

Oil and Gas Investor

JULY 2021



All indicators point to the Midland Basin as the epicenter of renewed activity.

HARTENERGY

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<p>\$500 MILLION</p> <p>TALOS ENERGY</p> <p>SENIOR SECURED NOTES</p> <p>Senior Co-Manager</p>	<p>\$560 MILLION</p> <p>MARTIN MIDDLESTREAM PARTNERS</p> <p>HAS SUCCESSFULLY CONSUMMATED ITS DEBT EXCHANGE, FINANCING, AND CASH TENDER</p> <p>Financial Advisor</p>	<p>\$535 MILLION</p> <p>LONESTAR RESOURCES</p> <p>CHAPTER 11 RESTRUCTURING</p> <p>Financial Advisor</p>	<p>UNDISCLOSED</p> <p>NPR NPR Resources, LLC</p> <p>DEBT RECAPITALIZATION</p> <p>Financial Advisor</p>	<p>UNDISCLOSED</p> <p>USA RAIL TERMINALS A PORTFOLIO COMPANY OF</p> <p>High Roller Group AND JIM DONNAN COMPANIES</p> <p>HAS BEEN ACQUIRED BY</p> <p>alpenglow rail AND CONNOR, CLARK & LYNN</p> <p>Financial Advisor</p>												
<p>UNDISCLOSED</p> <p>NORTH AMERICAN TRANSPORTATION AND SERVICE PLATFORM</p> <p>CORPORATE CARVE OUT</p> <p>Financial Advisor</p>	<p>UNDISCLOSED</p> <p>INTREPID</p> <p>HAS ACQUIRED CERTAIN ASSETS OF</p> <p>gyrodata</p> <p>Financial Advisor</p>	<p>\$270 MILLION</p> <p>elkpetroleum</p> <p>ADVISOR TO THE AD HOC CROSSOVER LENDER</p> <p>Financial Advisor</p>	<p>\$350 MILLION</p> <p>VIPER Energy Partners</p> <p>FOLLOW-ON OFFERING</p> <p>Co-Manager</p>	<p>UNDISCLOSED</p> <p>PETROFLOW ENERGY</p> <p>ASSET DIVESTITURE</p> <p>Financial Advisor</p>												
<p>UNDISCLOSED</p> <p>Excalibur Resources, LLC</p> <p>ASSET DIVESTITURE</p> <p>Financial Advisor</p>	<p>UNDISCLOSED</p> <p>EAGLE FORD MINERALS PLATFORM</p> <p>PRIVATE PLACEMENT OF EQUITY</p> <p>Financial Advisor</p>	<p>UNDISCLOSED</p> <p>AETHON</p> <p>ASSET DIVESTITURE</p> <p>Financial Advisor</p>	<p>\$28 MILLION</p> <p>VIKING MINERALS</p> <p>ASSET DIVESTITURE</p> <p>Financial Advisor</p>	<p>UNDISCLOSED</p> <p>ROSEWOOD RESOURCES</p> <p>JOINT VENTURE TRANSACTION</p> <p>Financial Advisor</p>												
<p>ENERGY GROUP KEY STATISTICS</p> <p>\$54+ Billion Aggregate Transaction Volume since 2009</p> <p>\$320 Million Average Transaction Size</p> <p>169 Transactions Closed since 2009</p>		<p>ENERGY GROUP AGGREGATE TRANSACTION VOLUME</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Volume (\$ in billions)</th> </tr> </thead> <tbody> <tr> <td>2011</td> <td>\$4.8</td> </tr> <tr> <td>2013</td> <td>\$18.5</td> </tr> <tr> <td>2015</td> <td>\$32.9</td> </tr> <tr> <td>2017</td> <td>\$42.0</td> </tr> <tr> <td>2020</td> <td>\$54.2</td> </tr> </tbody> </table>			Year	Volume (\$ in billions)	2011	\$4.8	2013	\$18.5	2015	\$32.9	2017	\$42.0	2020	\$54.2
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26

MIDLAND BASIN'S MAJOR MOJO

Consolidation, lower costs and better wells, plus, Midland Basin PUDs have regained value.

34

DOUBLING DOWN ON THE BAKKEN

The original Canadian royalty trust and one of the first E&Ps to explore the Bakken Shale, Enerplus Corp. remained under the radar for many years—until now. The conservative Calgary producer re-emerges with two fast deals and a basket of new top tier inventory.

40

THE FRACKER'S GUIDE TO THE GREEN GALAXY

The energy future needs landmen, geologists, engineers, places to store CO₂, money and business leaders who understand how to monetize the value chain. It needs oil and gas people. Here's the playbook and a description of the prize.

48

A&D IN THE AGE OF REALISM

Some private equity players are in the late innings of transacting for assets, calling into question the future of how they will be funded.

52

UNTIL THE LAST DROP

Meet ChampionX president and CEO Soma Somasundaram, the man with a bold vision, who is on track to build a durable franchise well-positioned to survive until the last drop of oil is pumped.

56

PRIVATE EYE

Enverus analyzed production history, pricing, velocity and rig count activity to better understand the role and influence private E&P operators are playing in the oil patch and the expected outcomes in the near future.

63

SPECIAL SECTION: WATER MANAGEMENT

For an industry less than a decade into its development, water management has emerged as a crucial component of upstream oil and gas development.

73

BLOODY, BUT UNBOWED

Shell-shocked E&Ps posed challenges for midstream companies during the pandemic, but strategies based on renegotiating contracts, positioning for advantage in upcoming bankruptcies and broadening product offerings have shown that the sector has plenty of fight.



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COLUMNS

7 FROM THE EDITOR-IN-CHIEF

The industry must accept that the move to an energy transition in some form is inevitable. The question remains: Will oil and gas step up to lead the charge?

9 A&D TRENDS

After months of buying and selling chaos, oil and gas A&D finally went full-on Adderall as it barreled into the official start of summer.

11 ENERGY POLICY

Will more permanent changes emerge in any energy or climate legislation?

13 COMPLETIONS

The industry is being pressured in multiple ways to reduce emissions and redouble energy transition efforts.

96 AT CLOSING

The ramifications of a different energy future are up in the air, and it's up to all of us to start figuring out what to do now.

DEPARTMENTS

17 NEWSWELL

Some U.S. energy technology and service companies are seeing more women in the workforce, bucking a national trend evident when the COVID-19 pandemic upended traditional work and personal lives last year, according to results of a recent study.

77 A&D WATCH

Marrying together a core oily Delaware Basin asset with a dry gas Marcellus Shale one, the merger of equals between Cabot Oil & Gas Corp. and Cimarex Energy Co. upturns a growing trend in the upstream E&P space.

86 ACTIVITY HIGHLIGHTS

Texas again had the highest amount of permits approved during the month of April.

90 INTERNATIONAL HIGHLIGHTS

According to the International Energy Agency, the oil supply glut created by the global pandemic is gone even as demand has fallen after the overwhelming surge of COVID-19 in India.

92 NEW FINANCINGS

95 COMPANIES IN THIS ISSUE

ABOUT THE COVER: As the pandemic wains and oil prices recover, A&D activity in the Midland Basin is hot and rigs are returning. 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

Northern Oil & Gas Boosts Permian Position With \$102 Million Acquisitions

By Hart Energy Staff

The acquisition of nonoperated interests across core Permian Basin acreage represents the “trifecta” for Northern Oil & Gas, says COO Adam Dirlam.

Marcellus Shale Pioneer Launches ‘Responsibly Sourced’ Pilot Project

By Emily Patsy, Senior Managing Editor

Marcellus Shale operator Range Resources entered into a pilot program with Project Canary to utilize its Canary X continuous monitoring technology at two pad locations in southwestern Pennsylvania.

Global Oil Prices Could Surge By Year-End

By Mary Holcomb, Associate Editor

Damage inflicted on the oil market could end up pushing prices and activity higher, says Raymond James analyst Marshall Adkins.

EagleClaw To Power Permian Operations From 100% Renewable Energy

By Emily Patsy, Senior Managing Editor

EagleClaw Midstream said it is the first major gathering and processing company in the Permian Basin to procure 100% of its power for operations from renewable energy sources.

Colgate Launches Debt Offering To Fund Occidental Permian Asset Deal

By Hart Energy Staff

Colgate Energy priced the offering of \$500 million new senior unsecured notes due 2029, increased from the originally proposed \$400 million, at par.

ONLINE EXCLUSIVES

Texas Firm Advances ESG Efforts With Eagle Ford Shale Pipeline Project

By Hart Energy Staff

The \$607,000 pipeline project located in the Eagle Ford Shale is a proactive approach by U.S. Energy Development Corp. to reduce flaring, thereby decreasing the firm’s carbon footprint.

Mesa Minerals Partners Finds New Backer With \$150 Million Commitment

By Emily Patsy, Senior Managing Editor

Mesa Minerals Partners II’s predecessor, a Quantum Energy Partners portfolio company, sold its Haynesville Shale-focused royalty portfolio for \$135 million late last year to Franco-Nevada.

California Resources Names First-Ever Chief Sustainability Officer

By Hart Energy Staff

California Resources Corp. expects the appointment of Chris Gould, previously the head of sustainability at Exelon, will help the E&P company reach its sustainability targets set for carbon, methane, water and renewables.

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.

HART ENERGY VIDEOS

By Jessica Morales, Director of Video Content

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Here’s what makes carbon capture important and why oil and gas companies in the U.S. are well-positioned to take the lead.

<https://www.hartenergy.com/exclusives/path-forward-why-carbon-capture-critical-us-oil-194675>



Energy ESG: How ESG Could Boost An Oil Producer’s Access To Capital

Gibson Dunn’s Hillary Holmes provides insight on the ESG movement in the oil and gas industry and why there’s no escaping it.

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LEADING THE ENERGY TRANSITION



STEVE TOON,
EDITOR-IN-CHIEF

Finally, an oil and gas industry leader that is standing up to the fossil fuel-free energy transition movement. Chris Wright, CEO of Liberty Oilfield Services, released the company's inaugural ESG report in June, but with a twist. Titled "Bettering Human Lives 2020 ESG Report," Wright enumerates over 40 pages of the myriad ways in which the industry has lifted the world's experience and why it should continue doing so.

Wright opens the document with this to set the stage: "It is simply not possible to discuss the environmental and social impacts of our industry without considering the environmental and human impacts of the absence of our industry."

Since the oil and gas industry began some 150 years past, global life expectancy has doubled, extreme poverty has plummeted and human liberty has grown tremendously, noted the report. "The timing here is no coincidence. This progress in the human condition was enabled by the surge in plentiful, affordable energy from oil, gas and coal."

Looking forward, the report identifies three global energy challenges: energy poverty for one-third the world; maintaining reliable, affordable and clean energy in developed nations; and climate change. All three must be addressed, and none can be accomplished without oil and gas as part of the solution—yes, including climate change.

Wright's manifesto that anchors the first half of the document is required reading by all in the industry that may feel on their heels from the onslaught of negative sentiment about its mere existence.

Liberty's response to the anti-hydrocarbon movement comes just a week following the International Energy Agency (IEA) releasing its own report, "Net Zero By 2050: A Roadmap for the global energy sector." The IEA report purports to catalyze "a total transformation of the energy systems that underpin our economies" to achieve net zero global greenhouse-gas (GHG) emissions by 2050, a path that is "narrow and extremely challenging," the organization admits.

And possibly unnecessary in its scope.

The IEA report, in its 224-page directive, will no doubt become the blueprint by which the energy transition proponents will model, including global governments. And while demand for hydrocarbons do not go to absolute zero in the model, they are marginalized to 20% of the energy stack largely in the form of noncombustible uses (petrochemicals), when paired with carbon capture technologies, and aviation, which is

deemed harder to replace technologically.

But the oil and gas industry shouldn't simply accept that imagined outcome. In fact, the industry should instead lead the effort on the role it will play in the new energy future to increase that percentage.

The industry itself, however, should look different by design as well. How to do that?

First, accept that it's just good business to reduce or eliminate onsite emissions in the near term. Doing so makes it easy for investors, communities and policymakers to support those that do. Many are already willfully making this pivot. The cost will become a routine part of doing business.

Second, skate to the puck. Identify where oil and gas will be needed in 30 years and aim there.

Natural gas has played a huge role in reducing GHG emissions in the U.S. and can do so in displacing coal in developing nations as well. LPG can replace biomass for cooking in underprivileged countries. Green hydrogen equals big demand for natural gas. Gas can be a star in the energy transition.

The future of oil demand, however, is subject to the saturation of electric or fuel cell vehicle adoption. The IEA report calls for a 99% reduction in road transport demand by 2050 replaced by renewable alternatives, a reality that analysts at Bernstein see as "highly unlikely." And, "without broad EV and fuel cell adoption, it's hard to cause oil demand to plummet." Support of carbon capture and sequestration technologies is a good place for oil producers to aim to make their product energy transition friendly.

Third, message, message, message. The general public needs to see a steady drumbeat of consistent, positive marketing extolling the benefits they derive from oil and gas. Let the associations lead here. Fund them to do so. The uninformed environmentalists have won the battle of the message so far. Win the consumer.

The industry must accept that the move to an energy transition in some form is inevitable: That train has left the station. The question is: How will it play out?

Wright himself declared climate change must be one of the three energy imperatives for humankind to get right, basing his conclusion on a raft of data that even most climate-saving proponents are unable to do. But he also sees hydrocarbons as part of the solution to the problem.

"Longer, healthier, opportunity-rich lives in the modern world are simply not possible without oil and gas," said Wright. There's the message. Shout it.

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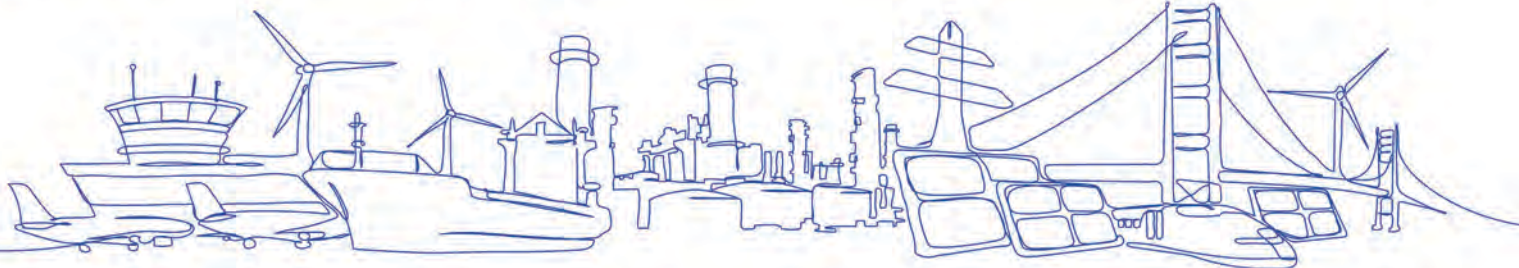
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Junior Debt

Equity



AUTOMATIC EARTH



DARREN BARBEE,
SENIOR EDITOR

After months of buying and selling chaos, oil and gas A&D finally went full-on Adderall as it barreled into the official start of summer.

What's been most interesting to observers of the cogs, wheels and sprockets of the industry's deal machinery is just how much the torque has changed on transactions.

This is most obvious in the Permian Basin, America's breadbasket as far as oil goes.

Justin J. F. Ramirez, a senior financial analyst at Mercer Capital, noted that data show a possible inflection point in deal valuations in the past 12 months. On the whole, transaction values spiked from July to October 2020. Specific to the Permian Basin, deal values are "pale in comparison to those in early periods," Ramirez wrote on June 18.

Inversely, the cost-per-acre valuation in the Permian nearly split in two. From July to October 2020, acreage values averaged \$10,482 compared with \$20,449 per acre previously.

Colgate Operating's purchase of the vaunted Occidental Petroleum Corp. lands in Reeves and Ward counties, Texas, were valued at \$508 million—which came in at an adjusted price per acre of just \$10,380, according to data from Raymond James. That may not be Lilis Energy-bankruptcy-sale lows (Lilis took about \$2,800 per acre to leave) but the Permian's "like a boss" days may indeed be fading.

In the past year, the only operated asset deal that's come close to the Permian's M&A glory days is Pioneer Natural Resources Co.'s agreement to buy DoublePoint Energy for about \$6.4 billion, or \$42,010 per acre.

A bigger deal may be in the offing for the Permian; however, far more grandiose than mere Pioneer's dear to dream.

As Ramirez noted, and is subsequently re-noted here, Royal Dutch Shell Plc is considering a sale of its holdings in the Permian Basin, which are considered to be ginormous. Reuters reported that Shell's Permian holdings account for about 6% of the company's oil and gas holdings—a huge, money intensive creature that could be worth \$10 billion. But selling now would have to be the ultimate contrarian's contrarian move.

Consider: Spot oil prices have emerged from their groundhog shadows with \$70/bbl oil sloshing around. Astonishingly, rather than testing the resolve of producers, rising oil prices appear irrelevant. Apart from private equity businesses, few producers are ramping up to crank out more crude.

In a June 16 report, Goldman Sachs forecast U.S. crude supply for 2021 to 2022 to remain

below 2019 levels. That will make for a tight and potentially profitable stretch for oil companies. For its upstream coverage, Goldman Sachs expects free cash flow in 2022 to hit a 19% yield. That compares to refiners, which the firm expects to return 7% free cash flow yields.

Ramirez hypothesized that some of the chill on A&D flow was due to the sneaking suspicion that President Biden may want to choke off America's fuel supply.

But just as damaging a certain flavor of cancel culture, which has for years unleashed broadsides against oil and gas—attacks that are going to make fuel very expensive at some point.

Apart from being the energy source for moving everything around the planet, oil and gas provides the feedstocks necessary for clothing, milk cartoons and so on. Yet the oil and gas industry is essentially the outcast of the world's 11 market sectors. Certainly, information technology, financials and even healthcare don't get the bad rap associated with energy.

Why is Shell considering a hasty retreat from Texas? Well, consider how The New York Times recently reported Shell's position. The company is "under pressure to move away from climate-damaging fossil fuels," the newspaper said.

And this brings us to smart phones. One of the great annoyances of smart phones is the autocorrect feature that changes the spelling or entire words. (Another is that while we don't use our phones to talk to people, our phones insist on talking to us.)

Apple, for one, is a great purveyor of the convenience of autocorrect. One quirk, for instance, is associated with the acronym "OMW," which typically corrects to "on my way." So? Is there any real harm as a result? But autocorrect software changes other things.

For instance, type the term "safe word"—let's assume there's a perfectly innocent explanation for inputting it into your phone—and it automatically corrects to SafeWord, the name of an alleged television program on MTV.

In ways subtle and obnoxious, Apple is rewriting how we use our language, usually with our permission. So it goes with oil and gas. The New York Times and other outlets autocorrect oil and gas to "dirty fossil fuel" and "climate damaging," and there's simple, silent assent.

So in the West, the Permian seems to fade and valuations plummet. Could a giant autocorrection be coming?



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UNDERSTANDING THE POWER OF MOMENTUM



JACK BELCHER,
CORNERSTONE
GOVERNMENT
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You can never overestimate the power of momentum, which for America's energy industry was in plain sight during the last week of May 2021 when shareholder activity successfully thwarted the will of the boards of the two largest U.S. oil and gas companies. At Exxon Mobil Corp., it was the election of three new board members put forth by investment firm Engine No. 1.

Meanwhile, at Chevron Corp.'s annual general meeting, shareholders proposed a resolution not supported by the board, calling for the integrated major to reduce its Scope III greenhouse-gas (GHG) emissions—those in which the company doesn't directly control but come from what it produces (like fuel)—in addition to its existing commitments to reduce Scope I & II emissions (those that come directly from its operations or from purchased energy). It passed with 61% of the vote.

The purpose of these activist shareholder actions was to push Exxon Mobil and Chevron to make bigger commitments to reduce carbon emissions, address climate change and improve ESG performance more broadly. With passage of the resolutions, activists captured big headlines that went beyond the trade press. And, they weren't the only big news headlines that week impacting the oil and gas industry and ESG.

In another development, Halliburton Co.'s shareholders rejected an executive compensation package supported by its board. In the Netherlands, a Dutch court ruled that Royal Dutch Shell Plc must reduce its GHG emissions by 45% from 2019 levels by 2030. Shell had already made commitments to reduce its carbon intensity by 20% by 2030, and 100% by 2050, from 2016 levels.

Collectively, these developments represent a major wave of sentiment—as reflected by shareholders and the judicial system alike—in favor of pushing the oil industry to make even greater commitments in their GHG reduction, climate mitigation and ESG efforts.

The shareholder resolution votes were especially noteworthy because, for the first time, activist investors successfully won proxy votes that were opposed by corporate boards of these two companies. Now emboldened to pursue these initiatives further, the question is not whether they will continue to push, but rather how far they will move the chains, including in the public policy realm.

The ESG phenomenon, which thus far has primarily been led by investors, fueled by non-governmental organizations, and largely embraced by the financial community, is now being addressed by regulators and the legislators. In the U.S., the Securities and Exchange Commission (SEC) has asked all interested parties to provide comments on potential future requirements for disclosures by public and possibly even private companies on climate change and ESG data and information. Presumably, the comment period will drive future rulemaking activity. While there is a fine line between what can be required under existing statute and what will require new legislation (and may have to be settled in the courts), the SEC, which could now be further emboldened by recent shareholder developments, is clearly interested in moving the bar.

During the past several months, there has been much anticipation over what kind of energy/climate and infrastructure packages might materialize that could pass the 50:50 Senate. Speculation has been rampant that a bill might move that eliminates oil and gas development tax incentives (e.g., percentage depletion allowance and expensing of geological and geophysical expenses) or create a new clean energy standard or tax on carbon.

It has long been known that Sen. Joe Manchin (D-WV), who hails from a state with large coal and natural gas production, would have a lot of say in what kind of a compromise bill, if any, would emerge from the Senate. The stated opposition of Manchin to eliminating the filibuster has made the path much more difficult for President Biden and the Democrats to pass significant legislation subject to filibuster, including climate. Even on budget-related bills that address issues such as taxes and only require a simple majority for passage, Manchin holds all the cards.

The U.S. oil and gas industry has already seen executive and regulatory actions by the Biden administration on climate, leasing, permitting and environmental thresholds, often to the detriment of industry. For now, it is the new norm. The real question is whether more permanent changes might emerge in any energy or climate legislation and whether the momentum from the boardrooms will spill over into the Senate or be quelled by Sen. Manchin and the filibuster.



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THE ROLE OF TECH AND SERVICE IN ENERGY TRANSITION



LESLIE BEYER,
ENERGY
WORKFORCE &
TECHNOLOGY
COUNCIL

In recent weeks, we've seen our industry pressured in multiple ways to reduce emissions and redouble energy transition efforts. There's no question we're in the midst of a major change in the way we produce and use energy, and with our proven ability to innovate, invent and deploy solutions on a global scale, our leadership has never been more important.

When thinking through this era of change, it's essential to understand a few things. First, it's not one energy transition. There isn't a single solution that fits every energy problem. Each region may require a unique approach based on comparative advantages unique to that area.

Second, all energy resources have environmental impacts and technological challenges. Renewables such as wind and solar rely on critical minerals that must be mined, largely are located in geopolitically sensitive areas, and often require the use of fossil fuels to produce and distribute the products around the world. Supply chains, logistics, workforce and scale must be factored into any honest conversation about the energy mix.

Third, we're already making progress. Switching from coal to natural gas allowed the U.S. to slash emissions 27% since 2005 while simultaneously increasing energy generation by 4%. Because natural gas doesn't suffer from intermittency issues, any realistic long-term energy strategy should include this fuel as a major element.

Fourth, the nature of the energy transition should not be a shift from one fuel source to another based on ideology but a process of adding new technologies to create a production ecosystem that delivers reliable, resilient, affordable and clean energy. Having an array of options will be an important part of meeting the forecasted growth in energy demand in the coming years.

With that in mind, it's essential for the energy technology and service sector to bring innovation to vexing energy problems as we have in the past. We helped the U.S. become a net exporter with technologies that drove American oil and gas production to record heights while reducing emissions, boosting efficiency and improving safety.

The challenge ahead of us is real, in part because of equally important goals

that are cast as being in conflict. We must meet increasing energy demand to support economic development that raises the standard of living for billions of people around the world. We must also meet the imperative to reduce greenhouse-gas emissions to limit global climate change and mitigate climate-related risks. But these goals can be reached with the ingenuity and inventiveness of our industry.

The men and women of the technology and service sector are advancing on each of these goals. We're using artificial intelligence, machine learning and data analysis to develop and deploy solutions for carbon capture and storage, remote monitoring to eliminate methane emissions, digital and automation applications that drive efficiency and safety, as well as renewable energy sources such as hydrogen, geothermal and wind. Despite restrictions on capital, many of our companies are investing in research and development to bring promising technologies to market.

If we want to continue building on the progress we've made, we need to unite in support of energy policies that give us more options—through technology and the number of energy sources available to us. Smart policy will facilitate economic recovery from the COVID-19 pandemic and mitigate climate risks while allowing us to deliver cleaner, more reliable and affordable energy here and abroad.

Achieving clean energy independence is possible. We should invest research and development funds in an array of technologies, including renewables, batteries and energy efficiency, as well as in ways to make production and use of oil and gas cleaner and safer, such as carbon capture. It also means spending on infrastructure projects to make sure energy supply chains are secure from bad actors.

The energy sector doesn't need partisan political battles. We're tackling technical problems with solutions, and we can find those solutions by bringing together diverse perspectives and working collaboratively. Every form of energy has advantages and disadvantages, but the American energy industry is the most advanced in the world and has innovated and adapted throughout its history. This time will be no different.

EVENTS CALENDAR

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

EVENT	DATE	CITY	VENUE	CONTACT
2021				
DUG Permian/Eagle Ford/Midstream Texas	July 12-14	Fort Worth, TX	Fort Worth Conv. Center	dugpermian.com
Carbon Management Forum	July 12	Fort Worth, TX	Fort Worth Conv. Center	dugpermian.com
Unconventional Resources Tech. Con.	July 26-28	Houston	George R. Brown Convention Center	urtec.org/2021
Western Energy Alliance Annual Meeting	July 28-30	Tabernash, CO	Devil's Thumb Ranch Resort	westernenergyalliance.org
Petroleum Alliance of Oklahoma Annual Mtg.	Aug. 5-7	Las Colinas, TX	Four Seasons	thepetroleumalliance.com
KIOGA Annual Convention	Aug. 15-17	Wichita, KS	Hyatt Regency	kioga.org
EnerCom Oil & Gas Conference	Aug. 15-18	Denver	Westin Downtown	theoilandgasconference.com
Offshore Technology Conference	Aug. 16-19	Houston	NRG Park	2021.otcnet.org
26th Annual Gas Compressor Association's Expo and Conference	Aug. 17-20	Galveston, TX	Moody's Garden Hotel	gascompressor.org
NAPE Summit	Aug. 18-20	Houston	George R. Brown Convention Center	napeexpo.com/summit
Energy Summit Golf Tournament	Aug. 23	Littleton, CO	Arrowhead Golf Club	coga.org
The Energy Summit	Aug. 24	Denver	Museum of Nature & Science	coga.org
Mexico Gas Summit	Sept. 7-8	San Antonio	St. Anthony Marriott Hotel	mexicogassummit.com
DUG Bakken and Rockies	Sept. 8		Virtual	dugrockies.com
Energy Workforce & Technology Council 2021 Annual Meeting	Sept. 15-17	Santa Ana Pueblo, NM	Hyatt Regency Tamaya Resort and Spa	energyworkforce.org
GPA Midstream Convention	Sept. 26-29	San Antonio	Marriott Rivercenter	gpamidstreamconvention.org
A&D Strategies and Opportunities	Sept. 28-29	Dallas	Fairmont Hotel	adstrategiesconference.com
Minerals Forum	Sept. 28	Dallas	Fairmont Hotel	adstrategiesconference.com
OGA Annual Conference	Oct. 4-6	Norman, OK	Embassy Suites	okgas.org
Digitalization in Energy Conference	Oct. 6		Virtual	hartenergyconferences.com
Executive Oil Conference	Nov. 3-4	Midland	Midland County Horseshoe Arena	executiveoilconference.com
WEA Wildcatter of the Year	Nov. 6	Denver	Hyatt Regency at Colorado Conv. Ctr.	westernenergyalliance.org
25 Impactful Veterans in Energy	Nov. 10		Virtual	hartenergyconferences.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
Texas Hold 'em Tournament	Dec. 2	Houston	Four Seasons	ipaa.org
DUG East/Marcellus-Utica Midstream	Dec. 6-8	Pittsburgh	David L. Lawrence Convention Center	dug east.com
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	getadam.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	sblackhefg@gmail.com
Houston Producers' Forum	Third Tuesday	Houston	Houston Petroleum Club	houstonproducersforum.org
IPAA-Tipro Speaker Series	Second Wednesday	Houston	Houston Petroleum Club	tipro.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.

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NewsWell

Energy sector study shows progress in inclusion, diversity

Some U.S. energy technology and service companies are seeing more women in the workforce, bucking a national trend evident when the COVID-19 pandemic upended traditional work and personal lives last year, according to results of a recent study.

Research unveiled June 8 by the Energy Technology & Workforce Council, working with the Ireland-headquartered Accenture consulting firm, shows the percentage of women in the council's U.S. energy technology and services sector inched up by 3% to 19% within the past three years. The increase is just short of the 20% goal the council set in 2018 when its first gender diversity study was published.

Putting the percentage of women in the sector in context of what not only the industry but the U.S. as a whole experienced last year is important, according to Molly Determan, the council's COO.

In all, "in 2020 we lost more women from the workforce. We also lost a lot of people from the oil and gas industry, especially women last year," Determan told Hart Energy. "As things normalize and we're recruiting people back into the industry, I hope that we will continue to see the focus on bringing women and minorities back into the sector."

The council, formed earlier this year by the merger of the Association of Energy Service Companies and the Petroleum Equipment & Services Association, surveyed more than 25 companies covering about 250,000 employees globally, including more than 63,000 in the U.S. It looked at the workforce makeup of the U.S. plus the country's oil and gas workforce using Department of Labor statistics and council workforce data prepared by Accenture.

Their work comes amid the ESG movement with the social

aspect focusing on how companies manage relationships with employees, customers, suppliers and communities where they operate.

Results show the percentage of women and ethnic minorities in the sector still trails their representations in the overall U.S. workforce. The study revealed women account for 47% of the overall U.S. workforce, compared to 19% for both the U.S. oil and gas workforce (up from 15% in 2018) and the council U.S. workforce (up from 16%).

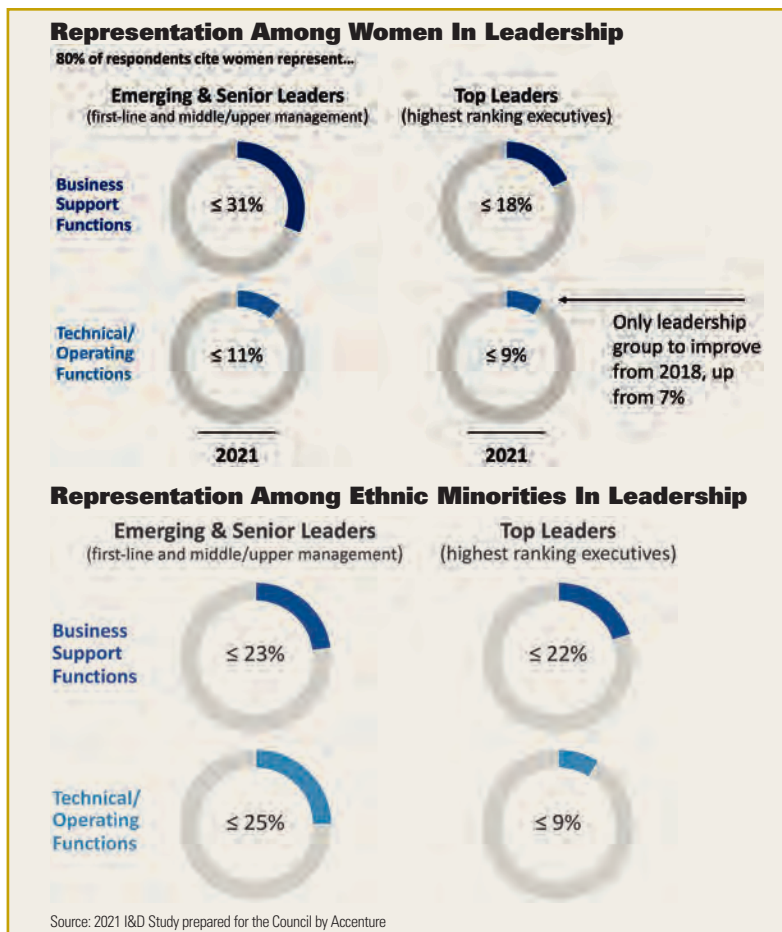
"I was encouraged to see that we made progress in gender diversity. ... I really didn't know where we would land in the race and ethnicity because we hadn't done that before," Determan said. "I think that there is closer parity on race and ethnicity to the representation with the overall U.S. workforce."

This year marked the first time the council studied race and ethnicity, which sets a baseline for future study. The June 8 report concluded that ethnic minority representation within the sector also lags the overall U.S. workforce. In all, black/African American, Asian and Hispanic/Latino employees make up 36% of the overall U.S. workforce. For the U.S. oil and gas workforce, it's 28%, and it's 25% for the council U.S. workforce.

"But it's clear that we have work to do for both women and race and ethnicity, especially when it comes into the leadership positions and even drilling down further, when it comes to operational and technical leadership roles," she added.

Based on survey results, the council highlighted areas where the sector could work toward improvement. These, as stated in a news release, include:

- **66%** offer learning and development initiatives targeted at inclusion and diversity;
- **56%** offer paid primary caregiver parental leave;



- 40% of companies have C-level endorsed inclusion and diversity strategies;
- 40% offer formal mentorship programs; and
- 32% offer basic flexible work programs such as telecommuting.

“Retention and advancement programs can grow with increased endorsement from C-suite leaders, whose visibility is key to boosting workforce diversity,” Ben Carey, a managing director who leads Accenture’s energy equipment and services practice, said in the release. “For example, leaders should collaborate more closely with employee resource groups where more women and minority leaders can share how they navigated their careers so that others can better follow their examples.

“This will be vital for all functions,” he added, “but especially the digital technology and service functions that will help drive the industry’s recovery.”

