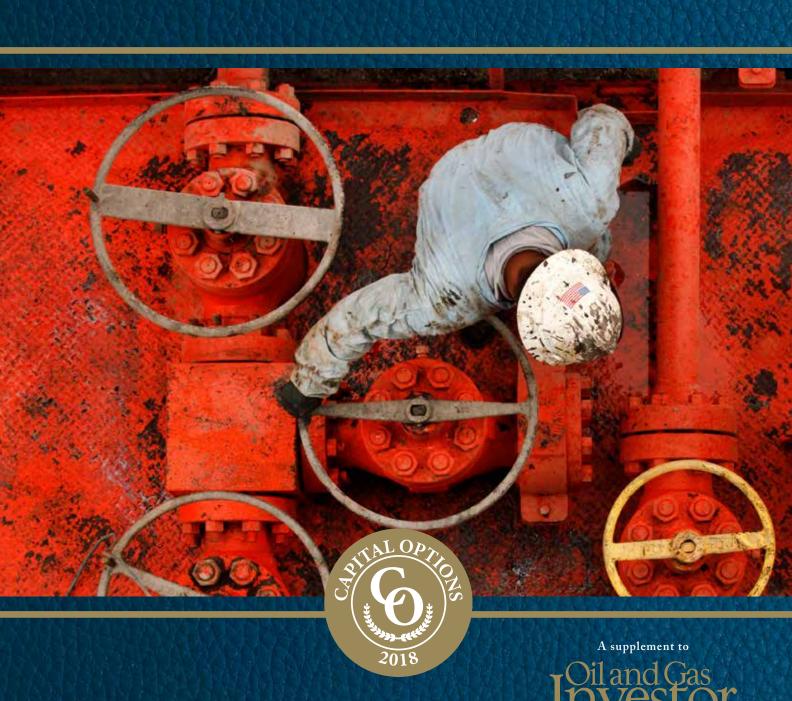
CAPITAL OPTIONS

PUTTING MONEY TO WORK





Energy Finance Group Oil & Gas

Capital that Spans the Energy Value Chain

Energy Finance Group provides capital to companies and management teams across the energy value chain including oil and gas exploration and production, midstream, energy services, energy infrastructure projects and utilities.

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- Energy infrastructure project finance, joint venture financing and equity participation capabilities
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- Average tenure of investment staff is 15 years
- \$7 billion investment portfolio as of 6/30/17
- Committed capital through all market cycles
- Debt and equity appetite in excess of \$1 billion annually



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Stepping Up The Pace

'ow that the oil and gas industry recovery is well underway and oil prices seem to be fairly stable, drilling activity is transitioning from delineation mode to the development phase in most shale plays. That's why the call on capital will be greater than ever before.

Consider just the Powder River Basin as an example of the newfound burst of more intense activity. There, more than 20 rigs are at work for 15 private-equity-backed players drilling toward a successful exit later on, along with a handful of large public companies also active in the basin. The resource potential and well returns are very good, equal to the Permian Basin, they say. One can certainly see the day when



operators will be able to drill 20 wells off two pads per drilling spacing unit. Producers' growing confidence in delivering good EURs is therefore attracting more dollars.

In addition to full-field development in shales and conventional plays, the need for capital has been extended to a growing list of minerals acquisition companies and water handling specialists, not to mention the many midstream players that are building infrastructure in every play.

Throughout the history of oil and gas, capital providers have come in all shapes and sizes and provided money in all sorts of ways. That's even truer today, and this report outlines the perspectives of some key players and their take on developing trends in capital-raising.

"We are two to three times better off today as most producers are now operating well above their breakeven level, have positive cash flows and are living within their means," Brian Tate, executive managing director and the head of the energy and natural resources group at Regions Securities, told us. "The experience of the last three years has motivated upstream companies to deleverage their balance sheets and rightsize their leverage levels."

