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BUY & BUY

THE OGINTERVIEW

Vital Energy CEO Jason Pigott Shares Rapid Permian Growth Strategy

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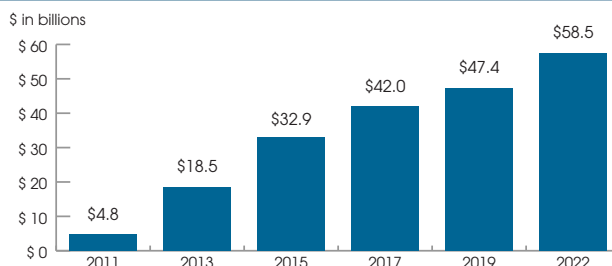
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\$310 Million
Average Transaction Size

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Transactions Closed since 2009

ENERGY GROUP AGGREGATE TRANSACTION VOLUME



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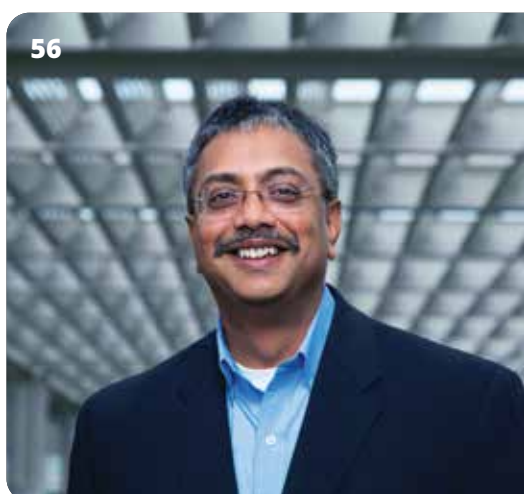
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ABOUT THE COVER:

Marshall Hawkins captured this photo of Vital Energy CEO Jason Pigott in the company's Tulsa, Okla., headquarters.



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The more things change, the more they stay the same.

Half a century after U.S. support for Israel during the Yom Kippur War prompted Saudi Arabia to lead Arab members of the OPEC cartel in imposing a debilitating oil embargo on the West, another October assault on Israel and Saudi support for its aggressors may put oil markets in the balance.

Granted, things have changed significantly in the last 50 years. But a tenuous relationship between the West's oil consumers and the Middle East's producers remains.

The impact of the embargo 50 years ago created an immediate impact in the U.S., where gasoline supply dwindled, prices spiked and scenes of gas stations where cars lined up for blocks remain engrained in the nation's collective memory.

"The Saudis were so enraged at the American support and so imposed an embargo on exports to the U.S.," said Robert Jordan, the U.S. ambassador to Saudi Arabia under President George W. Bush, during a recent chat. "They were using oil as a weapon."

Rough trade

The relationship between the U.S. and Saudi—the de facto leader of OPEC—has seen its ups and downs during the subsequent 50 years.

During the 1980s, the two nations worked closely to expel the Soviets from Afghanistan. But throughout the aughts, the alliance has been fraught.

During the Second Intifada, an uprising in the Palestinian territories against Israel, the U.S. position on Israel again created friction. Jordan said Saudi's Crown Prince Abdullah bin Aziz al-Saud advised Bush in a letter that if the U.S. refused to pressure Israel to moderate or solve the conflict with the Palestinians, the Saudis would "reconsider their relationship with the U.S. and consider using oil as a weapon."

But the kingdom's enmity faded with the Al Qaeda's terrorist attacks on the U.S. on Sept. 11, 2001. The prince branded the U.S. a close friend of the kingdom and condemned the attack as a "deviant" plot to wreck the relationship.

Louder than bombs

But Jordan said since the invasion of Iraq in 2003, the Saudis have found the U.S. to be an inconsistent ally. President Barack Obama's pivot to Asia didn't help matters.

"They feel somewhat abandoned by us," Jordan said. "So, they started charting a somewhat more independent course, both with regard to security

matters and to oil."

And then, there was the U.S. shale revolution and the creation of OPEC-plus, which includes Russia as a sort of Saudi business partner, despite the global condemnation of Vladimir Putin's invasion of Ukraine and upending of Europe's energy markets.

Underscoring the tenuous relationship between the U.S. and Saudi is the reaction by the crown following President Joe Biden's visit to Riyadh, where he first lectured the leadership on human rights and then asked for an increase in oil production. Saudi instead reduced it temporarily.

How soon is now?

As in 1973, the U.S. is providing some backup to Israel in the wake of an October terrorist attack; Israel has met the violence within its border with deadly force in Gaza, the narrow strip that separates part of Israel from the Mediterranean Sea.

Saudi supports Palestinian rule of Gaza. But in 2023, the kingdom isn't making market-shocking threats. Saudi leaders have called for a ceasefire, while also suggesting that Israel provoked the violence.

And this is where things get sticky for Saudi, the most likely source of cash to Gaza once the fighting ends, Jordan said.

Saudi Arabia runs its budget mostly on oil revenue—and that's why things could get slippery for oil price forecasting.

Oil still funded around 40% of Saudi's gross domestic product in 2022, according to the International Monetary Fund. Oil revenue has averaged about 75% of the kingdom's total budget since 2010.

But the kingdom has its sights set on reducing its reliance on oil revenue. Its Vision 2030 is based on the promise of the energy transition and, to fund new ventures, Saudi needs to encourage direct foreign investment, Jordan said.

"A lot of it would come from the U.S. and, so, I think they are walking a bit of a tightrope in trying to express their foreign policy views while at the same time not wanting to alienate the source of a lot of investment they need to achieve their goals," he said.

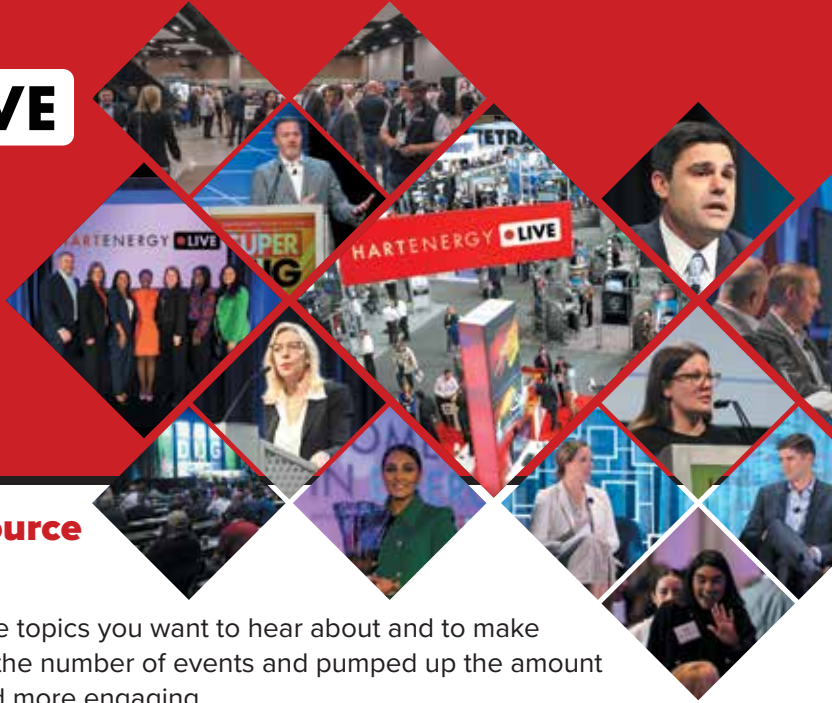
Brent in the \$80s is likely a sustainable price that gives the state-owned Aramco the maximum return for generating the cash they need now and the investment for diversifying, Jordan said.

The cost to rebuild Gaza is unlikely part of that equation, but Jordan and others say Saudi has too much at stake—as part of the broader global economy—to create an oil price spike on a whim.

But if they did, it wouldn't be the first time. 

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2024 EVENT CALENDAR ANNOUNCED!




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IN ENERGY

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Houston, TX

GAS



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GAS+

CONFERENCE & EXPO

March 27-28
Shreveport, LA

SHALE



SUPER
DUG

CONFERENCE & EXPO

May 15-17
Fort Worth, TX

TECHNOLOGY



NEW
ENERGIES

SUMMIT & EXPO

June 2024
TBA

INVESTMENT



ENERGY CAPITAL
CONFERENCE



A&D
STRATEGIES &
OPPORTUNITIES
CONFERENCE

September 2024
Dallas, TX

AWARDS



FORTY
UNDER
40

Sept. 2024
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EXECUTIVE
OIL

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Oct. 2024
Midland, TX

TECHNOLOGY



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Nov. 2024
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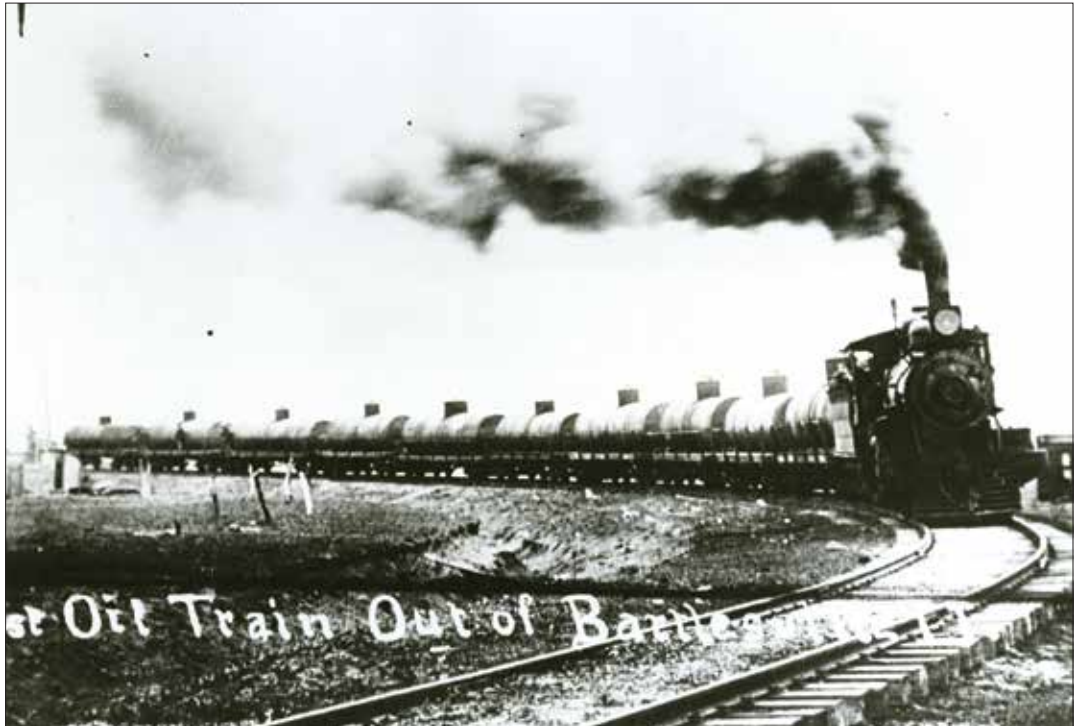
The Romance of Oil and Gas



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Standard Oil from API Photograph and Film Collection, Archives Center, National Museum of American History, Smithsonian Institution

The first train laden with crude oil from Cherokee territory leaves Bartlesville, Okla., in 1914. The Bartlesville strike led to more oil finds in Oklahoma.

“The romance.” You can’t build a global multitrillion-dollar industry without it. Talk about economic drivers and storage levels and price points and advancements in drill bit technology all you want, but the romance, the thrill, is the fuel of the oil business. That is the thread—sometimes brash, sometimes subtle—running through the stories of the Hall of Fame honorees and Agents of Change in Energy in the accompanying special edition of this month’s *Oil and Gas Investor* that commemorates Hart Energy’s 50th anniversary.

Take away the thrill and you take away the industry. Take away the industry and the colorful characters who transformed the world with dirty fluid coming out of rocks would have turned their attention elsewhere and we’d all be driving Stanley Steamers.

“You make a hole in the earth and out comes oil. So you sell the oil and sink more wells, and those come in, and pretty soon you have a field.”

The speaker isn’t a Hall of Famer but a fictional character named Lena Doyle, a wildcatter in 1913 Oklahoma who is struggling to

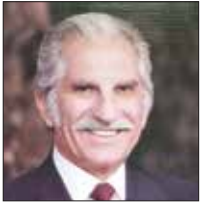
bring in a well on her land while a giant oil company tries to take it from her. “Oklahoma Crude” is a 1973 film starring Faye Dunaway, George C. Scott, Sir John Mills and Jack Palance, and directed by Stanley Kramer with screenplay by Marc Norman.

Historical note: Fifty years ago, oil companies were perceived as evil, not the oil itself. OGI could probably publish a special edition based solely on that idea.

But back to Lena, in a passage from Norman’s book but left out of the movie: “And you sell stock and you capitalize and you own wells all over the country and you recapitalize and you amalgamate, and now the whole world wants your oil—China and Africa want your oil—and your oil is running lights and machines and trains and ships...”

“What about electricity?” asks the Mase character, somehow hung up on the Inflation Reduction Act 109 years before its passage.

“You need a waterfall,” responds Lena, who apparently lacks Mase’s clairvoyance or she would have touched on the limitations of wind, solar, hydrogen and geothermal, as well. “Oil just needs a flame. Cheaper



“There is not another breed of men on earth who could have or would have done what they did.”

—Michel Halbouty, *legendary wildcatter*

than coal, more efficient than steam—refine it and you get kerosene, asphalt, naphtha, and gasoline—asphalt for the roads and gas for all the cars on the roads—oil in every home, oil on every wheel....”

The soliloquy could have been uttered by a fair number of Hall of Fame honorees. Here is Michel Halbouty’s take on the proud tribe of wildcatters:

“They never disturbed our economy because most of them lost their fortunes as fast as they made them,” the legendary geologist said in a speech in the early 1960s, as written in a biography by Jack Donahue. “But in doing this, they were finding the fuel to provide the energy for a new way of life. There is not another breed of men on earth who could have or would have done what they did.”

A little self-serving, given that Halbouty was a legendary

wildcatter himself, but he hits on another theme just below the surface in the Hall of Famers’ success stories: risk.

Almost all of the legends experienced failure, but they bounced back anyway with the next well or the next deal.

The would-be heroes of energy who found disappointment instead of oil, no matter where or how far down they drilled; who bet big on technology that just didn’t work; whose deal of a lifetime left them flat out broke; who ultimately gave up ... they have interesting stories, too. You just won’t read them in *Oil and Gas Investor*.

Those who succeed, who set themselves apart from the rest, don’t just take the risk—they understand the risk they’re taking.

Ray C. Davis, a co-founder of Energy Transfer, said this about Hall of Famer Kelcy Warren:

“Kelcy doesn’t think like other people. He sees possibilities where others don’t.”

That “how the hell did he/she come up with that?” trait is common among the legends, not just in oil and gas, but in all fields—Da Vinci, Einstein, Jobs, Spinoza, Koufax, Tesla, King, Turing, Meitner (Google her).




And it makes sense that those in the oil and gas field would feel some defensiveness and resentment when their achievements are so often dismissed by so many who benefit so much from them. Where’s the love, people?

By the way, “Oklahoma Crude” did OK for itself. It garnered three stars (out of four) from the legendary film reviewer Roger Ebert, and Henry Mancini received a Golden Globe nomination for best original song.

The name of that song? “Send a Little Love My Way.”



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Belcher: We Need to Act Like the Energy Leader We Are

U.S. policy should reflect and enhance our role in global energy and environmental leadership.



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Jack Belcher is a principal at Cornerstone Government Affairs, where he focuses on regulatory affairs, risk management and ESG matters within the energy and transportation sectors.

For years, the debate about energy, climate change and the energy transition among public policymakers in the U.S. has been polarized by extremes: One side goes all out for ending fossil fuels and supporting renewables, while the other side focuses solely on domestic fossil energy production, anti-carbon management and ESG.

But this is not the way it works for the folks who actually invest in and produce energy. Policy makers have fantastic notions about what is possible and what is not, what is financially feasible and what is not, and what is best for national security, the economy and the environment.

The energy transition is something that has been taking place largely from within our traditional energy industry complex and from technology companies, academia and financial institutions. The same types of talents and disciplines that enable traditional energy are being utilized all along the energy value chain.

I have the fortune of being able to engage with energy and technology companies every day, both big and small, that are performing amazing feats by increasing our energy production, transport, processing and exporting, and are reducing carbon content and environmental footprint. Incentives provided through federal programs, like those in the Inflation Reduction Act, are helping to accelerate investment in big projects. At the same time, U.S. companies with experienced professionals and know-how are making it all happen in real time.

The truth is, we are doing it all. We are increasing our energy production and we are lowering our carbon footprint through fossil and traditional energy sources, as well as through renewables. We are a global leader in energy production—oil, gas, refined product, renewables, nuclear—and we are a net exporter. This puts us in a position of great strength. Most nations around the world envy the position we are in, but we choose instead to fight about it and to not take full advantage of it.

When Russia invaded Ukraine and Russian gas was cut off from Europe, the U.S. stepped up and sent LNG to Europe to help it get through a tough stretch and lessen the impact to the European economy. Our energy production keeps our adversaries at bay. It enables us to have a military presence around the world and to help defend our allies.

While we are producing record amounts of en-

ergy today, it is still not enough. U.S. energy—fossil-based or renewable—is cleaner than the global average. Our LNG can help emerging economies in Asia reduce their reliance and consumption of coal, which will not only help lift them out of poverty, but reduce their overall greenhouse gas emissions. We are also a global leader in decarbonization technology like carbon capture and storage, and hydrogen. This is a win for everyone.


But to get there we need an energy policy that acknowledges the benefits the U.S. achieves from being the leader in global energy production and in lower-carbon energy and decarbonization technology. Such a policy needs to focus on:

- Regulatory certainty;
- A modern and reliable distribution system of pipelines and transmission; and
- A foreign policy that recognizes and prioritizes the strategic geopolitical role of energy.

On the regulatory front, all forms of energy and decarbonization technologies require permitting and regulatory approvals. Congress needs to act now to address regulatory hurdles and backlogs and put sound regulations in place, where needed, to enable the energy transition.

This includes regulations for composite pipelines that carry hydrogen, and state primacy for Class 6 wells for CO₂ storage. It also includes permitting and leasing for traditional oil and gas, renewable energy and associated infrastructure. Senate Energy and Natural Resources Committee Chairman Sen. Joe Manchin (D-W.Va.) and Ranking Republican Sen. John Barrasso (R-Wyo.) have been working on comprehensive permitting reform for many months. They need help from their colleagues to make it a reality in 2024.

In order to send LNG overseas, send CO₂ to storage and send hydrogen to market, we are going to need more pipelines. We need reforms that make it easier to build new pipelines and stop the endless lawsuits blocking them. Our aging transmission infrastructure puts our entire economy at risk. Congress and the states need to act to modernize our transmission grid and make it less vulnerable to weather and to attacks by adversaries.

Finally, we need to act on the global stage like the energy leader that we are and stop apologizing for our success. The world needs our leadership to meet the energy and climate challenges of our days. We have the solutions. Let's lead the world with sound policies that recognize and foster our capabilities. 

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ACTIVITY HIGHLIGHTS

1.138M

**OIL PRODUCTION IN THE EAGLE FORD
AVERAGED 1.138 MILLION BBL/D
DURING OCTOBER 2023**





FOCUS ON: EAGLE FORD SHALE

When it comes to Texas oil country, the Permian Basin tends to steal spotlights. But some of the nation's most adept E&Ps continue to tap the Eagle Ford Shale in South Texas for substantial volumes of crude oil and natural gas.

The Eagle Ford is the second-largest oil-producing basin in the U.S. Lower 48, ranking only behind the Permian, according to the Energy Information Administration (EIA).

Oil production in the Eagle Ford averaged 1.138 million bbl/d during October 2023, per the EIA's latest figures.

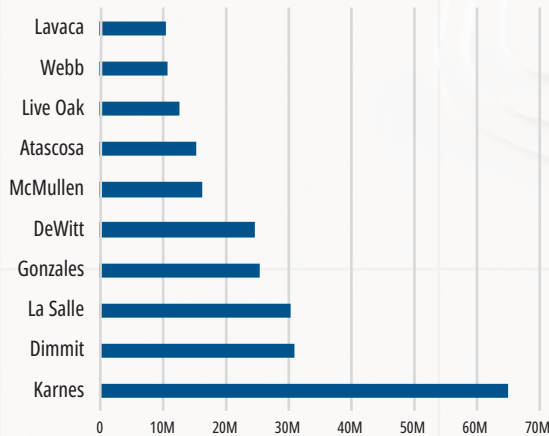
EOG Resources was the top crude oil producer in the Eagle Ford over the past twelve months, according to Rextag data. ConocoPhillips was the second-largest producer in the Eagle Ford in the past year. Giants like Marathon Oil and Devon Energy were also among the basin's top oil producers.

Eagle Ford crude production is being led out of Karnes County, Texas, Rextag data show; natural gas output averaged 7.52 Bcf/d during October.

EOG is planning to drill more wells at its emerging Dorado dry gas play in the southwestern Eagle Ford next year. The company recently completed two projects to service future gas flows from the Dorado play: a natural gas treatment facility and the first phase of a 36-inch gas pipeline.

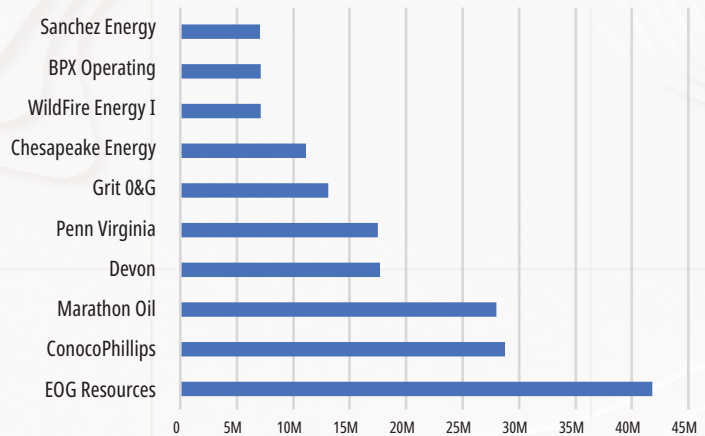
Eagle Ford oil production by county

(last 12 months, bbl)



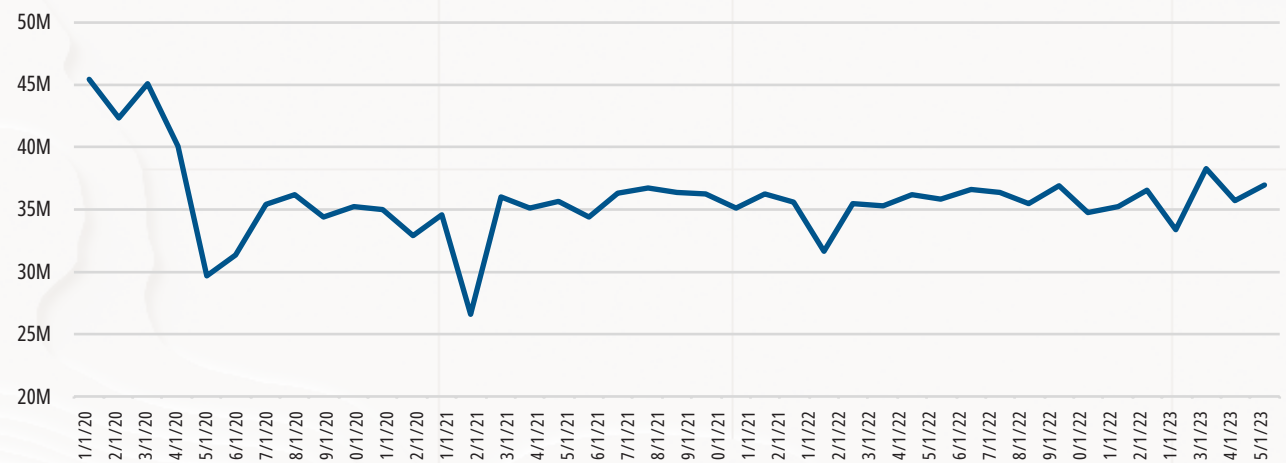
Eagle Ford oil production by operator

(last 12 months, bbl)



Eagle Ford oil production, monthly

(bbl)



Source: Rextag

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▶ **ACTIVITY HIGHLIGHTS**

PERMITS

The Permian Basin continues to drive permitting for future drilling activity, permit application data show.

Martin County, Texas—in the core of the Permian’s Midland Basin—once again led the nation in well-permitting activity in the past month, according to Rextag data.

Martin County was followed by three other prominent Permian Basin counties: Midland, Loving and Reeves counties, Texas.

But don’t forget the Eagle Ford Shale. Both La Salle and Atascosa counties, Texas, were among the most active geographies for well permit applications in the past month.

Operators also drilled down into permitting into the emerging Power River Basin of Wyoming in the past month. Three Wyoming counties—Campbell, Johnson and Converse—ranked among the most active in well permitting activity.

The Bakken Shale, the gassy Haynesville Shale and the Denver-Julesburg Basins also saw permitting activity, data show.

Permitted wells by state

State	Well Count
Texas	617
Colorado	123
Wyoming	96
North Dakota	57
Louisiana	49
Oklahoma	27

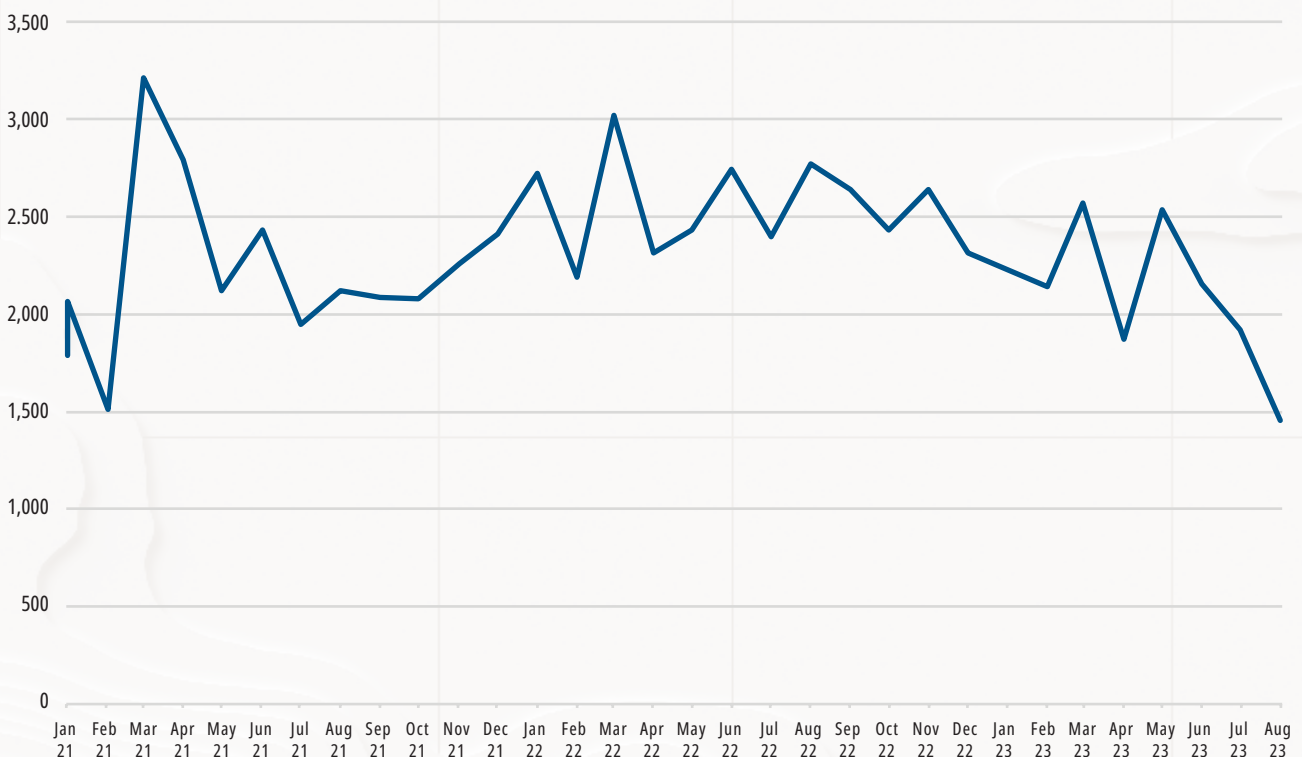
Permitted wells by operator

Operator	Well Count
Endeavor Energy Resources	46
Anshutz Exploration	45
EOG Resources	44
Occidental Petroleum	42
Continental Resources	26
Petro Operating	23
ConocoPhillips	19
Pioneer Natural Resources	18
Marathon Oil	18

Permitted wells by county

County	Well Count
Martin, Texas	68
Midland, Texas	56
Loving, Texas	42
Reeves, Texas	41
Campbell, Wyo.	32
Upton, Texas	30
La Salle, Texas	28
Atascosa, Texas	26
Dunn, N.D.	26
Johnson, Wyo.	26
Converse, Wyo.	25
Howard, Texas	25
Reagan, Texas	25
Caddo, La.	20
Weld, Colo.	20

U.S. permits, monthly





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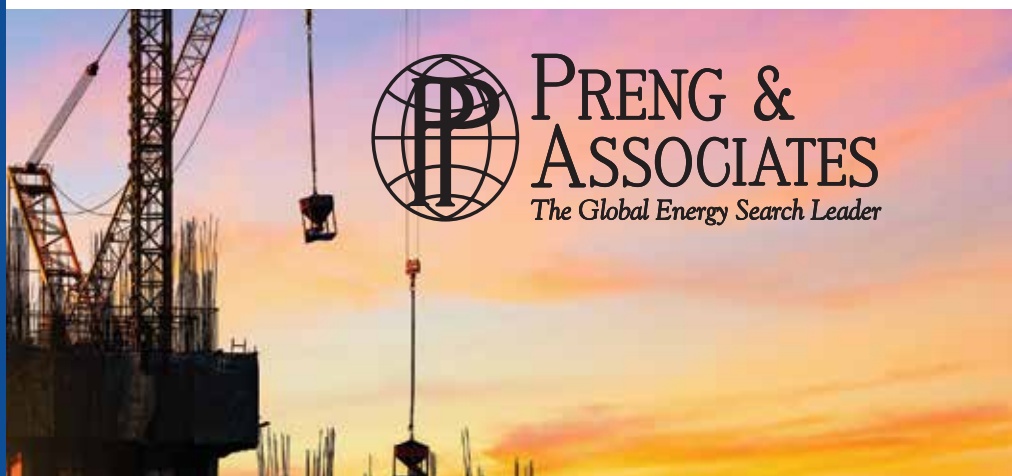
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EQUIPMENT



DIGITAL

Which Assets Will Chevron Shop After \$53B Hess Deal?