Determan pointed out that flexible work programs, specifically

those outside of the pandemic response, are important. She noted that companies in the council are forming flexible work policies as everyone returns to the office, a move she believes will significantly help grow percentages of women and minorities working in the sector.

The report also recommended companies focus on retention, work to attract diverse and innovative talent, and amplify advancement opportunities through mentorship and leadership role-modeling.

“Obviously, we need to develop the pipeline of diverse talent for leadership roles, starting with STEM education as early as the elementary school-age level. We just need to have a bigger pipeline of people,” Determan said.

She added the council also recommends companies offer competitive compensation, “making sure that there isn’t any type of gap between genders and minorities, and conduct diversity and inclusion reviews.”

The council, which represents more than 600 energy technology and service companies, offers programs that are “designed to educate, empower and elevate its individual members and member companies,” according to its website. These programs include the Inclusion & Diversity Business Champion Program, a yearlong program that equips managers and business leaders with skills needed to affect change within their organizations.

—Velda Addison

DUG Haynesville: Why region outshines the competition

Regardless of the myriad of factors clouding the industry’s future, the Haynesville Shale is well-positioned for both the near and long term.

That was the early message from both analysts and operators at Hart Energy’s DUG Haynesville Conference and Exhibition in Shreveport, La., on May 27,



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Eric Marsh

citing the shale play's economics plus growing global demand for natural gas and rapidly increasing takeaway capacity.

Emily McClain, North American gas markets analyst for Rystad Energy, explained that gross gas production for the Haynesville region will reach more than 12 million cubic feet per day (MMcf/d) by the end of the year. McClain pointed to the favorable wellhead economics the Haynesville provides, with Tier 1 acreage breakeven prices at \$2.21/MMBtu. Even Tier 3 and 4 acreage positions offer competitive wellhead prices at just above \$2.50/MMBtu, she said.

"This well performance has really added to the potential of the region and really shows how the wells are actually outpacing some of the other dry gas regions and remain competitive in the markets," she said.

And although natural gas prices held steady despite last year's global commodity price wars and demand destruction, there is likely to be a ceiling on how high Henry Hub prices may climb in part because of high gas-oil ratios (GOR) in oil heavy plays like the Permian Basin, said David Braziel, CEO of RBN Energy.

In 2017, GOR in the Lower 48 was 9.4 cubic feet of gas per barrel of oil. In March 2020, that GOR fell slightly to 8.6. But in May 2020, the GOR climbed up to 10.1, with RBN Energy expecting the ratio to hold at about 9.7 through the end of the year.

"When producers pulled out rigs, they stopped drilling new wells, the average age of the wells producing in those basins got older," Braziel said. "Interesting thing about shale wells: the older they get, the gassier

they get. So as the fleet of wells gets older, the average amount of gas produced in those basins goes up. The stability of natural gas production puts a ceiling on gas prices."

One producer that has recently capitalized on the Haynesville's favorable economics and natural gas' production stability is Plano, Texas-based Vine Energy. Earlier this year, Vine consolidated ownership from three entities—Vine, Brix and Harvest—and in March netted \$324 million in its initial stock offering.

Vine Energy holds 227,000 acres in Northwest Louisiana where it develops out of the stacked pay zones of the Haynesville and Mid-Bossier shale plays. The company is running four drilling rigs and holds more than 870 drillable locations with more than 80% of its assets yet to be developed.

Speaking during the opening keynote at DUG Haynesville, CEO Eric Marsh said his group held more than 160 meetings with investors from around the country prior to the IPO listing, and got a strong sense of what those investors are seeking in a company.

"What the investment community wants from us is a low-leverage company," Marsh said. "They think 2 is a beginning point. You can't get an RBL (reserve-based loan) unless you're sub-2 today. So, 2 net-debt to EBITDA is the place where everything starts. And then they want you to have a line of sight to be better than that."

And as practically every public company has learned, investors are demanding cash flow, he said.

"With every asset you own, including ours, you have an evolution of that asset," Marsh said. "You evolve as time goes on."

"Not everybody can buy an asset that immediately generates levered-free cash flow," he continued. "But the market really says 'I don't care—what I want is a company that will generate meaningful levered-free cash flow.' And the second part of that is 'I want some of those returns back in the form of a dividend.'"

Similar to demands by investors of cash flow generation is little to no production growth, he added.

"The other thing I would tell you that we heard virtually every meeting is they don't want production growth," Marsh said. "They want levered-free cash flow growth. And what they want us to do is drill cheaper and to operate cheaper. And to reduce our G&A and to make more margin in every Mcf per day we produce."

"So, at the end of the day," he continued, "the market has said no production growth. They want you to be flat."

—Brian Wazel

Deloitte: Stick with oil and gas or go green?

The oil and gas industry can affordably invest \$838 billion during the next 10 years to optimize the hydrocarbon business and/or open up new growth avenues in the energy transition, Deloitte said in a report released in May.

It's a formidable sum, but Deloitte noted that oil and gas companies invested almost \$285 billion in hydrocarbons in 2020 alone, while clean energy investments totaled just \$60 billion from 2015 to 2020. The huge investment is a manageable way to explore options and navigate the gap between today's hydrocarbon reliance and the potential "green economy" of the future.

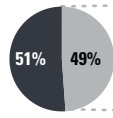
Even accelerated energy transition scenarios—including those from BP Plc, Rystad Energy and Shell—project oil demand at 87 million barrels per day (MMbbl/d) by 2030, the study said, which creates an investment, portfolio and strategic conundrum for oil and gas companies. The debate is whether to stay and capture the remaining value in hydrocarbons or explore the broader energy landscape, which leans toward electricity.

"Traditional upstream companies could choose to remain oil and gas specialists and be the leanest E&Ps, operating with a pervasive focus on cost and performance," the study said. Those companies may not be suited for the utility-type margins and fragmented competition of the green energy domain. Others will be drawn to the opportunity

Debunked Myths About Portfolio Building

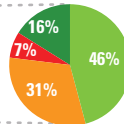
Myth 1: Agility and flexibility always deliver gains

Companies split by portfolio change frequency



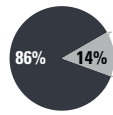
■ Others ■ Frequent, random changes

Financial performance of over-agile portfolios



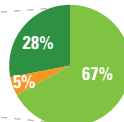
Myth 2: Being big and integrated is better

Companies split by size and integration



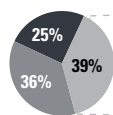
■ All other companies ■ IOCs or revenues above \$10 billion

Financial performance of big or integrated companies



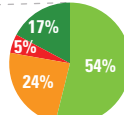
Myth 3: Oil has lost its luster

Companies split by existing portfolio mix



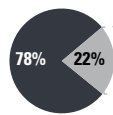
■ Oil-heavy ■ Gas-heavy ■ Balanced

Financial performance of oil-heavy portfolios



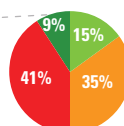
Myth 4: Every "green" shift is profitable and scalable

Companies split by green* shift and others



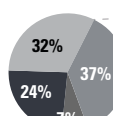
■ Others ■ *O&G companies shifting away from oil/ having green energy business segments

Financial performance of "greener" portfolios



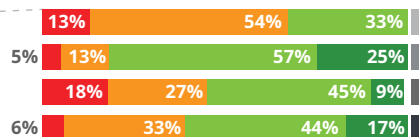
Myth 5: Shale's pain makes all other portfolio options an obvious choice

Companies split by supply segment mix



■ Shale ■ Conventional/offshore shelf ■ Offshore deep water ■ Diversified

Financial performance of all resource segments



■ Top quartile ■ Average to below average
■ Bottom quartile ■ Above average to average

Source: Deloitte; Rystad Energy; Capital IQ

to develop new capabilities and move away from the commodity mindset.

Despite the dramatic changes engulfing the industry, Deloitte pointed to lessons learned from the past. A statistical and financial analysis of 286 listed global oil and gas companies from 2010

to 2020 debunked five myths about portfolio building.

Agility and flexibility always deliver gains. The study found that only 16% of companies that made frequent changes ranked in the top quartile.

These attributes can have tremendous impact if done correctly,

Deloitte said, but overdone or executed indiscriminately can destroy the value and trust of stakeholders. One integrated company, given as an example, constantly changed its strategy, shifting from oil to gas and back, shale to conventionals and back, and failing to generate lasting value.

Bigger and integrated is better. The study found that over 70% of large and integrated companies had subpar performance.

These attributes make sense when used to access markets and create supply chain efficiencies. However, Deloitte said it suspects that some strong balance sheets could be hiding inefficiencies.

Oil has lost its luster. The study found that two-thirds of oil-heavy portfolios delivered above-average performance, despite the disruption and price pressures of the past decade.

"In fact, a few oil companies have delivered average returns on capital of over 20% over the last five years, higher than many companies in nonservice industries including utilities and capital goods," Deloitte said.

Every "green" shift is profitable and scalable. The study found that only 9% of portfolios that became greener made it into the top quartile.

"While costs have fallen considerably, the relative economics of green energy businesses are yet to deliver consistent results," the study said. That said, oil and gas companies have seen benefits in cases in which they have made investments in renewables or clean technology that are complimentary to their core businesses.

Shale's pain makes all other portfolio options an obvious choice. The study found that 18% to 45% of non-shale portfolios delivered below-average performance.

Natural gas, the world-beater of the early 2000s, is now fighting for market share with renewables. Hydrogen might be a good choice for a company to park investment dollars but which one? Blue or green?

"This unpredictability in the clean energy space resembles the dynamism typically seen in the technology industry," Deloitte said.

Renewable power, primarily wind and solar, has attracted

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February 2021

NOG

Northern Oil & Gas, Inc.

Adam Dirlam, Chief Operating Officer
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Michael Kelly, Chief Strategy Officer

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the most attention because of increasing economies of scale, competitive supply chains and technological improvements, the study said.

“However,” the authors wrote, “a higher share of renewables might not directly translate into profitable growth due to fragmented and fierce competition in this space, which may not excite large O&G companies aiming to build a differentiated portfolio.”

Green hydrogen appears to be on the upswing, with costs expected to drop by about 64% by 2040, aided by strong regulation and cost efficiencies. The regulatory environment also seems to be favoring biofuels and other renewable fuels.

—Joseph Markman

Energy transition creates \$14 trillion cloud of uncertainty

Already known as a risky business, the future of the upstream oil and gas industry has been further

clouded by the accelerated pace of a global energy transition, according to a new report by Wood Mackenzie.

Analysts with the energy consultancy firm said the risks associated with oil and gas have been tempered over the years by a single tenet—that demand would continue to rise indefinitely. However, that belief has all but evaporated as the energy transition toward alternative energy sources gathers momentum.

Wood Mackenzie estimates the energy transition now represents \$14 trillion worth of uncertainty for upstream oil and gas, the firm said in its report published May 20.

“The industry now finds itself having to supply oil and gas to a world in which future demand—and price—are highly uncertain,” Wood Mackenzie vice president Fraser McKay said in the report. “The range of possible outcomes is dizzying.”

Still, according to McKay, even a rapidly transitioning world needs oil and gas supply for decades to

come—contrary to stark warnings made earlier this week by the International Energy Agency (IEA) that called for a hard stop of funding to fossil fuel projects.

“The world will still need oil and gas supply for decades to come, and the scale of the industry will remain enormous,” he said.

Wood Mackenzie forecast gas demand and price to remain resilient in the long term. However, the firm’s two main scenarios for oil have a range of outcomes that depend on what strategy is chosen in order to achieve net-zero emissions.

The first scenario: Demand for more oil will continue to grow for another decade or more. On the other hand, if the world heeds IEA warnings and acts decisively to limit emissions, Wood Mackenzie analysts said oil demand and prices would fall rapidly later this decade.

Still, either scenario leaves a huge amount of upstream value on the table for the oil and gas industry.

Wood Mackenzie modeling estimates the range of pre-tax future valuations for upstream is from \$9



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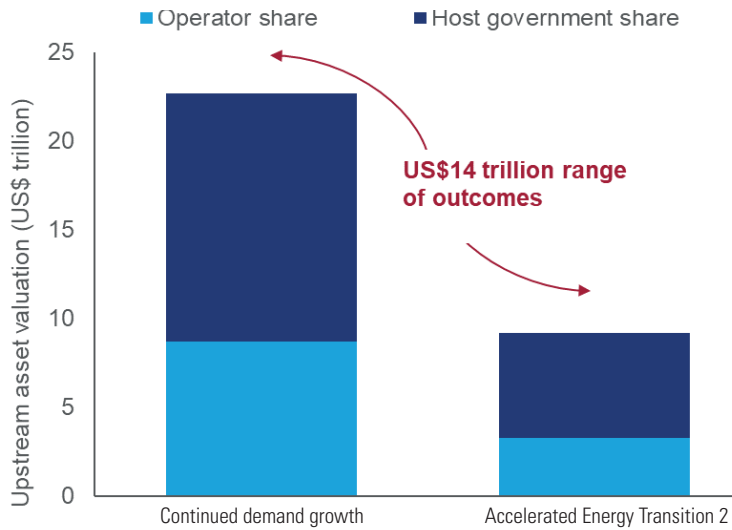
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Global Upstream Asset Valuation Sensitivity



Source: Wood Mackenzie

trillion to \$23 trillion. On a post-tax basis, operators’ share of this economic rent ranges from \$3 trillion to \$9 trillion.

“Only exceptional, low-cost projects will work in all demand scenarios,” Wood Mackenzie research director Angus Rodger added in the report. “Inevitably, the cost of

capital and the cost of doing business in oil and gas will increase.”

In order to survive, the industry will need to remain relentless in its push to improve efficiency, drive down costs and deliver projects flawlessly as well as improve their ESG credentials, the Wood Mackenzie analysts noted.

Though not an option for all, new energies will also play an increasing role for the largest players in the business.

“And business models must adapt to maximize value as the oil and gas sector matures,” McKay added.

As a result, specialists will carve out niches and consolidation to bolster margins will gather momentum over the next several years.

“Just a few more years of firm oil prices would strengthen balance sheets,” McKay said, “making transition strategies easier to execute.”

—Emily Patsy

Investors should be picky as capital flows into midstream

Capital continues to flow into midstream as the second half of 2021 nears, but despite the sector’s strong position, Morgan Stanley Research is advising clients to be selective in their investments.

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Investors have returned to energy broadly and midstream in particular following the November 2020 elections and as commodity prices have moved higher, Morgan Stanley said in a May 26 research paper. There has been fresh capital, as well, drawn to discounted valuations “in an out-of-favor industry, with the current 2.8% energy weighting in S&P still well below its 12% level at 2010-end,” the analysts wrote.

Investors’ improving sentiment has been backed by first-quarter earnings, Morgan Stanley said, with certainty about company outlooks outweighing uncertainty over the ongoing COVID-19 pandemic. The economic reopening of the country is bolstering the near-term demand recovery.

However, the analysts also raised the prospect that E&P activity could slow later in the year, continuing into 2022.

“The trajectory of midstream in 2021 has been similar to that of upstream, particularly in their shared strategic prioritization of [free cash flow],” Morgan Stanley

said. In first-quarter 2021, the analysts noted, E&Ps collectively generated almost \$6 billion in free cash flow, a level not seen since prior to the shale era. Significantly, positive free cash flow was reported by 80% of E&Ps, indicating a prevalence of capital discipline.

That said, investors remain leery that the discipline will stick.

“Execution of disciplined capital plans and consistent messaging ... will be key to restoring confidence in the sector’s new model of higher returns and less growth,” the analysts said. “This parallels very closely to the experience of midstream that is unfolded out of COVID, as companies have embraced [free cash flow]-positive strategies but investors remain skeptical of the capital discipline and underlying base business stability required to sustain them given the novelty ... for midstream.”

What will it take? Morgan Stanley believes midstream has earned its business stability credentials but thinks investors will remain skeptical of companies’ embrace of capital discipline without

formal commitments to free cash flow or multiyear “proof” of spending activity.

Morgan Stanley sees a number of factors that should lead to continued midstream outperformance in the second half of the year but some drivers could put downward pressure on the headwind:

- Oil price volatility;
- Missteps in guidance;
- Energy or tax policy risk;
- Shifts in export demand; and
- Hawkish monetary policy.

“Importantly, valuations remain reasonable and unsupportive of a more bearish view on the sector,” Morgan Stanley said. “However, opportunities appear more selective at this juncture.”

The analysts said they like diversified gas/NGL-focused, vertically integrated stocks such as Enterprise Products Partners LP and Targa Resources. Other opportunities include growth stories with underlying contractual and regulatory resilience like Canadian pipeline giants Enbridge Inc. and TC Energy Corp.

—Joseph Markman

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MIDLAND BASIN'S MAJOR MOJO

Consolidation, lower costs and better wells, plus,
Midland Basin PUDs have regained value.





"We're starting to see value in undeveloped locations," said Doug Rook, vice president, business development, Tall City Exploration III.



"We have two blocks in Midland and two in Upton and we'll rotate between those with the one rig," said Earthstone Energy CEO Robert Anderson.

“Hands up! We’ve got you surrounded,” the marshal shouted out in the Old West.

Today, acquisitive CEOs are shouting that in the Midland Basin. The flat, dry landscape hasn’t changed in decades, but what goes on underneath, and who controls that, surely has.

To assess the quality of the Midland Basin, one has only to look at the many recent transactions there, and to what extent public companies tout enormous returns. As operators push lateral lengths out further, yet wells get spaced further apart, companies do not have as much inventory in the Midland Basin as they once assumed, so they need to acquire more acreage.

If you look at area lease maps, Diamondback Energy Inc.’s acreage more or less surrounded all that of the companies it has acquired, QEP Resources Inc. and Guidon Operating LLC, in Martin County, Texas, and the so-called county line area bordering Andrews County, Texas. Done deal in March.

These transactions increased Diamondback Energy’s Midland Basin position by 42% to 276,000 net acres that will compete well for capital spending—about 75% of the 200 to 215 wells it will drill this year are in the Midland Basin.

Laredo Petroleum Inc. doubled down on the Midland Basin too. It doubled its Howard County, Texas, operated locations and increased its production mix to about 50% oil by acquiring the acreage it surrounded, that of Sabalo Energy LLC. Done deal in April. The company has two rigs working there now and plans to complete the 12-well Davis package soon, with wider spacing in the Wolfcamp. The deal increased its Howard and Glasscock County locations by more than 80%.

How hot are the hot spots? Global oil trader Vitol paid an estimated \$1 billion-plus to snap up Hunt Oil Co.’s assets in five Midland Basin counties, with production of 46,000 bbl/d. The deal came with 795 drilling locations and will form a new company, Vencer Energy LLC.

“Folks now believe the efficiencies and returns of the Midland have materially surpassed the Delaware,” said Neal Dingmann, E&P analyst and managing director at Truist Financial. “To have somebody like a Vitol make their first move to buy oil assets in the U.S. do so in the Midland Basin is significant.

“A good return in the Midland is better than or equivalent to a great return in lots of other plays,” he told *Oil and Gas Investor*.

And where else but in this basin could a bolt-on meant to take command of some adjacent acreage command more than \$6 billion? We’re talking about you, Scott Sheffield. The CEO of Pioneer Natural Resources Co. orchestrated the buy of DoublePoint Energy LLC in order to get more running room, now nearly 1 million acres, pro forma, in the Midland Basin, as the company’s horizontal wells grow ever longer. Pioneer Resources said it is drilling out to 12,000 ft in some places.

Analysts thought Pioneer paid dearly. One estimated it paid \$25,000 per flowing barrel of oil equivalent (boe), or \$39,000 per acre,

while another estimated about double those numbers. But since the acquired acreage basically was located within and adjacent to Pioneer’s already significant footprint, and added about 1,200 undeveloped locations, the deal made sense logistically if not on other metrics.

Back of the envelope math from Tudor, Pickering, Holt & Co. put \$10,000 per acre on the undeveloped Howard County acreage Laredo Petroleum acquired from Sabalo, “although for a more accurate assessment we would need to pull PDP declines and roll through operating costs.

“The deal is another example, following [Pioneer-DoublePoint], that transactions are back to ascribing value to undeveloped acreage in the Permian.”

Other players active in the A&D scene agree. “We’re starting to see the days of old come back—we’re not all the way there yet—but we’re starting to see value in undeveloped locations,” said Doug Rook, vice president of business development for Tall City Exploration III.

Born and raised in Midland, he has the long view, having done business development for several other E&Ps in the basin. Ironically, while he was employed by Blue Whale, he helped orchestrate the latter’s purchase of Howard County assets owned by Tall City I some years ago. He joined Tall City III in 2019. (This latest iteration of Tall City is focused solely on Reeves County in the Delaware Basin, but the company is always opportunistic and will be looking elsewhere in Texas, he said.)

Rigs, returns, permits

It’s hard to talk about the Midland Basin without mentioning recent deal activity, as buyers clearly see value. Rystad Energy said the average price for land is \$17,000 per acre. Data from Mercer Capital indicated buyers have been paying an average of \$16,000 per flowing boe/d.

For a recent Haynes and Boone survey, 276 respondents said that 42% of all U.S. capex this year will be in the Permian Basin. Of that, the Midland Basin takes maybe half of the activity, with the hot spots throughout Howard, Martin, Midland and Upton counties. Data from Rextag Datalink (a Hart Energy company) shows that in March alone, operators filed for 76 drilling permits in Midland County and 71 in Howard County.

Last summer when oil fell to around \$40, the area rig count fell dramatically, but today it has come back. When this year began, there were 18 rigs in each of Midland and Martin counties, 16 in Howard and 12 in Upton. Rig counts go up and down week to week, but in late April in Midland County, the count had increased to 30. It held steady at 20 in Martin and varied between 12 and 14 in Upton. Howard County, which always ranks in the top 10 most active in the U.S., was at 17.

Midland Basin production was about 1.9 MMbbl/d but is predicted to grow this year.



Bernstein Research divided the after-tax internal rate of return by three to estimate corporate-level return on capital employed. Strip at the time was \$43/bbl.

Tracking Midland Basin Returns (Asset-level after-tax return at \$60 WTI)

Pioneer Natural Resources Co.	59%
Chevron Corp.	48%
Parsley Energy Inc.*	38%
Apache Corp.	35%
Diamondback Energy Inc.	27%
Concho Resources Inc.*	21%
Exxon Mobil Corp.	19%
SM Energy Co.	19%
Earthstone Energy Inc.	18%
Laredo Petroleum Inc.	16%
Ovintiv Inc.	15%
Callon Petroleum Co.	14%

*Subsequently acquired.

Source: Bernstein Research as of October 2020, using data from DrillingInfo, Rystad Energy and E&P company reports.

Some have debated whether the Delaware Basin yields stronger wells and higher returns, but Midland-focused operators argue that the Midland Basin more than holds its own, as it has for decades. “I think a lot of people went out to the Delaware Basin when it was so hot and thought it was so great, but it was pricey, so now they are coming back to the Midland Basin because they see value here. The wells are very economic,” said one operator.

Some of the IPs and EURs in the Delaware Basin make big headlines, but in the Midland Basin, plenty of operators can make hay as they drill longer laterals and figure out proper well spacing. The wells may not be as big, but they are cheaper to drill in most cases.

On its first-quarter conference call, Earthstone Energy Inc.—another big acquirer in the basin recently with two deals—said that if WTI is \$50 and natural gas is \$2.50, an internal rate of return on a 10,000-ft lateral could be as high as 93%.

The company resumed drilling in March with one rig, which it will use for the rest of the year.

“We’ll end up with seven wells in Midland County and then move the rig to Upton. We have two blocks in Midland and two in Upton, and we’ll rotate between those with the one rig,” said CEO Robert Anderson. If a second rig is added because of the two deals, those additional wells will be held for completion until near year-end, to build up the DUC inventory and create a strong start to production for 2022, he said.

One of his goals is to drive LOE below \$5/boe, and Earthstone’s recent acquisitions should help achieve that, he added. For another thing, the company is migrating to gas lift instead of electric submersible pumps, thus saving money on LOE.

Capital efficiency counts

“It’s not your number of barrels, it’s your capital efficiency that counts,” said Ryan Keys,

president and co-founder of Triple Crown Resources LLC, which has been active in Irion County in the southern Midland Basin since 2018. Although his company is private, he benchmarks against all the data he can scrape from the 10-Ks of the Permian-oriented publics, to create what he calls “PermianCo.” When comparing the Delaware to the Midland, the latter measures up.

He finds that at \$60, the economics and greater efficiencies make all the difference as well.

He focuses on many metrics such as the cash margin per barrel produced, unit costs, debt and whether the PDP value of the company exceeds debt. These details result in what percentage of EBITDA a company must spend to keep production flat, which he thinks is the most important capital efficiency metric, given investors’ demands in the current environment.

He also tracks ESG data and believes M&A will increasingly focus on this metric, with the strong possibility of a price on carbon.

“You have to adapt your operations to where your leasehold is. We don’t have the margin for error because our wells are smaller, but that’s OK. So, we are very disciplined on our well design and our spacing,” Keys said. “The Midland Basin is going to give you as good a free cash flow yield as the Delaware, at the corporate level. We can see that in the public companies’ profiles.”

Triple Crown has about 27,000 net acres in Irion County and will pursue a maintenance capital program that requires only intermittent drilling—12 or 14 wells this year, mostly for Wolfcamp B. Keys joked that this is the equivalent of half of a rig all year long.

Deep dive

Simmons Energy analyst Mark Lear did a deep dive into the Midland Basin last November, using data from Enverus as his starting point. He called Midland Basin-focused Endeavor Energy Resources “the Pioneer of the private companies” with over 350,000 net acres, mostly in Midland and Martin counties.

The most active operators he found last fall were Endeavor with 10 rigs, Surge Energy US Holdings (which recently acquired Grenadier Energy Partners II and its 18,000 acres in Howard County), and Sable Permian Resources, which emerged from bankruptcy in February. He concluded DoublePoint, CrownQuest Operating and Endeavor had the highest asset quality and larger footprints.

Lear noted that at the peak of drilling activity back in 2018, some 250 wells were being completed each month, but that total is now closer to 100 per month. As operators manage their wells more efficiently, the 2020 wells appear to show 10% less production initially, but they display a shallower decline curve than earlier-vintage wells. On average, 2020 wells declined about 50% eight months after peaking, he wrote.

Still, Midland Basin margins are getting better lately. So much oil can be recovered with the latest methods (think simul-fracs); prices for diesel, steel and oilfield services are still



COO Ted Williams said Encore Permian Holdings will pick up one rig on its 4,000 acres in Upton County later this year.



TOM FOX

a bit lower than two years ago; and WTI has climbed above \$70/bbl. Casing prices have been creeping back up, however.

The breakeven, depending on where you go, can be less than \$40/bbl. Public operators have been reporting lower DC&E (drilling, completion and equipment) costs, bringing them down to the range of \$450 to \$650 per lateral ft. Ovintiv reported \$480 per lateral ft in the first quarter. It is using wet sand from a Howard County mine to lower sand and trucking costs, and said it completed its first 16,000-ft lateral. It's operating three rigs.

Going up in Upton

Midland company Henry Resources has built and sold throughout the Permian Basin over its 50-year history, to companies that have mostly ended up in the hands of Pioneer, the former Concho Resources and other large E&Ps. Tweaking the portfolio continues: A few months ago, Henry sold the last of its assets in the Central Basin Platform in order to focus on the eastern and southeastern quadrant of Upton County, which is the southern and gassier part of the greater Midland, where it is running two rigs. (After a rig finishes a four-well pad for the company in

Reeves County, it will return to Upton for the rest of the year.) By the end of the year Henry will bring on another 10 wells. Gross operated production is 16,000 bbl/d.

"In the area where we've built our acreage position in Upton County, starting four years ago if you drew a circle with a 10-mile radius, there were only one or two rigs. Now there are 10 or 15," said David Bledsoe, president of Henry Resources.

The play of interest is mainly two landing points in the Wolfcamp B, and the A is also good in some areas, with the Spraberry a somewhat lesser target, he said. "I think the industry is learning that drainage between wells is more problematic vertically than horizontally, when you have five or six wells in the same bench. People are seeing that well interference above and below is more of a problem than they thought, based on pressure work, tracer work and other measurements."

Henry has a new deal with Dan Pickering's Pickering Energy Partners to work together on future acquisitions, and it just closed a while ago on another piece in southern Upton County, where one of its rigs is now drilling.

Most Midland Basin acreage is tied up by production, so a lot of collaboration goes on



SM Energy Co. plans 55 wells in the Midland Basin this year, said CEO Herb Vogel. It drilled a 20,000-ft lateral in Howard County.

between companies to facilitate longer laterals, some now going to 15,000 ft. Technical and well-design learnings are also shared. Well spacing is changing rapidly as most people concede fewer wells spaced further apart is the right way to maximize production without compromising child wells.

Go big or go little?

More consolidation is on the way, with a field ripe for picking. A Barclays report noted, “As of April 14th, there were 49 private E&P companies running rigs in the Permian (down from 57 as of April 3rd).

“Of these 49 privates, 74% of them were running only one rig and only 10% (five E&Ps) were running five or more rigs. However, this doesn’t mean that there isn’t an opportunity for acquisitions that would increase overall capital discipline among upstream players,” Barclays said. (Note: These data also include the Delaware Basin, where at press time another merger occurred that joins Colgate Energy Partners III and Luxe Energy LLC, with assets in Ward and Reeves counties.)

If the largest public and private companies seem to control more and more of the basin, where does that leave smaller companies? Not a problem, people told us. “The heart [of the Midland Basin] is mostly controlled by the big guys, but we feel we have great well economics. We can still make a lot of good wells on what I’d call Tier 2 acreage, compared to their core of the core,” said Henry’s Bledsoe.

“The best opportunities for guys like us is to get the big guys like a Chevron or Pioneer to do a deal and then we can bring some of their [unwanted] drilling inventory forward,” Bledsoe told Oil and Gas Investor. Trading acres and drill-to-earn deals are preferred, but of course there’s a fair amount of buying and selling, he said.

Ted Williams, COO of Encore Permian Holdings, agreed that while the “big guys” make their billion-dollar moves, many opportunities will fall out for all the other players. “There’s plenty of running room in our mind,” he said.

“Some of these wells that hold leases are 20, 30 years old and are making maybe 5 barrels a day, kind of limping along, so some operators would like to let those go, and the lease owners would like to see some new drilling to bring some value forward.”

Encore Permian plans to pick up one rig in Upton County later this year, where it has several DSUs (drilling units) on 4,000 acres, but it just laid down its one rig in the Delaware after concluding a successful campaign there. “We feel really good about the rock we’ve seen in Upton, and we’re savvy on data about it,” Williams said. Going forward the company will be about 75% Delaware Basin and 25% Midland Basin, he said, but eventually is getting to 50:50.

Tall City’s Rook agreed that more M&A&D will occur in the basin. The company pivot-

Midland Leader Board

By Acreage

Pioneer Natural Resources Co.	914,000
Chevron Corp.	450,145
Apache Corp.	368,561
Endeavor Energy Resources	341,615
Exxon Mobil Corp.	338,301

By Rig Count

Pioneer Natural Resources Co.	22
Endeavor Energy Resources	10
DoublePoint Energy*	8
Diamondback Energy Inc.	7
ConocoPhillips Co.	6
CrownQuest Operating	5

Note: DoublePoint has since been acquired by Pioneer Natural Resources Co., and its rig count will decline to five.
Source: Enverus

ed to Reeves County when opportunities appeared better there than in the Midland Basin at the time; however, he has great perspective on the Midland.

“It can be frustrating and get you down in the mouth [when the big E&Ps seem to buy up everything], but a company like Pioneer is going to have small assets they don’t want, and they will start doing some small-ball sales. So, this industry is cyclical, and that’s how independents have survived for 40, 50 years.

“There will be opportunities in various forms as these companies get so much bigger. Companies are comfortable laying out their maps and saying, ‘OK, you do this and I’ll do that and we’ll make a trade.’”

Technical records

Technical improvements continue to emerge in the basin as operators chase efficiency. Occidental Petroleum Corp. said that in the first quarter, its Permian resource business unit took just 17 hours to clean out a 10,000-ft lateral in Howard County, reportedly a single-well drill time record for the Midland Basin. Pioneer said it is testing its first simul-frac on a four-well pad.

SM Energy Co. just drilled a 20,000-ft lateral in Howard County—some 3,000 ft longer than the previous record in the Midland Basin, according to the drilling contractor that did it, Pioneer Drilling Co.

“We actually have drilled 25 of the 50 longest wells in the Permian Basin,” SM Energy’s CEO, Herb Vogel, told *Oil and Gas Investor*. “We have customized our well spacing to achieve returns on the last well drilled on a pad. We look at the return on each well on the pad.”

Along with its public peers, SM Energy has been bringing costs down and efficiencies up. Its aptly named RockStar package is the moniker for all the assets acquired from Rock Oil and QStar, and now encompasses 64,100 net acres, predominantly in Howard and some in Martin counties. Its Midland Basin assets also



Triple Crown Resources president Ryan Keys said 12 to 14 wells will be drilled on its Irian County position this year.

include its original holdings at Sweetie Peck (mostly in Upton County), where it has 18,000 net acres.

“SM typically co-develops zones and drills three to six wells per pad, although it has done larger developments with adjacent pads. Our long laterals, which are expected to average 11,300 ft this year in Midland, are one of the core components of our high-capital efficiency low well costs,” vice president of investor relations Jennifer Martin Samuels told *Oil and Gas Investor*.

“Several banks/analysts rank SM Energy as having the lowest (or top 3) breakeven costs in the basin. The competitively low breakevens benefit from our capital efficiency and high-oil content wells. (In June, Wells Fargo published a chart indicating SM Energy has the second-best breakeven costs across the peer group, and this is company-wide, not just Midland.)”

The company drills 12 or 13 wells at a time, then later fracs three at a time in so-called zipper fracs. It plans 55 wells in the Midland Basin this year and is running three rigs. SM Energy is focused on four things, said Vogel: free cash flow, reducing debt, remaining in the top quartile for ESG performance and returns to shareholders. But the Midland, espe-

cially in Howard County, is a key to achieving those goals, he said.

Further dealmaking should be in the cards for many people eyeing the Midland Basin. One trend seen by the folks at Eagle River Energy Advisors is that as larger oil companies trim their budgets to meet investor expectations, more of their nonop assets will be sold off, creating opportunities for buyers. “They have no desire to pay those AFEs [authorization for expenditures], and they look to us to help monetize these assets,” said managing director Mike Stolze.