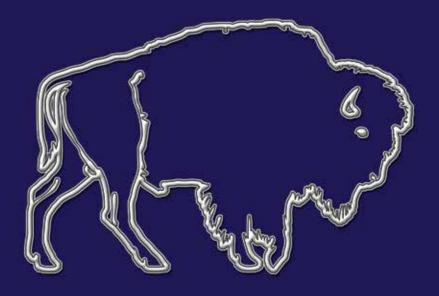
This year, producers will finally feel comfortable with oil trading at \$65 per barrel or higher. They will pursue new loans or issue new bond offerings, as drilling activity continues to increase and balance sheets appear to be healthier.

Providers and producers now meet on the playing field to go beyond traditional common equity or reserve-backed loans. DrillCos will remain a favorite choice for industry participants, as well as other alternatives to traditional bank debt and private-equity structures. Private credit has become much more common in the past few years and more providers have entered the arena.

This flexibility, creativity and partnership will continue to grease the skids of the oil and gas industry.

> - Leslie Haines, Executive editor-at-large, Oil and Gas Investor

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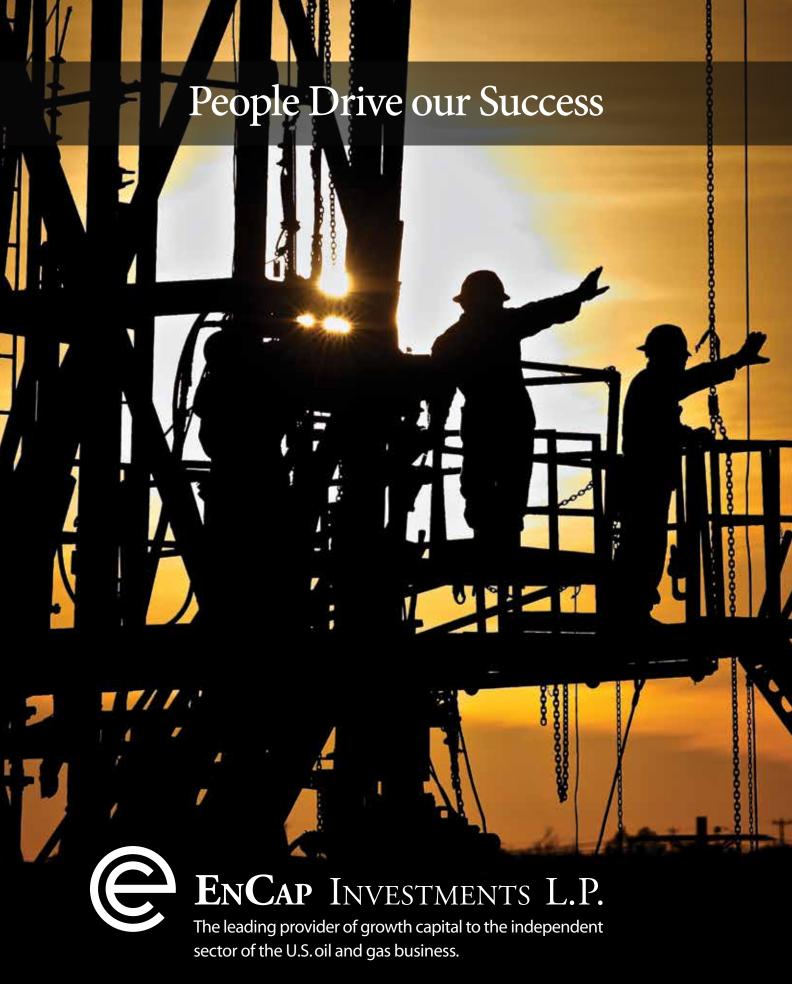
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PRIVATE DEBT

Tailoring Credit For Best Fit

As access to traditional capital sources is less certain, private credit has an increasing role to play.

By Chris Sheehan, CFA

ven as some companies move up in scale, helped by "manufacturing mode" operations ✓ and easy access to public market financing, the reality is that not all E&Ps are so fortunate. To achieve their operational and strategic goals, many energy companies face specific challenges that go beyond the scope of conventional financial instruments. Where cookie-cutter plans won't suffice, customized strategies and solutions might.