The supermajor is entering the Bakken Shale play in a big way—is it in North Dakota to stay?



CHRIS MATHEWS
SENIOR EDITOR, SHALE/A&D
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cmathews@hartenergy.com

Chevron is entering the Bakken Shale in a big way through its \$53 billion acquisition of **Hess Corp.**

The California-based supermajor's acquisition of New York-based Hess is mostly about Chevron picking up greater international scale in Guyana, the world's hottest offshore oil growth play.

Analysts have ascribed somewhere between 70% to 80% of the \$53 billion all-stock transaction's value toward Hess's premier Guyana asset.

But scooping up Hess's Bakken portfolio adds another leading U.S. shale position to Chevron's portfolio, which has a footprint in the Permian and Denver-Julesburg (D-J) basins.

Hess's position in the Bakken includes approximately 465,000 net acres and production of about 180,000 boe/d (80% liquids).

Adding the Bakken will deliver "a mature large-scale, cash-generating operation" to Chevron's portfolio in the Lower 48, said to David Clark, vice president of corporate research at Wood Mackenzie.

Mike Wirth, chairman and CEO at Chevron, compared entering the Bakken to the company's entrance to the D-J Basin through its \$5 billion acquisition of **Noble Energy** in 2020.

Chevron dug itself even deeper roots in the D-J with its \$6.3 billion acquisition of **PDC Energy** earlier this year.

"As we added the D-J Basin to our portfolio, we were pleasantly surprised," Wirth said on an October conference call with analysts.

"It turned out that both the people that joined us from Noble and from PDC were doing a better job that we might have imagined in terms of developing that resource," he said.

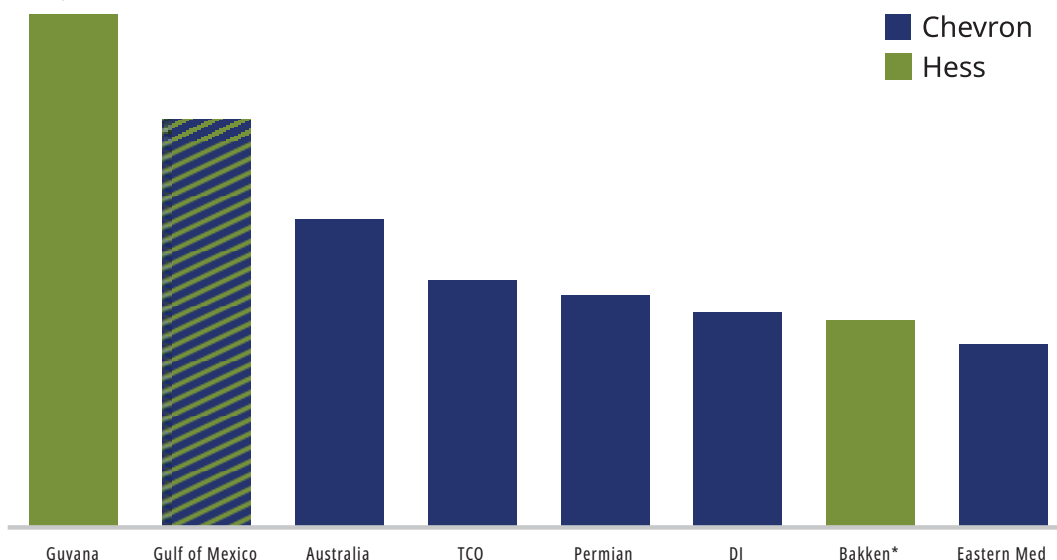
Wirth is anticipating similar upside in the Bakken after integrating and leveraging Hess's expertise from operating in North Dakota.

Based on the company's due diligence, Chevron sees at least 15 years of drilling inventory from the Hess Bakken acreage at a four-rig cadence, Wirth said.

"This is a very attractive asset that can deliver plateaued production and strong cash flow for many, many years to come," Wirth said.

Cash margin

CFFO per BOE in 2027



Source: Chevron

Applying Permian learnings

Chevron's acquisition of Hess will add 400,000 boe/d in net production in 2024, according to **Rystad Energy**.

Nearly half of that incremental production will come from Hess's tight oil operations in the Bakken. Thirty-three percent will come from deepwater assets in Guyana and the Gulf of Mexico, and 18% will come from Hess's position in Southeast Asia.

Output from U.S. shale, particularly from Chevron's Permian footprint, makes up a considerable part of the company's global production mix.

Chevron produced an average 3 MMboe/d across its entire portfolio during the second quarter. More than a quarter—772,000 boe/d—came from the Permian, where Chevron has consolidated more than 2 million net acres.

The company remains on track to boost Permian output up to 1 MMboe/d in 2025, Wirth reiterated on the call.

Chevron's goal with its D-J and Bakken assets is to keep production relatively flat and generate free cash flow for years to come.

The supermajor is developing a suite of technologies intended to improve resource recovery from shale, many of which are being piloted in the field in Chevron's Permian operations.

"As those [technologies] mature and improve up, we would apply those across our entire portfolio, including the Bakken," Wirth said.

On the chopping block?

After closing on the Hess acquisition, Chevron expects to increase its asset divestiture target to generate \$10 billion to \$15 billion in pre-tax proceeds through 2028.

Analysts wonder whether there are parts of Hess's asset portfolio that could hit the market once the company combines with Chevron.

Compared to the Permian or the D-J, the Bakken is a mature shale oil play that's already been heavily developed. Chevron expects the Bakken to generate less cash flow per oil-equivalent barrel than its other U.S. shale assets.

It's also a completely new basin for Chevron, so there aren't that many existing operational synergies that the supermajor can leverage in the region.

But Fernando Valle, senior oil and gas equity analyst at **Bloomberg Intelligence**, has a gut feeling that Chevron will end up staying in the Bakken.


"What they could do is sell **Hess Midstream**," Valle told Hart Energy.

"[Chevron] typically hasn't been keen to keep midstream operations, so that is something that could make up those \$10 to \$15 billion in asset sales by 2028."

Hess Midstream operates crude oil, natural gas and NGL pipelines, as well as associated produced water infrastructure across North Dakota in McKenzie, Williams and Mountrail counties, according to regulatory filings.

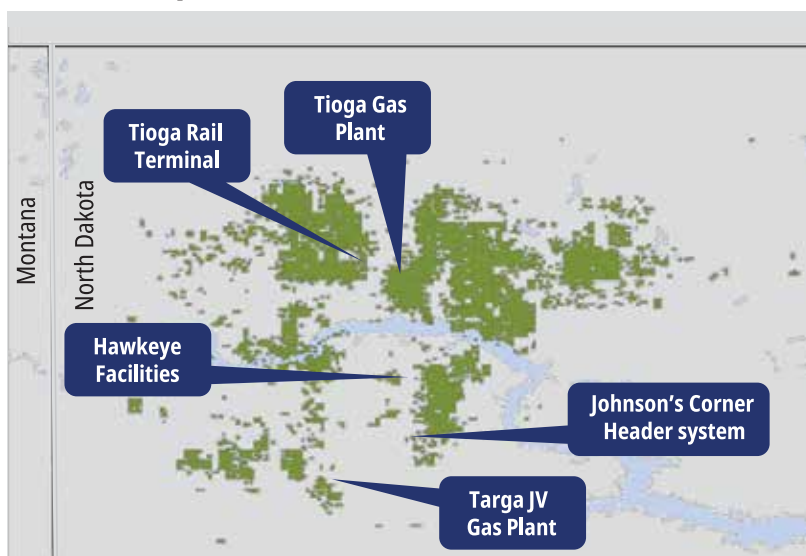
As of the end of 2022, Hess had approximately 41% consolidated ownership interest in Hess Midstream, regulatory filings show.

In the future, Chevron might also monetize Hess's natural gas assets offshore Malaysia and Thailand.

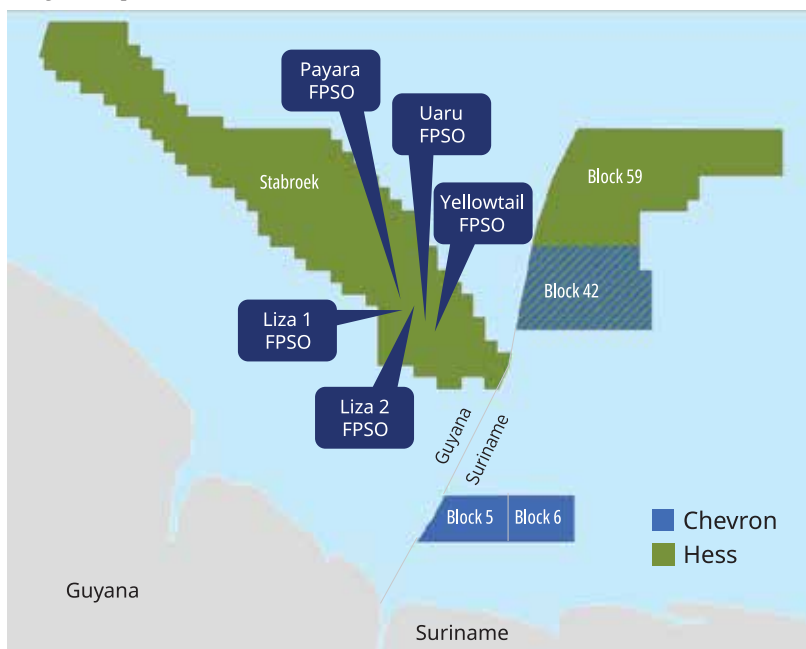
"We've also discussed Southeast Asia being a possible sale from the Hess portfolio that doesn't match as well with the rest of Chevron's portfolio," Valle said. 

—Chris Mathews, Senior Editor, *Shale/A&D*

Bakken footprint



Guyana position



Source: Chevron

Permian Resources Playing Small-Ball M&A

Producer sees opportunities for small-scale bolt-ons in the Delaware Basin.

After closing a \$4.5 billion acquisition of **Earthstone Energy**, **Permian Resources** isn't ruling out more large-scale M&A. But the growing E&P also sees running room for its small-scale ground game strategy in the Delaware Basin.

Midland, Texas-based Permian Resources added around 740 net acres in the Delaware Basin across 20 grassroots transactions during the third quarter, the company disclosed in its latest earnings report.

"Those are, I think, the most attractive acquisition opportunities we look at—often right ahead of the drill bit and really, really accretive," said Will Hickey, co-CEO of Permian Resources, during the company's third-quarter earnings call.

The incremental, small-ball acquisitions in the Delaware Basin "represent a pretty unique value proposition" for Permian Resources today, Hickey said.

The market for bolt-on deals has remained steady over the years for Permian Resources, which formed through the combination of **Centennial Resource Development** and **Colgate Energy Partners III** in September 2022.

The smaller deals are largely driven by independent private sellers or family-owned Permian Basin oil companies. Prices for these deals don't swing as wildly with the ups and downs of the volatile oil and gas price cycles, compared to the broader M&A market, Hickey said.

Gaining additional scale in the northern Delaware Basin through the Earthstone Energy acquisition makes the opportunity set for Permian Resources' ground game effort even more attractive.

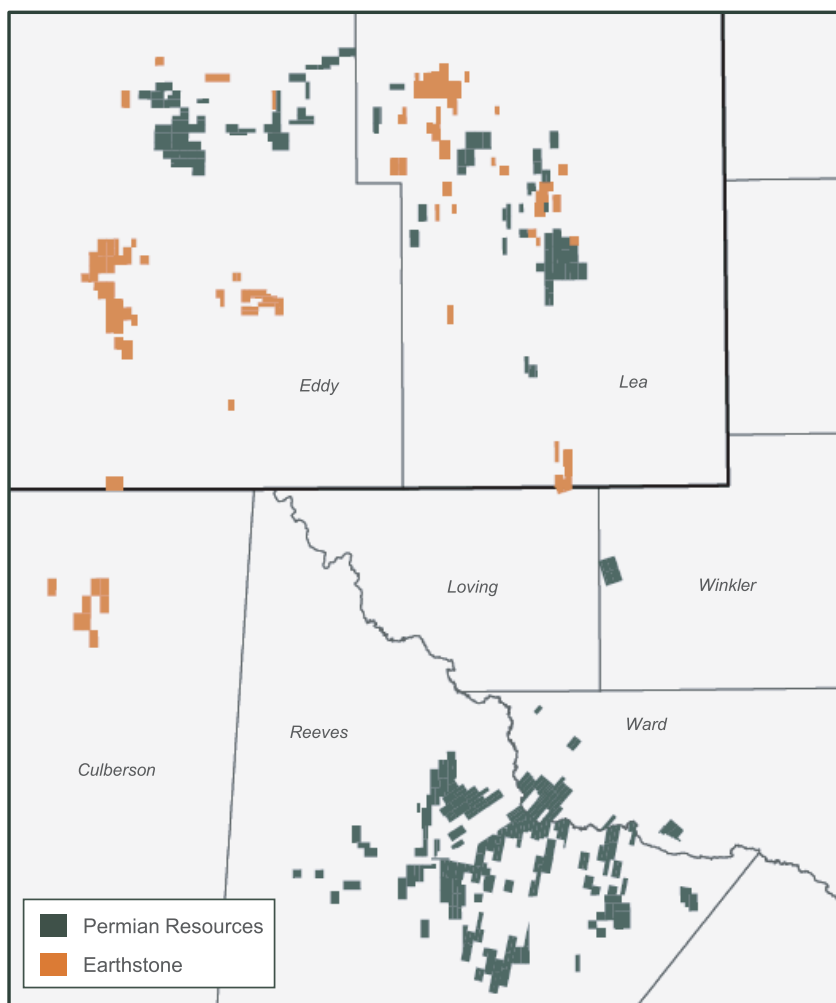
"A larger footprint creates more opportunities for bolt-on acquisitions, for trades, et cetera," he said.

Dealing in the Delaware

The Earthstone acquisition included acreage and assets in the Permian's Midland Basin. But Permian Resources' acquisition strategy is wholly focused on the Delaware Basin, where the company is deploying the vast majority of its development capital for future drilling.

Permian Resources reiterated its plans to shift drilling rigs from Earthstone's Midland acreage and to reallocate that capex into the Delaware. As part of the company's

Delaware Basin acreage position



Source: Permian Resources

development plan, over 90% of capital spending will be deployed in the Delaware, Hickey said.

Compared to the Midland Basin—much of which has been scooped up at premium prices by the majors and largest independents—the Delaware Basin remains a much more fragmented play.

The northern Delaware, including Lea and Eddy counties, N.M., has seen a flurry of M&A and development; recent buyers include **Matador Resources** and **Civitas Resources**.

E&Ps like Permian Resources, **Vital Energy**, **Continental Resources** and Vitol-backed **VTX Energy** have been active consolidators in the southern Delaware portion of West Texas.

The Delaware Basin has seen a lot of dealmaking activity so far this year, and Permian Resources took a look at all of those opportunities, Hickey said. But no deals made sense for the company outside of the large-scale Earthstone acquisition.

"We're continuing to see the small-ball ground game to be the most attractive opportunities that are the highest rate of return, the most inventory-accretive and ultimately set us best up for long-term value creation," Hickey said.

Lateral moves

Permian Resources achieved its best operational quarter to date in the third quarter as unit costs fell and well results improved, according to analysts at **Truist Securities**.

Total average production came in at 172,000 boe/d during the third quarter; oil volumes averaged approximately 89,800 bbl/d.

The company continued to see increases in drilling efficiencies, with drilled and completed feet per day both increasing quarter over quarter. That helped drive an approximately 5% reduction in well costs on a per lateral foot basis, Permian Resources reported.

Several operators are working to drill longer laterals to try to squeeze as much oil out of their shale rock as possible.

After closing its massive \$60 billion acquisition of **Pioneer Natural Resources**, **Exxon Mobil** aims to drill more four-mile laterals on a much larger acreage footprint in the Midland Basin.

Permian Resources thinks its acreage position is best suited for 2-mile lateral development today.

"It is our belief still today that a 2-mile lateral is the optimal, most capital efficient or risk-adjusted return lateral length in the Delaware," Hickey said.

Permian Resources co-CEO James Walter said the push for longer laterals by some operators has been one of necessity, as E&Ps push into the margins of the basin and into their next tiers of drilling inventory.

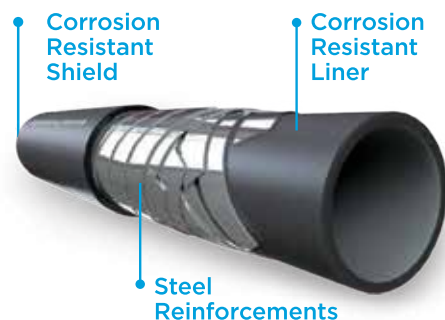
"We're in the fortunate position, we're still drilling our core-of-the-core acreage that's extremely high quality and will be for a long time," Walter said.

But as drilling technology improves over time—and Permian Resources gets more efficient at drilling Delaware wells—the company will continue to look at opportunities for 2.5-mile or 3-mile laterals.

"There's probably some small places where we could do things to incorporate longer laterals if we chose to do so," Hickey said. "But that's not a big part of the near-term business plan for us."

—Chris Mathews, Senior Editor, *Shale/A&D*

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'Most Logical Combination' for US Natural Gas

Activist investor **Kimmeridge** wants to see a deal come together for **Chesapeake** and **Southwestern**—for the right price.

Activist investment firm **Kimmeridge**, a major **Chesapeake Energy** investor, wants to see a deal with **Southwestern Energy** come together. **Kimmeridge Energy Management** owns 2.9 million shares, or approximately 2%, of **Chesapeake Energy's** shares, **Kimmeridge Managing Partner Mark Viviano** told **Hart Energy**.

Kimmeridge has taken an active role in pushing **Oklahoma City-based Chesapeake** to pivot into a pure-play natural gas company focused on the **Marcellus** and **Haynesville** shale basins.

Last year, the firm privately lobbied **Chesapeake** to sell off and monetize its oily assets in the **Eagle Ford Shale**. Compared to the E&P's top-tier acreage footprint in the **Marcellus** and **Haynesville**, **Kimmeridge** analysis found **Chesapeake's** oily assets in **South Texas** unable to compete for development capital, **Viviano** said.

"If you step back and look at our investment thesis on **Chesapeake**, it was always through the lens of a two-step process: first, you monetize the oil assets," **Viviano** said. "Then, you use those proceeds to consolidate within the **Haynesville** and the **Marcellus** in order to build operational scale and investor relevancy through greater size."

Chesapeake ended up selling off its **Eagle Ford** assets and exiting **South Texas** earlier this year, generating proceeds of over \$3.5 billion across three separate deals with **SilverBow Resources**, **INEOS Energy** and **WildFire Energy**.

Now, rumors are swirling that **Chesapeake** could acquire **Houston-based gas producer Southwestern Energy** in a transaction valued at around \$11 billion, including debt.

It's a blockbuster shale gas deal that **Kimmeridge** would support.

"I'm excited about this because this is the deal we always wanted," **Viviano** said.

'The most logical combination'

Analysts and investors, like **Kimmeridge**, generally think a transaction between **Chesapeake** and **Southwestern** makes sense.

"We really do view **Chesapeake** and **Southwestern** as the most logical combination in the sector today, given the operational overlap, the materiality of synergies and the opportunity for a valuation re-rating," **Viviano** said.

One of the top reasons is scale. **Kimmeridge's** view is there are too many public E&P companies in the market relative to the degree of investor interest in the sector,

leading to depressed valuations.

In the early days of the shale revolution, being a small, nimble E&P had its advantages. Today, shale production has entered mass manufacturing mode, where tried-and-true development processes are applied in basins across the **Lower 48**.

Being a bigger player matters a lot more when negotiating on services pricing, lowering overhead costs, gaining operating efficiencies and accessing investment-grade debt.

Combined, **Chesapeake** and **Southwestern** would have a production of around 8 Bcfe/d, putting it ahead of the nation's current largest gas producer, **EQT Corp.**, according to analysis by **Truist Securities**.

The combined company would also be the only publicly traded gas E&P with producing assets in both the **Marcellus** and **Haynesville** basins. Having blockier acreage positions would enable a combined player to drill longer laterals and save on drilling expenses.

"As much as we all appreciate the role of blocking up acreage through consolidation for longer laterals, it should have the greatest impact in the **Haynesville**—just because you're starting with the highest well costs and the biggest benefit from drilling longer laterals," **Viviano** said.

Combining **Chesapeake** and **Southwestern** would also create a gas company in a prime position to capitalize on growing global demand for **LNG**.

Both companies already sell a significant amount of their gas production into the **Gulf Coast** market. Earlier this year, **Chesapeake** signed a 15-year **LNG** supply agreement with **Gunvor Group** to supply **Haynesville** gas for liquefaction.

"I believe that a company with a leading position in the **Haynesville**, in close proximity to **LNG** infrastructure, is going to be uniquely positioned to capitalize on that long-term opportunity for greater connectivity to the global gas market," **Viviano** said.

Gas demand to fuel U.S. **LNG** exports is forecasted to grow by 17.4 Bcf/d between 2023 and 2030, according to **East Daley Analytics** data. Total peak **LNG** export capacity in 2022 was about 13.9 Bcf/d, **Energy Information Administration (EIA)** figures show.

What's your price?

Given the myriad of different operational efficiencies and synergies that could materialize should the two companies

2.9M

Chesapeake Energy shares owned by **Kimmeridge**

17.4 Bcf/d

LNG export growth forecasted between 2023 and 2030



“We really do view Chesapeake and Southwestern as the most logical combination in the sector today.”

Mark Viviano,
managing partner,
Kimmeridge

Matt Greenslade

combine, Kimmeridge thinks a deal could happen—but only for the right price.

Chesapeake acquiring Southwestern for a roughly \$11 billion purchase price, or about \$7 per share of Southwestern stock, would imply little to no premium takeout compared to recent closing prices for SWN shares.

Analysts said they wouldn't be surprised to see a final price closer to between \$7.50 and \$8 per share of SWN stock.

“I do think it'll happen as long as Southwestern's board's willing to accept a modest premium,” Viviano said.

Kimmeridge thinks a “modest premium” of between 10% to 15% would make sense for an acquisition, given the difference in size between Chesapeake (which has a market capitalization of around \$12 billion) and Southwestern (\$8 billion).

The oil and gas M&A market has seen a flurry of activity in 2023—especially in the Permian Basin, where E&Ps have

been consolidating premium drilling inventory.

The clearest example of this trend is **Exxon Mobil's** behemoth acquisition of **Pioneer Natural Resources** in an all-stock transaction valued at nearly \$60 billion, excluding debt.

Devon Energy reportedly held preliminary conversations with **Marathon Oil** about a potential combination, according to Bloomberg.

Permian Basin deals have centered around oil-producing assets, but extreme volatility in natural gas prices has chilled the M&A market for gas-weighted deals.

Henry Hub natural gas prices are expected to average \$2.61 in 2023—down nearly 60% from an average of \$6.42 last year, according to the EIA's latest forecast.

This summer, a consortium of family office investment groups took ownership of Wyoming-focused gas producer **PureWest Energy** in a \$1.84 billion cash deal.

—Chris Mathews, Senior Editor, *Shale/A&D*

Crescent Point Buys Alberta Montney E&P for \$1.86 Billion

E&P extends its premium drilling inventory with acquisition of Hammerhead Energy.



A natural gas pump jack in an Alberta Canola rapeseed field.

Shutterstock

Crescent Point Energy is scooping up fellow Canadian producer **Hammerhead Energy** in a cash-and-stock deal.

The transaction is valued at US\$1.86 billion (CA\$2.55 billion), including the assumption of approximately US\$332 million (CA\$455 million) of Hammerhead's net debt, the companies announced in early November.

The deal extends Alberta-based Crescent Point's development runway in the Montney Shale with approximately 800 incremental drilling locations. At Crescent Point's current pace, its premium inventory will grow to more than 20 years through the Hammerhead acquisition.

"This strategic consolidation is an integral part of our overall portfolio transformation," said Craig Bryksa, president and CEO at Crescent Point. "The acquired assets, which are situated in the volatile oil window in the Alberta Montney and adjacent to our existing lands, provide significant value

with premium drilling inventory, infrastructure ownership and scalable market access."

After closing, Crescent Point will focus on development in the Montney and Kaybob Duvernay plays, while maintaining complementary, long-cycle assets in Saskatchewan.

The deal is expected to create the seventh-largest Canadian E&P by production volume. Crescent Point also expects to be the largest land owner in the Alberta Montney's volatile oil window with the Hammerhead acquisition.

Crescent Point anticipates that the deal will be immediately accretive to its per share metrics and boost shareholder returns.

The company plans to increase its base dividend by 15% to \$0.46/share on an annual basis after closing.

This summer, Crescent Point announced selling its North Dakota assets to a private operator for US\$500 million (approximately CA\$675 million) in cash.

—Chris Mathews, Senior Editor, Shale/A&D

\$332 million

Hammerhead net debt assumed in Crescent Point deal

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UPSTREAM

Permian Resources completed its \$4.5 billion acquisition of **Earthstone Energy**, a deal that adds 300,000 boe/d to the company's production lease.

James Walter, co-CEO of Permian Resources, said the acquisition reinforces the company's position as a premier Delaware Basin independent E&P that "is uniquely situated to drive profitable growth and development in the world-class Permian Basin."

Earthstone's position includes more than 400,000 net acres.

"We look forward to leveraging our deep Delaware Basin experience and increased scale to deliver upon the significant synergies provided by this combination, driving incremental value for our combined shareholder base," said Will Hickey, Permian Resources' co-CEO. "We appreciate the strong support from shareholders and are confident in the tangible and long-term value expected to be created through this transaction."

Under the terms of the merger, each share of Earthstone common stock was converted into the right to receive 1.446 shares of Permian Resources' common stock. As a result, Permian Resources expects to issue approximately 211 million shares of common stock related to the transaction.

Earthstone stock is no longer listed for trading on the NYSE.

Jefferies and **Morgan Stanley & Co.** served as co-lead financial advisers, and **Kirkland & Ellis** as legal adviser to Permian Resources.

RBC Capital Markets and **Wells Fargo Securities** served as financial advisers, and **Vinson & Elkins** as legal adviser to Earthstone.

- With 192 acquisitions under its belt, **Sitio Royalties** recently inked a deal to divest all of its assets in the Appalachia and Anadarko basins, the company said in its third-quarter earnings report.

Sitio signed a purchase and sale agreement on Nov. 3 to exit the Appalachia and Anadarko basins for \$117.5 million, the company said.

The company's net royalty acreage, which Sitio described as "lower-margin," was sold to an undisclosed third party for cash. In the second quarter, Sitio took a \$25.6 million non-cash impairment charge related to its Appalachia assets and lower realized commodity prices.

Regulatory filings show the company

held a combined 22,541 net royalty acres in the basin. In the third quarter, the Anadarko and Appalachia assets averaged 2,095 boe/d (14% oil) and generated revenues of \$3.8 million from oil, natural gas and NGLs, according to a Sitio regulatory filing. Through the first three quarters of this year, the assets averaged 2,113 boe/d (15% oil) and generated \$14.2 million in revenue.

"Our position in each of these basins was sub-scale relative to our company size," CEO Chris Conoscenti said.

Sitio said it intends to use the net proceeds from the sale to repay outstanding borrowings under the company's revolving credit facility and for general corporate purposes.

The divestiture is expected to close at the end of the year, Conoscenti said.

Sitio also said it closed four previously announced Permian Basin deals for mineral and royalty interests at a cost of approximately \$181 million. That follows a busy second quarter for Sitio's M&A, when the company closed multiple Permian acquisitions for aggregate consideration of \$247.9 million.

In the third quarter, Sitio delivered steady performance from its assets despite the slowdown of drilling activity in the Permian and more broadly across the Lower 48, Conoscenti said.

The Permian accounts for approximately 80% of its line of sight wells, he said.

"We continue to pursue multiple consolidation opportunities and are optimistic about improving competitive dynamics heading into 2024," Conoscenti said.

Sitio reported third-quarter 2023 adjusted EBITDA of \$142.4 million, up 12% sequentially from second quarter.

- **Exxon Mobil** closed its acquisition of E&P **Denbury Inc.** in early November. It was an all-stock transaction valued at billion.