“With higher oil prices and lower costs, it’s a perfect storm—they’ve got these 2-mile Wolfcamp wells down to \$7 million or \$8 million—so the Midland Basin is compelling. Implied acreage values are back to 2018,” said his colleague, managing director Austin McKee. “Historically there was a discount to nonop interests but for wells that will be drilled imminently, we’ve seen that difference wiped away.

“There’s a nice appetite for drill bit-oriented things now. People are getting back to work.”

Going back to work in the Midland Basin means a lot to the economy of Texas and to the future of U.S. oil production. □



The industry is learning that drainage between wells is more problematic vertically than horizontally, said Henry Resources president David Bledsoe.



TOM FOX

DOUBLING DOWN ON THE BAKKEN

The original Canadian royalty trust and one of the first E&Ps to explore the Bakken Shale, Enerplus Corp. remained under the radar for many years—until now. The conservative Calgary producer re-emerges with two fast deals and a basket of new top tier inventory.

INTERVIEW BY
STEVE TOON

*L*ying unobtrusively in the shadows of the Bakken Shale for the past half-decade, Calgary-based Enerplus Corp. struck earlier this year with two transformative back-to-back acquisitions for almost \$800 million to bolster its portfolio. The combined deals quadruple its acreage footprint in the play and nearly doubles its cash flow—without adding any G&A costs.

“I would have loved to have bought something multiple times over the past five years,” said Enerplus president and CEO Ian Dundas, “but there are times when you can buy sensibly and times when you can’t.”

The first deal added 151,000 net acres—with some 30,000 identified as core—from Bruin E&P Partners LLC for \$465 million. Enerplus, which had sold Bruin its first package as a startup, was in conversations with Bruin regarding selling before the pandemic, but “they carried a little too much debt for our liking, and we couldn’t see eye to eye on value,” Dundas said. That debt sunk Bruin when prices tanked in 2020, and Enerplus was able to acquire the assets from Bruin’s new bank owners post-bankruptcy.

The second deal tacked on an additional 79,000 net operated and nonoperated acres characterized as Tier 1 carved out of Hess Corp.’s portfolio for \$312 million. Together, the deals immediately double identified drilling inventory in the Bakken, even before upside is considered.

Enerplus’ history is long and storied, first forming in 1986 as Canada’s first royalty trust before converting to a standard corporation in 2011 prompted by Canada’s change in tax laws. It is also one of the Bakken Shale origi-



ENERPLUS CORP.

Closing two Bakken Shale deals in the spring following years of acquisitive restraint, Enerplus Corp. president and CEO Ian Dundas said, “Our balance sheet was made to be used at certain times, and this is one of those times.”

nators, buying into the Williston Basin before the technology for extracting oil from tight rock was fully understood.

Almost but not quite a pure play, Enerplus also holds a nonoperated and free cash flowing joint venture with Chief Oil & Gas in the Marcellus Shale, a small but emerging opportunity in the Denver-Julesburg Basin in Colorado and Canadian waterfloods.

Dundas joined Enerplus in 2002 in the business development role, ultimately ascending to the CEO seat in 2013. He spoke with Oil and Gas Investor in May shortly after closing the Hess acquisition.

Investor What inspired you to go on a Bakken buying spree to start the year?

Dundas It was the market. We had positioned ourselves as being a company that could do more in the Bakken. Over time we built the core of the company around our Bakken footprint,

and it was a pretty good footprint, but we knew we could do more. We felt there was an opportunity to build scale, but until recently the value wasn't there.

We've been in many conversations with investors for quite a few years around, "When are you going to build out in the Bakken?" And we just couldn't see a line of sight to making a dollar there through acquisitions, so we made a decision that we'd keep our powder dry. We would build one of the biggest strategic assets we had, which was maintain the balance sheet. We didn't think we'd have a pandemic, but we thought we would have a moment.

When the pandemic hit, Bruin couldn't get through. They became insolvent and had to restructure. With the balance sheet where it was and our familiarity with the asset, we were able to move a little more quickly than others might have been able to and offer some deal certainty to the seller. We didn't buy quite when oil was on the bottom, so there was a little bit of recovery which got them to a level where their new shareholders were at a place that made sense for them. And it made sense for us.

The Hess deal was a bit of a different asset than Bruin in that there was a bit more upside that we had to pay for. But, you know, it worked for us, it worked for Hess. We bought at a level where we were really comfortable that we could generate attractive full-cycle returns. And we haven't seen that opportunity in the Bakken for a long time, certainly not for core assets.

It's been easier to buy fringier assets, but those assets required \$60 oil prices or higher to even come close to printing full-cycle returns. And that's not what these deals look like.

Enerplus Snapshot

Ticker	Toronto: ERF; NYSE: ERF
Headquarters	Calgary
Market cap	\$1.8 billion
Focus	Bakken Shale
Bakken net acres	296,000
Bakken locations	675
Other areas	Marcellus Shale, D-J Basin, Canada waterfloods
Total net acres	366,600
Total production (Boe/d)	113,000 (2021e)

Source: Company filings

Investor The Bruin acquisition included a large portion of acreage north and south of the Bakken core play. What opportunity do you see in these positions, and what are your plans for these areas going forward?

Dundas If you go up to the Williams County acreage, it clearly screens as noncore if you just look at the average across the entire swath, but if you get more specific to the southeastern corner, there are some great wells there. So we highlighted those wells for about a third of the Williams acreage as being core, and they will fit nicely into our plans.

On the remaining two-thirds of the Williams acreage, the northwest portion, there's oil there and you can make a well, but we don't see it competing economically at the same level as the core. We've got some ideas as to how we might advance on that, such as a different approach to completions, which could unlock additional upside.



ENERPLUS CORP.

Enerplus Corp.'s core holdings are on the Fort Berthold Indian Reservation in Dunn County, N.D.

“There’s a lot of optionality that sits in the portfolio from an inventory perspective that we didn’t have before. It’s significant.”

Then for the land far to the south [in southern Dunn County], we haven’t said much about it. If you look at well results all around that area, you’d conclude it’s another step down in terms of being removed from the core. So we wouldn’t have any near-term plans to spend capital there.

Investor Is that a divestiture target?

Dundas Maybe. We’ve talked about anything outside of the core of the Bakken as being something we’d entertain selling. For us, it’s about the best way to unlock value in those assets. But this market feels like one where it’s better to be buying than selling. We will have to see where the market goes.

Investor The Hess package added both operated and nonoperated inventory in Dunn County. What in particular attracted you to these assets?

Dundas We think this is a special opportunity actually. It’s a unique package. It’s high-quality acreage. The Bakken has been worked for some time now, and core inventory is harder to pry out of owners’ hands, although with today’s costs and \$55, \$60 oil, more parts of the play look attractive.

This (acreage) just didn’t have the focus of Hess’ near-term capital plans. In fact, they hadn’t drilled a well there since 2015. Even in the absence of any additional activity, we had confidence that with modern completions you can drill some pretty exciting wells there. We actually had the luxury of watching their non-

op partners—call it 80% operated, 20% net nonop—continue to move forward on the acreage to help validate our view.

We haven’t seen an opportunity like that come along in a while, and Hess was able to get value for some of the upside. Our balance sheet was made to be used at certain times, and this is one of those times.

Investor What do you see as the upside?

Dundas We’re going to find things to do there, for sure. In Fort Berthold, we’ve got spectacular Three Forks development, and it’s homogeneous, classic resource stuff. If you move outside of Fort Berthold into Dunn County, you’ve got some great Three Forks wells as well, but it’s not as broad brushed; it’s a bit more compartmentalized. So we see Three Forks opportunities there as well but effectively almost none of those are in our base numbers.

There’s a lot of optionality that sits in the portfolio from an inventory perspective that we didn’t have before. It’s significant.

Investor How will these two deals shape Enerplus going forward?

Dundas It’s meaningful. We’ve added close to a billion dollars to our scale, which is nice to have but, far more importantly, we effectively doubled the inventory at an attractive cost and believe we will see operational synergies. Financially, the deals are highly accretive which doubled our near-term free cash flow profile.

Following the deals, we rolled out our updated five-year plan. We said in a \$50 to \$55 world we see generating C\$1.2 billion to C\$1.8 billion in cumulative free cash flow through 2025—almost the entire market cap of the company, and higher if today’s prices hold. That plan also allows us to grow our oil 3% to 5%. We now have meaningful inventory to be able to do that; it’s a 10-year-plus inventory.

It’s a really significant change. And that’s just anchored on core inventory.

On its Fort Berthold acreage, Enerplus’ development plan features 10 wells per spacing unit in the Middle Bakken and First Three Forks, with upside in the Second Three Forks. Outside of Fort Berthold, it envisions six-well units in the Middle Bakken, with First Three Forks as upside.



Investor Is this enough to say grace over, or would you consider further acquisitions in the Bakken?

Dundas I think we've demonstrated that we are open to consolidation. We're still a bit of a small company. The balance sheet is still really good, and we've put ourselves in a position that we clearly could do more.

The question is going to be is there value still? We've now seen four Bakken deals. We'll have to see where the market goes, but if the market maintains some discipline and there are opportunities to make money on an accretive basis, I think we're in a great position to continue to build out. And if we don't, we've got this five-year outlook that's compelling. So we won't chase it.

Investor What role do your Marcellus-nonoperated holdings play in your plans?

Dundas It's evolved. We're 10 years into that project. We started as a way to learn about operating in Pennsylvania with a view to parlay the experience into an operated position. Although we changed our plans to build out a meaningful operated project, the play has worked out much better than we ever dreamed.

Well performance is really off the charts. We participate in these wells and they come on at rates where at one time we would have thought you've added an extra zero, like 50 million [cubic feet] a day IP with reasonable declines. Instead of talking about 3 to 5 Bcf wells we talk about 2, 3 or 4 Bcf per thousand ft of lateral—and these are often over 9,000-ft lateral sections. They're enormous numbers.

But the strategic role of the asset is different than it once was. We largely view it as an ATM. It's a free cash flowing business with a very stable profile so we view it more as capital than anything else. It's nice to have a bit of exposure to gas, and we have really a strong relationship with our largest operator, Chief Oil & Gas.

Over the years we have said that we would consider selling but recently it has felt like it hasn't been a seller's market. You've got buyers out there buying at PDP valuations and wanting double-digit rates of return, so it doesn't sound like great business to me to be selling into that if you don't have to. We'll consider selling if we could get paid a fair price, but I'm not sure it's where the market is today.

Investor What about acquiring an operated position?

Dundas Pennsylvania's pretty interesting on a lot of levels. I mean, they're some of the best wells the world's ever seen, and you don't need to build an offshore platform for them. The play really changed the Lower 48 gas market. But you've got a group of incumbents there; you've got 30 rigs and 30 operators and three or four that really matter. And those that really matter have incredible footprints and infrastructure, so it's hard to compete with them.

It's not like Enerplus can go in and can create this incredible position. We'd have to spend billions and billions of dollars to be able to compete out there. When I think about our company, we are a Bakken company. The Marcellus is high quality, but strategically noncore.

"I think we've demonstrated that we are open to consolidation. ... We've put ourselves in a position that we clearly could do more."

Investor Do you feel like you have enough running room in the Bakken to be a Bakken-only company, or might you seek to expand your portfolio beyond that?

Dundas Today we have a comprehensive multi-year plan that we think can make people a lot of money. I don't think people are going to be talking about inventory being an issue for us. It's 10 years-plus, and I'll take the over on the plus. It's very, very different at these lower growth rates. It's an attractive place we are in right now.

We're starting from a real position of strength and quality. The ability to manage these businesses with a less frenetic pace at these single-digit growth levels, it just helps on so many levels. So we plan to remain nimble, and we expect there will be more deal activity in the Bakken, but if we don't do something for a while, that's fine.

Investor Any motivation to build scale to attract more investor interest?

Dundas There's no question that if Enerplus was three times Enerplus, we would open ourselves up to a broader suite of investors. But we've got a good suite of investors, and there's no reason to think that our company can't continue to rerate at our current size. We've transitioned our business from one that seven or eight years ago was largely retail to a pretty strong group of institutions on both sides of the border. So we're in a good place for our shareholder base.

If we were larger, we would broaden our investor base, but I don't think we need to do that to deliver outsized returns. In fact, if you deteriorate the quality of your business chasing scale I think you are likely to lose support. We have always felt that chasing scale for scale's sake is reckless, so we have focused on value and quality as we are building out the company.

One of the things that is interesting right now is capital is more discerning, more disciplined and more educated. Not every single deal is being treated the same. I think there's more sophistication coming into the market.

Investor How did Enerplus weather the events of 2020?

Dundas Like a lot of companies, we laid down all the equipment we could. We effectively stopped everything that we could do and fortunately were in a position to make that happen. We didn't see a reason to spend a penny at that moment.

I've been in this chair since 2013 and the principles that we felt were the most important from day one were balance sheet strength, focusing on full-cycle returns, managing risk, and we've always had a component of returning capital to shareholders. But we didn't think

we'd see negative oil. The volatility has been more than we thought, and it tested the bounds of our downside scenarios.

The reason that we came through this, as we did in 2008 and 2014, was because we maintained a strong balance sheet. We've maintained low debt levels, and we've had a consistent approach to hedging.

One of the big things for us is to take some price risk off the table, so we've got a good hedge book. Last year's cash flows were pretty crummy, but they were okay and most of them came from our hedge book. We've got a good hedge book this year, too, which supports our financial flexibility.

Investor Do you have a target debt ratio?

Dundas We do. We believe the cyclicality of our sector does not lend itself to high debt levels. As an industry, we used to talk about 2.0x debt-to-funds flow, but it feels like that is an upper limit now. For Enerplus, we have set a long-term target of less than 1.0x. We want to make sure we are in a strong position from not just a resiliency perspective, but also to be able to take advantage of opportunities when they exist.

Post the Hess deal, we did layer on a little bit of debt, but we see a rapid path to deleveraging, certainly if current prices hold. At \$55, we will free cash flow more than \$300 million this year.

Investor What is your strategy around free cash flow and reinvestment?

Dundas This is not a new thing for us. We have a long track record of generating free cash flow and returning capital to shareholders. We were the original Canadian royalty trust, which is effectively the original U.S. upstream MLP, founded back in '86. We've always thought a balanced approach to growth and returning capital to shareholders made sense.

Our capital allocation framework starts with principles of the balance sheet and is designed to withstand the volatility we expect. In a \$50 to \$55 world, we expect to invest less than 75% of our cash flow which allows us to delever and grow our business. As we advance on our balance sheet objectives we will look for opportunities to continue to return capital to shareholders.

We're also focused on a sustainable and resilient dividend. Over the past 20 years we've always had our base dividend. I think we gave people a sense of the resiliency of our business today with the 10% dividend increase we announced in May.

Investor What is your overall plan for 2021?

Dundas We've got a pretty heavy inventory of DUCs in North Dakota, so most of our capital is going to be spent on DUCs. We're on our fourth pad now, and we've just reinitiated drilling activity in April.

We'll run a rig through the end of the year to get us set up for increasing activity as we move into next year. Sometime next year we'd probably pick up a second rig as we continue to execute our development plan.

Investor Will any of the acquired acreage get capex or rigs?

Dundas Bruin also had a pretty good backlog of DUCs, so completion activity this year will be on legacy Enerplus and Bruin lands.

We will start drilling on the acquired Hess acreage next year. Most of the capital over the next couple years is still pure development capital, but we plan to allocate some capital to test upside opportunities. We will for sure get to the southeast Williams stuff next year. Maybe this year.

Investor Are you a capping growth at 3% to 5% indefinitely?

The energy transition is about improving emissions performance, said Enerplus CEO Ian Dundas. "In my opinion, the reality will not be a complete shift away from fossil fuels because I do not think that people and governments will truly be willing to bear the cost."



ENERPLUS CORP.

Dundas We've said that 3% to 5% is an outcome of this pricing environment, but I think you have to be careful with being too rigid in your formulas. It's not quite a magic number, but it's an important number, low growth versus higher growth.

A growing business is directionally better than one that isn't, but you need to keep an eye on the sustainability of the business. We're focused on delivering sustainable free cash flow growth and as part of that you need to manage your production decline rate accordingly. Too much growth puts you on a faster treadmill and can reduce maneuverability during price shocks.

But we do think growth levels for many will be capped at lower levels than we have seen over the last decade as more and more producers focus on free cash flow generation rather than top line growth.

Investor Do you feel like the economic inventory in the Williston is thinning—or expanding?

Dundas We're pretty advanced on the delineation of the core of the core, but to your point, the economic core has extended through technology as well as through higher oil prices. There's a whole bunch of Bakken you can drill at \$65. It's pretty meaningful.

Yet, our base view is that the Bakken will be managed as more of a free cash flow asset and won't see a lot more growth. To be clear I think the Bakken will attract a lot of capital—it's really a strong play in a decent pricing environment. I just think it will be at a more measured pace than it was a few years back.

Investor Are you concerned that environmentalist legal efforts might shut down the Dakota Access Pipeline? How will that affect Enerplus, and what will you do if that occurs?

Dundas Coming from Canada, we maybe have a longer history with some of this. Although in the minority, the opposition to development is vocal and they're opposing development for a lot of reasons, many of which don't have anything to do with Native American sovereignty. So although it's hard to handicap what happens, we do believe the recent rulings are directionally quite positive to keep the pipeline open. We believe it would be a strange precedent to shut down a fully operational, safe and modern pipeline which had been granted all of its operating permits.

In the event we are wrong, North Dakota has built up an incredible rail infrastructure, and our view is that there will be rail capacity if DAPL were to get shut in. We think we'd need 400,000 additional barrels per day to move on rail, and we think the first 300,000 can move in the first month and all the rest gets sorted out the month after. If it happens, we will see a wider differential, but we're not in a situation like Canada was faced with where you actually were required to shut in production for extensive periods of time.

Investor Would it alter your longer-term development plans if it were to occur?

Dundas No, I don't think so. That might be a different answer if we were in a \$40 to \$50 environment. Today we are forecasting about a

"A growing business is directionally better than one that isn't, but you need to keep an eye on the sustainability of the business. ... Too much growth puts you on a faster treadmill and can reduce maneuverability during price shocks."

\$3 differential off of WTI if it remains operational and a \$7 differential if the basin needs to clear by rail. That's \$4, and that's a lot of money, but it still wouldn't change the economic profile of our project. We'd have less money, the state would have less money and I think it might affect the plans of some others, but I don't think we'd stop our plans.

Investor What is your view of how the industry should approach the call for an energy transition away from fossil fuels?

Dundas Everything we can measure, everything that we can touch, says that demand for our products is resilient and will be needed for decades. So for us energy transition is about improving emissions performance. There's no question there is a focus on this but, in my opinion, the reality will not be a complete shift away from fossil fuels because I do not think that people and governments will truly be willing to bear the cost.

And even if support could be found financially, I also think the reality of the scale of the change is completely misunderstood. Everything we can see says there's an incredible need for these products, and nothing's going to get in the way of that anytime soon. But you can't ignore the push because I think the push for better products with an improved emission profile will continue to build. And so as an oil and gas industry, we should be aggressively pushing toward continuous improvement.

I think this concept of license-to-operate could actually become easier as companies continue to demonstrate better performance. Five years ago when you flew over North Dakota at night it was embarrassing. Too many flares. People were moving too quickly and we were being wasteful. But it's much, much better today, and I think five years from now it'll be much, much better still. Companies are going to be held accountable for their environmental performance and if they're successful at improving they're going to make more money doing so.

I look at North American oil and gas companies and the role they can play in this move to a less carbon intensive economy, and I think we should position ourselves to be the preferred supplier of the last molecule of oil and gas ever produced. And that's going to go on for a long, long time. And there's absolutely nothing wrong with that whatsoever. We should embrace that. Our mission should be to be the preferred global supplier of responsibly produced oil and gas. □

THE FRACKER'S GUIDE TO THE GREEN GALAXY

The energy future needs landmen, geologists, engineers, places to store CO₂, money and business leaders who understand how to monetize the value chain. It needs oil and gas people. Here's the playbook and a description of the prize.

ARTICLE BY
NISSA DARBONNE

ILLUSTRATION BY
ROBERT D. AVILA

The pause was palpable—so much that it was becoming fungible. In nanoseconds as measured in Zoom Time (ZT), maybe the presenter had frozen? That would be an NFT moment worth at least a few Ether at Rarible.

More than 4 billion nanoseconds later, the presenter spoke. The ETH worth now: 0.00000001—one satoshi, the same as the mining fee.

The mic-drop question posed by the Dallas Geological Society (virtual) luncheon attendee was, “What’s a recent petroleum grad to do?”

Dr. Raymond Franssen had just presented on “The Energy Transition is Here: What to Do?” He replied. “Yeah, good one. Yeah, that’s a really tough one.”

Franssen, a geoscience consultant and former explorer for Shell Oil Co., said, “We’re not always adding the most value by the deep technical knowledge [we have]. Oftentimes, we add the most value by critical thinking. We’re asking the right questions.”

Take cartography, for example. “Mapping is important. But being able to know when to map is more important than knowing how to map. So, I would focus on transferable skills—management experience in decision-making and policy-making and how to run a business.”

Also, “read as much as you can about the energy transition and the oil and gas industry itself. Someday you will be able to use it and it will be to your benefit,” he concluded.

The editorial team’s been consulting the stars and making notes on navigating the “New Energy World.” Whether mankind’s attempts at reversing Earth’s atmosphere works or not, it’s happening.

Pack well. Buckle up. Lift all tray tables. Seats upright. There’s money to be made.

Fresh paint

Nomenclature matters. Truffles are delicious, for example. Tell the unfamiliar they’re about \$400 a pound, and they’re sounding even more delicious.

But add that it’s a *fungus*. The gastronomically shy are doing the math on the E.R. copay.

In the naming of oil and natural gas, these were assigned to genus “hydro.” Water. That’s cool. And the species “carbon.” Not cool—well, as some folks say while they’re loving using it.

The wizards of Wall Street have come up with some new descriptors for oil and gas, though.

Responsibly sourced. In Colorado, Denver-Julesburg Basin producer Crestone Peak Resources LLC signed a deal to sell its “responsibly sourced” natural gas to Xcel Energy Inc. In this, an independent verifier, Project Canary, will be monitoring Denver-based Crestone’s wellsite methane emissions. The monitor recently received funding from power and gas utility venture capital investor Energy Impact Partners, which includes Xcel among its partners and investors.

Blue water. Recycled produced water.

Sustainable oil and gas. Oil and gas producers that also engage in carbon capture—thus, creating their own offsets—will lower the carbon footprint of the oil and gas they produce. Morgan Stanley analysts report that this may support “a premium for ‘sustainable’ oil and gas volumes.” This may result in “extending demand for these commodities, representing a more than \$3 trillion global market.”

Blue oil

Denbury Resources Inc. already injects CO₂ into its EOR fields. The CO₂ is sourced from known fields. It’s planning to sign contracts to take CO₂ sourced from carbon capture projects, which are planned now by others along Denbury’s pipeline paths. Morgan Stanley analysts describe the CO₂ sourced this way as “producing, potentially carbon-negative blue oil.”

Denbury reported to investors this spring that injecting as EOR or injecting into saltwater formations for burial is a perfect fit with its business. In 2018 and 2019, its use of industrial-sourced CO₂ “removed nearly twice the amount of CO₂ from the atmosphere than we emitted to produce our oil.”

By 2030, it plans to fully offset its carbon footprint. This spring, it added to its board Cindy Yeilding, a former BP Plc senior vice president who chaired the U.S. National Petroleum Council’s coordinating subcommittee on CCUS (carbon capture, utilization and storage).

Meanwhile, Oklahoma City-based Riley Exploration Permian Inc. reported in May that it plans an EOR pilot in Yoakum County, Texas, using anthropogenic CO₂ in the 960-acre Champions property in Platang Field. The five horizontals and up to 48 injection wells might take some 80 MMcf/d of CO₂, totaling 1.5 million metric tons a year.

Diamondback Energy Inc. has looked at CO₂ capture. “I think getting into [additional] businesses is a three-, five-, seven-year discussion,” said Kaes Van’t Hof, CFO, in an analyst call this spring. The E&P’s focus for now is getting its emissions down “and not just offset it,” he said.

Travis Stice, CEO, said, “We’re not trying to buy our way into carbon neutrality.”

Diamondback emitted 1.4 million tons of CO₂ in 2019 and that will be considerably less in 2021, Van’t Hof said.

Green currency

The decarbon SPAC. Forming a SPAC was trending—until it wasn’t. New filings numbered about a dozen a week entering 2021. The Securities and Exchange Commission’s announcement in early April that it planned increased scrutiny of SPACs, particularly how warrants are accounted for, tamped the volume of new S-1s and defused most of those not yet on the IPO calendar.



A lot of institutional capital has been interested in de-carbon investments, thus private equity capital’s fund raises in this space, said Christina Kitchens, founder of 3P Energy Capital. “That’s where the money can be raised.”

PETCHEM, PIPE, POWER, OFS

A team of 16 Morgan Stanley analysts has these additional outlooks for sub-segments of the oil and gas industry.

Chemicals. There isn't enough green yet to replace oil and gas in chemicals manufacturing and global demand for chemicals is growing. "Net, there is likely no easy near-term alternatives to using fossil fuels in chemical production." Instead, carbon capture is expected to offset the grey, making hydrocarbon-manufactured chemicals blue.

Midstream. Infrastructure will be needed for transporting captured carbon "and create new opportunities." Initially, the work will be in getting carbon from carbon-capture hubs for nearby injection, including in EOR fields.

Electricity. By 2035, carbon-emitting power generation might be just 20% of supply. It likely won't get any lower than that, though, since natural gas plants provide the reliability of power supply. Wind and solar battery storage would have to advance remarkably first.

Oilfield services. Having deep experience in coming up with "solutions to complex problems in the oil patch may also position these companies well to provide solutions to complex decarbonization problems." Carbon capture and sequestration, for example.



For oil and gas to find a way in the energy transition is hard, but necessary. "It's going to happen really fast and furious," said Dennis Petito, founder of Montrose Energy Capital Advisors LLC.

Most of the pre-April filings that hadn't sold before the news were still on the sales lot in late May. S-1s filed in March totaled 152, mostly SPACs; new filings in April totaled 49, mostly companies already owning assets.

All SPAC filings totaled 248 for \$83 billion in 2020, ICR advisory and consulting firm reported in April. In the first quarter of 2021 alone, SPAC filings totaled 298 for \$88 billion. Altogether, there were 430 SPACs as of March 31 with \$140 billion in escrow, according to ICR.

Among those more than 500 filings in five quarters, 25 were planned for the decarbon space by oil and gas investors and former management, totaling more than \$7 billion.

Sustainability-linked debt. Meanwhile, there's the "sustainability-linked" debt class. S&P Global Ratings expects loans and bonds issued in this category will exceed \$200 billion this year.

Types of eligible borrowers are "expanding quickly," the ratings firm reported. And they include issuers that "are just beginning their sustainability journeys or are in transition and hard-to-abate sectors."

Oilfield water recycler Solaris Water Midstream LLC's parent issued \$400 million of five-year, 7.625% sustainability-linked bonds (SLBs) in April—a first among produced-water handlers—using the funds to pay off its bank debt and redeem preferred shares.

Participants in Solaris' new credit facility include Cadence Bancorp, which launched a green desk in third-quarter 2020. S&P reported that contributing to the growth in sustainability-linked lending is that banks "need to fulfill corporate objectives relating to the share of impact financing within their lending books."

Financing more green makes for a greener loan portfolio.

In 2019, 100% of the SLBs were by EMEA (Europe, Middle East, Africa) issuers, ac-

ording to S&P. In 2020, North America took a 9% share.

Of the S&P-estimated \$200 SLBs this year, it expects North America to have a 15% share; Asia Pacific, 10%; the Caribbean and Latin America, 8%; and the EMEA, the balance.

ESG-washing, green-washing

All sectors are on a quixotic journey of conforming to at least a few of the more than a dozen ESG ratings analytics. "This is the Wild West. It's early days. There are 15-plus raters around ESG. ... Nobody's figured out exactly what the metrics are," Dan Pickering, founder of private equity firm Pickering Energy Partners, said in Hart Energy's Energy ESG Conference in March.

S&P reported that the "need for transparency and effective sustainability-related disclosure practices to avoid 'ESG-washing' is crucial" if the buy-in of sustainability-linked financing will grow.

As more and more of a company's capitalization and its contracts—both with suppliers as well as customers—are tied to each party's ESG rating, the discovery of ESG-washing may be a career-ender in any industry.

As for the species known as "green-washing," this applies to a company's misleading statements about just the "E" part of its ESG.

The U.S. solar industry has an "S-washing" issue, meanwhile, that it's working to clean up: Components built abroad by slave labor, particularly in China's Xinjiang region where more than 1 million people are detained, particularly religious prisoners.

At least 175 solar companies have signed a U.S. Solar Energy Industries Association pledge to attest to that their products are free of forced labor.

The color of hydrogen

Hydrogen's color wheel is based on the feedstock, according to the Energy Information Administration and European Union sources. And the color assigned to each type mostly makes sense, except for pink.

Brown hydrogen is derived from the gasification of coal. **Grey** is extracted from natural gas or oil. **Green** is from water, using wind and solar or other renewables in electrolysis. **Clear** uses the pyrolysis process.

Blue is brown or grey but becomes blue when the carbon byproduct is captured and sequestered. **Turquoise** is made from natural gas undergoing pyrolysis. **Yellow** is the same but using solar. **Pink** is from water electrolysis using nuclear energy.

Green hydrogen is expected to grow into a \$2.5 trillion market by 2050, according to the Hydrogen Council, which is co-chaired by Air Liquide's chairman and CEO and by Toyota's chairman Takeshi Uchlyamada.

In Oman, a project underway is expected to produce more than 1 million tons of green hydrogen a year, using seawater and 25 gigawatts of wind and solar. The product is expected to be used in manufacturing ammonia,

primarily for use in shipping, according to the consortium.

Other future hydrogen uses are in aviation, ground transportation and, for example, manufacturing steel. Asia might begin using ammonia in power generation.

Moonshots and mach diamonds

Earth is still the center of the universe. And the space race is being powered by oil and gas. SpaceX's Falcon 9 and Falcon Heavy use rocket-grade (RP-1) kerosene and liquid oxygen.

At SpaceX's Starbase in South Texas, Starship 15 (SN15 aka "the one that didn't explode") uses liquid methane and liquid oxygen. Its Raptor engine's mach diamonds are perfect, according to people who know about these things, namely @NASASpaceFlight.

In West Texas, Elon Musk's "not bestie" Jeff Bezos' Blue Origin BE-3 and BE-7 rockets are fueled with liquid hydrogen and liquid oxygen; its BE-4 rocket uses liquid oxygen and liquid methane.

Their and Firefly Aerospace's idea behind methane is that it could probably be made from Mars' ice and the abundance of CO₂ in the planet's atmosphere to fuel up for return flights. The other rockets are for use in "local" space exploration and tourism.

'Premium' natural gas

Wood Mackenzie expects natural gas to trade at a premium to oil on a Btu basis in the future, driving its forecast of between \$3 and \$4 Henry Hub at some point. On the demand side, Asian coal-to-gas switching in power generation is ongoing. In addition, natural gas is essential in the manufacture of blue hydrogen. Plus, Wood Mackenzie expects growth in industrial demand.



'THE NEXT BIG THING'

A former oil and gas investment banker, Robert Birdsey, now focuses exclusively on renewables and alternatives. Birdsey and partners founded energy advisory firm Greenfront Energy Partners LLC. Formerly head of BB&T's energy investment banking group, he has these thoughts on the energy space today and going forward.

Oil and gas industry members have been in contact?

We're starting to talk more and more with traditional E&P, midstream and oilfield service firms that are acknowledging the benefits of pursuing alternative lines of business and also implementing sustainability programs within their own companies.

They're very well-suited to this already. Strategy is nothing more than figuring out what you can do that your competitors can't do as easily.

Houston is full of really smart people who are, in my opinion, above average at using creativity to pursue business opportunities in the energy space. That's with or without a quote/unquote energy transition.

The work to be done is very large, and there's a tremendous amount of opportunity out there for folks who come from a more traditional background. I am seeing it firsthand in the world of finance.

That includes oil and gas private equity firms.

They're doing their due diligence. They're applying lessons learned from the E&P and midstream spaces. There's a tremendous amount of [startups] being formed [in the energy transition] that are pursuing early-stage projects that will eventually get sold or invested in by much larger companies.

It's the same way that you had a very large ecosystem of small private [E&Ps].

Except, here it's in solar, wind, storage, renewable natural gas, alternative fuels. The same sort of professional personnel is required. It's certainly going to create opportunities for folks who are coming from traditional energy backgrounds.

Private equity is recruiting from among management teams they invested in, in E&P.

Scott McNeill and Jim Mutrie were part of the RSP Permian Inc. management team. They formed an NGP-backed SPAC that bought [EV charging company] ChargePoint Inc. They're doing it again with two more SPACs.

It's a different business model. What's different?

Oil and gas only takes a few million dollars on a well-by-well basis. Those wells can be brought online within three to six months. And they have really fast decline curves. They're also underpinned by a somewhat volatile underlying commodity market when it comes to those assets generating profit.

A typical renewable power facility, on the other hand, takes years to build. It doesn't produce anything during the construction period. Then you flip a switch. It has a steady production profile. And it's usually underpinned by a fixed-price contract in the form of a power purchase agreement.

They're different business models that require different corporate-finance strategies. But there are smart and creative people in the oil and gas industry. It's certainly within their powers to figure all this out. It just requires flexibility because it's very different.

Renewable power seems more like a midstream business model: Install it and just maintain it. It seems like the energy transition will have fewer jobs, eventually.

That's a fair point from an operating and maintenance point of view, but the development required for these projects is multifaceted and will require growing employment.

What about landmen?

Land procurement opportunities exist within alternative energy. But the velocity of land getting transacted on seems to be slower when compared to traditional oil and gas. There's not as much in the way of land transactions taking place as when you saw it in, for example, the Permian Basin during the past 15 years.

What's the next big thing, after wind and solar?

My sense is now is the time for battery storage and renewable natural gas [RNG, from anthropogenic sources, such as dairy farms]. Those two are ramping as we speak. I would say carbon capture comes after, then hydrogen just a couple of years behind.

Because hydrogen needs build-out of both supply and demand?

