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OCTOBER 2021



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Keith Behrens, Managing Director, Head of the Energy Group • 214-258-2762 • keith.behrens@stephens.com

Charles Lapeyre, Managing Director • 214-258-2784 • charlie.lapeyre@stephens.com

Paul Moorman, Managing Director • 214-258-2773 • paul.moorman@stephens.com

Brad Nelson, Managing Director • 214-258-2763 • brad.nelson@stephens.com

Jim Wicklund, Managing Director • 214-258-2798 • jim.wicklund@stephens.com

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RESPONSIBLY SOURCED GAS

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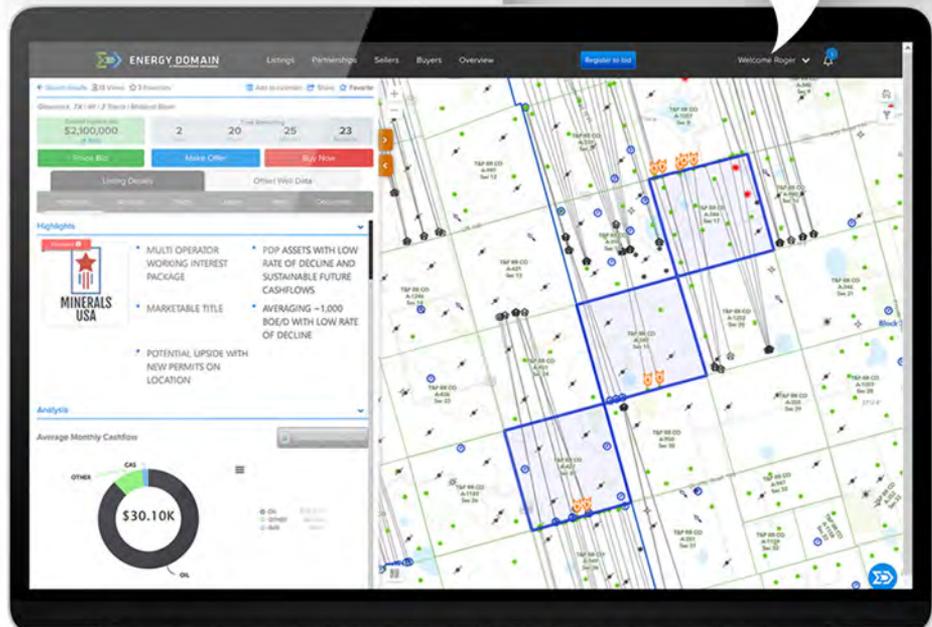
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Oil and Gas Investor

1616 S. Voss Rd., Suite 1000
Houston, TX 77057
1.713.260.6400 Fax: 1.713.840-8585
HartEnergy.com

Editor-in-Chief
Steve Toon
stoon@hartenergy.com

Executive Editor-at-Large
Leslie Haines
lhaines@hartenergy.com

Managing Editor Brandy Fidler
bfidler@hartenergy.com

Senior Editor Darren Barbee
dbarbee@hartenergy.com

Senior Editor Velda Addison
vaddison@hartenergy.com

Senior Editor Brian Walzel
bwalzel@hartenergy.com

Senior Editor Joseph Markman
jmarkman@hartenergy.com

**Senior Associate Editor,
Business and ESG** Faiza Rizvi
frizvi@hartenergy.com

Activity Editor Larry Prado
lprado@hartenergy.com

Associate Editors
Mary Holcomb, Madison Ratcliff

Editor-at-Large Nissa Darbonne
ndarbonne@hartenergy.com

Senior Managing Editor, Publications Ariana Hurtado
ahurtado@hartenergy.com

Senior Managing Editor, Digital Media Emily Patsy
epatsy@hartenergy.com

Creative Director, Alexa Sanders
asanders@hartenergy.com

Art Director, Robert D. Avila
ravila@hartenergy.com

Marketing Art Director, Melissa Ritchie
mritchie@hartenergy.com

Director, Business Development Chantal Hagen
chagen@hartenergy.com • 713.260.5204

Director, Business Development Taylor Moser
tmoser@hartenergy.com • 713.260.4612

Ad Materials Coordinator Carol Nunez
iosubmissions@hartenergy.com

HARTENERGY
EVENTS | MEDIA | DATA | INSIGHTS

Chief Executive Officer
Richard A. Eichler

Editorial Director
Len Vermillion

Senior Vice President, Events
Russell Laas

Senior Vice President, Digital Media
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ABOUT THE COVER: A Patterson-UTI rig drills Mac 10H, the second of six wells on EQT Corp.'s rural Greene County, Pa., site. Photo by Tom Fox.

Information contained herein is believed to be accurate; however, its accuracy is not guaranteed. Investment opinions presented are not to be construed as advice or endorsement by Oil and Gas Investor.

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LATEST CONTENT

Chevron To Maintain 'Capital Discipline' In Clean Energy Expansion, CEO Says

By Faiza Rizvi, Senior Associate Editor

Similar to other major oil and gas producers, California-based Chevron Corp. has come under pressure to address climate change and reduce greenhouse-gas emissions.

Former Concho Exec Travis Counts Joins Bracewell Oil And Gas Practice

By Hart Energy Staff

Over the course of his career, Travis Counts has negotiated and closed transactions exceeding \$75 billion in aggregate value, including Concho Resources Inc.'s recent merger with ConocoPhillips Co.

CEOs Share Insight On U.S. Shale Deal Landscape

By Velda Addison, Senior Editor

Some companies are scaling up through acquisitions, paving paths toward lower costs, efficiency and more premium drilling locations, while selling noncore assets.

Evolution Petroleum Barnett Acquisition Boosts Dividend By 50%

By Hart Energy Staff

Evolution Petroleum has paid a quarterly cash return to shareholders for nearly eight years, which CEO Jason Brown describes as a "remarkable achievement for an upstream independent energy company."

New Oil And Gas Royalties Firm Forms With \$500 Million Commitment

By Hart Energy Staff

Sierra Energy, a new mineral and royalty acquisitions company formed through a partnership between Providence Energy and Oaktree Capital Management, will target opportunities throughout the continental U.S.

ONLINE EXCLUSIVES

U.S. Shale Production To Rise On Projected Permian Basin Boost

By Emily Patsy, Senior Managing Editor

The projected increase in oil and gas production follows recent reports by the EIA of a sharp decline in the DUC count in all major U.S. shale regions.

Major U.S. Shale Producer Pioneer Natural Resources Sets Net-Zero Target

By Hart Energy Staff

Pioneer Natural Resources Co. on Sept. 15 adopted a net-zero ambition by 2050 for both Scope 1 and Scope 2 emissions that the U.S. shale producer says builds on many key initiatives already underway.

DUG Preview: Bakken, Rockies Provide Path Forward For Oil Industry

By Emily Patsy, Senior Managing Editor

Throughout the virtual conference featuring some of the most active players in the Bakken and Rockies, speakers shared several examples of ESG in action plus why the shale region holds the blueprint for the future of the oil and gas industry.

Hart Energy's Unconventional Activity Tracker

By Larry Prado, Activity Editor

Updated weekly, Hart Energy's exclusive rig counts measure drilling intensity. They exclude units classified as rigging up or rigging down, and also exclude rigs drilling injection wells, disposal wells or geothermal wells. They are designed to offer the most accurate picture of what is actually occurring in the field.

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Executive Q&A: Marathon Oil's Bakken Sweet Spot

Here's why Marathon Oil remains optimistic and bullish on the Bakken even after over 15 years operating in the shale basin.

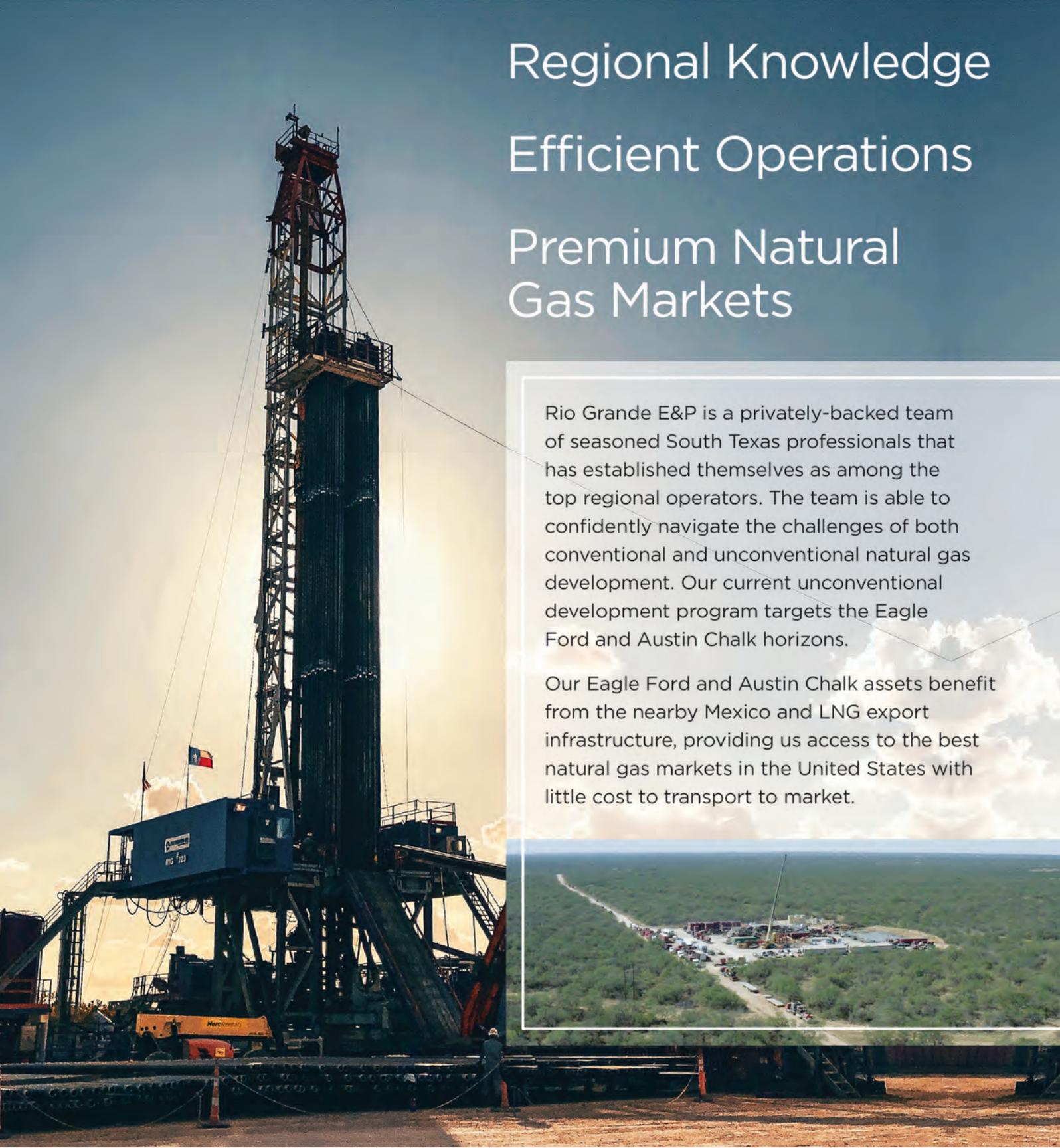
www.hartenergy.com/exclusives/executive-qa-marathon-oils-bakken-sweet-spot-196338



Energy Policy Watch: OFS Sector's Critical Role In The Energy Transition

Leslie Beyer, CEO of the largest national trade association serving the energy services sector in the U.S., joins Energy Policy Watch to discuss how the energy transition actually represents an opportunity for oilfield service companies.

www.hartenergy.com/exclusives/energy-policy-watch-ofs-sectors-critical-role-energy-transition-196287



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Rio Grande E&P is a privately-backed team of seasoned South Texas professionals that has established themselves as among the top regional operators. The team is able to confidently navigate the challenges of both conventional and unconventional natural gas development. Our current unconventional development program targets the Eagle Ford and Austin Chalk horizons.

Our Eagle Ford and Austin Chalk assets benefit from the nearby Mexico and LNG export infrastructure, providing us access to the best natural gas markets in the United States with little cost to transport to market.

SOUKI'S OPTIMISM



STEVE TOON,
EDITOR-IN-CHIEF

Even at \$5 per Mcf, gas prices are cheap, says Charif Souki, co-founder and executive chairman of Tellurian Inc. That's because the rest of the world is paying \$22 to take it off your hands. And that arbitrage will continue pulling gas from U.S. producers for decades to come, he projects—despite the noise that says otherwise.

"You would think \$5 gas is expensive, but it's cheap on a global basis," he said. "The American producer has to think in terms of a global marketplace, not simply an American marketplace. We're blessed with an incredibly large resource base. It gives us an enormous inherent advantage."

Souki shared his perspective with the Houston Producers Forum in September. His \$15.5 billion, 27.6 mtpa Driftwood LNG project in Louisiana is expected to reach a final investment decision early next year.

That advantage presumes the world will still need U.S. natural gas for decades to come. And that noise presumes it won't with an ongoing energy transition to nonhydrocarbon fuels.

Low prices exacerbated the noise, he said. People became complacent and were perfectly happy to sanction "almost religious beliefs" in what should happen regarding fossil fuels. "What are you going to choose to believe without any real thought into the realities of what is going to happen?"

Hydrocarbons, he reminds, provide 80% of the world's energy. "When we talk about the transition, the question is, transition to what?" He likens the transition to nonfossil fuels as an incomplete bridge over water. "This bridge is not very useful."

As an example, Souki points to the energy crisis occurring in Europe today as a model for what is going to happen around the rest of the world. In less than 12 months the European Union has gone from a position of oversupply to one facing "potentially catastrophic disruptions." In their efforts to drive coal and natural gas out of the system, replacing them with wind and solar, they overshot, said Souki. Now when the renewables are not pulling the load, the fossils are in short supply.

European consumption of coal has risen 20% this year, counterintuitive to the overall goal. Natural gas supplies are at historic lows going into the winter—and Russia may not have the spare capacity to bail them out.

"It's not simply an issue of price because they accept that it's going to be very expen-

sive this winter. It's more fundamental than this. What if they just can't get the molecules to the customers?"

"Everybody's looking for a scapegoat, but the scapegoat is the system—bad policies. They took everything for granted."

And sky high prices in Europe will drive up natural gas prices across the globe.

Another critical data point: 15% of the world's population consumes 40% of the world's energy. If the rest of the world is to catch up to half of the standards that are in the Western world, the world will need an additional 100 million barrels equivalent, he surmised. Not less.

"When you travel around the world and tell other people, especially in China and India, 40% of the rest of the world, that they're not entitled to the same living standards as we have in the U.S. and the Western world, you're not taken very seriously."

And they're not going to walk away from it, he said. "The best allies we have here today, because we are now a major hydrocarbon producer on a global basis, are going to be all the governments around the world that are relying on our behavior in terms of developing affordable energy to the rest of the world."

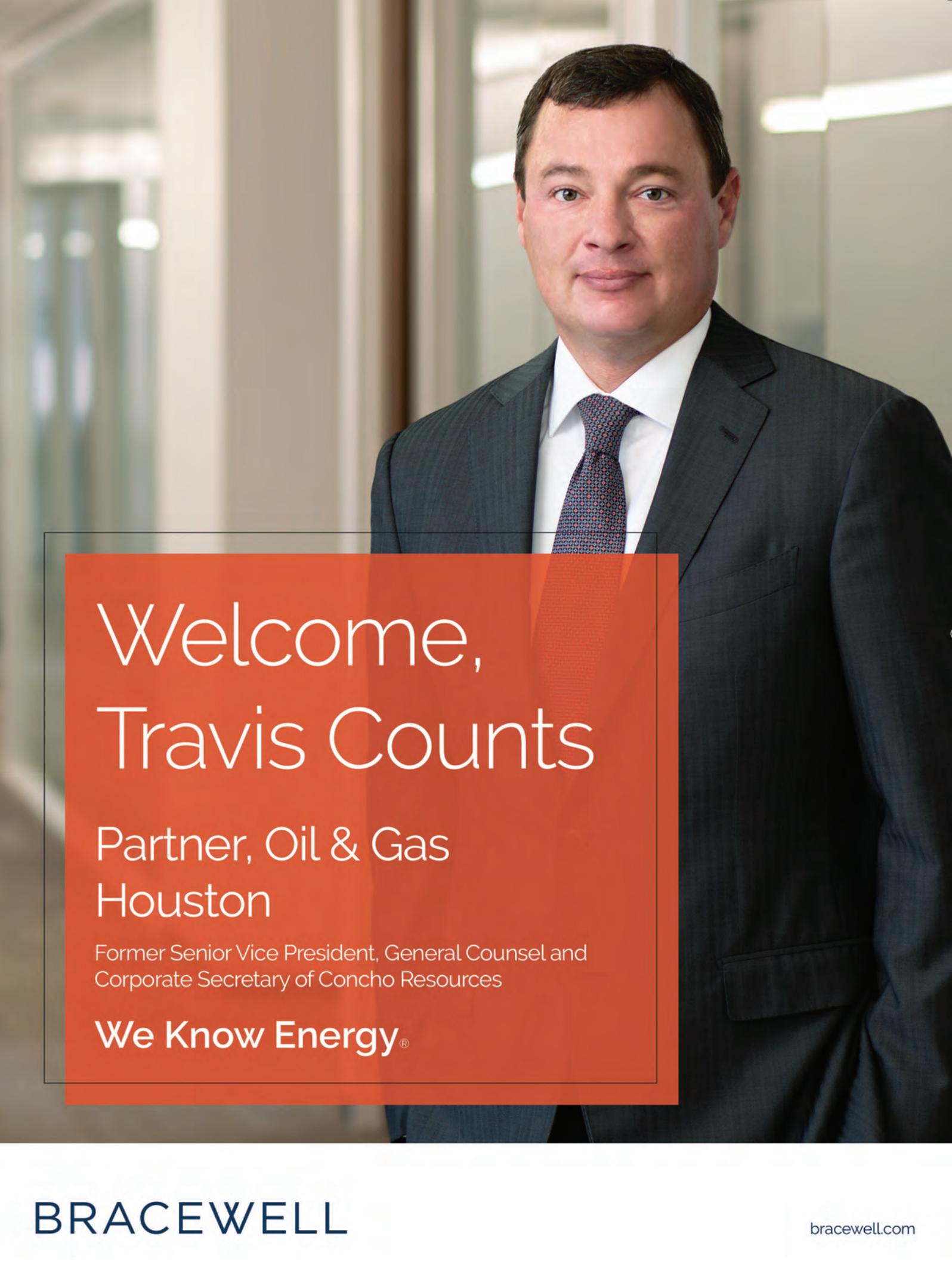
Souki believes the debate of hydrocarbons' role in the energy transition is reaching an inflection point. "Denying the necessity of continuing to rely on hydrocarbons for the next few decades is ridiculous. It just goes in the face of history of every evolution from one energy source to the next one."

Even biomass, once the predominant source of world energy, has grown in demand over the last century, he noted, albeit a lower percentage of the energy stack. So rather than a transition, "there is an evolution," he said. "We are not going to get away from hydrocarbons. We're going to add to hydrocarbons."

"So if you have these views that you want to deal with climate, there are ways to do it that are intelligent where reality isn't going to come back and bite you because you miscalculated."

Souki anticipates a global shortage of LNG in the near future about the time Driftwood is set to come online in the mid-2020s, which is why he is an optimist for the industry.

"My message is the future is bright. But the future is not local anymore because the people who really need you are all around the world."



Welcome, Travis Counts

Partner, Oil & Gas
Houston

Former Senior Vice President, General Counsel and
Corporate Secretary of Concho Resources

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SO LITTLE NOISE



DARREN BARBEE,
SENIOR EDITOR

In a Monty Python skit, two East End London gangsters try to shake down a British army colonel with a not-so-subtle threat. “This is a real nice army base you got here, colonel,” one of them, wearing a pin-striped suit and dark sunglasses, says. “Be a shame if something were to happen to it.”

This is essentially the same pretext given for Royal Dutch Shell Plc’s surprise decision to sell off its Permian Basin assets.

But many questions arise.

The backstory: In May, a Dutch court ordered Shell to abide by stricter rules in lowering its greenhouse-gas (GHG) emissions. Articles by Reuters have since given this as the explanation for the Dutch-Anglo company’s willingness to sacrifice what it once called the “heart of Shell’s shales portfolio” that was to set the stage for growth across the Americas.

The result, in September, was a super-sized deal in which ConocoPhillips Co. will buy Shell’s tightly packed, blocky Permian acreage position for \$9.5 billion.

It was therefore interesting to hear ConocoPhillips trumpet, more than once, how far the transaction would go toward helping the Houston company reduce its emissions. The company said Shell’s assets, including infrastructure, would help lower its GHG emissions by 40% to 50%, based on a 2016 baseline. ConocoPhillips’ previous target was a 35% to 45% reduction.

Is it possible that a single mega-deal cooled two birds with one stone? No.

Rather both companies simply look better because ConocoPhillips emissions aren’t great—Fitch Ratings graded a number of the company’s energy transition standards with a resolute “poor.”

Shell, by simple attrition, is cutting its emissions, but its overall E&P operations were scored as so-so by Fitch. Also, Shell said that since 2017, it has reduced its Permian GHG emissions and methane intensity by 80% through “investment in infrastructure and technology.”

In 2018, for instance, Shell’s U.S. president, Gretchen Watkins, said the company was working to reduce flaring and had stopped installation of new flares at well production pads.

In short, the story is that Shell’s premier shale business, which it had invested money and time to curb GHG emissions, was the best asset for it to ditch as it strives to meet a court order it plans to appeal.

Also of note was the deal’s financial metrics. Shell’s Permian business includes ownership in about 225,000 net acres with

production of about 175,000 boe/d. (ConocoPhillips rounded its estimated 2020 production to 220,000 boe/d.)

Subtracting production, the transaction cost ConocoPhillips about \$15,600 per net acre, according to Wells Fargo Securities.

As the Permian goes, that’s a solid price for Shell, though far from the days when acreage hovering over Permian Basin caused grown adults to cry havoc and let slip bids of \$90,000 per acre.

Shell’s Permian business recorded close to half a billion dollars of pre-tax losses in 2020. Of course, that was the year every oil and gas company was roasted over a commodity-fire pit.

The Permian business recorded a before-tax operating loss of \$491 million for the year ended Dec. 31, 2020. The transaction is expected to result in an after-tax gain of \$2.4 billion to \$2.6 billion, subject to adjustments.

And Shell took \$9.5 billion for assets that it valued at \$10.5 billion at the end of 2020.

ConocoPhillips paid for the deal with \$4 billion of cash on hand and its balance sheet, but its long-term debt reduction goals won’t be affected as a result of the deal, said Roger Read, senior analyst at Wells Fargo. The company also expects \$10 billion of free cash flow—a 15% increase—by 2030.

Bob Brackett, senior analyst at Bernstein, said in a September report that ConocoPhillips was one of the few companies with a balance sheet big enough to absorb the assets Shell wanted to shelve.

“We wonder out loud whether Permian assets are becoming more attractive as geopolitical pressures mount elsewhere in the world, and perhaps even the North Slope,” Brackett said. “Ultimately, the fewer, larger and more disciplined hands that control the Permian—and shale more broadly—the better, so COP [ConocoPhillips] as an expanded force for discipline is good for our thesis.”

So why does it feel like a \$9.5 billion deal has all the significance of a tree falling in a forest with just enough people around to hear it? Perhaps because nothing significant changed in the Permian’s deal world.

Isn’t one person’s ConocoPhillips just another Shell? And emissions, likely, didn’t change either.

Even the concept of consolidation is somewhat surreal. ConocoPhillips plans to bust up its own acreage and sell up to \$4 billion in assets, mostly in the Permian.

That’s the Permian. A \$9.5 billion deal—and so little noise.



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It's easy today to get caught up in all the complexities about oil and gas operations with the terms “energy transition” and “decarbonization” permeating the news. Amid all of that discussion, we can't lose sight of the fundamental public policy-related factors that make oil and gas operations viable. Fiscal terms, license to operate, a stable legal framework and access to investment capital have all been critical to the success of oil and gas operations in the U.S. In fact, our hydrocarbon laws and stable regulatory and investment climate have been the No. 1 reason the U.S. has led the world in the shale revolution.

So what is currently happening in U.S. public policy that is impacting these basic fundamental factors? First, let's look at fiscal terms. The budget reconciliation package that is moving through Congress has a number of damaging provisions to the U.S. oil and gas industry. It eliminates several long-held cost recovery deductions and expensing allowance that have been part of the federal tax code for generations as means to encourage U.S. oil and gas production. They include the EOR credit, marginal well credit, expensing of intangible drilling costs, percentage depletion allowance for oil and gas wells, two-year amortization of geological and geophysical expenses, and capital gains treatment for certain royalties.

These deductions and allowances are similar to those used in other forms of manufacturing and resource development and are fundamental to the fiscal foundation of the U.S. oil and gas industry. Removing them will make the U.S. industry less competitive.

According to House Ways and Means Committee ranking member Kevin Brady (R-TX), these actions would constitute \$145 billion in tax hikes on everyone within the industry.

Another blow to fiscal terms that would make the U.S. less competitive globally could come in the form of increases to royalty rates for oil and gas production on federal lands and waters to 20%—currently range from 12.5% to 18.75%—and raising rental fees and bonus bids as well. This move would come at a time in which activity has diminished on federal lands and waters due to a deteriorating regulatory environment and high operating costs.

On top of all of this is the proposal for a methane fee. Allegedly it is a tax on methane emissions but is actually applied to all producers in a region.

Traditionally, U.S. policies on license to

operate have given our industry a competitive advantage. However, recent actions and proposed changes to our energy and regulatory policies are eroding this competitive advantage.

Nowhere has obtaining and maintaining a license to operate become more difficult than on federal lands and waters. An indefinite “pause” on new offshore leasing has seemingly ended with a court order, but future stringent lease terms (including higher royalties) and stipulations promise to make future lease sales less attractive.

A programmatic environmental impact statement analyzing broad impacts of oil and gas leasing on climate change will take years to complete and will be a de facto moratorium on future leasing activities.

As the Biden administration drags its feet on federal leasing, keep a close eye out for impacts on private lands production through climate-related regulation. Notably, the changing makeup of the Federal Energy Regulatory Commission, with a majority of commissions to be appointed by Democrats, is also likely to impact pipeline permitting with a climate test being applied there as well.

Our stable hydrocarbon laws, with the rule of capture and private ownership of minerals, has always made the U.S. the best place globally to develop oil and gas. That too, however, is potentially threatened as government policies take aim at oil and gas activities. Nothing has been more telling than President Biden's unsuccessful plea to OPEC to send more barrels to the U.S., while placing more areas off limits in the U.S. and shutting down the Keystone Pipeline.

Lastly, the flight of capital away from the oil and gas sector continues to negatively impact investment and project development. While much of this is due to investor sentiment, the White House has contributed to the problem through an executive order directing funding away from fossil energy projects.

Ironically, this and the other actions discussed above will actually thwart efforts to lower carbon emissions because it will discourage production of energy produced with leading technologies and under strong regulatory safeguards here in the U.S. including natural gas, as well as the construction of LNG export, transport and regasification infrastructure that would displace coal-fired generation in the developing world. Simply put, a strong and competitive U.S. oil and gas industry is a necessity. Failure to maintain that competitiveness will harm our security, economy and environment alike.

EVENTS CALENDAR

The following events present investment and networking opportunities for industry executives and financiers.

EVENT	DATE	CITY	VENUE	CONTACT
2021				
OGA Annual Conference	Oct. 4-6	Norman, OK	Embassy Suites	okgas.org
Utica Green Conference	Oct. 12	Canton, OH	Pro Football Hall of Fame	uticasummit.com
Energy Transition Capital Conference	Oct. 18-19	Houston	Westin Memorial City	hartenergyconferences.com
USAAE/IAEE North American Conference	Oct. 31-Nov. 3	Austin, TX	Sheraton Capital	iaee.org
Executive Oil Conference	Nov. 3-4	Midland, TX	Midland County Horseshoe Arena	executiveoilconference.com
Carbon Management Forum	Nov. 3	Midland, TX	Midland County Horseshoe Arena	executiveoilconference.com
WEA Wildcatter of the Year	Nov. 6	Denver	Hyatt Regency at Colorado Conv. Ctr.	westernenergyalliance.org
Louisiana Energy Golf Open	Nov. 8	Lafayette, La.	Oakbourne Country Club	loga.la
North American Gas Forum	Nov. 8-10	Washington, D.C.	Hilton Washington DC, National Mall	energy-dialogues.com/nagf/
25 Impactful Veterans in Energy	Nov. 10		Virtual	hartenergyconferences.com
OK Petroleum Alliance Fall Conference	Nov. 17-18	Oklahoma City, OK	Skirvin Hilton	thepetroleumalliance.com
Energy ESG Conference	Nov. 29	Houston	Westin Memorial City	energyESGConference.com
25 Influential Women in Energy Reception	Nov. 29	Houston	Westin Memorial City	hartenergyconferences.com
World Petroleum Congress	Dec. 5-9	Houston	George R. Brown Conv. Ctr.	23wpchouston.com
DUG East/Marcellus-Utica Midstream	Dec. 6-8	Pittsburgh	David L. Lawrence Conv. Ctr.	dug-east.com
2022				
IPAA Private Capital Conference	Jan. 20	Houston	JW Marriott Galleria	ipaa.org
NAPE Summit	Feb. 8-11	Houston	George R. Brown Conv. Ctr.	napeexpo.com
DUG Midcontinent	March 1-3	Oklahoma City	Oklahoma City Conv. Ctr.	dugmidcontinent.com
CERAWeek by IHS Markit	March 7-11	Houston	TBD	ceraweek.com
Mineral & Royalty Conference	April 18-19	Houston	Post Oak Hotel	mineralconference.com
DUG Permian/Eagle Ford	May 16-18	Fort Worth, TX	Fort Worth Convention Center	dugpermian.com
Louisiana Energy Conference	May 24-27	New Orleans	The Ritz-Carlton, New Orleans	louisianaenergyconference.com
DUG Haynesville	May 25-26	Shreveport, LA	Shreveport Convention Center	dughaynesville.com
IPAA Annual Meeting	July 20-22	Colorado Springs, CO	The Broadmoor	ipaa.org
Monthly				
ADAM-Dallas	First Thursday	Dallas	Dallas Petroleum Club	adamenergyforum.org
ADAM-Fort Worth	Third Thursday, odd mos.	Fort Worth	Fort Worth Petroleum Club	adamenergyfortworth.org
ADAM-Greater East Texas	First Wed., even mos.	Tyler, Texas	Willow Brook Country Club	etxadam.org
ADAM-Houston	Third Friday	Houston	Brennan's	adamhouston.org
ADAM-OKC	Bi-monthly (Feb.-Oct.)	Oklahoma City	Park House	adamokc.com
ADAM-Permian	Bi-monthly	Midland, Texas	Midland Petroleum Club	adampermian.org
ADAM-Tulsa Energy Network	Bi-monthly	Tulsa, Okla.	The Tavern On Brady	adamtulsa.com
ADAM-Rockies	Second Thurs./Quarterly	Denver	University Club	adamrockies.org
Austin Oil & Gas Group	Varies	Austin	Headliners Club	coleson.bruce@shearman.com
Houston Association of Professional Landmen	Bi-monthly	Houston	Houston Petroleum Club	hapl.org
Houston Energy Finance Group	Third Wednesday	Houston	Houston Center Club	hefg.net
Houston Producers' Forum	Third Tuesday	Houston	Houston Petroleum Club	houstonproducersforum.org
IPAA-Tipro Speaker Series	Second Wednesday	Houston	Houston Petroleum Club	ipaa.org

Email details of your event to Brandy Fidler at bfidler@hartenergy.com.

For more, see the calendar of all industry financial, business-building and networking events at [HartEnergy.com/events](https://www.hartenergy.com/events).



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Top E&Ps report worst capex, revenue performance in 2020

The oil industry's economic highs and lows aren't unfamiliar territory for producers, but the downturn of 2020 brought unprecedented losses in revenues, capex and reserves, a new EY study found.

Last year, the industry's 50 largest publicly traded E&Ps posted their lowest combined revenue since 2016 at \$110.8 billion, according to EY's U.S. oil and gas reserves, production and ESG benchmarking study.

Additionally, the E&Ps reported a total capex of \$60.3 billion in 2020, representing a 60% decrease from 2019. It was the lowest for the five-year study period compared to increases of 17%, 21% and 27% in 2019, 2018 and 2017, respectively.

The study attributed these losses to depressed commodity prices, which were elevated by the COVID-19 pandemic. In return, the decline in oil prices

caused impairment charges to triple, amounting to \$66.6 billion—the highest for the five-year study period (2016 to 2020).

After-tax losses were \$84.1 billion, the greatest loss during the period and the first loss since 2016, the study found.

"The lower commodity price environment of last year caused a significant drop in capex and significant impairments," said Herb Listen, EY Americas energy and resources assurance leader. "Though prices have recovered, we haven't seen a rebound in capex in 2021 and, as a result, likely won't see a return in U.S. production to the same pre-pandemic levels. This will cause a ripple effect as the market struggles to meet recovering demand and may result in higher prices."

Chevron Corp. was the leading purchaser of proved and unproved assets with its \$6.4 billion acquisition of Noble Energy Inc. The deal brought the company nearly 1 Bcf of international natural gas reserves.

PDC Energy Inc. followed with total property acquisition costs of \$1.7 billion spent related to its merger with SRC Energy Inc., the study showed.

However, the E&Ps proven and unproven acquisitions totaled 7,002 and 4,554 last year—a significant decrease from 28,902 and 35,322 in 2019. The companies drilled 41% and 32% fewer development and exploration wells, respectively, compared to 2019, according to the study.

Investments in development expenditures from the integrated oil and gas companies decreased year-over-year by about one-third, while investments in development expenditures from the large independents and independents decreased by about half, the report concluded.

Oil production and gas production remained materially flat at 2.8 Bbbl and 13.2 Tcf, decreasing by only 2% since the record high in 2019.

According to the study, the largest increases were posted by

U.S. Capital Expenditures (US\$MM)

	2016	2017	2018	2019	2020
Proved properties acquired	12,846	12,547	25,409	28,902	7,002
Unproved properties acquired	23,383	24,148	13,452	35,322	4,554
Exploration	9,888	12,745	13,328	11,440	6,177
Development	39,202	58,521	77,892	76,486	42,551
Other	28	163	578	73	65
Total	85,347	108,124	130,659	152,223	60,349

Note: Includes the 50 largest companies based on 2020 end-of-year oil and gas reserve estimates. Activity related to acquired companies has also been reflected as described in the Appendix.

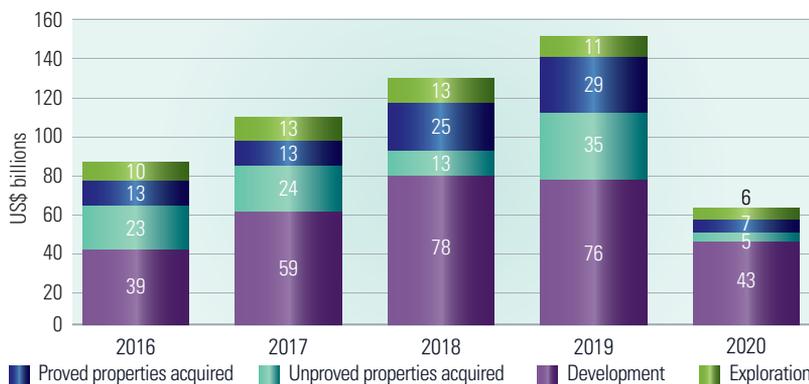
Source: EY

Net Wells Drilled



Source: EY

Costs Incurred



Source: EY

Occidental Petroleum Corp. with 79 MMbbl and Chevron with 26 MMbbl, likely due to the acquisitions of Anadarko Petroleum Corp. and Noble Energy. ConocoPhillips Co. and BP Plc posted the largest decreases—27 MMbbl and 21 MMbbl—due to reduced development spending and production curtailments in the low oil price environment.

The studied companies reported combined oil reserves of 26 Bbbl and combined gas reserves of 148 Tcf, decreases of 19% and 13%, respectively, compared with 2019. Downward reserve revisions totaled 5.2 Bbbl of oil and 21.3 Tcf of gas for 2020.