Private credit has become a more important source of funds for a variety of sectors in North America. According to a Preqin report released in February, funds raised by North America's largest private debt fund managers (as measured by total capital raised during the past 10 years) came to more than \$200 billion. This very broad survey includes all economic sectors, including infrastructure, noted one observer.

But the trend also indicates where private credit is being deployed in energy companies both large and small. Fund managers and other private equity-providers of energy are delivering an increasingly broad array of financial instruments such as debt (first- and second-lien, subordinated notes, etc.),

EXAMPLES OF A DRILLCO

PRE-REVERSION STRUCTURE		
Operator	Capital Provider	
0%-25% D&C	75%-100% D&C	
10%-45% WI	55%-90% WI	
AMI		
15-30 wells		
POST-REVERSION STRUCTURE		
Operator	Capital Provider	
75%-90% WI	10%-25% WI	
AMI		
15-30 wells		

Source: Benefit Street Partners

preferred issues (straight and convertible), mezzanine debt and other financial vehicles, such as DrillCos.

"Private credit is no longer viewed as an 'alternative' source of capital for the energy industry," said Robert Horn, co-head of GSO Capital Partners LP, the credit investment arm of The Blackstone Group. "It has become a core vehicle for energy markets to fund their operations, which is a big change over the last 10 years."

GSO has committed more than \$10 billion to the private credit energy market since its inception in 2005, placing it

among the most active providers of private credit in its space. With offices in Houston and New York, GSO's energy business is led by co-heads Horn and Michael Zawadzki.

Private capital trends

The capital needs of today's energy markets "in many cases don't fit the cookie-cutter approach that the traditional public markets are looking for," observed Zawadzki. "As a result, private capital has built an increasingly relevant place in the energy market, especially if you can commit capital in scale and in flexible structures, as we have at GSO."

The growing role of private credit reflects in part the changing trends in current energy capital markets.

"Traditional sources of capital are generally pulling back from the sector," Horn said. "Common equity and initial public offering [IPO] issuance for the E&P and master limited partnership [MLP] sectors have recently been sig-

nificantly less active. In addition, banks and public credit markets are cautious."

These trends are magnified given the "highly capitalintensive" character of the energy sector, Zawadzki said. With fewer traditional capital sources, E&Ps have elected to streamline their portfolios, paring back non-core assets

to fund development of key assets. Simultaneously, capital is required to fund companies seeking to grow through acquisitions and more aggressive development of upstream assets, as well as infrastructure projects to transport new sources of hydrocarbons to market.

The upshot has been a demand for new sources of capital that go beyond conventional equity and traditional commercial bank loans on an E&P's balance sheet.

Filling the gap

"A lot of our business is financing entrepreneurs and private companies to help fill the gap between equity and bank debt, and GSO's capital solutions can be complementary to other sources of capital in the market," Horn said.

Historically, the energy business was funded with private or public equity and conforming bank loans. "But with the unconventional business being capital-intensive, the basic liquidity needs of a rapidly growing unconventional asset routinely exceed what banks are seeking to provide,"

The extent to which current financial trends in banking reflect changes to tighten guidelines issued in 2016 by the Office of the Comptroller of the Currency depends on whom

"It's not as big a factor as you might think," Horn said. "In our case, GSO provides financing solutions that would not be a fit under a borrowing base revolver model. We may finance undeveloped acreage, for example, or high-growth business-

> es, or assist a company in improving its credit profile.

> "What we have observed today is that the banks are reducing their non-conforming loan exposure and that they will often encourage clients with nonconforming loans to raise alternative capital. This allows the banks to manage their exposure down, providing clients with additional flexibility."

> In addition, Horn said, if companies want to tap the high-yield market, they will need to demonstrate a number of factors: assets in a top-tier basin, low leverage, an acceptable free-cash-flow profile and a large high-yield issue typically \$500 million or greater—in order to appeal to public market investors. That's where private credit can step in to fill the gap.