I believe supply chains for green hydrogen will ramp more quickly than is currently predicted and attendant costs will drop quickly. But understanding the applications and addressable market requires nuance.

Carbon emissions from steel-making or cement production, for example, are not generated just from the heat required to make them. Carbon is also produced from the chemical reactions taking place in those processes.

You would still have CO₂ emitted even if hydrogen, for instance, was the primary heating feedstock, and those emissions would need to be captured if you want to have net-zero cement-making. So, if you need the carbon-capture systems in place anyway, it seems redundant to also retrofit a factory to run on hydrogen.



"This is the Wild West," Dan Pickering, founder of private equity firm Pickering Energy Partners, said of ESG-rating. "Nobody's figured out exactly what the metrics are."

But the gas and the LNG will need to be there, said Massimo Di Odoardo, Wood Mackenzie vice president, global gas and LNG.

"In North America, [lower expected] oil prices lead to reduced tight oil production, cutting into the availability of cheap associated gas. Greater volumes of expensive dry gas are needed to meet gas demand," he said.

Getting along with the greens

In the extraterrestrial world—interestingly, the short-form for both it and for energy transition is "E.T."—this editor consulted a friend who's into that sort of stuff. (*Sigh.*)

The aliens are known as "the greys;" some are known as "the greens." When engaging, it turns out well in rare circumstances; usually, it doesn't.

An example of successful contact with "the greens" was in 2008 when Chesapeake Energy Corp. co-founder Aubrey McClendon won Sierra Club executive director Carl Pope's support of natural gas toward a greener future.

Engaging with the greys or greens requires some understanding first of what Noah kept asking Allie: "What do you want?" Like in "The Notebook," there was no answer except, "It's not that simple." And she left. (Noah also told her, "You tell me when I'm being an arrogant [expletive]. And I tell you when you're being a pain in the [expletive]. Which you are 99% of the time. I'm not afraid to hurt your feelings.")

For independents, some relief has come from that the Greens are focusing on the majors—for now.

The terrestrial

A May 2020 land-management graduate walks into a job search. He's working now for a solar company.

The American Association of Professional Landmen (AAPL) addressed this trend in the April issue of Landman magazine.

Guest author Robert Wilson was a landman for TransContinental Oil Co. and Stonegate Resources LLC in the Rockies after receiving his undergrad degree from the University of Utah. He's a landman now at AES Clean Energy, a business unit of power utility AES Corp. whose portfolio produces 37% renewable gigawatts globally.

A new-hire landman with no oil and gas experience let some land contracts expire, Wilson wrote. "He was under the impression that, if we just keep making payments, they would be deemed valid."

Wilson emphasized that the renewables business is in need of the deep experience of oil and gas landmen.

No fighting, y'all

This summer, the annual NAPE Expo will include a Renewable Energy Pavilion. In AAPL's announcement of it, it added for anyone put off by inviting the Greens: "We want to emphasize that our intentions are not

to disrupt the oil and gas community and polarize our show. Instead, our goal is to bring players from all energy sources together to do business, create jobs and spark the economy during tough times."

NAPE is, after all, an acronym for North American Prospect Expo. In 2021, energy landman prospects are more than oil and gas.

Wilson wrote in his article that, at AES, "I prioritize hiring those with oil and gas experience. ... I hope the blending of renewables and oil and gas can ... enable us to provide plentiful and affordable energy to all."

And for the geologist

NAPE is also a mind-candy shop for geologists. There's room in the energy future for these too, Dan Dolan, president of the Dallas Geological Society, said in the May meeting.

To the recent petroleum graduate attending, he said, "Keep learning. Keep engaging. I'm a six-year geologist for an oil and gas company. I'm taking the professional geologist's exam, which differentiates more in the construction mining and hydrogeology side."

In addition to landmen, geologists are needed in finding perfect CO₂-based EOR and carbon-burial sites.

Big rocks

The independent's advantage is in filling spaces the big rocks can't or won't. The majors are going green. That leaves more of the oil and gas business—there will still be an oil and gas business in 2050—to the independents.

And first movers don't have great track records. In the renewables business, it's still costly. To date, they've only worked with tax breaks. As the Biden administration incents further green and low-carbon buildout, costs may decline.

Wood Mackenzie's Di Odoardo said the WoodMac carbon-future scenario sees "the end of Big Oil and the rise of Big Energy."

In this, "financially strong integrated companies step up their investment plans to supplement dwindling upstream revenue with new cash flow from renewables, hydrogen and CCS [carbon capture and storage]."

Morgan Stanley analysts too are seeing carbon capture as the new business of the majors. "Rising investment in CCS, along with a suite of other low-carbon solutions, reinforces this view," they wrote, "providing investment opportunities to replace erosion in long-term oil and gas demand."

But the majors themselves have been cunningly slow-playing. Wood Mackenzie sees them as "latecomers to renewables," yes. But they're "leaders in CCS and, as large consumers, enjoy a potential early-mover advantage in integrating hydrogen," it added.

International oil companies' and national oil companies' hopes will fade for many more oil and gas windfalls, Wood Mackenzie projects. Slow-playing will end as delaying participation in the energy transition "will not be a sustainable corporate strategy."

The cows

Yes, cows. Why is it always the cows? Well, relief on the CO₂ front may be aided by cows. *Epicurious* is no longer publishing new recipes that include beef. Some restaurants are rebranding as meatless, a notable one being Manhattan's Eleven Madison Park.

A professor at Yale told *The New York Times* that the restaurant's gone-meatless decision will "have an influence on the best restaurants in places like Midland, Texas—affluent places that are not Los Angeles or San Francisco or New York." [Insert "Surprised Guy" meme here.]

Farewell lavender-glazed duck that we've never had the chance to try. But we have Chef Greg Martin's porcini-rub, half-pound, Angus burger with bacon and truffle cheese at *Bistro Menil* in Houston. And all the BBQ in West Texas.

A more interesting plan is one that changes cows' feed so they burp less. It seems that adding seaweed to the cows' feed reduces their methane emissions by up to 82%, according to researchers at the University of California-Davis.

Livestock produce some 14.5% of global greenhouse-gas emissions, *Smithsonian Magazine* reported, with two-thirds of that made from cows' burps alone. "In the U.S., the methane [that] cows release accounts for nearly 2% of total greenhouse-gas emissions annually," it added.

Meanwhile, President Biden isn't looking to outlaw red meat, Politico has confirmed. "But activists say his greenhouse-gas policies don't do enough to curb the livestock industry's role in climate change," it added.

Speaking of cows, we came upon this new foodie term: BBQ universe. It doesn't belong in this article. But it's a cool word. Sample usage: "Tofu doesn't belong in the BBQ universe."

The EV

We need to talk about this too. Ford's electric F-150 that's expected to debut next spring has a sticker—just under \$40,000—that's the same as the gas-powered one. It comes with a luggage compartment too: the "frunk" that is the space formerly the home of the engine. The frunk includes outlets for running a microwave or power saw.

After federal—and some state—tax credits, "it'll be cheaper than some used F-150s," reported *Wired*.

Biden's hoping for a half-million charging stations by 2030. There are about 40,000 now, according to the U.S. Department of Energy (DOE). Houston has more than 800 among which more than 50 are free, according to *Reliant Energy*.

It still takes about 30 minutes to a few hours to fill up. But H.E.B.'s opted for super-fast-charging stations at some of its stores. And *Cracker Barrel* has some regular ones. No word from *Buc-ee's* yet.

Equinor ASA's chief economist, Eirik Waerness, said in a Rystad Energy virtual conference in May that the world's fleet conversion

ROTATION

Christina Kitchens formed 3P Energy Capital last year to source and place energy alternative capital, after working in oil and gas banking beginning in 2000 and, most recently, spearheading a lender's ESG underwriting and implementation initiatives.

Is there too much money in decarbon SPACs right now? More money than exit-stage companies to buy?

The proof of earnings still has to be seen for many of these investments. It's not mature enough to show that there can be a substantial enough return on that capital from the dollars that are increasingly being allocated to it.

There are a lot of dollars chasing very few opportunities, albeit most are counting on significant ramp-up of activities. As time progresses, there will likely be some degree of rotation out of that space. And some of those dollars going to more traditional energy projects with bettering ESG integration and performance.

There just aren't enough truly green or greening projects for the dollars to be smartly invested. Everybody's had a great idea; the market is just not quite there yet. And then you had the popularity of SPACs [meet with] with the popularity of investing in the energy transition. It's just too many dollars too soon.

Oil and gas private equity firms are investing in decarbonization as well.

That's where a lot of the institutional dollars have had interest and, therefore, that's where the money can be raised.

When will the dollars return to oil and gas?

You're going to continue to see rapid growth in transition investments in the interim. The stock market has performed very well since March of 2020. [At some point], there may be people who say, "There's just too much money already here and the pinnacle of these equities' values have been met. Where are we going to allocate these dollars [now]?"

Hopefully that'll be energy to some extent if our risk-adjusted performance evidence opportunity, and there is confidence to our bettering commitments to reduce carbon emissions.

But then you have funds that are very much oriented towards "impact." Those dollars are being invested for return of the impact of the dollar, not necessarily the return on those dollars. I think that space will continue to have growth because those dollars are being invested based on principle.

to electric vehicles (EV) by 2050 would require that all new vehicles would have to be electric beginning in 2030.

That's because "the oldest car on the road is more than 20 years old," he said. "So these asset lives—you have to think about [it], particularly when you have an asset fleet that is growing."

Washington state legislators passed a bill in April that outlawed new-make gasoline- and diesel-powered vehicles beginning in 2030. A subsequent story received less attention: The governor didn't sign it.

Jay Inslee, whose platform in a six-month run in 2019 for U.S. president called for banning new gas-powered cars by 2030, cited disagreement on how the state would recoup lost pump-tax revenues.

Planes

Equinor's Waerness also said that the issue with a 2050 target for all-electric or all-hydrogen ships and planes is similar to that posed by the asset life of cars. For example, "the Boeing 727 Max, if we start to use it [again], will still fly in 2050," he said.

For now, an all-electric or all-hydrogen aircraft isn't feasible. The issue remains power density, of course, which is the greatest still





The mindset among oil and gas producers has already shifted; “the actions have accelerated,” Dr. Ken Medlock, senior director for the Center for Energy Studies, Baker Institute, Rice University, said in a conference.

from petroleum-derived jet fuel—the lightest weight, highest-Btu fuel source for aviation.

Mari Vassdokken Sigstad, a Rystad Energy consultant based in Norway, said, “We have very ambitious climate goals in Europe. Now it’s been decided we want to reduce in the EU the CO₂ emissions 55% by 2030. So to do that we have to tackle transport really fast.”

She expects hydrogen might be most practical in aviation. She flew on a small, fully electric plane a few years ago. “I think we will see battery-electric planes on short-haul flights, but we definitely need hydrogen to get to zero emission, which is the goal,” she said.

Carbon-mining

Royal Dutch Shell Plc bought Australia-based Select Carbon, which operates more than 70 carbon-farming projects involving some 10 million hectares.

It estimated this spring that carbon storage facilities globally had capacity of 40 million tonnes per year (mtpa). Shell is involved in seven of the 51 projects, storing 5 mtpa of about 12.5% of current capacity. One in Canada, Quest CCS, in which Shell has a 10% interest, has captured and stored more than 5.5 million tonnes by year-end 2020 since operations began in 2015.

Shell is also a partner in a project in Norway, Northern Lights CCS. The major’s 2020 investments in CCS were some \$70 million. It aims to be involved in 25 mtpa of CCS capacity by 2035, estimating that its roughly 20% of CCS projects’ capacity currently on the table worldwide.

Exxon Mobil Corp. estimates it has been responsible for 40% of global carbon capture

since 1970; 48 companies have been responsible for the rest, it reported. The major is currently involved in more than 20 new CCS projects globally.

From the Houston Ship Channel, it plans to inject captured carbon into Gulf of Mexico sandstone fields, potentially up to 500 billion tonnes that, according to a DOE estimate, is the equivalent of 100 years of total U.S. CO₂ emissions.

Erik Oswald, a vice president in Exxon Mobil’s new Low Carbon Solutions unit, said at a U.S. Chamber of Commerce program in May that the market for CCS might be more than \$2 trillion by 2040.

The Houston project would “effectively decarbonize one of the country’s most important industrial areas,” Oswald added.

“It’s a massive idea—one that would create tens of thousands of jobs and cost more than \$100 billion. So it will need support from many different parties, both private and public, to succeed ... Will it be difficult? Yes. Is it possible? Absolutely.”

Natural gas for crypto-mining

Digital mining has a carbon footprint that, well, is an electricity guzzler. The industry’s CO₂ emissions are estimated as the equivalent of 9 million cars, Reuters reported.

Procuring Bitcoin—or Dogecoin or Ethereum, et al.—isn’t likely to be powered entirely by wind and solar in the near future. Just as hydrogen won’t all be made by water, wind and solar in the near future.

So digital mining needs lots of natural gas. And some oil producers in Wyoming and the

‘LET’S DO IT’

Dennis Petito has been taking a deep look at the alternative energy space and the energy transition for a couple of years now. The founder of Montrose Energy Capital Advisors LLC began his oil and gas investment banking career in the 1970s. His new firm is raising capital, specializing in ESG and sustainability exposure and focusing on small- and mid-cap oil and gas clients.

Does carbon capture provide a competitive business fit for the U.S. oil and gas industry?

Houston is particularly situated to benefit from CCUS. The regional geology provides natural warehouses to store CO₂, and pipelines and distribution infrastructure to transport it to be used for EOR in the Southeast and Permian. So, yes, definitely. The industry must look at CO₂ emissions as a profit, not a cost, center

It seems oil and gas personnel are most suited to producing any type of energy.

I don’t think you can compete with the competitive spirit of the American oil and gas industry, combined with the technical talent that goes with it. We’ve seen it time and time again. Once the industry is able to get a line of sight and understand what the field of play is, it’s going to dominate.

How does the industry turn its net-carbon-zero achievements into money?

We’re already seeing significant examples of it where you have a buyer saying, “Look, I’ll buy that LNG, but I want it to be a net-carbon-zero cargo.” [When] people are buying with that as a preference, the product isn’t so much a commodity anymore.

Like how you can sell non-GMO products for more.

Exactly. That’s a fabulous analogy. [Oil isn’t] a commodity that is going to experience a substantial increase in demand. Quite the opposite: As it becomes less of a rarefied commodity, so to speak, people will be able to impose their buying preferences.

So, the way you monetize [your net-zero-carbon achievements] is that the market is willing to pay a premium to net-zero producers. And if you don’t comply, well then, you’d just as well be selling coal. I think any producer that doesn’t adapt to this change is going to become the equivalent of a coal company.

How does a producer avoid that?

Once they stop fighting it and just accept it and say, “Okay, we’re just going to have to compete on this basis. Let’s do it,” there is no doubt U.S. producers will compete successfully and thrive. I think they’re beginning to understand that they really need to come up to speed on it.

Unfortunately, if you’re a small- to mid-cap company, it’s hard. Hell, I’ve spent two years studying this. Once you start focusing on this stuff, it just consumes you.

But it’s going to happen really fast and furious. And a lot of small- to mid-cap companies are going to be lost. They’re not going to know where to turn.

They can start over?

The oil and gas industry is in decline. We’re not going to be losing jobs to something else, like renewables; we’re going to be losing jobs because the industry is in consolidation.

Williston Basin are using their associated gas to mine it.

Wyoming producer Kirkland Oil and Gas LLC has hired EZ Blockchain to convert the stranded gas into electricity for mining for coin in trailers at wellsites, according to Reuters. Kirkland gets the coin and pays the miner a fee.

Williston Basin operators Equinor (which exited the Williston in April) and Enerplus Corp. (which is adding in the Williston) have had miners at their sites, the companies confirmed to Reuters. Kraken Oil & Gas Partners LLC is a methane-to-computing-power partner with Denver-based Crusoe Energy Systems.

Oil producers whose natural gas is being used for crypto-mining are receiving tax breaks under new North Dakota and Wyoming laws passed this year, Reuters added.

North Dakota state Sen. Dale Patten said, “I think it’s [going to] be a big chunk at what we look at for the future in North Dakota.”

NFTs’ carbon offsets

NFTs are a digital product. And they double down on the electricity: Besides being digital “works of art,” such as Jack Dorsey’s first tweet and the original image of “Disaster Girl,” they’re paid for with Bitcoin or Ether or other crypto.

The stars of “Charlie Bit My Finger” sold the 2007-minted video in May for the equivalent (value at the time of the sale) of about \$761,000 in Ether. The family reported it plans to donate a portion of the proceeds to carbon offsets.

The artist behind a digital photo collage that sold at Christie’s in March for \$69 million in coin told The Verge that, in the future, he plans to offset his work’s emissions “by investing in renewable energy, conservation projects or technology that sucks CO₂ out of the atmosphere.” The offset cost of the one he sold is about \$5,000, The Verge added.

Disaster Girl sold hers—a single digital photo—in April for 180 Ether, worth about \$500,000 at the time. An undergrad studying war, peace and defense (yes, really) at the University of North Carolina, said she plans to use the earnings to pay for college—oh, and to make donations.

Disaster Girl’s plan for post-grad study is international relations.

Ask an analyst

Many investment-banking firms have added a green desk. They can put oil and gas producers and service firms in touch with intel on green firms for collaborations.

Be mindful you might get an earful, though: Some oil and gas analysts aren’t very happy about being forced to apply fundamental business principals to green stocks that subsist on tax breaks, etc.

Another option: Your neighborhood oil and gas private equity firm is looking for decarbon management teams. And their portfolios are growing.

The biggest prize

Morgan Stanley analysts estimate there will be a \$225 billion market globally for carbon capture and storage in 2050. It could “ultimately offer higher returns than traditional clean technologies such as wind and solar,” they reported.

The oil and gas industry is in a key position to develop the world’s CCS, which is “a required technology in a ‘net-zero’ world.”

The reason is the industry’s geologic expertise and access to fields for storage. The U.S. holds two-thirds of the world’s CO₂ storage, they report.

The value: Captured carbon goes for about \$50 a ton in the U.S. and \$35 a ton if sequestered in EOR fields. In California, it’s worth some \$200 a ton.

In the immediate future for oil and gas, CCUS appear to be the most immediate prize. Dr. Ken Medlock led the “Expanding Carbon Capture in Texas” study, which was released in January, and demonstrated that Texas is the perfect place for CCUS to happen.

He was asked in the Rystad Energy virtual conference in May if “the mindset” had shifted in the U.S. toward renewables now that Biden is in office.

Medlock, who is senior director for the Center for Energy Studies, Baker Institute, Rice University, said, “The mindset had already shifted.” Rather, “the actions have accelerated.”

Exxon Mobil’s announcement of building a CCS hub in Houston is one example, he said.

Houston-based retired natural gas trader and hedge fund owner John Arnold has found an acceleration as well. He tweeted in April that, a year ago in Houston, “75% of the talk was [oil and gas] and 25% clean energy.”

This year, 75% “of discussions now are about wind, solar, batteries, transmission, lithium, cleantech, etc. Even those who are not ideological believers are taking the cues from the financial markets, which have no interest in oil production growth anymore ...”

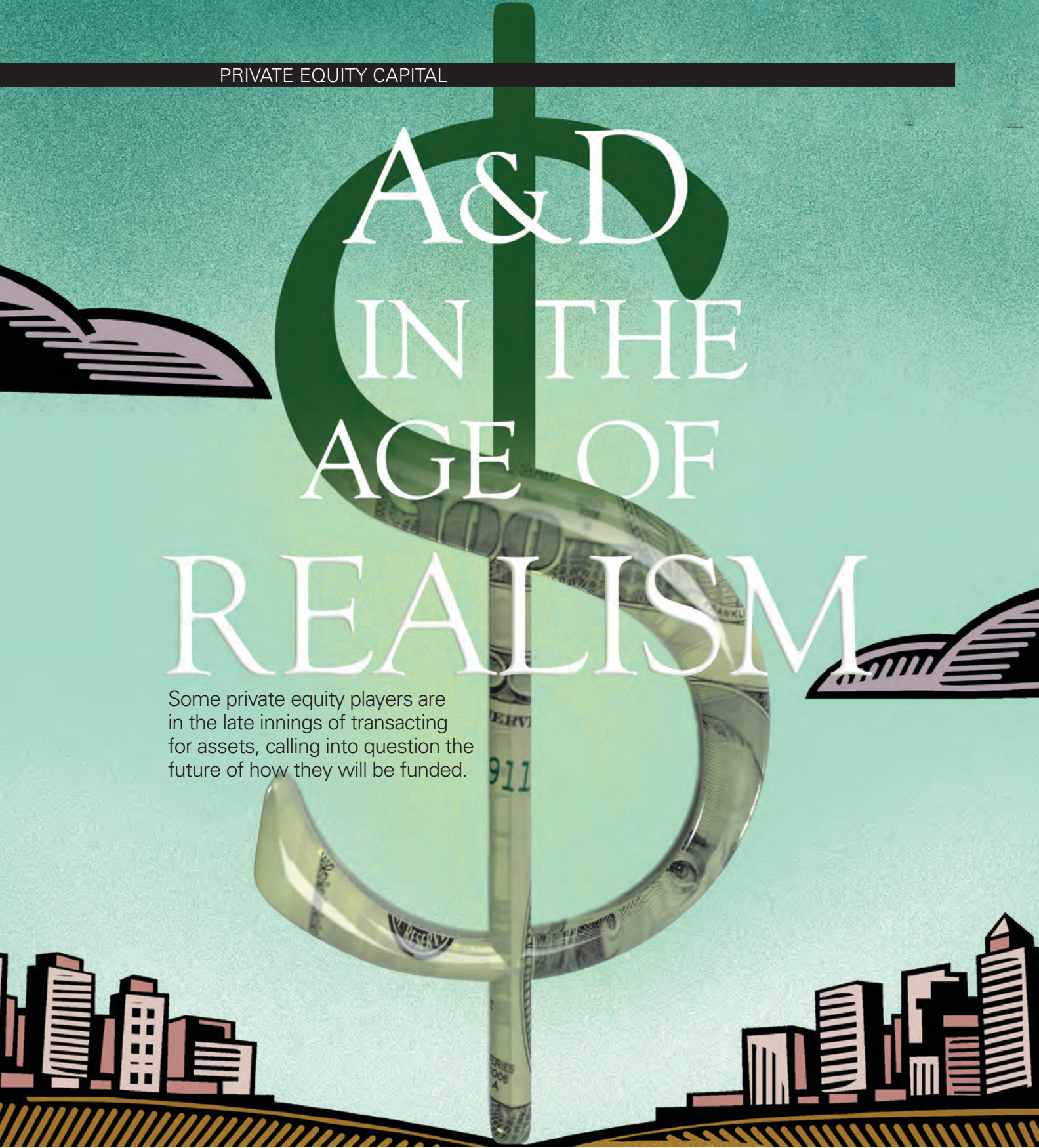
Houston Mayor Sylvester Turner is promoting the city, long known as the “Energy Capital of the World,” as the “all of the above” energy capital, saying Houston’s energy leaders will be the world’s leaders in all future energy sources.

Medlock was told by the Norwegian host of the Rystad program, “We have seen American E&P players as laggards in this energy transition.”

Medlock replied, “‘Laggards’ is an interesting statement because it’s a comparative statement.” He’s seeing E&Ps look to leverage their assets “to the fullest extent possible.”

“What that means is ‘How do we actually clean up oil and gas? How do we think about carbon capture? How do we think about converting hydrocarbon molecules to their most basic form and think about hydrogen outlets for energy use? And address the externality that carbon presents?’”

There is R&D underway in the oil and gas patch already, he said. □



A&D IN THE AGE OF REALISM

Some private equity players are in the late innings of transacting for assets, calling into question the future of how they will be funded.

ARTICLE BY
DARREN BARBEE

ILLUSTRATION BY
ROBERT D. AVILA

In July 2016, Deutsche Bank analysts reported almost as a footnote that private equity firm KKR & Co. Inc. had \$2 billion available and ready to spend on energy investments. The somewhat hackneyed term for this largess is dry powder.

The next year, Jefferies estimated that energy-focused funds had about \$100 billion ready to deploy. These were the powder keg years,

with private equity chasing after sparks in Texas, the Rockies and the Northeast.

Whether those days fizzled or dazzled for private equity firms, there's a growing sense that the keg is running empty—and with it an acknowledgment that money won't be raised quite the same way again. That also means potential pressure on sellers who want a good price but may see their off ramps running low on cash.

Recent deals by private equity firms show a maturation in dealmaking from the buy-drill-flip days of shale glory to a more measured approach that considers a company's geography—possible merger partners, access to infrastructure—as much as its geology.

Brad Morse, founder and president of Fulcrum Energy Capital Funds, said that private equity firms are starting to see a little of the writing on the wall.

Fulcrum Energy, which raised about \$200 million for acquisitions, has seen the industry downshift into a less capital intensive, development-oriented environment.

Private equity firms' model of raising funds to spend on later projects is being challenged by a variety of factors, including more sophisticated investors and the need for co-investors for larger acquisitions.

Private equity isn't necessarily built to access large amounts of capital as quickly as partnering with larger investor classes. Investors may be more reluctant now to participate in direct investment or in limited partnerships that only vaguely outline objectives and potential acquisition targets.

"Now it's different," Morse said. "It's been a challenge for us to raise large blind pool funds from institutional investors. However, we have had success raising funds for specific pre-identified investments."

Larger funds such as EnCap Investments LP are more flexible and fortunate, said partner Brad A. Thielemann.

EnCap retains more than \$4 billion of dry powder in Fund XI—a \$7 billion fund raised in 2017 that is largely earmarked for upstream investment.

Thielemann said raising new upstream funds will likely be more challenging going forward.

"Given the volatility in commodity prices over last year, and frankly, poorer returns that certain funds have had, there's some reluctance from some investors to commit to blind pool funds," he said.

Investors may wonder if the private equity model for blind pools is worth an investment. EnCap's investors continued to give the firm strong support and in first-quarter 2021, EnCap distributed nearly \$1 billion back to them while also making significant acquisitions.

"We're optimistic, and we think there's a lot of opportunity right now in the market, particularly for those funds and companies that have access to capital," he said.

Nevertheless, Thielemann said that there will be fewer upstream funds going forward.

"If we just look at the big picture, the number of private equity funds that are going to be exclusively focused on upstream are likely to shrink compared to the past five years," he said.

With capital harder to raise, funds are likely to be more concentrated.

For sellers, that may mean more supply in the market relative to money chasing deals.

"We've been actively bidding this year on a lot of deals. There weren't a lot of willing sellers and assets on the market last year outside

of some distressed deals, but we are starting to see more quality assets hitting the market."

But assets will have to "check all the boxes." In particular, assets need to generate significant free cash flow and have quality inventory in order to attract strategic buyers.

EnCap, like much of the industry, did some of its own consolidation last year across its portfolio.

Cameron Brown, co-founder and managing partner of Pontem Energy Capital Management LLC, said investors may stay away as the shale A&D environment shifts.

"I think that all of the major private equity firms are very skeptical of their ability to go out and raise additional blindfold capital for the strategies that they targeted historically in this business," he said. "Because the returns have been so bad."

A more methodical approach to remaining funding capacity is likely, especially as EnCap, Pontem and Fulcrum enter the year with new acquisitions.

However, at some point private equity could see its ability to deploy capital strategically dwindle.

"I think they're going to run out the dry powder," Brown said. "I think they know that. I think everybody knows that. And the big question is, at what point do we actually start to see the effects of that?"

Pontem Energy was formed immediately following the May 2020 sale of Felix Energy LLC to WPX Energy Inc. for \$2.5 billion. The COVID-19 pandemic had started to disrupt life around the world, and Pontem fashioned itself as an alternative capital provider for upstream oil and gas companies.

The firm considered investments that ranged from "passive public equity all the way up to buying RBL at a discount, and everything in between," Brown said.

However, as time passed, it became clear to the Pontem team that its core Felix veterans were better suited to actively evaluate opportunities rather than just finance them.

As the distressed asset market refocused on A&D, Pontem evaluated more than a dozen potential operated acquisitions before landing on Ovintiv's Eagle Ford Shale assets.

In March, Pontem-backed Validus Energy agreed to purchase Ovintiv's Eagle Ford Shale assets for \$880 million. Ovintiv, formerly known as Encana Corp., purchased the assets in 2014 for \$3.1 billion.

Pontem's initial interest in the distressed A&D environment shifted last year as buyers reconsidered the way they evaluated operated assets.

"The valuation that we saw [with Ovintiv] was certainly very different than how I would think it would be valued historically," he said. "It wasn't distress as we all think about it but more as a right-sizing to the new environment." Chiefly, that concerned the price at which sellers were willing to move on deals.

Large companies in general may be grappling with how to balance their remaining assets against the opportunity the assets have to create value.



"We're seeing some good opportunities to put capital back to work in the drill bit as well as looking for acquisitions," said Brad A. Thielemann, partner, EnCap Investments LP.

“If we just look at the big picture, the number of private equity funds that are going to be exclusively focused on upstream are likely to shrink compared to the past five years.”

—Brad A. Thielemann,
EnCap Investments LP

“I think everybody’s being pretty selective,” Brown said. “For the same reasons we bought Ovintiv, you’re still seeing valuations that are at pretty low historical levels.”

The market has benefitted from stability in commodity prices, with businesses feeling more comfortable with their line of sight as they weigh the risk of making larger acquisitions. And, private equity firms still have some funding remaining.

Pontem’s purchase of Ovintiv’s Eagle Ford assets allows the firm to step into the shoes of a large company that has invested a large amount of money and time into the asset. A private equity-backed entity, in contrast, is often geared to sell and can potentially short-change sellers the state of the assets.

Pontem’s next steps will be to continue to look for transactions that complement its Eagle Ford deals or venture out into other areas with the potential for high returns.

“We’re open for business; we will look at all opportunities,” he said. “We’re just trying to make money and that doesn’t need to be in operated asset acquisitions. We’re still evaluating and working on plenty of financing opportunities outside of traditional upstream.”

The market opens

At the end of a slow and disastrous summer for the oil and gas industry, EnCap Investments through its portfolio company Grayson Mill Energy reached out to Equinor ASA with a request for data to evaluate its assets in the Bakken Shale.

By January, EnCap had been working on a handful of deals during the past year with private and public companies. But the Equinor deal remained top of mind, Thielemann said.

EnCap’s primary advantage, even after Equinor began a sales process, was the certainty it offered.

“They wanted a large cash number that could take them out,” he said. “And ideally, they wanted to find a good home for their employees.”

EnCap had the dry powder and a willingness to retain a significant portion of Equinor’s workforce, Thielemann said. “We moved early on the deal and were able to get it over the finish line,” he said.

In April, Grayson Mill Energy purchased Equinor’s Bakken interests and midstream assets for about \$900 million.

The deal was struck before commodity prices started their recovery earlier this year. Had the deal stretched out it would have likely created more competition.

“It’s hard to know exactly how it would’ve played out, but we tried to be transparent with them, and give them all of these assumptions that we were using to come up with our number,” he said. “They did the same with us. It was a very good process.”

Since February, the WTI price per barrel consistently stayed in the high \$50s to \$60s and in early June rose to \$70, the highest spot price since 2018.

The commodity price recovery—and general stability—has helped thaw out the deal market. EnCap sees more deals churning the second half of 2021.

“That momentum has helped a lot relative to deal flow,” Thielemann said. “The A&D market was completely frozen in 2020. From an asset deal standpoint, there just wasn’t anything happening.”

Higher, stable equity prices have also given private equity firms and companies emerging from survival mode the ability to avoid settling for bottom-market prices. The narrowing of the bid-ask spread has created a shift from 2020, when most quality assets sat on the shelf.

EnCap’s own deal with Equinor represents the renewed license from well-capitalized operators to rationalize their portfolios or consolidate noncore assets.

“You have some pent up supply from companies with sale-ready assets,” he said.

If 2020’s market was stuck largely because no one wanted to sell assets unless absolutely necessary, deal flow has now swung in the opposition direction with a “natural window to where people feel OK about selling assets,” Thielemann said.

For buyers, upside pricing also looks far more attractive in a \$55/bbl or \$60/bbl environment—compared with \$40 oil prices last year.

“You’ve come back into a state of equilibrium where we’re starting to see more deals get done,” he said. “I think we’re going to continue to see that this year barring some sort of big shift in the macro backdrop. But there is a finite amount of capital chasing these deals.”

EnCap has an optimistic view for constructive demand growth while operators have continued to remain focused on capital discipline and free cash flow.

“Discipline continues to be the overarching theme,” he said.

Since December, the rig count has also improved by about 35%, to 456 rigs, according to Baker Hughes data in June.

“It does feel like we’re setting up for a pretty constructive backdrop as demand recovers,” he said.

However, the firm won’t look at underwriting deals based on continued improvement but on where prices are today and the potential ups and downs.

“We run sensitivities both ways, but we’re certainly a lot more optimistic. It feels a lot better than it did nine months ago.”

EnCap Investment has recovered from the COVID doldrums, when the firm scaled its operations from about 20 operated rigs across its portfolio to none last summer. Now the



Cameron Brown,
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firm's portfolio companies have restarted and, in May, were running 13 rigs because of favorable drilling economics.

"Everybody's focused on capital discipline and generating free cash flow," Thielemann said. "We're seeing some good opportunities to put capital back to work in the drill bit as well as looking for acquisitions."

The Equinor deal returns EnCap to the Bakken, where it's in familiar territory.

Now at a more mature point in the basin's lifespan, EnCap saw the play in terms of how much potential remained and at a good entry price to generate cash on the proved developed producing (PDP) assets that it purchased.

"We believed there was an opportunity to lower operating costs significantly over time," he said, adding that Equinor also had a number of DUCs and a solid inventory of drilling locations.

"We felt like there was a good mix of an asset that had upside but could generate a significant amount of free cash flow," he said. "We still have drilling inventory to go execute on and utilize that cash flow to hit our target rates of return."

Together, those factors made for a good risk-adjusted return profile, and the basin is likely to see continued consolidation.

"Strategically, we thought if we got the right footprint, we could position ourselves to be active ... ultimately doing more deals or being part of a larger consolidation down the road after we've operated the asset for a while."

Equinor's position also came with a lot of midstream infrastructure that the company had built out, which helped to enhance its margins and economics. With lowered costs and a focused drilling plan, the assets have the potential to generate strong returns.