The largest downward revisions were reported by:

- Exxon Mobil Corp., 1.241 Bbbl;
- ConocoPhillips, 449 MMbbl;
- Occidental Petroleum Corp., 373 MMbbl; and
- Chevron, 350 MMbbl.

In 2020, more companies made commitments to reduce their CO₂ emissions as ESG-focused goals gained ground. Nearly all of the large independents (93%), all of the integrations and 65% of the other independents have published sustainability or ESG reports.

The majority of the companies' goals aligned with environmental topics (53%), while social topics accounted for 33%, and only 10% of the goals were dedicated to governance.

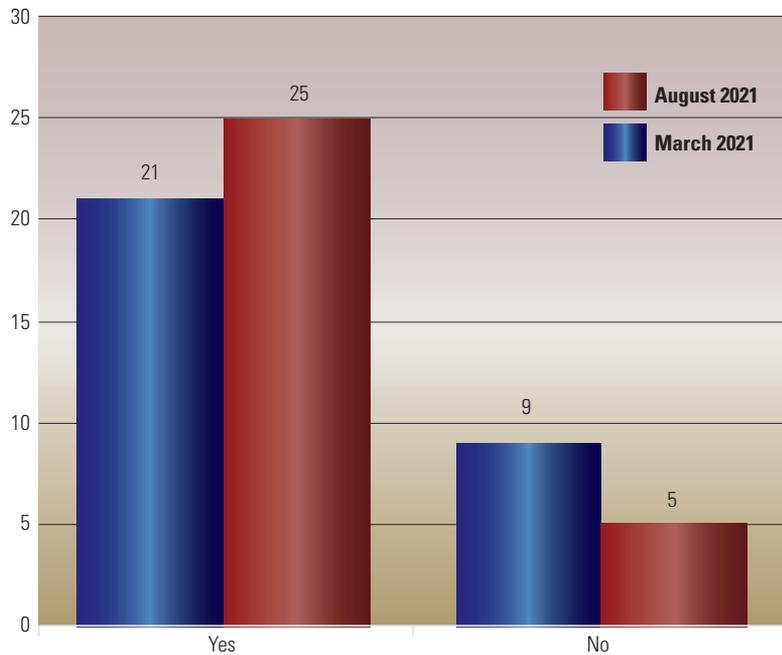
"ESG and sustainability have become essential to attracting capital and creating long-term value for all stakeholders," Listen said. "Interestingly, very few companies in our study—only 16%—are providing third-party assurance over ESG metrics. Due to a lack of standardization and companies following various frameworks, the importance of third-party assurance to investors is going to grow."

—Mary Holcomb

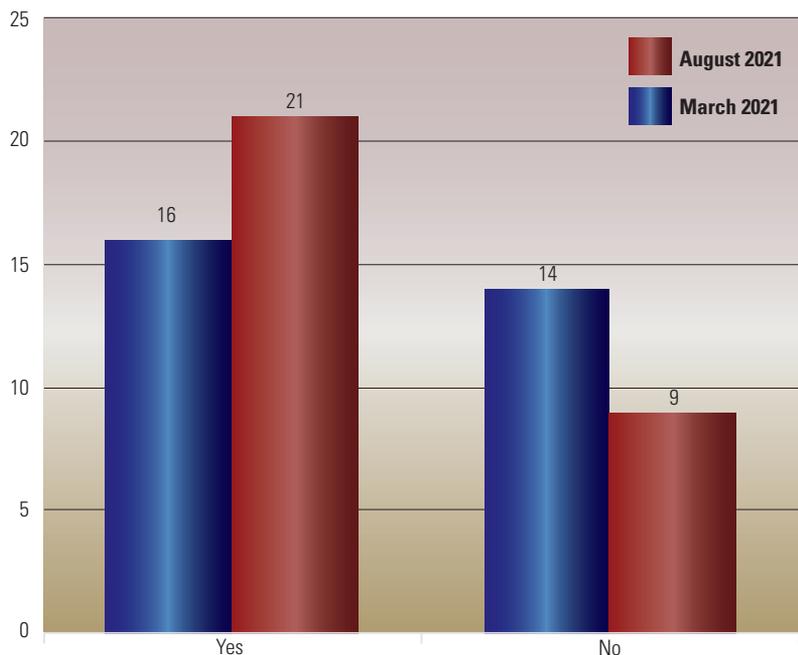
Oil producers rapidly expanding ESG disclosures

As stakeholders, investors and regulators continue demanding ESG disclosures, oil and gas producers are rapidly adopting policies and disclosing more

Does The Sample Producer Have An ESG Policy?



Are GHG Emissions Disclosed Publicly?



Source: Haynes Boone and EnerCom Oil & Gas ESG Tracker

information than ever regarding ESG goals and achievements, according to a new report.

Dallas-based law firm Haynes and Boone LLP and consulting firm EnerCom analyzed financing filings from 30 publicly traded U.S. oil and gas producers and found that 83% of companies have implemented ESG policies such as disclosing greenhouse-gas (GHG) emissions and reporting annual reductions in emissions.

Additionally, the report showed that now more than ever,

companies are disclosing ESG highlights, goals and strategies in CEO letters and proxy statements to showcase their commitments. There is also a significant increase in the number of producers disclosing quantitative metrics, demonstrating progress toward implementing ESG goals with more companies reporting metrics in alignment with Task Force on Climate-related Financial Disclosures and Sustainability Accounting Standards Board standards.

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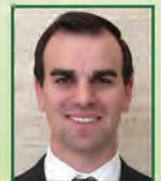
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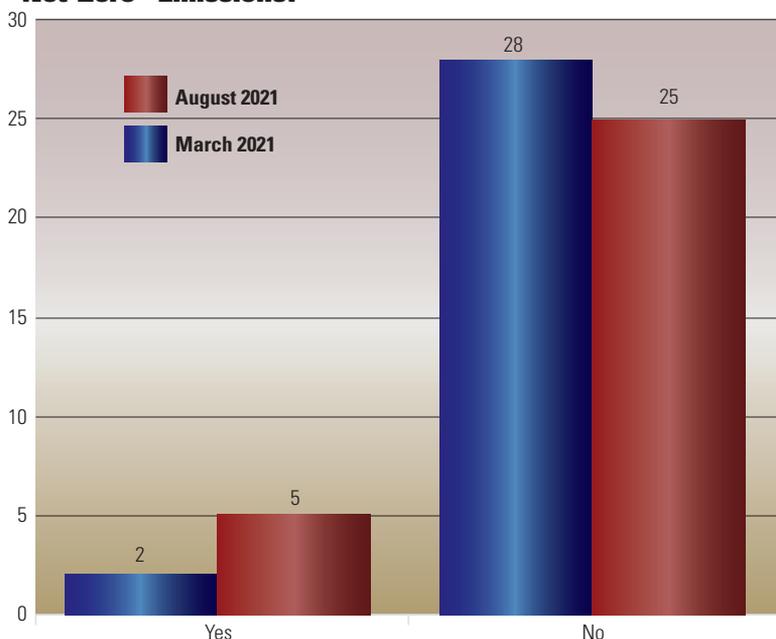
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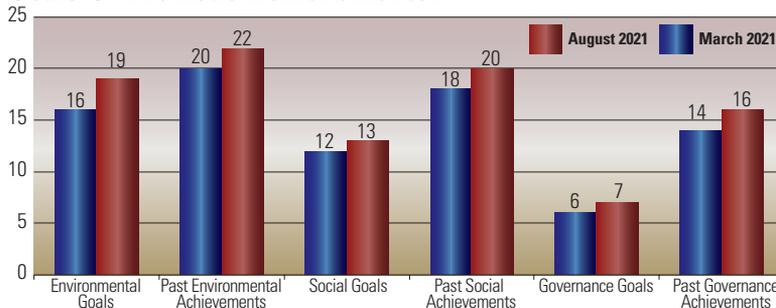
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Does The Sample Producer Have A Goal Of "Net-Zero" Emissions?



Does The Sample Producer Report ESG Strategies, Goals Or Previous Achievements?



Source: Haynes Boone and EnerCom Oil & Gas ESG Tracker

2020 and 2021 proxy statements, there was a significant increase in ESG-related disclosures,” Jennifer Wisinski, Haynes Boone partner and chair of the firm’s business transactions department, told Hart Energy.

“Between 2020 and 2021, we saw more quantitative metrics disclosed, especially on the environmental side, including emissions reduction, elimination of flaring as well as water management metrics,” she said.

Oil and gas companies are also incorporating ESG metrics into performance targets because investors want to see that executives are incentivized to make progress toward ESG goals, she added.

“Investors are sending strong messages to the effect that ESG will need to become a part of a company’s culture and solid ESG performance is an expectation and not necessarily a differentiator,” the report noted.

Although there is still a lot of

variation in how and what companies report, Wisinski said this will change over time as the U.S. Securities and Exchange Commission (SEC) comes out with mandatory disclosures.

SEC chairman Gary Gensler recently said that the SEC is considering mandatory quantitative disclosures on GHG emissions. However, it is unclear whether the SEC will require disclosures on Scope 3 emissions or require different metrics based on a company’s industry.

ESG disclosures could contribute to a company’s long-term financial performance and create competitive advantages, including a broader and more stable investor base and lower cost of capital, according to the report. Consequently, oil and gas companies are rapidly forming board committees to focus specifically on ESG with the report showing 100% growth in the number of such committees during the past three months.

Despite more oil and gas companies reporting ESG progress, only a few have pledged net-zero goals, according to the report. Only five of 30 sample producers have a goal of net-zero emissions, but many that report their emissions also commit to further reductions of direct GHG emissions.

Moving forward, the report shows that more companies are expected to quantify ESG accomplishments, including board diversity, water usage reductions and community investments. The report also anticipates more oil and gas companies to begin disclosing specific targets and goals.

—Faiza Rizvi

Appalachian Basin reports record-breaking natural gas production

Despite the pandemic slump, production from the “Beast in the East” shows no signs of slowing down.

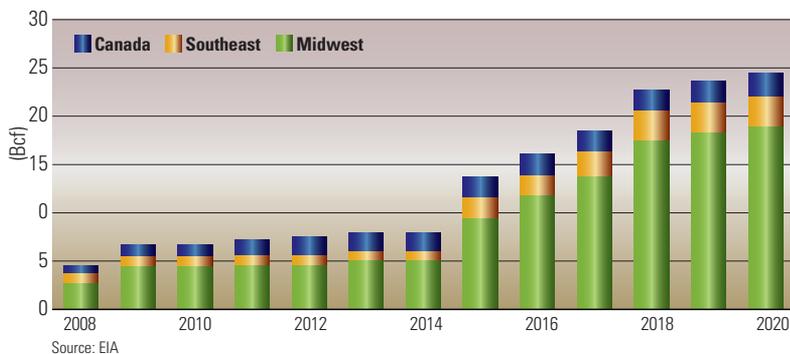
Dry natural gas production from shale formations in the Appalachian Basin has shown growth since 2008, and monthly production set new record highs during the first half of the year, the Energy Information Administration (EIA) reported Sept. 1.

The region recorded 32.5 billion cubic feet per day (Bcf/d) production in December 2020, which averaged 31.9 Bcf/d during the first half of 2021—the highest average for a six-month period since production began in 2008. Gas production from Appalachia’s sibling shale plays, the Marcellus and Utica, accounted for 34% of all U.S. dry natural gas production in the first half of 2021, making the Appalachian Basin the third-largest natural gas producer in the world, trailing U.S. and Russia.

The EIA attributes the basin’s record-breaking production to the growth in pipeline takeaway capacity that allows natural gas produced in the Appalachian Basin to reach other demand markets, especially the Midwest. The total takeaway capacity, which increased from 4.5 Bcf/d to 24.5 Bcf/d since 2008, has helped ease congestion, supporting higher wholesale natural gas prices in the region.

While the pipeline takeaway capacity from Appalachia to Canada and to southeastern U.S. has also increased, recent expansions

Annual Natural Gas Pipeline Takeaway Capacity Out Of The U.S. Northeast (2008-2020)



of pipeline capacity in the southeast are also supporting export growth of U.S. LNG.

Although natural gas pipeline capacity out of the Northeast has grown every year since 2014, the EIA said the rate of increase has slowed recently, not keeping pace with the growth in regional production. The Mountain Valley Pipeline, which is the largest natural gas pipeline under construction, is currently set to start up in the summer of 2022.

One of several U.S. pipelines that have faced several delays due to regulatory and legal fights with environmental and local groups, the Mountain Valley Pipeline, which started construction in February 2018, had originally been expected to enter service by late 2018.

Mountain Valley is a proposed underground, interstate natural gas pipeline system that spans approximately 303 miles from northwestern West Virginia to southern Virginia. The pipeline is designed to move 2 Bcf/d of natural gas from the Marcellus and Utica shale regions to markets in the Mid-Atlantic and southeast areas of the U.S. and is intended to further alleviate pipeline congestion.

—Faiza Rizvi

Pioneer's Sheffield: Volatility turning off investors, not ESG

Investors are fleeing from energy stocks, but according to Scott Sheffield, CEO of Pioneer Natural Resources Co., the shift in attitude has more to do with commodity prices and less with the growing buzz around ESG.

"Nobody wants to come into our industry, and the reason is not the ESG movement, it's the volatility," Sheffield said at IPAA's Leaders in Industry luncheon on Aug. 17.

Despite displaying strength in

the Permian Basin with 25 operating rigs and back-to-back acquisitions of Parsley Energy Inc. and DoublePoint Energy LLC, Irving, Texas-based Pioneer Natural Resources has also felt the effects of strained investor interest, which Sheffield attributed to the lack of investor confidence in the dynamic between U.S. shale and OPEC+.

"We are not a growth industry anymore at all," he added.

So what has to change to return investor's excitement about the industry?

"We have to solve volatility first, which requires several years of stable oil prices," Sheffield said. "I think we're going to get there, and I'm more optimistic with what's happening with U.S. shale taking growth off the table."

The first line of action involves placing a spotlight on the debt and balance sheets of oil and gas companies.

"What we're trying to do is get money back to the investor," he said. "We took too much in bonds and public equity over the last 10 years. And we're [Pioneer] as much of a culprit since we have



Scott Sheffield

probably raised \$4 billion to \$5 billion in equity, which is more than what most companies did in the last decade."

As a result, Sheffield said Pioneer developed a model that prioritizes being a high dividend payer, a method that is already common for the majors, mid-stream sector and refiners. This tactic distributes a portion of the company's earnings to investors on a regular basis.

"Now the upstream independent sector, in my opinion, is moving in that direction," he said.

The company has increased its variable dividend return framework by declaring an inaugural variable dividend of \$1.51 per share. Combined with its base dividend, Pioneer was able to return approximately 80% of its second-quarter free cash flow to shareholders.

Pioneer's board of directors approved its inaugural variable dividend of \$1.51 per share, or approximately \$370 million being returned to shareholders in the second quarter. The company believes this differentiated return of capital strategy, which combines a base dividend with a substantial variable dividend, "creates significant value for shareholders."

Pioneer projects it will generate in excess of \$23 billion of cumulative free cash flow through 2026 based on current commodity prices, according to the company's second-quarter earnings report for 2021. The company's reinvestment rate is expected to be between 50% and 60%.

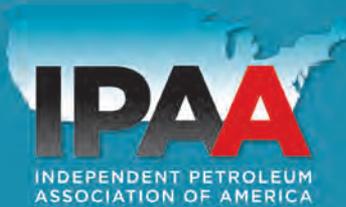
"The company expects to distribute a quarterly variable dividend of up to 75% of the prior quarter's free cash flow after deducting the base dividend paid during the quarter," the report stated.

Sheffield believes Pioneer will have zero debt within five years, given this high-returns model.

"We're taking 25% of our cash flow and we'll be down to zero debt in five years," he said. "I like to run an oil and gas company with zero debt."

The earnings report also showed the company ended the second-quarter with \$93 million in unrestricted cash and a net debt of \$6.8 billion.

"You have to have a great balance sheet," he said. "Every five years I'm driving that debt EBITDA down lower and lower."



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“I think you almost have to have zero debt to work in this industry, especially as a public [company],” he added, “because you don’t know when that next downturn is going to be, and you want the ability to buy back stock when you can.”

—Mary Holcomb

How oil producers can attract PE investors despite green push

With the momentum of the ESG and energy transition movements building, private equity investors are pouring more capital into renewables, forcing E&Ps to rethink their strategies in order to compete.

“You’ve got to give them something that truly is a differentiator,” said Chuck Yates, a member of Cottonwood Venture Partners advisory board, during the NAPE Global Business Conference. “You have to show that you’ve made money. There are no more equity line of commitments, you’ve got to have the asset on lockdown.”

Speaking on a panel discussion titled “Private Equity 2021: Feast or Famine,” Yates and other industry veterans discussed the morale of private equity investors and what the shift toward ESG-focused investing means for oil and gas producers, including the growing importance of proven assets and detailed carbon-neutral goals.

Yates, a former managing partner at Kayne Anderson Capital Advisors, said the days of firms allocating 10% to 12% of their funds for energy deals are long gone. Oil and gas producers will have to compete with every other investment vehicle like leveraged buyouts (LBO) and venture capital. “Those things are all on fire and doing really well,” he noted.

In today’s energy landscape, he said it is important to present an established team with a polished business strategy because firms want to be able to “scrub down everything about getting into business with you.”

“You almost have to have it totally buttoned up today to be able to get money because money is really scarce,” he said.

The COVID-19 crisis certainly accelerated the transition to ESG-focused funds, but investors’ appetite for energy began diminishing well before the pandemic.

According to Bloomberg, Prequin Pro found conventional energy funds dropped from \$46.7 billion in 2015 to \$8.3 billion last year. However, in that five-year period renewable funds grew from \$21.4 billion to peaking at \$52.2 billion in 2020. Further, roughly 47% of investors plan to significantly increase their ESG investments over the next two to three years, according to EY’s “2021 Global Private Equity Survey.”

Increasingly, ESG policies are driving LP decisions about commitments. With fewer LP dollars available for fundraising, E&Ps negotiating power is non-existent, according to Yates.

“Just sign whatever they put in front of you as quickly as possible before they change their mind,” he said.

“It’s literally a day-to-day relative type scenario,” he continued. “Whoever goes out to



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raise money truly won't know [the available capital] until they put the puck on the ice. We used to be able to say, 'we're going to go raise a billion and a half' ... those days are all gone."

Historically, market distress signaled an opportunity for private equity investors to chase deals. As the oil and gas sector struggled to survive fluctuations in price, investors would swoop in hoping to acquire lucrative portfolios. This current downturn, however, has significantly decimated energy funds.

"There are institutions today that are saying that they will not invest in hydrocarbons anymore, and it just feels realer than it ever has," he said. "It truly is a tidal wave that is going to hit us, so it is something that we have to take seriously."

In five years, Yates forecasts all money-centered banks will exit the energy sector in full pursuit of greener assets. Even as companies improve their ESG efforts, he said investors will prefer the attractive returns from longer-term, more sustainable investment strategies.

"I think that will happen," he said "and I don't think it's just one or two of them: it'll be wholesale—no more oil and gas."

So far this year, the majority of the ESG funds outperformed the S&P 500, according to a recent report published by S&P Global Market Intelligence. The data showed that 16 out of 27 ESG exchange-traded funds outperformed the S&P 500 between an 11% to 29.3% margin.

The top two performers, Ariel Fund and Ariel Appreciation Fund, both managed by Ariel Investments LLC, saw a 29.3% and 25.1% price change, respectively, year-to-date. Parnassus Investments' Parnassus Endeavor Fund had the third-best performance with a 23.6% price increase.

"I'm just worried with the ESG tidal wave," he said. "Clearly as an industry we've had a red problem in terms of losing money, but we have a real green problem."

With ESG on track to become more than just a trend, companies have to be diligent about adopting ESG principles in their portfolios or risk losing out on the scarce capital that is available.

"On ESG, our industry was late to address it," he said.

However, oil and gas companies are now starting to embrace ESG wholeheartedly with legitimate ESG-detailed slides in our deck, he said.

"Calculating, quantifying and addressing it in your presentations to go raise that private equity is important now," he said. "They like to see that now because they get calls from their LPs about it. They don't want to be the equity behind a company that is getting the wrong type of attention."

—Mary Holcomb

Natural gas demand projected to surpass oil by 2032

Global oil demand will reach a new high in 2025, barely eclipsing its 2019 record, but natural gas will overtake oil in 2032 and retain the top spot among primary energy sources through 2050, DNV forecast in its Energy Transition Outlook 2021, released in September.



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The fifth annual study produced by Hovik, Norway-based DNV, also emphasized that the pace of the energy transition to cleaner fuels is too slow to keep global warming to less than 2 degrees Celsius by 2100. DNV also stated that COVID-19 stimulus packages designed to supplement wages and help industries and the economy to recover could have been steered toward decarbonization efforts to aid with the reduction of greenhouse-gas (GHG) emissions.

“Global CO₂ and GHG emissions fell 6% in 2020 but will rise again this year,” the outlook said. “While the emissions trajectory has shifted down slightly, that is due to lost economic activity, not energy-system renewal. The overall pace of the transition has not accelerated, and that is a lost opportunity.”

Hydrocarbons will experience a steady decline by the outer range of the outlook’s time frame. Fossil fuels’ 80% share of the global energy mix will diminish to 50% in 2050, despite widespread stated commitments to decarbonization.

Demand for coal, which

peaked in 2014 at 7.9 billion tons, will tumble 62% from 2019 to 2050 as the energy transition picks up speed. Coal has been surrendering market to natural gas and renewables in Europe and North America since 2014, and its use in Asia will drop sharply beginning in 2030. This will happen despite recent strong growth in coal use in India and Southeast Asia.

Following its 2025 peak, oil demand will decrease slowly until 2030 before beginning a two-decade decline that will average 2.8% a year, DNV said. Electrification in cars and trucks, and the increasing use of low- and zero-emission fuels for maritime and aviation will cut oil’s share in transport by almost half. In petrochemicals, oil demand will peak in 2035 before recycling and bio-derived feedstocks cut into its demand.

Oil use in total will decline 45% between 2019 and 2050, DNV forecasts, with production concentrated in the Middle East and North Africa.

Natural gas will rise to the top of the fossil fuel heap as oil and

coal decline, despite slow growth in the 2020s and flat development in the 2030s. DNV expects natural gas demand to sink 10% between 2040 and 2050.

Gas demand will vary by regions, the outlook says. Among the 38 developed countries of the OECD, gas is expected to decline gradually. Greater China will see a peak in the early 2030s, while India’s gas demand is forecast to triple by 2050.

North America’s share of the LNG market will grow throughout the 2019 to 2050 forecast period to 38% of global liquefaction capacity. DNV estimates that only 15% of natural gas used will be carbon-free by 2050, mostly in regions focused on decarbonization such as Europe, Greater China, North America and the Pacific OECD such as Australia, Japan and South Korea.

Blue hydrogen, produced from the steam methane reforming process of natural gas by employing carbon capture technology, will displace gray hydrogen over time but will lose its cost advantage and provide less than 20% of hydrogen for

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energy purposes by 2050. Green hydrogen, produced by electrolysis using renewable energy, will take on the role of the primary long-term solution for decarbonizing sectors such as aviation, maritime, long-haul trucking and much of heavy industry.

Hydrogen production for energy is negligible at the moment, DNV said, and will not begin to scale until the late 2030s, providing only 5% of global energy demand by 2050.

In a shorter-range report, GlobalData said Sept. 1 that it expects annual production of blue hydrogen to nearly triple to 1.4 million tons by 2030, accounting for 85% of the low-carbon North American hydrogen market. Economics favor the fuel, said Miles Weinstein, energy transition analyst at GlobalData.

“Blue hydrogen production in North America is some of the cheapest in the world due to low natural gas prices and an abundance of suitable sites for geological carbon storage,” Weinstein said in a statement. “Still, the cost of blue hydrogen

production in the U.S. is \$1.52/kg, compared to \$1/kg for gray hydrogen.”

Those costs are comparable in Canada, Weinstein said, but Canada has maintained an advantage because of its greater carbon sequestration infrastructure, as well as funding for low-carbon vehicles and fuels.

“In most other global regions, however, the capacity of green hydrogen plants far outpaces that of blue due to higher natural gas prices or, in some cases, cheap renewable electricity,” he said. U.S. tax credits for carbon capture and storage do, however, effectively reduce the cost of blue hydrogen to \$1.26/kg, reaching \$1.11/kg by 2026.

Tech giant Microsoft has set a goal of being carbon-negative by 2030, Kimberly Mathisen, general manager of Microsoft Norway, said during DNV’s online release of its outlook.

“When we put that in place, we started to understand very, very quickly, that the importance of carbon negativity was going to guide a lot of our activity and our thinking and investments,” Mathisen

said. “It was also clear to us that this was going to be a massive team effort for us to get this done.”

Microsoft takes a two-pronged approach, she said, both as an energy purchaser and as an investor. The company has committed to buying only renewable energy by 2025 through power purchase agreements.

“Those types of goals and those commitments to purchase in that way have truly begun to move the market,” Mathisen said.

Microsoft also developed its own \$1 billion Climate Innovation Fund to accelerate development of technologies to push the energy transition forward or, as she put it, “fund the un-fundable.” Those projects include carbon capture and others that offer the possibility of flattening cost curves.

—Joseph Markman

U.S. shale DUC count continues to plunge, EIA says

U.S. shale players are opting to finish what they’ve started, sending the number of DUCs down to levels

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not seen since November 2017, data from the Energy Information Administration (EIA) show.

The activity has kept frac crews busy in recent months, but a slowdown appears imminent in the months ahead unless more rigs are added to drill and complete more new wells.

“Indicators of new well drilling in the United States remain subdued,” the EIA said Aug. 25 before referring to the latest Baker Hughes oil rig count of 405 rigs. Though the rig count is nearly double what it was a year ago, the EIA called it “historically low” compared to times of similar oil prices. “If drilling activity doesn’t increase, then well completions and production may be limited as the inventory of DUCs continues to fall.”

The DUC count dropped to 5,957 in July, down from 6,215 in June, according to the EIA. All major oil- and gas-producing regions in the U.S. saw declines. Counts in the Eagle Ford, Bakken and Niobrara oil basins hit their lowest levels since December 2013, while DUC inventories in the Anadarko and Permian basins hit levels not seen since June 2018.

The biggest decline was evident in the Permian Basin, the nation’s largest oil field, where the EIA estimated there were less than six months of DUCs left in July 2021. At that time, EIA data showed there were about 2,289 DUCs in the Permian, down 130 from the previous month. Citing its latest “Drilling Productivity Report,” the EIA said 393 wells were completed in the Permian in July.

“The combination of more wells being completed but fewer wells being drilled is contributing to the return of oil production in the Permian region,” the EIA said this week. “However, it is driving the current DUC inventories down, which could limit oil production growth in the United States in the coming months.”

It later added, “The low months of inventory in the Permian region may affect completion activity [slowing it down] or new well drilling activity [speeding it up].”

Still under pressure to control spending, U.S. shale producers have been able to quickly increase output as oil prices rebound from pandemic-induced

lows by turning to DUCs.

This comes as crews continue gaining efficiency by advancing completion techniques with new processes like simul-frac—a process in which two horizontal shale wells are stimulated at the same time with one pressure pumping fleet to cut time and save money.

Diamondback Energy, which produced more during the second quarter with fewer drilling rigs and completed wells, is among the companies running simul-frac crews. During its latest earnings call, CEO Travis Stice said the company was completing about 2,800 lateral ft per day in the Midland Basin, nearly a 70% improvement compared to its early zipper frac designs.

“We’re completing 270 wells and drilling 220 this year,” Diamondback CFO Kaes Van’t Hof added. “That’s about another \$100 million benefit. When you were running as many rigs as we were into the downturn, we decided to not pay early termination fees and instead build a DUC backlog, which was the best use of investor dollars at the time, and we’re taking advantage of that a little bit this year.”

The company dropped two rigs in the second quarter but said it will likely bring both back.

“We’ll probably need somewhere around 11 or 12 rigs next year, three simul-frac crews and maybe a fourth spot crew to execute on that plan, which is a testament to how efficient the operations team has gotten here,” Van’t Hof said.

Pioneer Natural Resources, which also utilizes simul-frac, plans to add one to two rigs to grow 5% in 2022. CEO Scott Sheffield has previously warned that U.S. shale would not see much growth in the coming years. He anticipates little growth in the Permian with most other basins flat to declining.

“We’ll be lucky to grow 5% a year over the next several years in the U.S. Lower 48,” he said on an earnings call. “That’s my general opinion, and I think as more companies deliver their free cash flow model, they can’t change it.”

Output from U.S. shale plays is expected to rise to 8.1 MMbbl/d in September, according to the EIA. However, total oil production is forecast to fall to 11.1 MMbbl this year, down from 11.3 MMbbl/d. The EIA forecasts production to rise to 11.8 MMbbl/d next year.

The U.S. produced more than 12 MMbb/d in 2019.

—Velda Addison

Associated gas production from U.S. shale dips for first time

Associated natural gas production in major U.S. shale plays declined in 2020, following three years of growth, according to a recent report by the Energy Information Administration (EIA).

Between 2016 and 2019, associated gas production in the combined five major U.S. onshore crude oil-producing regions comprising the Permian, Bakken, Eagle Ford, Niobrara and Anadarko grew at its most rapid pace (6.1 Bcf/d). However, as the demand for crude oil decreased last year following responses to the COVID-19 pandemic, both crude oil and associated gas production in the U.S. declined, the EIA noted in its report on Aug. 23.

Only the Permian Basin increased its production of both crude oil and associated gas in 2020, the EIA said, but these increases did not offset declines in both crude oil and associated gas production in the other four regions.

In 2020, the Permian region, which spans parts of West Texas and eastern New Mexico, produced 50% of total U.S. associated gas.

“Some of this increase in associated gas production can be attributed to greater natural gas takeaway capacity in the Permian region,” the EIA wrote in its report.

Overall, the share of associated gas produced in the combined five regions (Permian, Bakken, Eagle Ford, Niobrara and Anadarko) declined by 1.5% year-over-year and averaged 37.7% of natural gas production in the regions.

U.S. associated gas production averaged 14.2 Bcf/d in 2020 (a 4.1% decline from 2019) amid a drop in oil production in these regions.

Despite the decline last year in associated gas, years of rising associated gas production in the U.S. led to record high volumes in 2020 of natural gas plant liquids such as ethane, propane, normal butane, isobutane and natural

gasoline production, driven by high ethane demand.

“Ethane consumption has been growing steadily both domestically and through exports since 2014,” the EIA added.

—Emily Patsy

Hess CEO: Energy transition will ‘take time, cost a lot of money’

Despite a growing need for renewable energy to fight climate change, oil and gas will continue to be fundamental for “world economic growth and human prosperity” for decades to come, according to John Hess, CEO of Hess Corp.

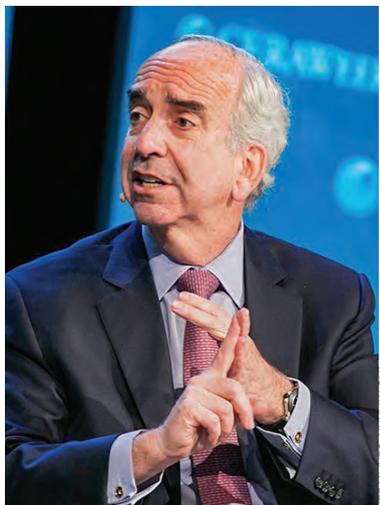
“The energy transition will take time, cost a lot of money and major technological breakthroughs will be required,” Hess told analysts during the Barclays CEO Energy-Power Conference on Sept. 9.

Referring to the International Energy Agency’s (IEA) 2020 world energy outlook that provided an aggressive sustainable development scenario, Hess noted oil and gas would still make 40% of the energy mix in 2040 even if all the pledges of the Paris Agreement were met. Further, oil and gas would still be 29% of the energy mix in 2040, according to the IEA’s newest net-zero scenario.

“The key for the company and for the industry is to have a low cost of supply by investing in high return low cost opportunities,” he said, adding that his company has been investing in high-return, low-cost assets that are balanced between short and long cycles.

Based in New York, Hess is a leading global independent energy company engaged in the exploration and production of crude oil and natural gas with an industry-leading position in the Bakken shale play in North Dakota. The company is also one of the largest producers in the deepwater Gulf of Mexico (GoM) and is engaged in exploration and development activities offshore Guyana, participating in one of the industry’s largest oil discoveries in the past decade.

The Bakken, deepwater GoM and Malaysia are cash engines for the oil producer, Hess said, adding that Guyana is well on its



John Hess

way to become a “significant cash engine driven by the startups of multiple low-cost development phases over the next several years.”

Guyana is a “truly transformative investment opportunity for Hess,” he continued.

The company is focused on preserving the long-term value of its assets, adding that the recent Pinktail discovery in Exxon Mobil Corp.-operated Stabroek Block offshore Guyana adds to previous recoverable resource estimate of approximately 9 billion oil equivalent barrels.

“As of today, we have made 20 significant discoveries offshore Guyana since 2015 ... We continue to see multibillion barrels of future exploration potential remaining,” he said.

Hess also outlined the company’s continued commitment to sustainability, including investment in new technologies for carbon capture and emission reduction.

“We recognize climate change as one of the greatest scientific challenges of the 21st century,” he said. “We also support the aim of the Paris agreement and the ambition to reduce global emissions to net zero by 2050.”

“For 2021,” he continued, “we have added continued Bakken flaring reduction as one of the performance metrics used in the annual incentive plan.”

In July, Hess published the company’s 24th annual sustainability report with new emission reduction targets.

The report recognized the oil producer as the No. 1 energy company on the 100 Best Corporate Citizens list for its

outstanding ESG transparency and performance this past year. Additionally, the report noted Hess as the only U.S. oil and gas company awarded a Level 4 star rating by the Transition Pathway Initiative in its September 2020 report based on the company’s efforts to support the transition to a low carbon economy.

—Faiza Rizvi

Pioneer Natural Resources goes longer in the Permian Basin

Laterals of 15,000 ft could make up about 20% of U.S. shale player Pioneer Natural Resources Co.’s overall program next year, a move that aims to capitalize on synergies from recent acquisitions to its prolific position in the Permian Basin.

“That just means less capital to get more results,” Pioneer CEO Scott Sheffield said Sept. 9 at the Barclays CEO Energy-Power Conference.

Lateral lengths in U.S. shale plays such as the Permian Basin have steadily increased in recent years as drillers work toward well productivity gains. Longer laterals have resulted in improved capital efficiency and better returns.

For Pioneer, lateral lengths have evolved from 5,000 ft to 7,500 ft and onto this year’s average of 10,100 ft. Its plans to drill more 15,000-ft laterals is driven in large part by the company’s back-to-back acquisitions of Parsley Energy and DoublePoint Energy earlier this year.

Personnel at Parsley Energy, in particular, shared their deep drilling and completion techniques with Pioneer, expanding the company’s horizons. Sheffield said the company could end up getting more synergies out of the 15,000-ft laterals than all other operational acquisition synergies combined.

He didn’t say how much of an economic uplift the longer laterals could yield but indicated the company has benefited from longer laterals in the past.

An added benefit, he said, is the wells “don’t come in and peak and then decline. ... They produce flatter for a good 12-month time period because you’ve got all this frac fluid that you have to move out of it.”

“You just don’t see flush production like you used to,” he said. “So, it does really help on the decline curve.”

Sheffield anticipates drilling about 100 such wells, up from 25 to 30. That will likely increase over time, he said.

The laterals could also become longer.

Known for its long laterals in the Midland Basin, SM Energy recently said it drilled a 20,900-ft lateral—the longest to date in Texas. It took crews about 20 days to drill the Clarice Starling Sundown D 4542 WA well, which was successfully fracture-stimulated and put online.

“We’re studying that to see if it’s worth it,” Sheffield said of the longer laterals. But, “it’s more about completions. You can drill it quickly. It only takes a day [or] a day and a half to drill that extra 2,500 feet or 5,000 feet. Completing is the biggest issue. We could extend it even past 15,000 over time.”

The Parsley and DoublePoint acquisitions pushed Pioneer’s contiguous net acre position in the Midland Basin to about 920,000 and to about 100,000 in the Delaware Basin. The \$250 million worth of operational synergies also included drilling and completion efficiency such as through simul-frac, a process in which two horizontal shale wells are stimulated at the same time with one pressure pumping fleet to cut time and save money.