Under the terms of the agreement, Denbury shareholders received 0.84 shares of Exxon for each Denbury share.

Exxon's acquisition adds the expertise of a carbon capture, utilization and storage and EOR company for \$89.45 per share—roughly a 2% premium on Denbury's closing price when the deal was announced in July.

Exxon said it now owns the largest CO₂ pipeline network in the U.S.—spanning more than 1,300 miles and including nearly 925 miles of CO₂ pipelines in Louisiana, Texas and Mississippi—located

in one of the largest U.S. markets for CO₂ emissions. The company also has access to more than 15 strategically located onshore CO₂ storage sites.

"This transaction is a major step forward in the profitable growth of our Low Carbon Solutions business," Exxon Chairman and CEO Darren Woods said. "Our expertise, combined with Denbury's talent and CO₂ pipeline network, expands our low-carbon leadership and best positions us to meet the decarbonization needs of industrial customers while also reducing emissions in our own operations."

The acquisition also includes Gulf Coast and Rocky Mountain oil and natural gas operations, consisting of proved reserves totaling more than 200 MMboe as of year-end 2022, with approximately 46,000 boe/d production. The operations provide immediate operating cash flow and optionality for carbon capture operations, Exxon said.

Once fully developed and optimized, the assets have the potential to reduce CO₂ emissions by more than 100 million metric tons per year.

- California-based oil and gas company **Trio Petroleum** announced it has secured a four-month exclusive option to acquire a natural gas prospect in the Sacramento Basin with the potential to produce an estimated 40 Bcf of gas.

The company believes this prospect, which is based on 3D seismic data, could provide significant natural gas production and cash flow due to the prospect's proximity to prolific gas fields, easy access to a gas pipeline and target's gas sands at approximately 8,000 ft, the release stated.

"We are fulfilling our business plan to make smart acquisitions to help ensure the success of the company and to increase shareholder value," Trio CEO Michael L. Peterson said. "We will continue to search for acquisitions to help diversify and provide significant upside opportunity to our production and cash flow."

According to Trio, the prospect is fully leased and permitting for an exploration well is in an advanced stage.

MIDSTREAM

U.S. pipeline operator **Kinder Morgan** said it would acquire gas pipelines in South Texas from **NextEra Energy Partners** for \$1.82 billion.

The oil and gas pipeline business has seen increased consolidation this year as U.S. production grows and persisting problems related to permits for new pipelines have made existing operators more valuable.

NextEra Energy Partners' (NEP) Texas natural gas pipeline portfolio, **STX Midstream**, primarily consists of seven pipelines that provide natural gas to Mexico and power producers and municipalities in South Texas. The pipelines together have a transport capacity of 4.9 Bcf/d.

"Initially, we plan to fund the transaction with cash on hand and short-term borrowings," Kinder Morgan said in a news release. The deal is expected to close in first-quarter 2024.

Shares of NEP, a unit of NextEra Energy created to acquire, manage and own contracted energy projects, lost about 37% of their value by mid-November after the company trimmed its distribution growth forecast through at least 2026 in September.

Higher interest rates have raised project costs for NEP, hurting its growth, according to analysts' reports.

"Upon closing, the proceeds would be sufficient to pay off the outstanding project-related debt," NextEra Energy Partners CEO John Ketchum.

The sale price represents a 10x multiple on the estimated calendar year 2023 adjusted core profit for the Texas natural gas pipeline portfolio, NEP said.

"The valuation falls in line with recent trading multiples for midstream sector constituents and below some of the transaction marks," analysts at **Guggenheim Securities** said.

However, the deal provides some flexibility in credit metrics, the analysts added.

- **Energy Transfer** completed its acquisition of **Crestwood Equity Partners**. The merger was approved by Crestwood unitholders at the company's special meeting in October.

Energy Transfer now owns and operates more than 125,000 miles of pipelines across the U.S.

Both companies' combined operations are expected to generate initial annual run-rate cost and efficiency synergies of at least \$40 million before additional anticipated benefits, according to a news release.

Crestwood's common and preferred units ceased trading on the New York Stock Exchange effective Nov. 3. Crest-

wood common unit holders received 2.07 of Energy Transfer common units per Crestwood common unit.

The release said that each outstanding Crestwood preferred unit may be converted in one of two ways: either converted into as a new preferred unit of Energy Transfer—including similar economic and structural protection terms—that is redeemed in exchange for \$9.86 in cash plus accrued and unpaid distributions to the date of such redemption; or, the Crestwood preferred unit is converted into a common unit at the then-applicable conversion ratio of one Crestwood common unit for 10 preferred units—and such Crestwood common units then received the common unit merger consideration.

LOW CARBON

Canadian infrastructure company **Enbridge** has elevated its position in the renewable natural gas (RNG) space with its US\$1.2 billion purchase of seven landfill gas-to-RNG facilities from Texas-based **Morrow Renewables**.

The move, announced in early November, comes as the company continues to diversify its portfolio with de-risked assets capable of contributing to EBITDA and dividend growth sooner rather than later. Combined, the facilities—all of which are operational in Texas and Arkansas—produce about 5 Bcf of RNG per year.

"As the landfills continue to grow, that production number will continue to grow at approximately 3% annually with minimal required capital investment," Enbridge CEO Greg Ebel said on the company's third-quarter earnings call with analysts. "RNG fundamentals are strong in the United States and indicate continued growth in demand over the long term as gas utilities increasingly continue to set RNG blending targets."

With a carbon intensity lower than fossil natural gas, RNG is seen as a route to decarbonization. Instead of being released into the atmosphere, methane gas from landfills, animal manure and sewage sludge can be turned into fuel. RNG is formed when contaminants that include CO₂, water and hydrogen sulfide are removed from methane to elevate the gas to pipeline quality.

RNG can be used in the same ways as fossil gas and, as Enbridge explained, can

be easily blended into existing natural gas distribution and transmission networks to fuel transit fleets, power industry facilities and heat homes and businesses.

"This was the perfect opportunity to meaningfully add to our RNG portfolio with an accretive Enbridge-like tuck-in, which has long-term full volume offtake agreements with Shell Energy North America and BP," Ebel said. "Unique to this deal and in keeping with our commitment to protect our balance sheet, we've staggered the purchase price over 24 months."

Six of the municipal landfill-to-RNG facilities are in Texas and the seventh is in Arkansas.

The acquisition follows Enbridge's March 2023 announced collaboration with **Divert Inc.** to develop facilities that turn food waste into RNG. Enbridge acquired a 10% stake in the company, a move that also aims to help food retailers sustainably manage food waste.

- Artificial intelligence (AI) company **SEW** said in late October it has agreed to acquire **GridExchange**, a transactive energy software platform, from **Alectra Utilities**. Financial details about the deal weren't disclosed.

GridExchange "empowers energy consumers to transition from passive users to proactive prosumers, leveraging distributed energy resources (DERs) such as solar panels, battery storage, and EV (Electric Vehicles)," SEW said in a press release.

"At SEW, we are shaping a clean and sustainable energy future. The acquisition of GridExchange aligns perfectly with our vision and strategy of an intelligent, resilient, and sustainable energy ecosystem," said Deepak Garg, CEO and founder of SEW. "Our journey towards a sustainable future begins with empowering and educating individuals and businesses alike to actively participate in the energy revolution."

"By integrating GridExchange into our SEW-connected platform, we are not only driving cleaner energy transition and adoption but also revolutionizing the way people and communities engage with their energy consumption," Garg said.

"Our development of GridExchange, which helped to enable non-wires alternative pilots in our service territory, illustrates our commitment to enabling customers to participate in local energy markets," said Brian Bentz, president and CEO of Alectra. 

Gas E&Ps Fixate on Glut-Free Future

Third-quarter earnings for U.S. producers plummeted compared to last year, but help is on the way as LNG plants come online.

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U.S. natural gas E&Ps were on top of the world last year as prices reached levels not seen in over a decade. But it's been a much different story for gas producers so far this year.

Henry Hub natural gas prices rose above \$9/MMBtu in August last year due to a confluence of geopolitical and macroeconomic factors—like structural supply-demand imbalances emerging from the COVID-19 pandemic and Russia's invasion of Ukraine upending the European energy market.

Henry Hub prices rose to levels not seen since April 2008 in the midst of the Great Recession, according to the Energy Information Administration (EIA).

Producers raised output, chased the high prices accordingly and raked in big profits. But as the old adage goes: high prices are the cure for high prices.

Instead of the structural shortages seen last year, today's market overflows with natural gas.

U.S. natural gas inventories remain well above the five-year average with nearly 2 Tcf in storage, the EIA reported in its latest Short-Term Energy Outlook.

"Inventories are full because of high natural gas production and warmer-than-average winter weather, which reduces demand for space heating in the commercial and residential sectors," the EIA said in the report.

Henry Hub prices are expected to average \$3.20/MMBtu this fall, down from \$5.50/MMBtu a year prior.

Yet, total U.S. natural gas production remains higher than output levels seen during the period of sky-high prices last year.

Profits plunge

The volatility in natural gas prices resulted in lower earnings for gas producers compared to last year.

Third-quarter profits were down year-over-year for U.S. supermajors Exxon Mobil and Chevron.

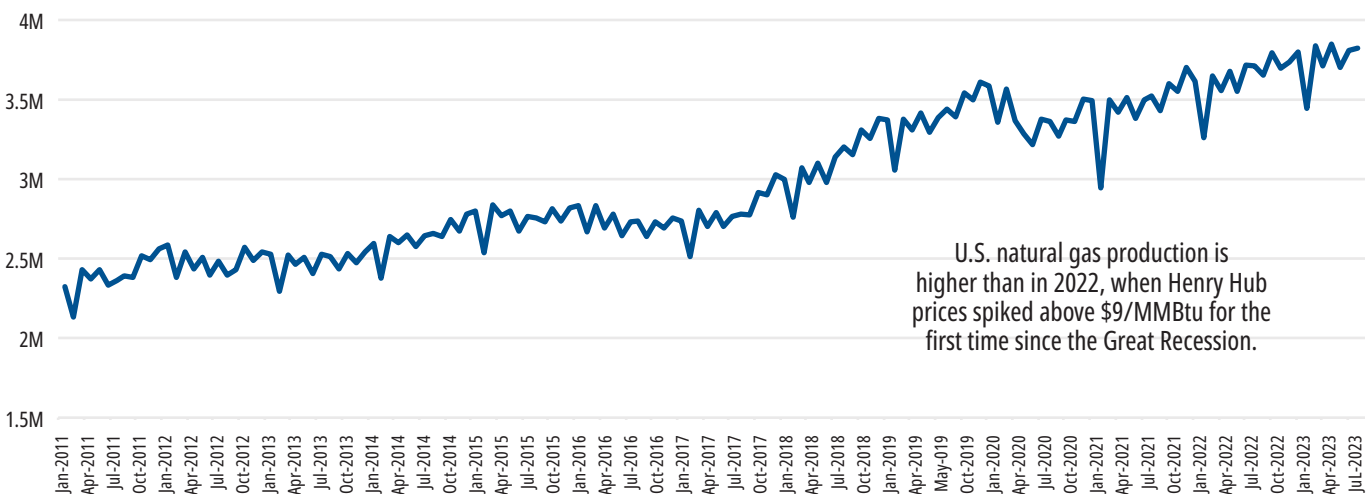
Both companies cited lower natural gas realizations as headwinds to profitability for the quarter. However, analysts had largely anticipated the sharp drops in both Exxon and Chevron's earnings.

Appalachia giant EQT, the nation's largest pure-play gas producer, brought in a third-quarter net income of \$81.2 million, or \$0.20/share—down from \$683.6 million, or \$1.69/share, during the same period last year.

Chesapeake Energy, which sold off its final oily acreage in the Eagle Ford Shale this year, reported third-quarter net income of \$70 million, or \$0.49 per diluted share—compared to \$883 million, or \$6.12 per diluted share, in the same quarter a year ago.

U.S. natural gas gross withdrawals, 2011-2023

(monthly, mmcf)



Source: U.S. Energy Information Administration

But lower operating costs help offset some of the headwinds from lower natural gas prices, Chesapeake told investors.

Southwestern Energy's third-quarter net income was \$45 million, or \$0.04 per diluted share—down from \$450 million, or \$0.40 per diluted share, during the third quarter of 2022.

Rumors are also swirling that Chesapeake could scoop up Southwestern to create a premier publicly traded gas E&P.

Natural gas E&Ps benefitted from a quarter-over-quarter increase in commodity prices. But prices are still so low, it's difficult for gas producers to actually generate free cash flow.

By EQT's analysis, a natural gas price of \$3.50/MMBtu is needed for operators in the Haynesville Shale to even begin generating cash flow in maintenance mode, CFO Jeremy Knop said during EQT's third-quarter earnings call.

"Meaning, below this price, no shareholder value is being created and inventory optionality is being depleted," Knop said.

Further, he said, EQT sees the price required to generate corporate returns for Haynesville producers at above \$4/MMBtu, based on current market valuations.

EQT's own free cash flow fell into negative territory in the third quarter—\$2 million in the red—though that was partly due to one-time charges associated with EQT's multibillion-dollar acquisition of Tug Hill.

Light at the end of the tunnel

Despite months of price volatility and steep year-over-year declines in earnings, the outlook by most U.S. gas producers largely remains optimistic.

That's because they've kept their eyes on the proverbial light at the end of the dark tunnel: rising natural gas demand

from LNG developers on the Gulf Coast.

Gas demand to fuel U.S. LNG exports is forecasted to grow by 17.4 Bcf/d between 2023 and 2030, according to figures from East Daley Analytics. More than a half dozen new LNG export projects are currently under construction and expected to start up in the coming years.

Last year, total peak LNG export capacity was about 13.9 Bcf/d, per EIA figures.

Producers like EQT think the natural gas market will grow increasingly tighter in late 2024 and into 2025 as more LNG export capacity comes online.


"We see the potential for pricing to move asymmetrically higher," Knop said.

Gas E&Ps are hard at work getting ready for the huge increase in demand. Chesapeake said in late October it is entering into a long-term LNG supply heads of agreement (HOA) with global commodities trader Vitol.

Under the agreement, Chesapeake will supply up to 1 million tonnes per annum of LNG to Vitol for a period of 15 years; prices will be indexed to the international Japan Korea Marker (JKM).

Earlier this year, Chesapeake signed a long-term LNG supply agreement with commodities trader Gunvor Singapore.

EQT signed a long-term LNG supply agreement of its own: a 15-year tolling agreement with Commonwealth LNG's facilities in Cameron, La.

Still, the anticipated growth in domestic natural gas demand to supply liquefaction capacity is so huge, even some of the largest gas producers wonder from where it will all be produced. 



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RBLs On the Outs as Source of Capital

Companies turning to equity and free cash flow, says Haynes Boone survey.



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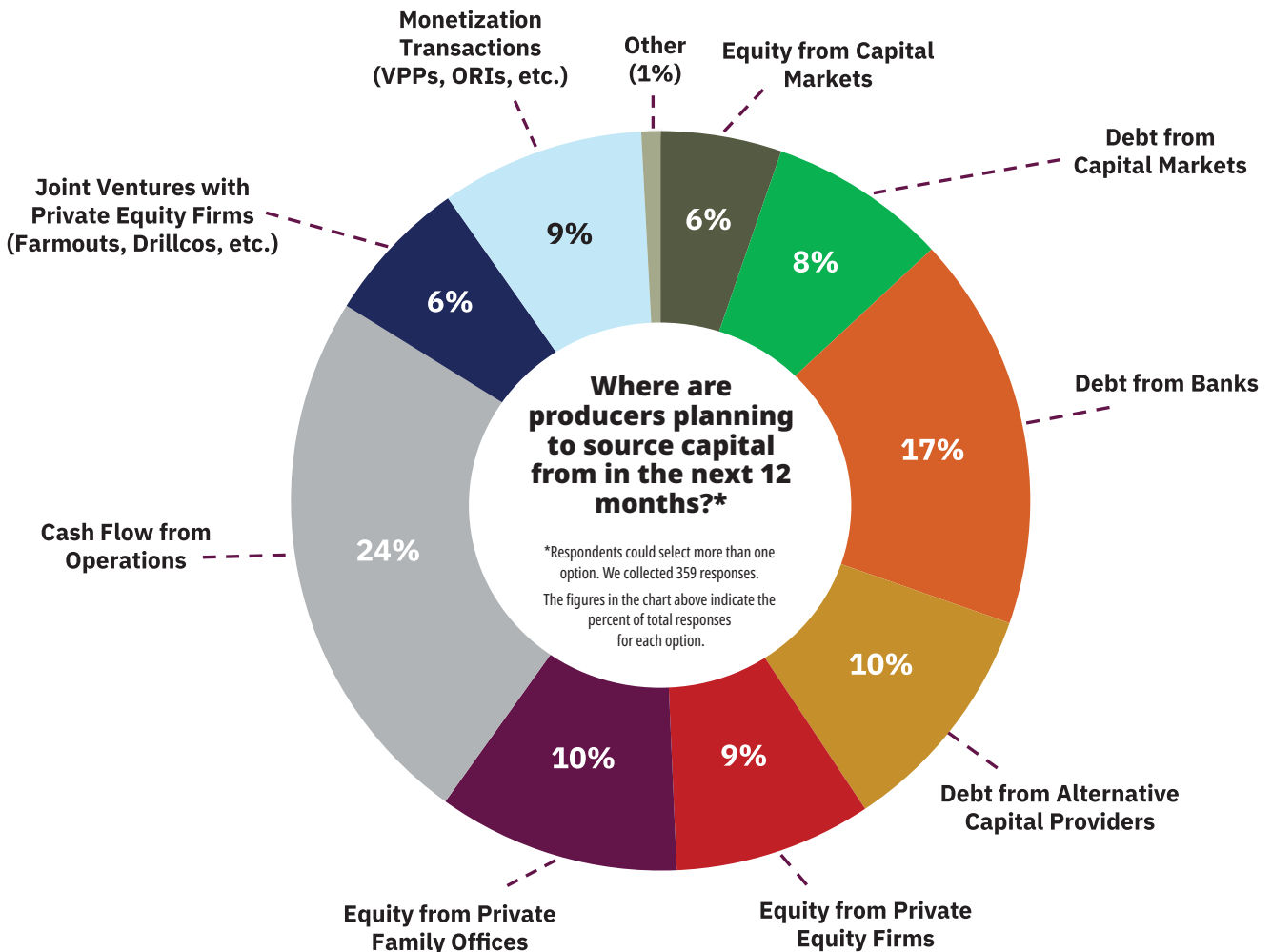
Reserve-based lending (RBL) is expected to decline as a source of capital for independent oil and gas companies in the next 12 months, a new survey shows. E&Ps' combination of free cash flow and access to different sources of equity are expected to make up nearly half of companies' capital sources, according to findings in Haynes Boone's fall 2023 Borrowing Base Redeterminations survey.

The law firm's survey asked respondents about their expectations for the oil and gas industry in general—not for specific companies. About 17% of respondents said bank debt would be a source of oil and gas

capital in the next 12 months, a 20% decrease from the firm's April survey.

"The main reason is that there's still a shortage of participants on the lender side of this market," Haynes Boone partner Kraig Grahmann told Hart Energy. "Even though there's strong fundamentals right now. Some banks out there have had bad experiences with making these kinds of loans over the last 10 years. They're very cautious on jumping in too fast on an up market."

Many banks have left the space because of ESG concerns or because they've soured on the oil industry's boom-bust cycles. Some smaller banks have merged with larger banks



Source: Haynes Boone Borrowing Base Redeterminations Survey: Fall 2023



“Equity investors have finally gotten comfortable that oil and gas companies have cleaned up their act financially and are willing to start putting money into that market.”

—Kraig Grahmann, partner, Haynes Boone

that do not want RBL exposure.

Grahmann added that remaining banks are still cautious about oil and gas companies' potential to boom and bust—resulting in loading up RBL loan applications with at least 50% hedging requirements on a company's production. He said this has driven some oil and gas companies away from banks.

Free cash flow is expected to be the largest source of oil and gas capital in the next 12 months at 24%, but the survey identified three sources of equity that constitute another 25%. Survey respondents see equity coming from family offices (10%), private equity firms (9%) and capital markets (6%).


“Equity investors have finally gotten comfortable that oil and gas companies have cleaned up their act financially and are willing to start putting money into that market,” Grahmann said.

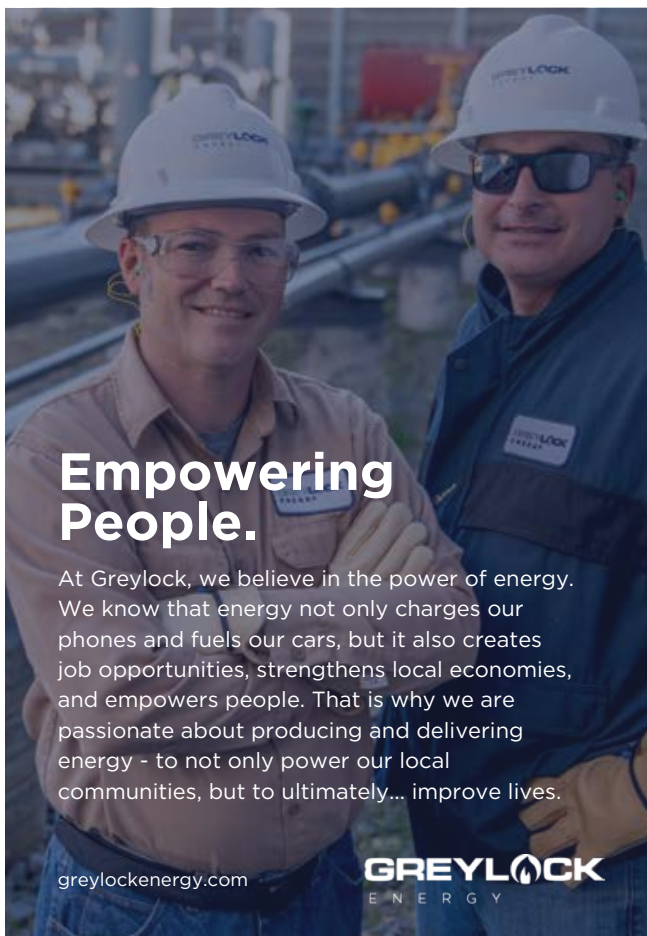
The survey also found interest in continuing with strong hedging strategies. Just more than half of respondents said

RBL credit facility borrowers will hedge 50% to 60% of their production for the next 12 months.

In a sign that higher commodity prices might be starting to nudge the industry out of its reluctance to drill new wells, 7% of survey respondents said RBL lenders are very interested in funding new drilling activity and 49% of respondents said lenders are slightly interested.

“These companies have righted the ship. They've figured out how to live within a budget and how to live off of positive cash flow. Now, lenders are slightly interested or at least not uninterested in having their loan proceeds be used to drill new oil and gas wells, especially because there's a sign lenders see that prices will continue to rise, and this is a good use of their dollars,” Grahmann said.

The survey questioned 102 executives: 41% were oil and gas producers, 36% were lenders, 15% were professional services firms, 3% were oilfield services companies and 5% were private equity firms. 



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No-Money-Down M&A

Analysts support Exxon Mobil and Chevron's all-stock deals because the supermajors are saving cash for optionality and avoiding debt.

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Despite supermajors sitting on piles of cash, both Exxon Mobil's acquisition of Pioneer Natural Resources and Chevron's acquisition of Hess were all-stock transactions. Analysts have various reasons why they believe the no cash and no debt deals were the right move.

One analyst said Exxon Mobil and Chevron did not use cash because they wanted to avoid borrowing at higher interest rates. Another said they want to hold onto their cash for optionality.

Others said that the transaction is good for the stock. All-stock transactions help insulate deals from commodity price volatility, just as they did during the COVID-19 pandemic. WPX Energy and Devon Energy announced their merger in September 2020, at a time when WTI averaged less than \$40/bbl. In January 2021, WTI averaged \$52/bbl for the month.

Sam Margolin, an analyst at Wolfe Research, said oil and gas companies have come to see the benefits of having paid off so much debt after the pandemic, and they don't want to reverse that even if it means using no debt for massive acquisitions.

"They don't want to mess with the balance sheet," he said. "They don't want to issue debt with rates where they are. I think it's as simple as that."

Margolin said Exxon and Chevron have been leaders in paying off debt, and it's helped their stock price.

Llyod Byrne, an analyst at Jefferies, said the current market environment and relatively high price of oil set the stage for such all-stock transactions.

"When you're in an \$80 price environment, using stock isn't a crazy idea on the part of the buyer," Byrne said. "On the seller's part, there's a lot of incentive to do that. A seller de-risks by moving into a larger IOC [international oil company] of course. And then, if they want to keep some interest in the entity, you can do it with these all-stock transactions.... If you don't want to sell the shares, you get to defer the taxes and not sell it, or you could sell it because it's almost like cash, it's liquid."

Michael Scialla, another analyst at Jefferies, told Hart Energy he expects some modest unhappiness behind the scenes with stockholders from acquired companies, such as with Chevron's \$6.3 billion acquisition of

PDC Energy in May.

"I know for a fact that some holders of some of these companies haven't been completely happy with that. I know some of the PDC holders, and in some of the other deals too, where some of the bigger companies acquired, they weren't pleased with an all-stock acquisition of the stock that they held," he said.

Stockholders may push back, but it's unlikely to hinder the deals from closing, he said.

Gabriele Sorbara, an analyst at Siebert Williams Shank, said shareholders of the acquired companies will ultimately benefit because of greater scale and synergies.


"These companies should benefit on a pro forma basis. They should re-rate higher. They're going to have more scale and synergies in the entity. You lose the G&A [general and administrative expenses] quickly. You combine the assets, you can drill longer laterals," he said.

Sorbara said larger companies would rather keep cash for optionality than use it for acquisitions, especially with the current uncertainty in the markets.

"There is a backwardated forward curve on oil. There's weak NGL prices and, with gas, there still is some uncertainty. It's really dependent on the winter," Sorbara said, adding that the volatility also makes an all-stock deal better for the acquirer.

"There's no need to reset deal price if the sector falls apart or if the sector rallies the price. It moves with the acquirer's equity. So, it kind of fixes the valuation versus an all-cash deal," he said.

TD Cowen analyst Jason Gabelman said the all-stock transactions are mitigating risk in these and other transactions, such as IOCs issuing equity for M&A.

"If you buy a company for [\$5 billion] cash and [the] oil price doubles, that target company would likely not be happy with the price. Issuing equity pegged to your own stock price significantly reduces that issue," he said. "International oil companies are able to issue equity for large deals, given their equity currency has strengthened post-COVID, which is a testament to company performance in addition to broader commodity environment. They can then use the large cash stockpiles over time to buy back stock they issued for the deals." 

Kissler: Year-End Oil, Gas Price Forecast



in DENNIS KISSLER
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Dennis Kissler is SVP of Trading for BOK Financial Securities. He is based in Oklahoma City.



As we end the year and look forward to 2024, energy prices remain volatile and much depends on weather and geopolitical factors—and understandably so, given the continued conflicts around the globe.

Of course, crude prices will depend significantly on the war in Gaza. The market first had a \$5-\$7/bbl “war premium” in place; however, as of mid-November, no real barrels were actually taken off the world markets.

Still, that’s not to say that the danger of the war impacting energy supplies is gone, either. Tensions are elevated with Iranian threats. Iran is both a major oil supplier and the chief sponsor of Hamas. If Iran aids Hamas and the U.S. retaliates by tightening sanctions on Iran, the oil market will be undersupplied, which most likely would raise prices.

However, traders are currently focused on at-ready supplies, which have not been interrupted. While oil is readily available, global inventories of crude remain on the low side of normal and diesel supplies are even tighter. This is as fuel demand has remained above many traders’ expectations and could elevate even further into the holiday season. A recent survey of Americans’ holiday travel plans found that this season looks to be especially busy, with 48% of respondents planning to take a trip between Thanksgiving and mid-January, and 37% expecting to take at least one flight. For prices to reach the \$100/bbl area, I think you would need to see a supply distribution in a major physical crude oil hub.

On the negative side, weakening economies in both Europe and Asia should eventually pull demand lower, and prices that are too low can be just as damaging—or even more so—than prices that are too high. While \$100/bbl is too high and

would likely damage the global economy, \$50/bbl is too low in an inflated economy and damages oil’s infrastructure.

Lower prices also would not stabilize the falling drilling rig rate numbers. Fortunately, unless we see a drastic escalation in the war in Gaza or a severe weakening of the U.S. economy, I do not think prices are in danger of going too far in either direction. Instead, I think prices are range-bound at \$75-\$87/bbl, as we welcome 2024.

Natural gas prices will depend on the weather, both in the U.S. and in Europe. Unlike crude, natural gas storage remains well above the five-year average. In fact, it is over 5.5% above in the U.S., as of mid-November, while natural gas storage in Europe is nearly 97% full. Keep in mind the facility at Freeport, Texas, is back at full capacity, and the El Paso pipeline is flowing, after both were offline in the coldest month of last winter. Therefore, we could see supply surpluses deplete very quickly this winter, especially if we see early cold in December.

Natural gas exports to Mexico have also been hitting new records, which could also deplete supplies more quickly. Altogether, as we go into the end of the year, I look for natural gas prices to be \$3.10/MMBtu, with a possible \$4.50 to \$5.00 handle in late January, if we see temperatures at the low end of average.