"We look at the upside on a risk adjusted location basis—what we call low-risk inventory that feels really solid from a technical standpoint and in areas in which we have a really good sense of what the results and costs are going to be," he said.

Elephant hunting

Fulcrum Energy has largely specialized in distressed lower middle market deals. Roughly half of its transactions have been through bankruptcy stalking horse bids. In July 2018, for instance, Fulcrum purchased Nighthawk Energy Plc and its subsidiaries through a 363-bankruptcy sale.

In December, Fulcrum-backed Gondola Resources LLC purchased SandRidge Energy Inc.'s North Park Basin asset in Colorado for \$47 million in cash. The transaction closed in the first quarter this year.

In general, Fulcrum's design the past five years has been acquiring assets that yield cash flow, with the upside development opportunity a secondary concern.

Fulcrum's SandRidge transaction was in step with other deals the firm has made—part of the market Morse described as an opportunistic carve-out. Such carve-outs apply to companies with small teams divided among two or more

basins that do not have the interest or capacity in continuing in multiple regions.

"I think this deal for [SandRidge] probably made a lot of sense because they don't really have a core presence in Colorado," Morse said.

The market appears to be working out the kinks of consolidation, whether it's Ovintiv selling in the Eagle Ford Shale or SandRidge selling its North Park Basin assets.

"I think that that's kind of the angle that private equity has taken, and public companies are willing to let go of those assets a little bit more because of this push for core and synergies," Morse said. "I think it's positioning them in a lot of ways to be able to merge with another pure play in that basin and claim cost reduction, synergies and scale."

Morse said he's also noticed a shift in investor mentality—a sophistication among people who don't want to invest in a fund but actually work on a deal.

"They can touch and feel and see the historical cash flow and see where the assets are," he said. "Whenever we've had a deal, we've raised whatever capital is required to get it done, because it's a good deal—whereas I think a fund is a harder sell today. One quote that resonates with us is that good deals always find capital, which generally summarizes our experience in raising capital."

The SandRidge acquisition was partly funded through its own fund as well as through co-investments. The deal was like a hanging breaking ball in the strike zone, with cash flow, cash on cash returns, PDP, 93,000 net acres of upside and 50 wells. Prior owners of the assets had already invested hundreds of millions of risk capital dollars into the leasehold, as well.

"There was more capital than we even needed for that transaction, and we had to turn investors down because I think people just saw the timing and the opportunity," he said. "When they could see an asset specifically in the historical cash flow and the well results, it got our investors much more excited."

A deal with a sense of urgency that needs to close in four months, for instance, requires a different type of investment.

"That has kind of been an interesting development that we've noticed in general and even talking to real estate managers and people in other sectors as they've said the same thing of always doing so much better with co-investments and deal by deal investment structures," he said.

In the fund world, huge asset managers with seven funds may be hunting a multitude of deals, while Fulcrum and similar firms are finding good deals and capital through focus.

That and, "raising huge funds eventually requires institutional capital and institutional capital kind of unjustly hates our industry right now, for lack of a better word. The lack of capital, in Fulcrum's view, will likely result in undersupply of oil and gas relative to demand, and create an extended period of higher commodity prices in the medium term." □



Brad Morse, founder and president of Fulcrum Energy Capital Funds, said he's also noticed a shift in investor mentality—a sophistication among people who don't want to invest in a fund but actually work on a deal.

UNTIL THE LAST DROP

Meet ChampionX president and CEO Soma Somasundaram, the man with a bold vision, who is on track to build a durable franchise well-positioned to survive until the last drop of oil is pumped.

ARTICLE BY
FAIZA RIZVI

About this time last year, when most businesses were scrambling to survive due to the pandemic, one company was defying the downturn and hitting the right notes with a strategic merger focused on higher exposure to longer cycle markets. One year later, ChampionX—a merger of Apergy and Ecolab’s upstream energy business—is on track to maximize potential integration benefits and achieve targeted cost synergies of \$125 million within 24 months of the merger.

“As we close in on the one-year anniversary of our transformational merger of legacy Apergy and legacy ChampionX, our first-quarter results further demonstrate the geographic breadth and resiliency of our combined business portfolio and the strong free cash flow generation capacity of the company,” said ChampionX president and CEO Soma Somasundaram, during the company’s first-quarter earnings call.

Analysts have rightly pointed out that ChampionX has established a strong presence in four key areas—chemicals, artificial lift, diamond drilling technologies and digital solutions—and is highly levered to increasing global production and international growth.

Barclays Capital Inc. analysts forecast ChampionX’s businesses to “lift higher with steadily improving profitability since production chemicals are directly correlated to increasing global production while artificial lift is the most effective way for E&Ps to maintain volumes.”

Under the bold vision and leadership of Somasundaram, the company has quickly asserted itself as a premier oilfield service (OFS) company and is on track to become one of the best-positioned companies as macro tailwinds build.

Born and raised in a small town of southern India, Somasundaram attributes his leadership skills to his father—a school teacher in the local village—who believed so strongly in education that he would often visit children’s homes to convince their parents to send them to school.

“He was very passionate about educating children, particularly those who came from economically disadvantaged backgrounds,”

Somasundaram told *Oil and Gas Investor*. “Just observing him doing that had a great impact on me growing up.”

Looking back, Somasundaram sees his father as a role model, whose service-orientated career and selflessness had a significant impact on his thought process.

Early career

In pursuit of better opportunities, Somasundaram moved to the U.S., and after completing his post-graduate degree at The University of Oklahoma, he landed his first job at Baker Hughes Co., where he was given an opportunity to work in different parts of the world.

“Being able to do that early in my career really helped me a lot to get a global perspective and operate comfortably in a global environment,” he said.

In 2004, Somasundaram was appointed president of Dover Corp.’s operating company in Michigan. Nearly three years later, when Dover decided to grow its oil and gas presence, Somasundaram moved to Houston to spearhead the action plan for the company’s expansion in the upstream and downstream sectors.

In 2017, Dover Corp. announced plans to spin off its upstream energy portion into a separate public company called Apergy where Somasundaram became president and CEO.

The fundamental strategy behind the spinoff was to create long-term shareholder value, Somasundaram explained.

“If you look at Apergy, it had world-class businesses in upstream energy markets, and the businesses were known for their differentiated technologies, leading brands and superior customer service. As a standalone public company, Apergy would be attractive to new investors in the oil field, given a strong value proposition to the investors and its ability to pursue a focused and tailored strategy relevant to upstream energy markets,” he said.

In addition to providing investment benefits to Apergy, the spinoff would give Dover the ability to focus on its core industrial businesses and invest in them with lower volatility.



“Over 85% of our revenue comes from the production phase of the well, which means in the world of energy transition, there will be a need for our products and services until the last drop of oil is produced,” said ChampionX CEO Soma Somasundaram.

“This is a very transformative merger for us and to do that in the middle of a pandemic virtually and getting it completed on time was remarkable.”

“If you look at the combined market value of Dover with Apergy and ChampionX today, you will see how well that strategy has played out,” he said.

Establishing priorities

When Dover’s board of directors formally approved the separation of Apergy, it was time to set priorities, Somasundaram said.

The first one, he said, was international expansion.

“When we spun out, we had almost 80% of revenues coming from North America. So we wanted to expand internationally for growth as well as to reduce the risk,” he said.

“The second priority was deleveraging the balance sheet. As part of the spinoff, we had taken on a \$700 million debt to pay dividends to Dover, and I’m not in favor of holding debt in a cyclical market because of a downturn. Your leverage will go up and you won’t have many options.”

Another priority that Somasundaram outlined for Apergy was to evolve the portfolio and to stay relevant by creating new pathways for growth as the energy transition began gaining momentum.

“Once we came out as a public company, we developed a clear strategy and established what we call a value creation framework where we laid out the key financial characteristics that will generate superior value for our shareholders,” he explained.

Once the priorities were outlined, there was no looking back for Somasundaram. He

ChampionX president and CEO Soma Somasundaram meeting with the company’s R&D pump engineers to discuss the technology contained in the company’s new unbridled high-rise pump line due out later this year.



"I'm not in favor of holding debt in a cyclical market because, in a downturn, your leverage will go up and you won't have many options."

immediately began studying growth options for the company, identifying artificial lift and production chemicals as possible key businesses for growth, while accelerating digital and digitally enabled revenue streams.

"When the opportunity of production chemicals came to us in June 2019, we started screening the opportunity against our priorities and framework," Somasundaram said. "It was clear that this opportunity would enhance our portfolio."

In the midst of a pandemic

In December 2019—right before the pandemic hit—Apergy's merger with Ecolab's Nalco Champion upstream business was announced when the "market reception was very good," recalled Somasundaram.

"On the day of the announcement, both Apergy and Ecolab stocks went up, so the investors clearly saw that the deal had a strong thesis to it," he said.

And just when the companies were working on the next steps and closing the merger, the pandemic hit and economies began closing down. But that didn't slow them down, said Somasundaram.

"I will say this—I was so grateful to the teams around the world who quickly shifted to working things virtually and completing the merger. This is a very transformative merger for us and to do that in the middle of a pandemic virtually and getting it completed on time was remarkable."

Somasundaram envisions making ChampionX the "leading production optimization company in the world."

Not just that, he wants to be a business that creates superior value for both customers and shareholders, and he believes that the company's portfolio is well-positioned to achieve his vision.

"I am a strong believer that a company has to have a purpose that is beyond financial gains," Somasundaram said, adding that their core operating principles include being customer-driven, having a safe and collaborative work environment, and developing and deploying technologies that deliver positive impact.

It's no wonder, then, that ChampionX earned the top overall ranking for total customer satisfaction in the 2021 Oilfield Products Survey conducted by EnergyPoint Research.

"This exceptional industry recognition illustrates the strong customer-centric cultural alignment across our organization, the dedication of our employees around the world in supporting our customers and how our combined offering of products and services is truly better together."

'Strategic rationale'

According to Evercore ISI analyst James West, the Apergy-ChampionX merger was

Advancing digital automation of producing oil and gas assets is foundational to ChampionX's current and future strategy.



CHAMPIONX

carried out with a multitude of strategic rationale, which will lead to significant growth including the merger of two highly complementary product lines—artificial lift and production chemicals. Additionally, the company can leverage the legacy ChampionX international footprint to accelerate the expansion of the legacy Apergy artificial lift business and the increased exposure of legacy Apergy to high-quality international oil company and national oil company customers.

West also pointed out that ChampionX has a promising future using the legacy Apergy “Top Box” financial and operating priorities framework and chasing the three strategic goals of pursuing attractive return organic growth, using free cash flow to reduce debt and considering the return of excess capital to shareholders when target leverage is reached.

While investors have started appreciating the narrative that upstream capex and opex dollars will be spent on completing wells and maintaining production instead of drilling new oil and gas wells, West expects that in the medium term, investors will better appreciate ChampionX’s earnings power and free cash flow generation. With about 80% of the company’s revenue coming from oil and gas production-related products, consistently solid fundamentals will allow the company to demonstrate its ability to convert sales into cash and subsequent debt repayments.

Exceeding expectations

ChampionX’s first-quarter 2021 performance in artificial lift and drilling technology exceeded analyst expectations.

The company reported 21% margins for its artificial lift business, representing a return of margins close to historical peaks, Barclays reported. This year, the management team expects to remain in the 20% to 22% range but foresees upside beyond that as volumes grow.

For drilling technologies, after two quarters of customer restocking, EBITDA margins jumped up sharply from a negative 18% in third-quarter 2020 to a positive 21% in first-quarter 2021, showcasing the impressive incremental growth in one of the most quality businesses across the service sector. Moving forward, analysts expect a sharp pickup in customer technology adoption, which will be a key component in seeing margins return to the 30% range.

Although ChampionX’s short-term margins progression—specifically production chemicals—took a dip in first-quarter 2021 due to volume and supply chain disruptions from winter storm Uri, yet the management team remains focused on long-term targets for production chemicals, which it expects to march toward 20% margins fueled by top-line growth and synergy around the supply chain.

Additionally, during the next few years, the company expects to expand its chemical business in more chemical-intensive regions like the Middle East and Guyana.

“If you look at it, we have a very broad customer base, and today more than 50% of our revenues come from outside the U.S.,” Somasundaram said.

He strongly believes that the production chemical activity will be “driven by budget releases in the second half as customers, particularly the OPEC countries start to increase production.

“We expect sequentially all of our international activity, particularly the Middle East will continue to show strong growth as we walk into Q2 as well as in Q3 and Q4. We expect all of our product lines to grow in Q2,” he said.

Navigating energy transition

Somasundaram recognizes the energy transition is “real” and that the OFS sector needs to “get more efficient in handling the transition.”

During the first-quarter earnings call, he stressed on the “distinct growth pathways” that ChampionX is working on to align its operations with the ongoing energy transition buzz.

“We as a company have to be focused on developing and deploying technologies that help our customers achieve their aspirations like lowering the cost of production per barrel of oil and decarbonization,” he said.

From using environmentally friendly chemicals to reducing their energy consumption, Somasundaram noted that he is working hard to ensure that ChampionX’s products and technologies align with the energy transition goals of the customers so that the products remain in demand in the long term.

He said, “Over 85% of our revenue comes from the production phase of the well, which means in the world of energy transition, there will be a need for our products and services until the last drop of oil is produced ... that combined with strong free cash flow generation gives us an ability to successfully navigate the energy transition.”

What’s next for the industry?

Discussing the key themes that will dominate the oil and gas industry during the next few years, Somasundaram said the OFS sector will see considerable consolidation.

“Anytime when a sector has to get more efficient, there is a natural consolidation that needs to happen in certain parts of the industry, particularly in those product lines or geographies where there is excess capacity and there is a need to improve cost structure,” he said.

He added that the next few years will be “constructive” for the energy industry.

“We all have gone through a very challenging market downturn driven by the global pandemic. As the economy reopens, and as we are already seeing, the demand for energy and associated oil demand, is going to continue to increase, and we will start seeing oil demand growing over the next few years. You can see oil prices are already inflecting,” he said.

ESG will be another key theme in the coming years, he said. “ESG will gain more traction and we as an industry have to actively embrace that and we have a role to play in the area especially around decarbonization.” □

PRIVATE EYE

Enverus analyzed production history, pricing, velocity and rig count activity to better understand the role and influence private E&P operators are playing in the oil patch and the expected outcomes in the near future.

ARTICLE BY
FARZIN MOU,
ENVERUS

The current narrative in the modern shale era mandates a balance of free cash flow distribution and sustainable growth. The rising prices for oil and natural gas in 2021 and 2022 and post-COVID-19 demand increases confirm we've seen the light at the end of the tunnel. For some, it can't arrive soon enough, but in the meantime there's an important component nearly everyone in the oil patch has their eye on.

Although public E&Ps have emphasized prudent capital plans, private operator rig counts have climbed to nearly 50% of total rigs in the U.S. Lower 48 since the beginning of the year. With limited disclosure on hedging portfolios, executive compensation incentives and varying levels of balance sheet strength, the influence of private companies

may be underappreciated. Furthermore, private companies can operate on a shorter timeline for private equity investment, creating an increased urgency to spend dry powder.

Investor sentiment may be shifting away from rewarding long-dated inventory and moving toward cash flow generation—an attainable feat while growing production at today's prices.

Production history

Between 2017 and 2019, private operators supplied nearly one-third of gross operated oil production to the overall U.S. supply stack, and the private wedge grew ~350,000 bbl/d, or about 12% on average, year-over-year in 2018 and 2019. This group dominates much of the activity in areas such as the Utica Shale and Haynesville Shale, contributing between ~60% and 70% of average monthly turn-in-lines (TILs) in 2019 and 2020. Private operators in the SCOOP/STACK, Powder River Basin (PRB) and Midland Basin account for nearly 50%, 40% and 40% of TILs, respectively, while the Eagle Ford Shale and Denver-Julesburg (D-J) Basin are nearly one-third private on average.

The price is right

The commodity market is no stranger to volatility with seven price signals since the beginning of 2015. At Enverus, we quantify a price signal as the first instant of a \$10/bbl fluctuation within the forward-looking six months; adjacent spikes in the same direction within this time frame have been grouped into one signal.

In the last six financial planning cycles, 2020 produced the bleakest outlook for the 12-month strip with fourth-quarter 2015 close behind averaging ~\$46/bbl. The 12- and 24-month moving average WTI futures contracts at ~\$60/bbl and ~\$55/bbl as of early March are ~40% and 25% higher than the fourth-quarter 2020 budgeting season strip. While prolonged depressed pricing undoubtedly influenced capital planning for 2021, the first-quarter 2021 rally in crude prices presents the opportunity for an activity recovery, yet relative to the past we expect public operators to hold to plans.

Top 20 Private Oil Producers

Oil Ranking	BOE Ranking	Company	Daily Oil Production (bbl/d)
1	1	HILCORP ENERGY CO.	301,169
2	6	ENDEAVOR ENERGY RESOURCES	125,743
3	8	MEWBORNE OIL CO.	92,819
4	20	CROWNQUEST OPERATING LLC	63,092
5	14	MESQUITE ENERGY INC.	51,579
6	38	SURGE ENERGY	46,915
7	39	LLOG EXPLORATION CO. LLC	44,807
8	42	KRAKEN OIL & GAS	42,306
9	31	HUNT OIL CO.	42,138
10	37	EP ENERGY	40,975
11	40	FIELDWOOD ENERGY LLC	38,375
12	45	PETRO-HUNT LLC	35,558
13	36	GREAT WESTERN PETROLEUM	32,421
14	50	BIRCH RESOURCES	31,643
15	35	CRESTONE PEAK RESOURCES	28,879
16	30	FLEUR DE LIS ENERGY	28,847
17	63	ENVEN ENERGY CORP.	27,092
18	44	BTA OIL PRODUCERS	26,868
19	71	SLAWSON EXPLORATION	24,293
20	25	MAVERICK NATURAL RESOURCES LLC	23,573

Source: Enverus

Responding to firmer prices

Private, public and supermajor operators across the major oil plays historically reacted to price signals at different time lags and speeds against market changes. Lags are defined as the time it takes between the price signal and a visible upward/downward trend in an operator's spud. If there is no change in trajectory in the operator's activity prior to the next price signal, it is assumed that the operator did not react to the initial event. Weighed against the price swing, private operators in the Delaware, Midland and Eagle Ford average four-month time lags between a price signal and spud date.

The latter two groups beat their public counterparts by a month, while Delaware private parties are on par with public operators. Private operators in the SCOOP/STACK and D-J Basin show about the same three-month reaction time as the public operators in the respective plays.

We measure the velocity that operators ramp up their well spuds upon reacting to a positive price signal by using the slope of the three-month moving average line adjusted for the operator's reaction time lag. While public companies are undoubtedly working off a larger inventory of wells across most areas, it's noteworthy that in the last four positive price signals, private operators in the Midland, Delaware and Eagle Ford reacted up to ~2.5, 3.5 and nine times the velocity of their public counterparts. The heightened acceleration from private operators primarily occurred during the January 2016 and August 2017 signals, which lasted nearly 1.5 years on average.

Although these were not indicative of the largest price swings, they lasted the longest (relatively.) And some key takeaways have emerged. We believe the first-quarter 2021 price swing incentivizes growth from private operators with highly economic results as they are not weighed down by a possible negative market reaction to growth beyond guidance and capital discipline. Moreover, the calendar 2022 strip recently averaged ~\$55/bbl WTI, making for an attractive hedging opportunity.

While there has been modest rig recovery since the beginning of 2021, there are many high-return areas with a fraction of pre-pandemic rigs, and we expect private operators to ramp activity in these areas before others. Drilling rigs will need to recover at a steady pace or ramp up to match frac crew activity in first-half 2021 to avoid drawing down DUCs to critically low levels.

Where to look

The Delaware and Midland basins represent the largest potential for increased drill-

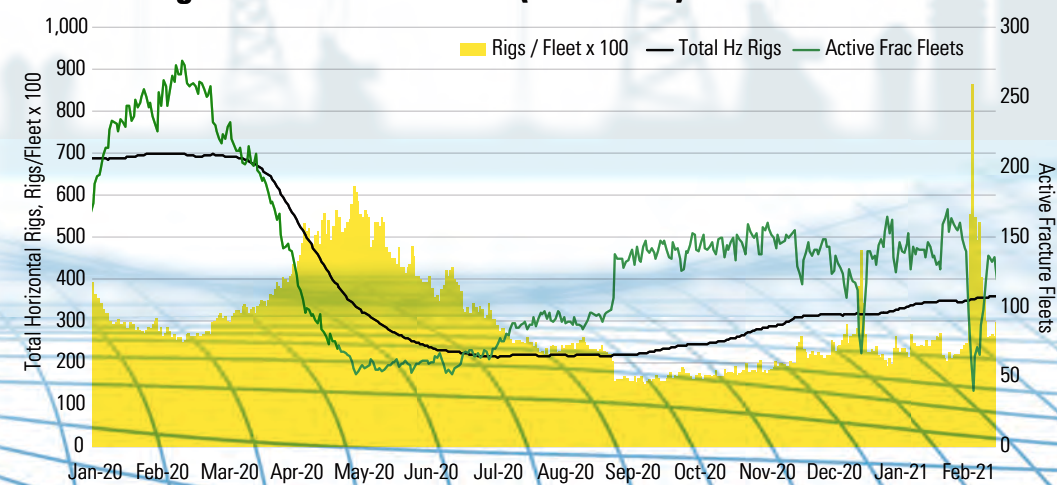
Top 20 Private Gas Producers

Gas Ranking	BOE Ranking	Company	Daily Gas Production (Mcf/d)
1	1	HILCORP ENERGY CO.	10,541,118*
2	2	ASCENT RESOURCES LLC	2,158,303
3	3	AETHON ENERGY MANAGEMENT LLC	1,302,257
4	4	INDIGO NATURAL RESOURCES LLC	1,199,495
5	7	CHIEF OIL & GAS	1,016,472
6	5	ENCINO ENERGY PARTNERS	973,114
7	9	ROCKCLIFF ENERGY LLC	875,160
8	10	FLYWHEEL ENERGY LLC	846,288
9	13	BKV CORP.	774,508
10	12	GEOSOUTHERN ENERGY CORP.	764,010
11	15	CAERUS OPERATING LLC	701,472
12	11	MERIT ENERGY CO.	681,731
13	16	TERRA ENERGY PARTNERS	632,932
14	17	LEWIS ENERGY GROUP	590,829
15	18	SIMCOE LLC	590,697
16	19	PENNENERGY RESOURCES	575,913
17	21	JONAH ENERGY LLC	528,777
18	24	ALTA RESOURCES LLC	523,387
19	22	TUG HILL OPERATING	517,378
20	23	TRINITY OPERATING	456,409

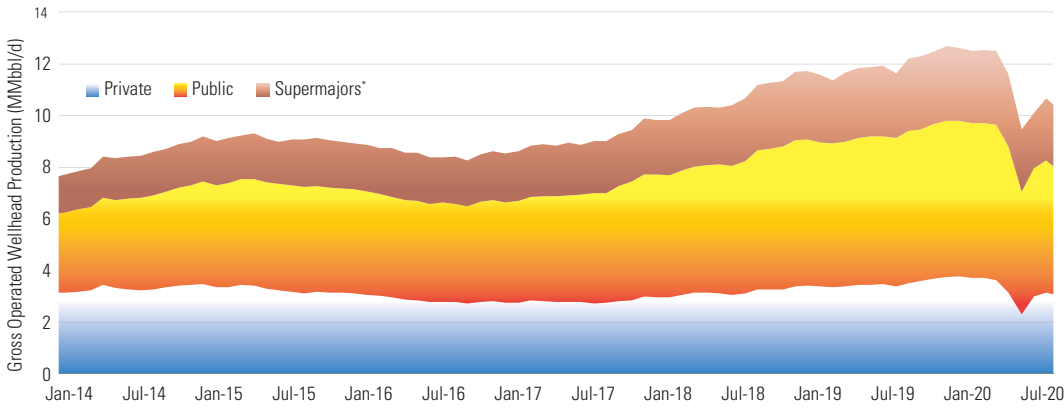
Source: Enverus

ing in areas generating IRRs above 20%. The former needs to add ~100, and the latter needs ~85 to rebound to pre-pandemic levels. These two plays provide a combined ~55 areas of interest equating to ~120 rigs drilling prospects that generate returns in excess of 80% at current strip pricing. While the Delaware's core north oil and gas areas are likely to see the greatest increase in drilling, we are also watching private operators with exposure to the south oil and slope regions. We are monitoring rig movements in the Midland Basin's Central and Eastern Flank areas as these have the highest returns with the largest drop in rigs currently compared to first-quarter 2020.

Horizontal Rigs And Active Frac Fleets (2020-2022)



Gross Operated Oil Production Split Between Public, Private And Supermajors (2014-2020)



*Note: Supermajors include BP, CVX, COP, EQNR, RDSA, TOT and XOM

**Note: Operator classification is indicative of current operator and does not account for M&A

Source: Enverus

The Eagle Ford, Bakken and SCOOP/STACK follow behind the Permian Basin with deficiencies of ~40, ~35 and ~15 rigs. The Eagle Ford's core eastern volatile oil and condensate are among the most economic with the least rig recovery to date and show the potential to add another 13 rigs to get back to first-quarter 2020 levels.

Private operators

There are various active private operators across the oil plays with economics that make it feasible for a ramp-up in activity. The most active and economically superior private operators across major U.S. Lower 48 oil plays can add ~140,000 bbl/d of oil supply in the next 12 months after offsetting base declines. While this is not an immaterial volume, we do not believe this is bearish for prices in the next 12 months.

What to watch

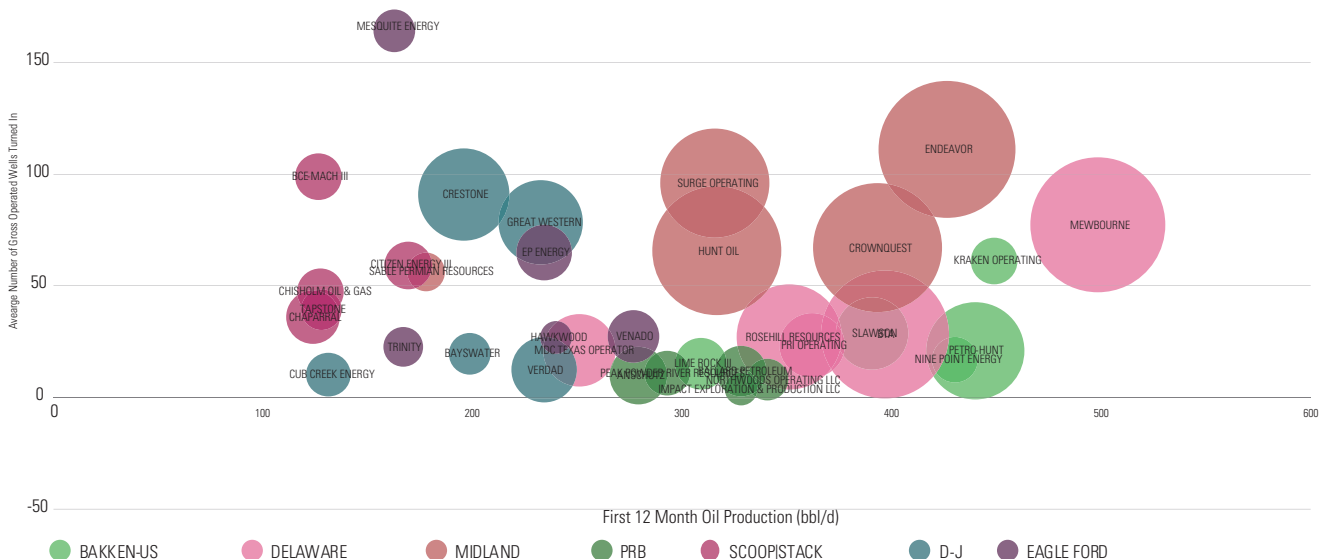
Monitoring rig movements in the Midland Basin's Central and Eastern Flank areas are a good first indicator, and the Delaware Basin's core

of ~50% in the current market. Private operators in the Midland, Delaware and Eagle Ford historically reacted up to 2.5 to nine times faster than their public counterparts during periods when oil prices gained \$10/bbl WTI.

Private operators are adding rigs faster than publics which is similar to what we've observed after historical recoveries. As they may buck the capital discipline trend sweeping across the public space, they are clearly the group to watch right now and into the near future. □

Farzin Mou is a vice president of intelligence at Enverus. She joined RS Energy Group, acquired by Enverus, in September 2017 as part of the Appalachia team focusing on net asset valuations, drilling and completions analysis, and acreage valuations. Since then, she spent a year as a principal consultant helping clients with strategic decisions using Enverus solutions. More recently, she joined the macro team with a focus on North American liquids supply.

Most Active Private Operators by Turn-In-Line Count



*Note: includes wells that produced at least 1 bbl/d/1,000' in first year.

**Note: There may be downside risk to average productivity when factoring in downspacing, completion design, or a shift to full-development.

Source: Enverus; Wellcast; Procast



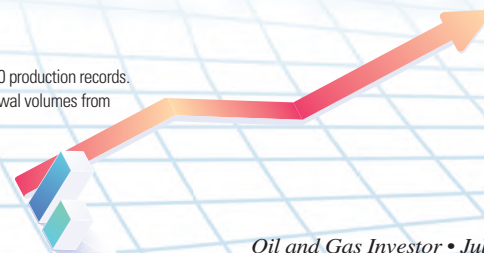
Top 100 U.S. Private E&P Operators

Data provided by Enverus.