“Neither company had started simul-fracs; they may eventually have gotten to simul-fracs,” Sheffield said. “But we’re seeing a huge benefit with simul-fracs, saving about \$200,000 to \$300,000 per well. So, you’ll see more and more simul-fracs done over time, and it helps to have, again, contiguous acreage to be able to do more and more simul-fracs.”

Pioneer closed its acquisitions of Parsley and DoublePoint earlier this year.

The company has already identified more than 1,000 locations where it can drill more 15,000-ft laterals. Pioneer’s average pad size has grown to about four from three wells in 2018. Pioneer plans to operate two simul-frac fleets during second-half 2021. Sheffield said that could increase to three at some point in time.

—Velda Addison

Natural gas bans could cost Americans trillions, report says

Restrictions on new natural gas hookups are a costly and unnecessary imposition on American energy consumers, and the bans are contributing to problems of energy reliability and affordability in states where they are prominent, according to a recent report by the Institute for Energy Research (IER).

On May 17, the Biden administration announced a building decarbonization policy to accelerate electrification of the nation’s residential and commercial buildings. The next day, the International Energy Agency urged policymakers to ban fossil fuel furnace sales by 2025 and adopt building codes that would eliminate the use of natural gas use in buildings.

“Municipal bans on new natural gas hookups are a barrier to consumer freedom, have the potential to cause power prices to rise and prevent residents from utilizing appliances like heaters and stoves during extreme weather events,” Paige Lambert, policy associate at IER and co-author of the report, commented in a press release.

The report also cited the findings of consulting firm T2 & Associates, which show electrifying the entire nation with a goal of eliminating the direct consumption of fuel and reducing climate change emissions could cost anywhere between \$18 trillion and \$29 trillion.

Local building electrification measures have significantly evolved in the first half of 2021. The IER’s report shows 76 cities have placed restrictions on natural gas to date. Armed with significant financial resources, environmentalists are targeting the natural gas industry through local bans on new natural gas hookups that tend to be concentrated in areas where there are legitimate concerns over grid reliability. Although these bans are primarily located in California and the Northeast, proposals have been springing up across the country as groups advocate for coercive measures that would limit or ban the use of natural gas.

The report goes on to add that placing restrictions on the use of natural gas will not be easy or

cheap. In fact, natural gas bans in new buildings will result in higher energy bills for consumers in states with comparatively higher electricity prices.

For instance, California—which currently has the most cities with gas bans—saw a rise in the average cost of residential electricity to 19.22 cents per kilowatt-hour (kWh) last year, which is 47% higher than the national average residential electricity price of 13.04 cents per kWh.

In addition, it’s important to note that electrifications and natural gas bans could concentrate energy risks on the electric grid, creating more problems.

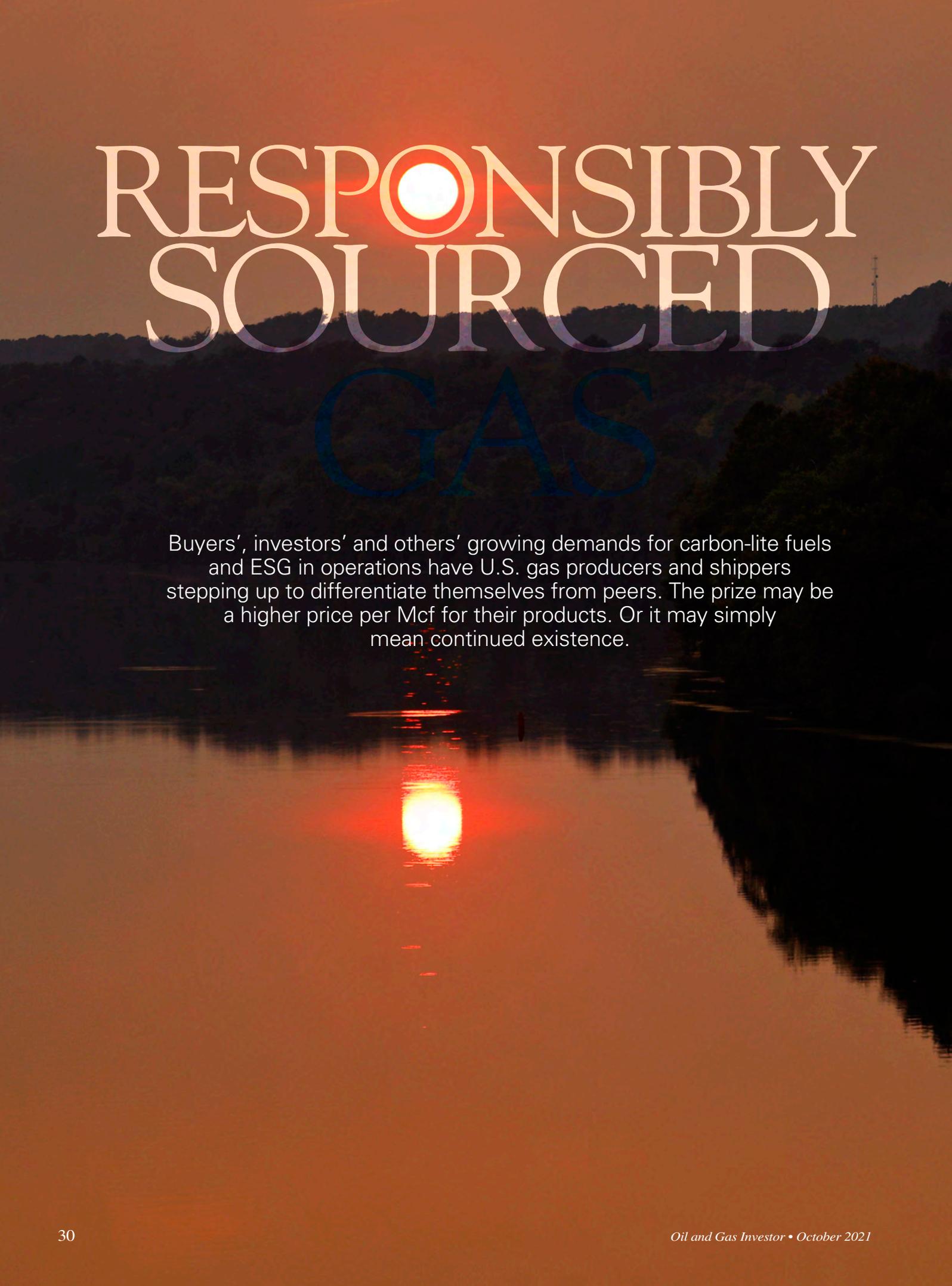
“In 2019, the U.S. accounted for 23% of the world’s natural gas production, making it the world’s largest producer of natural gas. The popularity of natural gas is partially the result of historically low natural gas prices and the comparative savings consumers are afforded by using natural gas when compared to electricity,” the report stated.

The report also noted that some states that “are concerned about protecting consumer choice and energy freedom” including Texas, Oklahoma, Louisiana and several others, are working to push back on these local initiatives to limit access to new natural gas hookups.

For instance, in May, Texas—one of the biggest consumers of gas—passed a law that “prohibits Texas cities from banning natural gas as a fuel source for new construction and utility services.” Although this was passed for similar reasons to the other states with similar legislation, it had the added goal of preventing electricity shortage situations like the one Texas faced in February from being as catastrophic by allowing people to retain access to natural gas for heating and cooking during blackouts.

The report shows that 20 states have responded to this “extreme anti-energy movement” and have passed or are in the process of passing legislation that prevents energy discrimination within their borders. “These states are seeking to allow for more freedom state-wide and have made it clear all residents should be able to choose where they want their energy to come from, not be told,” the report said.

—Faiza Rizvi



RESPONSIBLY SOURCED GAS

Buyers', investors' and others' growing demands for carbon-lite fuels and ESG in operations have U.S. gas producers and shippers stepping up to differentiate themselves from peers. The prize may be a higher price per Mcf for their products. Or it may simply mean continued existence.



The sun dips below the horizon on the Monongahela River in Brownsville, Pa., in Fayette County.

ARTICLE BY
NISSA DARBONNE

PHOTOGRAPHY BY
TOM FOX

**Facing page,
solar panels
gather power
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EQT Corp.'s
Wherry Pad in
Washington
County, Pa.**

Responsibly sourced gas (RSG) producers are seeing an uplift in price per thousand cubic feet where they've negotiated contracts directly with the buyer, particularly gas utilities. Otherwise, there isn't a publicly posted price, such as a "Green Henry Hub" futures contract or a "Carbon-Neutral NYC Gate."

"And the reason for that is because this business is new," Toby Rice, EQT Corp. president and CEO, said. "The value of RSG is still getting sorted out."

Eventually, one will likely come. "Producers will be able to get a premium based on the carbon efficiency of your gas versus your run-of-the-mill, non-certified natural gas," he said.

At some 5.5 Bcf/d, EQT is the largest U.S. natural gas producer—all from the Appalachian Basin.

While the premium EQT is seeing for directly negotiated deals for its RSG is pennies today, he added, "it could be more than just a couple pennies" one day. "I wouldn't say it would be dollars, but that price will be determined by what price of carbon you want to set."

The Low Carbon Fuel Standards Act lays out a carbon-intensity (CI) score. "The lower the score, the greater the credits you can generate from that product," Rice said. If EQT's methane has a CI of 10 and the average for methane is 15, there will be an uplift in the Btu value.

Demand for RSG is growing quickly, and EQT is responding with supply. "We are going to be in a position later this year to have

more than 4 Bcf/d of RSG product to put into the market."

David Elkin, executive vice president and COO of Haynesville-focused Vine Energy Inc., said, "We're aware of at least a couple of those [green gas] contracts." Buyers are interested in certified green fuels "to try and differentiate themselves as being cleaner than the other guy."

But many prospective buyers—particularly smaller utilities—have rates approved by a state utility commission. "So, if they're going to make that push [to premium fuel], they've got to get that built into their rate base.

"I think that there are a lot of utilities that are currently trying to push that through their regulating body."

Vine, which produces some 1 Bcf/d from the dry gas Haynesville, is talking to gas buyers it is connected to throughout the southeastern U.S. "They're bigger and have more capacity to make this kind of deal," Elkin said.

Brian Woodard, director, government and regulatory affairs, for Chesapeake Energy Corp., said, "We have had a few marketing agreements that yielded a minor premium."

At press time, Chesapeake and Vine were in a deal to merge. Chesapeake produces some 1.8 Bcf/d from Appalachia and the Haynesville. Upon bringing in Vine's portfolio, it will produce some 2.8 Bcf/d from the two plays.

But, he added, the effort to produce 100% RSG from its gas assets is about corporate responsibility and not "just to get a certificate

RSG Certifiers & Differentiation

Initiative	Parties Involved	Objective
GTI Differentiated Gas Initiative	Lead: GTI Partners: Currently soliciting partners. No trade associations or vendors may sponsor.	<ul style="list-style-type: none"> • Create methane emissions measurement standards and protocols. • Accelerate the growing role of emissions-based differentiation in natural gas. • Develop a transparent and credible approach that provides investors, regulators and NGOs with a "differentiated gas" to endorse. • Three key activities—1. Create a harmonizing framework for measuring methane emissions along the value chain; 2. Develop measurement protocols; and 3. Establishing a training program for auditors to assess companies.
MiQ Certification	Lead: MiQ is an independent, not-for-profit partnership between Rocky Mountain Institute and SYSTEMIQ. Partners: Equitable Origin Applicants to date: Chesapeake, Northeast Natural, EQT, others being solicited.	<ul style="list-style-type: none"> • Build and operate a certification system developed in collaboration with key stakeholders • Introduce "differentiated gas," assessed according to the MiQ Standard, that results in different price levels in the market depending on methane emissions performance during production. • Unlike other frameworks, which assess emissions at the national or company level, MiQ Certification is based on a Standard that is assessed at the production facility or platform level. • Independent auditors used to certify company practices. • The cost of certification is dependent on the cost of the independent auditors, which will vary depending on the company and the complexity and size of the asset seeking certification. There is also an administrative fee, which will be used to operate and maintain the registry.
EO100™ Standard for Responsible Energy Development Certification	Lead: Equitable Origin, a non-profit, operates an independent, voluntary certification system (EO100™) that publicly distinguishes energy developers that operate under the highest environmental and social standards. Applicants: Chesapeake, others not listed	<ul style="list-style-type: none"> • Provide for certification of corporate adherence to set of rigorous performance standards for energy development projects, developed through a multi-stakeholder engagement process with the energy industry, international NGOs, Indigenous organizations, financial institutions, government and communities affected by energy projects. • The Standard establishes metrics and performance targets to objectively and independently evaluate the ESG impacts of energy development projects. • The Standard incorporates a scoring system based on three levels of Performance Targets (PTs): PT1 indicates that a site's performance meets industry best practices; PT2 indicates exceeds industry best practices; and PT3 indicates leads industry best practices. • Focused on operating practices followed rather than specific measurements (for example, methane readings at a site).
Trustwell™ Certification	Lead: Project Canary, an international environmental standards company based in Denver, CO. Clients: Southwestern, PureWest Energy, BHE Compression Services, NextDecade	<ul style="list-style-type: none"> • Rates company performance across 24 operational categories, including 12 dynamic scores for continuous performance improvement, assigning ratings of Rated, Silver, Gold and Platinum relative to peers. • Claims to be the operational performance certification standard and the most comprehensive certification and ongoing monitoring process available. • Includes continuous monitoring services.

Source: KeyLogic Systems LLC



hanging on the wall and receive a premium.

“That’s not what this is about for us. It’s to assure we’re minimizing emissions so that our business is not only sustainable, but it’s sustainable for providing natural gas well into the future.”

Non-RSG discount

Besides, premiums may not last anyway, Woodard said: Gas producers that don’t catch up might be discounted instead.

“You may be deducted from a spot price based on attributes of the volume,” Woodard said. “We want to make sure that our volumes are certified early so we can continue to sustain our gas sales, both domestically and abroad.”

In Chesapeake’s operations in the Eagle

Ford Shale and in northeastern Wyoming, the product is primarily oil. But Chesapeake is applying similar earnestness in zeroing its emissions there, he said.

“We’re taking a different approach in these assets, but the goal remains of deploying new technology and innovation to control our emissions in these plays.”

Paul Ulrich, vice president, government and regulatory affairs for Jonah Energy LLC, said RSG is an emerging market.

“Buyers should consider rewarding responsible producers that can demonstrate low-carbon gas as part of a lower-carbon energy market, and we are positioned to be a part of the solution.”

Jonah produces about a half-Bcf/d from the

An electric frac fleet from U.S. Well Services completes three Marcellus wells on EQT’s Wherry Pad.



dry gas Jonah Field of western Wyoming, Ulrich said. “If you look at some of the policies on the West Coast—banning natural gas in buildings, citing climate effects, etc.—it poses a very interesting challenge for the natural gas industry.”

Otherwise, Reuters reported in June, “Not many customers have been willing to pay [a] premium.”

Chris Kalnin, CEO of Appalachian and Barnett gas producer BKV Corp., said the biggest gas buyers have taken up net-zero emissions targets. “But it is not being translated [to their] procurement departments,” he told Reuters.

Cheniere Energy Inc. said certified gas may become required, rather than an exception, in the future. “We don’t expect to pay a premium;

we don’t expect to collect a premium,” Anatol Feygin, Cheniere executive vice president and chief commercial officer, told Reuters.

Crypto gas

French utility Engie SA walked away in November from continuing negotiations as an anchor LNG purchaser from NextDecade Corp., developer of an export terminal in Brownsville, Texas.

Engie provided no statement other than that it had decided not to proceed, according to S&P Global Platts. Speculation is that French officials deemed it “dirty gas” as the Brownsville terminal’s feedstock is expected to come from the oil-focused Permian Basin and Eagle Ford.

As LNG destination countries apply standards to the gas’ background, “we’re now certainly seeing the evolution of differentiated gas or responsibly sourced gas,” Chesapeake’s Woodard said.

Currently, is there a way for LNG buyers to identify the molecules’ pedigree? Woodard said pedigree is going the way of certified volumes being listed and marketed on digital registries.

“So the certified volumes are graded, registered, transacted upon and retired. There’s going to be more evolution in the standardization of the transactions from a producer to an end user and the unique attributes or certification and gradation ascribed to a registered volume, if you will.”

In this, there is a volume that, upon delivery, is digitally retired. It’s similar to the digital identity of crypto coin.

So crypto gas, then? Woodard laughed. “Well, I mean, it can be equated to things like crypto,” he said. “It’s very much like the carbon-offset market, too, that also has registries for which volumes are transacted and sold upon.”

Proving the pedigree of methane molecules can be likened to the response to growth in the past few decades of demands for organic food, he added. “People started to want to know more about their food and the associated food-supply chain.

“And we saw the evolution of ‘USDA organic.’ People know they’re getting a differentiated product. This is what we’re seeing at a different scale around responsibly sourced natural gas.”

Gas buyers are beginning to request certified volumes having certain attributes. “Key among which would be that the molecule has been produced in a manner where a third-party validation can support it has a low methane intensity,” Woodard said.

Methane blockchain

Houston-based startup Topl already enables certification of the environmental, as well as social and governance, pedigree of cocoa beans, particularly that the farm pays workers a living wage. Another platform verifies the pedigrees of conflict-free gemstones.

In partnerships, it expects to soon launch proof of provenance and proof of data for other



Toby Rice, EQT Corp. president and CEO, said the failure of the Engie contract “was a great example of why we need to do more to certify the product we produce and get the credit for all the great work we’re doing.”



Brian Woodard, director, government and regulatory affairs, Chesapeake Energy Corp., said the effort to produce 100% RSG from its gas assets is about corporate responsibility and not “just to get a certificate hanging on the wall and receive a premium.”





Halliburton cement trucks roll into the Mac well site on EOT's pad in Greene County, Pa., as gate guard Diana Bindos (right) waits to take the drivers' temperatures.





EQT's Mac Pad, nestled in the hills of Greene County in southwestern Pennsylvania targeting the Marcellus Shale, will be the site of six wells. The wells are being drilled by Patterson-UTI rig 294.

commodities. "These products will include, for example, digital LNG and nature-based carbon," a spokesman told *Oil and Gas Investor*.

Among these platforms is one to originate and track carbon credits, tokenizing them to trade on Top1 Blockchain. Another one will track and trace the pedigrees of green hydrogen molecules.

The venture's \$4.5 million raise in 2020 resulted in a launch earlier this year of the "Blockchain as a Service" platform. It was led by Mercury Fund and included Goose Capital, Chingona Ventures, Beni Venture Capital, Blue Collective, RevTech Ventures, Social Impact Capital and Mercy Corps Ventures.

SiliconAngle Media Inc. reported blockchain pedigrees include "who pulled a mineral from the ground, where it was gathered, how much was gathered, impurities present, how much water was used, how many beans were in a bag, how heavy [the] crate of bauxite or even how cold it was inside a refrigerated truck when it left a facility."

Each gene "would have also been recorded in the ledger as it was pulled out of the ground, picked from the tree ... from water usage for crops to pollution through the production line to transportation emissions."

A "burned token" in crypto transactions shows "proof of burn."

The burned-token concept is already used in

carbon credits, the Center on Global Energy Policy at Columbia University noted in a July report. Credits "represent a verified reduction in GHG [greenhouse-gas] emissions."

When exchanged, it is "permanently retired, meaning their transaction has been recorded in publicly accessible emission registries, and they cannot be used again."

The standards

There are myriad RSG certifiers to date. And most U.S. gas-focused producers are already working on getting their certificates.

As for a global standard, there is none yet. EQT expects standardization will be sorted out in the coming 12 to 18 months.

Currently, there are myriad prices for carbon, Rice said. "There's no global price, and I don't think you can get the world onboard with a global price. I think that's a long putt."

But there is a price regime already in California and in the EU. "So those will be good benchmarks," Rice said.

Woodard at Chesapeake said, "This is certainly an evolving landscape. There are a lot of developments internationally about trying to define what is 'clean.'"

"And cleanliness, if you will, in the gas space generally is being defined as a certain methane intensity."

European majors and some other producers

under the Oil & Gas Climate Initiative set a goal of 0.2% methane intensity. That number is being adopted internationally too, with participants deeming it “a high bar to reach for methane,” Woodard said.

But in the dry gas Marcellus and Haynesville, producers are voluntarily delivering volumes certified at a 0.02% to 0.03% methane intensity. “So an order of magnitude better than what is deemed good on the international scale.”

Elkin at Vine said the lack of a global standard is “a little bit of an issue. I think someone needs to take the lead and come up with minimum criteria, but nobody has done that yet.”

In the U.S. and under the Biden administration, the EPA will likely develop some standards, he added, so minimum criteria “may be formulated in the not-too-distant future.”

‘Clean’ LNG

Since the Engie contract failure, NextDecade announced it will add CCS (carbon capture and sequestration) to its operations to reduce CO₂ emissions at its Rio Grande LNG plant, estimating elimination of 90% of the CO₂e.

“As a result, Rio Grande LNG is expected to be the greenest LNG project in the world,” it reported. Its NEXT Carbon Solutions unit is also looking at how to eliminate the remaining 10%.

In addition, it’s seeking RSG from Permian and Eagle Ford producers and partnering with Project Canary to verify the feedstock’s RSG status. In the Permian, Exxon Mobil Corp. has signed with MiQ to gain certification.

In March, Oil & Gas Climate Initiative, via its investment fund, participated in a \$34.5 million funding round for NextDecade. The LNG developer’s stock price more than doubled the week of June 7, while presenting at a Credit Suisse conference.

Most existing contracts for LNG have terms left on them. Environmental standards on the gas’ pedigree may be a feature of contracts going forward, Vine’s Elkin said.

“As contracts and commitments begin to roll off, most people feel like the standards will be raised by the LNG purchasers.”

Of the U.S.’ current LNG export capacity of about 11 Bcf/d, Cheniere Energy operates some 6 Bcf/d at the Texas-Louisiana border and in Corpus Christi, Texas.

It plans to launch cargo emissions tags next year for gas it plans to begin certifying. Analysis will borrow from the Department of Energy’s National Energy Technology Laboratory model in its GHG “QMVR” process: quantification, monitoring, reporting and verification.

The goal is “to enhance environmental transparency by quantifying the estimated GHG

EQT senior environmental coordinator Alex Bosiljevac (right) points out features of the Captain USA wells during a MiQ standards audit in Washington County, Pa. He was joined by responsibility energy services solutions senior advisors J.D. Holt (left), Doug Jordan (center) and MiQ’s U.S. program manager Lara Owens.



An onsite 35 MW gas-fired turbine powers U.S. Well Services e-frac fleet (seen in back) on EQT's Wherry Pad.

emissions of LNG cargoes from the wellhead to the cargo delivery point,” Cheniere reported.

Initial participants include Haynesville producer Aethon Energy, Appalachia's EQT and Ascent Resources-Utica LLC, Permian-associated gas producer Pioneer Natural Resources Co. and Haynesville and Appalachian producer Southwestern Energy Co. by virtue of its September acquisition of the Haynesville's Indigo Natural Resources LLC.

Building an LNG terminal on the Texas side of the border with Louisiana, Venture Global LNG announced CCS plans in May, compressing CO₂ on site and burying it in saltwater formations.

Labeling RSG LNG

The green LNG marketplace has a long way to go, according to the Center on Global Energy Policy report's authors, Erin Blanton, a senior research scholar, and Samir Mosis, global LNG analytics lead for S&P Global Platts.

“There is currently no consensus on what qualifies an LNG cargo as carbon-neutral,” they wrote. “... There are significant differences in the range of value-chain emissions covered in each trade.”

By July, globally, 14 LNG cargoes labeled “carbon-neutral” by their shipper had been disclosed. Among those, 12 went to Asia, two to Europe. Of the latter, one was from Cheniere, the other from Gazprom.



Their “carbon neutral” status varied. Royal Dutch Shell Plc, TotalEnergies SE, Gazprom and Mitsui & Co. Ltd. cargoes proved carbon neutrality from wellhead to final consumption.

Meanwhile, Jera Co. Inc.’s “trade only covered the direct emissions from final consumption,” Blanton and Mosis reported.

Up to 80% and at least 60% of GHG from LNG happens at ultimate consumption; the rest, from well to tank (WTT) generally happens before.

“Given this dispersion, from the point of view of an LNG supplier, it would make sense to take responsibility for WTT emissions, given this is the portion they have direct control over,” Blanton and Mosis wrote.

WTT happens as part of Scope 1 and 2 emissions; Scope 3 includes what the consumer ultimately does with the molecule. Currently, the only way a gas producer can remediate the latter is with carbon offsets.

Shell and TotalEnergies, for example, are both gas producers and shippers. So it’s “not surprising” these and others “have committed to reaching net-zero emissions,” Blanton and Mosis wrote.

The next development is “the potential for buyers to request an emissions reporting, verification and mitigation component” in future LNG-purchase agreements.

If an LNG seller becomes responsible for canceling the GHG derived from consumption of the LNG too, does it pass that along to its own suppliers? All of this is “a critical unanswered question,” Blanton and Mosis wrote.

Jonah’s Ulrich said, “If we get it right, nat-

ural gas is going to play a strong and growing role [in the energy future].

“What we have got to do is build credibility within the entire supply chain—from rig to burner tip—and then demonstrate to the public and regulators, and certainly other stakeholders, just how clean we can be.”

It brings opportunity rather than impasse, he added. And the opportunity should mean growth for U.S. producers as U.S. gas will increasingly be seen globally as the most reliable source of RSG.

“Based on methane intensity and in moving towards much better standards,” Ulrich said, “we can export the cleanest LNG on the planet.

“I firmly believe that. It’s a tremendous opportunity for us all.”

Already cleaner

Operating in the Haynesville comes with proximity to most of the U.S. LNG export capacity—about 6 Bcf/d on the Louisiana coast of the U.S. total of about 11 Bcf/d. Of the balance, about 4 Bcf/d is on the Texas coast; about 1 Bcf/d on the East coast.

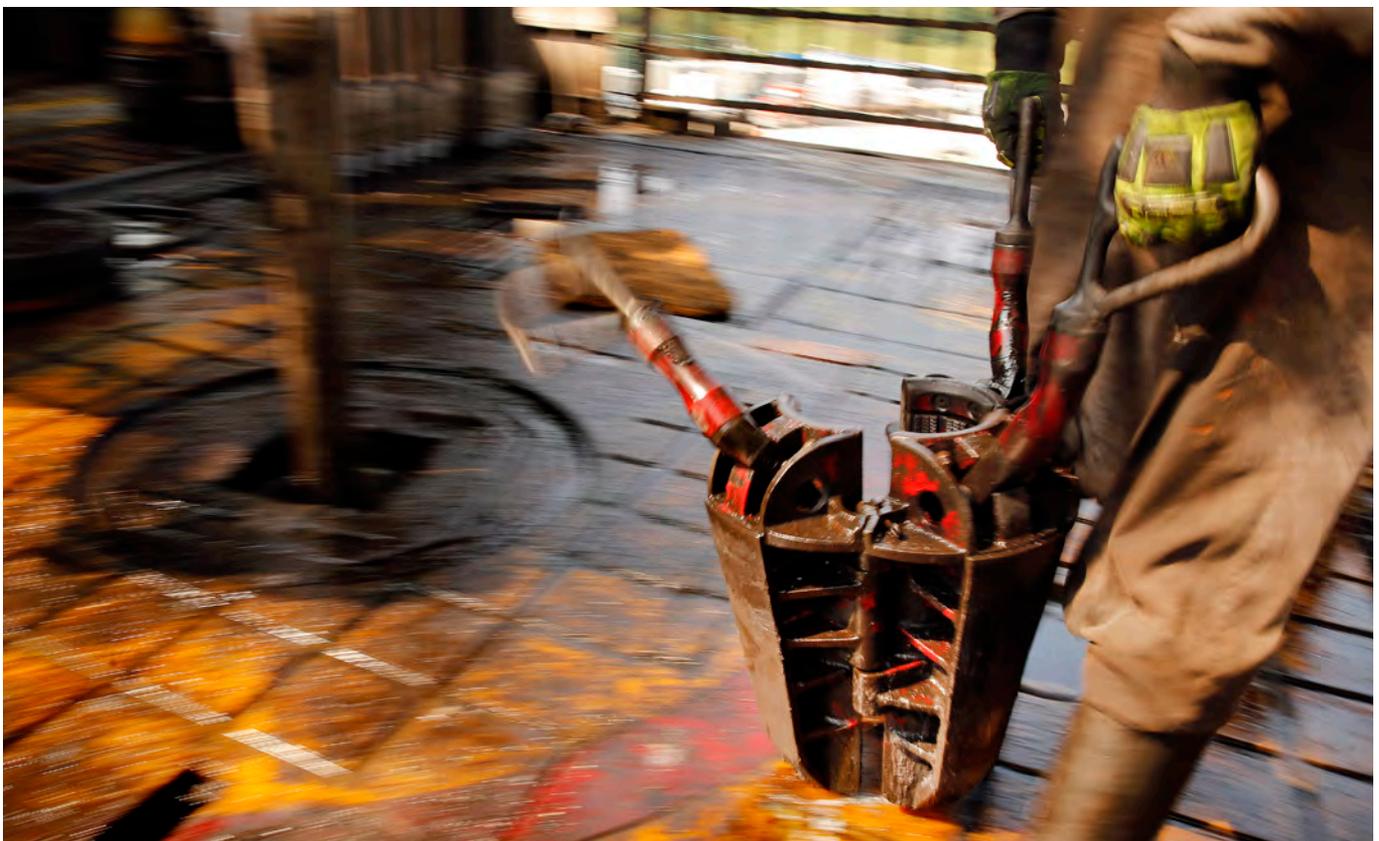
That the Haynesville is a dry gas basin is another advantage, Vine’s Elkin said. “[The gas is] very clean in comparison to the [oily] Eagle Ford or Permian or SCOOP-STACK.

“The advantage we have over the oil and associated gas plays is we are already much cleaner.”

Rice at EQT said the failure of the Engie contract “was a great example of why we need to do more to certify the product we produce and get the credit for all the great work we’re doing.”



Paul Ulrich,
vice president,
government and
regulatory affairs
for **Jonah Energy
LLC**, said **RSG
is an emerging
market.**



A Patterson-UTI floorhand prepares a brake as the crew pulls pipe from the Mac 10H wellbore for EQT Corp. in Greene County, Pa.



Buyers are interested in certified green fuels “to try and differentiate themselves as being cleaner than the other guy,” said David Elkin, executive vice president and COO, Vine Energy Inc.

In conversations with European utilities, he added, “one of their first questions is, ‘How much do you flare?’ And we don’t flare at all here at EQT or, really, in the Appalachian Basin in general.

“But it just shows you that they haven’t differentiated between the suppliers of natural gas in this country.”

EQT, for one, is producing at around half the emissions intensity than the U.S. average. “So when they look at the U.S. average and say, ‘That’s not as good as we’d like,’ they have to differentiate between the real star performers like EQT.”

Overlooked too is that the U.S. overall has lower emissions intensity than Europe’s other gas sources: Russia, Iran, Iraq, North Africa and “even Canada.”

A goal is for Europe to see U.S. gas as “if you want clean energy done right, it needs to be sourced from the United States, because we’ve got companies that care, we’ve got government officials that care, we’ve got stakeholders that are watching to make sure it gets done the right way.”

Chesapeake has signed with both MiQ and Equitable Origin, double certifying its gas, Woodard said. Standards in both exceed regulatory requirements.

Over at Vine, it signed on with Project Canary in August to begin the process. Having already done the work, Elkin doesn’t expect any problems.

Vine has already pared its GHG emissions 40% since 2017. “And we’re down close to 70% on our methane intensity since 2017,” Elkin said. “So we’ve already made huge strides as far as being ‘clean.’”

According to Enverus data, he added, “Vine, by far, is the leader in the Haynesville as for our emissions.”

Voluntary

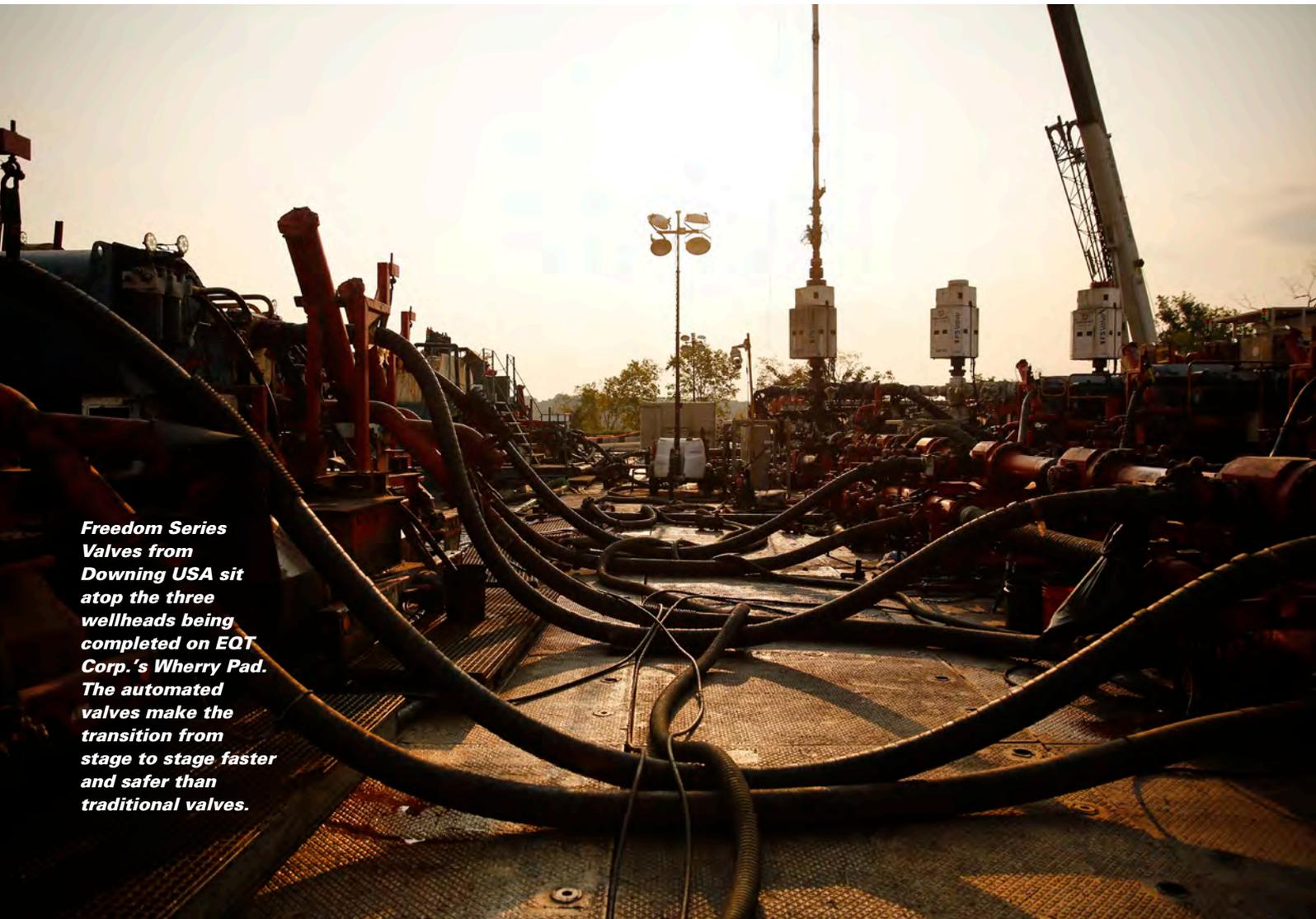
Rice said EQT’s and others’ efforts and certifications to date have all been voluntary, “and that means people can participate for the right reasons—not because they have to. We’re doing it because it’s the right thing to do.”

There could be some reward for it in the future. But, for now, “it’s [just] the right thing to do,” he said.

Could it eventually be required rather than voluntary? Could non-RSG become prohibited? “Well, I hope it stays voluntary,” Rice said.

Natural gas has become the No. 1 feedstock in U.S. power generation since 2007, pushing coal to No. 4—less than renewables and nuclear and more than halving use of fifth-place petroleum—according to the Energy Information Administration.