Some examples of past deals Horn cited where private credit was able to offer funding are: a high-growth E&P without much cash flow initially, but the E&P is acquiring an undeveloped

asset and developing it; project financing for construction of a midstream asset, where the coupon would be "paid in kind" rather than in cash for the first two years; a delayed draw facility, where a company doesn't need the full facility upfront, but can draw down capital in stages over time to hold down costs; and acquisition financings, where GSO's



entrepreneurs and private companies to help fill the gap between equity and bank debt," said Robert Horn, cohead of GSO's energy business.

capital is committed and financing costs are known, providing certainty to buyer and seller.

In addition, existing GSO portfolios include a large component of what is called "structured equity." This involves "hybrid securities that straddle the fixed income and equity markets," Horn said, and are designed to manage the impact of what otherwise would be an adverse increase in leverage or in equity dilution on a firm's balance sheet following an acquisition.

Competing goals of stakeholders

Using the example of a firm wanting to grow through a transformative acquisition, Horn laid out two competing goals of stakeholders. On the one hand, E&P issuers want to avoid significant traditional leverage, risking existing bank lines if leverage exceeds 3x to 3.5x debt/EBITDA. And on the other hand, issuers are careful to avoid heavy equity dilution by

issuing shares, particularly when energy stocks are trading near lows. "We are focused on delivering solutions that offer flexibility and favorable balance sheet treatment similar to equity, with fixed income benefits of credit," Horn said.

As an example, in mid-2017, GSO arranged a \$250 million preferred stock issue that enabled an E&P to make an acquisition of almost \$650 million, adding a new growth asset. The preferred stock paid dividends of 8.875% per annum, with an option to pay part of the dividend in common stock for three years. The E&P's stock was close to a 52-week low. Its leverage was roughly 3x debt/EBITDA.

"They were looking for ways to complete the acquisition in a manner that managed dilution and managed leverage, and we structured a preferred security to achieve these objectives," Horn recalled.

In setting terms on a transaction, "we don't go into a deal saying we've got to make a certain return," Zawadzki said.

"Every situation is different. We look at each individual deal and try to work out what is the best bespoke solution for a company's objectives and the financing they're trying to raise. Then we determine what the appropriate return is for the given risk profile."

Historically, financings by GSO span a range from \$100 million to \$1 billion. It works "very collaboratively" with both commercial banks and investment banks, according to Horn.

"We work together to develop favorable capital structures for our partners. These often include a bank revolver, offering efficient revolving liquidity, as well as GSO's solution, offering additional capital with customized flexibility," Horn said. "We've always viewed ourselves as partners rather than lenders. We want to partner with great companies and great people."

Shaping solutions, not products

Tailoring solutions to meet specific capital needs is an undertaking with a long history at Prudential Capital Group. As of June 30, its energy finance group had invested more than \$18 billion during the past 22 years. Its "new investment appetite" is approximately \$1 billion per year, having funded average investments in excess of \$1 billion across some 23 companies in each of the last six years.

"Our biggest advantage is our ability to go into companies, almost on a consultative basis, and work with them and give them options," said Brian Thomas, a managing director in Prudential's energy finance group. "Whether it's senior debt, junior, structured preferred, etc., doesn't matter—I'm agnostic. I just need to know that it makes sense for the company as a borrower and for Prudential Capital as an investor.

"We don't sell a product. When we walk into a company, we sit down, we talk about the company's business plan, and

how they plan on developing and exploiting their assets," he continued. "Then we sketch out not just a single option based on a single product, but tailor a financing strategy that gives the company the ability to execute its plan without compromising its future."

In addition to being able to draw upon industry knowledge gleaned over decades of experience, being able to speak to more than one form of capital is an advantage in that "it allows you to be objective in your feedback to companies," according to Thomas. After all, he commented, "to a guy with only a hammer, everything looks like a nail, doesn't it?"

Prudential Capital has the capacity and appetite to invest in all levels of the capital structure, according to its recent presentation to the IPAA Private Capital Conference. By using the parent's balance sheet, Thomas said, the energy finance group has the "latitude to craft attractive investments, on a risk adjusted-to-return basis, that are tailored to the specific needs of a company."