This is all to say that, when it comes to energy prices, the right answer is often “it depends.” The energy market tends to be volatile in the best of times, which is why energy prices (and food) are omitted from core inflation readings. However, given the global unrest that currently centers around the energy sector (both in Ukraine and the Middle East), volatility is more certain than ever. **OCI**

Heat Rises, But Nat Gas Prices Stable

The forecasted El Niño typically leads to warmer winter and less demand in the Lower 48.



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U.S. natural gas production is at an all-time high and there does not appear to be any imminent threats to the level of gas storage over the winter, Andrew Fletcher, senior vice president of commodity derivatives at KeyBank National Association, told Hart Energy.

After a smaller-than-expected build to the nation's natural gas storage and news of snow in some parts of the country, natural gas futures jumped 7% in late October.

But analysts say the picture for natural gas this winter is unchanged: overall U.S. storage levels will remain above the five-year average and prices should remain stable heading into spring.

The current level of storage of 3.7 Tcf is 323 Bcf higher than at the same time last year, and higher than the five-year average of 3.52 Tcf.

According to the American Gas Association (AGA), the gas storage situation is also positive in all five sub-U.S. regions the organization tracks.

"Not only is gas storage above average nationally, but every area of the country is above average," said Richard Meyer, AGA's vice president for energy markets, analysis and standards.

The storage numbers are just part of the overall picture of a strong natural gas production cycle, he said. At the release of its Winter Heating Outlook for 2023, AGA reported the industry is seeing record-high numbers in production, demand, exports and consumers.

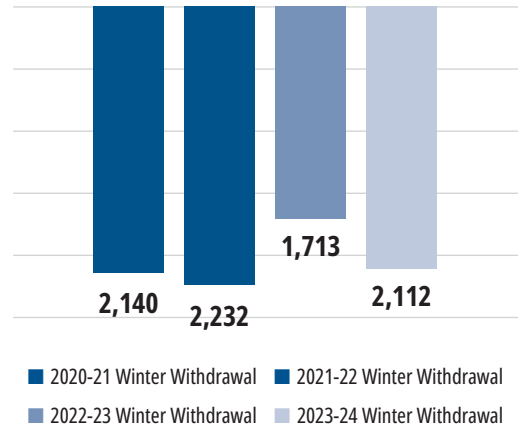
Elevated natural gas demand doesn't seem to be on the horizon, analysts said. LNG exports are close to maximum levels, Fletcher said. And despite some regional cold snaps, the current weather forecast calls for a warmer-than-average winter in the areas that rely mostly on natural gas for heating.

"A lot of people will roll their eyes to the back of their heads when we talk about El Niño, but it is the information we have," Fletcher said.

The National Oceanic and Atmospheric Administration published an El Niño advisory in late October.

Every El Niño is different, but the effect is generally drier and warmer than normal for the northern half of the continental U.S. and stormier in the southern half, said Jack Weixel, senior director at East Daley Analytics, who focuses on natural gas commodities. Heavy gas consuming areas in the U.S. include the Pacific Northwest, the Midwest and New England as far down as New York City.

Cumulative winter storage withdrawal (bcf)



Source: East Daley Analytics

"Those areas could very well be warmer than normal this winter," Weixel said. A warm season will keep gas supplies up and prices level, for the near term.

Several other factors besides weather may also affect the natural gas market for the winter. For the last few years, shuttering coal-fired power plants has increased the demand for natural gas to produce electricity. This winter, U.S. coal supplies are at their highest levels in over a decade. Utilities will therefore have more options to choose from for power generation.

"Some of the constraints may be removed for gas/coal switching," Meyer said.

According to EDA's analysis, an average of 2.1 Bcf/d was pulled out of storage during the winters of 2020-2021 and 2021-2022. During last year's warmer-than-average cold season, 1.7 Bcf/d of natural gas was removed from storage.

If the warmer forecast is correct, Weixel said he expects production to gradually fall off from the all-time highs of the last year to stabilize prices.

"It will definitely be a different type of environment from fiscal year 2023," he said.

On the commercial level, residential natural gas consumers may also see lower utility bills. The AGA surveyed utility bill charges for natural gas and found a general drop in prices as commodity prices retreated.

"We're seeing that bills could be lowered by 21% this winter," said Brandan O'Brien, director of energy markets for the AGA. "So that could be some good news for consumers."

Paisie: If Conflict Expands, Oil Could Hit \$115/bbl



JOHN PAISIE
STRATAS ADVISORS

John Paisie is president of Stratas Advisors, a global research and consulting firm that provides analysis across the oil and gas value chain. He is based in Houston.

The influence of geopolitics always needs to be considered when assessing the outlook for the crude markets and especially developments such as the Israel-Hamas conflict.

In last month's article, we highlighted that the direction of oil prices would be dependent on how the conflict developed because of the potential for the conflict to expand geographically into Syria and Lebanon and beyond, and to involve other countries, including the U.S. and allies on one side, and Iran and allies on the other side.

The involvement of Iran represents the greatest potential for triggering an interruption to oil flow—either through Iran's actions to interfere with oil traffic associated with the Strait of Hormuz, or through the U.S. tightening sanctions on Iran's oil-related exports. (Much less probable is the possibility of Iran, in conjunction with other producers, imposing an oil embargo on oil moving to western countries.)

With such an interruption, the price of Brent crude could test \$115/bbl, and even go higher. We also stated that if the conflict is contained and the threat to flow of oil is mitigated, the risk premium would start eroding and the previous price dynamics would govern price movements.

So far, the conflict has been contained, with neither Iran nor the U.S. becoming directly involved in the military conflict and, as expected, the previous price dynamics have returned. Prior to the initiation of the conflict, the price of Brent crude was under pressure and had broken below \$90/bbl during the first week of October, falling to \$84.07/bbl.

The steep fall happened with oil traders shifting from adding to their net long positions to reducing their long positions. From the start of the conflict on Oct. 7 through mid-November, the net long positions of Brent traders have decreased by around 20% and are now back to the depressed levels seen prior to Saudi Arabia announcing the extension of its voluntary production cut of 1 MMbbl/d.

A dominant factor driving oil prices prior to the conflict was the concern about the global economy, with each of the major economies facing challenges. This concern is now back in the forefront:


- The U.S. economy has been bolstered by strong consumer spending, but consumers have been depleting their savings, while increasing their debt at the same time interest rates have been

increasing. Additionally, the U.S. labor market is cooling down, with only 150,000 jobs being added in October and the unemployment rate ticking up. Furthermore, the U.S. manufacturing sector has been contracting for 12 consecutive months and the outlook for the service sector is deteriorating;

- Europe's economy is forecasted to have negative growth in the fourth quarter after growth was essentially flat in the third quarter. Germany's economic growth has lagged because of high energy costs and a tight labor market. Other major EU economies are also facing challenges, including Italy, which has a national debt that is 140% of annual economic output and interest rates (10-year bonds) that are 200 basis points higher than Germany's; and
- China's economy continues to struggle with disappointing consumer spending coupled with difficult exports markets. The debt-ridden property sector continues to face difficulties, including the housing market, even after the government took action to reduce downpayments for homebuyers. Additionally, during Q3, outflows of foreign direct investment in China were greater than the inflows of foreign direct investment for the first time since 1998. One reason for the negative net flows is the reduction in investment associated with U.S. companies.

Despite the economic concerns, we are still expecting the price of Brent crude to rebound back to around \$90/bbl, in part, because the supply/demand fundamentals remain favorable. During the fourth quarter, we are forecasting that crude supply will increase in comparison with the third quarter with non-OPEC supply forecasted to increase by 1.1 MMbbl/d, while OPEC supply remains essentially unchanged.

However, we are also forecasting that oil demand will outpace supply by 870,000 bbl/d, even with the forecasted oil demand in the fourth quarter being around 400,000 bbl/d less in comparison to demand in the third quarter. Additionally, we expect that OPEC+ will continue to be proactive in managing supply to support oil prices. As such, we would not be surprised to see Saudi Arabia extend its voluntary production cut through first-quarter 2024.

Furthermore, while the oil market is currently dismissing geopolitical risks, we still think the possibility of the Israel-Hamas conflict progressing in an unpredictable manner exists—as does the possibility of oil prices spiking. 

Buy & Buy

Vital Energy's rapid growth in the Permian Basin's stems from CEO Jason Pigott's strategy of acquiring smaller private producers—one after the other.

Shale pioneer and industry legend Aubrey McCleendon unceremoniously stepped down from Chesapeake Energy in 2013 amid financial controversies.

Shortly thereafter, a little-known general manager from Anadarko Petroleum named Jason Pigott was hired as Chesapeake's senior vice president for operations.

He was tasked with helping transform Chesapeake into, essentially, the anti-Aubrey corporation.

"I came in to lead a large portion of the company following a founder who had a very different strategy than what I learned at Anadarko, which was to be a lean organization with financial discipline, and not to chase acreage anymore," Pigott said.

Fast forward 10 years, and Pigott is now preaching a blended strategy based on his years of experience—aggressive and acquisitive, but considered and fiscally conservative—to build the recently rebranded Vital Energy into a Permian Basin powerhouse.

"I did lots of divestitures at Chesapeake and not a lot of acquisitions, so that was a new muscle for me," he said.

Since its transition from Laredo Petroleum to Vital at the beginning of the year, Vital has gone on a massive buying spree, scooping up five notable, private Permian producers for nearly \$1.8 billion combined within a single calendar year.

The Permian M&A race for acreage is in full swing and Vital is doing much of its dealmaking



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"We knew it would be transformative for our company. We've more than doubled the size of our company. They all just came together really well, and added eight years of inventory."

Jason Pigott
CEO, Vital Energy

under the radar with smaller, private players, while the headlines are dominated by Exxon Mobil paying nearly \$60 billion for Pioneer Natural Resources.

This is a designed strategy for Vital, but Pigott acknowledges it's also a matter of necessity, and is not about chasing acreage. Scale and inventory matter more than ever and are, well, vital to Vital's future.

"I wiped out all the inventory when I came to the company [starting in 2019], and we've rebuilt it from scratch," he said.

However, there's caution at play, too. Vital is seeking non-operated partners to share acquisition costs, leaning on equity to avoid deep debt, and maintaining a strong hedging program—a version of which kept then-Laredo from falling into bankruptcy during the 2020 oil crash and pandemic.

In February, Tulsa, Okla.-based Vital paid \$214 million to acquire more oily Midland Basin acreage from Driftwood Energy. In June came the \$540 million deal to enter the Delaware Basin by scooping up Forge Energy from EnCap Investments, but non-op partner Northern Oil and Gas covered 30% of the cost.

The biggest moves, though, came in September, with acquisitions of Henry Resources, Tall City and Maple Energy for a combined 53,000 net acres within a matter of days of each other for a total of \$1.165 billion, allowing the news to be released in a single announce-

ment. Next year's production is estimated at more than 112,000 boe/d, including 50% crude oil, up from about 33% just more than a year prior.

"We called it the Triple Lindy," Pigott said, citing the classic Rodney Dangerfield film, "Back to School."

"The deals took three completely different paths, but it looked like they were going to be within about a week of each other, so we just tried to thread the needle and get them all announced at one time," Pigott said. "We knew it would be transformative for our company. We've more than doubled the size of our company. They all just came together really well, and added eight years of inventory."



Vital Energy CEO Jason Pigott has adopted a strategy that is aggressive and acquisitive, but considered and fiscally conservative.

THE **OGI**
INTERVIEW

Watch the video interview here:



Marshall Hawkins/Hart Energy

Learning to fly

The company rebranded from Laredo to Vital in January and on Valentine's Day—Vital has a flair for the dramatic—announced the Driftwood deal for 11,200 net acres.

But, as Pigott explained, there is a ripple effect in which consummating one deal begets another.

"When we did Driftwood, when you look on a [Midland Basin] map, Henry was all around it, and so we wanted to get to know the Henry team," Pigott said, adding that he quickly became friendly with Henry Resources President David Bledsoe. "One of the things that has made us successful is just starting to build relationships with other

Midland operators."

Well, it also turned out that the Southern Delaware portion of Henry's acreage was virtually contiguous with the Forge acreage Vital had acquired.

The same applied to Maple Energy's adjacent Southern Delaware position and to Tall City in the Delaware. Pigott had already met with the Maple team that was interested in selling, but the deal was too small as a Delaware entry point. However, it made sense after the Forge deal, Pigott said. Warburg Pincus-backed Tall City in the Southern Delaware was then won in an auction-based marketed process.

Henry was not initially up

"One of the things that has made us successful is just starting to build relationships with other Midland operators."

Jason Pigott
CEO, Vital Energy

for sale, but that began to change in part with the failing health of founder and legendary wildcatter Jim Henry, who died in October at 89 (see story on Page 55). The Henry portion of the deal was all equity for \$517 million.

"Mr. Henry's health wasn't doing well and they were looking to not be an operator going forward," Pigott said. "And so, we just aligned. They wanted to take a heavy equity position in our company."

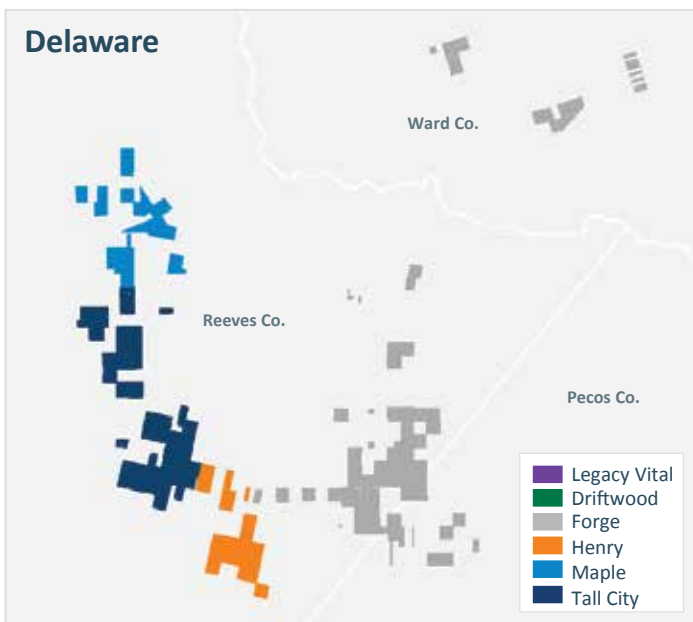
This was all part of a planned strategy shift, he said.

"We pivoted this year to doing a series of smaller deals," Pigott said. "You're seeing all the bigger publics buying the big publics, and you're seeing bigger publics



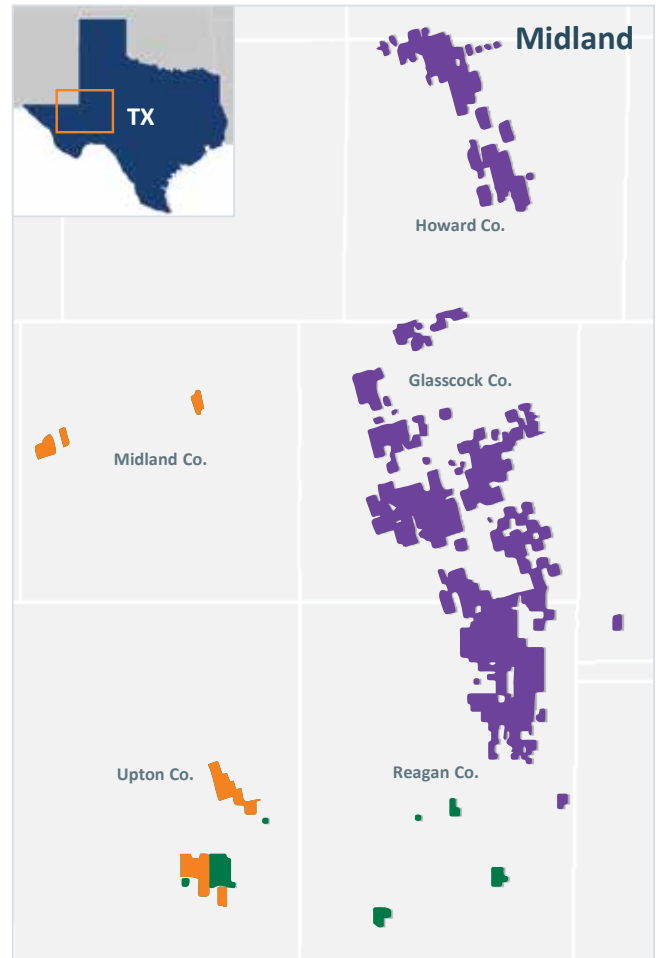
Dealmaking growth

Transaction Summary	
Purchase Price ¹	\$1.165 B
Net Acres	52,850
Current Production ²	35.0 MBOE/d
% Oil	50%
Locations	150 Gross / 115 Net



Source: Vital Energy

¹ Excludes purchase price adjustments and assumes VTLE September 12, 2023 closing price. ² August 2023 production.



buying big privates, but there's no one out there that's working with these smaller private companies.

"I think we've been successful this year because we've purposely been pursuing that strategy of trying to create scale through a series of smaller acquisitions."

It would be great to do nearly \$2 billion in acquisitions again next year, he said, but it is easier said than done. There are still lots of opportunities, but fewer with each passing deal.

"We purposely went into the Delaware Basin with Forge because we think there's more white space on the map out there, more deal potential," he said. "We see a lot longer runway in the Delaware."

The key is striking the right balance, Pigott said, between not forcing deals and not wasting smart chances.

"We try to keep a conveyor belt of opportunities in front of us, and we're evaluating five or six things all the time," Pigott said. "We've built this company to scale up, and so we never really want to slow down because the team is overwhelmed with the deal we've done. So, we keep the pedal to the metal even after we've announced things."

Won't back down

That heavy-footed mentality is why analysts expect Vital to add at least \$500 million in acreage deals in 2024, said Gabriele Sorbara, managing director of equity research at Siebert Wil-

liams Shank & Co.

"This [Laredo] was a name that was tough to get on people's radars," Sorbara said. "It's getting bigger and it's getting noticed by more investors. They still have some work to do."

Vital is beating Wall Street expectations on production and overall performance and its deals are accretive, Sorbara said, but Vital also must fight the perception of "shareholder overhang" from giving up a lot of equity to pull off the deals financially.

He said Vital is following a shrewd strategy of buying up so-called "Tier 2" assets in the Permian because it is virtually impossible to compete for the top available acreage.

"They're not Tier 1, but they're better than what Vital had, and that's important. They're continuing to improve," Sorbara said. It is easy to point to other producers that are becoming less efficient while increasingly paying more for their wells, he added. Vital is, instead, on an upswing.

Vital's legacy Glasscock County acreage in the Midland Basin was more mature and gassy. Vital needed the free cash flow and higher profits from more liquid acreage, so it bought into better Midland positions and then into the Delaware Basin.

"I think they're more of a takeout candidate after the recent bolt-ons," he said. But Vital may continue to want to grow and scale up for several more years to come, Sorbara added. After all, companies are paying high prices to acquire assets, but the premiums are not very high. Pre-pandemic, producers might

buy other companies for premium 40% premiums on their stock prices. Now, sellers are fortunate to get a 15% premium.

"It's just a different model now," Sorbara said. "Scale is important. There are fewer investors out there. So, how do we capture those fewer investors who are out there?"

Northern Oil & Gas CEO Nick O'Grady said his company's aggressive expansion into the Permian as a non-operator has coincided nicely with Vital's press to grow in the region.

He first connected with the Laredo team a few years ago as potential partners but nothing manifested despite the friendly dealings with Pigott and Vital CFO Bryan Lemmerman, who also followed from Chesapeake.

"The challenge of this is, not only do you need to do the work and win the transaction, but you also have to agree with each other, right?" O'Grady said. "And engineers aren't known for agreeing with each other. So, it took a couple go-arounds of looking at assets and maybe thinking differently."

But when Forge came up for sale, both Vital and Northern were eyeing it independently. By the time they decided to potentially team up, they just needed to agree on a plan. O'Grady said his NOG team fell in line nicely with Vital's plans for the acreage.

"Do I think that there's potential for similar deals? Absolutely," O'Grady said, noting that such deals are unique and the stars need to align.

With greater scale in the Delaware, Vital and NOG can keep services costs lower with more negotiating leverage and run a multi-rig program more efficiently, he said.

"You're dealing with a company that's hungry, looking to grow and really looking to improve the assets that they're purchasing," he added. "We felt like Vital had a really viable plan from everything from operating costs to cutting drilling costs to being more precise. We knew we saw eye-to-eye looking at their development plan, which really focused on the highest quality prospects."

Runnin' down a dream

Pigott grew up outside of Corpus Christi in tiny Portland, Texas, and was raised in the oil and gas sector by a father who worked for Amerada Hess.

He took odd jobs painting handrails offshore and working as a roustabout before taking advantage of his math skills and going to Texas A&M for petroleum engineering.

Early production engineering gigs took him to oil and gas fields with Pennzoil and Union Pacific Resources. He joined Anadarko in 2001 and began working his way up in management.

He even branched out into seminary school in the evenings. But it was during this time his family's faith was tested.

Pigott's young daughter had strep throat and follow-up tests on a lump revealed stage-four neuroblastoma cancer.

"We go from strep throat to stage-four cancer with a 5%-10% survival rate overnight," Pigott said. "And this is where the Anadarko family just rallied behind us. I had to spend

weeks in the hospital trying to choose whether you stay with your sick daughter or go to your three other kids at home. It was a terrible time in our life."

Then came the waves of chemotherapy, stem-cell transplants and immunotherapy. And she is now 16 years old and cancer free, Pigott said with a smile.

"You have nothing but your faith to rely on when you're going through something like that," he said. "And, today, I just realize and appreciate the work-life balance. There are five values that the Pigott family has framed on a wall at our house: Love God, Family First, Work Hard, Tell the Truth, Be Kind.

"Family first is one of our philosophies. If people [at Vital] are going through hard times, we try to rally around them as best we can."

Pigott was recruited to Laredo in 2019 for his first CEO role to replace the retiring founder, Randy Foutch, but also to rally a struggling company. However, things would get worse in 2020 before they could get better.

Laredo barely avoided bankruptcy. Pigott credited a conservative hedging policy that was already in place with saving the company. That set them up to grow as the industry rebounded in 2021 and 2022. And then it was time for a rebrand and the larger growth resurgence through dealmaking.

The new Vital name is about emphasizing the vital importance of American oil and gas to the world, he said, but also about ensuring the company plays a vital role in the communities where it operates. Vital, after all, is the largest producer still headquartered in Tulsa.

"We ended up on this saying that we exist to energize human potential," Pigott said. "So, we want to have this mindset that we're impacting something greater in the world than just our wells in Midland. That also plays into the acquisition ramp that we've been doing. We will have a greater global impact the more that we produce. And being a small public company doesn't have too much of an impact on the world."

Vital not only does a lot with charitable fundraising, but Vital also was the first publicly traded Permian producer to focus on verifying responsibly sourced gas while eliminating gas flaring as much as possible.

"To be important in the world and have an impact, we need to do it in a sustainable way," Pigott said. "It was our mission to be the leader."

So, what's next? Baseball analogies for oil and gas are cliché, but the great American pastime is an effective descriptor.

"We were working on small ball, which is hitting singles and doubles and doing smaller deals. But now we've doubled our equity value in the past," he said. "I can now use [more] equity as part of a transaction, so we can do bigger deals.

"Because of our success in small ball, we can hit triples and home runs in the future that we weren't able to before."



"To be important in the world and have an impact, we need to do it in a sustainable way. It was our mission to be the leader."

Jason Pigott
CEO, Vital Energy

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Between a Rock and a Wind Turbine

EIG's chairman and CEO says private equity investors are steering clear of fossil fuels but balk at energy transition projects' lackluster returns.



in DARREN BARBEE

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LONDON—EIG Chairman and CEO R. Blair Thomas sees private equity increasingly trapped in a paradox of exclusions. Some investors, particularly in Europe, shun fossil fuels at all costs. But they're also turning their noses up at the low-returns offered by energy transition projects.

"The industry's changing quite a bit in terms of what investors are looking for, what they're demanding, to invest in the asset class," Thomas said at the Energy Intelligence Forum 2023 in October. "And so, anything that touches the hydrocarbon is challenging."

Once upon a time, investors were more inclusive, seeking exposure to the energy value chain. Investors "were OK as long as we did that piece they wanted. They were OK that we included other things," Thomas said.

That dynamic is completely different now, he said.

Today, investors approach the sector on an exclusionary basis, "and if you do certain things, they will not invest with you, period."

Thomas, in a conversation with Bob Maguire, managing director at The Carlyle Group, said that binary mindset has led to a balkanization of asset classes. Private equity has to create different investment vehicles for different parts of the value chaining and even different geographies for specific investors.

"If you give them a reason to exclude you, they will," he said. "Go try marketing a fund in Europe, regardless of what your performance is. If you have hydrocarbons in that portfolio, there's zero percent chance that you'll raise capital."

Thomas said EIG tries to offer products that suit investor needs, but one of the "big myths out there is that there's an unlimited supply of capital to support the energy transition."

That's only half true.

"There's an unlimited supply of capital at a certain rate of return," Thomas said. "And by and large, the industry has been unsuccessful in consistently delivering that rate of return on low and zero carbon alternatives in the

energy value chain."

While players in the energy industry have an energy transition strategy that might include carbon capture, utilization and storage or hydrogen, without an acceptable rate of return, "again they're going to exclude you."

"As an industry, again, it's really hard to do. You hear all the great things about deflation in the renewable space and all of that," Thomas said. "In Europe today, on an operating renewable project, you're looking at levered equity returns of about 6% or 7%, and no one's going to hire you or me to deliver a 6% return."

Opportunity set

Maguire said the heart of the conundrum facing private equity is how to scale projects fast enough while being responsive to new technologies or standalone projects where the risk profile is simply too great.

"I suspect that's where people are hopeful that private equity, when you have this impossible problem to solve ... private equity will figure that out because they can work through all these different sorts of structures," Maguire said.

Maguire sees that as a big problem: Given a big enough opportunity, could private equity "deploy capital against it? And is there a big enough opportunity to move the needle?"

Thomas said private capital's competitive edge remains its ability to respond rapidly to prospects.

"The opportunity set's not the challenge. And I do agree that every subset in the market, you need a competitive advantage. Otherwise why do you exist? And so, certainly the majors, they have their competitive advantages.

"Where private capital has our advantage is speed and entrepreneurship where we can move quickly."

In Thomas's view, there's no such thing as a strategic transaction for private equity; there are only financial transactions.

"The issue is whether or not the low- and

“What that means to me is the cost of electricity has to go up to induce people like us to make the investments that enable all that. That’s not a very popular thing for people to hear.”

—R. Blair Thomas, *chairman and CEO, EIG*



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zero-carbon side of new energy can deliver a rate of return sufficient to attract the quantum of capital that’s necessary to unlock the transition,” he said. “Because we’re talking about staggering amounts of capital. And yes, governments are doing their part [through] their subsidies and inducements, but that only gets you so far.”

Ultimately, the energy transition boils down to the electrification of society. Attracting the capital necessary for those investments centers on an inconvenient truth.

“What that means to me is the cost of electricity has to go up to induce people like us to make the investments that enable all that,” he said. “That’s not a very popular thing for people to hear.”

‘Starved of capital’

At the same time, traditional energy investments are still needed, but public markets remain inhospitable to the conventional fossil fuel industry.

“We are being starved of capital, and that’s a very conscious effort, and it’s happening every day,” he said.

In the U.K., banks are exiting the oil and gas industry, forcing energy companies to borrow money through reserve-based lending.

“In the public market side, we’re trading at historic lows in terms of multiples. No one wants to give you any value for terminal value. No one believes in growth,” he said. “We’ve changed from being a growth industry to a yield industry. And so, now it’s all about dividend yield and

share buybacks. We have to do all those things in order to get investors to continue to be interested in the public side of energy. And so that’s a pretty big headwind.”

The pushback on fossil fuel investments varies, depending on which side of the Atlantic an investor is located. In Europe, investors want zero-carbon exposure.


“Low carbon doesn’t cut it. LNG doesn’t cut it. Gas infrastructure—none of that is acceptable. It’s pure renewables,” he said.

In the U.S. and parts of Asia, LNG is more acceptable.

“We’ve worked very hard to find the universe of investors globally who share our view that LNG is part of the transition, he said. “And for those investors who don’t agree with us, well, as I said, they’re exclusionary now and they go another direction.”

But there are some more discerning EIG clients. The firm’s largest investor is a European insurance company that Thomas described as a leader in ESG.

“I sat down with the CEO and asked him, why have you invested with us? And he said, ‘well, it’s very simple. ... If I don’t invest with you, you don’t care what I think. And if I do invest, you have to care what I think.’

“And so, then you enter into a negotiation about what type of monitoring and reporting you’re going to enter into and what your targets are. And so, it becomes very engaged and we create that alignment, and that’s what they’re looking for and that’s what people should expect from us.” 

'A Transformational Acquisition'

Four years after the controversial acquisition of Anadarko, Occidental CEO Vicki Hollub has silenced the doubters.

in DARREN BARBEE

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In spring 2019, Occidental Petroleum and Chevron engaged in a bare-knuckles bidding war for Anadarko Petroleum.

Occidental eventually came out on top, but the win smelled of a pyrrhic victory to critics. Occidental paid \$38 billion and assumed \$46 billion in debt to snatch Anadarko from Chevron's jaws.