“We’ve lowered GHG emissions 25% in the United States over the last 10 years,” Rice said. “We’ve supported renewables to piggyback on our reliability. And we’ve made it low cost.”



Freedom Series Valves from Downing USA sit atop the three wellheads being completed on EQT Corp.’s Wherry Pad. The automated valves make the transition from stage to stage faster and safer than traditional valves.



A Patterson-UTI crew looks up as they place the first segment of drilling pipe as it comes up from the wellbore. The crew is drilling Mac 10H for EQT Corp.

As for if there will be an eventual U.S. carbon tax, “I think it’s too early [to tell],” he said. “But I am seeing a debate starting to form.”

“And EQT is going to be playing a leading role in ensuring that natural gas, rightfully so, plays a leading role in our energy future.”

In western Wyoming, Jonah Energy has more than 2,500 producing wells. As most of its operations are on federal land, Jonah has long worked at its environmental footprint, Ulrich said.

“We take a hard look at all of our impacts.”

Jonah was the first U.S.-based company to join the United Nations’ Oil & Gas Methane Partnership, which is now in its second phase—the 2.0 Initiative.

“Why that’s important to us is, from an emission-reduction standpoint, we’re taking that significant step from simply *calculated* emission reductions to *measured* emission reductions.”

Jonah’s and other gas producers’ RSG efforts are essential “to demonstrate just how clean we are and how clean we can become in competing with all energy resources,” Ulrich said.

Because natural gas is essential to a cleaner energy future, “reducing or eliminating oil and gas production is truly counter to the goal of tackling the climate crisis.”

RSG in M&A

EQT is signed up with Project Canary, MiQ and Equitable Origin. Investors are in full support, Rice said.

“When we talk about things that we want to do to improve our ESG performance, which is the driver of sustainability, it’s very well-received with our investors.”

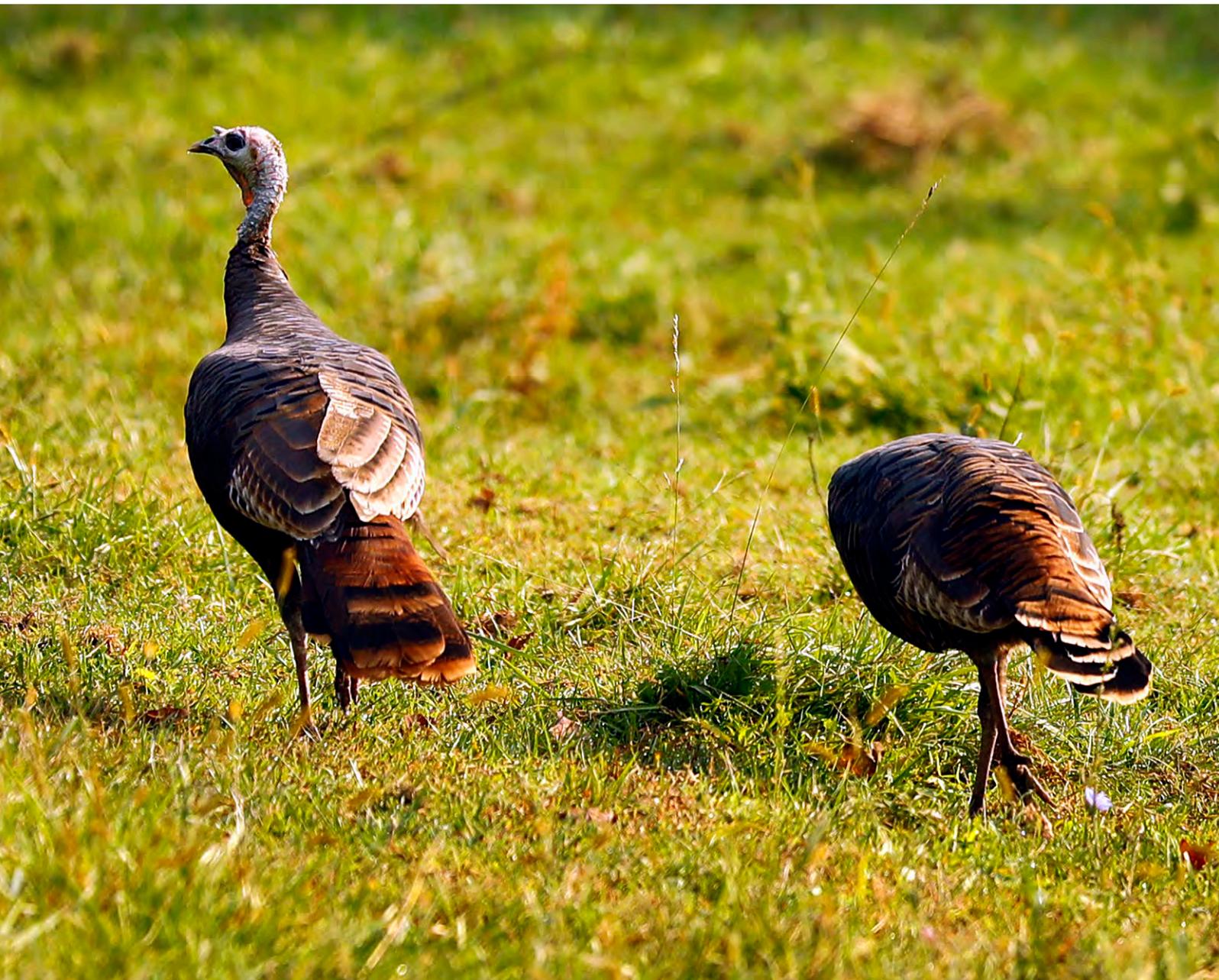
Still, cost is minded. “Our job isn’t just to go out and do things because they’re going to make us greener and more sustainable,” he said. “We need to prove that we’re doing this in the most efficient manner possible.”

One example will halve EQT’s emissions by replacing its more than 8,000 natural gas-powered pneumatic devices. An initial cost estimate was some \$100 million. “We were able to get the cost down to \$20 million.”

Meanwhile, replacement will eliminate some 53% of EQT’s Scope 1 GHG emissions from its production segment.

Other producers’ ESG scores are also

**Wild turkeys
look for food in
rural Washington
County, Pa.**



important in M&A now, he said. EQT's interest is in gas property that also measures well on RSG. The operator closed two acquisitions in Appalachia in the past 12 months.

"We're not only looking at quality of assets and quality of balance sheet, we're looking at quality of footprint," Rice said. And, where properties are short of EQT's own RSG achievements, it looks at where it can deploy its larger scale to elevate the property to its standards.

In analysis, "we're not only going to talk about the financial accretion and free cash flow per share, we're also going to talk about the ESG accretion by taking our best practices and applying them to the acquired asset base."

Scale matters. With a large asset base, EQT can translate cost savings and uplift in product value by "pennies, nickels, dimes and quarters into tens of millions, if not billions, of dollars of valuation over the long run," he said.

Elkins at Vine said the motivation among producers to plug leaks and minimize or eliminate flaring is, first, monetary, of course. "Anything that you're not leaking or emitting, you should be able to sell," Elkin said. "So obviously that's a motivation."

But Vine and other producers "have always tried to be good in our community" too. "We understand that we are disruptive to the community. So we've always made an effort to do whatever we can to lessen that impact.

"Emissions and reducing the amount of truck traffic, whatever we can do to mitigate it," he said. This summer, Vine eliminated 100,000 miles of saltwater hauling by installing pipe. "That's a huge reduction for the community."

When shale development became commercial in 2007 in Appalachia, producers there went to work just as quickly on assuring the least disruption to this area less familiar in this century with oil and gas development than Louisiana, Texas and Oklahoma.

In Pennsylvania, surface and mineral ownership aren't held in enormous ranches like in Texas, Rice noted. "We deal with smaller parcel sizes. So we touch a lot more people."

EQT's more than 1.6 million acres of leasehold is owned by some 100,000 landowners. "That's 100,000 families we're impacting," Rice said. Meanwhile, state regulations in Appalachia "are very strict—some of them the strictest in the country." □





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UNSTOPPABLE DEVON

When Devon Energy Corp. and WPX Energy Inc. merged to combine strengths during the 2020 downturn, they proved one plus one equals three times the value. Looking ahead, could the new company be the next E&P juggernaut?

INTERVIEW BY
STEVE TOON

The seed of a no-premium merger between Devon Energy Corp. and WPX Energy Inc. was first planted in the spring of 2019 when the two CEOs, Dave Hager and Rick Muncrief, respectively, met to discuss the benefits of a possible combination. At that

time, the E&P investor base had soured on the sector and wanted to see more scale, and the two leaders imagined the synergies and investment-grade status a combo might create.

But it wasn't until the summer of 2020, during the depths of the global demand downturn, that the Oklahoma City and Tulsa-based producers came together again to discuss a merger of equals. On Jan. 7, 2021, the two became one. Hager took the role of executive chairman, and Muncrief as president and CEO.

The amalgamation propelled Devon to the top tier of oil and gas producers. The new Devon portfolio features assets in five basins—the Permian's Delaware, Anadarko, Powder River, Williston and Eagle Ford Shale. The deal, however, doubled its footprint in the Delaware, its crown jewel, where it now holds some 400,000 net acres.

In the evolution to transition from a growth-oriented company to a cash-return model, Devon guided that it would reinvest no more than 70% to 80% of free cash flow and cap organic growth at 5% annually. In February, the company added a variable dividend on top of its existing base dividend—the first E&P to do so—which adjusts up or down quarterly depending on free cash flow generation.

Muncrief, a petroleum engineering graduate from Oklahoma State University, takes the helm of Devon as the company celebrates its 50th anniversary this year. He first joined WPX Energy when The Williams Cos. spun off its E&P assets in 2014, and led operations for Continental Resources Inc. before that. His storied resume includes stops at ConocoPhillips Co., Burlington Resources Inc., Quest Midstream, Meridian Oil and El Paso Corp.

Oil and Gas Investor recently visited with Muncrief on the company strategy going forward.

Investor How does the merger make Devon a stronger company?

Muncrief No. 1, I think there was some prevailing thought out there that Devon, on a



New Devon Energy Corp. CEO Rick Muncrief believes oil and gas are going to be needed for a long time to come, "and the amount that it's going to take to underpin an energy transition, if you really think about it, is staggering."

“From my perspective, the Devon story was being missed. ... That’s why we moved on it.”

standalone basis, was too leveraged to federal lands. Coming from the WPX side, we were a little more confident that it was not going to be the draconian world which some people felt it might be in the event of a change of administration, which ultimately happened.

For WPX, there were some real benefits with scale and getting deeper inventory. We loved the Devon assets. The Stateline area that we had plus the Lea and Eddy County, N.M., assets of Devon were just a wonderful fit.

Devon also had a couple of asset sales and was sitting on about \$2 billion of cash and did not have any callable debt. WPX had some cash but also had some callable debt. As one company, we’ve been able to retire \$1.2 billion of debt this year, many years in advance, and on very attractive terms. That’s something that neither company could have done on a stand-alone basis.

We identified nearly \$600 million of annual synergies. When we announced the transaction, the combined market cap was \$6 billion, so nearly 10% of the entire market cap was annual savings. That’s just an incredible amount of synergies. You don’t see that very often.

Since that time, our equity has outperformed virtually everyone in the last 12 months. Some of that’s certainly driven by commodity prices, but more than that, I think people see the strategic rationale behind the merger.

It’s been very well accepted.

Investor Both companies individually were strong financially and industry leaders. Why did you feel compelled to combine at this time?

Muncrief Investor sentiment had really turned against Devon because of the federal lands issue. Investors weren’t paying attention. All they were thinking about were the negative things that could potentially happen with a change of administration. They were selling Devon on the news, and Devon stock was underperforming when it shouldn’t have been.

From my perspective, the Devon story was being missed. I’ve lived half my life in the state of New Mexico and just had a confidence at that point in time that it was not going to be as bad as people feared. And that provided an opportunity for WPX shareholders. We felt it was a great opportunity to put the companies together and help de-risk the Devon story and prove the sentiment wrong. And that is exactly what’s played out.

That’s why we moved on it.

Investor What about Devon's motivation?

Muncrief Devon's motivation was to get more on the Texas side, which has no federal lands. I think Devon had an appreciation for the WPX assets. You basically double your acreage, double your inventory by joining with WPX and de-risking in some people's eyes. That's why Devon was motivated to do this.

And when you can save \$600 million a year, that's a really strong incentive. That's a lot of money, I don't care who you are. And so it was a win-win.

Investor Are rulings on federal lands having any current impact on your program?

Muncrief It's going well now. There was a pause on new permits being issued that took 60 days, and there was a moratorium put on any new leasing. But the reality is that when the merger closed, we had approximately 500 permits approved on federal lands already, so Devon was in phenomenal shape. Once the pause was lifted, then it's back to business as usual with active development. Over time, I truly expect to see more oversight, more enforcement potentially, to active development on federal lands.

Investor What factor did gaining scale have in considering a merger?

Muncrief It was a strong consideration. Advantages come with scale just on a unit cost perspective. On a unit basis of production, your costs are going down. The fact that we're now running 16 rigs instead of eight, our ability to negotiate goods and services is better.

Investor Were investors demanding more scale in your market cap?

Muncrief With some investors that's correct. Back in 2020, there were some pretty tough days out there in the markets for energy. A lot of people said, well, if it's below a \$5 billion market cap or \$10 billion, we just aren't going to look at companies of that size. Devon had a market cap of \$3.4 billion, and WPX was \$2.6 billion. The day we announced the transaction we were \$6 billion in market cap, and today we're at \$20 billion. So we're not getting that kind of concern. That's where the scale of the two together really helped.

Investor Does Devon now have the scale it needs, or is there more room to run with additional acquisitions in the future?

Muncrief We owe it to the investors to be thoughtful and deliberate. If there is a deal out there that makes sense, then you execute on that. But we want to keep a strong balance sheet and liquidity. It has to be accretive be-

The combined Devon-WPX Delaware Basin portfolio in the Texas/New Mexico Stateline area is exceeding 100% returns.





DEVON ENERGY CORP.

When evaluating Devon's role in the energy transition, Muncrief vows to keep the company nimble and ready. "Whatever the market is demanding of us, we will evolve and respond to that market."

cause we have a great outlook now with just our company since the merger. We've got a game plan that we've laid out to the market, and if we can find something that fits within that framework, then it might be something we act on. We will continue to have a high bar.

Investor What is Devon's strategy going forward?

Muncrief We've capped organic growth through the drill bit at 5%. We're going to focus more on giving cash back to shareholders. That's why not only have we paid a fixed dividend for 28 years, we're now paying a variable dividend. We were the first company to implement one and we did it earlier this year. We've already paid two dividend payments, and we're going to pay our third at the end of September. So it's a cash-return model. It's something investors had been asking for, for quite some time, and we're pleased to be the first to implement it.

Investor Under what scenario might you consider growing production again, or is that not in the foreseeable future?

Muncrief You'd have to have some faith in the forward curve, and right now we're very backwardated, which says that there's plenty of barrels out in the market. We're producing about 600,000 barrels of oil a day equivalent, and about 300,000 barrels a day of that is oil. If you take the majors out, just looking in the Lower 48, we're the fifth largest oil producer in the country. That's impressive. And so for us, at least as we think about this year and next

year, let's just keep our production flat, and focus on cash flow per share growth.

Investor With the new cash-return model, are you seeing new investors come in as a result?

Muncrief Our share price is obviously up. Everybody can check that. Our equity price is up three times from the day we announced (the merger). A tremendous success for shareholders.

What some people aren't aware of is our shareholder base. We've really attracted much stronger, I'd say longer-term investors. Some may not have been in the energy investing circle for a while, but now they're sitting on the sideline, and they're ready to get back in. We also are getting calls from the generalists, family shops, those that we haven't heard from in years. And we're absolutely getting a lot of new calls from fresh faces new to the industry. We're very encouraged.

Investor As the first to deliver a fixed-plus-variable dividend, do you think that is a defining factor in attracting investors back into the stock? Or is it just a commodity process right now?

Muncrief Realistically it's probably both, but there are a lot of investors out there that have seen this amazing growth in sectors like technology or healthcare. Some of these firms are trading at ridiculous levels compared to their earnings. And yet energy is trading at the lowest multiple of any sector. We see more discipline being deployed. And companies can talk about being disciplined, but once

they start paying dividends and that cash is coming to you, you can't ignore that.

Investors sitting on cash get a little bit of interest down at the bank, but compared to the yields we're talking about, it pales in comparison. So that's why we're getting, I think, a lot of calls from new investors. And I'm very, very encouraged by that. We just need more companies to implement that and we need to stay disciplined as an industry. I believe the investment community is going to rediscover energy.

Investor How does your dividend yield compare to the S&P 500?

Muncrief Our base dividend is competitive with the S&P, and then there is the variable dividend on top of that. We're paying, in some cases, nearly 8% total yield, so three or four times what the S&P 500 is doing. We're paying among the highest in the S&P 500. By 2022, my goodness, the cash flow we're spinning off is amazing. That's assuming strip pricing—you don't have to have some real high oil price. We're very competitive.

We're about 50% hedged for this year and only 20% hedged for 2022. As crude oil prices are recovering, on a go-forward basis, our cash flows will continue to get even stronger because those hedges were put on during some pretty gloomy days.

Investor If you're 20% hedged in 2022, is your balance sheet in a position that could withstand another drop in commodity prices were it to happen? Do you feel like you're in a good place to not hedge?

Muncrief We're in a good spot. We're projecting we'll be at one turn (debt-to-EBITDA) or slightly less as we exit 2021, and into 2022, we're in a solid place. Cash flows are strong, balance sheet is strong (and) we don't have any near-term maturities for several years. That's what gives us the confidence to pay this nice dividend. Even though we're paying a big, nice dividend, we're still building the cash balance. We could not have done it to the degree we have without the merger. We're just stronger together than either one of us would've been individually.

Investor Is Devon primarily a Delaware Basin story presently?

Muncrief We currently operate in five basins, but 80% of our capital is going to the Delaware Basin. Approximately two thirds of our production comes from the Delaware Basin. So in a lot of ways, we're predominantly a Delaware Basin company.

We have a breakeven cost of about \$32 a barrel driven by phenomenal acreage in that Stateline area both on the New Mexico side and the Texas side. The quality of that acreage is allowing us to reinvest at these lower rates and still keep our production flat while not putting additional new barrels into the market.

We have nice core positions in these other basins. Some of these have longer-term upside, and others are just a little more mature and spin off some really nice free cash flow. And so, at present, all five of our basins are playing a key role.

Investor What kind of returns are you getting in the Delaware, and how does that compare to other areas of the portfolio?

Muncrief Wells in the Delaware are very much in excess of a 100% rate of return at the well level. We have some individual wells that are over 200% that will pay out in less than six months. We've had some that have had 30-day IPs over 3,000 barrels equivalent per day, and a handful that have been in the 5,000 boe per day range. These are really, really strong wells.

In the other basins, we have some of those opportunities, but the inventory is not as deep.

Investor What did you find at your Yukon Gold pilot? Why is this significant?

Muncrief The exciting thing about Yukon Gold, or a number of these other pads, is we've opened up a new perspective horizon. Historically, a lot of really good production on the New Mexico side came from the Second and Third Bone Spring primarily and on the Texas side from the Wolfcamp and some Bone Spring. We started comparing notes and on the Texas side, we're seeing additional Bone Spring, and on the New Mexico side we're seeing a Wolfcamp development.

Breaking it down even further, we're seeing more distinct landing intervals within the Bone Spring and the Wolfcamp. There are just simply more individual landing intervals, more target horizons, to produce from. Yukon Gold is just one of several pads we've brought on that are really exciting.

The other thing is around the efficiencies. We've been able to knock these breakeven costs down as we're drilling more and more of the longer laterals. And not just the 2-mile laterals; we're drilling quite a few 3-mile laterals now in some of the very best rock there is. Some of that Lea and Eddy County acreage is just really, really incredible geology.

Investor Beyond the Delaware, how are you allocating capital and rigs?

Muncrief Down in the Eagle Ford, we have a 50:50 joint venture with BP (Plc). We have two rigs operated by BP, but they are getting some capital. Oklahoma, here in the Midcontinent and primarily in the STACK area, we have a joint venture with Dow Chemical. They contribute quite a bit to the funding of that. We're running two rigs there and that's working out real well.

We currently have one rig running up in the Powder River Basin of Wyoming, and at the current time, we really don't have anything running in the Bakken. It is generating quite a bit of cash flow, and we'll probably resume drilling up there around the first of the year.

So we're putting capital in all five of our basins. It's just that the Delaware is getting the lion's share of it. The Delaware is hard to compete with for capital. It's going to continue to be the workhorse in our portfolio. I don't see that changing anytime in the near future.

Investor Are any of these divestiture candidates?

Muncrief We'll continue to evaluate our portfolio, but in some areas we need to try new things. For instance, in the Powder River Basin

"When you can save \$600 million a year, that's a really strong incentive. That's a lot of money, I don't care who you are."

we will be drilling some 3-mile laterals in the Niobrara. We think at some point in time, some of these actions we take will be game changers. If not, then we have to step back and look at how it fits in the portfolio. But nothing is imminent right now for divestitures.

Investor Is Devon pursuing exploration opportunities outside of its featured portfolio?

Muncrief We're really not focused on that. Our exploration today is on existing acreage. So some of these new horizons I talked about are drilling longer laterals to see if you can make something even more economic. That's the type of exploration we're doing today.

Investor Do you field an exploration team any longer?

Muncrief We have some folks that still have those capabilities. We still have the core competency if we decided that we really needed to launch new exploration projects. Many of these folks have worked all over the world, so we've got a lot of horsepower here in the organization. But right now, we really don't see that.

Investor How important is basin or commodity diversity to you?

Muncrief You can be too diverse from a geographic perspective, so that's why we like the five basins we're in. I think that's plenty.

Commodity diversity is important, but I'll say this: We just think oil is going to drive cash operating margins for quite some time. We like being in that 50% or higher range. On the commodity value curve, oil is top then natural gas liquids then residue natural gas. We have ex-

posure to all three and don't see that changing. **Investor** In your quarterly conference call, you sounded excited about NGL and gas prices.

Muncrief It's almost a bonus. NGL prices have really rallied. The outlook is quite strong and especially for propane and butane. If you budget \$2.50 a Mcf, and you wake up and you're at \$4, that's not a bad thing. But the fact is, between crude oil and natural gas liquids, they typically provide plus or minus 90% of our revenues.

Investor What are Devon's goals pertaining to ESG?

Muncrief We've laid out some shorter term, mid-range and longer-term environmental goals focusing on reducing Scope 1 and 2 emissions. We're committing to taking a leadership role by targeting to reduce greenhouse-gas emissions intensity by 50% by 2030 and achieving net-zero emissions for Scope 1 and 2 by 2050. A critically important component of this carbon reduction strategy is to improve our methane emissions intensity by 65% by 2030 from a baseline of 2019.

Investor How are you addressing emissions at the field level?

Muncrief We're making changes to some of our facility designs, and we're going to watch the performance over time. We're excited about some of the impacts we've seen thus far.

We are trying some new technologies. We have several pilots which are doing real-time monitoring at the well level. It's a technology that we invested in with a few other companies, and we're putting it to work. We're excited about it.

Since the merger, Devon has identified additional, distinct landing intervals in its expanded Delaware Basin portfolio.



DEVON ENERGY CORP.

And we're doing third-party surveillance with flyovers. We look at it as another set of eyes to help us run our business better. We're not averse to engaging, learning and responding when those things happen in the real world. You have to be responsive.

Are we monitoring 8,000 wells in real time now? No, we're not there yet. It's very early stages, but that's what we strive to do.

We're putting our first solar farm out in the Permian in our Stateline area. We'll kick that off in the next couple of months. It's going to support some of our lease operations where we've had reliability issues with power. We own 15,000 surface acres, and we're going to take a portion of that and have our first solar installation.

Investor Do you think emissions monitoring or broader ESG goals are becoming a de facto requirement for accessing capital?

Muncrief I think it will be a requirement for capital to flow to our industry. And there's going to be a recognition that there has to be some capital spend. Sometimes people want improvement with very little or no capital but, over time, it will require more capital to be deployed.

This entire ESG movement is interesting. Banks are weighing in, investors are weighing in, law firms are weighing in (and) regulatory agencies are weighing in. But at the end of the day, we all must step up and write the checks for additional costs, which then flow through to consumers and investors.

We welcome change, but we try to be very pragmatic in our approach. Although we're very proud of what we've done for the world as an industry, we have an opportunity to do even better. One of those things is we can lower our emissions. It's just going to take time. And unless you can demonstrate over time you're doing that responsibly, I think capital is going to get tight. I really do.

Investor What is your viewpoint of the energy transition movement and of long-term demand?

Muncrief The energy transition movement is quite strong right now. There's a lot of interest in it. But for now, oil and gas is going to be needed for a long time, and the amount of oil and natural gas that it's going to take to underpin an energy transition, if you really think about it, is staggering. The installation of wind generators, solar panels, getting hydrogen to where it could potentially be a dependable economic source of energy—it's just going to take staggering amounts of hydrocarbons.

I think the energy transition, in a lot of ways, is already underway. To what degree and how much it can be scaled in the next five, 10, 20 years, I think still remains to be seen. So for us, let's continue to deliver what the market demands day in and day out while finding ways to lower emissions.

Investor Would you consider adding non-hydrocarbon business lines?

Muncrief We're exploring the realities of that. So, for instance, what are the true economics of that? We're looking at a lot of things and

we're trying to be very pragmatic and thoughtful about it. We've got a core group that is doing some work in that arena. We're evaluating some pretty interesting things, but it's not something that I expect us to be devoting a ton of capital to in the near term. Over time, maybe we'll have more capital to deploy in the energy transition. It's still in its early stages. We'll see.

Investor What might some of those nonhydrocarbon business lines be?

Muncrief We're looking at things like carbon capture. We're looking at truly understanding the hydrogen story and what that is going to take and the realities of economics around that. We actually have some joint ventures and memorandums of understanding that we've executed with different companies just to do some joint exploration. That doesn't mean we're always investing money, but we're certainly studying it.

At this point in time, one of the questions in my mind remains scalability. When you start thinking about the energy transition, and what it's going to take, any of us can have a small pilot project at work, but can you truly scale? What's it going to take for the rare earth minerals? What is it going to take for infrastructure, for pipelines? So there is still lots to understand.

Investor What do you think the oil and gas landscape will look like in 2050, which is a target date for net zero in a lot of people's minds?

Muncrief I still think in 2050, people are going to be stunned at the amount of oil that is still required. Let's face it, you've still got developing countries—the greater Asian region—which has driven a lot of our growth in the last 15 or 20 years. They're going to want to not only compete, but they want to compete and win in the global economy. I think they're going to need oil and gas to help underpin that growth in a lot of ways. They'll be transitioning to some other alternative energy sources, but I think oil and gas by 2050 is still going to be a big piece of the energy picture.

Investor How are you positioning Devon, then, for the next decade and beyond?

Muncrief The best thing you can do is be prudent, keep a strong balance sheet and strong cash flows, continue to evolve and learn how to be even more efficient.

How do you be optimistic and know what those new opportunities could be? It could be in our traditional oil and gas, or it could be in energy transition opportunities. So I just want the company to be strong and nimble, to evolve and continue to get better. Whatever the market is demanding from us, we will evolve and respond to that market. We'll deliver whatever society needs.

This year was the 50th anniversary of Devon, and so it's a great time to think about the next 50 years and what that could be. If you're the CEO at this amazing point in time, you step back and you really think about the future and what some of the bottlenecks, the impediments could be, and contemplate what an energy transition could be and maybe what it won't be.

It's really an exciting time to be in oil and gas. □

“We're committing to taking a leadership role by targeting to reduce greenhouse-gas emissions intensity by 50% by 2030 and achieving net-zero emissions for Scope 1 and 2 by 2050.”

PROBING THE BUYSIDE

The choice is to invest or wait on the sidelines. Some buysiders see opportunity.

ARTICLE BY
LESLIE HAINES

ILLUSTRATION BY
ROBERT D. AVILA

We know that 2020 was a firestorm, followed by a big rebound in oil and gas equities since then, with natural gas rising above \$4. Fortunately, most executive teams are continuing to show spending discipline, even though commodity prices have recovered. All this begs the question: Have E&P equities finally become more investible?

It seems more optimism is in the air. When recapping results from the second-quarter reporting season this summer, Raymond James E&P analyst John Freeman expressed a positive outlook in his report: “The ‘shift’ in the E&P mindset has established some strong roots.”

He refers to the shift of public E&P companies toward meeting investor expectations by slowing spending or growth strategies, regardless of what oil and gas prices do, to focus on rate of return to shareholders.

Investor Art Smith, founder of Triple Double Advisors LLC after selling his research firm, John S. Herold Inc., in 2007, put it this way: “After the fire, there are some green shoots that pop up in the forest. You know the next cycle is coming, and it’s going to be a doozy.”

True enough, if you look at supply and demand dynamics, but the road to that outcome is always fraught with threats as well as opportunities. In a conversation with Smith, award-winning former energy analyst Tom Petrie, co-founder of Petrie Partners, said this: “Markets dish out humility with regularity.”

And how. The Fidelity Select Energy Portfolio mutual fund, formed in 1981 and now with \$1.3 billion under

management, has recorded a 10-year, annualized return of negative 2.08%, not exactly inspiring excitement or confidence in the sector. Year-to-date, though, it is up 21%. The fund holds 54 companies, with its top holdings at July 30 being Exxon Mobil Corp., Chevron Corp., Royal Dutch Shell Plc, Cheniere Energy Inc., Pioneer Natural Resources Co. and ConocoPhillips Co.

The biggest institutional investors, such as Fidelity, BlackRock Inc., State Street Corp. and The Vanguard Group Inc., tend to hold the same dozen or so large-cap names, companies that receive the most analyst coverage and pay dividends.

We note that the investor community has been talking about the same themes for at least four years now, with hope: focus on returns, not growth, and no more outspend. We found a report from April 2018 wherein Morgan Stanley analysts were saying capital discipline was being rewarded. At that time, E&Ps were already telling everyone they would not raise their capital budgets even if oil prices rose.

They are still singing that tune today in 2021. In addition, they are initiating or increasing dividends and stock buybacks, all in their quest to deliver higher returns than ever before—to become investible.

Analysts and the buysiders they serve note that if this conservative approach to drilling continues, the industry is setting up the next short-fall of supply and the rise in commodity prices, which should lead to outsize returns ahead.

“Reinvestment rates are shockingly low compared to history as companies remain committed to debt reduction and/or accelerating shareholder returns,” Freeman wrote. “E&Ps remain grossly undervalued compared to the rest of the market as companies search for ways to excite investors, most recently through dividend announcements.”

Grossly undervalued? That sounds like an opportunity waiting around the next bend. We asked a few buysiders or portfolio managers for their latest thinking. After all, the SPDR S&P Oil & Gas Exploration ETF (XOP) has had a great run lately, up about 40% through June.

So, how much does any of this shift matter to investors? KeyBanc Capital Markets studied the 13F filings of 200 top investment managers based on their assets under management and found that as of June 30, money has flowed the most into two industry sectors this year—tech and energy—but tech narrowly beat out energy. (Real estate names were the third most often bought.)

The top net bought stocks in energy were Bonanza Creek Energy Inc., Range Resources Corp., Cabot Oil & Gas Corp., Berry Petroleum Co. LLC, Comstock Resources Inc., SM Energy Co., Magnolia Oil & Gas Corp., PDC Energy Inc., Centennial Resource Development Inc. and Murphy Oil Corp. The top institutional holders of these stocks almost always include the same aforementioned Big Four: Fidelity, Vanguard, State Street and BlackRock.

The energy stocks sold the most, net-net, were some that have seen a good run: EOG

TOP GUNS

Besides looking at macro factors such as global oil demand trends, an investor has to zero in on a particular company's assets, production performance and financial picture. But of all the factors that trip the trigger for buysiders, it appears that management qualities matter most, especially when it comes to communication with investors.

That's one of the major findings of Brendan Wood International (BWI), a private advisory group which originates performance investigation programs in the capital markets. BWI, based in Toronto, regularly polls about 2,000 global institutional investors who collectively manage more than \$51 trillion, invested in the 1,400 companies on the BWI Shareholder Confidence Index.

“Given the quality of the assets, two of the biggest factors that drive the commitment to own a stock are the quality of the management team and how it communicates with investors, both current shareholders and others who do not own the stock,” BWI partner Jordan Novak said.

“There are so many investment professionals out there performing analysis on energy companies. Our role is to quantify the resultant investor demand for the stock and why.”

Relying on its real time performance intelligence, BWI reports back to its corporate clients the commitment to own their stock on an anonymous basis. Why are investors buying or selling a stock? The collective commitment to own a name quantifies the demand side for equities among the investor community.

BWI uses 11 critical performance metrics to determine the relative strength of investor commitment to a company's equity: strategy, CEO, growth, balance sheet, reporting and disclosure, to name a few.

This process identifies the emerging competitiveness of individual sectors, sub-sectors and, most importantly, of companies as investment targets on both an absolute and relative “best in sector” basis against investors' selection criteria for the year ahead, Novak explained.

Such calibrated data allow BWI to help corporate management clients to accurately analyze their company's attractiveness as a target for the year ahead as an individual story, relative to its comparables and in their industry sector. In the current environment, corporates are focused on ESG, and they are asking BWI to investigate a company's ESG program versus its peer group.

There are two key parts to the BWI Shareholder Confidence Index: commitment to own a name and the underlying qualities of the target. Companies with the highest level of both are “Top Gun Companies,” which typically outperform their peers.

“After doing all the fundamental analysis on a company, the investor is still sitting in front of the screen with a buy, hold or sell option. What's he going to do? A final factor, namely the strength of demand, often tips investor commitment to own a company,” Novak said.

“BWI's Shareholder Confidence Index quantifies a factor that fortifies investor conviction, namely the global weight of demand for the stock. Brendan Wood International can tell a CEO what institutional investors are likely to do—and why. Our asset management clients are, of course, equally intrigued by this compelling data.”

Global Top Gun Oil And Gas Exploration Companies

(Top 10 in alphabetical order)

ARC Resources Ltd.
Cabot Oil & Gas Corp.
Cimarex Energy Co.
Diamondback Energy Inc.
EOG Resources Inc.
Parex Resources Inc.
PDC Energy Inc.
Pioneer Natural Resources Co.
PrairieSky Royalty Ltd.
Tourmaline Oil Corp.

Global Top Gun Oil And Gas Integrated Companies

(Top 10 in alphabetical order)

BP Plc
Canadian Natural Resources Ltd.
Genovus Energy Inc.
Chevron Corp.
Marathon Petroleum Corp.
Occidental Petroleum Corp.
Phillips 66 Co.
Royal Dutch Shell Plc
Suncor Energy Inc.
TotalEnergies SE

Source: Brendan Wood International



“What I’m excited about is discipline,” said Billy Bailey, founder, Saltstone Capital Management LLC.

Resources Inc., Denbury Inc., Apache Corp., ConocoPhillips and Cimarex Energy Co.

The new paradigm

The new commitment to delivering returns and maintaining capital discipline seems to be having a reassuring effect, most buysiders said.

“Across the board you see management teams mentioning they are doing things to align with shareholders. These parts of the investment narrative are welcome and appreciated,” said Ben Cook, who co-manages two BP Capital Funds (successors to the old T. Boone Pickens energy hedge funds). He joined BP Capital Advisors in 2017 after a career that involved stints at a family office and a hedge fund, but he started as an analyst at Raymond James in 1998.

He told *Oil and Gas Investor* that when he started his career, oil was only \$10/bbl, and Chesapeake Energy Corp.’s stock was a dollar.

“I’ve seen the ups and downs and seen people come and go. While it’s debatable where hydrocarbons are going to end up, there’s still a lot of opportunity for these companies to regain favor,” Cook said. “Yes, with ESG and all, there’s a risk premium being built in, and how the market deals with that is going to be challenging.

“But I think the appeal of many upstream companies has improved dramatically in recent years. Alignment with shareholders is probably as good as I’ve seen it in my career.”

BP Capital no longer manages its hedge funds and instead serves as a sub-advisor to two energy mutual funds majority owned by Hennessy Fund Advisors in California. The Hennessy BP Energy Transition Fund, started in 2013, is mostly invested in upstream names with the rest in midstream with some in oilfield services, although it can invest across the energy value chain, including renewables. The top five holdings as of June 30 were EOG Resources, Diamondback Energy Inc., PDC Energy, Comstock Resources and ConocoPhillips.