Typical investment size varies with asset type. For example, investments in senior secured or unsecured fixed-rate debt may fall into a range of \$10 million to \$400 million and carry a coupon of 3.5% to 7%. Second lien fixed-rate or floating-rate debt is typically made in investments of \$10 million to \$100 million and carries a coupon of 7% to 12%.

Mezzanine and equity investments are typically made in a \$10 million to \$50 million range. Targeted returns for mezzanine are in the "mid- to high teens," comprised of a contractual coupon (8% to 11%) coupled with a kicker in the form of a warrant, overriding royalty interest (ORRI) or net profits interest (NPI).

Equity investments are made assuming a long hold period and an on-control position. "We're not a control-oriented investor," Thomas said. "That is probably the biggest point of separation between our investment interests and those of traditional private equity."



"The capital needs of today's energy markets in many cases don't fit the cookie-cutter approach that the traditional public markets are looking for," observed Michael Zawadzki, co-head of GSO's energy business.



Buy and hold

Overall, Prudential Capital maintains debt and equity relationships with more than 1,000 companies worldwide.

Upstream and midstream investments came to around \$7 billion as of Dec. 31, 2017.

"Our ability to tailor these types of structures is what many operators find attractive and is why people reach out to us directly," Thomas said. "We don't syndicate. We buy and hold, often for five to 10 years, or longer."

In many cases, Prudential Capital may be more aligned with "second stage" funding, at the junior capital level, rather than an initial round of funding. To illustrate, Thomas said an E&P may be seeking some form of "transitional financing" to meet a specific funding need, but didn't want to be burdened with that cost of capital beyond the transformative period.

"Assume an E&P has 5,000 to 10,000 acres and has drilled four to eight development wells. They've begun to solve the science experiment and are honing in on proper completion methodologies, etc. Now they want to drop the clutch and accelerate their drill-

ing program. But the cost of the wells and the pace of the drilling program preclude them from relying on traditional conforming senior bank debt.

"We can come in and structure junior capital that can fund the E&P at an accelerated pace and at a much higher advance rate relative to PDP [proved developed producing]

> and PUD [proved undeveloped] than would be the case with traditional senior bank financing. Doing so allows the E&P to minimize its need to raise new equity, which can be particularly dilutive to existing ownership and prospects for independent governance."

> In turn, as its production base grows and matures, an E&P may have a wider range of options as to how to proceed.

"While operators can always choose to slow their pace and drill from cash flow, such factors as lease expirations, temporal commodity price environments, and growth objectives often cause management teams to seek solutions that allow for accelerated development drilling," Thomas said.

"Typically, there's a two- to fouryear period from when you start actively deploying considerable capital to drill and develop acreage and when you start generating substantial cash flow, and during that period your investment needs greatly outstrip your cash flow from production," Thomas continued. "By year three or so, a junior E&P may

have reached an inflection point where it is self-funding or it can migrate to a conforming senior bank facility, or it can choose to sell. My job is to tailor a structure that allows



patient mindset, tailored solutions and the ability to lean into the wind when others might be retrenching," said Brian Thomas, managing director of Prudential Capital's energy finance group.

operators to reach this point, while also preserving this kind of optionality."

Due to action by the bank market to limit the use of second liens, Prudential Capital is increasingly providing a "onestop shop" service for clients, according to Thomas. "Often commercial banks resist most forms of junior capital other than new equity," he said. "As a result, we're often providing the senior financing alongside the junior debt in order to provide certainty of execution."

In the midstream sector, Prudential Capital plays a key role in both the Lower 48 and north of the border.

Active in Canada

"We're probably one of the largest financiers of midstream assets on the institutional level," Thomas said. "We have been very active in Canada for the last 30 years, working with both upstream and midstream sectors. Canadian firms don't seek the public debt

markets as actively as their U.S. counterparts, and are more comfortable working directly with institutional lenders on a senior or junior lending basis."