Company	Daily Production (boe/d)	Daily Oil Production (bbl/d)	Daily Gas Production (Mcf/d)	% Oil	Well Count	Wells Online in 2020	Rig Count 4-26-2021	Primary Region
1 HILCORP ENERGY CO.	2,058,023	301,169	10,541,118*	14.63%	20,081	36	1	ALASKA
2 ASCENT RESOURCES LLC	382,656	22,938	2,158,303	5.99%	603	74	4	EASTERN US
3 AETHON ENERGY MANAGEMENT LLC	217,554	511	1,302,257	0.23%	2,429	62	7	GULF COAST
4 INDIGO NATURAL RESOURCES LLC	200,184	268	1,199,495	0.13%	1,180	48	5	GULF COAST
5 ENCINO ENERGY PARTNERS	182,131	19,946	973,114	10.95%	894	48	2	EASTERN US
6 ENDEAVOR ENERGY RESOURCES	176,419	125,743	304,052	71.28%	3,914	144	9	PERMIAN
7 CHIEF OIL & GAS	169,412	0	1,016,472	0.00%	376	23	1	EASTERN US
8 MEWBOURNE OIL CO.	160,816	92,819	407,978	57.72%	2355	77	13	PERMIAN
9 ROCKCLIFF ENERGY LLC	146,347	487	875,160	0.33%	1,008	47	4	GULF COAST
10 FLYWHEEL ENERGY LLC	141,048	0	846,288	0.00%	3,667	0	0	MIDCONTINENT
11 MERIT ENERGY CO.	136,773	23,152	681,731	16.93%	9,647	5	0	MIDCONTINENT
12 GEOSOUTHERN ENERGY CORP.	130,807	3,472	764,010	2.65%	556	18	4	GULF COAST
13 BKV CORP.	129,574	490	774,508	0.38%	4,124	0	0	MID-CONTINENT
14 MESQUITE ENERGY INC.	121,407	51,579	418,968	42.48%	2,307	32	1	GULF COAST
15 CAERUS OPERATING LLC	118,923	2,011	701,472	1.69%	6,771	51	0	ROCKIES
16 TERRA ENERGY PARTNERS	107,166	1,677	632,932	1.56%	5,442	54	0	ROCKIES
17 LEWIS ENERGY GROUP	100,686	2,214	590,829	2.20%	1,823	25	2	GULF COAST
18 SIMCOE LLC	98,682	233	590,697	0.24%	3,581	0	0	ROCKIES
19 PENNENERGY RESOURCES	97,988	2,002	575,913	2.04%	391	18	1	EASTERN US
20 CROWNQUEST OPERATING LLC	95,514	63,092	194,527	66.06%	1,134	83	4	PERMIAN
21 JONAH ENERGY LLC	93,318	5,189	528,777	5.56%	2,416	20	1	ROCKIES
22 TUG HILL OPERATING	92,646	6,416	517,378	6.93%	206	35	3	EASTERN US
23 TRINITY OPERATING	88,805	12,737	456,409	14.34%	1,296	49	4	MIDCONTINENT
24 ALTA RESOURCES LLC	87,231	0	523,387	0.00%	381	21	1	EASTERN US
25 MAVERICK NATURAL RESOURCES LLC	86,747	23,573	379,041	27.17%	3,722	17	0	MIDCONTINENT
26 BLACKBEARD OPERATING LLC	86,152	14,118	432,206	16.39%	3,756	31	0	MIDCONTINENT
27 SCOUT ENERGY PARTNERS	75,081	8,601	398,880	11.46%	15,131	15	0	MIDCONTINENT
28 HG ENERGY	71,177	1,340	419,023	1.88%	161	20	3	EASTERN US
29 TG NATURAL RESOURCES	69,110	1,368	406,451	1.98%	2226	2	0	GULF COAST
30 FLEUR DE LIS ENERGY	67,920	28,847	234,435	42.47%	4,692	1	0	MIDCONTINENT
31 HUNT OIL CO.	67,715	42,138	153,466	62.23%	592	25	0	PERMIAN
32 SABINE OIL & GAS LLC	67,629	1,593	396,213	2.36%	1,010	23	3	GULF COAST
33 CITIZEN ENERGY	66,955	14,010	317,671	20.92%	316	36	3	MIDCONTINENT
34 BCE-MACH III	65,903	20,788	270,687	31.54%	1,928	16	1	MIDCONTINENT
35 CRESTONE PEAK RESOURCES	64,943	28,879	216,384	44.47%	1,450	54	1	ROCKIES
36 GREAT WESTERN PETROLEUM	64,843	32,421	194,533	50.00%	464	64	2	ROCKIES
37 EP ENERGY	62,074	40,975	126,599	66.01%	1,247	30	1	GULF COAST
38 SURGE ENERGY	61,738	46,915	88,939	75.99%	653	51	2	PERMIAN
39 LLOG EXPLORATION CO. LLC	58,261	44,807	80,722	76.91%	56	6	0	GOM OFFSHORE
40 FIELDWOOD ENERGY LLC	56,513	38,375	108,825	67.91%	549	1	0	GOM OFFSHORE
41 PINEDALE ENERGY PARTNERS	54,732	2,218	315,086	4.05%	1,207	4	0	ROCKIES
42 KRAKEN OIL & GAS	54,640	42,306	74,001	77.43%	345	26	0	ROCKIES
43 NORTHEAST NATURAL ENERGY LLC	52,425	0	314,548	0.00%	96	11	1	EASTERN US
44 BTA OIL PRODUCERS	48,040	26,868	127,033	55.93%	350	38	3	PERMIAN
45 PETRO-HUNT LLC	47,968	35,558	74,460	74.13%	743	23	1	ROCKIES
46 TANOS EXPLORATION	44,522	926	261,575	2.08%	1,325	5	1	GULF COAST
47 SABLE PERMIAN RESOURCES	43,957	14,696	175,566	33.43%	662	4	0	PERMIAN
48 PRESIDIO PETROLEUM	43,282	8,638	207,866	19.96%	2,387	2	0	MIDCONTINENT
49 CAMINO NATURAL RESOURCES	41,289	10,802	182,924	26.16%	211	21	2	MIDCONTINENT
50 BIRCH RESOURCES	40,134	31,643	50,948	78.84%	386	54	2	PERMIAN
51 UNITED PRODUCTION PARTNERS	39,675	381	235,763	0.96%	6,544	0	0	MIDCONTINENT
52 TAPSTONE ENERGY	39,519	9,055	182,782	22.91%	2,084	0	0	MIDCONTINENT

Company	Daily Production (boe/d)	Daily Oil Production (bbl/d)	Daily Gas Production (Mcf/d)	% Oil	Well Count	Wells Online in 2020	Rig Count 4-26-2021	Primary Region
53 WALTER OIL & GAS CORP.	38,143	21,043	102,603	55.17%	43	1	0	GOM OFFSHORE
54 COX OIL	37,956	22,042	95,481	58.07%	661	1	0	GOM OFFSHORE
55 ARENA OFFSHORE	37,750	22,550	91,198	59.74%	267	5	0	GOM OFFSHORE
56 SEQUITUR ENERGY RESOURCES	37,222	13,259	143,776	35.62%	372	6	2	PERMIAN
57 CASILLAS PETROLEUM	36,534	6,112	182,533	16.73%	660	1	0	MIDCONTINENT
58 ENSIGN NATURAL RESOURCES	35,060	13,395	129,991	38.21%	688	3	1	GULF COAST
59 LIME ROCK RESOURCES	34,685	17,381	103,828	50.11%	1,582	4	0	ROCKIES
60 FASKEN OIL AND RANCH	34,182	20,005	85,063	58.52%	1,358	15	0	PERMIAN
61 CARBON CREEK ENERGY	33,669	0	202,013	0.00%	3,980	0	0	ROCKIES
62 LEGACY RESERVES	33,280	15,000	109,680	45.07%	1,939	2	2	PERMIAN
63 ENVEN ENERGY CORP.	33,200	27,092	36,648	81.60%	70	5	0	GOM OFFSHORE
64 DISCOVERY NATURAL RESOURCES	32,694	16,897	94,781	51.68%	1,406	17	2	PERMIAN
65 BRIX OPERATING LLC	31,367	0	188,203	0.00%	23	5	0	GULF COAST
66 VERDUN OIL CO.	30,691	18,946	70,469	61.73%	230	11	1	GULF COAST
67 SPUR ENERGY PARTNERS	29,753	17,283	74,821	58.09%	2,608	12	1	PERMIAN
68 BEDROCK ENERGY PARTNERS	29,739	214	177,151	0.72%	1,204	0	0	MIDCONTINENT
69 ESCONDIDO RESOURCES	29,299	190	174,654	0.65%	140	10	0	GULF COAST
70 LARAMIE ENERGY LLC	29,064	393	172,026	1.35%	1,447	0	0	ROCKIES
71 SLAWSON EXPLORATION	28,838	24,293	27,269	84.24%	457	9	0	ROCKIES
72 TEXAS PETROLEUM INVESTMENT CO.	27,956	16,395	69,367	58.65%	1,813	3	1	GULF COAST
73 PRIMEXX ENERGY PARTNERS	25,972	18,580	44,351	71.54%	112	11	2	PERMIAN
74 CHAPARRAL ENERGY	25,655	8,160	104,971	31.81%	453	18	0	MIDCONTINENT
75 KAISER-FRANCIS OIL	25,503	12,806	76,178	50.22%	656	5	4	PERMIAN
76 BEACON OFFSHORE ENERGY	25,339	20,571	28,606	81.18%	11	2	0	GOM OFFSHORE
77 PENNSYLVANIA GENERAL ENERGY	25,035	0	150,207	0.00%	167	3	0	EASTERN US
78 ZARVONA ENERGY	24,785	8,880	95,429	35.83%	1,320	4	0	PERMIAN
79 CAPTAIN ENERGY	24,255	9,311	89,666	38.39%	70	4	0	PERMIAN
80 TAP ROCK RESOURCES	24,035	14,820	55,287	61.66%	118	40	7	PERMIAN
81 HAWKWOOD ENERGY	23,815	20,649	18,996	86.71%	340	16	0	GULF COAST
82 RUSHMORE RESOURCE PARTNERS	23,337	7,141	97,173	30.60%	384	0	0	PERMIAN
83 ARSENAL RESOURCES	23,254	0	139,522	0.00%	61	3	0	EASTERN US
84 COLGATE ENERGY	22,606	14,123	50,897	62.47%	94	9	3	PERMIAN
85 ENDURING RESOURCES LLC	22,506	8,928	81,469	39.67%	944	2	0	ROCKIES
86 ROSEHILL RESOURCES	22,295	15,684	39,664	70.35%	115	8	0	PERMIAN
87 ROCKDALE MARCELLUS	22,292	0	133,750	0.00%	67	5	0	EASTERN US
88 PRI OPERATING LLC	22,255	16,775	32,881	75.38%	142	7	2	PERMIAN
89 REVOLUTION RESOURCES LLC	21,705	6,272	92,603	28.89%	646	10	1	MIDCONTINENT
90 RIMROCK OIL & GAS	21,524	17,531	23,959	81.45%	149	11	0	ROCKIES
91 SOUTHLAND ROYALTY CO.	21,317	2,802	111,094	13.14%	844	0	0	ROCKIES
92 EAGLERIDGE ENERGY	21,301	254	126,278	1.19%	1,027	0	0	MIDCONTINENT
93 GRIZZLY ENERGY LLC	20,926	3,464	104,771	16.55%	1,643	0	0	ROCKIES
94 LUXE ENERGY LLC	20,811	8,156	75,926	39.19%	54	10	1	PERMIAN
95 URBAN OIL & GAS	20,796	2,481	109,890	11.93%	3,529	0	0	GULF COAST
96 JAY-BEE OIL & GAS	20,041	422	117,713	2.10%	78	3	0	EASTERN US
97 ZAVANNA LLC	19,984	12,392	45,551	62.01%	146	11	0	ROCKIES
98 ENSIGHT IV ENERGY PARTNERS	19,824	295	117,175	1.49%	292	4	0	GULF COAST
99 LARIO OIL & GAS CO.	19,485	15,954	21,184	81.88%	176	15	1	PERMIAN
100 OLYMPUS ENERGY	19,135	0	114,808	0.00%	14	3	1	EASTERN US

- Daily Production values are gross operated averages for 2020 (reflects operatorship as of 04/26/2021).
 - Enverus Engineered Production (Applies Oklahoma Smoothed Production algorithm).
 - Daily Production (boe/d) uses a 1 bbl : 6 Mcf conversion ratio.
 - "Producing Well Count" values represent operated wells that had production in 2020.
 - "Wells Online" counts all operated wells with a first production date in 2020.
 - "Rig Count" includes active horizontal rigs as of 04/26/2021 from Enverus Activity Analytics.
 - "Primary Enverus Region" values reflect where the largest portion of Daily Production (boe/d) is located.
 - Daily Production values include averages from only the periods with available data for APIs that have incomplete 2020 production records.
 - Daily Gas Production (Mcf/d) values reflect gross withdrawal volumes rather than marketed volumes. Gross withdrawal volumes from Hilcorp wells in Alaska are much greater than marketed volumes, indicating significant gas reinjection.
- Source: Enverus



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2021

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WATER MANAGEMENT

ARTICLES BY
BRIAN WAZEL

For an industry less than a decade into its development, water management has emerged as a crucial component of upstream oil and gas development. And, in those seven years, the water management sector has seen remarkable growth and evolution.

In many cases, producers have created subsidiaries solely for their water management operations. Some have even sold them to third-party providers. The water management industry started simply as a means to acquire freshwater for fracking and dispose the vast amounts of produced water. Its evolution has included the development of hundreds of miles of gathering and distribution pipelines, primarily in the water-starved Permian Basin, and the creation of reliable and secure water sources.

And, like every other facet of the oil and gas industry, water management has now matured to the point of automation and the adoption of digital technologies that make water acquisition, disposal, reuse and recycling more efficient than ever.

Now, as a result of the diminishing value of saltwater disposal (SWD) wells—both environmentally and economically—companies are increasingly turning to water reuse and recycling for their fracking operations. SWD availability is becoming scarce, and induced seismicity concerns are pushing producers to turn to recycling.

In May, Hart Energy hosted a virtual water management conference, bringing together industry leaders who shared their insights on the latest trends and choices. Among them were John Durand, president and chief sustainability officer of XRI Holdings; Steve Jones, CEO of WaterBridge Resources LLC; and Brent Halldorson, president of RedOx Systems and board member of the Produced Water Society.

These industry leaders discussed the continued growth of the water management industry and the increased need for recycling. To view their full interviews and others from the Water Management Conference, visit hartenergy-conferences.com.

THE WATER WALL

Industry leader in water management says water production will continue to grow as production climbs and the need for increased recycling efforts gains steam.

The “wall of water” described by water management players is here and is likely to only continue growing, said John Durand, president and chief sustainability officer at XRI Holdings. Durand spoke of the urgent need for producers to adopt water recycling practices to limit disposal costs and meet growing calls for ESG efforts.

“Concerns regarding the use and supply of fresh water, seismicity and the safe storage of produced water are establishing strong tailwinds for the water recycling and reuse business model,” he said. “There undoubtedly lies a pathway and a significant market opportunity for gathering, treatment and redeployment of produced water resources.”

According to Durand, total Permian Basin oil production on March 1 was 4.3 million barrels per day (MMbbl/d), a year-over-year increase of 10.3%. Assuming what Durand called a “conservative” factor of 3.2 times oil-to-water ratio in the Permian Basin, approximately 14 MMbbl of flowback water are produced every day, or annualized estimated volume of 5.1 Bbbl.

“Even at reduced production ... the wall of water we have experienced and talked about as a water management sector for years is alive and well,” he said.

Recycling efforts

Durand explained that E&P operators are increasingly focused on partnering with water midstream providers that are able to provide ESG-centric solutions to produced water management. He said the benefits to taking such an approach are “considerable.” Among the benefits to adopting larger-scale water recycling operations is creating a more cost-effective supply.

“Injecting produced water back into ground is extremely costly,” Durand said. “And scaled



XRI Holdings operates more than 350 miles of permanent pipelines throughout the Permian Basin.

recycling now is a less expensive manner of which to dispose and utilize produced water.”

He added that the sustainability that water recycling affords benefits the oil and gas industry as a whole, where the industry can demonstrate higher environmental standards while driving customer value.

“In meeting customer needs without compromising the ability of future generations to meet their needs and demands should be our No. 1 goal,” Durand said.

Durand cited recent laws in New Mexico that ban the use of fresh water for fracking operations. In 2019, nearly 14.5 billion gallons of water were used for overall production in 2019, “equal to the amount of water needed for household use for about 280,000 people, or about one-eighth of New Mexico’s population.”

“How far away may we be from this sort of action in Texas, particularly if we revisit the type of drought conditions experienced from 2010 to 2015,” he said. “It is certainly something that should be top-of-mind for each of us in the water management sector, and we must plan ahead for that today.” □



“There undoubtedly lies a pathway and a significant market opportunity for gathering, treatment and redeployment of produced water resources.”

—John Durand,
XRI Holdings



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'BLUE-SKY' VIEW ON WATER

Rethinking the capabilities of produced water may prove to be beneficial.

Adjusting the perception of produced water—the large amounts of water that flow back with oil and gas, particularly in unconventional production—can help the industry better leverage it as a commodity rather than a waste.

That theory was presented by Brent Halldorson, president of RedOx Systems and board member of the Produced Water Society. Offering what he described as “a very blue-sky look” at the future of water management, Halldorson said the industry should work to change the narrative of how it refers to produced water.

“It really is a valuable resource,” he said. “Produced water is an entirely new resource that we are liberating.”

Halldorson acknowledged that although the industry has begun to more readily embrace recycling produced water for fracking, water treatment efforts are minimal, simply enough to take out the suspended solids in order to pump downhole again.

“If fracking stops, recycling stops,” he said. “But produced water doesn’t stop, disposal doesn’t stop. It has to go somewhere.”

That leaves millions of barrels of produced water to be disposed of, which is costly and increasingly discouraged by investors who place a value on ESG efforts.

Halldorson suggested that if producers instead treat produced water to a quality in which it can be used outside of the oil and gas industry, it could “sever the tie” to frac supply and offer producers fringe benefits such as reducing seismicity risks.

“When we think of a traditional oil and gas well, we think of two commodities: oil and gas,” he said. “And we’ve got this produced water that comes out. Produced water gets no respect. We’ve subsidized water to the point



“Produced water is an entirely new resource that we are liberating.”

—Brent Halldorson,
RedOx Systems

where we think water has no value because water has essentially been free in the past. We can change that if we start giving produced water a little bit more respect. So, let’s think of it as three commodities we are bringing up from the ground.”

Overcoming obstacles

Halldorson acknowledged that the biggest obstacle to treating produced water to a quality that it can be used outside of the industry is a financial one.

“Can we make the economics work?” he asked. “Because if we want to get this water from where it is today, which is being used within the oil field, and we want to treat it to the point where it is used outside the oil field, it is going to take a higher level of treatment.”

Halldorson added that in addition to the financial challenge, the industry would also need to overcome both the public perception of produced water—and fracking, in general—as well as regulatory agencies such as the National Pollutant Discharge Elimination System.

He noted several efforts that have been successful in applying water produced from oil and gas production for non-industry applications. One is Eureka Resources in Pennsylvania, which Halldorson said was the first company to treat Marcellus Shale produced water to a standard for discharge. The company has improved its systems to create “true zero-liquid discharge” from produced water, he said, and can create food-grade quality salt for non-food applications and discharge distilled water back to the environment for reuse.

“We don’t have oil wells anymore,” Halldorson said. “We should really refer to them as oil, gas and water wells.” □

MIDSTREAM H₂O

The water midstream sector continues its upward trajectory as producers turn more to third-party providers for water management.

While many companies are holding flat on production growth, focusing instead on generating cash, others are pushing ahead with guidance in the coming year of 10% growth in some cases and 3% and 5% for others. That production growth will lead to substantial increases in produced water volumes, necessitating increased investment and utilization of large-scale water midstream operations in the Permian Basin, said Steve Jones, co-CEO and CFO at WaterBridge Resources LLC.

WaterBridge Resources began with about 3,000 dedicated acres in the Delaware Basin in 2017 and now holds about 55,000 dedicated acres with 840 miles of pipeline and about 200,000 bbl/d of water handling capacity.

“Our evolution really mirrors the evolution of the producer side of the business,” he said. “Where producers once thought of water as being very integrated into their field operations that they couldn’t allow a third-party to handle it. Over time, the increases in water volumes have created constraints on their side, and we’ve seen the rise of third-party providers like WaterBridge to provide flow assurance and redundancy that is benefitting their businesses and allowing them to focus on the upstream side of their business.”

Water midstream rises

Jones explained how the growth in the water midstream business, and for WaterBridge Resources, has occurred when producers target production growth of their own.

“The water volumes, because of the initial flowbacks being so large, end up growing much more rapidly than the crude oil does,” he said.

Jones cited an example of a recent Wolfcamp B four-well pad that produced nearly 14,000 bbl/d of flowback water in its first two months online compared to just less than 2,000 bbl/d of oil. Those amounts quickly fall off, down to



“Our evolution really mirrors the evolution of the producer side of the business.”

—Steve Jones,
WaterBridge
Resources LLC

about 3,000 bbl/d of flowback water after about 18 months online, according to WaterBridge.

“At 5% growth target for crude oil today, which is the average for producers that are providing public guidance, it results in a mid-teens growth over the same time in water volumes,” Jones said. “[Producers] are having to invest a lot more in infrastructure for water than they would have previously. And, it makes the benefits greater for having a third-party service provider that they can trust.”

He added that such strong initial volumes of water make handling such quantities via truck “almost impossible,” and that operators should be connected to a water pipeline network.

“But also, if you’re getting into manufacturing mode as many producers are, those peak volumes will be much, much greater,” he said. “You have a hard time justifying building a small system for the peak volume for

a producer when they are going to develop and move on.”

Jones explained that with the advent of cube-style pad development, an operator’s peak daily water production rate could be as much as 220,000 bbl/d of water, which would require the development of about eight new saltwater disposal wells and associated facilities at a cost about \$27 million.

And according to WaterBridge Resources, at market-based pricing, an operator realizes capex savings with only a slight increase in average monthly LOE.

“We and some of our peers have really figured out that the best way to think about a system for water management is less of a gathering and disposal system and more of a distribution system,” Jones said.

“As recycling has become a much more desirable part of the operations, taking back produced water that has been moderately treated and reusing that in completion activities can create a cycle that benefits everyone along the value chain.” □





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RING ENERGY – A FRESH PERSPECTIVE ON A PROVEN STRATEGY

Formed in 2012, Ring Energy has aggressively sought to acquire low decline, long-life producing properties with highly economic future drilling opportunities. This included a transformational transaction in 2019 that essentially doubled production and reserves through the purchase of almost 50,000 gross acres of producing assets targeting the Northwest Shelf. The purchase firmly established Ring as a significant operator focused on the proven, high-quality, oil-rich, conventional San Andres reservoir in the Permian Basin.

With the onset of the COVID-19 pandemic and collapse of oil prices in March 2020, Ring acted quickly to ensure the health and safety of its employees, while also protecting the business by suspending all drilling activities, curtailing production, and reducing costs.



Paul D. McKinney, Chairman and CEO

“We are fortunate to have a first-class team of employees that excelled through one of the most difficult periods in the history of our industry,” said Chairman and CEO Paul McKinney. “While many other E&P’s entered financial restructuring, the hard work and tireless dedication of our employees was a key reason we survived the downturn and are in a solid position for long-term success as the economic backdrop continues to improve.”

Recognizing a lack of investor appreciation of Ring’s historical operating success and unique market position, in mid-2020, Ring’s Board evaluated alternatives for increasing shareholder value and, led by Tim Rochford, Co-Founder and then Chairman, the Board decided a change in approach was needed. Paul McKinney joined Ring as Chairman and CEO on October 1, with more than 35 years of industry experience, including 23 years at Anadarko, six years at Apache and five years at Yuma Energy.

“Tim and his team did a great job assembling Ring’s premier position of conventional assets in the Permian Basin,” commented McKinney. “I truly appreciate Tim’s ongoing support as we focus on providing a fresh perspective on the Company’s proven strategy through the execution of targeted initiatives to further reduce operating costs, improve margins, and – most important – drive incremental free cash flow generation to build a stronger, sustainable financial foundation for the long-term benefit of our shareholders.”

“Steering our efforts is a talented new executive leadership team, substantially all of whom I have worked with in the past,” McKinney continued. “We have a shared vision of how to build an E&P business that can best succeed through the inherent cycles of the industry. We also utilize a non-hierarchical approach where the entire team provides input into the decision-making process. I have been pleased to see the positive impact of our close collaboration despite only having the team in place for eight months.”

The financial markets have recognized the efforts of the new management team as Ring's stock price has risen from a low of \$0.43 per share in early November 2020 to \$3.05 per share recently.

McKinney and his team are focused on a number of strategic priorities to further leverage Ring's unique market position, while ensuring health, safety and environmental excellence and a strong commitment to Ring's employees and the communities in which it operates, all while maintaining financial discipline.

"I have always believed that a company's future success can only be achieved through the efforts of its employees," said McKinney. "A key priority for Ring is to attract and retain the best people, which is the primary reason we relocated our corporate headquarters in January to the metro-Houston area. The region is home to many of the best and brightest in the industry, and we are actively expanding our technical and financial teams to support the growth of the business."

McKinney continued, "The oil and gas business is fast-paced, with each day bringing new opportunities and challenges. To succeed in this environment, a culture that promotes open dialogue and trust is imperative to pursuing operational excellence with a sense of

urgency. It is through our culture that we apply advanced technologies that help reduce our cash operating costs and deliver low-cost, efficient execution of our drilling campaigns and work programs. It is our culture that encourages debate that ultimately identifies the highest risk-adjusted rate-of-return projects in our inventory. It is our culture that encourages all employees not to wait until tomorrow to get something done that can be done today. It is also our culture that creates the environment where every employee knows that safety is our first priority and that we will operate in an environmentally responsible manner respecting the opinions of the communities in which we work and operate."

In addition, Ring remains focused on divesting of non-core assets and pursuing strategic acquisitions that deliver attractive returns.

McKinney concluded, "Supported by a high-quality asset base with extensive potential, a proven business model designed to drive free cash flow generation, and a best-in-class and growing team of employees, I believe we have a great future ahead of us as we strive to take Ring to new heights." □

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BLOODY, BUT UNBOWED

Shell-shocked E&Ps posed challenges for midstream companies during the pandemic, but strategies based on renegotiating contracts, positioning for advantage in upcoming bankruptcies and broadening product offerings have shown that the sector has plenty of fight.

ARTICLE BY
JOSEPH MARKMAN



“The key to successful midstream is scope, scale and integration,” said Ethan Bellamy, principal at BP Capital.

The pandemic fired away relentlessly at the oil and gas industry, shredding demand for transportation fuel and forcing retreats in staffing, rig counts and investor interest. The upstream sector was particularly shell-shocked, with Haynes and Boone LLP reporting that 54 E&Ps filed for Chapter 11 bankruptcy protection from the start of 2020 through first-quarter 2021, accounting for debt of more than \$53 billion.

By contrast, only eight midstream companies filed for Chapter 11 during that time, with collective debt of less than \$700 million. So, is it time for high-fives yet? How about a victory lap? Did the sector dodge a bullet?

“No,” said Ethan Bellamy, principal at BP Capital in Dallas. “I would say the best example of what the midstream has gone through would be the Chesapeake-Williams omnibus agreement.”

The deal is an example of what Bellamy calls “blend and extend.” Sometimes, survival is not just about being the fittest but about figuring out how to get by in tough circumstances.

Blend and extend

Chesapeake Energy Corp. is one of those “too big to fail” enti-

ties—maybe not for the government but arguably for midstream providers. Only a company that had known enormous success could end up filing for bankruptcy with an astonishing \$11.8 billion in debt. The total was more than double that of the second-largest 2020 E&P bankruptcy, Ultra Petroleum Corp.

After Chesapeake Energy filed in June, it proceeded to follow a restructuring plan that would eventually allow it to shed \$7 billion in debt while returning to natural gas production and away from aggressive bets on crude oil. It also went to work with pipeline giant The Williams Cos. Inc., on finding a way to survive the present and prosper in the future.

“Generally speaking, in almost every case, midstream is an essential service for the upstream,” Bellamy said. “Depending on the amount of leverage or how core that is, the midstream may be able to continue at the same rate if there aren’t any other options to the upstream, or they can blend and extend and take a lower rate but for longer or add on some other ancillary businesses.”





“There’s a chance that [the midstreamer and upstream counterparty] can reach a deal out of court, which might result in a better deal than if there is a (Chapter) 11 filing and the contract is rejected,” said Tim Million, senior counsel, Husch Blackwell.

Williams chose the latter. By late November, the two parties reached a deal in which Williams would take over some of Chesapeake’s assets in exchange for lower gas gathering fees. In return, Chesapeake promised to not reject transportation service agreements (TSAs) with Williams in the Eagle Ford, Marcellus or Midcontinent shales. Chesapeake also agreed to long-term gas supply commitments for Williams’ Transco Regional Energy Access Pipeline, which is expected to be in service in the Northeast in time for the 2023-2024 winter heating season.

The producer emerged from bankruptcy protection in February under the control of its lenders. The company had shed assets and a hefty share of its previous workforce. In April, it also pulled its name off the side of Chesapeake Energy Arena, home to the NBA’s Oklahoma City Thunder. Chesapeake was chastened, but back in the game and valued at about \$5.1 billion.

Williams’ approach led to a solution that worked for both sides and, while it might appear that a company with a market capitalization of \$28.5 billion in mid-April had the upper hand, that advantage could evaporate in bankruptcy court.

“The unfortunate part of it is, the way the case law has developed, some of these midstream contracts, if they weren’t structured properly, they could be shed fairly easily in a Chapter 11 by rejecting the agreements,” said Randall Rios, senior counsel for the Husch Blackwell law firm. “If you reject a midstream agreement, then the midstreamer is left with an unsecured claim for rejection damages. In the cases back in 2015 to 2016, all of the restructurings were just deleveraging the balance sheets. They really weren’t dealing with trade creditors and things of that nature. The restructurings we’ve seen now, everybody’s suffering.”

Tim Million, also senior counsel at Husch Blackwell, likes the idea of getting ahead of the issue.

“If a midstreamer is approached early on by a counterparty that claims they have problems and need to restructure their agreement, the midstreamer should seriously consider taking the opportunity to work something out with the counterparty prior to a bankruptcy filing,” Million said. “There’s a chance that they can reach a deal out of court, which might result in a better deal than if there is a (Chapter) 11 filing and the contract is rejected.”

However, “blend and extend” has not fit into every situation in the pandemic era.

Calling in the Feds

West to east and east to west, the bidirectional Rockies Express Pipeline (REX) can transport as much as 4.4 billion cubic feet per day of natural gas to Midwest markets from gas fields in the Powder River Basin and Denver-Julesburg Basin in the Rockies, and the Marcellus and Utica shale plays in Appalachia. The 36-inch

and 42-inch pipes traverse 1,700 miles beneath Wyoming, Colorado, Nebraska, Kansas, Missouri, Illinois, Indiana and Ohio.

But not South Texas. And yet, that’s where REX (in a metaphorical sense) has been diverted—to U.S. Bankruptcy Court of the Southern District of Texas. The pipeline’s owners, Tallgrass Energy LP (75%) and Phillips 66 Co. (25%) may be holding steady through the pandemic’s economic travails, but its upstream counterparty, Gulfport Energy Corp., is not. It filed for Chapter 11 bankruptcy protection in November, declaring an estimated \$2.5 billion in liabilities as of the end of third-quarter 2020.

Prior to the filing, Gulfport Energy’s struggles were not a secret. The company was stuck with assets it had purchased in Oklahoma’s SCOOP play and, despite efficiency gains and the completion of seven wells in the Utica Shale last summer, its net debt increased in 2020 and liquidity declined. “The outlook continues to look challenging,” Simmons Energy assessed politely last summer.

In anticipation of the filing, REX petitioned the federal government for help. In September, the pipeline asked the Federal Energy Regulatory Commission (FERC) to assert that it, along with the bankruptcy court, had jurisdiction over TSAs with Gulfport if the E&P were to file for Chapter 11. FERC agreed and in late October, just days before Gulfport Energy filed for Chapter 11, found that canceling the TSAs would not be in the public interest.

In March, Gulfport appealed FERC’s decision in the Fifth U.S. Court of Appeals, arguing that the commission did not have jurisdiction, and its findings interfered with the E&P’s bankruptcy filing.

“It’s kind of a hot litigation issue currently,” Million said. “FERC had taken the position that they can’t just unilaterally be rejected in a bankruptcy case without their input, their approval, as well. They’re asserting that they have co-jurisdiction with the bankruptcy court.”

The type of proactive stance taken by REX as a non-bankrupt counterparty is an understandable action, according to a Dallas-based lawyer with extensive experience in oil and gas bankruptcies.

“Any time that you see bankruptcy coming and you’re the non-bankrupt counterparty, you’re considering, ‘How can I better posture my position so as not to be so much at the mercy of the special bankruptcy powers?’” the lawyer, who wished to remain anonymous, said. “When you’re the non-bankruptcy party, the bankruptcy powers seems to favor the debtor and to disfavor you. That’s going to be your position or your perception if you’re that non-bankrupt counterparty.”

The maneuverings, he said, are akin to a chess match.

“A pipeline company doesn’t want to lose available production,” he said. “They want to keep their pipe full, and they want to keep their product moving. But they have to protect themselves from what they think are the variables and, from their posture, the other party going into bankruptcy can seem to put them at

risk. You're always going to be trying to play a couple of moves ahead on the chessboard."

That can mean keeping a close eye on a troubled counterparty.

"If the midstream company is a creditor or a counterparty to an entity that goes in, the only thing you can do, really, is manage your credit risk as best [as you can] and not let somebody get too far ahead of you in terms of dollars that they owe you," Rios said. "To the extent that the midstreamers under their contracts have the ability to demand adequate assurance of future performance or anything of that nature, certainly, keep those remedies available and on the table. To the extent that they can demand security like letters of credit and things of that nature, they should evaluate those alternatives, as well."

But while devising chess-like moves to gain advantages around bankruptcy proceedings might exist in the domain of big companies like Williams, Chesapeake, Gulfport, Tallgrass and Phillips 66, small independents might face tougher odds.

Water: Finding a way

Water, for example, is an essential midstream service. It has historically been volatile because it's been based on revenue from skim oil, Bellamy said, referring to the practice of skimming oil off the water and reselling the oil. Revenue now is more likely to come off a per-barrel fee, he said, but operators have grown more skilled at not leaving oil in the water.

"I think the biggest issue now with water is leverage at private equity," Bellamy said. "A lot of these private entities were levered up with the expectation that there was going to be continued growth at 2018 to 2019 levels."

Last year, of course, shut that down and even with expected recovery throughout 2021, it will likely take years to return to pre-pandemic levels. So the question remains: How levered are these private entities in the water assets segment?

"That's still a business that, if 2020 hadn't happened, we probably would have had three or four water company IPOs and those haven't occurred," he said. "So I think it's a question of what the private equity firms that backed them choose to do."

So, can a pure water provider succeed in this environment? This time, Bellamy answered with a definitive "yes" ... then he added a "but."

"The key to successful midstream is scope, scale and integration," Bellamy said. "You want to touch a molecule as many times as you can, you want to offer more rather than fewer services to a customer. You want to bundle services together when you can. If you can handle two or three streams from a customer, that is a better service offering."

It depends, though, on the situation. How has the company differentiated its offerings? How competitive is the market?

"There's no reason a stand-alone water company can't work," he said. "That's clearly a

huge business with so much produced water to handle. Ultimately, I think it would be best for water businesses to run alongside other gathering and processing businesses so you can have a master service agreement with an E&P and handle all of their needs."

From the Dallas lawyer's perspective, water companies will ultimately make it because their work constitutes an industry imperative.

"If you're doing fracking, there's a certain amount of water that has to be within a certain degree of salinization to be used in the production," he said. "It just has to be there. Can the water people make it? Is there a way where that industry can make it? The answer is: We have to find that way."

Slow, steady, sigh of relief

A criticism of the concept of bankruptcy protection, the lawyer mused, is that it sometimes keeps weak players hobbling along in the game, thus impeding the progress of reaching equilibrium.

"I don't know if that's always true," he said. "But I'm saying that's a frequent criticism."

If the sector has not experienced a pandemic shakeout, that may owe to the body blows endured in the last downcycle in 2015 to 2016. Perhaps that is why 2020's bullet only grazed the sector.

"In midstream, we saw some problems in 2015 and 2016 after the original OPEC Halloween massacre event took out some weak hands," Bellamy said. "Then we saw very few midstream bankruptcies in this cycle because some weak hands had already been washed out and just because the businesses are more resilient."

Not that doubts did not break the surface. Last year at this time, Rios detected fear among midstreamers.

"Some of the midstream companies that we work with, there were layoffs and things of that nature," he said. "This year, things seem to be calmer than they were last year and things seem to be a little more optimistic, but I don't know that anybody's looking to do anything new right now."

Million agreed, noting that many are just trying to ride out the downturn.

"They're trying to hold steady, and are not currently very aggressive with respect to new deals or projects," he said.

And with a slow but steady recovery expected later this year, a sigh of relief might even be warranted at this stage.

"The general threat on the industry is behind us with \$60 oil and a constructive outlook for natural gas," Bellamy said. "Midstream fundamentals tend to lag the market so while we're not totally out of the woods, the worst is behind us. And in general, the midstream performed admirably. We did not see an extraordinary amount of pain and going concern risk from negative oil prices, and I think it suggests that the midstream has some investment merits that are worthy of consideration." □



"This year, things seem to be calmer than they were last year and things seem to be a little more optimistic, but I don't know that anybody's looking to do anything new right now," said Randall Rios, senior counsel, Husch Blackwell.



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Cabot, Cimarex ‘Surprise’ Merger Bucks Pure-Play Consolidation Trend

MARRYING TOGETHER A core oily Delaware Basin asset with a dry gas Marcellus Shale one, the merger of equals between **Cabot Oil & Gas Corp.** and **Cimarex Energy Co.** upturns a growing trend in the upstream E&P space.

“While public company consolidation including mergers of equals have been a key theme of the post-COVID M&A market, this deal comes as a bit of a surprise and may have a less clear story to tell investors,” Andrew Dittmar, senior M&A analyst with **Enverus**, said in an emailed statement on May 24.

The all-stock transaction combines Cabot’s approximately 173,000 net acres in the Marcellus Shale with Cimarex’s approximately 560,000 net acres in the Permian and Anadarko basins, though Dittmar said Cimarex’s Anadarko position would seemingly play a minor role in the combined company.

“Management commentary indicated additional potential M&A on the horizon, although some investors may wonder why in-basin opportunities weren’t pursued ahead of a surprising multibasin deal,” he added.

Following the announcement of the merger, Cimarex shares had tumbled 7.1% to \$66.14 by close May 24. Cabot’s stock had also fallen to \$16.60, or by 6.8%.