Like many buysiders, Cook strongly believes in the play in natural gas and LNG themes as the world transitions to something else longer term. “Depending on your time frame, depending on your assumptions, the energy transition is not going to happen overnight, so there will be prolonged dependence on traditional energy, especially in developing countries. We’ll see natural gas grow alongside renewables.”

Favorites moving up on his list also include Pioneer Natural Resources, based on the strength of its assets and the management team, especially CEO Scott Sheffield, and natural gas names such as Comstock Resources and Cheniere Energy that will benefit from the call for gas for LNG export and to replace coal.

What factors contribute most to Cook’s investing decisions? This remains a people business, so knowing and trusting the CEO or company president for years makes a difference.

“I’ve known Jay Allison and Roland Burns for years [chairman, CEO and president of Comstock respectively]. They’ve made it

through some tough times. At their forecasted rate of production growth, we think the equity could be worth as much as \$9 a share, yet it’s trading around \$5.

“And I’ve known Scott for a long time. This is a company that combines all the favorable attributes we look for. And I think he’s doing the right thing on addressing the ESG issues.

“But first and foremost, a stock has to have a justifiable valuation, and we assess the upside and downside risks based on commodity prices. The NAV [net asset value] on a risk-adjusted case gives us confidence. We look at discounted cash flow and valuation on a historical basis and versus a company’s peers.”

A BP Capital alum, Billy Bailey grew up in an entrepreneurial family and, having dreams of his own, left a senior position at Boone Pickens’ firm in 2016 to launch his own company, Saltstone Capital Management LLC, in Dallas.

The firm manages a long-short hedge fund but given the opportunities he sees today, Saltstone is net long, Bailey said. He invests in the full energy value chain, from oil and gas to oilfield services, to wind, solar, batteries and renewable gas, believing the energy transition is here to stay, is needed and offers plenty of opportunities. He looks at all market cap sizes and is not opposed to investing in small-cap names. He noted that over 10 years ago while at BP Capital, he visited the largest landfill in the Dallas area in order to analyze gas well drilling there, and now he’s come full circle, looking at similar opportunities today in renewable gas. He recently invested in the Rice brothers’ renewable special purpose acquisition company, for example.

Just as E&Ps have entered the time in their life cycle where they must pay more to their investors, so too will energy transition companies soon be doing the same. “I couldn’t be more excited because now it’s time to return cash to shareholders,” he said.

“But to invest, you have to ask yourself what level of free cash flow yield you need to be able to underwrite before you purchase a specific stock. The single largest variable is the commodity price; the largest headwind is the coronavirus’ effect on demand and the economy, but this too shall pass.

“The opportunity set right now in the near term is vast.”

His current favorites are companies with discipline that ensure that management rewards stem from meeting the same metrics that shareholders will receive. He likes Marathon Oil Corp., Devon Energy Corp. and Occidental Petroleum Corp. He also has invested in some oilfield service names.

Really investible

Another buysider, Josh Young, who runs Bison Interests in Houston, would agree that E&Ps are looking attractive these days.

“ESG, dividends, returns, all these things we’ve been talking about are making the sector really investible, especially when [the stocks] were being sold for almost religious reasons and not for the fundamentals. It’s offering a great

opportunity for value investment in some overlooked stocks that are not covered by analysts.”

He noted that although the XOP was up about 40% through June, he thinks there’s more room to outperform by carefully selecting certain E&P stocks and to do so without shorting them or without leverage. Bloomberg recently reported his return year-to-date exceeded 200%, but he would not confirm that and declined to reveal the amount of assets under management. Bison is a private fund invested in public energy equities on both sides of the U.S.-Canada border. He favors a mix, having found opportunities in each country.

The less attention analysts pay to the sector, the less research coverage it gets, the better the overlooked opportunities are, Young said. “There are some really good opportunities out there. Yes, a lot of that is driven by the recovery of the stocks since COVID last year, but a lot of the opportunity is because people are so negatively biased against the industry.

“I do look at the large caps, but so many analysts follow them, so the opportunities in the small-mid-cap range are what I focus on. These are apt to be the overlooked ideas.” He is invested in about 15 E&Ps at this time.

Being climate competent

The buysiders we spoke with agree that financial matters and valuation matter. Liking the management team, especially the CEO and CFO, may matter even more in the decision to buy or sell. But the topics of returns and ESG policy have gained a lot of attention during the past two years.

Some 83% of public E&Ps have implemented some kind of ESG policy, according to a survey of second-quarter results by law firm Haynes and Boone LLP and EnerCom. “With significantly higher levels of investor scrutiny, companies that ignore ESG are becoming a less desirable investment,” the firms said recently.

However, even though a company institutes or raises its dividend, that isn’t necessarily an automatic Buy signal. For example, analyst Mark Lear of Piper Sandler wrote that Berry Petroleum Co. raised its dividend recently by 50% for an annualized 4% dividend yield, the highest in his coverage universe, but Lear maintained a Neutral rating on the stock and even lowered his price target slightly, based on the company’s second-quarter results and outlook. So, traditional fundamentals still matter.

What about the chilling day in May when activists and a Dutch court pummeled Exxon Mobil, Chevron and Shell about their ESG performance, climate risk and overall profitability? What effect will we see from the dire predictions leveled by the Intergovernmental Panel on Climate Change (IPCC) in August? Does the IPCC report squash all further interest in oil and gas exploration and production themes?

“We expect boards to be climate competent,” said Vanguard in a stern letter to the Exxon Mobil board. Vanguard supported the activist Engine No. 1’s claims and new board members elected as a result. “Particularly for companies where climate change is a mate-

rial risk to the business, we expect boards to reflect the necessary skill set to independently oversee a company’s risk and strategy related to the energy transition.”

If anyone should care about Exxon Mobil’s performance—and future risk—it’s Vanguard, the company’s largest shareholder at the end of the second quarter, owning 8.34% of the shares outstanding, which were worth more than \$22 billion.

Woo the generalists

Yes, a defensive posture means holding the equities of the majors. Does that mean most other E&Ps are still destined to remain wallflowers at the investing dance? Investors playing defense against inflation still favor the majors, followed by large-cap indies such as Pioneer Natural Resources.

For some time, Pioneer has remained one of the more popular, investible E&P companies for portfolio managers. The stock is owned by many of the largest, most savvy institutions, including Vanguard and BlackRock. The latter two own the most, a combined 40.5 million shares worth about \$6.5 billion (data as of March 31). Checking recently on Yahoo Finance, among sell-side analysts who follow Pioneer, 11 had Strong Buys on the stock and 24 had a Buy.

Pioneer’s Scott Sheffield, a frequent spokesman for the industry, is well-regarded in investor circles and, importantly, is not afraid to speak his mind. One can safely assume buysiders take his call—and he takes theirs. But all is not so rosy. Sheffield had this to say about the institutional investor mindset these days, when speaking to the Houston Producers Forum in mid-August: “I said before during the downturn that there would probably be only four or five, six companies [left to invest in]. I got quoted on that all across the U.S. and the world.

“And what I was trying to point out is, when you talk to these PMs [portfolio managers] as a public company, they’ve always told me, if they’re going to get into fossil fuels, they’re only going to buy about two companies. They’re not going to go all the way and buy 10 or 15 like they used to,” Sheffield said.

“Energy PMs that I know today are all going into alternative energy. There are no more energy shops in most of these firms, whether that’s Fidelity, Wellington or J.P. Morgan Asset Management. They have no more fossil fuels.

“And so, you have to convince the generalists. For the new group, there’s a lot of money in dividend value funds. We have to go over to the dividend value funds.”

The company recently accelerated its first variable dividend payout from next year to later this year. Tudor, Pickering, Holt & Co. said this has helped investor sentiment, and it sees the variable plus fixed dividend providing an aggregate yield of 10% in 2020.

The next irresistible thing

During the sector’s second-quarter conference calls, similar themes emerged as CEOs



“When stocks are being sold for almost ‘religious’ reasons, it’s a great opportunity for value investing,” said Josh Young, co-founder of Bison Interests.



“All the other metrics come down to the people [who run the company],” said Jim Murchie, co-founder, Energy Income Partners.

spoke of what they aim to become, to keep and attract the picky buyside.

Stephens Inc. analyst and banker Jim Wicklund likened trying to attract the market to gambling. “After some of the recent consolidation values and so few Permian players left of scale to consolidate, lots of companies are trying to quickly become the next irresistible thing in the market. It is a bet that goes higher up the risk curve, and the biggest risk is market timing and preference. But then, we are an industry of gamblers.”

Many company managements continue to pledge that they will not increase production much or at all. They will wait for global market signals to indicate that oil demand is at least back to 2019 levels, and crude inventories are manageable, not spilling over. In the meantime, the focus remains on financial performance.

Marathon Oil said its goal is to return 40% of operating cash flow to investors and pay down debt as well. Devon Energy is paying investors through its fixed and variable dividend, but it is returning capital after making capital investments.

Subash Chandra of Northland Capital Markets said this in a research note: “Marathon is the ‘cleanest’ return-of-capital case yet. Devon is the nearest comp, in our view, but their ROC [return of capital] calculation is after capital investment.”

Other analysts noted similar improvements in E&P performance regarding returns to investors, although they observe continued skepticism from those investors as well.

“Return of capital to shareholders is accelerating with more attractive frameworks unveiled; however, the market appears skeptical of this cyclical industry based on stock performance,” wrote Gabriele Sorbara, analyst for Siebert Williams Shank & Co., after the second-quarter results.

“We may need a few quarters of execution on the variable dividend front for investors to become believers that the models are sustainable. Buybacks are becoming more compelling for some companies given stock valuations,” Sorbara said.

The catch-up trade

“E&P returns year-to-date are not particularly correlated to return-of-capital or FCF [free cash flow] yields. Perhaps that will change in 2022 when checks are actually cashed, as cash flows are unencumbered by costly hedges and inflation is mostly in-check,” he said.

After the rush of the second-quarter reporting season was done, the E&P mantra heard through the upstream jungle was loud and clear: “Our earnings beat, we will raise our dividend, net debt is falling and we cut spending.”

Morgan Stanley analyst Devin McDermott also noted the improved E&P results, yet he believes the equities have more room to run. “Now, capital discipline, rising shareholder returns and another solid earnings season have helped E&Ps outperform crude oil. That said,

the sector has still lagged the commodity by about 20% since the beginning of 2020, creating room for a further catch-up trade. With 2Q [second-quarter] earnings nearly finished, oil-weighted E&Ps have beat consensus on EBITDAX by 10% and CFPS (cash flow per share) by 9% on average.”

So, when does the catch-up trade begin in full force? Alas, although some big investor groups such as Fidelity reportedly no longer have energy teams, they’ll hold onto a couple majors and a couple large-caps and call it a day.

One may have to look at the true meaning of investment, as Jim Murchie always has. The co-founder in 2003 of the \$4.5 billion Energy Income Partners made this distinction: “To me, the upstream business is a lot more attractive today as a trade than at any time in the last 25 years, but it will never be a long-term investment, by my definition.

“There’s trading, and there’s investing. To me, an investment grows its earnings per share over time, and it pays something back to the investor. I need to see per-share earnings growth.”

With these criteria in mind, Murchie is one of the largest investors in the so-called midstream sector. He focuses on non-cyclical infrastructure themes: poles, wires, pipes and tanks, as he says. He looks for quality, not deep value, with competitive returns over the long term in cost-plus, regulated or monopoly-like businesses. Enterprise Products Partners is his largest pipeline holding; Magellan Midstream Partners the second. His funds are the fourth-largest holder of NextEra Energy Partners, which owns Florida Power & Light.

Why not oil and gas companies? He calls the upstream “a lousy investment” as he sees declining revenues in a highly variable industry, with poor capital discipline and outsize executive compensation that is not tied to shareholder returns, he said.

“For 25 years the capital allocation in this industry has been horrible. But now they’re getting religion again and ESG-oriented investors are leaning on them.

“They have always been brilliant technically, and the shale revolution has been extraordinary. They have saved the American consumer billions of dollars. But the shareholders have not made money. There is no financial metric you can look at that is positive,” he said.

Indeed, since 2014, the upstream industry has grown production by 7% and lowered costs by 40%, noted Evercore ISI analyst James West in a presentation last January. But that track record is not sustainable because the operating margins of oilfield service companies have fallen by a similar magnitude, he said.

Murchie’s No. 1 criteria for pulling the trigger to buy an equity? “The people who run the company.”

Obviously, he said, he looks at the numbers, the margins, the long-term contracts a pipeline has, whether discipline is in effect on capital spending and whether growth is occurring.

“But all the other metrics come down to the people.” □

FROM COMMODITY TO CURRENCY

Once gone to waste, flared gas is becoming the energy source of choice to power advanced computing systems used for cryptocurrency.

ARTICLE BY
MICHELLE
THOMPSON

Affordable sources of energy are vital in high-density computing, and when EZ Blockchain launched as a hosting provider in 2017, the company soon realized it needed to get off the grid to remain profitable. After all, proof of blockchain work—also known as crypto mining—is notoriously power-consuming, and electricity costs were devouring company profits.

That's when EZ Blockchain founders developed an innovative approach: They looked to flared and stranded gas as an alternative energy source and haven't looked back since.

"It was a big game changer," Sergii Gerasymovych, chief executive and co-founder of EZ Blockchain, said. "It has become our main business ... Instead of burning natural gas into the air, we're doing useful work. We're not

only reducing emissions, but we're helping companies meet regulatory rules, at the same time making some revenue for them, and we ourselves are off the grid. Multiple parties benefit from it."

Wasted opportunity

Stranded gas that might otherwise have gone wasted more frequently is being used to power energy-intensive crypto mining. Some natural gas producers—particularly in Wyoming and North Dakota—are selling the product at the wellhead to companies such as EZ Blockchain, which uses it to produce cryptocurrency such as Bitcoin.

In 2018, EZ Blockchain developed a way to use flared gas by building generator-powered microgrids, which are about the size of a shipping



"We're not only reducing emissions, but we're helping companies meet regulatory rules, at the same time making some revenue for them," said Sergii Gerasymovych, chief executive and co-founder of EZ Blockchain.



CRUSOE ENERGY SYSTEMS INC.

Crusoe Energy Systems Inc. partners directly with operators to mitigate flaring at well sites. The company uses the captured gas to power its crypto mining data centers.



“Globally, about 90% of flaring happens outside the U.S., so our long-term vision is to provide Digital Flare Mitigation services on an international basis,” said Crusoe Energy Systems Inc. president Cully Cavness.

container, to fuel its line of high-density computing modular data centers. The energy sector soon became EZ Blockchain’s key market.

The company established a team of in-house engineers and developed a fully operational manufacturing line to supply mobile data centers on scale. It also developed a mobile flaring mitigation system, EZ Smartgrid, which can be used on oil pads to reduce flaring. The technology consists of an electric generator and a mobile data center filled with crypto mining equipment.

The strategy appears to be paying off: EZ Blockchain, since 2018, has grown from a team of five to a staff of about 50 employees. It has projects throughout the nation, with its presence heaviest in the Permian Basin and Marcellus Shale. In addition to its Chicago headquarters, the company recently opened a Houston office to support its oil and gas operations.

And as the company’s leader puts it, EZ Blockchain isn’t the only one that stands to profit from the technology.

“I think that every oil and gas producer who has natural gas assets should have this system on their field because it’s not only a system

that helps them to mitigate flaring and resolve a gas problem, it is also a system that helps them to be hedged against the prices of natural gas,” Gerasymovych said.

“Let’s say the Bitcoin mining system makes more than \$5 per Mcf, for example, and the price that they sell it [elsewhere] is at \$2, then they can just mine Bitcoin. If the price on the midstream is higher than they would make from Bitcoin mining, they would just sell the gas. But if they would install the system in their field, they have another option because natural gas and oil owners are kind of at the mercy of midstream companies.”

Environmental payoff

Crusoe Energy Systems Inc. partners directly with operators to mitigate flaring at well sites by utilizing the natural gas that would otherwise be wasted. Crusoe pays for the stranded gas on a per thousand cubic feet (Mcf) basis, similar to typical gas purchase contracts, which establishes a basis for taxes and royalties.

Of course, capturing wasted energy and using it to power crypto mining also has tremendous environmental benefits. It’s no secret that



EZ Blockchain’s EZ Smartgrid is a mobile data center paired with a mobile gas electrical generator.

flaring is a considerable source of methane emissions, and Crusoe's Digital Flare Mitigation systems have achieved 99% combustion in its stack tests. Its approach helps reduce methane and CO₂ equivalent emissions. The company said it also deploys top-of-the-line catalyst technology into its systems to reduce nitrogen dioxide, carbon monoxide and volatile organic compound emissions.

"This catalytic conversion cleans the air of smog, delivering material air quality and human health benefits," Crusoe president Cully Cavness said.

Crusoe uses patented Digital Flare Mitigation systems to capture stranded gas, and the gas is diverted from a flare line to a generator designed specifically for rich gas. From there, the generator combusts gas to generate electricity, which is used to power onsite modular data centers.

"As the natural gas is fully combusted during this process, we are able to achieve a 98% reduction in methane emissions and a 63% reduction in carbon dioxide equivalent emissions compared to continued flaring as the status quo," said Cavness.



"As Bitcoin mining became more mainstream, Crusoe developed Digital Flare Mitigation systems to provide E&Ps with a better environmental and economic solution than flaring and to provide the Bitcoin network with a superior energy supply in both environmental and economic terms," he said.

Market comeback

Highwire Energy Partners LLC entered the cryptocurrency mining industry in 2020, around the time a pandemic-induced market crash pushed natural gas and oil prices into a downward spiral. Stuck at home during a lockdown, Highwire Energy president Kris Holbrook began brainstorming with his partners about how to prosper from the emerging cryptocurrency mining market.

The company soon purchased the necessary equipment and tested it on wells owned by partner Wayne Neumiller.

It shortly realized that while the market value for gas was \$1 per Mcf, the company could earn about \$8 per Mcf by using stranded gas to fuel crypto mining.

"It started from there and we built out, and it's just really taken off," Holbrook said. "What we are in search of is cheap energy, and we found it, basically, by creating energy. Flared gas was being vented and never used, and we want to harness that energy for Bitcoin mining."

Highwire's presence in the sector continued to build in January 2021 when it purchased leases on an orphaned South Dakota field that would have otherwise cost the state about \$1 million to plug. The company began working on the field after partnering with a New York City private equity firm that shares its clean energy vision.

"Once you plug the well, that energy source is gone forever," Holbrook said. "You'll never be able to harness it. And now, we are going to produce that gas, and we're going to pay taxes on it for the schools of South Dakota, which is a revenue stream that they were basically never going to have if they would have gone down a different route."

Sweetening the deal

In April, North Dakota passed Bill 2328, which provides operators with a credit for oil produced from a well site using an onsite flare mitigation system. It means operators can earn monthly credits of up to \$6,000 per well by deploying Digital Flare Mitigation technology.

In Wyoming, a recently passed law removed taxes from projects that converted flared gas to cryptocurrency.

As incentives for utilizing stranded gas continue to grow, so too does Crusoe's quest to reduce carbon emissions. The company plans to expand to the Permian Basin later this year and has an ESG mandate for its projects to be net neutral or net reducers of carbon emissions.

"This means Crusoe focuses on fields that primarily produce oil and have gas as a flared byproduct, not the primary product itself,"



Crusoe Energy's Digital Flare Mitigation systems have achieved 99% combustion in its stack tests.

Cavness said. "Globally, about 90% of flaring happens outside the U.S., so our long-term vision is to provide Digital Flare Mitigation services on an international basis."

A tough sell

When Gerasymovych's team began its technological trailblazing, it was met with more critics than cheerleaders. Friends would laugh at the thought of cryptocurrency being a profitable venture, while others were reluctant to acknowledge the legitimacy of the sector. Perhaps most challenging was the ability to gain access to traditional financing.

The regulatory uncertainty surrounding cryptocurrency prevented banks from financially backing EZ Blockchain, forcing it to fund its operations upfront. The challenge was exacerbated during the pandemic, when oil and gas values plummeted, putting related investments in a more precarious position.

"Our business is very highly capital intensive, and most of the money that we need is for power generation assets like electric generators and turbines, and they cost a lot of money," Gerasymovych said. "With a regular business, you would just go to the bank and finance a generator. For us, we have to buy it upfront with cash, which is making this more complicated because we cannot scale to the level we would want to. We constantly need to raise money to buy more power generators. That's probably the biggest challenge."

When Highwire initially launched, it too faced money troubles.

"To tell you the truth, when we first started, it was very hard," Holbrook said, adding with a laugh: "A lot of people just kind of thought we were more or less snake oil salesmen. It was tough. But I can tell you in confidence, the very first investors that we had got their

money back in the first six months and have given us more money since then."

Since entering the market, things have gotten a little easier for companies seeking financing in the sector. There's a great deal of money entering the space as investors began recognizing the need for clean cryptocurrency mining, Holbrook said.

"China shut down Bitcoin mining because it was such a strain on the grid," he said. "We don't put anything on the grid—everything is off the grid. We do not hurt communities or hurt people by putting strain on the grid. And so, that's why our space is just blowing up."

State regulations have presented another obstacle. In some states, it can be difficult to obtain a permit to install generators necessary to takeaway flared gas.

Crusoe has faced some challenges of its own, with many related to technical, commercial and operational difficulties related to company growth. Although it developed solutions to solve those operational challenges, it's grappling with a new obstacle as it expands into the Permian Basin.

"Bitcoin mining computers, called ASICs, do not like hot weather. This is a challenge in lower latitudes and desert regions such as West Texas and New Mexico. As a result, Crusoe has developed cooling solutions to keep ASICs cool and dust-free in challenging conditions, and we are excited to begin rolling these new systems out over the next year."

Powering up

Flared natural gas isn't the only way to power cryptocurrency mining, but advocates such as Gerasymovych believe it's the best option. Although solar or wind sources could also be used, he said they're less reliable.

"Solar can provide power for only seven hours a day, and the wind is very intermittent, very limited," he said. "We have thought about putting some projects on wind. However, by doing that, we are not solving any type of problem. We're just using power, [and] it's against our values. We really want to solve the problem, which is wasted energy from leaking gas. We're using power which otherwise would be either burned or it's never been created, and that's probably the biggest advantage here."

A new way to pay

While some critics have expressed skepticism of cryptocurrency being a lasting phenomenon, Gerasymovych believes it's here to stay.

"Bitcoin is usually called digital gold because it actually has the same features as gold. It has the scarce supply, it has mining, so you need to spend a lot of effort to get one Bitcoin," he said.

"And also, the more you mine Bitcoin, the less Bitcoin is left. That being said, Bitcoin has another feature that gold doesn't have: it's very easy to store, and it's easy to transfer, which is the biggest feature of Bitcoin. You can send \$1 billion from one wallet to another and just pay \$10, and it's very simple." □

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A hand in a black glove holds a black balloon with the text "BUSTING MYTHS OF OIL'S DEMISE" written on it. The background is filled with many other balloons in various colors (blue, white, black) and festive lights, creating a celebratory atmosphere.

BUSTING MYTHS OF OIL'S DEMISE

Deloitte analysts find that while peak growth has passed, the industry will remain on solid ground for the foreseeable future. But how companies choose their competitive positioning will determine the new energy order.

The resiliency of the oil and gas industry has never been more apparent than it has over the past 20 years. While it's likely that the market growth the industry has enjoyed in the past is over, and that investment sentiment has severely waned, the prospects for hydrocarbon development remain strong.

Still, the energy transition away from fossil fuels is forcing companies to re-examine their operations and even the types of energy they develop. Super majors, whether by sheer force of outside influence (Exxon Mobil Corp.), legal mandates (Royal Dutch Shell Plc) or self-imposed emission reductions (Equinor, BP Plc), are embracing new methods of producing ESG friendly sources of energy.

But mid-majors, North American large- and small-caps and the variety of producers in between are holding their ground on oil and gas while also making moves to cut emissions. For the foreseeable future, oil and gas development will remain a crucial part of providing the world energy.

But how do those same companies position themselves for the future? How much and how quickly should they adjust their capex toward



In a recent report by Deloitte LLP, one of the study's authors, Amy Chronis, said that despite significant headwinds, the oil and gas industry will remain strong. "Although the high growth phase has come to an end, the reality is that oil demand will remain for the foreseeable future. And it still delivers significant value and is critical to powering the world."

green energy? In a recent study, Deloitte LLP analysts examined energy transition trends. Their findings revealed that, among other trends, the demise of oil is a "myth."

Hart Energy recently visited with Amy Chronis, U.S. oil, gas and chemicals leader at Deloitte, and an author of the report, "Portfolio Transformation in Oil and Gas." Chronis discussed what those myths are, how companies should be viewing their operations as the energy transition evolves and why shale development still remains a highly valuable industry.

Deloitte recently published a report on oil and gas portfolio optimization and whether or not companies should continue to capture value in hydrocarbons or embrace green energy more. What did Deloitte discover during its research?

This is another really pivotal moment in the industry. Oil and gas companies are essentially running out of time to pick a side or a team now that the transition is already moving quickly. Now on the one hand, the value propositions in oil and gas versus green energy are very different, and executives are grappling with how much to invest and in which green technologies.

And then on the other hand, although the high gross growth phase of the oil market may have come to an end, oil demand is still projected to remain.

So our report looked at helping companies assess which team to pick and how to plan the new bid. We forecast that for 2020 through 2030, just to give us the size of the capital redeployment opportunity available to oil and gas companies. We looked at it and assumed an oil price of \$55 per barrel.

And the staggering finding is that over the next 10 years, the global oil and gas industry has a huge opportunity to redeploy about \$838 billion to right-sizing current oil and gas businesses or pursuing new growth energy areas, like new ventures and new technologies. And so that \$838 billion is about 20%—and that's very conservative—of future capex over the next 10 years. So whether a company remains focused on oil and gas or diversifies as an integrated energy provider or chooses to become a green company, it has to establish its competitive position in the portfolio frontier. Those choices are going to determine the company's position and the new energy order.

This report cites five myths, one of which is that oil has lost its luster. Can you explain why the study felt it was a myth?

Oil may be down, but it's definitely not out, and that's a win-win. Although the high-growth phase, as I mentioned, has come to an end, the reality is that oil demand will remain for the foreseeable future. And it still delivers significant value and is critical to powering the world. In fact, some accelerated energy transition scenarios still project oil demand of about \$85 to \$90 per barrel by 2030.

In today's price environment, even by 2030, oil will still be a trillion dollar industry in

revenue terms. So our financial benchmarking analysis showed that about 66% of oil heavy portfolios delivered above average returns—not often mentioned in the media these days.

You may be surprised to know that a few oil companies have delivered average returns on capital of over 20% over the past five years. That's higher than many companies and nonservice industries such as utilities and capital goods.

So the important point here is that the energy transition is happening regardless of oil price movements or the economics of green businesses. And counterintuitively, the strength of oil demand is to everyone's advantage. In fact, a strong oil price has helped companies do both things simultaneously: capturing highest value from the remaining hydrocarbon value and redeploying significant portions of that money toward green energy businesses and solutions.

Another myth explained in the report is that shale's pain makes other portfolio options an obvious choice. Can you elaborate on that?

High level, it's all relative. The going has certainly been tough for shale companies—low natural gas prices, WTI to discounted brand, repeated capex cuts and mass bankruptcies. But that's led to transactions, and even then the pain in shale doesn't make other resources an obvious investment choice.

So in our analysis, between 18% and 45% of non-shale portfolios delivered below-average performance. The underperformance among offshore deep water and diversified portfolios is high with 39% to 45% of them featuring in the bottom two quartiles.

So we would go back to the foundation. The oil and gas industry is all about engineering operational excellence. It's less about where one drills and more about how one drills, and that is going to continue. Companies can create a differentiated value irrespective of the resource, including shale, if they have the right set of excellence.

We have heard a lot about natural gas serving as a transition fuel in the energy transition. Can you talk about the challenges companies that focus almost exclusively in producing oil will face in the coming years?

You've nailed it in terms of the home has changed or in terms of where things are going. We really think that oil specialists with the most efficient and lowest cost of operations, those with the best balance sheets, those with

undisputed access to markets and those with the best operating technologies and marketing platforms, for instance, offering carbon-neutral oil, those are the ones that will likely be able to sustain and even grow their share in the shrinking hydrocarbon businesses.

Natural gas is slightly more resilient than oil in that it's underpinned by its role in supporting developing economies as they decarbonize and reduce the resilience of coal and is a source of near carbon energy when combined.

In Deloitte's opinion, where should companies be allocating their capital right now?

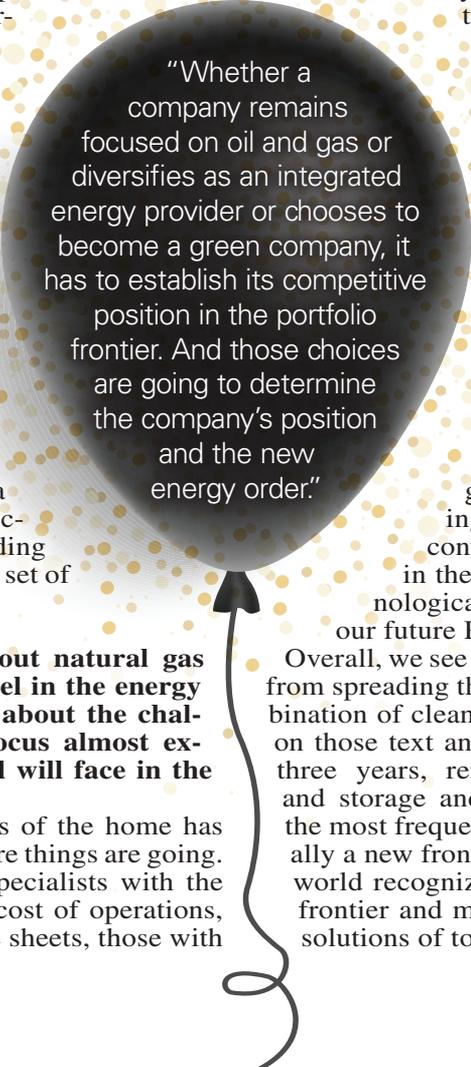
Each company will have its strategy. A winning capital allocation strategy is four things. I would say that it sustains cash generators that, for instance, have projects that generate cash with the least risk and capital intensity. Secondly, it invests in future growth engines, projects that replace lost fossil fuel-related growth. Thirdly, that it maximizes profit when an opportunity arises, like having projects that are fast scalable for any price upside. And lastly, that it chops value strains, that it rigorously identifies projects that can be targeted for capital reallocation. So those are our four tenants around allocating capital right now.

For companies looking to diversify, which green projects should they prioritize?

Our analysis of the media showed that solar and wind are ruling the day in terms of media attention and notice. According to our analysis of news articles, renewable power, solar and wind energy are grabbing the highest media share, about 47% among all green energy models with sentiment turning toward green hydrogen and CCUS [carbon capture, utilization and storage].

On the other hand, interest in more established gas-based opportunities, including gas power generation, LNG processing, retailing, natural gas conversion, seem to be falling in the analysis yet rising in technological innovation and focus on our future R&D.

Overall, we see companies likely benefiting from spreading the risk and choosing a combination of clean energy capabilities. Based on those text analytics over the last two to three years, renewables, maneuverability and storage and green hydrogen emerges the most frequently mentioned. But it is really a new frontier, and it's critical that the world recognizes that this business is the frontier and must be essential to the new solutions of tomorrow. □



"Whether a company remains focused on oil and gas or diversifies as an integrated energy provider or chooses to become a green company, it has to establish its competitive position in the portfolio frontier. And those choices are going to determine the company's position and the new energy order."

THE NEED FOR A SECOND PATHWAY

Carbon capture, utilization and storage technologies play a critical role in the energy transition. Will the oil and gas industry learn to adapt?

ARTICLE BY
STEPHEN
ARBOGAST

ILLUSTRATION BY
ROBERT D. AVILA



Editor's note: This is the third in a four-part series Oil and Gas Investor is featuring with Kenan-Flagler Energy Center at the University of North Carolina (UNC) at Chapel Hill. Part four will appear in the November issue.

On July 29, Exxon Mobil Corp. announced its second-quarter earnings, and as part of the investor webcast, it disclosed further information about plans to pursue carbon capture, utilization and sequestration (CCUS). These disclosures included signing a memorandum of understanding for a Scotland CCUS project and work on new materials to improve the capture efficiency of CCUS technologies.

There were some mildly positive responses to these disclosures along with dismissive assessments. Parsing the dismissive responses offers an opportunity to explore the potential for a more constructive climate discussion. This discussion will center on the activity on which Exxon Mobil has chosen to focus: CCUS as the second pathway in the climate strategy.

The dismissive critiques offer several strands, which can usefully be highlighted:

- Exxon Mobil's CCUS strategy amounts to "greenwashing," a defensive strategy to defend its continuing to producing hydrocarbons, the use of which the world needs to reduce or eliminate;
- Exxon Mobil's CCUS is aimed at shifting the decarbonization focus to its customers, those who emit Scope 3 CO₂. This will allow the company to concentrate on and tout its Scope 1 reductions, those directly attributable to its own production processes; and
- CCUS is expensive and uncompetitive with wind/solar power and therefore a diversion of capital better spent installing offshore wind turbines or utility scale solar arrays.

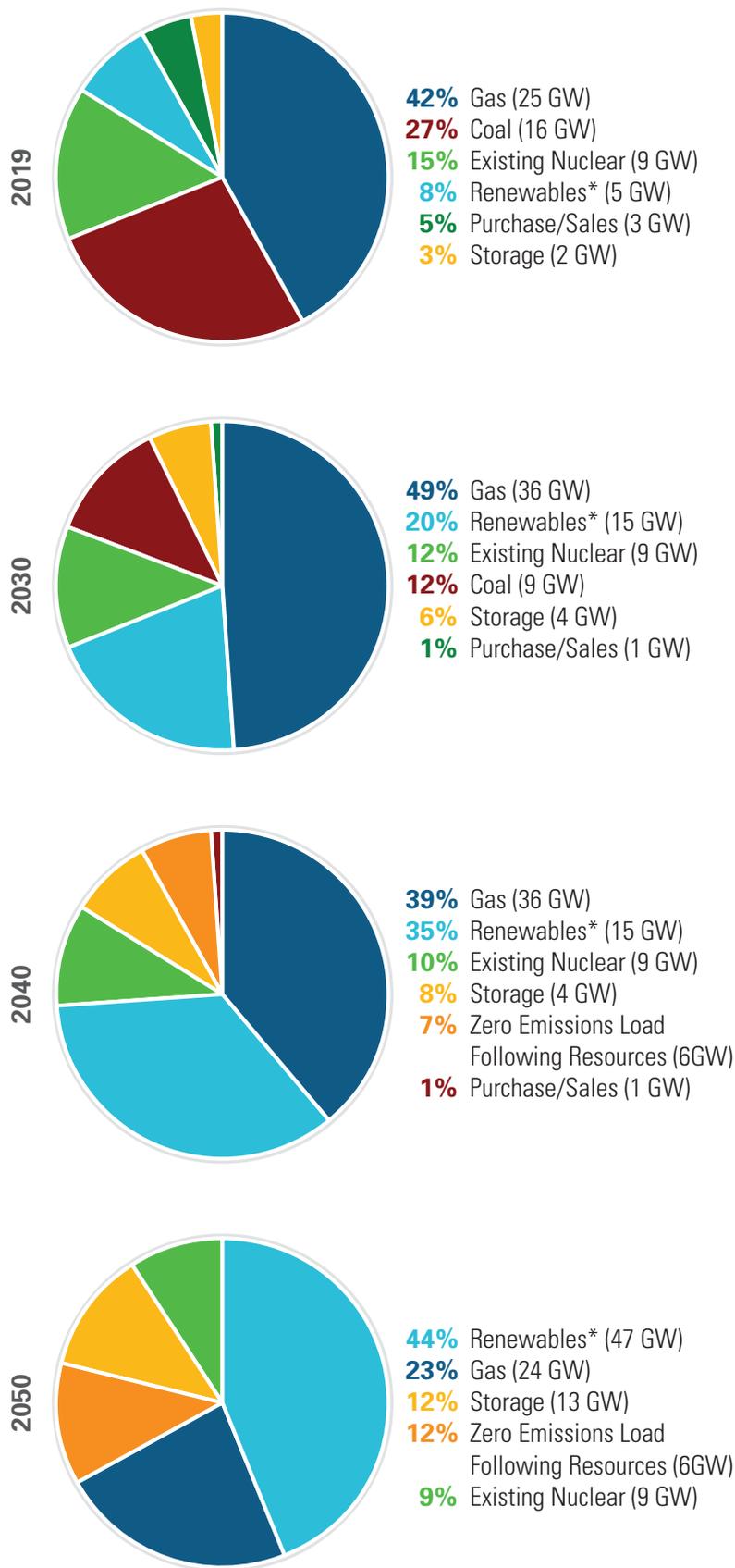
A sense of these critiques comes from climate and energy reporter Tim McDonnell's piece in the "Quartz Daily Brief": "Ultimately, the only way for Exxon to eliminate its Scope 3 emissions is to stop producing oil and gas. That's the direction some of its European peers are headed, as they look to become titans of renewable energy. Until Exxon gets on board, it will never be the climate beauty queen."