Some analysts and investors knocked Occidental CEO Vicki Hollub and her team for chasing Anadarko with "a great degree of hubris and management ego." Others cheered Chevron for "winning by not overpaying." And activist investor Carl Ichan filed suit to stop the "misguided" deal, alleged Occidental's leadership was in over its heads, making "numerous blunders" that "might continue to trip over their feet if the board is not strengthened."

Four years later, Hollub has quieted the doubters and led Occidental to a \$58.8 billion market capitalization. The company is closing in on paying off the acquisition in half a decade.

In October, Hollub was named energy executive of the year at the Energy Intelligence Forum 2023 in London. Appearing at the forum, Hollub credited the Anadarko deal as the primary reason she was honored.

Asked by a moderator where Occidental would be without successfully acquiring Anadarko, Hollub replied she didn't even want to think about it.

"Would you be sitting here with us today?" the moderator asked.

Motioning toward the audience, Hollub said, "I wouldn't even be sitting out there, I don't think."

Prior to the deal, Occidental had been closely evaluating Anadarko for three years before locking horns with Chevron, which initially offered \$33 billion for the multi-basin player.

Hollub conceded that Occidental actually underestimated Anadarko's assets.

"What we knew was [that] their subsurface rocks in the Permian Basin were, we thought, as good as our Southeast New Mexico [assets] and around the same level of inventory," she said. "But what we've discovered since is that that was not exactly right. The Anadarko subsurface was actually better than our Southeast New Mexico. So we knew that pairing that with what we had would give us, if not the best, one of the top



"The Anadarko subsurface was actually better than our Southeast New

Mexico. We knew that pairing [Anadarko subsurface] with what we had would give us, if not the best, one of the top two best positions in the Delaware Basin and the Permian."

—Vicki Hollub, CEO, Occidental Petroleum

two best positions in the Delaware Basin and the Permian."

Occidental pursued Anadarko, Hollub said, as the company looked to shift its dependence away from international oil and gas sources and add more stability and certainty in its upstream operations, she said. Along with the Permian, Anadarko's assets included a position in the Denver-Julesburg Basin and offshore Gulf of Mexico (GoM).

"The combination of those three converted us from a company that was 50% oil and gas internationally to 80% oil and gas domestically," she said. "And so we changed our risk profile with quality assets. We then were able to focus on the core areas internationally where we feel like we have an advantage from a core competence standpoint. And to me, it's always about making sure [that] the assets you have fit with your core competence, your core capability, and that you have a competitive advantage in the assets that you have."

Since closing the deal in August 2019, Occidental's promised \$2 billion of synergies per year has been exceeded by the company's team, Hollub said. And the company expects to be finished paying off the acquisition in a little over five years.

"And that's not counting the future net present

Carbon Engineering's direct air capture (DAC) carbon capture plant is located in Squamish, British Columbia. Occidental acquired Carbon Engineering in a \$1.1 billion deal announced in August.



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value that will remain because there's a lot of inventory that will remain beyond that five years," she said. "So, for us, it was a transformational acquisition."

Hollub added that others might have considered during the COVID-19 pandemic, and specifically second-quarter 2020, the "worst time in the world for the acquisition."

"Actually during that second quarter of 2020, the Anadarko assets carried us through that," she said. "Had we been an OXY standalone, it would've been a tougher scenario for us. So, we were happy with the asset and the OXY employees delivered more than expected from that. And so, it gave us the footprint in the upstream oil and gas business that we need to continue to execute the rest of our strategy."



Warren Buffett

Hollub also addressed the role Warren Buffett's Berkshire Hathaway played in the deal, as well as his continued investments in Occidental. As of last year, Berkshire owns about 20% of the company and Buffett has federal approval to buy up to 50% of Occidental's stock.

Hollub said that Buffett's investments are based on his positive, bullish view on oil prices and because "he knows that our focus has been ... to narrow down to the best possible assets."

"If you don't have good assets, you're starting out behind the eight ball. You've got to have good assets and you should dispose of those that are not," she said. "And so he knew we had done that and he has some of the same views toward managing and getting involved or not involved in the things that he invests in."

Buffett believes in trusting and empowering employees to do the things they need to do.

"Warren Buffett just looks at performance," Hollub said.

Direct air capture progresses

Hollub said the stability Occidental gained by buying Anadarko also aligned with the company's low carbon ventures ambitions.

Hollub also addressed Occidental's ambitions to create net zero or net negative barrels of oil through direct air capture (DAC) technology.

The company is targeting capture costs of \$150 per ton of CO₂, although Hollub said that's "what we're targeting, but that's not where we have to get to make this economical."

Hollub noted that wind and solar proved economic within 10 years without the benefit of building a digital twin or "the computing power back then that we have today."

"So our teams have already identified a number of ways to start reducing the cost of direct air capture," she said, adding that every part of DAC is already employed in other industrial settings.

The innovation comes from optimizing each piece—such as radial fans—that a typical industrial site wouldn't spend time trying to optimize.

"We're leaving no stone unturned," Hollub said. "We're looking at everything and every idea."

She said the need to speed innovation was part of the rationale for Occidental's acquisition of Carbon Engineering in a \$1.1 billion deal announced in August.

"They have an amazing company with incredible people, but we felt like they needed more people to accelerate this innovation. And so, that was the reason for purchase. And now there's, at least the last time I looked ... probably more than 30 ideas that we need to progress to make this cost down curve happen. But it is in progress." 

Is Endeavor Worth

\$30 Billion

Based on Exxon Mobil's valuation of Pioneer Natural Resources and other data, analysis suggests the Midland Basin pure-play could attract a high price.



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Dubbed this summer as the Midland Basin's "belle of the M&A ball" by J.P. Morgan Securities, new data suggest Endeavor Energy Resources could fetch in the neighborhood of \$30 billion.

The privately held Midland pure-play is now producing 331,000 boe/d, up 25% from 2022, according to a November Fitch Ratings report.

Fitch's new inside look at Endeavor and a Hart Energy comparison with Exxon Mobil's valuation of Pioneer Natural Resources, also a Midland pure-play, suggest Endeavor's current market valuation could be some \$30 billion. That's based purely on the numbers and not the name-brand recognition a company like Pioneer brings to the table.

Exxon Mobil is paying \$89,500 per Pioneer's flowing boe/d, currently averaging 721,000 boe/d. Pioneer has 900,000 net acres. Exxon's all-stock deal values the company at \$64.5 billion, including the assumption of about \$5 billion of debt.

Endeavor averages 331,000 boe/d and holds 350,000 net acres. Its current gross debt is \$907 million.

The company's leasehold includes 9,800 gross future horizontal locations economical at \$60/bbl, according to Fitch. J.P. Morgan Securities estimated in June that Pioneer holds some 11,000 future-well locations at more than \$55/bbl oil; Endeavor, about 4,500 at that price.

Both operators are leveraged below 0.5x EBITDA, according to the new Fitch report and an October update on Pioneer.

Endeavor's output is 57% oil, Fitch reported. Pioneer's is 53% oil, according to its 10-Q filing for third-quarter 2023.

Fitch stated Endeavor's total liquids—including NGLs—output is 80%. Pioneer's NGL output was 25% of total production in the third quarter, bringing its total liquids production to 78%.

81% margin

Additional data Fitch provided includes Endeavor's operating costs, which have improved to \$9 per boe/d, down from \$15.40 per boe/d in 2017—a year after the company began going after tight rock with horizontals and mega-fracs.

The \$9/boe cost is "among the lowest of Fitch's aggregate E&P peer group," wrote analysts Daniel Michalik and Mark Sadeghian. They affirmed Endeavor's BBB- rating.

Endeavor's unhedged netback, \$38.30 per boe, is an 81% margin that is "the highest of the peer group and benefits from a high liquids content of approximately 80%, strong realized prices and competitive cost structure."

In comparison, Pioneer's unhedged cash netback is \$34.10 per boe/d, Fitch reported in October.

on?



Endeavor Energy

Marathon Oil's netback is \$25.10/boe; Continental Resources, \$30.90/boe; APA Corp., \$27.80/boe; and Diamondback Energy, \$34/boe.

"Management has demonstrated the ability to grow while managing drilling, completion and exploration costs and enhancing overall returns, despite inflationary cost pressures," Michalik and Sadeghian said.

Cash flush

Fitch expects Endeavor's free cash flow to be \$1 billion in 2024 and 2025 at a base-case oil price assumption of \$70/bbl next year and \$65/bbl oil in 2025. About 10% of 2024 oil production is hedged at \$70; associated gas—about 20%—at \$3.25.

Debt-to-EBITDA is expected to remain below 0.5x, which is similar to that of Devon Energy, through 2027. Endeavor's \$907 million in senior unsecured notes mature in 2028.

The company also has an unused bank credit facility of \$1.5 billion, plus \$1.9 billion of cash on hand.

In 2021, Endeavor paid off \$500 million of senior notes that were due 2026. In 2022, the company retired another \$600 million of senior notes due 2025 using free cash flow, according to a 2022 Fitch report.

Endeavor's free cash flow could be used "for potential M&A activity," Michalik and Sadeghian said. But Fitch's BBB-credit rating is based on no M&A, they wrote.

Factors that could lead to a higher rating include "steps to further moderate corporate governance-related risks," they added. Endeavor does not have independent board

members. Endeavor's ownership is fully held by Autry Stephens, who founded the company in 1979.

But, the analysts said, "Endeavor has moved towards professional management, including making outside hires for key management positions."


That includes enlisting Marathon Oil's vice president of unconventional resources, Lance Robertson, in 2017 as CEO. Robertson had previously worked at Pioneer.

The property

Endeavor operates more than 1,000 horizontal wells on its mostly contiguous footprint concentrated in Martin, Midland and Reagan counties, Texas. The company had 13 rigs drilling as of mid-October.

Recent completions, according to J.P. Morgan Securities reports, include 11 wells on the Kronos lease in Martin County that averaged IPs of 1,040 boe/d, 84% liquids; 12 in its "Interstate" unit in Midland County, averaging 1,654 boe/d, 87% liquids; and 22 on Fasken property in Midland County, averaging 1,317 boe/d, 89% liquids.

In 2022, Endeavor's results were 11.24 bbl of oil per lateral foot, according to J.P. Morgan, in fourth place ahead of Ovintiv (11.02) and behind Chevron (12.50), SM Energy (12.24) and APA Corp. (11.43).

Its minerals unit, 1979 Royalties, added about 5,000 net royalty acres in Martin and Dawson counties recently from EnCap Investments-backed Peacemaker Royalties for \$61 million, according to Enverus. The surface acreage is primarily operated by Endeavor and Ovintiv. 

Does M&A Reduce CO₂?

Pickering: 'Consolidation is going to translate to probably more intensive efforts around low carbon.'



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Exxon Mobil's nearly \$60 billion move to strengthen its shale portfolio with the acquisition of Permian Basin pure-play Pioneer Natural Resources signals more oil and gas production on the horizon.

However, investors and others concerned about Big Oil getting bigger amid global net-zero emissions shouldn't necessarily fret.

"More assets in fewer hands should create more profitability, and bigger companies just empirically are more focused on carbon intensity, lowering carbon footprint, achieving net zero," Dan Pickering, founder and chief



Dan Pickering

investment officer of Pickering Energy Partners told Hart Energy. "Folks may be scared of consolidation, but the reality is: the buyers, the bigger they get, the more ESG-conscious they become, the more actions they take and the

more cash flow they have to try and make a difference and invest in low-carbon solutions."

The acquisition, if approved by regulators, would bring together Pioneer's 856,000-net-acre position in the Midland Basin and Exxon's 570,000-net-acre position in the Delaware and Midland basins. Exxon's production in the Permian is expected to more than double, reaching 1.3 Mboe/d, based on 2023 volumes.

The merger with the Midland Basin's largest oil producer comes as energy companies work to lower emissions while meeting the world's energy needs and maintaining focus on returns. Like some of its peers, Exxon aims to achieve net-zero Scope 1 and Scope 2 emissions from its operated assets by 2050. The company's plan includes targeting what it calls the \$6 trillion molecules market, consisting of carbon capture and storage (CCS), hydrogen and biofuels.

The planned acquisition evoked outcries from climate groups. Richard Wiles, president of the Center for Climate Integrity, accused Exxon Mobil of lying to the public and policymakers about its commitment to climate solutions, saying, "Big Oil companies are driving the world toward climate catastrophe."

However, that isn't a consensus statement. "We haven't heard much from climate-

concerned investors on the deal,"

Michael Schwartz, an energy equity research associate at Jefferies, told Hart Energy. "XOM will accelerate the timeline for PXD reaching net zero and deploy its leading technology to cut methane emissions."

All of the above

Exxon Mobil CEO Darren Woods said the company will accelerate Pioneer's net-zero emissions commitment by 15 years, moving the target to 2035 from 2050.

"As we have said many times, we are working to solve the 'and' equation, providing the energy and products society needs and reducing emissions, both ours and others," Woods said during a webcast following the announcement.

Plans include reducing energy requirements, electrifying operations, reducing methane emissions using Exxon's technologies and using renewable electricity where available.

Pioneer already tapped into the renewables market, announcing nearly a year ago its participation in two renewable energy projects with a subsidiary of NextEra Energy Resources. The projects include developing a 140-megawatt (MW) wind generation facility on Pioneer acreage in Midland County. Pioneer said it's also part of the 160-MW Concho Valley Solar project. The company is working with Targa Resources Corp. on both.

Exxon also plans to utilize Pioneer's water recycling expertise.

"Pioneer's water recycling infrastructure is impressive, and we plan to leverage this expertise to further address our water usage in this water-scarce region," Woods said. "We expect to increase the amount of recycled water used in our combined Permian fracturing operations to more than 90% by 2030."

The merger, which followed Exxon's \$4.9 billion acquisition of CCUS and EOR specialist Denbury, is also expected to strengthen Exxon Mobil's Low Carbon Solutions business, including boosting feedstock for its low-carbon hydrogen and ammonia facilities in Baytown, Texas.

Exxon Mobil is building in Baytown what could become the world's largest low-carbon hydrogen plant when it starts up by 2028—producing about 1 Bcf/d of hydrogen. Exxon aims to capture more than 98% of the associated CO₂ and store it underground. The plant's CCS projects could store up to 10



“Pioneer’s water recycling infrastructure is impressive, and we plan to leverage this expertise to further address our water usage in this water-scarce region.”

—Darren Woods, CEO, Exxon Mobil

million metric tonnes (MMmt) per year of CO₂.

The company is also part of the Gulf Coast’s HyVelocity H2Hub in Texas, which was named one of seven hubs selected for a share of the \$7 billion awarded by the Biden administration for nationwide hydrogen hubs.

With the additional feedstock for hydrogen and ammonia plus putting EOR onto Pioneer’s West Texas assets, Pickering said the deal allows Exxon to be an even more integrated player.

“It definitely gives them scale in a business where scale should be important,” he said.

Schwartz added, “the deal shows XOM still sees a long runway for oil going forward, but CEO Darren Woods noted that he doesn’t see it as a bullish call on oil but instead a bullish call on XOM’s people and technology, which ties to the enhanced recovery synergies.”

Lower carbon intensity

Though the deal may be seen by some climate activists

as “the bad guy getting bigger,” the reality is that barrels produced in the U.S., and the Permian in particular, have lower carbon intensity than those produced in some other countries, Pickering said.

“So, if Exxon’s going to get bigger, then getting bigger in the U.S. is absolutely a positive relative to other places around the world where the carbon intensity of those barrels is higher.”

Still, changing behaviors when it comes to energy consumption won’t be easy, so finding ways to manage carbon—whether it’s via CCS or using it—will be essential. Profitability is a must, as well.

Lower-carbon initiatives cost more and have lower returns today, given where they are on the technology lifecycle, said Pickering, who noted such initiatives are the future of energy.

“It’s the 2030s and ‘40s, not the 2020s,” he said. “The good news here, I think, is that Exxon has, and most of the big oil companies have, a big enough business and a long enough vision, if you will, that they’re willing to do both.”

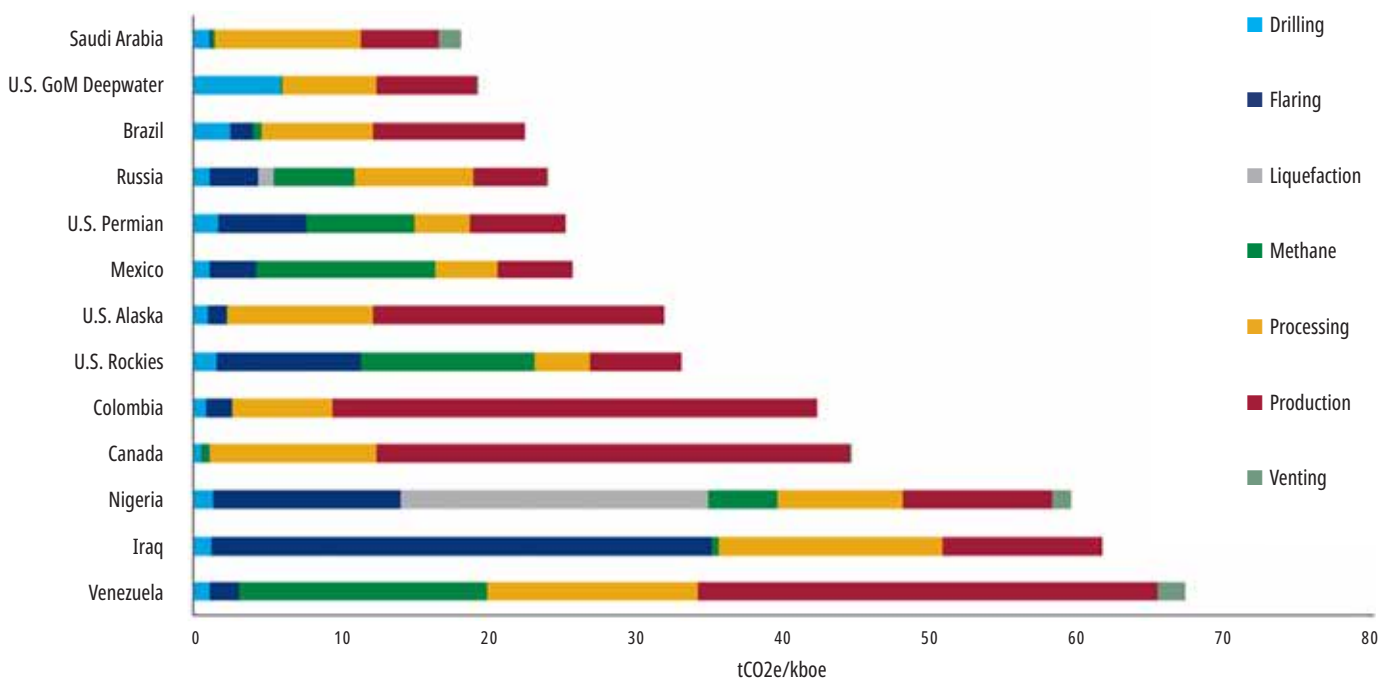
The Exxon-Pioneer deal is expected to close in early 2024, as the number of Permian players shrink amid a consolidation wave.

Other recent deals have included Civitas Resources’ October acquisition of Vencer Energy in a \$2.1 billion deal that built on Civitas’ \$4.7 billion in M&A activity, and Permian Resources’s \$4.5 billion acquisition of Earthstone Energy.

Earlier this year, Chevron also agreed to acquire PDC Energy in a transaction valued at \$6.3 billion, adding to the supermajor’s position in the Denver-Julesburg and Permian basins.

“Consolidation is going to translate to probably more intensive efforts around low carbon as opposed to less,” Pickering said. “So, they may be getting bigger in oil and gas, but they’re also going to be getting lots bigger in low carbon solutions area.”

Emissions intensity for US crude importers



Source: Wood Mackenzie Emissions Benchmarking Tool. Shipping/transport emissions are not included. Countries averaging over 100,000 b/d imports to US over last three years are shown. Ecuador excluded

Big Tech, Bad Rep Draining Talent

Attracting younger hires requires changing hearts and minds, says industry advocate.



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To bring new workers into the oil and gas industry, something's got to give.

Not only does the oil industry have a bad reputation in some corners, but other industries have been more effective at attracting younger talent, Molly Determan, president of the Energy Workforce & Technology Council, said in November at Hart Energy's Executive Oil Conference & Exhibition in Midland, Texas.

Addressing that oil and gas industry's besmirched public relations image—and becoming better at selling the industry—are necessary to draw in the talented workers needed to help keep the oil and gas industry running, she said.

"The most significant workforce battle that we face each and every day is how our industry is perceived. We're in a PR war with not only environmental advocates, but the general public's often misguided perceptions of the industry," she said. "The reality is, we are the ones leading the charge to the lower-carbon future, producing energy more efficiently every single day. So, how do we go about changing hearts and minds about our industry?"

Determan noted it's important to realize that workplace priorities generally vary by generation.

Younger people, she said, "are more inclined to reject job opportunities with a company that doesn't align with their values on things like climate, flexible work policies, transparency."

She said energy organizations unable to tailor themselves to that generation face an uphill battle when it comes to attracting and retaining talent.

Successfully navigating an increasingly competitive employment market requires considering what motivates different employee segments and how to engage them best. That might mean "meeting them where they're at" rather than invalidating the views of different generations or demographics of workers, she said.

Sometimes, she said, even the money the industry is offering isn't enough.

"People have been willing to take salary cuts to go sit in the warehouse and have a guaranteed schedule" or guaranteed days off or guaranteed weekends, Determan said.

Companies are looking into the possibility that moving from two 12-hour shifts per day to



Hart Energy

"We're in a PR war with not only environmental advocates, but the general public's often misguided perceptions of the industry," said Molly Determan, president of the Energy Workforce & Technology Council, during Hart Energy's Executive Oil Conference & Exhibition.

three eight-hour shifts might cost a little more but ultimately reduce turnover rates, she said.

While identifying ways for personnel to grow professionally is also important, that's only part of the equation, Determan said. Transparency about those opportunities is important as well.

But it's also necessary to make clear what kind of opportunities the oil and gas industry creates for those who enter it, she said.

"This industry opens doors like no other industry," Determan said.

Not only does it allow those in the industry to make an impact, but can also open up possibilities to travel the world, she said. And the industry is full of "fascinating" technological advancements.

At the same time, the oil and gas industry is "competing with Big Tech for talent," she said.

"To compete, we have to match the workforce's desires, but present ourselves as an industry innovating and empowering the local economy," Determan said.

Digital and automation technology helped make a big difference in the industry, she noted.

"We all know automation helps remove a level of human error," she said. "This isn't your grandpa's oil field. We know that."

But the real task, she said, is to help the people outside the industry understand that.

Energy's New Math: Addition, Not Transition

Tech experts spell out how the industry can educate the public about the energy transition.

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As the energy industry races to advance the energy transition, professionals feel the need to educate the public on the realities—both capabilities and inadequacies—of today's energy system.

Panelists at the Society of Petroleum Engineers' (SPE) Annual Technical Conference and Exhibition in San Antonio in October said oil and gas will continue to play a part in the energy mix of the future as new products like hydrogen come into play.

Aaron Ketter, vice president for the Midcontinent and South Texas business unit at Devon Energy, said the expectation is that demand for energy will only grow in the future because of a rising population and the expectation of economic growth. Throughout his own 25-year career, he said, demand has grown nearly every year, with notable exceptions including the financial crisis and the COVID-19 pandemic.

"We should have conviction around energy demand growing and the necessity of it for an improving planet," and expect that "oil and gas will play a part of that future," he said.

The change in the industry will be more of an addition rather than a transition, Ketter said.

"We usually talk about an energy addition, not transition, because every time we need more energy, we've added it, but we rarely transition away from an energy source," Ketter said.

But bringing new sources of energy, including hydrogen, into the mix is a costly and lengthy process.

Andrew Drummond, executive vice president for exploration and development at Woodside Energy, compared the current state of hydrogen to the conversations that used to occur around LNG.

"We're talking about establishing a brand new value chain, and one that actually requires—in the case of hydrogen—a tremendous amount of energy as an input to that process," he said.

The Biden administration recently committed \$7 billion for hydrogen hubs,

but a lot needs to happen before hydrogen contributes appreciably to the energy mix.

For instance, how hydrogen is transported, what its end uses are and how much people are willing to pay will all need to be figured out, he said.

"It's a fascinating space, one that I think will take time, but we've been here before," Drummond said. "It's very analogous to the element creation of what is now in the LNG industry."

Medhat Kamal, the 2023 SPE president and a Chevron retiree, said the industry has long worked to reduce emissions, but that efforts are more frequently the topic of discussion.

"The technology is advancing, we are finding different ways to efficiently do that," he said.

Now, rather than having to physically monitor emissions at sites, it's possible to use technology to monitor from afar.

"We're actually employing additional things like drones, like planes, using the technology of remote sensing," he said. "We are starting to actually use more technology to do that."

Ketter said the technology that the industry is using should be shown off to the public so it understands the steps taken by the industry to provide energy in an environmentally friendly way. Devon has brought local and national politicians, members of regulatory organizations and representatives from other operators to a Devon site in western Oklahoma with about 10 different emission monitoring devices.

"Don't underestimate the value of bringing somebody to your location and giving them the opportunity to see what you do and ask questions, because when they ask one question, you provide an answer, it opens up a couple more," he said.

Houston, we have a reputation problem

One of the problems facing the industry is its negative image, and that hinders efforts to attract new talent to enter the hydrocarbon workforce.

“Maybe we held onto an image that we should have shook off a little earlier and that image—just kind of think of a dirty rig, big wrenches. It’s tough, it’s remote, and that can’t be further from the truth.”

—Aaron Ketter, vice president for the Midcontinent and South Texas business units, Devon Energy

Tom Fox/Hart Energy

Workers disassemble a rig in the Eagle Ford Shale.



Hart Energy

Left to right: Iman Hill, chair of the board of directors at Envovrem; SPE 2023 President Medhat Kamal; Andrew Drummond, executive vice president for exploration and development at Woodside Energy; and Aaron Ketter, vice president for the Midcontinent and South Texas business units at Devon Energy, opened SPE’s Annual Technical Conference and Exhibition in San Antonio.

Kamal said people are “being hit with” the negative image retained by the oil and gas industry “all the time” and suggested it’s time to find a better way to communicate.

“We—as engineers or scientists, geoscientists—the way we understand stuff is through data and points and things like that. And maybe not everybody can actually relate to that. Maybe we need to start working with a professional organization that can actually help to produce the information about us in a way that will actually resonate with more people,” he said.

Perhaps that starts with helping people realize just how much the industry has changed, and how much technology is actually involved in operations, Ketter said.


“Maybe we held onto an image that we should have shook off a little earlier and that image—just kind of think of a dirty rig, big wrenches. It’s tough, it’s remote, and that can’t be further from the truth,” he said. “We’re using power down to run our rigs. It’s quiet. It’s somebody sitting there with joysticks. Engineers are now looking at the field from a centralized tower many miles away and processing a lot of data. So, I think if we’re guilty of anything, we maybe held onto an image longer than we should have. Particularly if we wanted to convince people that this is a technology industry. And I think our biggest advocates are admittedly those that are graduating now or just a couple of years out.”

Drummond argued for keeping emotion out of the conversation about the future of energy.

“Can we actually have a debate without losing tempers and actually debate the facts?” he said.

To Kamal, one of the biggest challenges facing the industry is politics. Even so, the industry has adapted and evolved to different economic conditions and handled technical challenges even while continuously producing energy needed to meet demand, he said.

“Once we are given any set of constraints, any set of directions, any set of rules that we need to work with, we actually are able to figure out how to do the work safely, efficiently and economically. Just give us the rules with the system we need to work with and we’ll go ahead and do it,” he said.

But because politics doesn’t always follow “completely logical economic and technical conditions and constraints, then that becomes very difficult” for the industry to continue producing the energy that is needed, he said. 

Jim Henry, Wildcatter

HART ENERGY STAFF

James "Jim" Henry, a longtime Permian Basin wildcatter who began his career with wells in conventional rock and later moved to drilling stimulated horizontals in tight, unconventional formations, passed away on Oct. 17.

He was 89.

The son of an engineer, Henry loved math, he told Hart Energy. He sold Henry Petroleum to Concho Resources, which is now a part of ConocoPhillips, for \$565 million in 2008.

Over some 40 years, Henry grew Henry Petroleum's portfolio to a lead position in the Spraberry/Wolfcamp play and to total proved reserves of 163 Bcfe, 70% oil.

Ben Shepperd, president of the Permian Basin Petroleum Association (PBPA), said Henry's generosity was legendary, as was his passion for the Permian and the association. Henry served as PBPA chair and was given the organization's Top Hand award.

"I owe a tremendous amount of gratitude to Jim for mentoring me and spending countless hours explaining his vision for the Permian Basin oil and gas industry and the PBPA," Shepperd said in a statement about Henry's passing.

Henry graduated from the University of Oklahoma in 1958 with a master's degree in petroleum engineering. During college he roughnecked, but his first oilfield job came earlier, in 1952, "swatting flies around Wichita Falls, Texas. I was a 'jug hustler,' [setting up geophones for a seismic crew]."

He served two years in the Air Force as a research engineer in Dayton, Ohio, working on liquid-hydrogen projects, and he later worked for Humble Oil & Refining Co. and Skelly Oil.

After going to Humble's reservoir school in Houston, he was transferred to Midland.

In 1969, Henry started his own E&P and became active in the Midland oil and gas community. In the 1980s, he founded the Forum for E&P, a monthly networking event for small independents, service companies and bankers.

In 2000, he helped form the Applied Petroleum Technology Academy (APTA), a

non-profit with a mission to export to the world the Permian Basin's enhanced-oil-recovery (EOR) technology.