Past mergers have generally involved in-basin consolidation with its easy read through to economies of scale and efficient operations, such as the combination of **Bonanza Creek Energy Inc.** and **Extraction Oil & Gas Inc.** earlier this month in the Denver-Julesburg Basin. Further, public E&Ps have been more likely to exit toward single basin or

“pure-play” status instead of striking out into new areas, as Oasis Petroleum Inc. did with its recent exit from the Permian Basin.

Instead of in-basin synergies, however, Dittmar said the Cabot/Cimarex deal is driven by financial-side metrics as the combined business is estimated to have an enterprise value of approximately \$17 billion.

Additionally, the companies are planning to boost its base dividend, which Dittmar described as one of the more aggressive in the industry, while also adding a variable payout to the mix.

“The increased dividend combined with the stability of operating as a larger company is targeted at attracting long-term investors,” he said.

According to Dittmar, both companies also bring something unique to the table that adds up to an accretive deal beginning with Cabot’s low debt and strong current cash flow, which will improve Cimarex’s pro forma balance sheet and help fund the dividend plans.

Meanwhile, Cimarex’s Delaware Basin position will help address Cabot’s perceived weakness of longer-term inventory runway. Further, the Delaware assets will also give

the combined company the ability to shift capex between gas and oil depending on the relative performance of the commodities.

“Overall, the combination is a merger between two peer companies that are comfortable with one another in terms of financial and operational performance,” Dittmar said.

“Both have been discussed as potential targets for larger rivals, and this deal shows a desire to remain independent while reaching a size that is relevant for energy investors,” he continued.

The combined company which will operate under a new name, plans to be headquartered in Houston and maintain its regional offices. Thomas E. Jorden, currently CEO of Cimarex, will lead the company. Meanwhile, Cabot CEO Dan O. Dinges will retain the role of board chairman.

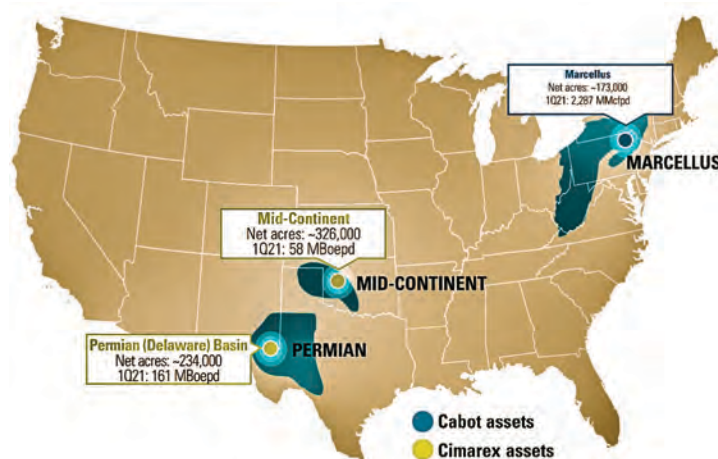
Other than Scott Schroeder, Cabot’s current CFO who will also retain his role, the remainder of the executive team has yet to be decided but the companies did note the combined company’s leadership will include executives from both Cabot and Cimarex.

Under terms of the merger, Cabot will issue 4.0146 shares of Cabot for each share of Cimarex, leaving Cimarex shareholders with a slight majority stake in the combined company of 50.5% upon closing expected in fourth-quarter 2021.

J.P. Morgan Securities LLC is financial adviser to Cabot for the transaction, and **Baker Botts LLP** is serving as its legal counsel. **Tudor, Pickering, Holt & Co.** is Cimarex’s financial adviser, and **Wachtell, Lipton, Rosen & Katz** is providing legal counsel.

—Emily Patsy

Cabot And Cimarex Combined Assets



Source: Cabot Oil & Gas Corp.; Cimarex Energy Co.

New Home In The Haynesville: Southwestern Energy To Buy Indigo Natural Resources In \$2.7 Billion Deal

FOR SOUTHWESTERN ENERGY CO. CEO Bill Way, moving into the Haynesville Shale with the \$2.7 billion acquisition of privately held **Indigo Natural Resources LLC** was a “logical move,” given the Appalachian Basin player’s natural gas focus and strategic opportunities ahead.

Looking at the strengths of the two companies, free cash flow generation, balance sheet power emerging from two premier gas basins plus large-scale inventory with an attractive valuation, “it made logical sense that we pursued it,” Way told analysts June 2 following news of the acquisition.

The transaction, expected to close in fourth-quarter 2021 subject to customary closing conditions, adds more than 1,000 dry gas locations across stacked pay Haynesville and Bossier intervals. With direct access to the Gulf Coast LNG corridor, the company hopes to seize opportunities brought by rising natural gas prices as some of the world’s biggest energy consumers look to use more natural gas instead of coal.

The deal adds to a flurry of consolidation activity seen across U.S. shale plays in recent months as companies develop core positions, eyeing scalability for quality assets enhanced by improved technologies and techniques.

Southwestern-Indigo has become the largest pure-play deal in Louisiana’s Haynesville Shale since 2008, topping Comstock’s \$2.2 billion acquisition of **Covey Park** in 2019, **Enverus** analyst Andrew Dittmar said.

“The industry is overall bullish on the outlook for gas, and Haynesville provides one of the two major sources of low-cost supply along with the Appalachian Basin,” Dittmar said.

The total consideration of \$2.7 billion will be comprised of \$400 million in cash, about \$1.6 billion in Southwestern common stock and \$700 million of assumed 5.375% senior notes due 2029.

As of March 2021—and adjusted for the recent sale of its noncore Cotton Valley assets—Indigo had \$631 million of net debt and a leverage ratio of 1.1 times.

“As a result of this transaction, we expect to see immediate accretion

to key financial metrics, including improvement in corporate returns and per share metrics, an increase to free cash flow, the accelerated delivery of our deleveraging goal and further strengthening of the balance sheet,” Way said. “The high-return dry gas inventory complements the company’s existing gas inventory in Appalachia, and the expansion into Haynesville will allow us to further demonstrate our core competency in developing another large-scale operated natural gas asset while realizing improved basis differentials associated with the close proximity to the high-value Gulf Coast LNG corridor.”

Southwestern had 2020 gas production of about 694 billion cubic feet across Pennsylvania, West Virginia and Ohio, and was the country’s third-largest gas producer, according to Enverus data.

With about 275,000 net effective acres, Indigo is the third-largest private natural gas producer in the U.S., producing 1 billion cubic feet of gas per day (Bcf/d) net from Louisiana’s Haynesville. That’s expected to rise to about 1.1 Bcf/d upon closing.

The combined business in 2022 is projected to generate \$2 billion of EBITDA from more than 4 Bcfe/d of net production, about 85% natural gas.

On the acquired acreage, the company expects to run a four-rig program in 2022, placing 30 to 40 wells to sales. With a maintenance capital program, the company projects 14 years of economic inventory at current strip prices across its assets in Appalachia and the Haynesville.

“The low-cost structure and sales to premium markets on the Gulf Coast are expected to expand margins by 15 cents per Mcf equivalent. With a maintenance capital program and a reinvestment rate of 75%,” added Way, “we are expecting to nearly double our 2022 free cash flow estimate to approximately \$470 million, and the leverage is expected to improve to 1.7x on a pro forma basis. This is based on the \$2.75 Nymex gas price, and strip pricing has continued to strengthen from that level recently.”

Southwestern plans to bring its solid operational execution and efficiencies to the Haynesville.

Clay Carrell, COO for Southwestern, described Indigo’s inventory as top-performing.

“It’s the deepest part of the Haynesville and the Bossier. It’s the highest pressure, it’s where it’s stacked and that’s where they’ve been focused as of late,” Carrell told analysts. “The inventory is very high quality.”

The acquisition adds about 9 Tcf of resource potential across the Haynesville and Bossier intervals, Southwestern said.

However, because drilling depths are greater in the Haynesville, well costs are expected to be higher compared to the Marcellus. Some lateral lengths on Indigo’s acreage are between 9,000 ft and 10,000 ft, Carrell said, but on average they are closer to between 7,500 ft and 8,000 ft. There are typically five wells per section in each interval.

“No communication [has] been observed between the Haynesville and the Bossier [intervals], so that’s really nice about the dual interval opportunity here,” Carrell said.

Way added Southwestern will be looking at drilling opportunities across the entire portfolio, searching for the best economic returns. He noted, “It’s not just gas, it’s condensate and NGL.”

The Southwestern-Indigo deal comes on the heels of **EQT Corp.**’s plans to buy Appalachian Basin rival **Alta Resources LLC** last month and **Pioneer Natural Resources Co.**’s agreement in April to buy privately held **DoublePoint Energy LLC** for \$6.4 billion.

Southwestern in August bought **Montage Resources Corp.** for about \$865 million to expand its footprint in Appalachia, the biggest shale gas basin in the U.S.

The company expects G&A cost savings of about \$20 million from its Indigo deal, along with further operational and financial savings.

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.

—Velda Addison

Diversified Raids Blackbeard's Barnett Assets In \$180 Million Deal

DIVERSIFIED ENERGY CO. agreed in May to purchase Barnett Shale assets from **Blackbeard Operating LLC** for \$180 million. The transaction comes on the heels of Diversified closing on its acquisition of **Indigo Minerals LLC's** Cotton Valley assets in Louisiana.

With both of the acquisitions, Diversified said on May 21 that it would add 300,000 net acres of leasehold in the region it's dubbed the central regional focus area. Combined, the company has spent \$315 million gross for 192 million cubic feet equivalent of natural gas per day. The company also counted PDP PV-10 reserves of \$413 million.

Blackbeard's assets will add 123,000 net acres, 16,000 barrels of oil equivalent per day (boe/d) and 840 net wells. Diversified said it expects the assets to generate about \$48 million in EBITDA. The deal will wrap up in June, with Diversified paying for the assets with cash on hand and its revolver.

Blackbeard, based in Midland, Texas,

holds assets in the Permian and Arkoma basins as well as Ark-La-Tex. The privately held company was formed in 2014 through an equity commitment from Natural Gas Partners. In February, the company marketed assets in the Permian's Central Basin Platform.

CEO Rusty Hutson Jr. said the transaction meaningfully expands Diversified's footprint in the region and affords the company the opportunity to build significant scale while driving down costs as it's done in the Appalachian Basin.

"These acquisitions serve as a solid springboard to a large opportunity set of accretive, long-life producing assets which will contribute to strong shareholder returns and drive additional debt reductions," Hutson said in a news release.

Diversified Energy Transactions, Central Regional Focus Area

	Blackbeard (pending)	Indigo Minerals (closed)
Gross Purchase Price (\$MM)	\$180	\$135
Net Purchase Price (\$MM)	~\$166 (b)	~\$115
Effective Date	April 1, 2021	March 1, 2021
Expected Closing Date	Late June 2021	Late May 2021
Adj. EBITDA Purchase Price	~3.5x	~2.9x
Net Production (boe/d)	~16,000	~16,000
PDP Reserves (MMboe)	79	~50
PV-10 of Reserves (\$MM)	\$238	~\$175

Source: Diversified Energy Co.

The company's deal with Indigo, which closed May 19, included 180,000 net acres, production of 16,000 boe/d and 815 wells. The equity contribution of Blackbeard and Indigo assets will create about \$335 million of additional debt capacity to fund future consolidation opportunities, the company said.

—Darren Barbee

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W&T Offshore Eyes Future Acquisitions Following Mobile Bay Transaction



W&T OFFSHORE INC.

W&T OFFSHORE INC. recently transferred producing assets in the eastern Gulf of Mexico in a transaction with **Munich Re Reserve Risk Financing Inc.** that W&T CEO Tracy W. Krohn said provides the company with the dry powder needed to continue to accretively grow through “attractive producing property acquisitions.”

“We believe that market conditions in the Gulf remain very favorable for accretive acquisitions,” Krohn said in a statement on May 20. “With our further improved balance sheet, increased cash position and strong projected cash flow generation, we have positioned W&T to actively pursue opportunities and continue to deliver on our strategic vision.”

According to a company release, W&T transferred 100% of its Mobile Bay area assets and related gas treatment facilities located offshore Alabama in the eastern U.S. Gulf of Mexico to special purpose vehicles (SPVs) wholly owned by W&T. In exchange, W&T received net cash proceeds from a \$215 million first-lien nonrecourse term loan to the SPVs provided by Munich Re.

In 2019, W&T bolstered its Gulf of Mexico footprint offshore Alabama through a \$200 million

acquisition of **Exxon Mobil Corp.**’s Mobile Bay assets.

Despite the transaction with Munich Re, W&T will continue to operate the Mobile Bay assets under a master services agreement, retaining the upside value in the assets.

W&T said it used a portion of proceeds from the transfer to repay the \$48 million outstanding balance on its reserve-based lending (RBL) facility and commodity hedging contracts related to the anticipated future production of the Mobile Bay assets.

A majority of the proceeds, however, will be used for general corporate purposes that the company said includes “oil and gas acquisitions, development activities and other opportunities to grow W&T’s broader asset base.”

“We believe this transaction meaningfully improves our financial flexibility moving forward by more efficiently utilizing the collateral value of our Mobile Bay area assets, allowing us to pay off our existing RBL balance and adding cash to the balance sheet,”

The loan with Munich Re is non-recourse to W&T and amortized over seven years at a fixed interest rate of 7%.

“These are low decline, conventional producing assets with considerable free cash flows and hence are particularly suitable to our amortizing term loan structure,” said Vikram Nath, managing director of Munich Re Reserve Risk Financing.

Munich Re Reserve Risk Financing, a Houston-based subsidiary of global insurance company Munich Re, is focused on alternative debt financing for upstream oil and gas.

“Moreover,” Nath continued, “our organization is fully committed to energy transition and the Mobile Bay assets are heavily natural gas weighted, which we view as critical for energy transition.”

W&T Offshore, based in Houston, currently has working interests in 42 producing fields in federal and state waters and has under lease approximately 709,000 gross acres, including about 500,000 gross acres on the Gulf of Mexico Shelf and approximately 209,000 gross acres in the Gulf of Mexico deep water, according to its release.

Law firm **Latham & Watkins LLP** represents W&T Offshore in the Munich Re transaction with a Houston-based team led by partners David Miller, Pamela Kellet and Jeff Munoz.

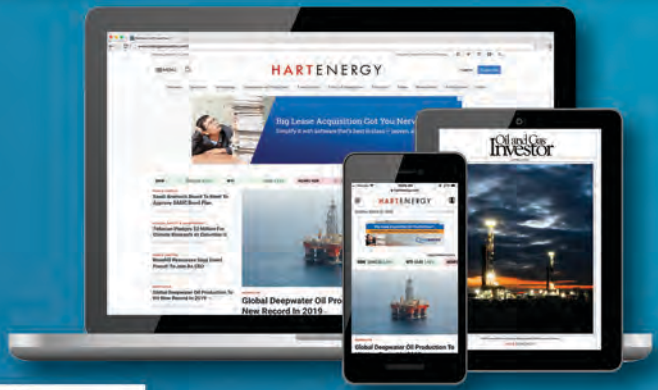
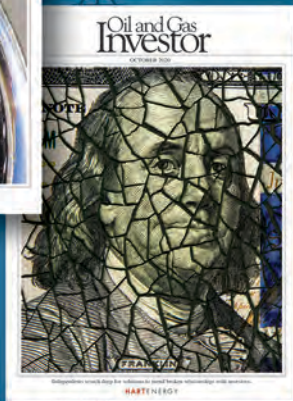
—Emily Patsy

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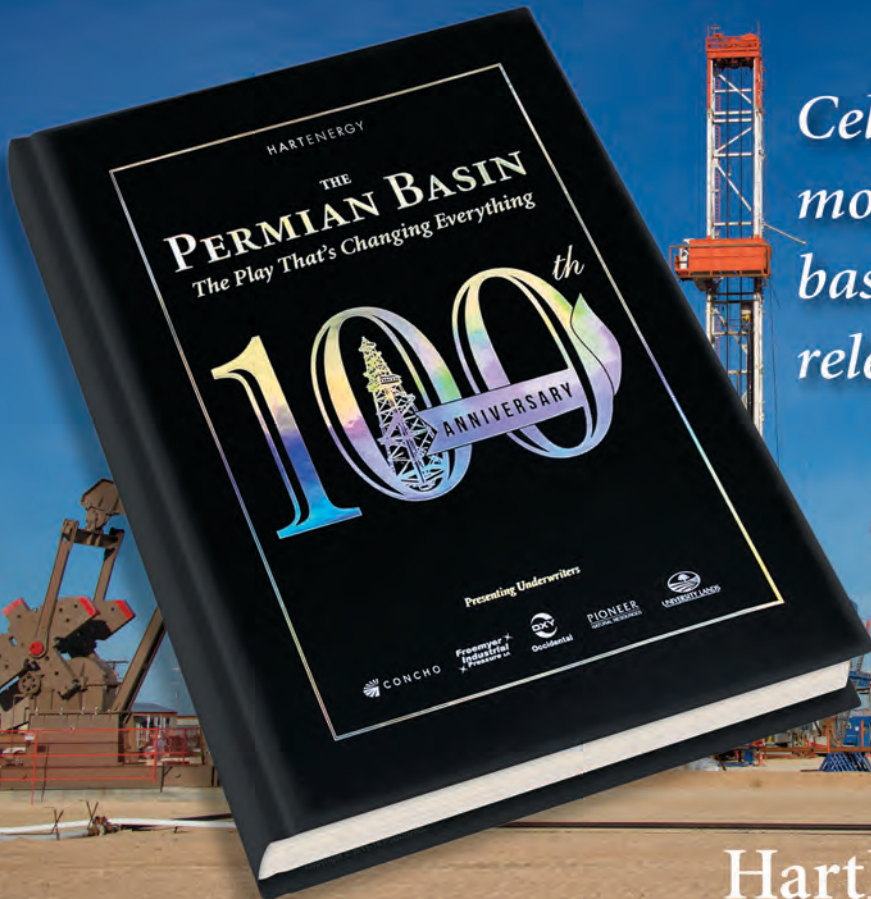
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Three Times Charmed: Bonanza Creek Continues D-J Basin Consolidation With Crestone Peak Deal

BONANZA CREEK ENERGY Inc. agreed on June 7 to acquire privately held **Crestone Peak Resources LLC** in an all-stock merger transaction, tacking on another acquisition in the Denver-Julesburg (D-J) Basin.

The acquisition—Bonanza Creek’s third so far this year—represents the company’s strategy to position itself as the modern-day E&P business model, according to president and CEO Eric Greager. The initiative is tied to the formation of **Civitas Resources Inc.**, which will be formed upon closing of its merger with **Extraction Oil & Gas Inc.** announced in May.

“Our combination with Crestone is just one early marker of what we hope to achieve as Civitas, as we establish ourselves as the preferred consolidation partner in the D-J Basin and work toward becoming one of the top energy producers in the nation,” said Greager, who will also serve as president and CEO of Civitas based in Denver.

Roughly a month after closing its acquisition of **HighPoint Resources Corp.**, Bonanza Creek announced the agreement on May 10 to acquire **Extraction Oil & Gas** in an all-stock merger. At the time, **Enverus’** Andrew Dittmar said the creation of Civitas places Bonanza Creek “in the driver’s seat” for any remaining consolidation in the D-J Basin.

“While there are few remaining D-J-focused public operators (PDC Energy being a rare exception), there are numerous private E&Ps across the basin some of which may welcome an exit opportunity,” said Dittmar, who serves as senior M&A analyst at Enverus.

With the addition of Crestone, Civitas will operate across more than half a million net acres, with leasehold positions in all key areas of the D-J Basin. The company will also have an estimated production base of approximately 160,000 boe/d and year-end 2020 proved reserves of more than 530 MMboe.

The market cap of Civitas from the combination

of Bonanza Creek and Extraction is about \$2.6 billion. However, the acquisition of Crestone Peak is expected to boost the enterprise value of Civitas—previously estimated at \$3.2 billion—to \$4.5 billion. Additionally, the companies expect the acquisition of Crestone to further advance Civitas’ ESG strategy, which includes becoming Colorado’s first net-zero oil and gas producer.

“Over the past five years of our investment in Crestone, the company has demonstrated its commitment to operational strength and efficiency, along with its introduction of innovative sustainability practices,” said Michael Hill, managing director and Americas head of sustainable energy at **Canada Pension Plan (CPP) Investment**, Crestone’s primary shareholder.

“The combination of Crestone with Civitas creates a stronger platform in the D-J Basin with significant free cash flow and the potential to continue value creation,” Hill added in a statement.

CPP Investments will become Civitas’ largest shareholder and will designate one member to the Civitas board, increasing the size of Civitas’ board of directors to nine from eight. Benjamin Dell, managing partner of **Kimmeridge Energy Management Co. LLC** who was appointed as

Extraction’s chairman following the company’s emergence from bankruptcy in January, will remain as Civitas chairman upon closing.

The Crestone transaction, which includes the exchange of 100% of the equity interests in Crestone for approximately 22.5 million shares of Bonanza Creek common stock, is subject to the consummation of the Bonanza Creek/Extraction merger. Upon completion of the transaction, Bonanza Creek and Extraction shareholders will each own approximately 37% of Civitas. Crestone shareholders, including CPP Investments, will own roughly 26% of Civitas.

The companies expect to close the Crestone transaction immediately following the Bonanza Creek/Extraction merger in the fall of 2021.

J.P. Morgan Securities LLC is financial adviser, and **Vinson & Elkins LLP** is legal adviser to Bonanza Creek. Meanwhile, Extraction tapped **Petrie Partners Securities LLC** as financial adviser and **Kirkland & Ellis LLP** as legal adviser. As for Crestone, the company retained **Jefferies LLC** and **TD Securities (USA) LLC** as its financial advisers and **Gibson, Dunn & Crutcher LLP** as legal adviser with Jefferies serving as lead financial adviser.

—Emily Patsy



TRANSACTION HIGHLIGHTS

PERMIAN

■ **Occidental Petroleum Corp.** agreed on June 10 to sell Permian Basin acreage in the southern Delaware Basin in West Texas the Houston-based company described as “nonstrategic” to privately held Colgate Energy for \$508 million.

The transaction signals progress in meeting the debt reduction goal Occidental set following its acquisition of Anadarko Petroleum Corp. in 2019, which caused its debt to balloon. This year, the company is planning to complete between \$2 billion and \$3 billion in asset sales to reduce its debt.

The acquisition is Colgate’s second this month as the company agreed to acquire privately held **Luxe Energy LLC** in the Permian Basin as well in an all-stock transaction on June 2. Both acquisitions, according to co-CEO James Walter, truly puts Colgate in a differentiated position.

■ **Oasis Petroleum Inc.** had entered the Permian Basin in 2017 with the acquisition of **Forge Energy** for a mix of cash and stock equivalent worth approximately \$946 million.

Oasis Petroleum is bidding farewell to the Permian Basin in a sale, divided into three transactions, which it expects to result in total proceeds of \$481 million that include contingency payments tied to future oil prices.

J.P. Morgan Securities LLC is strategic and financial adviser to Oasis in the primary divestiture process of its Permian position, and **McDermott Will & Emery** acted as legal adviser.

■ **Colgate Energy Partners III LLC** has entered into a definitive agreement under which Colgate will acquire a majority of the assets owned by **Luxe Energy LLC** in an all-stock transaction, the company said June 2.

Luxe will continue to own and manage certain assets including a portion of the nonoperated leasehold interests that are operated by **MDC Reeves Energy LLC** and its affiliates. Closing occurred simultaneously with signing of a definitive agreement on June 1, 2021.

Luxe holds roughly 22,000 net acres adjacent to Colgate’s existing position in Reeves and Ward Counties. The company has a net daily production of about 17,000 boe/d and roughly 5,000 gross surface acres that support go-forward development with 1 rig running focused on its existing Ward County position.

The acquisition will create one of the largest private companies in the Permian Basin, with around 57,000 net acres, roughly 45,000 boe/d and 4 rigs running as of June 1, 2021. The deal adds meaningful operational scale and synergies, which will build on Colgate’s track record of successful, low-cost execution and adds high-quality inventory directly offset Colgate’s successful legacy development in Reeves and Ward Counties.

■ **Empire Petroleum Corp.** expanded its portfolio of mature producing properties into New Mexico through the recent acquisition of a historic oil field from **Exxon Mobil Corp.** affiliate **XTO Holdings LLC**.

The Tulsa, Okla.-based company acquired the assets comprising producing oil and gas assets and related gathering assets located in the Eunice Monument and nearby Arrowhead Grayburg fields in New Mexico’s Lea County. The transaction added about 48,000 HBP acres of Permian leasehold plus approximately 1,100 net boe/d of production, with 67% being oil.

Empire Petroleum is a publicly traded, oil and gas company targeting acquisitions of proved developed assets with synergies with its existing portfolio of wells in Texas, Louisiana, North Dakota and Montana.

Mike Morrisett, president of Empire, said that, with the closing of the XTO acquisition in New Mexico, Empire Petroleum now operates in five states, with an aggregate of over 100,000 net leasehold acres and roughly 1,800 net boe/d

■ **Callon Petroleum Co.** recently disclosed the sale of a chunk of its position in the western Permian Basin primarily comprising gas-producing properties.

The transactions are primarily natural gas-producing properties in the western Delaware Basin and also include a small undeveloped acreage position. Current production related to the divestitures is about 3,400 boe/d, roughly 25% of which is oil.

In a May 5 news release, Callon said it had executed purchase and sale agreements during April covering certain noncore assets in the Delaware Basin for combined proceeds of about \$40 million. The buyers were undisclosed.

MINERALS

■ **Cenovus Energy Inc.** said on May 18 it started to make headway on its CA\$10 billion debt reduction goal with the sale of gross overriding royalty interests (ORRI).

Canadian royalty and infrastructure firm **Topaz Energy Corp.** agreed to buy the ORRI assets located in the Marten Hills area of Alberta. Cenovus had sold its Marten Hills oil assets to **Headwater Exploration Inc.** for CA\$100 million in December but ended up retaining the royalty interest as part of the deal.

Cenovus received gross cash proceeds of \$102 million from the royalty sale, which the company plans to use to reduce net debt. The transaction marks the first divestiture since Cenovus laid out plans to reduce net debt in January following close of its all-stock merger with **Husky Energy**.

In addition to the sale of noncore assets, Pourbaix added Cenovus will continue to explore all options to create value for Cenovus shareholders and position its balance sheet for increasing shareholder returns.

Analysts with **Tudor, Pickering, Holt & Co.** said the sale of ORRI was seen as largely neutral for shares given the magnitude in Cenovus progressing toward the CA\$10 billion net debt target. Cenovus had about CA\$13 billion of net debt at the close of the Husky transaction, according to the TPH analysts.

“On current strip pricing, we model the CA\$10 billion net debt threshold being achieved in the third-quarter 2021 timeframe, with the potential for incremental asset sales to accelerate this timeline,” the TPH analysts wrote in a May 19 research note.

OKLAHOMA

■ **Cimarex Energy Co.** agreed to sell producing properties in western and southern Oklahoma and the Texas Panhandle, a group led by industry veteran Tom Ward said in a recent release.

In the release, **BCE-Mach III LLC** said it recently signed a purchase and sale agreement to acquire the Oklahoma and Texas properties from Cimarex for an undisclosed amount. The transaction, expected to close in June, also included two gas gathering and processing assets located in southern Oklahoma.



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PERMITS

Texas again had the highest amount of permits approved during the month of April. The most permits were issued for the Midland Basin portion of the Permian Basin in Midland (85), Martin (66) and Upton (47) counties.

In the Delaware Basin portion of the Permian Basin, Tap Rock Operating LLC received 91 permits for Lea County, N.M., and two permits for Eddy County, N.M. EOG Resources Inc. received 37 permits for Eddy County, and Novo Oil & Gas LLC received 37 Eddy County permits.

Operators receiving the most Permian Basin permits are Tap Rock, Endeavor Energy Resources LP and Pioneer Natural Resources Co. New Mexico totaled 327 new Delaware Basin permits, including 15 in Chaves County.

Outside of the Midland Basin, EOG Resources received 27 Karnes County permits and 16 Gonzales County permits (Eagle Ford). Marathon Oil Corp. was approved for 20 permits in the Eagle Ford play.

In the Rocky Mountain region, Weld County, Colo., had the most new permits (Nickel Road Operating), and Caerus Oil & Gas LLC received more permits for assets in Garfield County, Colo. (Piceance Basin). Utah permits were approved for Uintah (29) and Duchesne (14) counties.

Permits in the Appalachian Basin were led by Olympus Energy LLC (formerly Huntley & Huntley Energy in partnership with partner Blackstone Group), Cameron Oil & Gas and Cabot Oil & Gas Corp.



Permits By State

State	No. of New Permits
Texas	605
New Mexico	327
Colorado	81
Pennsylvania	50
Utah	46
Oklahoma	37
Wyoming	35
Ohio	25
California	20
Kentucky	18
West Virginia	18
North Dakota	7

Permits By County

County, State	No. of New Permits
Lea, N.M.	178
Eddy, N.M.	131
Midland, Texas	85
Martin, Texas	66
Upton, Texas	47
Howard, Texas	43
Weld, Colo.	41
Andrews, Texas	33
Garfield, Colo.	31
Uintah, Utah	29
Loving, Texas	27
Karnes, Texas	27
Winkler, Texas	23

Permits By County

Operator	No. of New Permits
Tap Rock Operating LLC	93
EOG Resources Inc.	81
Endeavor Energy Resources LP	58
Pioneer Natural Resources Co.	39
Nickel Road Operating LLC	34
COG Operating LLC	33
Novo Oil & Gas LLC	31
Diamondback E&P	29
Oxy USA Inc.	25
Caerus Oil & Gas LLC	24
Ovintiv USA Inc.	20
Marathon Oil Corp.	20
Anadarko E&P Onshore	17
Blackbeard Operating LLC	17

RIG COUNT

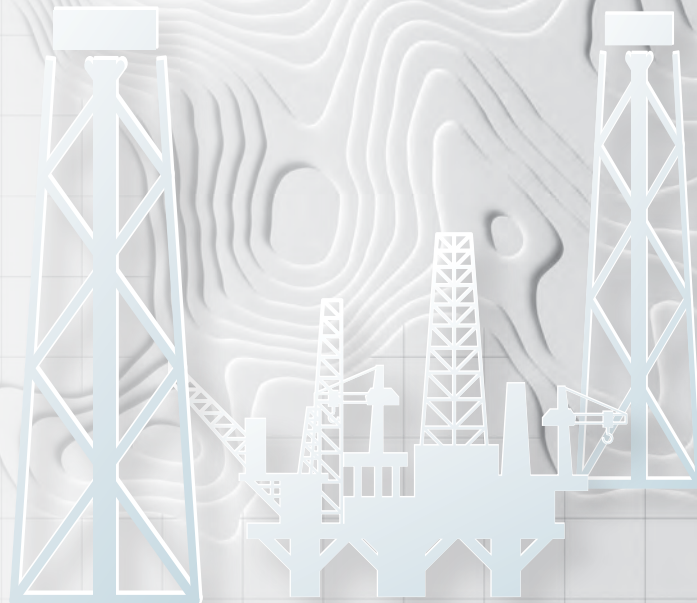
According to Enverus, the U.S. rig count is up 52% year-over-year.

The most notable week-over-week change occurred in the Permian Basin, where seven additional rigs were added in New Mexico's Lea and Eddy counties. Also in the Delaware Basin, Reeves County, Texas, is the most active county with 22 operating rigs.

Rig counts in both New Mexico and Texas (RRC Dist. 8) began to slip in February with the beginning of the COVID-19 shutdowns across the U.S.—New Mexico had 69 rigs in January and fell to 60 rigs in March, while the RRC Dist. 8 rig count was 94 (Jan. 8) and steadily increased each month to 129 rigs (May).

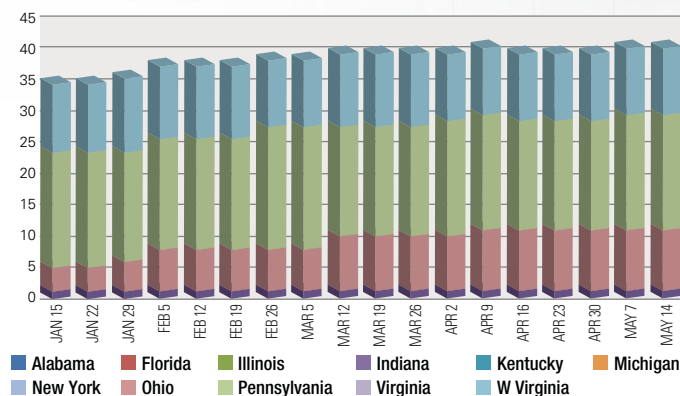
With prices mostly rising since October, some energy firms have said they plan to boost spending in 2021 after cutting drilling and completion expenditures over the past two years.

Overall, U.S. oil production is expected to ease from 11.3 million barrels per day (MMbbl/d) in 2020 to 11 MMbbl/d in 2021 before rising to 11.8 MMbbl/d in 2022, according to government projections, which compares with the all-time annual high of 12.2 MMbbl/d in 2019.



Eastern U.S. Rig Count

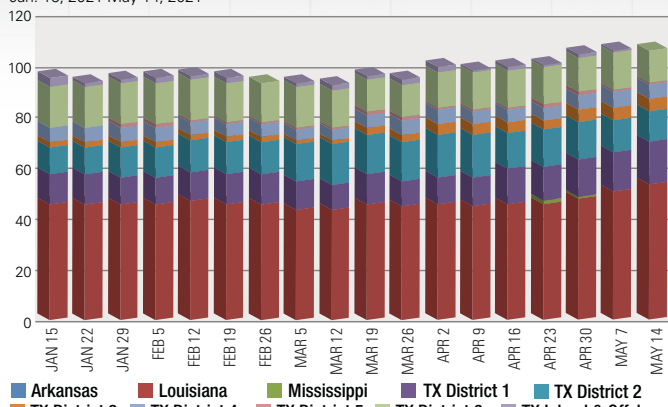
Jan. 15, 2021-May 14, 2021



Source: Baker Hughes Co.

Gulf Coast Rig Count

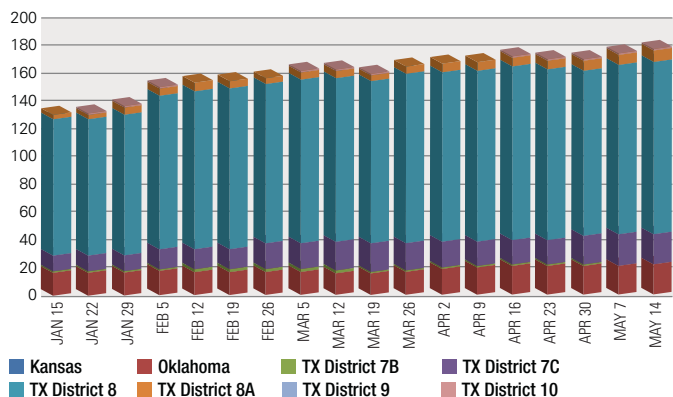
Jan. 15, 2021-May 14, 2021



Source: Baker Hughes Co.