As gratifying as this critique is to some, it underscores an emerging problem. Arguments used by the environmental community to advance its causes are reaching diminishing returns. Change is needed if the next phase of the energy transition is to progress. For this to happen, the environmental community must undergo its own transition, one that involves moving away from stopping things to deciding what to enable.

Decarbonizing challenges

The environmental community's climate strategy is also hitting diminishing returns because it is limited to backing wholly inadequate means to accomplish stated goals. If the aim is to limit global emissions to levels consistent with a 1.5 degrees Celsius or 2 degrees Celsius temperature increase from pre-indus-

Duke Energy Regulated Generating Capacity



*Renewables include hydro, wind, solar, landfill gas, biomass, etc.
Source: Duke Energy Corp.

This guidance shows the pivotal, enduring role of natural gas in Duke Energy Corp.'s 2050 net-zero plan.

“Change is needed if the next phase of the energy transition is to progress.”

trial levels, wind/solar plus battery storage and electric vehicles (EVs) will not accomplish the targeted decarbonization.

The problems with the “renewables can decarbonize” vision are legion. Huge sectors such as aviation and heavy transportation are not easily electrified and are unlikely to be transformed any time soon. Other sectors such as heavy industry cannot be electrified. Renewables costs will not continue to drop as they are pushed further into the grid. Intensifying intermittency backup and load-following issues will see them rise instead. Battery costs were expected to drop with large-scale manufacturing of EVs. Now that prospect is in jeopardy as manufacturers awaken to the challenge of sourcing more copper, lithium and nickel from mines in the Congo, Chile and Peru. Taking these material inputs into account, an honest life-cycle analysis also suggests that installing renewables is less decarbonizing than implied.

All of this makes the challenge of decarbonizing economically advanced nations much harder than the dominant narrative acknowledges, and the chances for decarbonizing developing countries are even more remote. Those lands are decades behind the U.S. and Europe, prioritize development for their populations and lack the capital formation and decarbonization options, which OECD countries enjoy. Yet, they make enticing locations for relocating heavy emitting industries driven abroad by the decarbonization push in Europe, Japan and the U.S.

So, the first and biggest transition needed is for the environmental community to admit that the energy transition cannot be renewables plus storage plus EVs. As Daniel Yergin recently put it in his book, “The New Map”: “At this time at least, wind and solar cannot go it alone. They need partners.”

To say it another way, the energy transition will have to be hybrid. It will require contributions from more than a few sources, or it won't happen as we need it to happen.

Some influential members of the environmental community have begun to undertake this transition. A paper, “The Nuclear Dilemma,” published by the Union of Concerned Scientists, points in this direction. The paper argues that allowing the current U.S. nuclear fleet to retire would amount to spinning our wheels on decarbonization. The article then discussed the safety measures needed for nuclear plant life extensions.

More recently, Gina McCarthy, the current White House climate adviser and former head of the Natural Resources Defense Council, publicly called for current and new nuclear energy to be part of a clean energy standard (CES) sought by the Biden administration. McCarthy called for the CES to be “robust and inclusive” and added carbon capture to the elements to be included.

McCarthy's call for an inclusive CES is to be welcomed. New nuclear and CCUS will need to be contributors to the hybrid energy transition. The next step would be environmental community recognition on why CCUS is more

than just a mention item. It is, instead, the needed second pathway to decarbonization.

CCUS drivers

There are four main reasons why CCUS must be the second pathway:

- It will be the only way to decarbonize emissions from large stationary industrial sources;
- It will be the only way to decarbonize the natural gas electricity generation needed for grid integrity and stability;
- It will be needed to decarbonize developing economies that have fewer energy options, weaker electricity grids and large heavy industry sectors emitting greenhouse gases (GHG); and
- It addresses large economic costs not recognized in most clean power economics. These include the costs of storage, backup power and forcing the retirement of existing assets with considerable remaining economic life.

Let's review these four points in more detail. Stationary sources account for approximately 50% of U.S. CO₂ emissions. In 2017, U.S. emissions from stationary sources amounted to 2.6 billion tons. These sources include iron and steel, cement and concrete, refining and chemical manufacturing, and pulp and paper. However, by far the biggest share, almost 70%, comes from the electricity sector.

Two problems are at work here. First, the nonelectricity sector is hard to decarbonize. All of this manufacturing is based upon continuous operations supported by reliable power. In many cases, massive amounts of heat are also employed. Intermittent electricity backed by short-duration storage cannot provide these essential operating conditions. This constitutes a formidable decarbonization challenge for cement, refining, etc., in the U.S.

That challenge is only greater in less developed countries. The fact that China and India, which are major outsource destinations for these types of industries, still continue to build coal plants only magnifies the chances that U.S. decarbonization based on wind/solar largely amounts to shipping CO₂ to high GHG emission locations. It is not a coincidence that China, at 30%, is now the leading source of CO₂ releases and twice the size of U.S. emissions.

The second CCUS driver addresses the reliability and resiliency of electricity grids. Considerable progress has been made on decarbonizing the U.S. electricity sector. In fact, most of the reductions in annual U.S. emissions have been accomplished in the power sector. However, the harder challenges lie ahead.

More wind/solar on the grid has provided experience as to what that means for grid reliability. The problem is not just that the wind doesn't always blow or the sun doesn't always shine. It is also that renewable power cannot be counted on to follow electricity demand when that load increases.

Battery storage, demand management and smarter grids have all been proposed as solutions. To date, all have shown serious limitations. Lithium ion batteries need to be recharged every two

to four hours. That leaves them of little use in a major power outage or for storing surplus solar for tomorrow, next week or next winter.

Demand management depends upon consumer cooperation at scale. Overwhelmingly, customers expect the lights or air conditioner to go on when they want it. Smarter grids face many challenges, from the decentralized nature of the U.S. power sector to the fact that surplus power from adjoining markets cannot always be counted on, as California continues to encounter as it battles drought and wildfires.

Decarbonizing electricity

For all of these reasons, multiple utilities (Calpine Corp., Duke Energy Corp.) have issued studies affirming the need for natural gas to remain in the electricity generation stack.

Natural gas is uniquely able to load follow and can be used to meet peak or baseload demand. The latest natural gas combined cycle plants are highly efficient. These show power conversion ratios (heat rates) of 65% and capacity factors of 85% or better. These characteristics mean that for many utilities, substituting natural gas for coal is their current and near-future decarbonization strategy.

Today, Duke Energy has 25 gigawatts (GW) of natural gas power. The company's 2030 plan envisions its presence rising to 36 GW as its coal capacity drops. More significantly, the plan foresees 24 GW of gas-fired capacity remaining in 2050. This doesn't include additional gas capacity with carbon capture that would fill in its zero emissions load following resources (ZELFRs) gap.

Since all serious decarbonization plans start with decarbonizing electricity, the sector's need for natural gas presents an ongoing challenge. How can utilities reconcile moving toward net-zero emissions while continuing to rely on natural gas for load following and backup? CCUS is the pathway that can reconcile these goals.

Failing to take this need for natural gas seriously will likely lead to events that can harden resistance to decarbonization efforts. An example is what happened in Texas during February 2021. This extreme cold weather event lasted seven to 10 days. Battery storage would not have helped in this crisis. Also wind and solar generation almost disappeared for days.

Finally, consider how natural gas responded to the large increase in load fostered by frigid temperatures. Much was made of the fact that, toward the end, even natural gas powered electricity was affected. Instead, consider what would have happened in this event if natural gas was no longer in the mix.

Reliability challenges such as this are more acute in most other countries. If electrification is the path to decarbonization, it has to be followed globally, not just in the U.S. or Europe. This reality is often ignored by climate activists who, when discussing means rather than goals, focus primarily on developed countries. Since, as the saying goes, the atmosphere is global, this brings up the question of how to decarbonize electricity in the developing world.

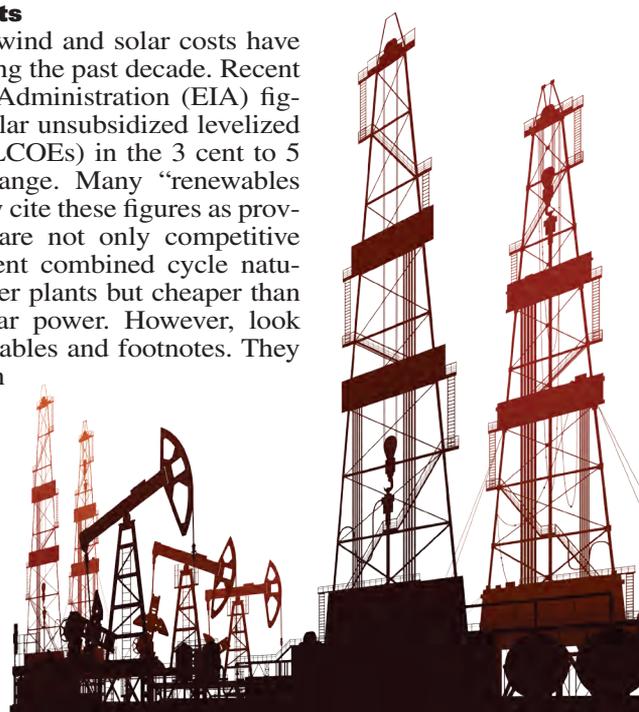
Developing countries such as China, Nigeria, South Africa and India face a more acute tradeoff between economic growth and decarbonization. With annual GDP growth targets as high as 6%-plus and large populations still living in poverty, these nations aspire to, and in many cases, achieve steep electricity load growth. They also face this challenge with less robust electricity grids than developed nations. These conditions leave them with little choice but to use dispatchable fossil fuels to meet rapidly rising power demands. In many cases, the fuel of choice is coal. While renewables are in the picture, these countries annually decide that rapid load growth cannot be met with intermittent power and short-term storage. For example, China continues to rely on coal for 60% of its total energy supply, and its new five year plan (2021 to 2025) reemphasizes its use. Given such facts, how will developing nations decarbonize in anything like the timetable climate activists assert to be essential?

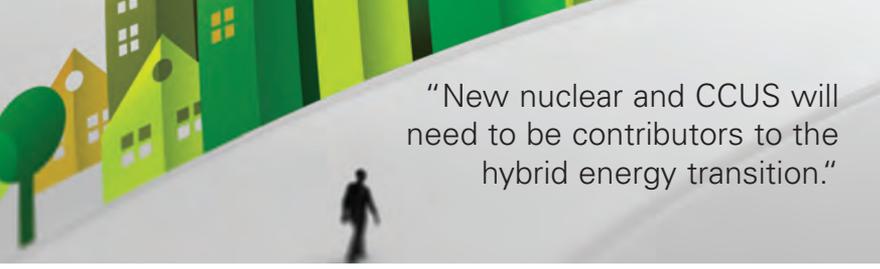
Decarbonizing their existing and near-future power plants seems to be their best and perhaps only option. They are not going to dismantle their existing energy infrastructure and put their economies and populations at risk. This means global decarbonization is going to have to find a way to work with many electric generation assets that already exist. That pathway would see CCUS developed in the U.S. and Europe such that the capture technologies and project structures could then be exported to and assimilated by developing nations. Considering the way China and India have absorbed other developed world technologies, a maturing CCUS industry would find ready adoption in those lands.

Finally, there is getting the costs of the energy transition tabulated correctly. CCUS has been criticized as an expensive option. A conclusion such as this can only be justified by continuing to propagate the flawed version of renewables economics that have surrounded their progress for over a decade. Properly evaluating CCUS versus more renewables requires a valid "apples to apples" comparison.

Wind and solar costs

Without question, wind and solar costs have declined rapidly during the past decade. Recent Energy Information Administration (EIA) figures put wind and solar unsubsidized leveled costs of electricity (LCOEs) in the 3 cent to 5 cent kilowatt-hour range. Many "renewables alone" advocates now cite these figures as proving that wind/solar are not only competitive with the most efficient combined cycle natural gas (CCNG) power plants but cheaper than either coal or nuclear power. However, look closely at the EIA's tables and footnotes. They carefully distinguish between dispatchable and nondispatchable power with renewables being the latter. This means wind and solar LCOEs are tabulated for only when





“New nuclear and CCUS will need to be contributors to the hybrid energy transition.”

they are producing. The EIA is comparing wind and solar, with 30% to 40% capacity factors, to CCNG with an 87% capacity factor. What plugs the gap when wind/solar are not available? This means that the proper apples to apples comparison would be wind or solar plus storage versus CCNG, coal or nuclear.

Even this comparison fails to capture the extent to which wind and solar costs have been inaccurately assessed. Reported wind and solar LCOEs are further distorted by the following:

- ***They reflect the best wind and solar projects.*** Wind and solar are based on natural resources. Today’s projects are located in the best places. Check the maps and see wind projects in Oklahoma/Texas and solar in southern California, Arizona and other sun rich states. What are the costs of solar in Minnesota or wind in New Jersey? They are substantially higher, perhaps twice as expensive.
- ***Battery storage doesn’t fill the supply gap versus CCNG.*** Renewables plus battery storage economics still don’t address longer intermittency gaps such as the one visible in the Electric Reliability Council of Texas chart. This means the true costs of wind and solar versus CCNG would add a backup peaker natural gas plant to battery storage. Only then would a wind/solar-based system be able to equal the output supplied on demand by a CCNG plant. The alternative would be to massively overbuild both renewables and storage capacity, which would be hugely expensive.
- ***Wind/solar make existing plants run less efficiently and ultimately cause such plants to retire before the end of their economic lives.*** Because wind/solar can’t respond to load, fossil fuel plants must stand by and respond. At other times, wind/solar generation is surplus to load, forcing other plants to curtail. In merchant markets, wind/solar’s zero marginal cost and tax subsidies allows them to always place their power on the grid by bidding next day prices down to zero. Fossil fuel and nuclear plants built to run in base load then run at lower usage levels. This forces some of these plants into a loss position and early retirement. Indeed, merchant power states such as Illinois are planning subsidies for nuclear plants threatened by shutdown.

In summary, a fair assessment of renewables costs would show a greater range of LCOEs to reflect regional disparities and then add battery storage, peaker backup and early retirement costs. These economics suggest that in many locations, especially those with access to EOR, CCNG with carbon capture will be competitive with or cheaper than renewables when all-in costs are properly assessed.

The needed pathway

This brings us to the other side of the equation: If the case for CCUS as the necessary second pathway is strong and urgent, why has it not been unfolding? Here we must address the ambivalent posture of major oil companies. If the environmental community needs to undergo a transition on CCUS, so too must the major oil firms.

In the second article (see *Oil and Gas Investor’s* September 2021 issue), we talked about various reasons for major oil firm ambivalence on energy transition projects. This ambivalence has certainly been impacted by the intensifying pressure applied to those firms throughout 2021. Most are now signaling intentions to move forward with some CCUS projects. In most cases, final investment decisions still lie ahead. There is much going on behind the scenes. The industry continues to lobby for doubling the size of the 45Q tax credit.

The National Petroleum Council’s 2019 CCUS study essentially called for this to unlock project development. Technology selection is also to be determined, and research efforts are intensifying. While not quite “business as usual,” none of this conveys a serious industry sense of urgency.

What is missing here is a serious commitment to walk down the painful pathway of commercializing a new industry involving new technology. Long experience has oriented the industry to expect “first of a kind” projects to be expensive and economically disappointing. Looked at through the lens of “marginal economics,” many CCUS projects appear “out of the money.”

Here the industry would do well to factor defense of its existing asset base into its CCUS project economics. Either the industry learns to decarbonize its operations or those assets are going to face increasing regulatory and fiscal costs, possibly extinction. The industry also needs to pioneer CCUS so the electricity sector can follow suit, keeping natural gas in the generation mix. Yes, the first projects may be painful; however, the renewables industry has shown that perseverance will lead to declining costs and more viable project opportunities.

Major oil firms thus need to think in terms of seeing CCUS as a multi-decade program of walking down the experience curve. They will be taken seriously as transition contributors when they signal out loud their determination to progress on this path despite setbacks and disappointments with individual projects. For them and for the global economy, the payoff would be a big contribution to the affordable hybrid energy transition we need.

In the fourth and last article, we will look at the role of hydraulic fracturing in the energy transition and the case for driving CCUS forward on the basis of EOR. □

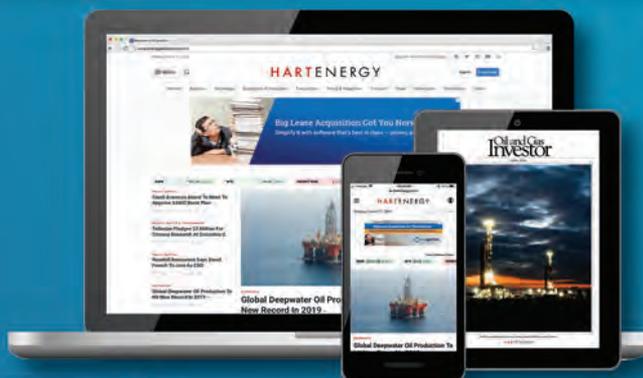
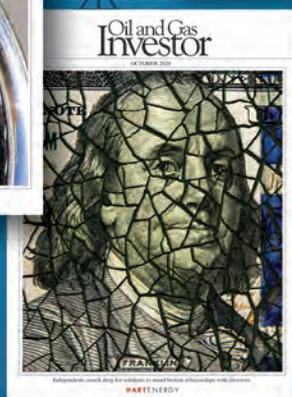
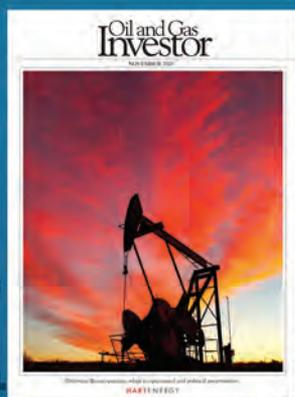
Stephen Arbogast is the professor of the practice of finance and director of the Kenan-Flagler Energy Center at the University of North Carolina (UNC) at Chapel Hill.

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SUSTAINABILITY- LINKED BONDS



Sustainability-linked bonds can improve a company's capital structure on potentially favorable terms. But energy companies must thoughtfully craft measurable and meaningful KPIs to catch this financing green wave.

ARTICLE BY
DAVID J. MILLER,
TREVOR LAVELLE
AND KATE WANG

As appetite for energy investments has shifted dramatically in the past decade, energy companies have repeatedly transformed their investor-outreach strategy in response. ESG-focused investing and the advent of sustainable financing frameworks have generated interest.

Although sustainability-linked bonds (SLBs) may not fundamentally change the risk of investing in the energy industry, they are worth exploring as a way for companies to attract new investment capital, achieving measurable ESG-related goals and allowing some institutional investors to satisfy their own ESG mandates.

But while this dynamic may drive marketing, securing value from SLBs requires nuanced discussion of an issuer's strategic ESG-related goals, how to realistically achieve them on a discrete time frame and how to avoid claims of "greenwashing."

Calibrating appropriate key performance indicators (KPIs) and sustainability performance targets (SPTs) is key to success and require collaboration among the issuer, its advisors and second party opinion (SPO) providers.

A new capital gateway

From 2010 to 2014, upstream issuers highlighted securing undeveloped acreage to demonstrate development runway and potential upside. After the steep decline in oil prices in 2015, messaging shifted to operational efficiency.

Many investors stepped back from energy following their losses during this period, particularly from high yield, based on economic concerns and policy decisions influenced by stakeholder mandates.

As commodity prices improved in late 2020 and have remained strong in 2021, the discussion has evolved to align with market emphasis on sustainability, while continuing to maximize efficiency in general. Equity (both institutional and retail) and debt investors are now prioritizing ESG-related goals.

As investor marketing messages have evolved in recent years, so too have sustainable financing products, including "transition" bonds used to fund a company's transition toward reduced environmental impact. However, investors and issuers took interest in these products in earnest upon the release of various ESG-focused financing frameworks by the International Capital Markets Association (ICMA).

The products initially available under these frameworks require sustainable use of proceeds, which inherently limits the types of industries that can access them. That changed in June 2020 when the ICMA released its Sustainability-Linked Bond Principles (SLB Principles).

SLBs are not only enthusiastically welcomed by investors but also incentivize issu-

"SLBs are likely the most viable ESG-related financing product for the oil and gas industry."

ers to achieve stakeholder-mandated ESG-related goals. Focused on achieving externally verifiable goals, SLBs are likely the most viable ESG-related financing product for the oil and gas industry.

While some investor fatigue in the energy sector remains, SLBs appear capable of motivating investor engagement and tapping into new pockets of capital. This aligns with the mandate many institutional investors have to invest a certain amount of their portfolio in ESG-related matters.

By mitigating the hesitancy to invest in traditional oil and gas companies, SLBs could help the industry proactively respond to the broader energy transition.

SLBs do not eliminate the challenges that face the industry, and commodity prices are still volatile. But SLBs do address the investor mandate to increase operational sustainability or focus (particularly in the case of oil-field service companies) on increasing other companies' operational sustainability.

From an investment perspective, more appetite for energy market exposure creates downward pressure on pricing and reduces the cost of capital for companies, diminishing risk of future financial distress.

KPIs and SPTs

SLBs, unlike their older sibling, green bonds, do not require issuers to invest proceeds toward ESG-related matters. Instead, the SLB Principles focus on five core components: KPIs selection, SPTs calibration, bond characteristics, reporting and verification.

By pursuing an SLB offering, a company may achieve a lower cost of capital with an environmentally advantaged product, while also displaying to its stakeholders its ESG-related commitment.

However, because of both the ICMA's framework and some investor skepticism as to the validity of these goals in the financing context, KPIs and SPTs must be meaningful, impactful, quantifiable, externally verifiable and comparable against industry benchmarks.

Designing such metrics requires a collaborative triangulation of strategic considerations among the company, its advisors, SPO providers and a third party willing to certify the applicable SPTs (typically, the company's independent auditor). For oil and gas companies, it may also be worthwhile to separately engage with the SPO provider in advance to conduct a preliminary review of the issuer's ESG profile and get feedback on the viability of potential SPTs.

Energy-Focused Sustainability-Linked Bonds

Issuer	Date/Terms	KPI(s)	SPT(s)
NRG Energy Inc.	December 2020: \$900MM, 2.45%, due 2027; August 2021: \$1.1B, 3.875%, due 2032	Reduce GHG emissions.	Reduce GHG emissions to 31.7 million metric tons of CO ₂ equivalent per calendar year or less by year-end 2025 (a roughly 50% reduction from 2014 baseline).
Solaris Midstream Holdings LLC	March 2021: \$400MM, 7.625%, due 2026	Increase recycled produced water sold and reduce groundwater withdrawals sold, expressed as a percentage of bbl of recycled produced water sold per year/total bbl of water sold per year.	Increase bbl of recycled produced water sold to 60% by 2022 from a 2020 baseline of 42.1%.
Enbridge Inc.	June 2021: \$1B, 2.5%, due 2033	GHG intensity level, tonnes CO ₂ e/PJ; representation of racial and ethnic diversity as a percentage of workforce; women on BOD.	Reduce GHG emissions intensity by 35% by 2030 compared to 2018 baselines; achieve 28% representation of racial and ethnic diversity in the workforce by 2025; achieve representation of 40% women on BOD by 2025.

First, a company and its advisors must craft a sustainability framework, including appropriate KPIs and SPTs designed to meaningfully improve its ESG profile. Avoiding any goals that would arguably have been achieved in any event is critical, lest they attract claims of greenwashing and broader market pushback.

The framework should then be reviewed by a third party willing to review the KPIs in the timeframe provided by the framework and certify that the SPTs have been met. While this third party is often an independent auditor, the process may prove challenging because such declarations do not typically relate directly to audited financial statements.

Finally, the company must work with an SPO provider to determine whether it can opine that the KPIs are sufficiently meaningful, impactful and quantifiable, and that the framework is consistent with the SLB Principles.

SPTs contained in an SLB's framework typically must be met significantly in advance of maturity (often 18 to 24 months from issuance). If the SPTs are not achieved by the verification date, there is typically a step-up in coupon and redemption premium.

The KPIs and SPTs need to stand up to investor scrutiny, as will the coupon and premium adjustments for failing to achieve them. This highlights the importance of collaboration between the company and its advisors to formulate appropriate KPIs, achievable SPTs and pricing terms that will appeal to investors.

Whether and which companies will be able to leverage SLBs remains unclear. Oilfield service operations, which are more emissions-intensive than upstream or midstream companies, may be better positioned to issue SLBs by featuring SPTs linked directly to their emissions.

Upstream companies face more challenges, but it is possible to design meaningful and impactful KPIs directly related to their operations.

Increased investor familiarity with SLBs during the past year has resulted in increased skepticism about whether SPTs were meaningful and aggressive enough that issuers would not otherwise achieve them, even without the motivation of the preferential pricing of SLBs.

The market demands ambitious SPTs, requiring organizational commitment to ESG-related goals. And investors may seek more aggressive changes to pricing and other bond characteristics to ensure this commitment.

The real world

The energy SLBs that are currently outstanding have not yet reached their SPT deadlines, so assessing any actual positive ESG-related impact may be premature.

Nevertheless, existing U.S. SLB issuances continue to trade well in the aftermarket. The market enthusiasm that has met many of these sustainable finance offerings—and the potential changes to the bonds' financial characteristics if ESG-related goals are not met—has rendered SLBs attractive to many potential participants.

Domestic energy SLB issuances are still nascent. And, if these initial SPTs are not achieved, investors may require additional changes to covenant packages or steeper penalties for future issuances to clear the market.

Outlook

SLBs may be helpful in optimizing a company's capital structure. But, despite positive investor sentiment, they are not likely a panacea for energy companies.

A successful SLB offering requires appropriate KPIs and achievable SPTs. Presently, the tailoring is more art than science—companies must remain nimble despite the ever-evolving process and market demands and consult early with outside counsel and opinion providers to assess whether appropriate KPIs can be developed.

In the future, there may be additional investor focus on what the SPOs are certifying as valid KPIs and, potentially, provide for more of a "stick" to issuers that do not achieve SPTs.

Investors are asking more detailed questions in the marketing process about how these goals would differ from the company's existing ESG-related targets, and to the extent the issuer is a public company, those targets likely are visible.

Nevertheless, given the potentially favorable pricing and the market enthusiasm to date, energy companies should be justifiably (though cautiously) encouraged about the possibility of SLB offerings. □

David J. Miller and Trevor Lavelle are partners and Kate Wang is an associate with Latham & Watkins law firm. They are based in Austin and Houston.



CAPITAL THINKING

A webinar hosted by Stephens Inc. focused on the big energy picture as well as how post-2020 recovery looks for the industry.

Oil and Gas Investor *editor-at-large* Nissa Darbonne recently moderated Stephens Inc.'s investment banking energy midyear webinar, "Capital Thinking: Energy Insights for Today's Market," that spotlighted major energy investment banking developments and trends that may shape the sector in months and years to come.

The topics discussed include natural gas demand, ESG and private equity consolidation as well as A&D outlook and high-yield market trends.

The participants were Keith Behrens, head of the energy investment banking team at Stephens, who was joined on the panel by his colleague, Brad Nelson, managing director of energy investment banking. Also speaking was Holt Foster, co-leader global energy practice group at Sidley Austin LLP, and Jeff Bartlett, partner at Pontem Energy Capital. What follows is a transcript, edited for length and clarity.

MODERATED BY
NISSA DARBONNE

ILLUSTRATION BY
ROBERT D. AVILA

Natural gas demand

Nelson This story is coming in a year later than what we had expected. When we were in March, April, May, June of last year, COVID as an acronym was so brand new, we didn't know how long it was going to last (and) LNG activity export was picking up substantially. We really thought that this story was going to happen this time last year. It's basically delayed. It's anyone's guess as to how long this lasts.

All the demand side factors that are going into that part of the equation look really good at the moment, for the next year or two. Supply is finite. You've got about 60%, 65% of the rig count on the gas side of the equation in the Haynesville Shale and then the balance being in the Utica and Marcellus shales, and the rig count has gone up substantially in the last year or so. The industry is doing what it can on the supply side.

Demand is actually picking up, and what we're seeing with some of these other parts of the world waking up out of COVID are huge demand drivers for natural gas. So, barring anything unforeseen at the moment, we think the demand side of the equation is going to be very strong for gas for the next year, too.

ESG and Biden administration

Foster With this new regime that's come in, there's been a new edict from up top. The Biden administration wants to focus on a carbon neutral footprint, and he's trying to attack that in a number of ways. The first way is his moratorium on drilling. That's been a little bit of a Whac-A-Mole. When Biden came into office, he issued an executive order that put a

restrictive overlay on a state-by-state basis as to the number of leases on federal lands that could be prospectively acquired by people in the private equity world. That was challenged in court, but it resulted in a disproportionate application.

For example, New Mexico was able to issue a number of federal leases while Wyoming could not do it. It was challenged in the courts, and the court said you have to apply evenly. So Biden followed up with an executive order that was a flat ban against prospective leases on federal lands. That, again, was challenged in the courts. And what the court said was that Biden's executive orders had gone beyond his authority. The 1920 Mineral Act on its face says that these auctions must be held monthly, so the only way that can be changed is Congress has to enact a bill.

But the big question is, you would think that people would vote in Congress according to party lines, and therefore in both the House and the Senate, the Democrats would be able to pass that reform. However, there are a lot of Democratic senators and congressmen who come from states that rely heavily on the revenues from those federal leases, such as New Mexico. So whether or not there will be a long-term ban on federal leases and how long and to what extent, that's still up in the air.

Additionally, Biden has tasked his Cabinet to come up with ways to address the carbon and methane byproducts of the hydrocarbon industry. We're expecting more regulatory action to come down the line on that. But it's not at the federal level, it's also at the states. On a state-by-state basis, there are additional regulatory overlays on fracking, water, environmental flaring, that these private equity and portfolio companies and public companies are all trying to navigate.

There's word on Capitol Hill about a possible carbon tax, as well as ESG reporting in both public and private companies. So as a result of that, even with climbing oil prices—people are transacting, which is nice to see—but it's definitely put a chill on the upside on federal lands. It has a number of people exiting the industry because of the ESG backlash as well as regulatory regime navigation. But it's also created some opportunities on the renewable side.

One thing that could create a ripple throughout the M&A industry is this recent Fieldwood bankruptcy case. It came down in Texas recently in which a company went through a second bankruptcy, and the bankruptcy court ruled that in conjunction with that bankruptcy, that company could shed its plugging and abandoning (P&A) obligations. What does that mean for M&A? Now, this was an offshore instance, so the first question is, does it only apply in offshore scenarios, or does it also apply in onshore scenarios? But even a bigger issue is, in states such as Texas and Louisiana that have a chain of title liability for P&A obligations, that means there could



"A lot of people are thinking that demand, as the global economy recovers, could be really strong in the back half of 2021 into 2022 and 2023," said Brad Nelson, managing director of energy investment banking, Stephens Inc.



“On deal activity, price stabilization plus ESG has made it clear that companies are open for business,” said Holt Foster, co-leader, Sidley Austin LLP.

be a blowback on sellers who are selling their land to a company if that company can shed that P&A obligation on exit. That means a seller would then have to reacquire the P&A obligation.

This could put significant issues on M&A terms such as letters of credit that the seller would require the buyer to put up or escrow accounts, etc. It could make navigating an M&A transaction a little bit more difficult and a little bit more expensive.

Nelson Whether you’re talking to a private equity source or a commercial bank, whether they’re private or public, they all have shareholders and LPs (limited partners) that they have to adhere to. So in the last year and a half, if not further back, they have all, behind closed doors, tried to figure out what their ESG strategies are relative to carbon emitting strategies.

So, that is going to be a very unique and different answer by bank. My opinion is that some of the banks that are leaving the industry right now, it’s more of a factor of them having lost money. The last four, five or six years have not been kind to banks or any capital contributors. The banks that we’re seeing that are either reducing their exposure or leaving altogether, from our perspective, have to do more with the economic side of the equation than the green side of the equation.

PDP value

Bartlett There was a period of time when there was absolutely no value ascribed to any upside, a time of very low commodity prices on both oil and gas. In those low commodity price environments, there’s no motivation to drill, and the economics are not supportive. Therefore, things were trading PDP (proved developed producing) PV15, I think, generally.

As the market recovered and commodity prices increased modestly, we pivoted out of that and we acquired Ovintiv’s assets. We announced the deal and signed the PSA (purchase and sale agreement) a few months back, and at that time we paid 20% or so based on upside, and then 80% on PDP.

For PDP-centric packages, we went up from PV15 in the second or third quarter of last year, and by the first quarter of this year, that was PV12. And today it’s PV8. In 2019, 15% of the aggregate value of transactions was ascribed to upside, 85% to PDP. And then in 2020, it went to 10%, so even tighter, more focused on producing cash flow. 2021 year-to-date, nearly 50% of the value of A&D collectively is being ascribed to upside, so paying for the right to drill in the future.

When you have an increase in oil prices, you get more opportunities to drill your upside wedge. I really do think we’re in a day and night difference between a year ago today.

First-half 2021

Behrens The first half of the year’s been great for the energy sector. Oil prices are up 55% year-to-date, gas prices are up 46% (and) A&D volume is up 148%. Corporate

upstream M&A volume is up 34 times for the year-to-date versus last year. So this year there’s already been \$29 billion in corporate M&A deals versus about \$1 billion last year.

Upstream high-yield offerings are up 172%. And then upstream public equity offerings are up 79%. And energy has been the top performing sector in the S&P 500 year-to-date, so a great first half the year.

In our group in particular, we’ve noticed a huge uptick in transaction volume. We’re currently working on 24 engagements right now, which is an all-time record for us. I see more of the same for the second half of the year. We will be busy in execution mode, trying to get those engagements closed.

Nelson The momentum through the first half of the year has been substantial. Our activity has picked up a lot. We know that industry activity has picked up a lot. The overall M&A and A&D activity is very robust, and it’s increasing. It really started to ramp up in full mid Q2 (second quarter). We saw quite a few deals announced in early Q2 into later Q2. And there are a lot of conversations happening as we speak. So I think that, in the back half of the year, you’re going to see A&D and M&A activity continue at the pace that we’re at right now.

Going back to 2020, the fact that we had COVID, that we had OPEC and Russia posturing, and then the election, the industry had so much headwind that put M&A activity at a standstill. That bulk of activity that we saw in 2020 was really more for opportunistic M&A here and there but not what we would consider normal M&A and A&D.

Activity has picked up substantially, and we expect it to continue in the back half of 2021.

A&D outlook

Nelson A lot of people are thinking that demand, as the global economy recovers, could be really strong in the back half of 2021 into 2022 and 2023. Now, that's all out the window if we have a broad resurgence of COVID, but based on what we're seeing today, demand looks strong. That is what is driving a lot of this A&D activity. Anybody picking up assets, it's a four or five, six-year outlook. It's not a quick period of time.

Bartlett I don't see higher oil prices leading to an impasse between buyer and seller. You'll see a continuation of activity. You'll still have open equity and debt capital markets in that scenario. Higher prices, inflation on service costs are going to eat into that. But it's always a laggard, and there will still be a lot of incremental margin for people to get excited to pay for.

On certain assets you can always hedge 80% two or three years out and get comfort in the price that you're paying. Maybe don't lean into it quite as hard at \$85 oil as you would have at \$60 oil, but you can still transact. There will still be really motivated sellers that have great results and happy to print big winners.