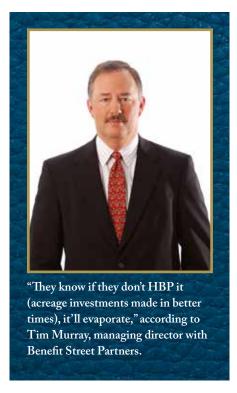
In the upstream sector, Prudential Capital's Canadian clients often include E&Ps that are seeking long-term, fixed-rate financings to augment borrowings from commercial banks. In the midstream sector, Prudential Capital has worked with both smaller operators and with much larger players, such as Enbridge Inc. and TransCanada, for whom it provided financings designed specifically at the asset rather than corporate level, noted Thomas.

He sees an increasing role to be played by providers of private capital at the institutional level.

"Energy companies have a voracious appetite for capital," observed Thomas. "As was increasingly highlighted during the last sector downturn, companies are realizing that access to capital shouldn't be a two-legged stool. Private institutional money can and should be a very valuable third leg to the stool, providing access to a significant amount of longterm, patient capital that can either augment bank financing or obviate the need to go the high-yield market."

Thomas sees benefits from building a stronger institutional leg.

"Private institutional capital tends to demonstrate much greater stability and access, irrespective of where you are in the capital cycle, whereas the broader bank and public capital markets tend to be more of a volatile barometer of lending behavior," Thomas said. "In



addition, private capital can offer a more patient mindset, tailored solutions and the ability to lean into the wind when others might be retrenching."

Robust deal flow

Adverse conditions in energy capital markets have meant the opportunity set for private credit "had never been wider than it is today," according to Tim Murray, managing director with Benefit Street Partners. Public capital markets will at some point recover, he said, but in the interim Benefit Street Partners "is experiencing robust deal flow."

While Benefit Street Partners can offer a variety of financial options, roughly two-thirds of the deals in its current pipeline are potential DrillCo transactions. Its sweet spot in terms of deal size is \$100 million. Targeted returns are in a range of "mid-high teens to low 20s," with several key factors capable of playing a part in helping

narrow the range.

Murray pointed to several factors driving the rise in private credit. For one, the tighter guidelines for commercial banks introduced by the OCC "dramatically impacted banks, especially the smaller regional banks," he said. In public equity markets, while the oilfield sector had seen several IPOs this year, the absence of an upstream IPO since the fall of 2016 reflects energy being "out of favor," he added.

In high yield, year-to-date issuance is comprised of more than 20 issuers as of mid-July, but that was predominately

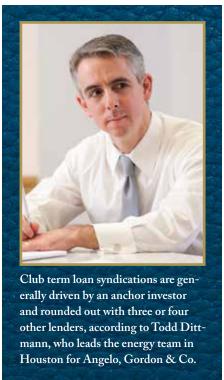
> to refinance existing debt rather than to finance, for example, A&D activity, noted Murray. Meanwhile, private-equity (PE) funds are active, but larger fund raises have meant sponsors are looking to fund larger deals and are less focused on opportunities of less than \$200 million.

Given less resilient traditional funding sources, private credit has emerged as a means of financing a "wide fairway" of activities. Common uses include, drilling to HBP where leases are set to expire, refinancing maturing bank debt and bonds, and refurbishing and expanding oilfield service equipment as

firms recover from the downturn.

DrillCos, carries and tails

DrillCos have emerged as a popular solution for companies to develop and HBP their acreage to preserve the significant acreage investments made in better times. Interestingly, clients include some PE-backed companies and public E&Ps, according to Murray.



COMMON STRUCTURAL CHARACTERISTICS

Proved Reserves	Probable & Possible Reserves	Cash Flow, Covenant Based LendingYield Range: 3.5% -7%\$10-\$400 Million Investment
	Second Lien Fixed/Floating Rate Debt	Coupon: 7%-12%No royalty or equity linked component\$10-\$100 Million Investment
	Mezzanine	 Targeted returns typically in the mid- to high teens Contractual coupon with varying types of yield enhancing features (e.g., warrants, ORRI, NPI) Secured/Unsecured \$10-\$50 Million Investment
Probable & Possible Reserves	Equity	 Non-Control Position Long Hold Period \$10-\$50 Million Investment

Source: Prudential Capital Group, IPAA

"Even though the capital is priced in the mid-teens and above, PE guys and public companies that have accumulated a lot of acreage are now very interested in taking the capital and deploying it to secure their acreage positions," he said. "They know if they don't HBP it, it'll evaporate."