Midcontinent & Permian Basin Rig Count

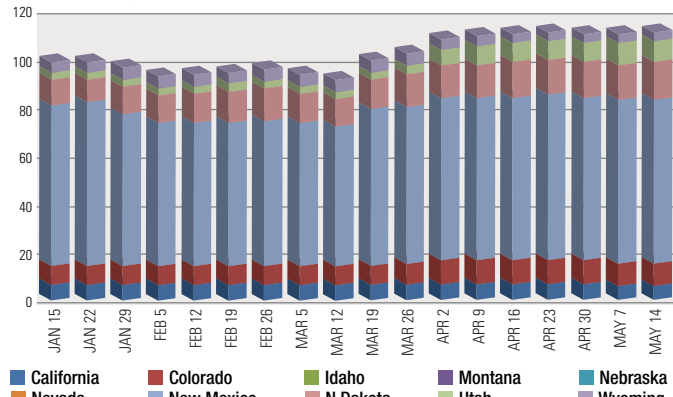
Jan. 15, 2021-May 14, 2021



Source: Baker Hughes Co.

Western U.S. Rig Count

Jan. 15, 2021-May 14, 2021



Source: Baker Hughes Co.

The Perfect Pairing

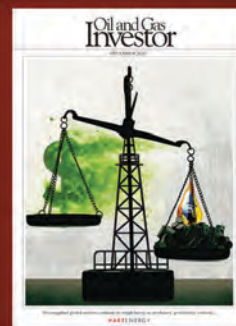
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FOCUS ON

Delaware Basin

The Delaware Basin portion of the Permian Basin straddles the border of southern New Mexico into Texas and encompasses roughly 10,000 square miles. The two most productive formations are Bone Spring and the multistacked Wolfcamp with several benches.

Operator EOG Resources Inc. has had several high-volume Wolfcamp producers in Loving County, Texas, including a 2019 completion, #5H McGregor D Unit, which initially flowed 11,444 bbl of oil and 21.771 MMcf of gas per day. Devon Energy Corp. has had success in the Lea County, N.M., portion of the play with two Bone Spring producers, #212H Boundary Raider 6-7 Federal Com (12,868 boe per day) and #213 H Boundary Raider 6-7 Federal Com (11,490 boe per day). An Eddy County, N.M., venture by Oxy-USA in 2020 (#037H Salt Flat CC 20-29 Federal Com) produced 7,051.33 boe per day from Wolfcamp. EOG Resources also recently completed three Bone Spring producers from its Hemlock pad in Lea County flowing a total of 9,673 bbl of oil and 1.924 MMcf of gas per day.

In 2019, WPX Energy Inc. purchased Felix Energy LLC. In January 2021, Devon Energy and WPX Energy completed an “all-stock merger of equals.”

Delaware Basin Top Producing Counties (Bone Spring, Wolfcamp)

County, State	MMboe
Reeves, TX	828.759
Eddy, N.M.	782.597
Loving, TX	634.756
Lea, N.M.	514.119
Culberson, TX	330.594
Ward, TX	245.255
Winkler, TX	69.348

Source: Datalink as of 5/18/2021

Delaware Basin Top Producing Operators (Bone Spring, Wolfcamp)

County	Production (MMboe)
Oxy-USA	306.477
Cimarex Energy Co.	240.694
EOG Resources Inc.	181.767
ConocoPhillips Co.	175.059
Chevron Corp.	127.451
Shell	118.795
Devon/WPX	116.576
Windsor	112.672
Apache Corp.	93.992
Mewbourne	78.410

Source: Datalink as of 5/18/2021

Top Bone Spring Cumulative Production Wells

Operator	Well	County, State	MMboe	Comp. Date
Endeavor Energy Resources LP	#1H John Haley Jr. D	Loving, Texas	25.583	May 1994
Diamondback E&P	#1 T B Pruett	Ward, Texas	2.978	Feb. 1977
Lonestar Services	#1 Sabine Gas Unit	Ward, Texas	2.685	Feb. 1981
Diamondback E&P	#2 Greer-McGinley Gas Unit	Ward, Texas	2.267	Jan. 1981
EOG Resources Inc.	#505H Neptune 10 State Com	Lea, N.M.	1.883	Apr. 2017

Source: Datalink as of 5/18/2021

Top Wolfcamp Cumulative Production Wells

Operator	Well	County, State	MMboe	Comp. Date
EOG Resources Inc.	#710H Dogwood 23 Federal Com	Lea, N.M.	1.114 (Upper Wolfcamp)	Nov. 2018
EOG Resources Inc.	#709H Dogwood 23 Federal Com	Lea, N.M.	1.182 (Upper Wolfcamp)	Nov. 2018
EOG Resources Inc.	#704H Whirling Wind 11 Federal Com	Lea, N.M.	1.608 (Upper Wolfcamp)	Feb. 2017
Diamondback E&P	#601H Liberty State Unit	Reeves, Texas	253 (Upper Wolfcamp)	Jan. 2020
EOG Resources Inc.	#704H Green Drake 16 Federal Com	Lea, N.M.	775 (Upper Wolfcamp)	Apr. 2019

Source: Datalink as of 5/18/2021

Data from Rextag 

INTERNATIONAL HIGHLIGHTS

According to the International Energy Agency, the oil supply glut created by the global pandemic is gone even as demand has fallen after the overwhelming surge of COVID-19 in India.

The surplus oil in developed nations is significantly lower than the levels seen last year, which includes output cuts by OPEC and its allies draining the excess. Still, the agency sees a temporary setback for global consumption as infections continue to sweep over India. The agency said that until the pandemic is brought under control, market volatility could persist.

Fuel consumption and prices have mostly returned to normal in the second quarter of 2021 primarily in the U.S. and China.

In the first quarter of this year, oil inventories were about 37 million barrels (MMbbl) above the average level from 2015 to 2019, down from a surplus of about 250 MMbbl last summer. Compared with the average for 2016-2020, the excess is just 1.7 MMbbl, less than the capacity of a single supertanker. Demand is projected to be cut by about 630,000 bbl/d due to the situation in India.

The OPEC+ alliance led by Saudi Arabia and Russia will have to choose to restore more of the production they've halted or continue to tighten global markets.

—Larry Prado

1 Mexico

Pemex received government approval to drill two onshore, high temperature and pressure wells in Veracruz, Mexico, in the Chiapas Mountain Range Fold-belt. The #1-SON Yaxjut has a planned depth of 6,650 m, and it is the deepest well in the Agua Dulce-06 Block. The venture will assess the Upper Jurassic and Mid Cretaceous potentials in the area. The prospective resources are 91 MMboe. The #1001-EXP Rabasa exploration well has a planned depth of 6,700 m. According to the Mexico City-based company, the reservoir pressures are expected to be 15,000 psi, and the temperature is 329° F. It will be drilled in the Agua Dulce-01 assignment title on the border of Tabasco and Veracruz states. The prospective resources are 76 MMbbl of light crude.

2 Guyana

Exxon Mobil Corp. announced an offshore Guyana oil discovery at #2-Uaru in the Stabroek Block offshore Guyana. The well encountered approximately 120-ft of high-quality, oil-bearing

reservoirs, including newly identified intervals below the original #1-Urau discovery, which is about 7 miles to the south of #2-Urau. Area water depth at #2-Urau is 6,342 ft. According to the Irving, Texas-based company, the discovery will add to the previously announced gross recoverable resource estimate of a 9 Bbbl of oil equivalent. The #1-Urau hit approximately 94 ft of a high-quality, oil-bearing sandstone reservoir. Exxon Mobil secured a sixth drillship for exploration and evaluation drilling activities for the area. A fourth project, Yellowtail, has been identified within the block with anticipated start up in late 2025 pending government approvals and project sanctioning. This project will develop the Yellowtail and Redtail fields, which are located about 19 miles southeast of the Liza developments. Project partners include **Hess Corp.** (30%) and **China National Offshore Oil Co.** (25%).

3 Norway

London-based **Neptune Energy** has been awarded a

total of six new licenses in the Awards in Predefined Areas (APA) 2020. Neptune Energy has been awarded four licenses in the Norwegian North Sea and two licenses in the Norwegian Sea. All the licenses are located near existing infrastructure in areas where Neptune already has a presence to focus on key opportunities within existing core areas. The awarded licenses are PL1096, PL1105S, PL1107 and PL1110 (Norwegian North Sea and PL1112 and PL1113 in the North Sea). The PL1107 license is near the recent Dugong discovery.

4 Norway

Equinor ASA announced an oil and gas discovery in the Norwegian Sea in a new segment belonging to Tyrihans Field. Recoverable resources are estimated at 19–26 MMbbl of oil equivalent. Exploration well #6407/1-A-3 BH is in production license 073 and was drilled from subsea template A at Tyrihans North. The well was targeting lower-to-mid Jurassic reservoir rocks (Ile and Tilje). It encountered a 43-m gas column and a

15-m oil column, including about 76 m of moderate-to-good, reservoir quality sandstone. The venture was drilled to 3,998 m and completed in Are. Area water depth is 288 m. Equinor is based in Stavanger.

5 Namibia

Reconnaissance Energy Africa announced a preliminary analysis of data from an onshore Namibia well, #6-2, the first of a three-well drilling program in the Kavango Sedimentary Basin in the Kalahari Desert. The well logs indicate more than 200 m of oil and gas indicators/shows over three discrete intervals in a stacked sequence of reservoir and source rock in a Permian petroleum system in the Karoo



Group. According to the company, the intervals penetrated include highly porous, permeable sediments and marine source rocks and an extensive marine carbonate lithofacies. Mud gas results indicate a high Btu of gas with the presence of light oil in numerous cutting samples. London-based Reconnaissance Energy holds a 90% interest in petroleum exploration license PEL 73 and 100% interest in petroleum license PEL 001/2020 in northwestern Botswana.

6 Egypt

United Oil & Gas has provided an update on the testing of exploration well #1X-ASD in the Abu Sennan concession, onshore Egypt. The well is northeast of Al Jahraa Field. It was drilled to 3,750 m and encountered a combined net pay total of at least 22 m across several reservoir intervals, including the primary reservoir targets of the Abu Roash-C and Abu Roash-E,

as well as Lower Bahariya and Kharita. The Lower Bahariya reservoir had a maximum flow rate of 1,619 bbl of oil and 2.84 MMcf of gas per day during testing on a 64/64-inch choke. The Abu Roash C flowed 1,215 bbl of oil and 1.371 MMcf of gas per day during testing on a 64/64-inch choke. Development well #8-AJ is planned. London-based United holds a 22% nonoperating interest in Abu Sennan, which is operated by **Kuwait Energy**.

7 Jordan

Jordan National Petroleum Co. reported a discovery in the Risha gas field in the eastern portion of the county. According to the Amman-based company, it is the 13th producing well in the field. The unnamed well had a daily flow rate of 7 MMcf per day and increases the production of Risha Field to 16 MMcf per day, which accounts for 5% of the kingdom's daily needs of gas of around 330 Mcf. More drilling is planned to increase production from the field.

8 Oman

Masirah Oil Ltd. completed three offshore Oman development wells in Block 50 near

Yumna Field in the Arabian Sea. According to the company, the results confirm the extents of the quality Lower Aruma Sandstone and refine the company's understanding of the trap mechanisms in the area. The first prospect, #1-Zakhera, was targeting a reservoir with previously discovered oil shows but the sand quality was poor. The #1-Yumna East was drilled 3 km east of Yumna Field. Good quality sands were encountered in the target reservoir but the reservoir was filled with water. The third prospect, #1-Yumna North, was drilled 6 km to the north of Yumna Field. This prospect had good quality reservoir sands but was later determined to also be water filled. The Muscat-based company plans to further de-risk additional exploration prospects including an active exploration program in the block.

9 Australia

Santos Ltd. has spudded a horizontal shale gas well, #2H-Tanumbirini in EP 161, in the Beetaloo sub-basin in Northern Territory, Australia. The venture has a planned depth of 4,800 m. Hydraulic fracturing is planned in 10-20 stages in mid-Velkerri B Shale horizontal sections with an extended flow test to follow. Once completed, the rig will be moved to drill #3H Tanumbirini. It will also be fractured in 10-20 stages in the horizontal sections of the well. After completion, a flow test is planned. Adelaide-based

Santos is the operator of EP 161 with a 75% working interest, and **Tamboran** holds a 25% working interest.

10 Australia

Beach Energy has confirmed reserves from the Enterprise gas field in offshore

Victoria's Otway Basin, Block VIC/P42(V). Testing indicated that the 2P (proven and probable) reserves are 21 MMboe (34 MMcf of gas) and 2 MMbbl of condensate. According to the company, the reserves estimate includes an allowance for expected reductions in condensate yield as the reservoir depletes. Beach also plans additional exploration opportunities identified in the vicinity of the Enterprise gas field. Exploration well #1-Enterprise was drilled from an onshore location about 3.5 km north of Port Campbell, Victoria, and was directionally drilled using extended-reach techniques. Beach Energy, based in Adelaide, is the operator of the block and Enterprise Field with 60% interest in partnership with **O.G. Energy**, holding the remaining 40%.

NEW FINANCINGS


EQUITY

Company	Exchange/ Symbol	Headquarters	Amount (\$MM)	Comments
Liberty Oilfield Services Inc.	NYSE: LBRT	Denver	\$191.9	Priced an underwritten public offering of an aggregate of about 12.3 million shares of its Class A common stock by Riverstone Holdings LLC at \$15.60 each, marking the full exit of Riverstone's investment in Liberty. Liberty will not sell any shares of Class A common stock in the offering and will not receive any proceeds therefrom. Morgan Stanley & Co. LLC is underwriter.
Mesa Minerals Partners II LLC	N/A	Houston	\$150	Raised equity commitments from NGP through NGP Natural Resources XII LP and NGP Royalty Partners LP . Proceeds will be used to continue the successful track record set by predecessor of building a large, aggregated mineral and royalty portfolio. Mesa II will target acquisitions of mineral and royalty assets generating \$10 million per year or more of cash flow across all major shale basins in the U.S.
89 Energy III LLC	N/A	Oklahoma City	N/A	Received additional equity contributions and a new syndicated credit facility from energy private equity funds managed by Kayne Anderson Energy Funds following the all-equity consolidation of Anadarko Basin portfolio companies Casillas Petroleum Resource Partners LLC , Native Exploration Holdings LLC and Acacia Exploration Partners LLC as part of a new partnership resulting in the 89 Energy III management team serving as new leadership for the combined business going forward. 89 Energy III will also manage the assets of Triumph Energy Partners LLC in the STACK. New, three-year credit facility had a \$250 million borrowing base at closing with Wells Fargo Bank NA as administrative agent. Wells Fargo Securities LLC served as left lead arranger.
Nabors Industries Ltd.	NYSE: NBR	Hamilton, Bermuda	N/A	Filed a SPAC registration statement for Nabors Energy Transition Corp. (NETC), a newly formed special purpose acquisition company and an affiliate of Nabors formed to pursue an initial business combination target in the energy transition space. NETC intends to list its units on the New York Stock Exchange under the symbol "NETC.U." Each unit will consist of one share of NETC's Class A common stock and one-third of one redeemable warrant to purchase one share of NETC's Class A common stock.

DEBT

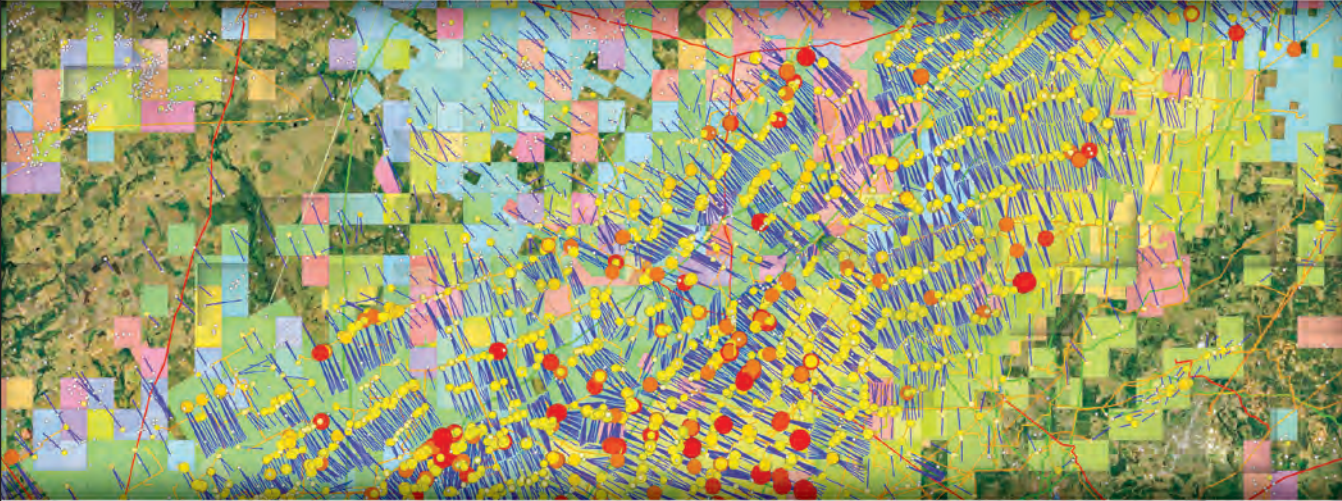
DTE Energy Co.	NYSE: DTE	Detroit	\$2,100	Closed offering of \$1.1 billion of 4.125% senior notes due 2029 and \$1 billion of 4.375% senior notes due 2031 issued by DT Midstream , the new independent, publicly traded company that is expected to be formed through the planned spinoff of DTE Energy's nonutility natural gas pipeline, storage and gathering business, and guaranteed by certain of DT Midstream's subsidiaries. Proceeds will be used by DTE Midstream for the repayment of intercompany obligations due to DTE Energy and the payment of a dividend to DTE Energy.
Tullow Oil Plc	LSE: TLW	London	\$1,800	Closed offering of 10.25% senior secured notes due 2026 priced at par. Proceeds will be used to repay all amounts outstanding under, and cancel all commitments made available pursuant to, the existing RBL facility, redeem in full senior notes due 2022, at maturity repay in full and cancel convertible bonds due 2021 and pay fees and expenses incurred in connection with the transactions, will be the general senior secured obligations and guaranteed by certain of its subsidiaries.
Comstock Resources Inc.	NYSE: CRK	Frisco, Texas	\$965	Priced at par a private placement of new 5.875% senior unsecured notes due 2030, increased from the originally proposed \$500 million offering. Proceeds will be used to redeem 2026 notes, including the payment of all premiums, accrued interest and related fees and expenses incurred in connection therewith.
Antero Resources Corp.	NYSE: AR	Denver	\$600	Priced at par a private placement to eligible purchasers of 5.375% senior unsecured notes due 2030 upsized by \$100 million. Proceeds will be used to fund redemption of 5.625% senior notes due 2023 at par plus accrued interest. Any remaining proceeds will be used to repay borrowings under its credit facility.
Colgate Energy Partners III LLC	N/A	Midland, Texas	\$500	Priced at par a private placement to eligible purchases of new 5.875% senior unsecured notes due 2029, increased from the originally proposed \$400 million offering. Proceeds will be used to fund a portion of the recently announced acquisition of certain assets of Occidental Petroleum Corp. in Reeves and Ward counties, Texas. and to pay related fees and other expenses.

Company	Exchange/ Symbol	Headquarters	Amount (\$MM)	Comments
Oasis Petroleum Inc.	NASDAQ: OAS	Houston	\$400	Priced at par a private placement to eligible purchasers 6.375% senior unsecured notes due 2026. Proceeds will be used to fund a portion of the consideration in connection with the recently announced acquisition of select Williston Basin assets from OEP Energy Co. , a subsidiary of Diamondback Energy Inc. , and to pay related fees and other expenses. If the Williston Basin acquisition is not consummated, the notes will be redeemed at a redemption price equal to 100% of the issue price of the notes, plus accrued and unpaid interest, if any, to, but excluding, the redemption date.
SM Energy Co.	NYSE: SM	Denver	\$400	Priced an offering of its 6.5% senior unsecured notes due 2028 upsized from the previously announced offering size of \$350 million to be issued at par. Proceeds will be used to fund a cash tender offer for all of outstanding 6.125% senior notes due 2022 and a portion of outstanding 5% senior notes due 2024. If tender offer is not consummated or subscribed in full, proceeds will be used for general corporate purposes, which may include the repurchase or redemption, as applicable, of some or all of the tender offer notes. BofA Securities, J.P. Morgan, Wells Fargo Securities, Goldman Sachs & Co. LLC and RBC Capital Markets are joint book-running managers.
W&T Offshore Inc.	NYSE: WTI	Houston	\$215	Received a first-lien nonrecourse term loan from Munich Re Reserve Risk Financing Inc. in exchange for the transfer of 100% of its Mobile Bay area assets and related gas treatment facilities located offshore Alabama in the eastern U.S. Gulf of Mexico to special purpose vehicles wholly owned by W&T. A portion of proceeds were used to repay the \$48 million outstanding balance on its reserve-based lending facility and commodity hedging contracts related to the anticipated future production of the Mobile Bay assets. Remaining proceeds will be used for general corporate purposes, including oil and gas acquisitions, development activities and other opportunities to grow its broader asset base.



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COMPANIES IN THIS ISSUE

This index refers to the pages of the story or news item in which the company is first mentioned. Advertisers are in boldface.

Company	Page	Company	Page	Company	Page
3P Energy Capital	45	EOG Resources Inc.	86	Olympus Energy LLC	86
AES Clean Energy	44	EQT Corp.	78	Ovintiv	31, 49
Aethon Energy	IBC	Equinor ASA	45, 51, 90	Pemex	90
Alta Resources LLC	78	Eureka Resources	67	Petrie Partners Securities LLC	83
Baker Botts LLP	77	Evercore ISI	54	Phillips 66 Co.	74
Baker Hughes	50, 52	Extraction Oil & Gas Inc.	77, 83	Pickering Energy Partners	31, 42
Barclays	32, 52	Exxon Mobil Corp.	11, 46, 80, 90, 96	Pioneer Drilling Co.	32
BB&T	43	Felix Energy LLC	49, 89	Pioneer Natural Resources Co.	22
BCE-Mach III LLC	84	Forge Energy	84	Pioneer Natural Resources Co.	9, 28, 78, 86
Beach Energy	91	Fulcrum Energy Capital Funds	49	Pontem Energy Capital Management LLC	49
Bernstein	7	Gibson, Dunn & Crutcher LLP	83	Post Oak Energy Capital	24
BKD Energy Ltd.	18	Goldman Sachs & Co. LLC	9, 78	Preg & Associates	16
Blackbeard Operating LLC	79	Gondola Resources LLC	51	Prudential Private Capital	8
Blackbuck Resources	66	Grayson Mill Energy	50	QEP Resources Inc.	28
Blackstone Group	86	Greenfront Energy Partners LLC	43	Raymond James	9
BOK Financial	23	Guidon Operating LLC	28	RBN Energy	19
Bonanza Creek Energy Inc.	77, 83	Gulfport Energy Corp.	74	Reconnaissance Energy Africa	90
BP Capital	73	Halliburton Co.	11	RedOx Systems	63
BP Plc	19, 41	Hart Energy Conferences	61	Regions Securities	12
Bruin E&P Partners LLC	34	HartEnergy.com	65	Reliant Energy	45
Cabot Oil & Gas Corp.	77, 86	Hart Energy Store	82, 85	Rextag	93
Cadence Bancorp	42	Haynes and Boone LLP	73	Riley Exploration Permian Inc.	41
Caerus Oil & Gas LLC	86	Headwater Exploration Inc.	84	Ring Energy	70-71
Callon Petroleum Co.	84	Henry Resources	31	Royal Dutch Shell Plc	9, 11, 46
Cameron Oil & Gas	86	Hess Corp.	34, 90	RSP Permian Inc.	43
Canada Pension Plan Investment	83	HighPoint Resources Corp.	83	Rystad Energy	19, 45, 96
Canadian Natural Resources	96	Hunt Oil Co.	28	Sabalo Energy LLC	28
Cenovus	96	Husch Blackwell	74	Sable Permian Resources	30
Cenovus Energy Inc.	84	Husky Energy	84	SandRidge Energy Inc.	51
ChampionX	52	Hydrogen Council	42	Santos Ltd.	91
Chesapeake Energy Corp.	44, 73	Imperial	96	Shell Oil Co.	41
Chevron Corp.	11, 96	Indigo Minerals LLC	80	Simmons Energy	30, 74
Chief Oil & Gas	34	Indigo Natural Resources LLC	78	Skadden, Arps, Slate, Meagher & Flom LLP	78
China National Offshore Oil Co.	90	IPAA	94	SM Energy Co.	32
Cimarex Energy Co.	77	J.P. Morgan Securities LLC	77	Solaris Water Midstream LLC	42
Civitas Resources Inc.	83	Jasper Ventures Inc.	76	Southwestern Energy Co.	78
Colgate Energy Partners III LLC	32, 84	Jefferies LLC	49, 83	Stephens Investment Banking	IFC
Colgate Operating	9	Jordan National Petroleum Co.	91	Suncor	96
ConocoPhillips Co.	96	Kimmeridge Energy Management Co. LLC	83	Surge Energy US Holdings	30
Continental Resources Inc.	OBC	Kirkland & Ellis LLP	78	Tailwater Capital LLC	6
Covey Park	78	Kirkland Oil and Gas LLC	47	Tall City Exploration III	28
CreditSuisse Securities (USA) LLC	78	KKR & Co. Inc.	49	Tallgrass Energy LP	74
Crestone Peak Resources LLC	41, 83	Kraken Oil & Gas Partners LLC	47	Talos Energy	96
CrownQuest Operating	30	Kuwait Energy	91	Tamboran	91
Deloitte	19	Laredo Petroleum	28	Tap Rock Operating LLC	86
Denbury Resources Inc.	41	Latham & Watkins LLP	80	Targa Resources	25
Diamondback Energy Inc.	28, 41	Liberty Oilfield Services	7	TC Energy Corp.	25
Diversified Oil & Gas	79	Luxe Energy LLC	32, 84	TD Securities (USA) LLC	83
DoublePoint Energy LLC	9, 28, 78	Masirah Oil Ltd.	91	The Williams Cos. Inc.	73
Dover Corp.	52	McDermott Will & Emery	84	Topaz Energy Corp.	84
DUG Bakken And Rockies	25	MDC Reeves Energy LLC	84	Triple Crown Resources LLC	30
Eagle River Energy Advisors	33	MEG Energy	96	Tudor, Pickering, Holt & Co.	28, 77
Earthstone Energy Inc.	30	Mercer Capital	9, 28	Ultra Petroleum Corp.	73
EDF Trading	10,72	Montage Resources Corp.	78	United Oil & Gas	91
Empire Petroleum Corp.	84	Montrose Energy Capital Advisors LLC	46	Validus Energy	49
Enbridge Inc.	25	Morgan Stanley	24, 41	Vencer Energy LLC	28
EnCap Investments LP	49	Munich Re Reserve Risk Financing Inc.	80	Vine Energy	19
Encore Permian Holdings	32	NAPE Summit August 2021	62	Vinson & Elkins LLP	83
Endeavor Energy Resources LP	30, 86	Neptune Energy	90	W&T Offshore Inc.	80
Energy Freelance, a MineralWare company	4	Netherland, Sewell & Associates Inc.	4	Wachtell, Lipton, Rosen & Katz	77
Energy Impact Partners	41	Nickel Road Operating	86	WaterBridge Operating LLC	69
Energy Policy Watch	79	Northern Oil and Gas Inc.	21	WaterBridge Resources LLC	63
Energy Technology & Workforce Council	17	Novo Oil & Gas LLC	86	Wood Mackenzie	22, 43
Energy Transfer	15	O.G. Energy	91	WPX Energy Inc.	49, 89
Enerplus Corp.	34, 47	Oasis Petroleum Inc.	84	Xcel Energy Inc.	41
Enterprise Products Partners LP	25	Occidental Petroleum Corp.	9, 32, 84	XRI Holdings	63
Enverus	30, 56, 77	Oil and Gas Investor	81, 89	XTO Holdings LLC	84

NEW YEAR'S EVE, 2050



LESLIE HAINES,
EXECUTIVE EDITOR-
AT-LARGE

You could laugh at all the scenarios, pledges—and fights—about getting the world to net zero by 2050. An admirable goal that all industries, governments and consumers should pursue, yes. But that is 30 years away, a full generation. Who knows what will ensue between now and New Year's Eve, 2050? Did anyone foresee the iPhone, SpaceX, an electric Mustang, the Peloton, drilling a 12,000-ft horizontal through shale or Phil Mickelson winning another major?

Most of us who really understand where energy comes from, how it is stored, transmitted, scaled-up, made commercially viable—well, sorry to inform you, but we'll be gone from the Earth in 30 years.

The task before us is enormous, exciting and threatening at the same time. Solutions abound; some are questionable. Last March, Rystad Energy pointed out that if we were to reach net-zero emissions by 2050, “the significant utility solar PV installed capacity required to meet the target would occupy around 13,412 square miles of land ... roughly 50 times the size of Austin, Texas.

“Land scarcity is often cited as a key barrier to ramping up solar and wind energy capacity in the U.S., thus undermining the country’s revitalized decarbonization ambitions for the next 30 years,” Rystad said. “Solar farms, in particular, require a lot of real estate and, unlike wind farms, could take land away from agriculture or other uses.”

The Wall Street Journal reported that some environmentalists have begun to oppose large-scale solar farm sites, since they could possibly destroy the nesting habitat of certain endangered tortoises. You just can't please some people.

We should be asking the right questions about these topics and scrambling hard to find the right answers. That means more R&D and more collaboration across companies, industries, academia, think tanks, banks and governments. Come on, all ye eccentric and brilliant visionaries like Elon Musk, Jeff Bezos or Sir Richard Branson. We need all of the above.

Even if global warming is not a bad thing and is instead part of a natural cycle that repeats every 300 years, and even if we cannot actually change global weather patterns (the arrogance of technology!), we can do more to improve air quality, ease congestion in huge urban areas, keep the waters clean and preserve habitat for animals and birds. No question.

The industry with the solutions is under assault from all sides. You might have missed this item, but in January S&P Global Ratings lowered its credit ratings for Exxon Mobil

Corp., Chevron Corp. and ConocoPhillips Co. due to the risks it sees in climate-related pressures on them.

The University of Pittsburgh, in the heart of Marcellus country, said it will phase out all its fossil fuel-related investments by 2035.

Industry responses are encouraging, but we won't know for decades if they are realistic and achievable. The courts bullied Shell, but not into submission. The major will appeal the ruling, all while continuing to work on its own timetable for going green. Shareholders bullied Exxon Mobil, but it proposes to capture CO₂ from polluters along the Houston Ship Channel, and channel CO₂ to EOR oil fields. Smart.

We're seeing lately in several press releases the emergence of new buzz words and corporate branding: The net zero barrel. Responsibly sourced natural gas.

Exciting examples keep coming. Talos Energy unveiled a joint venture about carbon capture and storage.

In Alberta, oil-sands producers Cenovus, Suncor, Imperial, Canadian Natural Resources and MEG Energy have formed an alliance to do more on carbon capture while producing oil, the Oil Sands Pathways to Net Zero initiative.

“Every credible energy forecast indicates that oil will be a major contributor to the energy mix in the decades ahead and even beyond 2050. Alberta is uniquely positioned and ready to meet that demand ... ultimately leading to the production of net-zero barrels of oil,” said Sonya Savage, Alberta's Minister of Energy.

President Biden is reportedly privately strong-arming big banks to refuse to lend to or invest in coal, oil and gas companies. But more than a dozen state treasurers (15 to be exact, and including some you might not expect, such as Idaho and South Carolina) will fight back.

In a letter led by West Virginia Treasurer Riley Moore, they said, “We strongly oppose command-and-control economic policies that attempt to bend the free market to the political will of government officials.” It's not in keeping with a capitalist democracy, the letter said. Let the markets, let the people, decide who the winners and losers are in energy.

Further, the treasurers threatened to push back, denying banks their business. “We will give weight to what banks do...before we enter into or extend any contracts.” The plea is to not cut off dollars for law-abiding industries that provide jobs and revenue for state responsibilities like education.

The ramifications of a different energy future are up in the air. It's up to all of us to start figuring out what to do now.



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TO OUR FRIENDS AND FELLOW AMERICANS:

At Continental Resources, we have always led the way for American Energy Independence. Now more than ever, it's time to be bold in defense of our energy independence. Bold in our need for energy, economic and military security. Bold in declaring the obvious: America and the world will need the hydrocarbons we produce for decades to come.

We must be bold ensuring our government and regulatory bodies remain educated and accountable. Picking winners and losers by legislating market shares with mandates and taxes will lead to distortions, higher prices for every American and will snuff out innovation. Better to recognize the collective efforts of our industry, the essential role it plays in every aspect of our modern lives and our long history of improving humanity's existence.

We were a huge part of the American Energy Renaissance, when we pioneered horizontal drilling in the 70's. We led the charge to lift the archaic ban on energy exports in 2015, resulting in hundreds of billions of dollars staying here, and not leaving our shores, while creating millions of jobs and powering the economy resulting in a trillion dollar transfer of wealth back to the U.S.

The clean-burning natural gas and light, sweet crude America produces have done more to clean up the environment than any other available technology. If we are to be good stewards of the environment, if we truly care about future generations, we must again take the lead. America can't do it alone. American oil and natural gas should and must be part of the solution, not just here, but abroad. We can't afford to hobble our energy security and economic competitiveness for political expediency. The proper role of government is to engage with other nations for a global solution, not picking winners and losers.

After all, we are in this together. Our vision is simple. We will work tirelessly to secure America's energy independence. And we will do it responsibly, so future generations can enjoy all we have. As President John F. Kennedy once said, *"We all inhabit this small planet, we all cherish our children's future and we are all mortal."*

Harold Hamm, Chairman,
Continental Resources

