2015 PENN STATE NATURAL GAS UTILIZATION CONFERENCE

OCTOBER 28 - 29, 2015

Continue to check back for agenda updates

Wednesday, October 28th

7:30am Registration Open – Breakfast in Exhibitor Hall

8:30am Introduction & Welcome

- Bill Hall, CPG, Director
  Ben Franklin Shale Gas Innovation and Commercialization Center

- Tom Murphy, Director
  Penn State's Marcellus Center for Outreach and Research (MCOR)

8:40am Opening Keynote: Douglas Kris, Eclipse Resources

Douglas Kris is Vice President of Investor Relations for Eclipse Resources. Eclipse Resources has assembled an acreage position of approximately 225,000 acres in Eastern Ohio, targeting both the Utica Shale and Marcellus Shale. Over 115,000 of their net acres are located in what they believe to be the most prolific and economic area of the Utica Shale fairway, and approximately 25,000 of these net acres are also prospective for the highly liquids rich area of the Marcellus Shale.

9:10am North American Infrastructure: What's Needed & Planned for Access to New Markets?

A broad review of new infrastructure projects across North America. Panelists will examine what regions are seeing pipeline investment and how that correlates with the area's production and natural gas demand. What are the