Foster One of the drivers we need to realize is there's a significant amount of pent-up demand for A&D. You have a huge group of private equity funds that are long in the tooth on various investments, and they have their LP (limited partner) base that are demanding, "Hey, I need a return on my investment, I need to get some cash back." So a big driver too is that, "We've seen how quickly the market can turn, we've even seen oil go negative, so let's go and take advantage while we can get it." Pigs get fat, hogs get slaughtered.

Plus, a lot of these private equity funds are looking at the long-term viability of their fran-

chise and realize that to have their next fund come to a successful closing and raise adequate capital, they need to return money. So there's enough tailwinds that would encourage continuing to transact even at \$85 oil.

Behrens Another point is that oil is an inflation hedge. There could be hedge funds looking at putting money into the space because they view oil and gas as an inflation hedge.

A gradual pickup in prices is fine (for A&D activity). Erratic moves one way or the other are what cause activity to slow down. But if it gradually goes up, I don't think that's going to hurt A&D volume.

When we track all the five-plus years in older portfolio companies of private equity funds, there's a ton of them out there that missed the window. Previously, there wasn't an IPO market to exit into, though those companies need to get sold at some point. A lot of private equity-backed businesses are taking advantage of higher prices and looking to sell right now. So there's going to be a healthy A&D market for some time to come.

Private equity consolidation

Foster During COVID and also in the pre-COVID price downturn, you were seeing private equity funds being laser-focused on G&A, efficiencies and cutting costs. As a result of that, we saw a significant number of combinations, consolidations (and) "cramcos" for private equity funds to cut costs, get efficient G&A, have scalability as well as optionality down the road when the market came back. So on the consolidation side, the egg has gone through the snake, so to speak.

Instead of consolidation, what you will see—if there are still some problem children in the portfolio companies—private equity funds decide to go ahead and cut their losses and take advantage of a hot market and have an exit transaction with those assets, as opposed to further consolidation.

On deal activity, price stabilization plus ESG have made it clear that companies are open for business. And it's being driven by a change in philosophy on both ends of the spectrum. On one hand, you have traditional oil and gas investors who have looked at these ESG headwinds and listened to their investors and said, "You know what? Elvis is leaving the building; we're exiting the market." They're going to go ahead and liquidate all of their hydrocarbon assets and focus on other industries.

On the opposite end, you have the counter-culture folks that are saying, "Hey, the increasing demand compounded by the lack of supply over the next couple of years is a huge opportunity for me. So while I have historically not been in hydrocarbons, I'm going to invest because it's a once-in-a-lifetime opportunity."

Then you have the traditional private equity funds, who are long in oil and gas and still believe in the thesis, but they want to expand their mandates to include renewables. That's new opportunities for them, for renewables that are both adjacent to or in lieu of the oil patch. The rise of the stock market has given these publicly



"We're currently working on 24 engagements right now, which is an all-time record for us," said Keith Behrens, head of the energy investment banking, Stephens.

traded companies some stock currency in order to transact. So you're seeing tons of M&A where people are opening data rooms and actually transacting as opposed to kicking tires or trying to catch lightning in a bottle.

But you're also seeing more creative stuff. You're seeing a bunch of SPACs (special purpose acquisition companies), you're seeing securitization (and) you're seeing high-yield debt to get revenues that they can distribute to their LPs. So this is a frothy market, and it's not one type of transaction. It's very energizing, engaging and creative.

Bartlett Kayne (Anderson) and EnCap (Investments) are really the leaders in the smash-co game and laser-focused on G&A, getting the number of portfolio companies more right-sized with the amount of capital that they'll have access to going forward.

I'll reiterate a statistic I've quoted a few other times, saying there's \$60 billion of available capital for the upstream space, and that's shrunk to \$10 billion collectively, EnCap having the largest hunting license of those. We've gone through 18 months at least, maybe 24 months-plus, worth of consolidation of the portfolio companies, and maybe there's a third as many as there were at the peak. That game's played out.

KKR is the latest one to take a huge approach and not only consolidate into one management company, but then also to reverse merge into Contango and take that public and access that market.

We've got pretty strong commodity prices right now, but I don't think you increase the number of portfolio company management teams until you raise a bunch of money from LPs, and I don't see that happening.

Nelson A lot of cleanup and cost-saving (happened) all throughout 2020 and even into 2021, and to some degree is still happening today although a lot is behind us. Coming out of the last two down cycles—2015 to 2016 and 2009 to 2010—private equity came back with a full head of steam. Lots of activity and lots of new companies being formed across all basins. This time, it seems like it's a bit different. In general, the private equity sources seem to be more selective than maybe the last couple of go-rounds. They seem to have their own unique specific views as to what kind of rock they want their capital to go to.

You hear a lot about the core of the core of these various basins. They really seem to be trying to fill a hole or a puzzle piece, if you will, relative to what they already own. So in general they're being more selective.

I would also say that they are looking for very experienced management teams that have worked together two, three or four times in the past. That is a trend that we've seen in the past couple of years and even more so at this point in time.

Public capital interest

Bartlett The equity capital markets are as open as they have been in recent history. You had such a poor performance in our industry for



so many quarters in a row and some statistics that make everybody embarrassed of our industry. And then you fast forward to this year, you have equities and energy leading the pack, really constructive commodity prices and very disciplined management teams that aren't going to drill into this but are instead going to focus on free cash flow, duration and dividends paying out cash back to the shareholders.

So the industry has truly learned a lesson and is behaving differently now. The equity capital markets should improve here going forward over time.

Going forward, it'll be open, but it's not open as a solution for private equity. Private equity management teams that want to IPO—that's a pipe dream. The market's not going to take another SMID (small- and mid-cap) that's undersized and not in a strategic place the equity capital markets want to support. Instead, where it is open, where it will be constructive, is in big public companies that are looking for bolt-on acquisitions and acquisition financings.

You've seen an amazing compression in the delta between nonenergy, high-yield pricing of bonds and upstream E&P and midstream-focused bonds. You've had a compression of like 500 or 600 basis points down to almost zero, maybe it's 50 basis points.

Energy, as commodity prices have risen, as access to capital has happened, as it has more upside to offset the inherent decline, and you have management teams that are underspending their free cash flow, a lot of those good things have brought our industry back into favor with the high-yield investors.

There's still a gap for some of the smaller names. The bigger names have 3% to 5% cost of capital yield bonds. Some of the single B-rated names still have to offer a couple hundred basis points of nonenergy high yield to attract interest.

But we still think that it is a constructive market, and we think it'll be constructive for quite some time here. □

"When you have an increase in oil prices, you get more opportunities to drill your upside wedge," said Jeff Bartlett, partner, Pontem Energy Capital.

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2021 MAN OF THE HOUR



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This event will benefit Youth Development Center (YDC), a non-profit organization in Houston's Greater Fifth Ward that provides after school academic programming for at-risk students in grades 1-6. YDC is licensed as a school-age program through the Texas Health and Human Services. The program is provided free of charge to enrolled low income students.

Since Covid-19 rattled the world in the Spring of 2020, low income and minority students continue to be heavily effected. During the 2021-2022 academic year, YDC will be serving 100 students in our after school program to help assist them as they take steps needed to fill in the gaps missed due to virtual learning and other challenges. Join YDC as we work to further these students education and create equal access for all.

Blackstone Exploring \$2 Billion GeoSouthern Haynesville Sale



GEOSOUTHERN ENERGY Corp., a U.S. natural gas E&P company backed by **Blackstone Inc.**'s credit investment arm, is exploring a potential sale of its Haynesville Shale acreage for \$2 billion among other options, people familiar with the matter said on Sept. 8.

It would be the latest shale gas deal in the Haynesville Shale following **Southwestern Energy Co.**'s \$2.7 billion acquisition of **Indigo Natural Resources LLC** and **Chesapeake Energy Corp.**'s proposed deal for **Vine Energy Inc.** earlier this year.

Natural gas prices continue to lend support to dealmaking, especially in close proximity to LNG terminals. U.S. natural gas futures recently hit seven-year highs that extended gains

more than 90% since the start of the year. Partly, prices are up due to a bullish demand outlook as well as supply effects from Hurricane Ida.

Blackstone is considering the sale of **GEP Haynesville LLC**, a joint venture between Blackstone and a company founded by billionaire George Bishop, the sources said. In 2015, the venture acquired land in the Louisiana portion of the Haynesville from **Ovintiv Inc.**, formerly known as **Encana Corp.**, for about \$850 million.

The sources cautioned that no deal is certain and asked not to be identified because the matter is confidential. GeoSouthern did not respond to a request for comment. Blackstone also declined to comment.

GeoSouthern and Blackstone previously developed 82,000 net acres in the Eagle Ford Shale of South Texas. In 2014, they sold the venture to **Devon Energy Corp.** for \$6 billion.

Blackstone has used this year's rebound in commodity prices to sell several oil and gas production companies. The firm is the largest shareholder in **Vine Energy**, and it agreed last month to sell Permian Basin oil producer **Primexx Energy Partners** to **Callon Petroleum Co.**

The firm was also a backer of Appalachia-focused **Alta Resources LLC**, which **EQT Corp.** purchased in July for \$2.9 billion in cash and stock.

—Hart Energy Staff

Enerplus Parts With Noncore Williston Assets

ENERPLUS CORP. SWITCHED to divestitures in the Bakken Shale after mostly spending a year acquiring assets in the Williston Basin. The Calgary, Alberta-based company most recently agreed to sell Montana and North Dakota assets in a multimillion-dollar deal.

According to an Aug. 30 company release from the independent E&P company, Enerplus has agreed to sell its interests in Montana's Sleeping Giant Field and North Dakota's Russian Creek area in the Williston Basin to an undisclosed buyer for total consideration of \$115 million. In addition, Enerplus said it will also receive up to \$5 million in contingent payments tied to future oil prices as part of the sale agreement.

"The sale of our legacy position in Montana and the Russian Creek acreage in North Dakota properties, which were not attracting capital in our portfolio, brings significant value forward and accelerates our debt reduction plans," said Ian C. Dundas, president and CEO of Enerplus, in the company release on Aug. 30.

The divestiture follows two transformative back-to-back acquisitions made by Enerplus earlier this year in the Williston Basin. Combined, the acquisitions were worth almost \$800 million and quadrupled the company's acreage footprint in the Bakken.

The first acquisition, which added 151,000 net acres from **Bruin E&P Partners LLC** for \$465 million, closed in March. Meanwhile, Enerplus completed its second acquisition, worth \$312 million and

comprises of 79,000 net operated and nonoperated acres carved out of **Hess Corp.**'s portfolio, in April.

As a result of the divestiture announced Aug. 30, Dundas estimated that Enerplus will achieve the company's \$400 million debt reduction target by the end of first-quarter 2022, based on the current commodity price environment, with proceeds going directly back to its shareholders.

"While debt reduction remains our priority, we believe our shares are trading in an attractive price range, and as a result, we plan to direct approximately 10% of the sale proceeds to incremental share repurchases," Dundas said.

The sale does not include any future drilling locations in Enerplus'

identified Williston Basin drilling inventory, according to the company release.

Enerplus' working interest production from the interests averaged roughly 3,000 boe/d (77% crude oil and NGL) in second-quarter 2021 and includes approximately 244 net wells. Estimated 2022 net operating income associated with the interests is approximately \$22 million based on a \$60 WTI oil price.

The sale is expected to close at the end of October, subject to customary closing conditions. The effective date of the transaction is July 1.

TD Securities (USA) LLC is the exclusive financial adviser to Enerplus on the divestiture.

—Emily Patsy



Goodrich Petroleum Adds To Haynesville

GOODRICH PETROLEUM Corp. announced an acquisition on Sept. 1 that adds to the Houston-based independent E&P company's position in the core of the Haynesville Shale.

According to a company release, Goodrich acquired eight producing wells and approximately 5,800 gross (4,500 net) acres in the core of the Haynesville Shale in Louisiana's Caddo and Bossier parishes. The wells are producing approximately 2 MMcfe/d.

The company said it agreed to acquire the assets for \$1.5 million, plus the obligation to drill eight wells

over a four-year period. The identity of the seller was not made public.

Following the acquisition announcement, Goodrich said it now has approximately 32,000 net acres in the core of the Haynesville.

Goodrich's August regulatory filings said that as of June 30, the company had acquired or farmed in about 27,500 net acres in the Haynesville and completed and produced 2.8 net wells in the second quarter. Company drilling activities are located in leasehold areas in Caddo, DeSoto and Red River parishes in Louisiana.

During Goodrich's earnings call

in early August, CEO Walter G. Goodrich said the company was looking to add to its Haynesville Shale position, as it was nearing 2 Tcf of natural gas resource potential in the core of the play in northwest Louisiana.

"We remain focused on further expanding our footprint through selective transactions, which increase our development inventory, do not negatively impact our balance sheet or reduce our free cash flow objectives," he said.

—Hart Energy Staff

Enbridge Acquires Moda Midstream In \$3 Billion Cash Deal

ENBRIDGE INC. AGREED on Sept. 7 to acquire **Moda Midstream LLC** in a \$3 billion cash deal. Enbridge, based in Calgary, Alberta, said the deal significantly advances its U.S. Gulf Coast export strategy.

“Over the last several years we’ve been building a strong position in the U.S. Gulf Coast through both natural gas and crude infrastructure,” said Al Monaco, president and CEO of Enbridge, in a company release. “Our strategy is driven by the important role that low-cost, sustainable North America energy supply will play in meeting growing global demand.”

Moda Midstream is a liquids terminal and logistics company backed by **EnCap Flatrock Midstream**. Among its assets, the company operates the nation’s largest crude export terminal by volume located in Ingleside, Texas, near Corpus Christi, which includes very large crude carrier capability and 1.5 MMbbl/d of export capacity.

In 2020, the Moda Ingleside Energy Center—to be renamed the Enbridge Ingleside Energy Center—loaded 25% of all U.S. Gulf Coast crude exports, according to the company release. Moda had acquired the Ingleside Energy Center from **Occidental Petroleum Corp.** in 2018.

“With close proximity to world-class Permian reserves, and with cost-effective and efficient export infrastructure, our new Enbridge Ingleside terminal will be critical to capitalizing on North America’s energy advantage,” Monaco said.

Enbridge values the Moda transaction at approximately eight times projected forward EBITDA. Upon closing, expected in the fourth quarter, it is projected to be immediately accretive to Enbridge’s financial outlook.

At closing, Moda executive vice president, COO and founder Javier

del Olmo will join Enbridge as vice president of the U.S. Gulf Coast terminal operations. Additionally, key Moda personnel and the entire Ingleside Energy Center team will join Olmo at Enbridge as the core of the new U.S. Gulf Coast terminal team in Enbridge’s liquids pipelines business unit.

Other assets included in the transaction are Moda’s Taft Terminal located near the Ingleside Energy Center, a minority, nonoperating interest in the Cactus II Pipeline, a 100% interest in Moda’s Viola Pipeline and Moda’s St. James Development Project, a brownfield joint-development opportunity to build independent third-party logistics solutions for customers in the St. James, La., area. Both the Cactus II and Viola pipelines connect to the Ingleside Energy Center.

Moda and EnCap Flatrock Midstream will retain ownership in Vopak Moda Houston, a world-class deepwater storage and terminal facility in the Port of Houston.

Vopak Moda Houston is the first greenfield terminal development in the port in more than a decade and will serve as a vital growth platform for its joint-venture partners, Royal Vopak and Moda Midstream. Vopak Moda Houston recently commissioned its deepwater dock and has constructed storage and terminaling infrastructure for its industrial gas product line.

Credit Suisse Securities (USA) LLC was exclusive financial adviser to Moda, and **Vinson & Elkins LLP**, led by partners Alan Beck and Matt Falcone, acted as legal counsel. **Shearman & Sterling** acted as legal counsel to EnCap Flatrock. **Barclays** was financial adviser to Enbridge, and **Sidley Austin LLP**, led by Atman Shukla, provided legal counsel.

—Emily Patsy



U.S. Energy Development Adds Permian Acreage

Selected U.S. Energy Deals, Permian Basin, 2021

SMM	Seller	Date
\$50	Undisclosed	Sept. 8
\$14.1	Undisclosed	Aug. 16
\$21.8	Atlantic Energy Partners	Aug. 11
N/A	Undisclosed	Feb. 23

Source: Oil and Gas Investor

U.S. ENERGY DEVELOPMENT Corp. recently acquired a \$50 million asset in the core of the Permian Basin, marking the firm’s fifth major deal in the calendar year.

Based in Arlington, Texas, U.S. Energy is an E&P firm providing direct investments in energy. Since its launch in 1980, the firm has deployed more than \$1.5 billion on behalf of its partners through aggressive acquisition and development of oil and natural gas projects throughout North America, including the Permian Basin.

U.S. Energy announced its latest acquisition in a company release on Sept. 8. The deal includes a project located in Loving County, Texas, in the core of the Delaware Basin with wells targeting three of the basin’s most prolific benches, according to the release, including the third Bone Spring, Wolfcamp A and Wolfcamp XY.

The transaction, with an undisclosed seller, brings U.S. Energy’s total investment in the Permian Basin during the past year to \$135 million. The firm has previously said it intends to reach \$150 million in projects within the Permian Basin by year-end 2021.

On Sept. 8, U.S. Energy said it is planning to invest an additional \$400 million among the Permian, Powder River, Eagle Ford and Denver-Julesburg basins during the next two years.

—Emily Patsy

Andros Capital Closes \$150 Million Permian JV

ANDROS CAPITAL PARTNERS LLC closed a \$150 million joint venture (JV) with Permian Basin-focused **Midland-Petro D.C. Partners LLC** (MPDC) on Aug. 25, the Houston-based firm said in a company release.

MPDC is a private oil and gas company based in Midland, Texas, which has assembled a world-class position in the core of the Midland Basin, according to Andros managing partner Phillip A. Gayle, Jr.

As part of the JV, Andros will fund approximately \$150 million to participate in a development drilling program targeting the Spraberry and Wolfcamp formations in Midland County, Texas.

“This transaction underscores Andros’ commitment to investing in high-quality assets in partnership with talented operators,” Gayle commented in the release. “It also highlights our ability to construct a creative capital solution to enable our partner to advance their strategic objectives.”

Founded in 2020 by Gayle, Andros Capital Partners is a private investment firm primarily focused on



middle-market transactions requiring between \$25 million and \$200 million of equity, with an ability to make much larger commitments through co-investments from its limited partners.

The firm’s leadership team also includes Gregory A. Beard, former global head of natural resources and senior partner at **Apollo Global Management**.

Andros closed its inaugural investment fund in August 2020 at its \$250 million hard cap. At the time, Gayle

said the goal of the firm was to build sustainable businesses with strong cash flows in partnership with talented entrepreneurs and to provide capital solutions that enable both public and private energy companies to advance their strategic objectives.

Willkie Farr & Gallagher LLP acted as legal counsel to Andros for the drilling JV. **Petrie Partners** was financial adviser to MPDC, and **Vinson & Elkins LLP** was its legal counsel.

—Emily Patsy

Tom Ward-Led Group Bolt-Ons In Anadarko Basin

A PARTNERSHIP LED by industry veteran Tom Ward recently closed a heavily gas-weighted, bolt-on acquisition in the Anadarko Basin, the company said Sep. 7.

“We remain active and successful in closing acquisitions that fit our profile,” Ward said.

BCE-Mach III LLC, a joint venture between Ward’s **Mach Resources LLC** and Houston-based private equity firm **Bayou City Energy Management LLC** (BCE), recently closed the acquisition of approximately 18,200 net acres (98% HBP) of producing properties primarily across Blaine, Custer and Dewey counties, Okla.

Terms of the transaction weren’t disclosed. However, the company noted that the bolt-on acquisition includes approximately 4,400 net royalty acres and 17 MMcfe/d of production.

“In early 2021, BCE-Mach made a concerted effort to add natural gas reserves to our portfolio,” Ward continued. “Our last two acquisitions

were over 70% weighted toward natural gas while prices have increased more than 80% this year.”

The third portfolio company of the BCE and Mach Resources



Tom Ward

partnership, BCE-Mach III was formed in early 2020 and has now closed on four separate acquisitions across the Anadarko Basin. In total, BCE and Mach Resources have made nine separate acquisitions since 2018 across the three BCE-Mach portfolio companies.

“Our low-leverage profile allows the BCE-Mach enterprise to remain flexible with respect to hedging and shareholder distributions and opportunistic with respect to developmental operations and acquisitions,” said Will McMullen, founder and managing partner at BCE, in the company release.

BCE-Mach anticipates generating more than \$300 million of operating cash flow in 2021 with a net debt to EBITDA multiple of less than 0.2x, according to the release.

“The disciplined approach we’ve employed on all of the above will continue to allow us to efficiently grow our already vast position in the Midcontinent,” McMullen added.

—Hart Energy Staff

HAYNESVILLE

■ **Southwestern Energy Co.** completed its \$2.7 billion acquisition of privately held **Indigo Natural Resources LLC** on Sept. 1, expanding the Appalachian Basin player's natural gas focus into the Haynesville Shale.

"With these assets and newly expanded team, we are well-positioned to take the company to the next level," said Bill Way, Southwestern Energy president and CEO, in a company release.

With about 275,000 net effective acres, Indigo was the third-largest private natural gas producer in the U.S., producing 1 Bcf/d net from Louisiana's Haynesville. Southwestern, based in Spring, Texas, announced the acquisition in early June with eyes of taking advantage of the direct access to the Gulf Coast LNG corridor provided by Indigo's position in the Haynesville.

"This acquisition materially expands our opportunity set, adding high-margin Haynesville production and substantial core drilling inventory while providing additional global market access through the LNG corridor," Way said in the Sept. 1 release. "It also further de-risks our enterprise, increases free cash flow, extends our maturity profile and accelerates our deleveraging goals."

The acquisition of Indigo also added over 1,000 locations across the Haynesville and Bossier zones. On the acquired acreage, Southwestern expects to complete the 2021 capital investment program currently in progress and will average six rigs and approximately two completion crews, placing 15 to 20 gross wells to sales.

To incorporate the investment in Haynesville, the company's expected 2021 capital investment range has increased to \$1.085 billion to \$1.145 billion, which also includes the associated increase in capitalization of interest and expense.

Goldman Sachs & Co. LLC served as the exclusive financial adviser to Southwestern, while **Skadden, Arps, Slate, Meagher & Flom LLP** served as legal adviser. **Credit Suisse Securities (USA) LLC** served as the exclusive financial adviser to Indigo, while **Kirkland & Ellis LLP** served as legal adviser.

SERVICE & SUPPLY

■ U.S. contract oil and gas driller **Helmerich & Payne (H&P)** will invest \$100 million in the IPO of **Abu Dhabi National Oil Co.'s (ADNOC)** drilling unit, the companies said in a joint statement.

The cornerstone investment by H&P will be at the IPO price and is subject to a three-year lock-up, ADNOC and H&P said in the statement.

The deal is part of a strategic alliance, the companies said, that will also see ADNOC Drilling acquire eight land rigs from H&P for \$86.5 million, which will be delivered and commissioned over a 12-month period.

ADNOC said the strategic alliance and rig acquisition will support its target of reaching 5 MMbbl/d production capacity and gas self-sufficiency for the United Arab Emirates by 2030, along with plans to unlock its unconventional oil and gas resources.

ADNOC, which supplies nearly 3% of global oil demand, earlier this week announced its intention to offer a 7.5% minority stake in ADNOC Drilling through an IPO and subsequent listing on the Abu Dhabi Securities Exchange.

For H&P, these agreements help facilitate its goal of allocating capital internationally, particularly in the MENA region, by accelerating its access into the fast-growing Abu Dhabi market.

Investment bank **Moelis & Co.** acted as exclusive financial advisor to ADNOC, while **Morgan Stanley & Co. LLC** acted as exclusive financial advisor to H&P.

WYOMING

■ **Contango Oil & Gas Co.** completed its acquisition of **ConocoPhillips Co.'s** Wind River Basin asset for \$67 million in cash, the Fort Worth, Texas-based company said in a release on Aug. 31.

"We feel fortunate to have been able to acquire these PDP [proved developed producing]-heavy assets at a discount to the proved producing reserve value and believe that we can further enhance the value of the assets through Contango's track record of optimizing cash flow and reserves on acquired assets," said Contango CEO Wilkie S. Colyer Jr. in the release.

Contango's acquisition of the ConocoPhillips Wind River Basin position, previously announced in early July, comprises of low decline, conventional gas assets in Wyoming. The assets had a net production run rate, as of the transaction July 1 effective date, of approximately 78 MMcfe/d—roughly 100% gas. Contango added it expects a 5% annual decline rate during the next five years.

"We continue to be on the lookout for similar, additional acquisition opportunities in this target-rich environment," Colyer added.

The acquisition from ConocoPhillips follows a merger agreement by Contango in June with **Independence Energy LLC**, built and managed by **KKR's** Energy Real Assets team, to become KKR's primary platform for pursuing upstream oil and gas opportunities. The transaction with Independence is expected to close by year-end 2021.

GOM

■ **Quantum Energy Partners** announced on Aug. 30 the formation of **HEQ Deepwater**, a new venture with **Houston Energy LP** focused exclusively on developing deepwater projects in the U.S. Gulf of Mexico.

"The deepwater Gulf of Mexico is one of the most important hydrocarbon provinces in the world, uniquely capable of delivering large production volumes with lower relative carbon intensity than any other region," said Wil VanLoh, founder and CEO of Quantum Energy Partners, in an Aug. 30 release.

Upon formation, HEQ Deepwater received more than \$400 million of equity capital commitments from Quantum and management. The company has already been active, recently acquiring a stake in the Shenandoah development in the Gulf of Mexico.

Based in Houston, HEQ Deepwater aims to build a diverse portfolio of development stage upstream and infrastructure assets in the deepwater Gulf of Mexico. The company will be led by CEO Ron Neal, a veteran of the deepwater Gulf of Mexico who helped form Houston Energy in 1988.

"Ron Neal and the Houston Energy team have been friends of Quantum for over 20 years, and we are excited to finally be in business together," VanLoh added.

Houston Energy has a 30-plus year track record of value creation, boasting a roughly 80% commercial success rate and the discovery of more than 900 MMboe of audited 2P reserves from internally generated deepwater Gulf of Mexico exploration prospects, according to the release.

In addition, the Houston Energy team has been a participant in multiple facility-scale development projects such as the Delta House and Kings Quay complexes.

Through HEQ Deepwater, Neal and his team will look to leverage their strengths and experiences from Houston Energy with the support of Quantum to partner with premier operators in the U.S. Gulf of Mexico.

“Houston Energy will continue to generate high-quality exploration prospects for our industry partners, but HEQ Deepwater will allow us to be a multi-dimensional partner for operators throughout the development cycle of an asset,” Neal explained in the release.

Once onstream, Usoro expects Shenandoah will catapult Beacon, which operates the Shenandoah project, from its current position as the 20th-largest producer in the U.S. Gulf of Mexico to the 10th spot. The company is led by chairman and CEO Scott Gutterman and Marc Hensel, as president and CFO.

MIDSTREAM

■ **WhiteWater Midstream LLC** acquired **Sendero Midstream Partners LP**’s Gateway Pipeline, one of the residue gas outlets of the Sendero Carlsbad gathering and processing system serving producers in the northern Delaware Basin of the Permian Basin.

Austin, Texas-based WhiteWater acquired the 24-in. Gateway Pipeline from Sendero for an undisclosed amount, according to a company release on Aug. 26.

The Gateway Pipeline is connected to WhiteWater’s Agua Blanca Pipeline system and extends approximately 24 miles north from Reeves County, Texas, into the Carlsbad area of New Mexico. Gateway has been in service since second-quarter 2020, according to Sendero’s website.

The Agua Blanca Pipeline system is a Delaware Basin intrastate natural gas pipeline operated through a joint venture between WhiteWater and

MPLX LP. The system consists of over 200 miles of large diameter pipelines with a system capacity of about 3 Bcf/d and services portions of Culberson, Loving, Pecos, Reeves, Ward and Winkler counties in West Texas.

WhiteWater’s investment in Agua Blanca is led by **First Infrastructure Capital**.

Founded in 2016, WhiteWater has partnered with multiple private equity funds and direct investors since its inception.

Sidley Austin LLP is representing WhiteWater Midstream in its acquisition of Sendero’s Gateway Pipeline. The Sidley deal team is co-led by partners Tim Chandler and Ken Irvin.

RENEWABLES

■ **Quanta Services Inc.** agreed to acquire **Blattner Holding Co.** for \$2.7 billion in cash and stock as part of the Houston-based service provider’s push into renewables.

Founded in 1907 and headquartered in Avon, Minn., Blattner is one of the largest and leading utility-scale renewable energy infrastructure solutions provider in North America. The company provides front-end engineering, procurement, project management and construction services to leading renewable energy developers for wind, solar and energy storage projects.

Duke Austin, Quanta’s president and CEO, said that the company believes that what Quanta is to the electric power solutions industry, Blattner is to the utility-scale renewable energy solutions industry.

“Together, we will be focused on what we believe are the most attractive areas of the electric infrastructure complex,” Austin said in a company release on Sept. 2. “Blattner will bring an exceptional management team that we believe will enhance our ability to collaborate with our customers to shape North America’s energy transition to a carbon-neutral economy.”

Quanta expects the acquisition, which sent its share price to a record high on Sept. 2, to add to the company’s growth, margins, cash flow conversion and earnings per share.

The company agreed to pay about \$2.36 billion in cash and issue roughly \$340 million of Quanta stock as part of the transaction consideration. Additionally, Blattner owners

will be eligible for an earnout payment that could provide additional consideration of up to \$300 million, to the extent certain financial performance targets are achieved, the company added. **J.P. Morgan Securities LLC** is the exclusive financial adviser to Blattner.

■ **Kinder Morgan Inc.** closed the \$310 million acquisition of **Kinetrex Energy**, marking the Houston-based pipeline operator’s entry into the renewable natural gas (RNG) market.

“We are very pleased to be adding Kinetrex Energy’s business to the full suite of energy solutions and services that Kinder Morgan has to offer customers,” said Jesse Arenivas, president of Kinder Morgan’s energy transition ventures group, in a company release on Aug. 20.

Based in Indianapolis, Kinetrex is the leading supplier of LNG in the Midwest and a rapidly growing player in producing and supplying RNG. Kinder Morgan previously announced the acquisition from an affiliate of **Parallel49 Equity** in July.

The deal follows the formation in March of Kinder Morgan’s energy transition ventures group, which has been tasked with identifying commercial opportunities emerging from the low-carbon energy transition.

“We’re confident that additional RNG opportunities will continue to emerge in the near term and deliver attractive returns to our shareholders,” Arenivas added. **J.P. Morgan Securities LLC** was the exclusive financial adviser to Kinetrex Energy in connection with the transaction.

■ Blank-check firm **Rice Acquisition Corp.** said its planned \$1.15 billion merger with **Aria Energy LLC** and **Archaea Energy LLC** was approved by its stockholders on Sept. 9 that will create the largest public renewable gas company in the U.S.

Renewable natural gas (RNG), produced from animal farms and landfills, has seen a surge in demand this year as climate-conscious investors push for cleaner energy sources.

RNG is selling at a premium to market rates and numerous companies, like oil major **Chevron Corp.** and power provider **NextEra Energy**, have announced projects focusing on this renewable gas.

Rice Acquisition, led by former **EQT Corp.** director Daniel Rice, raised about \$215 million in its IPO in October last year.

The deal with Aria and Archaea, expected to close on or around Sept. 15, creates a platform focused on the capture and conversion of waste emissions from landfills into low-carbon RNG, electricity and green hydrogen, according to Rice Acquisition.

The combined company is expected to be the largest producer of RNG by volume starting next year, when its project Assai in Pennsylvania comes online.

Upon deal closure, the combined company will be named **Archaea Energy Inc.** and will be listed on the New York Stock Exchange under the ticker symbol “LFG.”

DENMARK

■ **Hess Corp.** has completed the sale of its subsidiary **Hess Denmark ApS**, which holds a 61.5% interest

in the South Arne Field, to **INEOS E&P AS** for a total consideration of \$150 million, effective Jan. 1, 2021.

The acquisition comprises 61.5% of the Hess-operated Syd Arne oil field, complementing the 36.8% share INEOS already holds and 4.8% in the INEOS-operated Solsort Field.

INEOS currently operates the Siri Field area in Denmark. By becoming the operator of Syd Arne, INEOS expects to unlock operational and cost synergies between the two assets.

The increased operating position in Denmark compliments INEOS’ leadership in the Greensands project, which recently confirmed the strong Danish consortium to progress the CO₂ capture, transport and storage pilot project.

“The sale of our Denmark asset enables us to further focus our portfolio and strengthen our cash and liquidity position,” CEO John Hess said. “Proceeds will be used to fund

our world-class investment opportunity in Guyana.”

ISRAEL

■ **Delek Drilling** has finalized a deal to sell its 22% stake in the east Mediterranean Tamar gas field to Abu Dhabi’s **Mubadala Petroleum** for about \$1 billion, the Israeli company said on Sept. 2.

Delek said it is the biggest commercial deal to be signed between Israeli and Emirati groups since Israel and the United Arab Emirates normalized ties last year. A preliminary agreement was reached in April, but it required government approval.

The Tamar Field is one of Israel’s primary energy sources and can produce 11 billion cubic meters of gas a year, enough to cover much of the Israeli market as well as exports to Egypt and Jordan.

Delek Drilling, a unit of conglomerate Delek Group, holds a 22% stake in the field, which is operated by **Chevron Corp.**

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PERMITS

The most new permits were issued in the Delaware Basin portion of the Permian Basin. In New Mexico's Lea County, there were 135 permits approved along with 49 issued in Eddy County. In the Midland Basin portion of the play, the most new permits were issued for wells in Texas' Martin (57), Midland (51) and Howard (43) counties. Another top permit region in Texas is Karnes County, which is dominated by Eagle Ford Shale and Austin Chalk ventures.

EOG Resources Inc. has the most permits issued with the bulk of new permits for Lea County, N.M., and Texas' Karnes and Loving counties.

Also in the Permian Basin, Oxy USA Inc. received permits for Eddy County, N.M., (7) and Lea County, N.M., as well as Glasscock (15) and Howard counties (11) in Texas. Of the Mewbourne Oil Co.'s 33 new permits, 14 are in Eddy County, N.M., and 17 are in Lea County, N.M.

Louisiana has total of 56 new permits with 14 issued for DeSoto Parish, which is dominated by the Haynesville Shale. Chevron Corp. was active in California permitting with 34 issued in Kern County. Other areas of note are Colorado (43), with 12 issued by Nickel Road in Weld County), Oklahoma (36), Pennsylvania (27) and West Virginia (24).



New Permits By Operator

EOG Resources Inc.	70
Chevron USA Inc.	42
Oxy USA Inc.	39
Mewbourne Oil Inc.	33
Devon Energy Corp.	28
CrownQuest Operating LLC	25
Nickel Road Operating LLC	23
Diamondback E&P LLC	22
XTO Energy Inc.	18

Source: Datalink

New Permits By State

Texas	670
New Mexico	184
California	70
Louisiana	56
Colorado	43
Oklahoma	36
Pennsylvania	27
West Virginia	24
Wyoming	14
Ohio	13

Source: Datalink

New Permits By County

Kern, Calif.	70
Loving, Texas	59
Martin, Texas	57
Midland, Texas	51
Karnes, Texas	51
Eddy, N.M.	49
Howard, Texas	43
Weld, Colo.	38
Andrews, Texas	38
Upton, Texas	32
Reeves, Texas	26

Source: Datalink

ACTIVITY HIGHLIGHTS RIG COUNT

According to Enverus, the U.S. rig count is up 101% in the last year.

The Denver-Julesburg (D-J) Basin hit a 2021 high of 16 rigs, an activity level not seen since early April 2020. So far in the third quarter of 2021, an average of 13 rigs have been running. The most active operator is Great Western Oil & Gas with two rigs. The Gulf of Mexico's rig count has remained steady.