He was also well known for valuing employees as greatly as—or likely, more than—property. In the 2008 sale to Concho, a key condition was that Concho keep most—about 80—of the employees for at least two years.

The balance—about 20 individuals—continued with Henry's new company, Henry Resources, which he and wife Paula had already formed. In September, the Henry family agreed to sell most of their myriad portfolios to Vital Energy in an all-equity transaction.

He told Hart Energy in 2008 that, from his experience in the business, it's evident "how much value we can gain by treating our vendors as partners rather than just suppliers.


"This lesson did not come easily or naturally to us, but once we started to treat these contractors with the respect they have earned, our successes really started to multiply."

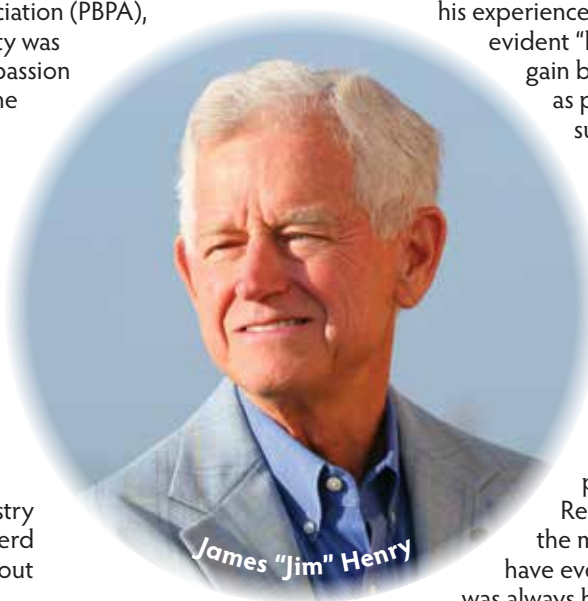
David Bledsoe, president of Henry Resources, said, "He was the most generous person I have ever met. His top priority was always his employees."

Among his sayings: Never lay off employees for financial reasons; instead, make financial strategy decisions that don't jeopardize employees.

Others include:

- "Never reprimand people for making mistakes. If they aren't making mistakes, they aren't trying new things."
- "Nobody ever went out of business by having no debt." In other words, Bledsoe said, "avoid debt!"
- "Never bet against technology."
- "If you make money, share it with employees."
- "Do something. We can correct that; we can't correct doing nothing."

Henry told Hart Energy in 2008, "I've been in this industry for 45 years, and I absolutely love it. I want there to be a Henry company employing people in Midland long after I am gone." 



James "Jim" Henry

'We Have to Maintain That Flow of Energy'

Exxon Mobil's climate strategy director cautions against comparing today's mature technologies with new systems that have yet to scale up.



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As Exxon Mobil blazes a path to net-zero emissions—announcing carbon capture and blue hydrogen projects, investing in low-carbon businesses and deploying new sustainability technology—the supermajor is emphasizing the importance of securing affordable and steady energy.

Put another way, Exxon is trying to tackle the trilemma of energy security, access and sustainability.

The theme dominated the 2023 World Petroleum Congress in Calgary, Canada. As the world embarks on “the path to net zero,” companies such as Exxon have established a Low Carbon Solutions business unit to address emissions.

Jaxon Caines, Hart Energy's technology reporter, sat down with Vijay Swarup, Exxon's senior director of climate strategy and technology, in Calgary to discuss the supermajor's commitment to providing affordable, scalable energy.

Jaxon Caines: What are some of the top objectives for you in terms of climate strategy over the next several years into 2050?

Vijay Swarup: I think you start with the overarching strategy, which is to provide energy. It's an industry that supplies a product that's needed, so we have to maintain that flow of energy. Look at this room. Everything in this room came from energy. You have to have a continuous flow of energy. We need to continue to do that. That's the key word in this entire conference—you have to provide the energy while reducing the emissions.

We look for investments across the entire spectrum. As we continue over the next decade, I think it's going to be focusing on both. And you see that we're doing that. We have numerous announcements on where we're investing and growing our traditional business. Whether we're expanding [a] refinery, building another chemical plant, expanding production in the Permian or expanding production in Guyana—those are all examples of doing what's needed today. And on the other side, we're doing three or four announced carbon capture projects. We have a hydrogen project that's being progressed in Baytown, [Texas]. We have advanced recycling. The thing that's happening here is, you have the traditional value chains, if you will, and you have these



emerging value chains, which are focusing more on the low-carbon pathways. And we continue to invest and look at technologies to do both.

JC: As we approach 2030, how much differently will Exxon's operations look, particularly in the upstream, from how they do today and, for that matter, compared to 2016?

VS: I think some things will change and some things won't. I think our commitment to providing reliable, affordable, scalable supply is always going to be there. I think what you're going to see over the next 10 years is ... more of these newer technologies getting on the deployment curve.

On the deployment curve, two things happen. One, scale goes up and cost goes down. You don't really want to compare today with tomorrow because you're in a very different paradigm. Today, you're deploying technologies that have had 30, 40, 50 years to mature. Tomorrow, you're deploying technology that hasn't really had its first scale deployment yet. You've just got to make sure that you're not looking to do a parity comparison between today and tomorrow. You've got to let the maturity happen. We're focused on getting these technologies deployed because, that way, you can prove at scale and you get better every time you deploy.

Exxon's Vijay Swarup, senior director of climate strategy and technology, discusses the supermajor's commitment to providing affordable, scalable energy.



Exxon Mobil

JC: In creating a climate strategy, Scope 3 emissions seem to be one of the most difficult areas for people to wrap their minds around. How do you look at Scope 3 and curtailment, particularly since you produce energy but cannot really dictate how it's used?


VS: Well, let's talk about carbon accounting, which is an incredibly important topic and one that we spend a lot of time thinking about. Scope 3 emissions are called indirect emissions because they're emissions outside of your direct control. And the emissions associated with, for the purposes of this discussion ... use of product. What we're doing is, we're saying, "Hold on a second. The targets we set and what we're out to achieve are reducing emissions in our own operations—which is sometimes called Scope 1, 2—why do we do that?" Because that's what we control. Then, we work with customers to help reduce their emissions. A perfect example is, if you're using gas instead of coal, you're deploying less emissions when you produce the power.

I think it's important to not artificially confine the problem in terms of a Scope 3 or [Scope 1 or 2]. It's the lifecycle of the product that matters from the beginning to end. We are more proponents of a lifecycle approach methodology—LCA as it's called—and that allows a pathway to be compared to another pathway. And if we're going to produce and provide energy while reducing emissions, you have to do that by comparing pathway 1 to pathway 2 and trying to find the lowest emission pathway to provide the energy.

With hydrogen, you need to understand the pathway for the hydrogen and you need to take steps along that pathway to reduce the emissions. The more we have that discussion, the more we'll advance the technology deployments and the more we'll advance reducing the emissions the atmosphere sees.

JC: This World Petroleum Congress has made the path to net zero the theme of this year's conference. What are some things you've learned from the discussions you've seen or had with attendees? And what do you think are some things that surprise people when you talk about Exxon's efforts?

VS: I would like to think that nothing we say would surprise anybody because I think one of the things about our company is constancy of purpose, and we have a constancy of purpose over 130 years. The constancy of purpose is providing affordable, scalable energy in the most efficient way. Now that [efficiency] is now being extended to lower emissions, lower carbon intensity. You see that even on our billboards and everything we're talking about ... I think the theme is, you've got to continue to provide energy. You can have no disruption in energy. It is essential to quality of life. This is indisputable: quality of life and access to energy go together.

We can't forget that there are a billion people out there that don't have that today. And the population projections say you're going to have 2 billion more people coming to this planet. And so, we've just got to make sure that as we're having discussions, net zero is a term, scale is a term that's often talked about, deployment curves, transitions in terms of policies and technologies working together because there's a natural fit between policy and technology to get technologies deployed. I would like to think that the communications, the openness to have the communications, is constantly getting better. And I think the focus on delivering today is very important. Delivering today and building the pathway to tomorrow. 

Harnessing Excess Gas to Mine Bitcoin

In areas with limited takeaway capacity like the Uinta Basin, using natural gas to power bitcoin mining can prevent operators from having to shut-in production.

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Power-guzzling activities—namely bitcoin mining and training artificial intelligence (AI) models—are providing an outlet for one of the most difficult challenges operators face: limited takeaway capacity for natural gas.

In Utah's Uinta Basin, XCL Resources gas production averages between 40 MMcf/d and 50 MMcf/d, but the company can only send a portion of that through pipelines at current capacities. Even after devoting a large amount of produced gas to electric fracturing units, the company still needed to find something to do with the excess produced gas. Otherwise, it would be forced to shut in oil production, XCL President and COO Blake McKenna told Hart Energy.



Blake McKenna

"The classic way an oil and gas company would handle it in the '90s is to just flare their gas, vent it into the atmosphere, which is obviously something nobody is doing now," McKenna said.



James Keeton

James Keeton, XCL's director of production, said the goal was to find a use for the gas that would not harm the environment but still make money. Using the natural gas to power bitcoin mining seemed like a good alternative, he said,

and XCL teamed up with Crusoe Energy on a pilot project using digital flare mitigation technology to monetize the gas.

Keeton said using Crusoe's digital flare mitigation technology can help an entire basin. The gas gathering pipeline network in a basin is a system, and mining bitcoin with some gas can "take a little pressure off of everyone," he said.

McKenna said the bitcoin mining operation can be short or long term.

"What's interesting about bitcoin (mining) is it really in a way is almost a midstream competitor," he said. "It gives us as operators another alternative to midstream."

And in McKenna's book, competition is a good thing.

"When you're thinking about the current environment, you want companies to be in competition with each other," he said. "I want

the best operators next to us. It makes us better. I want our pipeline company to have another competitor in the space that pushes them" to better performance.

With the right application, bitcoin mining can provide a less costly alternative to pipelines.

"This is a significantly cheaper, mobile option that allows us to go out and drill wells on the edge of basins without the burden of having to pay for a pipeline," McKenna said. "It makes the chance that we go after and drill new gas or oil wells more likely ... I can just go drill my wells, and make a deal with a company like Crusoe" to handle the produced gas through a digital pipeline.

He said XCL started negotiations with Crusoe in late 2022, and by May equipment was up and running at the pilot site, which was named Satoshi after the pseudonym used by the inventor(s) of bitcoin. In August, the companies announced a second site, which is known as the Hash Pad. That location is expected to be up and running by the end of this year.

Tech behind the digital pipeline

Crusoe Co-Founder and President Cully Cavness



Cully Cavness

told Hart Energy that the company's digital flare technology captures otherwise wasted or flared natural gas and uses it to generate electricity. Then, the company "brings in the demand" for electricity, typically in the form of a modular data center.

What Cavness likes about the stranded gas and computing combination is that it solves the problem of stranded gas with another: the huge power draw required for compute-intensive activities such as cloud computing or bitcoin mining.

"It's really the combination of power generation assets and onsite computing infrastructure that consumes that energy," he said. "Then, we just simply transmit the data out of there, which is a much more lightweight, easy process than trying to transmit molecules or electrons. We like to say, 'It is easier to move a bit than it is to move a molecule.'"

He sees digital flare mitigation technology as one solution to the world's 10 Bcf/d flaring problem.

That volume of gas "could power more



XCL Satoshi pad with Crusoe fully deployed. In the left portion of the image, there is a single large natural gas-powered turbine that provides about 50% of the site's power. On the right side of the picture are 10 natural gas engine generators that supply the remaining half of the site's power. Each of these natural gas engine-driven generators can support two bitcoin mining containers, with each container housing approximately 220 individual bitcoin miners. The pad covers an area of approximately 10 acres and consumes around 5.5 MMcf/d of natural gas.

XCL Resources



By the numbers

Pad name	Satoshi Pad	Hash Pad
Online	May 2023	November 2023
Consumes	5.5 MMcf/d	3 MMcf/d
Generates	30 MW	16 MW

Source: Crusoe Energy

than two-thirds of Europe daily if it was captured and used beneficially, but it's not. It's lit on fire wastefully," he said, adding that incomplete combustion of natural gas during the flaring process also results in the release of a significant amount of methane into the atmosphere.

"What we're able to do is come in, reduce that waste and reduce the methane emissions by capturing that gas and achieving something called stoichiometric combustion,

where we basically get the right mixture of fuel and air in the combustion process to fully combust that natural gas. That's leading to almost complete combustion of the methane," Cavness said.


Operators using Crusoe's technology don't pay Crusoe for the solution. Instead, Crusoe pays them through a purchase agreement for the gas, which it then uses to generate the power needed to run computing assets.

"From a business model standpoint, it creates a really nice positive feedback loop where it's the best thing to do for the environment and it's also the economically best thing to do for the operator because you're achieving some additional revenue from something that was previously a waste product and just going into a flare," Cavness said.

Crusoe can deploy AI computing and/or bitcoin mining at the pad sites, and different uses call for different data center designs. AI computing is graphic processing unit (GPU) intensive while bitcoin mining uses application specific integrated circuits (ASICs).

"Basically, inside of these modules, it's very sophisticated computing hardware, network engineering, electrical engineering, HVAC cooling systems and air handling systems," he said. "From the outside, it looks just like a rectangular box, maybe a shipping container size or slightly larger. Inside, it looks like a proper data center and it just happens to be operating in the oil field, consuming otherwise wasted gas."

Crusoe is also working to bring a similar solution to the renewable sector.

"We're finding that there's such a thing as stranded renewables," he said. "We have a different kind of business model and approach, but at the end of the day, we're trying to bring computing to solve a different type of stranded energy problem on the renewable side." 

► TECHNOLOGY

Tough Choices: Protecting Legacy Equipment from Cyberattacks

From fool's errands to potentially "breaking" systems, cybersecurity executives should tread carefully as they strengthen legacy oil and gas infrastructure—and better communicate risks to decision-makers.

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The era of connectivity has exposed legacy oil and gas infrastructure to possible cyberattacks, but not all equipment carries equivalent risks.

Cybersecurity in operational technology (OT) can be low priority for owners of older equipment, particularly if they are working in low-margin sectors of the industry, Blake Benson, senior director of cybersecurity at ABS Consulting, told Hart Energy.

As older equipment is increasingly connected to, or at least touching, the internet, companies have to find ways to protect what's critical, and cybersecurity experts need to communicate to management the potential fallout in the event of an attack.

That means adding more scrutiny to vulnerabilities even as E&Ps prioritize worker safety.

"Legacy equipment is all equipment, for the most part, in the OT space," Benson said.

Owners of companies in critical infrastructure sectors typically spend more on maintaining than upgrading equipment, he said.

"Safety is a bigger part of their budget. They're almost always more concerned about operational risk and ensuring someone doesn't die than upgrading equipment," Benson said.

Federal agencies often put out security directives and threat advisories that can't



Blake Benson

be implemented for myriad reasons, including lack of support by the original equipment manufacturer (OEM) and IT-based recommendations, such as patching.

Putting those suggestions into place typically "break the systems," Benson said.

"That presents a whole new dynamic that's not only unique to OT, but can be unique to that specific environment or that specific critical infrastructure sector at large. And that's a really important distinction to make," he said.

Assessing risk

When considering cybersecurity among other needs, OT managers need to assess what is most critical to operations, he said.

"What do I need to care about, and how do I invest in the things that are most critical, or most important to the availability and safety of this operation as a whole?" are the questions OT managers should keep in mind, Benson said.

Protecting infrastructure means first identifying critical assets and determining which ones have cyber dependencies, he said.

That cyber terrain and those systems "are the ones that you should probably start to invest in. When you talk about integrating controls, those are the ones you want to harden. Those are the systems you want to ensure are more protected. That's the architecture you want to focus on," he said.

One reason: it's not possible to upgrade everything.

"It's a fool's errand. A lot of it can't be upgraded. The OEMs don't even make it to where it can be



ABS Group's industrial security operations center.

ABS Consulting

upgraded. It's impossible," Benson said.

Historically, when the National Institute of Standards and Technology (NIST) or other groups create guidance and recommendations, an inability to patch software commonly causes stumbling blocks, he said.

"It falls on deaf ears because the plant managers and the people responsible for maintaining this equipment know that the last time this thing had an update was in 1998," he said.

It's important to approach cybersecurity for OT systems differently than for IT. For instance, he said, a typical IT approach recommends active scanning of networks.

"But these systems weren't designed to even ingest that type of info on that network."

Deploying an IT scanning tool into the OT environment is like "setting a 10-pound, large-mouth bass loose on the network. You wouldn't put a 10-pound bass in a 20-gallon aquarium, just like you shouldn't use IT tools in an OT environment" that typically deals with something more the size and speed of minnows, he said.

"This ecosystem wasn't built for this bass. You're going to run into everything. You're going to break everything... It doesn't work."

What does work, he said, is hardening critical parts of the OT network and isolating that equipment from the internet as much as possible.

"Ultimately, that's the name of the game," Benson said. "Instead of defending the ocean, you really want to identify these little ponds of criticality. And then you want to segment those as far away from the internet as possible and from each other to prevent lateral movement while still being able to maintain visibility and management over that network."

Translating risk to dollars

One of the biggest barriers to achieving cybersecurity is budgets, he said.

"Cybersecurity experts don't know how to effectively communicate risk," he said, and they tend to hyperfocus "on their slice of the pie."

The most effective path forward is for cybersecurity experts to communicate risk by explaining how much revenue is at stake.

"How much revenue would an outage cause in this facility? What is our liability if we got ransomware and an insurer held us liable for that?" Benson said. "What causes us the biggest headache if this goes down?"

Not all risks are created equal. In the past, for example, well inspections required someone to physically drive to well sites. With the advent of the Internet of Things, sensors can transmit info to the office, which means fewer trips to the well sites.


But that also introduces risk.

With those sensors, "you're introducing connectivity into an environment that was never engineered to be connected. When you do that, you intentionally or unintentionally are exposing these assets to the larger threat landscape of the internet."

He said it's important to contextualize that risk back to operations.

"At the end of the day, it may not be a big deal if that system were to be compromised," he said. "What are the worst-case scenarios?"

For a wellhead, it might be an incorrect payment, or it might be a spill because the sensor said it was empty when it was actually full.

"Contextualizing the cyber risk back to operations ... is something people really don't know how to do very well and is really, really hard," Benson said. "That process requires a lot of subjective experience in the field, requires a lot of knowledge of operations people need to be doing. People need to be doing that better." 

Exploring the 'Subsurface Data Universe'

Amazon Web Services, Shell and SLB are collaborating to streamline workflows and transform workloads.

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New technology is expected in 2024 from the multiyear three-way collaboration among Amazon Web Services (AWS), Shell Global Solutions Nederland and SLB as part of efforts to accelerate digital solutions in the subsurface.

SLB has announced an agreement to deliver digital end-to-end workflows using Open Subsurface Data Universe (OSDU) data platform standards for Shell using SLB subsurface solutions on AWS cloud infrastructure. The platform gathers and stores all data in one centralized cloud solution.

Shell said in a press release that it aimed to accelerate the arrival of those cloud solutions and enable OSDU Data Platform access. Trygve Randen, senior vice president for digital products and solutions at SLB, told Hart Energy the partnership could become a beacon for OSDU adoption.

"OSDU is becoming real, and then that will drive more adoption of the OSDU environment," he said. "We have traditionally been an industry which has been locked into silos. OSDU kind of flattens the competitive landscape, and for us and many others, that's an opportunity to be able to demonstrate the strength of our tools in that environment."

Hussein Shel, director, chief technologist and head of upstream at AWS, told Hart Energy the collaboration will help accelerate the value that digital technologies can provide for the subsurface.

AWS, Shell and SLB are no strangers to working together. They were among the early members of the Open Group Forum, which has a stated vision of "boundary-less information flow achieved through global interoperability in a secure, reliable and timely manner," that leads to the creation of the OSDU.

And while the collaboration will allow AWS

and SLB to deliver value to Shell, the companies will also be able to make that value available to the wider industry in the future, Shel said.

"Because of this collaboration, the industry will have more options when it comes to adopting innovative SLB digital subsurface solutions, but also other [AWS] partners' innovative solutions, which is the flexibility needed to accelerate that overall value that digital can provide and deliver in subsurface," he said.

The collaboration will enable workflows that are more flexible than in the past, he said, which will give customers room for experimentation. The collaboration also introduces capabilities such as machine learning and artificial intelligence (AI), where AWS and other cloud providers are constantly innovating, he said.

It makes it "easy for them to adopt because it's all being built on this open-ended industry standard," Shel said.

'Not magic'

The collaboration builds on the existing strategic collaboration agreement between SLB and AWS and accelerates the availability of SLB's software, including Petrel subsurface solutions and Techlog wellbore solutions.

Shel said the collaboration is still in the early stages, but all three parties have deployed dedicated resources across the different streams of projects to be delivered in the near-term, with scoping in progress for longer-term outcomes.

"There's multiple horizons for this collaboration, as you can imagine, starting with what can be accomplished today given the current technologies and the current capabilities and what can be accomplished in the next three to five years across the three companies' roadmaps," he said.



"OSDU is becoming real, and then that will drive more adoption of the OSDU environment."

—Trygve Randen, senior vice president for digital products and solutions, SLB



The AWS implementation of the OSDU Data Platform is backed by cloud-native infrastructure that's custom-built for the cloud and designed to meet the requirements of the most security-sensitive organizations.

stock.adobe.com



“There’s multiple horizons for this collaboration.”

—Hussein Shel, *director, chief technologist and head of upstream, AWS*

SLB’s Randen said an initial goal is to have the first pieces of technology ready for adoption early next year.

“OSDU is a great promise for the industry, but it’s not magic,” Randen said. “There is still real work that needs to be done to operationalize the service. We’re talking here about being able to run rich workflows in a new type of environment that requires cloud service level agreements and so much more to be put in place.”

Getting there will take a bit of work. One reason: OSDU is implemented slightly differently on each cloud provider’s platform.

To date, SLB has mostly worked with Microsoft Azure for cloud services. SLB will need to ensure that its services will work properly on the AWS cloud, he said.

Shel said each cloud provider has its own ways of implementing OSDU standards to take advantage of underlying infrastructure, services and strengths.

“But at the end of the day, application A talks to application B using the OSDU API [Application Programming Interface], storing the OSDU schema and running on the OSDU data formats—and are all compliant and based on OSDU principles and standards,” he said.

For AWS, differentiators include Amazon Simple Storage Service (Amazon S3) for object storage and Amazon Elastic

Compute Cloud (Amazon EC2), among others, he said.

AI and machine learning offer significant potential to transform Shell’s—and the industry’s—workload, Randen said.

“The industry cannot continue working in the same heavy-duty way it has been working in the past. Across the entire spectrum of everything we’re doing, from data interpretation to building models to optimizing how we run these models ... AI has a huge potential for transforming the work,” he said.


That’s something SLB and others have been working on for years.

“But we’re still just scratching the surface of what we possibly can be doing in helping drive efficiencies,” he said.

Efficiencies help people produce results faster and could help reduce risk in new ways, he said.

“Our industry has typically been working with situations that are highly uncertain, highly inaccurate,” Randen said.

“There’s a [joke] saying that ... we know that every model is wrong, but some models are useful, and being able to extract more models faster is going to help us to get more of that usefulness out.

“Because if every model is wrong, then we need to look at multiple models—and that’s one of the areas where there’s a lot of work left to be done for the industry to optimize.” 

Tech Bytes

CGG Opens UK HPC Hub

CGG opened a new high-performance computing (HPC) hub in the U.K., the company announced in October.

The U.K. HPC Hub has an initial capacity of 100 petaflops, bringing the company's global total to 500 petaflops. The environment features CGG's proprietary immersion cooling infrastructure and uses 100% renewable energy.

AWS, Shell, SLB Subsurface Collaboration

Amazon Web Services (AWS), Shell Global Solutions Nederland and SLB have signed a multi-year three-way collaboration agreement to deliver digital end-to-end workflows for Shell using SLB subsurface solutions on AWS cloud infrastructure, SLB announced in October.

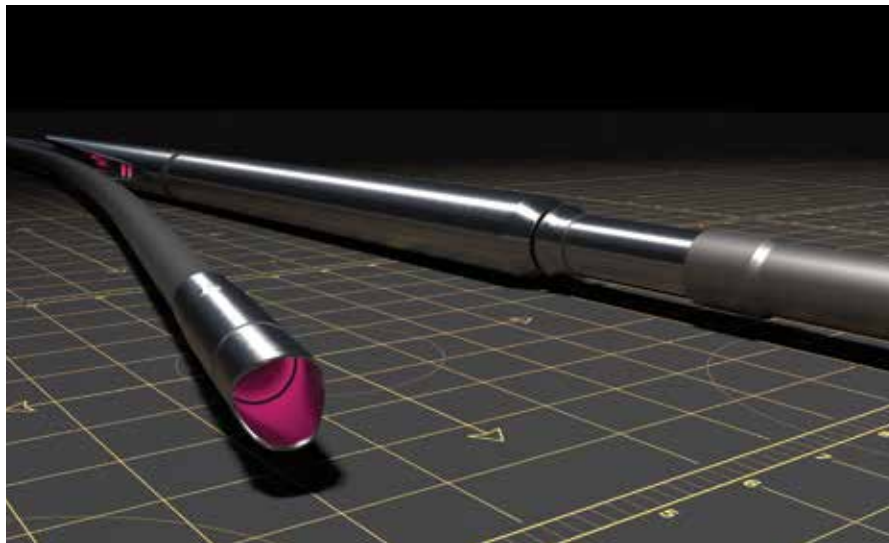
The collaboration intends to deliver high performance and cost-efficient subsurface digital solutions, to be used by Shell and made available to the industry. The digital workflows will use Open Subsurface Data Universe (OSDU) data platform standards.

The three parties share a long-term commitment to the OSDU data platform and its community standardization, open source, open marketplace, ability to liberate industry data and to maximize the technology footprint available to the industry. The collaboration will expand SLB's multi-platform strategy to include AWS.

Kelvin.ai, Santos Ink Deal on Autonomous Operations

Kelvin announced in October it had signed a multi-year enterprise software agreement with Santos.

This collaboration aims to deliver operational efficiencies, safety enhancements and sustainable practices. The collaboration will combine Kelvin's AI-powered industrial automation and control software with Santos' expertise in digital transformation of onshore upstream operations to accelerate the deployment of autonomous systems



Halliburton

The new FlexRite Selective Access multilateral completion system.

for wellsite operations, facilities and production activities.

Core Lab, Halliburton Collaborate

Halliburton and Core Laboratories announced in October a U.S.-focused collaboration to compress the delivery time of digital rock data solutions while petrophysical laboratory measurements are in progress.

This collaboration combines Core Lab's reservoir description and optimization technologies with Halliburton's specialization in pore-scale digital rock analysis.

According to the companies, the collaboration will enable U.S. clients to run pore-scale simulations in parallel with physical laboratory experiments.

"Digital rock simulations empower petrophysicists, engineers and geologists to dynamically evaluate reservoir characterization models while they await the completion of traditional lab measurements, which often takes months," Chris Tevis, Halliburton's vice president for wireline and perforating, said in a press release.

Halliburton Launches New Multilateral System

Halliburton introduced the FlexRite


Selective Access multilateral completion system in October.

The multilateral system is intended to address complex well scenarios and maximize reservoir contact to save costs and time while reducing the environmental footprint, Halliburton said.

Through a combination of stimulation capability and through-completion selective intervention, the FlexRite Selective Access system delivers life-of-well versatility to multilateral installations, according to the company.

McDermott, AVEVA, Aras to Team Up

McDermott announced in October it signed a lighthouse agreement with industrial software specialists AVEVA and Aras, a product lifecycle management platform provider, to develop its asset lifecycle management capabilities.

This collaboration focuses on improving user experience for data-centric asset lifecycle management from planning to disposal. The goal is to reduce costs and risk over the project lifecycle, improve decision-making, achieve better compliance and traceability and enhance performance across the industrial ecosystem. 

CONNECTING THE ENERGY FUTURE

Technologies & Services for a Multi-Source Energy Mix

Offshore Technologies & Services
Onshore Completions
Deepsea Minerals
Offshore Wind



NextEra Gears Up for Wind Repower Projects

The company's renewables business has added more than 3.2 gigawatts to its backlog.



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NextEra Energy Partners (NEP) plans to repower 740 megawatts (MW) of wind facilities through 2026, which the company said provides an opportunity to deploy capital at attractive returns.

The Florida-based limited partnership is part of renewable energy powerhouse NextEra Energy Inc., which reported third-quarter 2023 earnings of \$1.92 billion—up about 14% from about \$1.68 billion a year earlier, on an adjusted basis. The results continue an earnings growth trend as the company's utilities and renewable energy business units bolster the company.

The parent company said its renewables arm, NextEra Energy Resources, experienced a record quarter of new renewables and storage origination with more than 3.2 gigawatts (GW) added to its backlog. Led by about 1.5 GW of solar and about 900 MW of battery storage, the additional projects include about 400 MW of wind and about 455 MW of wind repowering, including NEP's assets, the company said.

"We're super excited about repowers as part of the longer-term growth plan within NEP. And with such an extensive pipeline of renewable projects to pursue these repowers, it will be a nice complement to continuing to acquire assets," NextEra Energy Resources CEO Rebecca Kujawa told analysts in October. "It doesn't meet the entire growth plan but certainly is a nice part of it."

Wind repowering is essentially refurbishing

existing wind turbines with newer technology and commissioning new turbines while utilizing existing infrastructure—instead of pursuing construction of a new greenfield development. The upgrades are expected to make way for

cost, efficiency and production improvements.