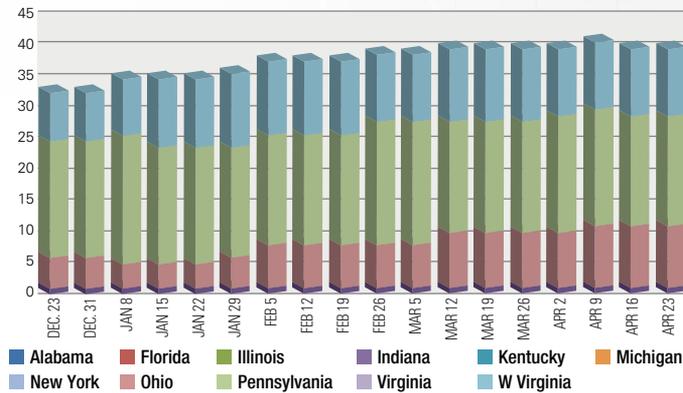
In July of 2020, the Powder River Basin also saw its activity levels plummet. Much like the D-J Basin, activity is primarily comprised of single-rig operators. Only Anschutz Exploration Corp. and EOG Resources Inc. are running more than one rig as of Aug. 18, 2020, with two apiece.

The Rockies plays are climbing out of a pandemic hole. The Bakken Shale rig count has risen as high as 24 in the first half of August 2021. Rig levels fell as low as nine in 2020 and did not really start to stage a comeback until the second quarter. Currently, the most active operators are Continental Resources Inc. with eight rigs and Marathon Oil Corp. with two. All of the other active Bakken drillers are running one rig each.



Eastern U.S. Rig Count

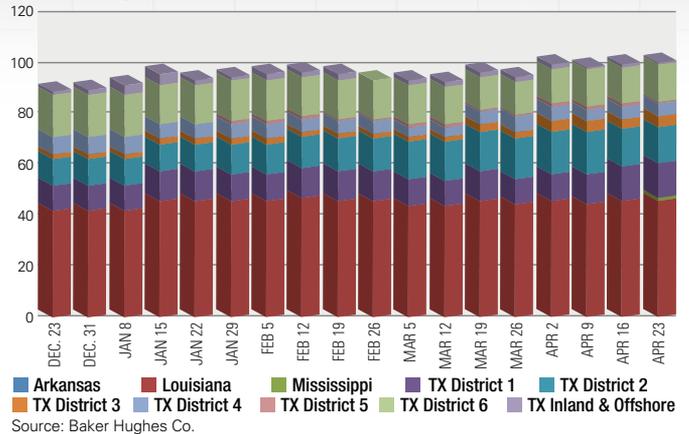
Dec. 23, 2020-Apr. 23, 2021



Source: Baker Hughes Co.

Gulf Coast Rig Count

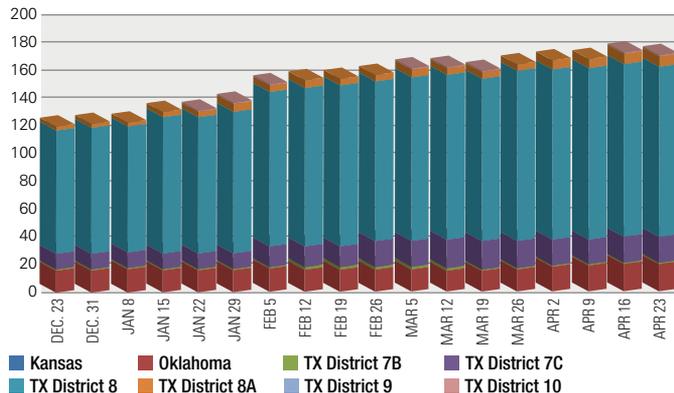
Dec. 23, 2020-Apr. 23, 2021



Source: Baker Hughes Co.

Midcontinent & Permian Basin Rig Count

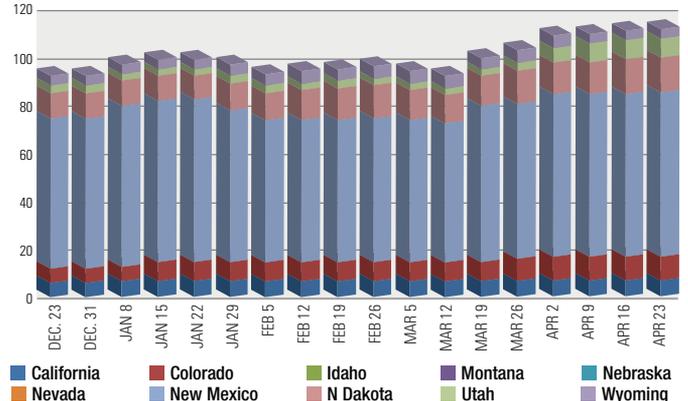
Dec. 23, 2020-Apr. 23, 2021



Source: Baker Hughes Co.

Western U.S. Rig Count

Dec. 23, 2020-Apr. 23, 2021

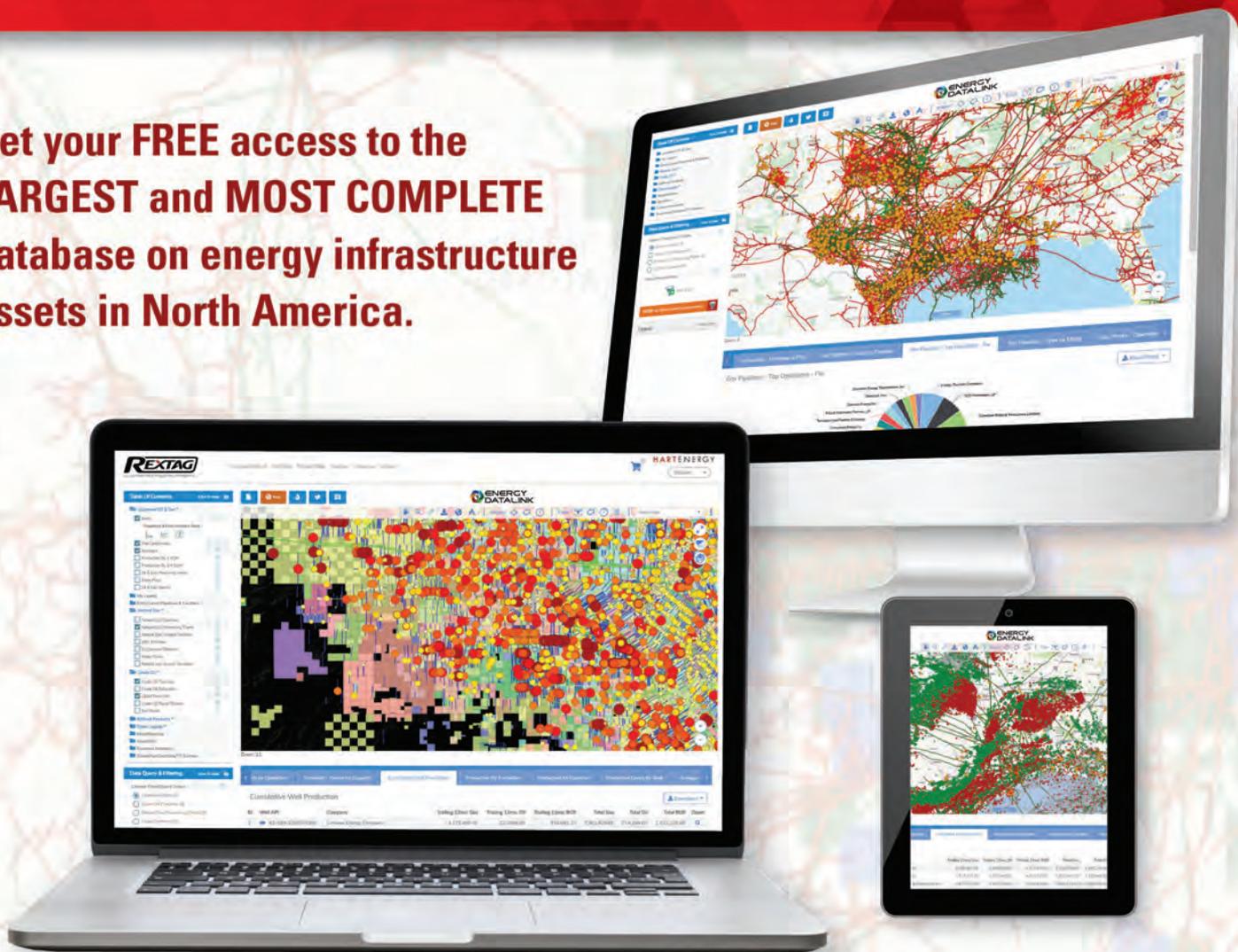


Source: Baker Hughes Co.

Data from Rextag ENERGY DATALINK

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Top Gulf Of Mexico Operators

Operator
Shell Offshore Inc.
BP Exploration & Production Inc.
Anadarko Petroleum Corp.
Chevron USA Inc.
BHP Billiton Petroleum (GoM) Inc.
Hess Corp.
LLOG Exploration Offshore LLC
Murphy Exploration & Production Co.
ENI Petroleum Co. Inc.
Talos Ert LLC
Exxon Mobil Corp.

Top Gulf Of Mexico Producing Blocks

Block
Mississippi Canyon
Green Canyon
Garden Banks
Walker Ridge
Alaminos Canyon
Viosca Knoll
Keathley Canyon
Ship Shoal
Ewing Bank
De Soto Canyon

Source: Datalink

According to the U.S. Energy Information Agency, U.S. crude oil production in the U.S. portion of the Gulf of Mexico is expected to increase in the next two years. The agency's short-term energy outlook predicted that 13 new projects could account for about 12% of total gulf crude oil production by the end of 2022, approximately 1.75 million barrels per day.

Shell Oil Co. announced plans in July to develop a new deepwater project in the Gulf of Mexico and is expected to reach peak production of around 100,000 boe/d at the Whale prospect in Alaminos Canyon Block 773. Whale marks the first major oil and gas project announced by Shell since the company was ordered by a Netherlands court to accelerate its carbon emissions reduction targets.

According to Shell, production from Whale will have among the lowest in greenhouse-gas intensity in the world for producing oil. The company plans to use a similar platform for an existing nearby Shell-operated field, Vito, which is expected to result in an internal rate of return estimated of greater than 25%.

Discovered in 2017, Whale currently has an estimated recoverable resource volume of 490 MMboe. Shell and partner Chevron Corp. expect Whale to begin production in 2024.

Recent Gulf Of Mexico Discoveries

Offshore Block	Well	Net Pay/Production	Operator	Depth (ft)	Completion Date
Walker Ridge Block 758	1PS003S0B OCS G17015	5,701 bbl of 20.5° API oil; 12.77 MMcf of gas (Wilcox)	Chevron Corp.	Drilling: 29,661 Water: N/A	Mar. 2021
Green Canyon Block 944	1-Winterfell	85 ft of net pay (Upper Miocene)	Kosmos Energy	Drilling: 23,000 Water: 5,300	Feb. 2021
Mississippi Canyon Block 794	1S1B OCS G34909 ST01BP00	6,912 bbl of 31° API oil; 7.049 MMcf of gas (Miocene)	Beacon Offshore Energy	Drilling: 24,193 Water: N/A	Jan. 2021
Mississippi Canyon Block 807	1-MB001S0B OCS G07963	6,895 bbl of 23° API oil; 5.285 MMcf of gas (Pliocene)	Shell Oil Co.	Drilling: 12,715 Water: N/A	Feb. 2021
Mississippi Canyon Block 503	001S0B0 OCS G27277	1,089 bbl of 47° API oil; 22.519 MMcf of gas (Pliocene)	LLOG Exploration	Drilling: 19,050 Water: N/A	Dec. 2020
Alaminos Canyon Block 857	0GB007S0B OCS G17571	3,513 bbl of 35.5° API oil; 2.12 MMcf of gas (Middle Miocene)	Shell Oil CO.	Drilling: 23,300 Water: N/A	Oct. 2020
Mississippi Canyon Block 696	1 BF006S1B OCS G16641 ST01BP01	7,744 bbl of 30° API oil; 2.685 MMcf of gas (Middle Miocene)	Chevron Corp.	Drilling: 25,077 Water: N/A	Aug. 2020
Green Canyon Block 338	0A004S2B OCS G21790 ST02BP00	13,840 bbl of oil 10.199; MMcf of gas (Pliocene)	Murphy Exploration & Production	Drilling: 19,287 Water: N/A	Mar. 2020
Mississippi Canyon Block 812	0K003S3B OCS G34460 ST03BP00	12,478 bbl of oil; 25.725 MMcf of gas (Middle Miocene)	Shell Oil Co.	Drilling: 29,739 Water: N/A	Mar. 2020
Mississippi Canyon Block 503	#0SS006S0B OCS G27277	2,930 bbl of oil; 8.64 MMcf of gas (Upper Miocene)	LLOG Exploration	Drilling: N/A Water: N/A	Oct. 2020

Source: IHS Markit

INTERNATIONAL HIGHLIGHTS

Brazil is expected to contribute about 23% (1.3 million barrels per day) of the global crude oil and condensate production in 2025, according to GlobalData. The production is expected to come from offshore projects being developed in the Campos and Santos basins.

A total of 29 crude oil projects are expected to start operations in the country between 2021 and 2025.

Of these, Bacalhau, Buzios V (Franco) and Lula Oeste are some of the key projects that are expected to collectively contribute about 44% of the country's crude and condensate production in 2025.

The offshore projects are operated mainly by Petrobras, Brazil's main national oil company. GlobalData said that the projects have shown good economics such as development breakeven oil prices averaging \$40/bbl and have significantly contributed to South America's trend of surpassing North America's offshore production by 2023.

The U.S., according to GlobalData, will be the second-highest country with 655 MMbbl of crude production in 2025, or about 11% of the total global offshore crude and condensate production in the year. Norway follows with crude production of 508 MMbbl from planned and announced offshore projects in 2025.

-Larry Prado

1 Mexico

An Upper Miocene sequences oil discovery was reported by Rome-based **Eni** in offshore Mexico's Block 10 Sayulita Exploration Prospect in the Cuenca Salina Sureste Basin. According to the company, the preliminary estimates indicate reserves between 150 MMboe and 200 MMboe in place. The #1-EXP Sayulita is the seventh successful well drilled by Eni in the basin and the second commitment well in Block 10. The well was drilled in a water depth of 325 m to a total depth of 1,758 m. The new discovery hit 55 m of net pay in Upper Miocene sequences with excellent petrophysical properties. Additional testing is planned, and Eni estimates that the production capacity for the well is about 3,000 bbl/d of oil. Block 10 venture partners are Eni (operator, 65%), **Lukoil** (20%) and **Caim Energy** (15%).

2 Trinidad

Challenger Energy has concluded logging operations at #2-Saffron in Trinidad. The logging showed approximately 1,400 ft of reservoir sands across the

Upper, Middle and Lower Cruse formations, a total of more than 300 ft of net pay in oil-bearing reservoir sands. Measurements across Lower Cruse indicated 63 ft of net oil-bearing reservoir sands, with an additional 70 ft of potential net oil-bearing reservoir sands. Well completion is underway, including perforation and production testing. According to the company, the well could produce 200-300 bbl of oil per day. Challenger's headquarters are in the Isle of Man, U.K.

3 Suriname

Apache Corp. announced an oil discovery at appraisal well #1-Sapakara South in Block 58, offshore Suriname. The venture encountered a 30-m pay zone in a good quality Campano-Maastrichtian reservoir and is on the eastern edge of the Sapakara area. Area water depth is approximately 850 m and is southeast of the #1-Sapakara West. Additional drilling and testing is planned. After completion operations are finished, the drillship will move to drill #1-Bonboni in Block 58. Houston-based Apache holds 50% interest along with partner **TotalEnergies**.

4 U.K.

Union Jack Oil provided an update for testing at #1Z-B West in PEDL183 in the western sector of the southern Permian Basin, onshore U.K. PEDL183 contains hydrocarbon discoveries at wells #1-WNA, #2-WNA and #1Z-B. A 25-m interval was perforated in Kirkham Abbey, and flow testing operations are underway. The initial gas flow to the surface was analyzed, and the samples are similar in composition to those produced at the West Newton A wells with approximately 90% methane content and no hydrogen sulfide. Liquids that flowed to the surface are also being analyzed. The London-based company is planning to perforate and test a 19-m zone in the Upper Kirkham Abbey. Union Jack holds a 16.665% economic interest in PEDL183.

5 Norway

Oslo-based **Aker BP** completed a wildcat well in the Barents Sea. The #7234/6-1 is in production license PL 858 and south of the #7435/12-1 (Korpfjell) gas discovery. The test was designed to prove petroleum in carbonate reservoir

rocks from late Carboniferous and early Permian (Orn). The venture encountered a gas column of 57 m in Orn, of which 26 m was in carbonate rocks (dolomite) with poor to moderate reservoir quality. According to the operator, the gas/water contact was not encountered, although water samples were collected. The well also encountered traces of gas in several thin sandstone layers in the Snadd, Kobbe and Havert (Triassic) and 36 m Realgrunnen Sub-group (Jurassic) with a sandstone reservoir with no traces of petroleum. Preliminary estimates place the size of the discovery between 1.6 MMcm and 2.1 MMcm of recoverable oil equivalent. The well was not formation-tested, but data acquisition and sampling have been performed.



It was drilled 4,003 m, and area water depth is 247 m.

6 Romania

Serinus Energy has announced results from a gas discovery in the Satu Mare Concession in Romania. The #1-Sancrai exploration well recorded continuous formation gas shows over a 20-m gross pay interval in four sands. The well was drilled to 1,600 m, and gas shows were recorded in four Pliocene sand intervals between 855 m and 875 m. According to the company, the total gas ranged from 5.5% to 11.1% with an estimated average porosity of between 23% and 27%. Serinus will perforate and test the sand zone before completion. The venture is about 8 km south of the Moftinu Gas Development project, and the company plans to bring the well online for commercial production while drilling additional appraisal development wells to fully delineate the gas field. Serinus is based in Saint Helier, Jersey Island, U.K.

7 Namibia

Reconnaissance Energy announced additional results from Kavango Basin, testing in Namibia. Wells #6-2 and #6-1 were drilled to respective total depths of 2,294 m and 2,780 m. The #6-2 had more than 250 m of hydrocarbon shows, and the #6-1 had over 350 m of hydrocarbon shows. Both wells were logged, and sidewall cores were collected. The company plans to conduct vertical seismic profiling. Both ventures are in PLE 73. The company will begin the exploration phase of drilling activity, mapping the entire leasehold to find prospective recoverable commercial hydrocarbons and to establish a working conventional hydrocarbon system in the basin. London-based Reconnaissance Energy holds a 90% interest in a petroleum exploration license PEL 73 with state-owned partner **Namcor** holding 10%.

8 Australia

Perth-based **Western Gas** has scheduled an exploration well in Western Australia's offshore permit area WA-519-P. The #1-Sasanof prospect is on trend and updip of the Mentorc gas and condensate field and nearby the giant gas fields

of Scarborough and Io-Jansz in the Carnarvon Basin. The Sasanof prospect is estimated by the company to contain 24 Tcf gas and 1.1 Bbbl of condensate. The venture has a planned depth of 2,500 m, and area water depth is 1,070 m. The well will be Western Gas' first well drilled from its exploration portfolio surrounding the existing Equus Gas Project that contains a discovered resource of 2 Tcf and 42 MMboe.

9 Timor Leste

Baron Oil has announced the results of an independent review of prospective resources in Timor Leste in the TL-SO-19-16 production sharing contract (Chuditch PSC). The review indicates gross mean prospective resource of 3.368 Bcf of gas and 30 MMbbl of condensate (592 MMboe). The study reviewed and validated the company's interpretation of available

subsurface data to determine the volumetric and risk factor calculations on the #1-Chuditch discovery by **Shell Oil** in 1998, which encountered a 25-m gas column in Jurassic Plover. According to the company, the subsurface risks for prospects and leads are estimated to be low since they share analogous geological characteristics to #1-Chuditch and other gas discoveries in the Timor Sea. The high estimate of gross prospective resources is 1.156 Bboe and may reflect potential for a single large accumulation. London-based Baron holds a 75% operating interest in the Chuditch PSC with partner state-owned **Timor-Leste Petroleum**, which holds 25%.

10 Australia

Denver-based **Falcon Oil & Gas** is underway with production testing at #1H Amungee NW in Australia's Northern Territory. The venture is in the Beetaloo Sub-Basin. The test will determine whether all 11 fractured stages contributed to the initial extended production test in 2016. The horizontal well was drilled to a total depth of 1,100 m, and it was fractured along the entire horizontal section. The preliminary test initially flowed between 800 Mcf and 1.2 MMcf of gas per day after fracturing. The initial estimates indicate a dry gas composition with less than 4% CO₂. Falcon hit a 30-m accumulation with 4% to 7.5% porosity, a gas saturation range of 50% to 75% and permeability between 50 and 500 nanodarcsies. Partners in the prospect are **Origin Resources Ltd.** (35%), **Sasol Ltd.** (35%) and operator Falcon (30%). Falcon retains a 30% interest in 4.6 million gross acres of the Beetaloo Basin.

EQUITY

Company	Exchange/ Symbol	Headquarters	Amount (\$MM)	Comments
The Williams Cos. Inc.	NYSE: WMB	Tulsa, Okla.	\$1,500	Authorized a share repurchase program for the repurchase of up to \$1.5 billion of the company's outstanding common stock effective immediately.
Black Knight Energy LLC	N/A	Santa Clarita, Calif.	\$500	Received an equity commitment in excess of \$500 million from funds managed by Kayne Anderson Capital Advisors LP , including Kayne Private Energy Income Fund II LP and Kayne Anderson Energy Fund VIII LP , alongside Black Knight's management team. Proceeds will be used to pursue the acquisition and development of large, cash flowing oil and natural gas assets across the Lower 48.
Sierra Energy Holdings LLC	N/A	Dallas	\$500	Closed on equity commitments by Providence Energy Ltd. and funds managed by Oaktree Capital Management LP marking the formation of the new mineral and royalty acquisitions company. Proceeds will be used to pursue the acquisition of mineral and royalty interests throughout the continental U.S.
HEQ Deepwater	N/A	Houston	\$400	Closed on equity capital commitments from Quantum Energy Partners and management marking the formation of the new venture with Houston Energy focusing on partnership opportunities with premier operators to build a diverse portfolio of development stage upstream and infrastructure assets in the deepwater Gulf of Mexico.
Priority Power Management LLC	N/A	Arlington, Texas	\$250	Closed on an investment from funds managed by Oaktree Capital Management LP and other select institutional investors. Ara Partners , a Houston-based private equity firm specializing in industrial decarbonization investments that acquired Priority Power in 2019, will also continue to hold an ownership stake. Proceeds will be used to bolster its comprehensive energy solutions designed to address customer specific goals, while considering the economic and sustainability benefits of electricity delivered to and behind the meter.
FlexGen Power Systems Inc.	N/A	Durham, N.C.	\$150	Closed on an equity commitment from funds managed by affiliates of Apollo Global Management Inc. in partnership with FlexGen's existing investors, Altira Group and the founding investment group led by Jerry Miller and Mark Dreyfus. Proceeds will be used to build on FlexGen's mission to deliver utility-scale storage that drives forward the clean energy transition.
Freehold Royalties Ltd.	TSX: FRU	Calgary, Alberta	CA\$150	Entered an agreement with RBC Capital Markets and TD Securities Inc. , on behalf of the underwriters, to issue, on a bought deal basis, roughly 16.6 million subscription receipts at a price of \$9.05 each. Each subscription receipt will entitle the holder thereof to receive one common share of Freehold upon closing of the company's pending acquisition of U.S. royalty assets located in the Eagle Ford in Texas. Underwriters have been granted an overallotment option exercisable in whole or in part to purchase up to about 2.5 million additional subscription receipts on the same terms as the offering. Proceeds will be held in escrow pending the completion of the U.S. royalty transaction.
HighPeak Energy Inc.	NASDAQ: HPK	Fort Worth, Texas	\$61.8	Commenced an underwritten public offering of 5 million shares of its common stock, par value \$0.0001 per share. Underwriters expected to be granted a 30-day option to purchase up to an additional 750,000 shares of its common stock at the public offering price. Company proposed a maximum offering price per share of \$10.74. Proceeds will be used to provide funding for general corporate purposes, which may include accelerating its drilling and development activities given the current price environment and funding further bolt-on acquisitions. Roth Capital Partners will serve as sole bookrunning manager. Northland Securities Inc. and Seaport Global Securities will serve as co-managers.
SilverBow Resources Inc.	NYSE: SBOW	Houston	\$40	Entered into an equity distribution agreement among the company and Johnson Rice & Co. LLC and Truist Securities Inc. as sales agents for the sale of shares of the company's common stock, par value \$0.01 per share, of up to \$40 million. Proceeds will be used for general corporate purposes, including, but not limited to, financing of capex, repayment or refinancing of outstanding debt, financing acquisitions or investments, financing other business opportunities and general working capital purposes.

Company	Exchange/ Symbol	Headquarters	Amount (\$MM)	Comments
Thiozen Inc.	N/A	Beverly, Mass.	\$3	Raised series seed funding in a round led by Eni Next , the venture investment vehicle of Eni SpA , with participation from Good Growth Capital and Mount Wilson Ventures . Proceeds will be used by the MIT startup to advance the commercialization of its technology to produce low-cost and low-emission hydrogen from hydrogen sulfide and water.

DEBT

Cabot Oil & Gas Inc.	NYSE: COG	Houston	\$2,000	Commenced private exchange offerings, in connection with the anticipated merger of Cimarex Energy Co. , to exchange any and all outstanding notes issued by Cimarex for up to \$2 billion of new notes issued by Cabot and cash.
Quanta Services Inc.	NYSE: PWR	Houston	\$1,500	Priced its offering of \$500 million of 0.95% senior notes due 2024 at a price to the public of 99.946% of their face value, \$500 million of 2.35% senior notes due 2032 at a price to the public of 99.939% of their face value and \$500 million of 3.05% senior notes due 2041 at a price to the public of 99.48% of their face value. Proceeds will be used together with borrowings under the term loan facility it is negotiating, which the company expects to enter following the closing of the offering, as well as borrowings under its revolving credit facility or cash on hand, or a combination thereof, if necessary, to finance the cash portion of the consideration for its pending acquisition of Blattner Holding Co. BofA Securities Inc. and Wells Fargo Securities LLC are joint bookrunning managers.
Southwestern Energy Co.	NYSE: SWN	Spring, Texas	\$1,200	Priced its upsized public offering of 5.375% senior notes due 2030 at a price to the public of 100% of their face value. Proceeds will be used to fund previously announced tender offers, as amended, and consent solicitation for or redemption of certain series of its outstanding senior notes, to repay borrowings under its credit agreement and the remainder, if any, to repay other indebtedness or for general corporate purposes. BofA Securities, Citigroup and J.P. Morgan are acting as representatives of the underwriters and joint bookrunning managers.
Enterprise Products Partners LP	NYSE: EPD	Houston	\$1,000	Announced that its operating subsidiary, Enterprise Products Operating LLC , priced a public offering of senior notes due February 2053. Proceeds will be used for general company purposes, including for growth capital investments and the repayment of debt. Citigroup Global Markets Inc., Deutsche Bank Securities Inc., SG Americas Securities LLC and U.S. Bancorp Investments Inc. are joint bookrunning managers.
Marathon Oil Corp.	NYSE: MRO	Houston	\$900	Fully redeemed its 3.85% senior notes due 2025, accelerating the realization of the company's previously disclosed gross debt objective of approximately \$4 billion. Transaction brings total 2021 gross debt reduction to \$1.4 billion and will contribute to approximately \$50 million of annualized cash interest expense savings.
Cheniere Energy Inc.	NYSE American: LNG	Houston	\$750	Announced its wholly owned subsidiary, Cheniere Corpus Christi Holdings LLC (CCH) , priced its offering of senior secured notes due 2039 at par. Proceeds will be used by CCH to prepay a portion of the principal amount currently outstanding under CCH's term loan credit facility.
Flowserve Corp.	NYSE: FLS	Dallas	\$500	Priced a public offering of its 2.8% senior notes due 2032. Proceeds will be used to fund the redemption of its 3.5% notes due September 2022 and its 4% notes due November 2023. BofA Securities Inc., J.P. Morgan Securities LLC and Mizuho Securities USA LLC are joint bookrunning managers.
Berry Corp.	NASDAQ: BRY	Dallas	\$200	Entered into a credit agreement for a new reserve-based lending facility with a borrowing base of \$500 million, replacing the company's existing credit facility, which was terminated. Terms of the new RBL facility include a decrease of the leverage ratio to 3:1 from the prior facility due to the overall macro environment.
Spartan Delta Corp.	TSXV: SDE	Calgary, Alberta	CA\$150	Completed agreement with a syndicate of underwriters led by National Bank Financial Inc. and CIBC World Markets Inc. , pursuant to which the underwriters have agreed to purchase for resale to the public, on a bought deal basis, about 29.7 million subscription receipts of Spartan at a price of \$5.05 each. Included an option for underwriters to purchase up to an additional 15% of the subscription receipts issued under the financing at a price of \$5.05 each to cover over allotments exercisable in whole or in part at any time until 30 days after the closing of the financing. Proceeds were used to fund part of the cash portion of the purchase of privately held light-oil Montney producer Velvet Energy Ltd. National Bank Financial Inc. and CIBC World Markets Inc. were financial advisers. Stikeman Elliott LLP is providing legal counsel.

Company	Exchange/Symbol	Headquarters	Amount	Comments
PHX Minerals Inc.	NYSE: PHX	Oklahoma City	\$100	Closed a new four-year senior secured credit facility with an initial borrowing base of \$27.5 million. The new credit facility, which is being led by Independent Bank and includes MidFirst Bank , replaces the company's prior credit agreement, which was with a lending syndicate led by Bank of Oklahoma .
ChampionX Corp.	NASDAQ: CHX	The Woodlands, Texas	\$90	Informed Wells Fargo, National Association , the trustee of the company's 6.375% senior notes due 2026, of its intent to redeem the notes. The notes will be redeemed at 104.781% of the principal amount thereof, plus accrued and unpaid interest, if any. Proceeds from the sale of its Corsicana, Texas, chemical manufacturing plant, and cash on hand will be used to fund the redemption of the notes.
Certus Oil & Gas Inc.	N/A	Calgary, Alberta	\$65	Received a senior secured loan facility from Houston-based Anvil Channel Energy Solutions supporting the acquisition of producing assets in central Alberta. Proceeds were used to fund the corporate acquisition of Sitka Exploration Ltd. , providing geographically and technically complementary assets to the existing Certus platform.
Tellurian Inc.	NASDAQ: TELL	Houston	\$50	Withdrawn an underwritten public offering of 8.25% senior notes due 2028, which was successfully priced Aug. 26 after NASDAQ informed the company on Aug. 27 that it would not list the bonds due to a procedural interpretation. Proceeds were intended to be used for general corporate purposes, including the potential acquisition of upstream assets. B. Riley Securities Inc. , Ladenburg Thalmann & Co. Inc. and William Blair & Co. LLC were joint bookrunning managers. Aegis Capital Corp. , Alexander Capital LP , Boenning & Scattergood Inc. , Newbridge Securities Corp. , Revere Securities LLC and Wedbush Securities Inc. were co-managers.

Hart Energy's New Financings Database

A searchable database of debt and equity offerings across the oil and gas industry

DoublePoint Energy LLC

Financing Type: [Details]

Report Date: [Details]

New Financings

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Forum Energy Technologies Inc. - \$800,000,000

Chesapeake Energy Corp. - \$100,000,000

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RALLIES, BUT WHAT'S NEXT?



LESLIE HAINES,
EXECUTIVE EDITOR-
AT-LARGE

In fits and starts, the oil and gas industry has been rallying all year, but it still faces uncertain times ahead thanks to factors outside its control, including COVID variants that may stall a full economic recovery, not to mention roadblocks thrown up from the halls of Congress, the Department of Energy or the Environmental Protection Agency.

Nevertheless, the industry endures. We need to shout out its contributions to society and the enormous effort that entails in the face of many risks.

In the last four quarters through June 30, the sector (as measured by Bernstein Research and using an aggregate of 44 E&P companies' results) used up \$61 billion in spending. It produced a grand total of 5.5 Bboe.

We need to shout this factoid to the anti-fossil fuel folks who believe renewables can supply all of our energy needs. Does the renewable sector even spend that much money, and can it yet deliver that much energy equivalent to consumers and do it on a regular basis, day in and day out?

We think not.

For now, let's keep on keeping on and take all the good news we can get about commodity prices. Natural gas has been marking its highest highs in many years, trading above \$5 per thousand cubic feet, and that may continue.

"The [Gulf of Mexico] shut-ins [due to Hurricane Ida] are exacerbating an already tight market marked by record LNG exports, lackadaisical production growth and a growing inventory deficit compared with year-ago and five-year average levels," said a report from Rusty Braziel and RBN Energy. "Those underlying fundamentals will remain a trigger point for price spikes well after Ida-related shut-ins recover."

WTI crude oil has been trading above \$60/bbl for several months now, knocking on levels above \$70 at times only to retreat a few days later.

Analyst Bob Brackett at Bernstein Research has developed a handy way to measure what is going on in public markets. To examine the broad trends, he aggregates the quarterly performance of 44 E&P companies into one large "proxy" company and then charts the changes the sector has made from quarter-to-quarter, year-to-year.

The latest data from the second quarter showed the following: capital spending was cautious, with those 44 E&Ps spending only 43% of \$19.90/boe cash flow. This was based on an average oil price during the quarter of \$66/bbl and natural gas av-

eraged \$2.92/MMBtu. The rest of the cash flow was used to reduce debt or give back to shareholders.

The company generated a net profit of \$8.80/boe, and its EBITDA increased by \$1.48/boe to \$24/boe in the second quarter.

Oily companies showed an EBITDA margin of 64% while gassy ones delivered a margin of 35%. What other industries have such a good margin?

Results and efficiencies continue to impress but, again, the longer-term outlook is cloudy. A new study by Columbia University's Center on Global Energy Policy has shown that oil intensity has steadily declined for decades, in linear fashion, due to changes in society, technology and the spread of energy efficiencies throughout the global economy.

The authors noted that it is a challenge to model the structure of the global energy market "that sometimes appears to be highly cartelized and at other times populated by a large flock of peaceful price takers." Shale players, you have just been labeled a flock of peaceful price takers.

"But a remarkably steady metric—and possible tool for projecting consumption into the future—has been identified in this paper: oil intensity," Columbia said. "Oil intensity is the volume of oil consumed per unit of gross domestic product (GDP). Measured simply in barrels per dollar, it is often viewed as a broad measure of oil efficiency; it certainly demonstrates the importance of oil in a society.

"In 1973, for example, when oil intensity was at its zenith, the world used a little less than one barrel of oil to produce \$1,000 worth of GDP (2015 prices). By 2019 (the last data set before COVID), global oil intensity was less than half a barrel, or 0.43 bbl per \$1,000 of global GDP—a 56% decline. Oil has become a lot less important, and humanity has become more efficient in making use of it," the study concluded.

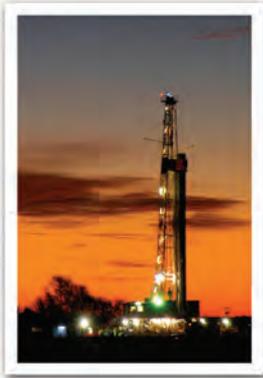
We would argue about oil being less important.

As we head into the final months of 2021, another important metric to watch is the U.S. supply curve. The Energy Information Administration reports that since companies are cautious on spending, they've been drilling less and instead completing their DUC inventory.

Only about 5,000 such wells remain, the lowest level since 2017, the EIA said. The DUC counts in the Bakken, Eagle Ford and Niobrara plays are at their lowest point since 2013.



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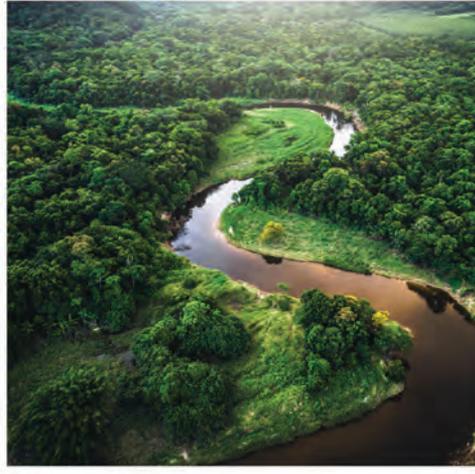
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