"A 1% change in the wind production index equates to roughly \$4 [MM]-\$6MM of adjusted EBITDA for the balance of 2023," NEP said.



Rebecca Kujawa

In a repowering project, NextEra invests about 50%

to 80% of the cost of a newbuild and is able to boost the performance of turbine equipment while also taking advantage of 10-year production tax breaks, NextEra Energy CFO Kirk Crews said.

Capital costs for the repowers are expected to be lower than greenfield projects because the repowers involve no new foundations, towers or interconnection facilities plus reduced scope of generating equipment, NextEra said.

"Energy Resources has previously repowered roughly 6 gigawatts of it approximately 23-gigawatt operating wind portfolio," Crews said. "We believe we will be able to repower much of our existing wind portfolio in the coming years."

The NEP repowering, if approved by the company's board of directors, will be funded either with tax equity or project-specific debt.

Banking on Tax Credit Transfers

NextEra has deals to sell more than \$300 million of tax credits in 2023.

NextEra Energy has a new source of capital funding for its renewable energy projects: tax credit transfers made possible by the Inflation Reduction Act. The Florida-based company says it is already seeing strong demand for its tax credits, having entered agreements to sell more than \$300 million of tax credits in 2023. That amount is expected to rise to between approximately \$1.6 billion to \$1.8 billion in 2026, NextEra Energy CFO Kirk Crews told analysts in October.

"This dynamic has reduced NextEra Energy's capital recycling needs, including those previously met via sales to NextEra Energy Partners, which has historically averaged roughly \$1 billion of annual cash proceeds," Crews said during the company's third-quarter conference call. Transferability allows companies that generate certain clean energy tax credits to sell their tax credits for cash to third parties. Only eligible taxpayers are allowed to transfer certain credits,

according to guidance published by the IRS. It must be paid in cash, is not eligible for inclusion in the taxpayer's gross income and is not allowed as a deduction to the transferee taxpayer.

NextEra's tax credit transferability is included in cash flow from operations, executives said. Information presented during the company's third-quarter earnings call show cash flow from operations, including tax credit transferability, is expected to fund about

Record set

NextEra Energy Resources added more than 3.2 MW of projects to its backlog during the third quarter, marking a quarterly company record amid the continued global push for cleaner energy. The additions pushed its backlog total to more than 21 GW.

"Although we will remind you that signings can be lumpy quarter [to] quarter, we do believe this is a terrific sign of strong underlying demand for new renewable generation," Crews said.

The backlog includes about 1 GW of new projects placed into service since NextEra's second-quarter 2023 call but excludes about 1.2 GW.

About 800 MW of projects in New York were removed from the backlog following a decision by New York State Energy Research and Development Authority earlier this month. New York rejected requests from some renewable developers seeking increases to offtake contracts. Other megawatts were removed due to permitting challenges, Crews said, adding the company is still on track to develop about 30 GW to 42 GW of renewables through 2026.

"Our backlog is in good shape and benefiting from our interest rate swap, global supply chain management capabilities and the ability to procure equipment, materials and balance of plant services at scale across our portfolio," Crews said. "The expected return on equity for our backlog are mid-teens for solar and over 20 for wind and storage. As we have done historically, we price our power purchase agreements commensurate with current market conditions, including our current cost of capital, in order to maintain appropriate returns."

NextEra Energy Resources reported earnings of \$882 million



NextEra Energy Resources' Wolf Ridge wind farm is located in Cooke County, Texas.

NextEra Energy

Energy resources' development program

	2023 - 2024 COD	2023 - 2024 Expectations	2025 - 2026 COD	2025 - 2026 Expectations	2023 - 2026 Expectations
Wind	4,025	4,000 - 4,800	1,774	8,000 - 9,800	12,000 - 14,600
Solar	5,754	5,500 - 6,600	6,770	9,400 - 12,400	14,900 - 19,000
Energy Storage	2,458	2,500 - 2,800	1,870	2,600 - 4,000	5,100 - 6,800
Wind Repowering (2)	171	100 - 400	283	600 - 1,000	700 - 1,400
Total	12,408	12,100 - 14,600	10,697	20,600 - 27,200	32,700 - 41,800
Build-Own-Transfer	380	-	-	-	-

Source: NextEra Energy

for third-quarter 2023, up from \$729 million a year earlier.

NextEra's Florida Power & Lighting, the largest electric utility in the U.S., also reported growth for the quarter as its customer count increased by 65,000. Net income for the quarter was \$1.18 billion, up from \$1.07 billion in the prior-year quarter.

50% of NextEra Energy's 2024-2026 funding plan of about \$35 billion to \$45 billion.

"The demand is extremely robust for tax credit transfers," NextEra Energy CEO John Ketchum said, adding the company is already working on 2024 transfers. "One of the things that really helps NextEra in the tax transfer market is the fact that we have a strong balance sheet, we have an A-minus rating from the parent and we're able to underwrite the credit."

He called underwriting capability important given the competition, which includes small developers.

"If you go to the top 50 taxpayers, they've never heard of these companies. They don't know who they are. They don't really know what they do," Ketchum said. "They know NextEra, and we can provide an indemnity behind the tax credit that we transfer. ... And we get the preferred pricing because of it, and so I feel great about where things stand in terms of our tax credit transfer program."

NextEra considers itself an "ideal seller of credits." The company said a tax credit transfer of \$1 billion, for example, could lead to \$6.5 billion in equity content created.

Rebecca Kujawa, president and CEO of

NextEra Energy Resources, said tax credit transferability complements the business and benefits commercial and industrial customers that buy renewable energy. "Some of the customers that are most active in the market in procuring renewable energy are also the one that are most interested in buying tax credits from us," Kujawa said. "I think they really like the value proposition, certainly in the economics. ... We see a really deep market, a lot of interest and really a lot of cross-selling opportunities across the portfolio."

—Velda Addison, Senior Editor, Energy Transition

Transition in Focus

RNG



Morrow Renewables

The Turkey Creek energy plant in Alvarado, Texas, is one of the seven operating RNG assets purchased by Enbridge from Morrow Renewables.

Enbridge Beefs Up RNG Portfolio with \$1.2B in Acquisitions

Canadian infrastructure company Enbridge has elevated its position in the renewable natural gas (RNG) space with its US\$1.2 billion purchase of seven landfill gas-to-RNG facilities from Texas-based Morrow Renewables.

The move came as the company continued to diversify its portfolio with de-risked assets capable of contributing to EBITDA and dividend growth sooner rather than later. Combined, the facilities—all of which are operational in Texas and Arkansas—produce about 5 Bcf of RNG per year.

“As the landfills continue to grow, that production number will continue to grow at approximately 3% annually with minimal required capital investment,” Enbridge CEO Greg Ebel said on the company’s third-quarter earnings call with analysts. “RNG fundamentals are strong in the United States and indicate continued growth in demand over the long term as gas utilities increasingly continue to set RNG blending targets.”

SOLAR

Canadian Solar to Invest \$800M to Build 5-GW PV Cell Facility

Ontario-based Canadian Solar said it plans to build a 5-gigawatt (GW) photovoltaic cell production facility in Indiana, investing more than \$800 million.

Located at the River Ridge Commerce Center in Jeffersonville, the facility is expected to start producing about 20,000 high-power modules per day by the end of 2025. Canadian Solar modules produced at the Indiana facility will be used at the 5-GW module assembly plant in Mesquite, Texas.

“This is the second of the anticipated long-term investments we expect to make in the U.S. as we think strategically about a local, sustainable and clean energy supply chain and to fulfill the

long-term requirements of the local-content rules of the recently established IRA [Inflation Reduction Act],” said Thomas Koerner, senior vice president of Canadian Solar.

The IRA, signed into law in 2022, makes available advanced manufacturing production tax credits that can be applied to the domestic production of solar components such as modules, photovoltaic cells and wafers and solar-grade polysilicon, among other items. Facilities that meet domestic content requirements receive a 10% bonus under the production tax credit, according to guidance from the U.S. Treasury Department.

Sunnova Energy Brings in Cash from ITC Sales

Residential solar company Sunnova Energy expects to bring in at least another \$100 million in sales from investment tax credit (ITC) transfers during the fourth-quarter after selling \$14.4 million in transfers to a corporate buyer.

The transfers, enabled by the Inflation Reduction Act (IRA), are opening up another revenue stream for renewable energy companies, including solar players facing higher interest rates.

“When the Inflation Reduction Act introduced ITC transferability, it gave us the ability to further diversify our funding sources and introduced another source of liquidity and adjusted EBITDA,” Sunnova Energy CFO Robert Lane said on Sunnova’s third-quarter earnings call. “While we will continue to focus on growing our long-term recurring contracted cash flows, we have reached a stage where we can better balance our cash inflows from long-term contracted customer contracts with those from activities such as the ITC sales that can generate material cash and adjusted EBITDA in a short period of time.”

Companies that generate certain clean energy tax credits are allowed to sell their tax credits for cash to third parties. Transferability, as it’s called, became available this year with the IRA. Only eligible taxpayers are allowed to transfer certain credits, according to guidance published by the IRS. The buyer must pay cash for the credit, which is not eligible for inclusion in the taxpayer’s gross income and not allowed as a deduction to the transferee taxpayer. The tax credit can only be sold once.

WIND

Dominion Energy in Hunt for Partner for Offshore Wind Project

Dominion Energy is in the advanced stages of a process to find an equity partner for its \$9.8 billion Coastal Virginia Offshore Wind development, aiming to share project costs for the 2.6-GW project.

Speaking during the company’s third-quarter post-earnings call, Dominion Energy CEO Robert Blue said 92% of the project’s costs—excluding current contingency of about \$370 million—are fixed. “Combined with the prospect of deploying a significant amount of capital into a high-quality long term regulated investment, it’s no surprise to me that the process has generated strong interest,” Blue said.

Drivers generating interest include the project’s “priority position in the offshore wind supply chain, our successful track record of on-time permitting with strong supportive federal agencies, the bipartisan and public support of Virginia political,



The first eight monopile foundations for Coastal Virginia Offshore Wind are offloaded at the Portsmouth Marine Terminal. Dominion Energy's 2.6-GW project has been approved by the U.S. Bureau of Ocean Energy Management.

Morrow Renewables

business and community leadership” as well as the project’s advanced development state and high percentage of fixed costs, he said.

The project, which is the largest of its kind being developed in the U.S., continues to move toward its anticipated 2026 completion. Dominion’s offshore wind development remains on schedule and on budget, Blue said. So far, the company has invested \$2.3 billion into the project. It expects that number to increase to \$3 billion by the end of 2023.

“A properly structured partnership with the optimal counterparty is an attractive option, but only if the terms of a potential transaction make sense for our customers and shareholders,” Blue said. “We expect a decision by year end or in early 2024.”

BOEM Identifies Four Wind Energy Areas in GoM

The U.S. Bureau of Ocean Energy Management (BOEM) has designated four wind energy areas in the Gulf of Mexico (GoM) as it aims to deploy 30 GW of offshore wind energy capacity by 2030.

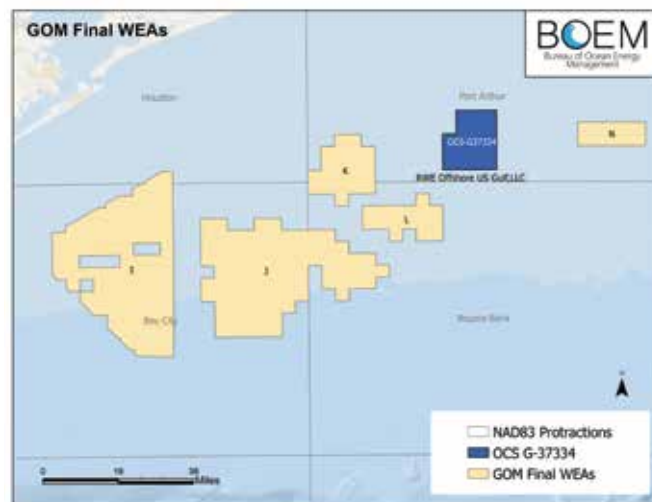
Combined, the areas—three offshore Texas and one offshore Louisiana—could provide enough electricity to power more than 3 million homes, BOEM said.

The four new wind energy areas are: Option J: 495,567 acres about 47 miles offshore Texas; Option K: 119,635 acres about 62 miles offshore Texas; Option L: 91,157 acres about 53 miles offshore Texas; and Option N: 56,978 acres about 82 miles offshore Louisiana.

Word of the wind energy areas came after the first U.S. GoM offshore wind lease sale in August brought in only one high bid. RWE Offshore U.S. Gulf was the lone provisional winner, securing acreage offshore Louisiana with its high bid of \$5.6 million. There were no takers for the two areas offshore Texas. It also comes amid oil and gas uncertainty in the GoM as the industry awaits word on its next lease sale and braces for what could be a drastic slowdown in offshore oil and gas lease availability.

Ørsted Cancels Two Wind Projects Offshore New Jersey

Danish wind developer Ørsted said it would cease development of two 1.1-GW wind projects offshore New



Source BOEM

Gulf of Mexico wind energy areas.

Jersey and book about U.S.\$4 billion of impairment charges for third-quarter 2023.

The company said higher interest rates and supplier delays, coupled with an unsuccessful request in New York to raise rates and lower probability of investment tax credit qualification, prompted it to halt the Ocean Wind 1 and Ocean Wind 2 projects offshore New Jersey.

“The key drivers are additional supplier delays further impacting our project schedule as well as an updated view on certain assumptions around likelihood and timing of final permits and quality of tax credit monetization,” Ørsted group president and CEO Mads Nipper said on the company’s earnings call with analysts in early November. “As part of this process to cease the development of Ocean Wind 1, the key focus going forward is how to secure the highest reuse value of the contract.”

The renewable energy developer had warned of financial woes in August, but the writedown was bigger than the \$2.3 billion expected. The company has been reviewing its investments, focusing on U.S. offshore projects in an effort to de-risk its portfolio. **OCI**

Rystad: Sanctions Deal Could Boost Venezuela Output



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A potential deal between Washington and Caracas to ease sanctions on Venezuela could see the South American country boost production by 200,000 bbl/d over the near-term, according to Rystad Energy senior oil market analyst Sofia Guidi Di Sante.

"In the short term—six months after sanctions are lifted—production could only ramp up by a maximum of 200,000 [bbl/d]; a relative drop in the ocean on the global stage," Di Sante said in an October research report.

Di Sante said Venezuelan oil output could increase from 2024 if sanctions were lifted, but added that "the potential expansion is hindered by the prolonged lack of investments in the industry."

Details of a potential deal being hashed out on the Caribbean-island of Barbados were reported by the Washington Post and Reuters. A U.S. agreement to ease sanctions on Venezuela would hinge on a return of a fair and competitive presidential election in 2024, Di Sante said.

Discussions in Barbados concluded with more election-related announcements, such as establishing that elections will take place in the second half of 2024, but no details regarding Washington easing sanctions.

"An increase in global oil production would be much needed after a turbulent 2023 for supplies, which saw the reshuffling of trade flows following Russia's invasion of Ukraine, voluntary production cuts from Saudi Arabia of 1 [MMbbl/d] until December this year, and the recent outbreak of the Israel-Hamas conflict," Di Sante said. "Assuming sanctions on Venezuela are lifted, however, it is unlikely that a production boost from the country would be able to bring significant relief to oil markets in the short term."

The deal could also open an avenue for the Venezuelan President Nicolás Maduro's government to re-engage with international financial institutions and recover some \$3 billion

frozen assets in accounts in Europe. Di Sante said the U.S. "would lift some oil sanctions via authorizations that would allow foreign energy companies to take Venezuelan crude for debt repayment."

Chevron Venezuela JVs

U.S. supermajor Chevron is the only U.S. company operating in Venezuela and the only international oil company with near-term potential to ramp up production.

Washington gave Chevron the go-ahead in late 2022 to boost production. The California-based company has yet to return production to around 200,000 bbl/d, the capacity its joint ventures in Venezuela were producing at before U.S. sanctions were imposed in 2019.

Chevron produced around 125,000 bbl/d in second-quarter 2023, according to Ecoanalítica, which was about 16% of Venezuela's total production at that time. Chevron only expected production to reach around 175,000 bbl/d as it reactivates its fields and faces other hurdles related to shipping oil from Lake Maracaibo.

Venezuela's oil production averaged 733,000 bbl/d in September 2023, according to OPEC's Monthly Oil Market Report. Venezuela's current production is up from a low of around 500,000 bbl/d in 2020 but still far from its 1997 peak of about 3.2 MMbbl/d.

Venezuelan oil exports

Through August 2023, Venezuela's overall exports have reached an average of 560,000 bbl/d, Di Sante said, which represents a 250,000 bbl/d increase since 2021.

However, the latest figures are still shy of the historical pre-embargo export levels above 1.5 MMbbl/d, she said.

"A further increase in exports will, however, depend on an extension of diplomatic relations in the region on top of the continued availability of crude," Di Sante said.

Venezuela, Guyana Spar Over Territory

Both countries claim Essequibo, which includes portions of the Stabroek deepwater block.

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Venezuelan Vice President Delcy Rodríguez accused Guyana's president Irfaan Ali of following mandates from Exxon Mobil and the U.S. Southern Command regarding claims to the disputed Essequibo territory located between the two South American countries.

Rodríguez said on Venezuelan state television that Ali is turning his back on negotiations mandated by a Geneva Agreement in 1996.

"The 1899 arbitration award set the limits of territorial dispossession against Venezuela because there was fraud led between the British Empire and the U.S. ... a ruling that was made without Venezuelan representation," Rodríguez said. "[Ali] follows a script to the letter created by Exxon Mobil to sow a confrontation between two neighboring countries to rob Venezuela's resources."

Venezuelan claim on the onshore and offshore Essequibo territory covers portions of the prolific Stabroek deepwater block where Exxon Mobil leads a consortium including Chevron, which recently acquired Hess Corp. in a \$53 billion all-stock deal, and China's CNOOC.

Stabroek covers 6.6 million acres, or 26,800 sq km, and holds over 11 Bboe of estimated gross discovered recoverable resources. Six FPSO vessels with a gross capacity of over 1.2 MMbbl/d are expected to be online by year-end 2027, and there is potential for up to 10 FPSOs to develop the resources, according to Exxon and Hess.

The consortium has announced further successful results at the Lancetfish-2 appraisal well, which found 125 ft of net oil pay in appraisal reservoirs and approximately 65 ft of net oil pay in a new discovery interval.

Exxon, which once operated in Venezuela, departed the OPEC country in the mid-2000s over disputes with former Venezuelan president Hugo Chávez over his mandate that state-owned Petróleos de Venezuela (PDVSA) take on a majority stake in operations that belonged to Exxon, as well as other international oil companies.

"Border issues are for governments and appropriate international organizations to address," Exxon Mobil media relations advisor Michelle Gray told Hart Energy.



Venezuela Minister of Foreign Relations

Venezuela's Vice President Delcy Rodríguez speaking during a television broadcast on the disputed Essequibo territory and a related referendum slated for Dec. 3.

U.S. Southern Command, one of 11 unified combatant commands within the U.S. Department of Defense, is responsible for providing contingency planning, operations and security cooperation in Central America, South America and the Caribbean (except U.S. commonwealths, territories and possessions).

OAS and Caricom reactions

Guyana's Prime Minister Mark Phillips, in an address to the Organization of American States (OAS), said Venezuela's claim to the Essequibo poses a direct threat to Guyana's sovereignty and territorial integrity.

Members of the intergovernmental organization Caribbean Community (Caricom), as well as the U.S. and Brazil, have announced support for Guyana as well as for a peaceful settlement of the controversy.

"Essequibo is ours, every square inch of it. The 1899 Arbitral Award made it clear that it was a full and final settlement," Guyana's President Ali said in a speech broadcast in late October. "We are lawful and peaceful people. We respect international law, and that is where this controversy, raised by Venezuela, must be settled."

The Caricom Secretariat office, with headquarters in Georgetown, Guyana, remains supportive of the judicial process to solve the long-standing territorial dispute. International law strictly prohibits the government of one state from unilaterally seizing, annexing or incorporating the territory of another state, Caricom said.

The 'Dream Team' Plan for Offshore Guyana

Chevron's acquisition of Hess Corp. teams the supermajor with its Texas counterpart Exxon Mobil in the Stabroek Block.

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Chevron Corp.'s late-October \$53 billion all-stock deal for Hess Corp. will see the California oil giant team up with its Texas counterpart Exxon Mobil to seemingly create an American "dream team" in Guyana's prolific offshore Stabroek Block.

But the merger of assets offshore Guyana surprised analysts with Truist Securities.

"We were surprised by the deal, given Exxon operates Hess's largest asset (Guyana, approximately 75% of total company value), which will continue to be one of Chevron's largest assets going forward," Truist analysts Neal Dingmann, Bertrand Donnes and Jacob Nivasch wrote in a research report. "Further, we believed Chevron would buy another company with more contiguous assets to their existing positions. However, the larger scale that will include synergies and efficiencies will provide interesting potential upside."

Chevron already has a strong presence in the Latin America and Caribbean regions. The Hess deal adds to that, specifically in northern South America where the company has producing assets in Venezuela and others under evaluation in Suriname.

In Venezuela, immediately west of Guyana, Chevron also has a strong long-term presence. Chevron is the lone U.S. producer with the potential to significantly boost production under a recently authorized license emitted by the U.S. Office of Foreign Assets Control. Exxon, which also had operations in Venezuela, pulled out in the early 2000s over disagreements with the government of late president Hugo Chávez.

In Suriname, immediately east of Guyana, Chevron has an interest in Block 42, Block 5 and Block 7. Efforts offshore Suriname spearheaded by APA Corp. and France's TotalEnergies have created potential for Suriname to team up with Guyana to jointly develop and commercialize their resources.

While Chevron's Hess grab will also see the U.S. supermajor add attractive assets in the U.S. Bakken, Gulf of Mexico and Southeast Asia, Guyana is the crown jewel of Hess' portfolio.

"The [6.6 million-acre] Stabroek block in Guyana is an extraordinary asset with industry leading cash margins and low carbon intensity that is expected to deliver production growth into the next decade," Chevron said in a press release.

Hess's Guyana assets provide "high cash margins

per barrel, strong production growth outlook and potential exploration upside," Chevron added in the release.

"[Chevron] has relatively weak exposure to the deepwater Atlantic Margin compared to majority of its peers—taking Hess's 30% in the Exxon Mobil-operated world-class Stabroek project in Guyana will address this gap in the portfolio," Welligence Energy Analytics said in a social media post. "Year on year, the Guyana Basin has been absorbing a greater portion of Hess's spend. We anticipate further consolidation, particularly in the North American independents' space."

Guyana offshore upside

Hess participates in the Stabroek Block through its affiliate Hess Guyana Exploration, which has a 30% interest in a consortium operated by Exxon and its affiliate Esso Exploration and Production Guyana (45% interest). The remaining interest in the block is held by CNOOC's affiliate CNOOC Petroleum Guyana Ltd. (25%).

The Exxon-led consortium has found recoverable resources of over 11 Bboe in the offshore Stabroek Block. Initial production started in late 2019 and has been ramping up yearly as new floating production storage and offloading (FPSO) vessels come online.

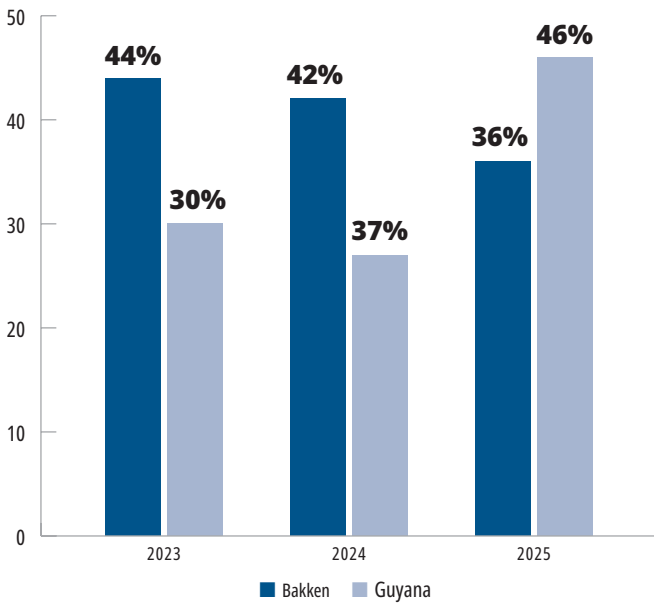
The first two offshore developments, the Liza Phase 1 (Destiny FPSO) and Liza Phase 2 (Unity FPSO), have an average gross production of around 400,000 bbl/d, Hess's COO and president of E&P Gregory P. Hill said during the company's second-quarter 2023 conference call in July.

Payara, the third development in Stabroek, will add a gross capacity of 220,000 bbl/d by early fourth-quarter 2023, Hill said in July.

Yellowtail, the consortium's fourth development in Stabroek, will add gross production capacity of 250,000 bbl/d in 2025. Uaru, the consortium's fifth development, will add a similar gross production capacity of 250,000 bbl/d in 2026. The plan for the consortium's sixth Stabroek development, Whiptail, is expected to be submitted for government and regulatory approval by year-end.

In all, six FPSOs in Stabroek with a gross production capacity of over 1.2 MMbbl/d are expected to be online by year-end 2027. There is potential for up to 10 FPSOs to develop the estimated gross discovered recoverable resources of over 11 Bboe, according to Hess and Exxon.

Hess' Guyana and Bakken assets



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While Chevron's Hess grab will also see the U.S. supermajor add attractive assets in the U.S. Bakken, Gulf of Mexico and Southeast Asia, Guyana is the crown jewel of Hess' portfolio.

Guyana assets to overtake Bakken

Prior to the transaction, Hess's offshore Guyana assets were on track to dethrone the company's Bakken assets in around two years, when they would potentially become the company's largest-producing asset, according to a recent Hart Energy analysis.

In the Bakken in 2024, Hess' assets could represent 42% of the

company's production, compared to around 44% earlier this year. By 2025, this Bakken figure could drop to around 36%, as Guyana production ramps up.

In Guyana in 2024, Hess' offshore assets could represent around 37% of the company's production compared to around 30% earlier this year. By 2025, this Guyana figure could rise to around 46%. 



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Pitts: Chevron Holds Steady on Venezuela



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Chevron CEO Mike Wirth was the calm, cool and collected on a recent conference call with analysts as he fielded questions about Venezuela, even when the conversation shifted to a contentious license granted in October to the company by the U.S. Office of Assets Control (OFAC).

For all the media fanfare generated, General License No. 44 expires in six months and, importantly for Chevron, “doesn’t materially change [the company’s] circumstances,” Wirth matter-of-factly said during the company’s third-quarter 2023 conference call.

“The recent action in [the] new general license issued by OFAC really kind of opens up operating room for others more so than it does for us,” Wirth said. “I think what you’ll see is some more people lifting crude, you’ll see more crude flow to the U.S. I don’t think the impact on our operations really is particularly significant.”

Chevron is the largest international oil company in Venezuela and the main foreign player there, hands down. Arguably, what Chevron does in Venezuela garners more press than state-owned Petroleos de Venezuela (PDVSA) and rightfully so, given the national oil company has been heavily politicized since the mid-2000s.

Let’s not get this wrong. The older OFAC license—General License No. 41, issued on November 26, 2022—coupled with newer General License No. 44 are positive for Chevron. The former allowed Chevron to produce and lift oil and refined products, while the latter will allow for payment of invoices for goods and services in Venezuela, among other things.

So, why does that matter to Chevron and Venezuela?

Wirth sees Chevron’s Venezuela production reaching 150,000 bbl/d by year-end 2023. That would imply an increase of about 15% from nearly 130,000 bbl/d in the third quarter. In comparison, Chevron produced around 60,000 bbl/d in third-quarter 2022. For what it’s worth, earlier this year Wirth said Chevron produced around 50,000 bbl/d in November 2022 in Venezuela. Take from that what you want.

Chevron has boosted production around 117% under the first general license. The supermajor could increase its production by another 54% between now and year-end 2024. That would put volume close to 200,000 bbl/d, which Chevron’s four joint ventures produced in Venezuela on average before the 2019 U.S. sanctions.

Said another way, if Chevron reaches the

200,000 bbl/d mark, it will have boosted production by 233% in around two years. Not bad at all.

Chevron’s production increases alone will definitely help Venezuela boost its average production, which has struggled to surpass and maintain itself above the 800,000 bbl/d mark. Remember, Venezuela produced around 3.23 MMBbl/d in 1997, two years before Hugo Chávez became the country’s president and de facto leader of PDVSA.

With 304 Bbbl in proven reserves, the world’s largest, and enough to last over 1,000 years based on current production, you might ask: Pietro, why doesn’t Chevron go all out on spending to boost production even further? Well, the answer is complicated but can be reduced to a two-word response: political uncertainties.

Chevron has been in Venezuela for over 100 years and is currently trying to recoup money from the OPEC country while confronting a number of headwinds under an umbrella of political uncertainties and now a truncated General License No. 44.

As such, I wouldn’t expect Chevron to spend more in Venezuela than necessary. I think Wirth says it better.

“The cash from [rising production] is going to pay legitimate operating expenses, tax and royalties, recover some past dues that we are owed. We’re really working on what I would call pretty straightforward field maintenance and things to restore production that aren’t particularly long-cycle or capital-intensive and staying within the kind of cash that’s being generated from those sales in order to fund that,” Wirth told analysts.

OFAC’s logic behind issuing General License No. 44 was related to successful talks between Venezuela’s ruling party and the opposition on Oct. 17 in Barbados. Concessions made there on the surface looked encouraging in terms of Washington achieving its promise of “free and fair” presidential elections in 2024. However, since Venezuela’s president Nicolás Maduro and company have not reversed a mandate that bans the opposition’s leading candidate Maria Corina Machado from running, Washington is now warning it could change its mind on General License No. 44 if things don’t change by year-end.

Talk about certain uncertainties. Well, could you blame Chevron for not putting the pedal to the metal and investing more in Venezuela?

I can’t!

Around the World

GUYANA

Analysis: How Chevron's Hess Deal Boosts LatAm Position

Chevron's recent \$53 billion all-stock deal to acquire Hess Corp. will boost the company's profile in Latin America, former Chevron Africa-Latin America president Ali Moshiri told Hart Energy.

"Chevron has [assets in] Venezuela and Suriname and now with Guyana they will have a very strong position in Latin America," Moshiri said.

In northern South America, Chevron will hold three promising positions. In Venezuela, Chevron will have access to the world's largest oil reserves at around 304 Bbbl and the world's seventh largest gas reserves at around 221 Tcf, according to BP. The company is the last U.S. producer in the OPEC country and the only one boosting production in recent years.

In Suriname, the company has interests in three offshore blocks: 42, 5 and 7.

And in Guyana, the company will sit in the co-pilot seat next to Exxon Mobil, which operates the prolific offshore Stabroek Block.

Besides Exxon Mobil, which holds a 45% interest in the Stabroek, Chevron will team up with China's CNOOC, which holds a 25% interest, and assume Hess' 30% interest.

To date, the partners in the consortium have found over 11 Bboe of estimated gross recoverable resources.

In total, six FPSO units with a gross production capacity of more than 1.2 MMBbl/d are expected to be online in Stabroek by the end of 2027 and there is potential for up to 10 FPSOs to develop the resources.

"Chevron and Exxon are partners in one of the largest fields in the world and they work together extremely well," Moshiri said. "Therefore, I can see Chevron stepping [in] without any problems or issues at all," said Moshiri, who after retiring from Chevron in 2017 at the mandatory age stipulated by the company, started Amos Global Energy, a consultancy focused on advocacy work and especially energy matters as they relate to Venezuela.

Moshiri expects more mergers such as recent ones that have involved Exxon acquiring Pioneer Natural Resources in an all-stock deal valued at nearly \$60 billion, followed by Chevron's acquisition of Hess.

"Consolidation in the industry happens during every high oil price cycle but growth through exploration is not necessarily creating enough value. It's not competitive compared to an acquisition or merger. This is what we are seeing and I think there is more to come," Moshiri said.

MEXICO

Permian Gas to Anchor Saguario Energía's LNG Export Project

Gas production from the U.S. Permian Basin will anchor Mexico's Pacific's Saguario Energía LNG facility and offer the basin's producers a relief valve for associated gas — straight into premium LNG markets in Asia, Tyler Kruse, vice president of corporate finance for Mexico Pacific Ltd. said during a panel

discussion at Hart Energy's Energy Capital Conference.

"The facility will connect the cheapest natural gas from the Permian Basin's Waha hub to the world's largest demand center, Asia," Kruse said.

Permian associated gas is approximately \$1/MMBtu cheaper than gas supplying Gulf Coast LNG projects from Henry Hub. Saguario Energía LNG will connect the lowest-cost U.S. gas basin with high-demand markets in Asia through liquefaction on Mexico's west coast, Kruse added.

Stifel Financial Corporation managing director Ben Nolan said during the panel that "unless there's a global recession there is a case to be made for 8% LNG growth through the end of this decade," which bodes well for Mexico Pacific.

Mexico Pacific's anchor project, the Saguario Energía LNG export facility is in Puerto Libertad, Sonora, Mexico. The facility will include three trains with a processing capacity of 5 million tonnes per annum (mtpa), each with a combined nameplate capacity of 15 mtpa (roughly 2 Bcf/d). The company envisions future expansions to include three additional trains with 5 mtpa of capacity each.

Saguario Energía LNG, located on Mexico's western Pacific coast, aims to leverage its access to low-cost Permian gas. The facility will source gas from Waha and be shipped along a 253 km pipeline on the U.S. side of the border. The line will connect with an 802 km pipeline on the Mexican side of the border. Both segments have capacity to handle 2.8 Bcf/d of gas.

Kruse said the Mexican government is supportive of LNG infrastructure development and that the risk from the drug cartels has been studied and "taken seriously, but not a major concern."

Saguario Energía LNG Advantage

Once the Permian gas reaches the Puerto Libertad liquefaction facility, Mexico Pacific expects the facility to capitalize on a shorter shipping route to Asia as its LNG cargoes will not have to pass through the Panama Canal.

The facility's Pacific Coast location provides for a 55% shorter shipping route, which translates into savings of \$1/MMBtu or more and a 60% lower carbon emissions profile compared to Gulf Coast peers, Kruse said.

The facility has the backing of Shell, Exxon Mobil and ConocoPhillips with key additional end-user customers secured, including Chinese firms Guangzhou Gas and Zhejiang Energy.

"Contracted customers pay fixed fees for pipeline and liquefaction services under 20-year take-or-pay SPAs [sale and purchase agreements], removing commodity risk exposure," according to the to Mexico Pacific's website.

FID Imminent

Kruse said a final investment decision (FID) related to Saguario Energía is imminent and will come by year-end 2023. The facility is expected to start up by year-end 2027,

Kruse said the initial FID is focused on Train 1 and Train 2 with Train 3 expected to follow in quick succession. Mexico Pacific is continuing to secure financing to commence construction of the facility.

Quantum Capital Group is the controlling owner and lead sponsor of Mexico Pacific.



Offshore oil rig platform at sea in Trinidad and Tobago.

Shutterstock

SURINAME

TotalEnergies, APA Eye \$9B FID in Suriname's Block 58

TotalEnergies and APA Corp. are launching development studies related to their Suriname offshore Block 58 where they plan to start detailed engineering studies by the end of 2023 and announce a \$9 billion final investment decision (FID) by year-end 2024.

Two fields will be tapped for the development and will have a combined production capacity of 200,000 bbl/d. First oil is slated to flow in 2028, TotalEnergies and APA said Sept. 13 in separate press releases.

In recent months, executives from both APA and TotalEnergies have expressed growing confidence in the potential of developing the block and creating the South American country's first offshore oil hub.

"Ultimately, pursuing a commercial development is a positive outcome that was not entirely certain, particularly in light of numerous growth sanctions that TotalEnergies is undertaking," TD Cowen said in a Sept. 13 research report.

"Expectations or hopes had been for an early 2024 FID, though we note that the FID will merely be an end point to a declaration of commerciality. While perhaps a year after expectations, first production of 2028 follows reasonable timing from FID to first" oil, the report said.

Truist Securities said that while the development timeline might be considered "slightly longer than some investors expected, we anticipate the initial year-end 2024 target for FID will end up being conservative."

700 MMbbl Recoverable?

Potential development of Block 58 is the result of successful appraisal work at two main oil discoveries at Sapakara South and Krabdagu that were completed in August, according to APA. Two wells were drilled at Sapakara South and three at Krabdagu.

Appraisal work at the two fields confirmed combined recoverable resources of around 700 MMbbl, APA said. The fields, located in water depths between 100 m and 1,000 m, will be produced through a system of subsea wells connected to an FPSO 150 km off Suriname's coast.

"Importantly, due to the wording of TotalEnergies' press release, there may also be some confusion and/or misinterpretation of the resource estimate of ~700 MMbbl, which is actually the likely recoverable amount and not just the

total suggested resource in the fields," Truist said.

France's TotalEnergies operates Block 58 with a 50% interest, while APA holds the remaining 50% and has an interest in the adjacent Block 53. TotalEnergies, which has been in Suriname since 2019, has also been exploring potential in Block 6 and Block 8 since 2023.

"This development is in line with TotalEnergies' strategy aiming at the development of low cost, low emissions oil resources, and leverages on our company's expertise in deep water projects," TotalEnergies Chairman and CEO Patrick Pouyanné said.

TotalEnergies said development of Block 58 would go a long way to create jobs and spur economic activities in Suriname. The French company said it will use the "best available technologies to minimize greenhouse gas emissions" while the "facilities will be designed for zero flaring, with the associated gas entirely reinjected into the reservoirs."

Suriname President Chandrikapersad Santokhi was quoted in TotalEnergies' press release as applauding the announcement around the development of Block 58.

"Suriname is going through a challenging economic period. This announcement provides the much-needed outlook towards positive developments for our nation," Santokhi said.

TRINIDAD AND TOBAGO


US Treasury OKs Trinidad to Pay Cash for Venezuelan Gas

A U.S. Treasury Department agency has amended a license granted to Trinidad and Tobago that will allow the country to pay cash for Venezuelan gas.

The U.S. Treasury's Office of Foreign Assets Control amended the country's license to allow "for payments in fiat currency, U.S. dollars, [Venezuelan] Bolivars and via humanitarian means," Trinidad and Tobago's Ministry of Energy and Energy Industries announced.

The amended license was granted for two years and expires on Oct. 31, 2025.

The license relates to the planned development and production from Venezuela's offshore Dragon gas field. Gas from the field will be shipped to Trinidad and used to feed the twin-island country's four-train Atlantic LNG export plant, which is only running with three trains due to a scarcity of gas.

The gas could also potentially be used to feed any number of methanol and ammonia export plants in Trinidad. 

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Contact: meainfo@hartenergy.com with any questions.

HARTENERGY

Strong Earnings, Mergers Set the Tone

Pipeline company buyouts continue, as production stayed high in the third quarter.

in SANDY SEGRIST
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Oil and gas pipeline companies reaped the rewards of U.S. oil and gas production setting record highs in late summer, and many players continued the trend of growing through acquisitions.

The strong earnings reported by midstream companies for the third quarter indicate a competitive market that's driving growth and mergers, said one analyst.

"Acquisitions, unnecessary growth capex and aggressive dividend growth would have been concerning headlines in prior midstream cycles, but the multiples on acquisitions seem very reasonable and the assets are strategic with synergies," said Hinds Howard, a portfolio manager at CRBE Investment Management.

In its October report, the Energy Information Administration (EIA), reported that daily average crude production in the U.S. hit 13.05 MMBbl/d for the month of August, a record high. Gas production in the Lower 48 also set a new record at 446.254 Bcf.

The added production has resulted in low prices for natural gas, which have remained below \$3.70/MMBtu since January. In early November, prices were trading at \$3.14/MMBtu. The drop in commodity prices caused earnings for many companies to fall, quarter-over-quarter, from 2022. However, Howard said he saw strong fundamental results overall for the quarter and expected trends to continue.

Many midstream companies, while working longer-term projects to increase capacity on their networks, also bought other businesses to immediately increase their capacity or shore up their customer base, and the activity has so far continued into the last quarter of the year.

In August, Energy Transfer paid \$7.1 billion to acquire Crestwood Equity Partners, adding approximately 2 Bcf/d of gas gathering capacity and 340,000 bbl/d of crude gathering capacity to Energy Transfer's network. The acquisition was completed in early November.

In September, Enbridge, one of the largest midstream companies in the U.S. and Canada, announced deals that company leaders said would also make it the largest gas utility in the country, as it acquired multiple companies from Dominion

Energy for an aggregate purchase price of \$14 billion. The group of gas utilities could deliver more than 9 Bcf/d of gas.

In July through its joint venture, Plains All American Pipeline acquired Rattler Midstream's interest in the Southern Delaware Basin crude oil gathering system and LM Energy's Northern Delaware Touchdown crude oil gathering system for aggregate cash consideration of about \$205 million.

The acquisitions continued into the fourth quarter. In early November, Williams Cos. announced two acquisitions in Colorado's Denver-Julesburg Basin with a combined worth of \$1.27 billion. Four days later, Kinder Morgan announced it was buying NextEra Energy's South Texas pipeline network, STX Midstream, for \$1.8 billion.

KMI also announced at its third quarter earnings call with analysts that it will add 550 MMcf/d of capacity through its Permian Highway Project expansion, which leads from the Permian Basin to U.S. Gulf Coast markets. The project has an in-service date in December.

Sixteen of 20 midstream businesses tracked by East Daley Analytics surpassed market expectations on their EBITDA. KMI and Targa both missed expectations, according to East Daley, but were working on large-scale projects at a time of low natural gas prices.

"The growth capex so far hasn't impaired balance sheets and seems to be supported by volume growth," Howard said, adding that many companies are growing their dividends to stock holders without much risk.

"Dividend growth is off a low base that also doesn't strain balance sheets," he said.

MPLX announced a quarterly distribution of \$0.85 per unit, which was a 9.7% increase over the second quarter.

Western Midstream declared a quarterly dividend of \$0.5750, representing a 2.2% increase quarter over quarter.

Energy Transfer also increased its distribution to \$0.3125 per unit, a 0.8% increase over the second quarter. The company raised its distribution payout by \$0.0025 each quarter in 2023. **OC**

\$71B

Price of Crestwood
Equity Partners

\$14B

Cost of Dominion
Energy assets

Howard: Midstream Steady Toward 2023 End



HINDS HOWARD
CRBE INVESTMENT
MANAGEMENT

Hinds Howard is a portfolio manager at CRBE Investment Management, where he evaluates listed infrastructure and transportation companies in North America and coordinates research of listed transportation companies globally. He is based in Wayne, Pa.

For publicly traded midstream companies, this time of year is usually quiet around earnings season. There is sometimes M&A, which we continue to see quite a bit of across the energy value chain, but in terms of ongoing operating results or changes to forward outlooks, quarterly conference calls tend to be quiet.

So, the calls become more about tone, reading between the lines. Below we'll run through some quotes from management teams on quarterly conference calls and see if we can read into them.

Midstream quotables

- Management at Enterprise Products Partners (EPD) is intent on keeping potential competitors out of the NGL pipeline business. The \$3.1 billion of new NGL projects announced this quarter are part of the strategy to shut others out.

Jim Teague (CEO): "We made a mistake, and maybe it was I made a mistake, when we were the only game in town and that we went after pretty high fees, when I wish we'd have gone after lower fees, because we opened the door for our competition. That won't happen again. I don't know how a greenfield project competes with the brownfield project, especially when you have someone like Enterprise that's going to be damn aggressive in holding market share or even growing it." Later, Teague commented on EPD's practice of not using third-party pipelines to offload volumes when capacity is tight. EPD would rather build their own pipelines: "We don't leverage third-party pipes. We put it in our own."

- Energy Transfer (ET) management is very proud of its NGL export business, especially how ET exports more NGL than anyone else. That may be a shot at existing competitors (EPD is the second-largest exporter, recently surpassed), or would be competitors like ONEOK (with Magellan assets). They were so proud that both CEOs talked it up.

Tom Long (Co-CEO): "In total, we continued to export more NGLs than any other company during Q3 and maintained an approximately 20% market share of worldwide NGL exports, as well as nearly 40% of US exports."

Mackie McCrea (Co-CEO): "We got in this export business a little later than most of our competitors, certainly our biggest

competitor. We have gone from nowhere to the leading exporter in the world. And we're proud of that."

- Williams Cos. (WMB) came into some capital from asset sales and a legal judgement, and they immediately put that capital into acquisitions.

Alan Armstrong (CEO) on the 3Q call: "We are acting on opportunities to further high grade our portfolio of assets ... proceeds from this asset sale, along with expected proceeds from a recent legal judgment, will help fund [the \$1.2bn of acquisitions we are announcing]."


- Over time, many sponsored MLPs have been taken private in deals that have favored the sponsor. MPLX is one of the few remaining sponsored MLPs, and the stock tends to trade at a discount because of that history. On the call, CEO Michael Hennigan made sure to message why sponsor MPC values the structure as is.

"MPLX is a strategic investment for MPC, which now expects to receive \$2.2 billion in annual cash flows via the distribution. MPC believes that its current capital allocation priorities are optimal for its shareholders. And MPC does not plan to roll up MPLX."

- Plains All American Pipeline (PAA) trades at a high free cash flow yield, but over time it has tended to use a portion of that free cash flow on bolt-on acquisitions, like the \$205 million acquisition announced this quarter. The takeaway some investors have is that free cash flow estimates should assume a few hundred million of bolt-on acquisitions.

Willie Chiang (CEO): "We're going to be very, very disciplined in how we approach it. The valuations are going to be key. But I think you'll see bolt-on opportunities in both the Permian and outside of the Permian."

- Finally, there was a fun quote from Pembina Pipeline CEO Scott Burrows, who wanted to make one thing very clear regarding energy transition acquisitions: "We're not looking at any acquisitions at all in the energy transition space."

As far as the actual numbers, earnings were very solid across the board, with median beats versus consensus of approximately 4% across the sector. In addition, there were modest upward revisions to guidance in some cases, but most of the companies reiterated prior guidance with just one quarter of results left. 

Events Calendar

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



EVENT	DATE	CITY	VENUE	CONTACT
2023				
URTeC Latin America	Dec. 4-6	Buenos Aires, Argentina	Hilton Buenos Aires	urtec.org/latinamerica/2023
2024				
Americas Energy Summit & Exhibition	Jan. 16-19	New Orleans	Ernest N. Morial Convention Center	americasenergysummit.com
IPAA Private Capital Conference	Jan. 17	Houston	The Post Oak	ipaa.org
Mexico Infrastructure Projects Forum	Jan. 24-25	Monterrey, Mexico	Camino Real San Pedro	mexicoinfrastructure.com
Floating Wind Solutions	Feb. 5-7	Houston	Hilton Americas	floatingwindsolutions.com
NAPE Summit	Feb. 7-9	Houston	George R. Brown Conv. Ctr.	napeexpo.com
Louisiana Oil & Gas Association Annual Meeting	Feb. 26	Lake Charles, La.	Golden Nugget Casino	loga.la
5th American LNG Forum	Feb. 26-27	Houston	The Westin Galleria	americanlngforum.com
OTC Asia	Feb. 27-March 1	Kuala Lumpur, Malaysia	Kuala Lumpur Convention Center	2024.otcasia.org
Influential Women in Energy Luncheon	March 8	Houston	Hilton Americas	hartenergy.com/events
AOG Energy	March 13-15	Perth, Australia	Perth Convention & Exhibition Centre	aogexpo.com.au
CERAWeek by S&P Global	March 18-22	Houston	George R. Brown Conv. Ctr.	ceraweek.com
DUG Gas+	March 27-28	Shreveport, La.	Shreveport Convention Center	hartenergy.com/events
MCE Deepwater Development	Apr. 9-11	Amsterdam	Hôtel Mövenpick Amsterdam City Centre	mcedd.com
International Partnering Forum 2024	Apr. 22-25	New Orleans	Ernest N. Morial Convention Center	oceanic.org
World Energy Conference	Apr. 22-25	Rotterdam, Netherlands	Rotterdam Ahoy	worldenergycongress.org
2024 AGA Operations Conference & Spring Committee Meetings	Apr. 28 - May 2	Seattle	Hyatt Regency Seattle	aga.org
Offshore Technology Conference	May 6-9	Houston	NRG Park	2024.otcnet.org
SUPER DUG	May 15-17	Fort Worth, Texas	Fort Worth Convention Center	hartenergy.com/events
IADC Drilling Onshore Conference & Exhibition	May 16	Houston	Hyatt Regency Houston West	iadc.org
2024 AGA Financial Forum	May 18-21	Palm Desert, Calif.	TBD	aga.org
ASES Solar 2024	May 20-23	Washington D.C.	GW University	ases.org
Louisiana Energy Conference	May 28-30	New Orleans	The Ritz-Carlton	louisianaenergyconference.com
9th Mexico Gas Summit	June 6-7	San Antonio	St. Anthony Hotel	mexicogassummit.com
Global Energy Show Technical Conference	June 11-13	Calgary, Canada	BMO Centre at Stampeded Park	globalenergyshow.com
Monthly				
ADAM-Dallas	First Thursday	Dallas	Dallas Petroleum Club	adamenergyforum.org
ADAM-Fort Worth	Third Tuesday, odd mos.	Fort Worth, Texas	Petroleum Club of Fort Worth	adamenergyfortworth.org
ADAM-Greater East Texas	First Wed., odd mos.	Tyler, Texas	Willow Brook Country Club	etxadam.org
ADAM-Houston	Third Friday	Houston	Brennan's	adamhouston.org
ADAM-OKC	Bi-monthly (Feb.-Oct.)	Oklahoma City	Park House	adamokc.org
ADAM-Permian	Bi-monthly	Midland, Texas	Petroleum Club of Midland	adampermian.org
ADAM-Tulsa Energy Network	Bi-monthly	Tulsa, Okla.	The Tavern On Brady	adamtulsa.org
ADAM-Rockies	Second Thurs./Quarterly	Denver	University Club	adamrockies.org
Austin Oil & Gas Group	Varies	Austin, Texas	Headliners Club	coleson.bruce@shearman.com
Houston Association of Professional Landmen	Bi-monthly	Houston	Petroleum Club of Houston	hapl.org
Houston Energy Finance Group	Third Wednesday	Houston	Houston Center Club	hefg.net
Houston Producers' Forum	Third Tuesday	Houston	Petroleum Club of Houston	houstonproducersforum.org
IPAA-Tipiro Speaker Series	Third Tuesday	Houston	Petroleum Club of Houston	ipaa.org

Email details of your event to Jennifer Martinez at jmartinez@hartenergy.com.

For more, see the calendar of all industry financial, business-building and networking events at HartEnergy.com/events.

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Voices

Industry experts from throughout the supply chain gathered in Midland, Texas, for Hart Energy's 2023 Executive Oil Conference and Exhibition in November.



“Oil is our favorite commodity, but we do believe that there will be a peak at some point. This decarbonization global phenomenon has momentum. Oil has a long runway, but we will eventually use less.”

—Walker Moody, president, Pickering Energy Partners



“Pre-COVID, people were not sharing assets. We were pretty private about everything that we did. Coming out of COVID, asking one supermajor to collaborate with another supermajor on recycling this barrel is happening today.”

—Chris Harich, COO, XRI



“Getting ahead of the regulations is part of it, but environmental stewardship is the larger element to maintain our license to operate and to take care of this environment that we live in.”

—Steve Pruett, CEO, Elevation Resources and chairman, Independent Petroleum Association of America (IPAA)



“If the Midland Basin is in the 7th or 8th inning, the Delaware is maybe in the 3rd or 4th.”

—James Walter, co-CEO, Permian Resources



“It makes it very hard to plan when you’re having the rules change on you.”

—Grant Swartzwelder, president, OTA Environmental Solutions

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The Texas Powergen Proposition That Did

A Vistra Corp. chief, ERCOT's vice chairman and a private investor talk about what's really happening on the U.S. grid. It's not just a Texas thing.



in NISSA DARBONNE
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Texas' Proposition 7 was approved by voters in November, setting aside state money for low-interest loans to build dispatchable power generation—the kind that works without sun or wind.

Texas is a competitive power market, so why the welfare? The capitalist's first instinct is "Uh, that's a hard 'no.'"

A one-hour tutorial on the Texas electricity market at the University of Texas in Austin in September brought forward the math that didn't get much of a microphone in Congress' pre-vote conversations on the Inflation Reduction Act.

Included in the IRA is a subsidy to remove CO₂ as part of gas-fired and coal-fired powergen.

"This is an important point that I think doesn't get discussed enough," said Stacey Dore, chief strategy and sustainability officer for Vistra Corp., the largest power generator in Texas.

Carbon capture as part of powergen is very expensive "because of the density of the carbon coming out of the power plant," she said in the Kay Bailey Hutchison Energy Center-hosted forum.

In developing a new-plant application for federal funding, Vistra found the cost of the adjacent carbon-capture operation came out to \$130 a ton. "The maximum [federal] 45Q credit under the IRA is only \$85.

"So it's not economic to begin with for a company like ours, which is a competitive power company," she said.

"But what doesn't get discussed a lot is that it takes about 30% of the gas plant's output just to run the process of carbon capture." The proposed 1,280-megawatt plant would only put 896 megawatts onto the grid.

Using hydrogen is worse. EPA rules will require hydrogen co-firing by the early 2030s. "You're taking megawatts off the grid to make that [hydrogen] power cleaner," Dore said.

If creating green or pink hydrogen—using renewables or nuclear—250 megawatts are consumed in making the feedstock for a 1,000-megawatt power plant.

"Then you're going to take that hydrogen and put it into a gas turbine to make more energy." Net, a 1,000-megawatt plant's contribution to the grid becomes 300 megawatt of carbon-free power.

"That doesn't make sense," she said. "It doesn't make economic sense. It doesn't make physics sense."

Meanwhile, new EPA rules are causing uncertainty in investing in new non-renewable powergen, said Bill Flores, a former Gulf of Mexico wildcatter and U.S. congressman who is currently vice chairman of ERCOT, manager of Texas' power grid.

"Four [of the new rules] would reduce the amount of thermal dispatchable generation," he said. "One would increase the demand side.

"So you have a lot of [federal] government policy that is causing people to scratch their heads. And that uncertainty causes capital not to be deployed when you need capital."

The Texas grid was approaching the red zone several times again this summer during record heat. ERCOT's requests for voluntary consumption curtailment—both residential and commercial—spared blackouts.

And it's not just a Texas problem: "Climate change is affecting all the grids around the world," he added.

Vistra operates 37,000 gigawatts of powergen in 20 states in every ISO (independent system operator) except SPP that is north of Texas. Other states and ISOs had called Texas' February 2021 blackout a Texas thing and "that's not going to happen here," Dore said.

The message is changing, though. This summer, the PJM ISO announced it will be power-short within the next five to seven years on its current course, Dore said. PJM's system includes Washington, D.C., as well as some or all of 13 neighboring states.

Meanwhile, the 14-state Midcontinent ISO (MISO) that includes Louisiana expects a 2-gigawatt shortage in the coming year, based on forecasted demand. "And that will grow to 9.5 gigawatts of shortage by the 2027-2028 planning year," Dore said.

"So again, this is not just an ERCOT issue."

Pete Labbat, managing partner of investor Energy Capital Partners, said, "You would think it is a fantastic time to be an owner of gas-fired power plants, right?"

Instead, the IRA incents more intermittent power—renewables—by making those the best returns. "It's very lucrative . . . when the government's handing out free money," Labbat said.

" . . . It is a very challenging time . . . to risk the capital in what is needed most, which is reliable power based on thermal."

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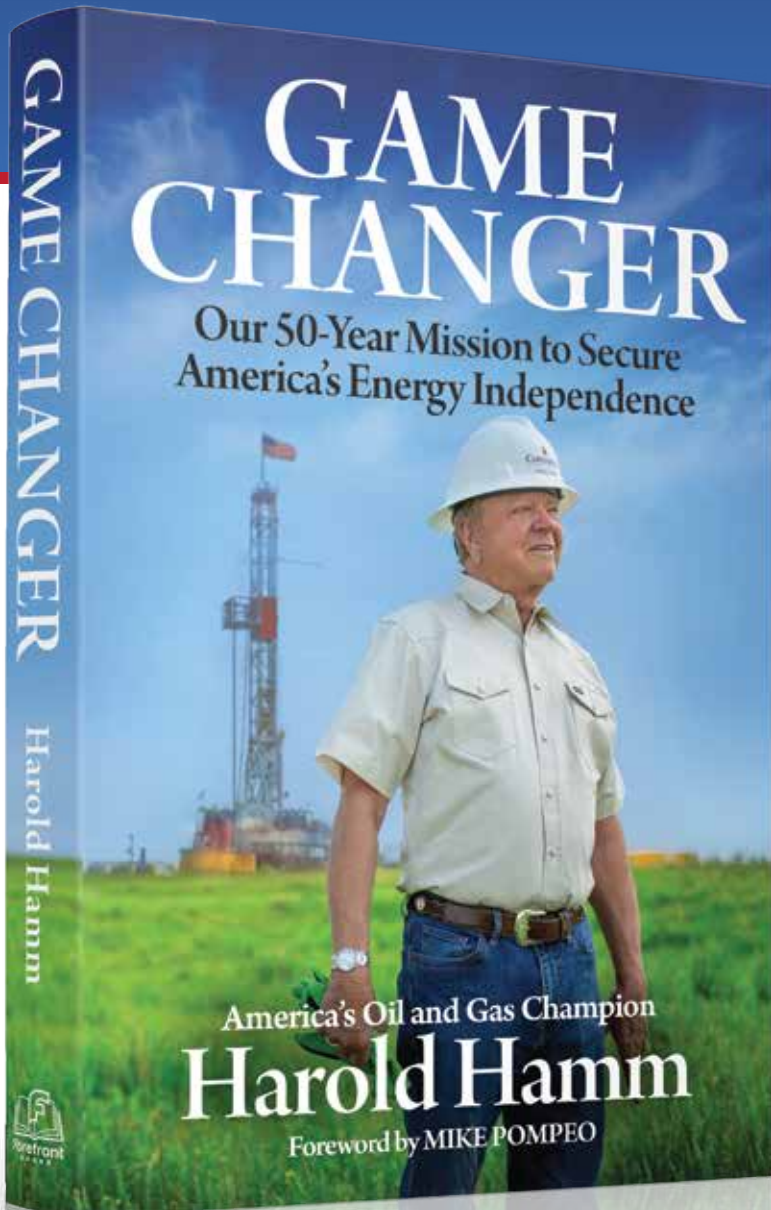
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