Within the private credit universe, the subset of DrillCo providers is "much more limited," Murray said. "Doing a DrillCo requires knowledge of how the industry operates, some real technical knowhow, and what happens after the ink is dry. We've done quite a few of them now, and our reputation for knowing the business is likely why we see a large number of DrillCo opportunities."

DrillCos are structured in various ways, but the key elements include the capital provider's disproportionate share of the drilling capital ("carry"), the "reversion" or change in economic terms after a pre-agreed hurdle rate has been met, and the residual interest retained by the capital provider after reversion (the "tail").

For example, a pre-reversion structure may call for the capital provider to

invest 75% to 100% of drilling and completion (D&C) costs to earn a disproportionate working interest (WI) of 55% to 90%. Meanwhile, the operator pays zero to 25% of the D&C costs to earn a 10% to 45% WI.

Once the targeted hurdle rate is met—typically set in terms of an internal rate of return or return on investment the carry ceases. At this point both parties' D&C costs and WI are in line with each other.

"Between the carry, the reversion hurdle and the tail, you have the three levers to press to get the right answer," he said. "The carry can be a big factor. If the capital provider is paying 90% of the capital to get 70% of the interest, those 20 points of carry obviously means a lot to the company; but it also raises the return requirements when you're paying 20% of the capital for the other operator."

A DrillCo can be structured at the wellbore level, on a drilling spacing unit basis or on a defined acreage position.

DrillCos are typically structured in a program of 20 or more wells, because "you're trying to make the average" and avoid concentration and single-well risk, Murray said. "We prefer to stay with the better operators in core acreage and avoid areas that are 'fringy," he said. "If your wells don't work out, that's all you've got, especially if you do a wellbore deal with an interest just in those wellbores and

no acreage participation."

To protect its Drill-Co investments, Benefit Street is a strong believer in hedging, according to Murray. "We're not trying to pick a price. We're just concerned about potential downside, so we're always going to look for a floor in a collar structure, or buy puts. We rarely do swaps, apart from basis swaps. Our primary interest is in putting in a floor to protect our investment."

Benefit Street Partners appears to have no shortage of potential opportunities to fund. "We've got enough opportunities that, if a deal has some hair on it, or someone is unwilling to agree to terms that generate an acceptable return, we'll move on to the next transaction," Murray said.

"They were looking for ways to complete the acquisition in a manner that managed dilution and managed leverage, and we structured a preferred security to achieve these objectives." -Robert Horn, GSO

'Club' term loan market

Those seeking credit in smaller sizes than the energy highyield market typically provides may find other sources with single lenders and in the "club" term loan market, according to Todd Dittmann, who leads the energy team in Houston for Angelo, Gordon & Co.

BIG NEED FOR CAPITAL LOOMS

Since it is becoming more difficult to secure bank credit, and a lot of existing energy loans are still under pressure, new avenues to secure funding need to open up. This is all the more true as producers continue to push the boundary on how many wells they drill on a pad or within a section in the shale plays.

Hence, the rise of the "non-bank bank" to serve energy companies hungry for capital.

"There is a looming need for more capital," said Mark Green, president of Madava Financial, speaking to the Houston Energy Finance Group.

"The RBL [reserve-based lending] market remains large, but it is in transition. Mezzanine lenders and credit funds have generally been the next layer of available capital, but another direct lending alternative is needed to fill the gap between these capital alternatives."

Green, formerly with Wells Fargo for 12 years, joined Madava in May 2017. It is a private, energy-focused finance company providing capital alternatives through direct lending to middle market upstream and midstream companies. It is not a credit fund, but rather a specialty finance company that has raised permanent capital. The new entity was founded in early 2017 by

Robb Turner, one of the co-founders of ArcLight Capital.

A confluence of trends has led to this opportunity. Green cited the example of several foreign and domestic banks that closed down or significantly reduced their oil and gas portfolios during the downturn, and the exit of industrial-type lenders such as GE Capital. The ability of traditional commercial banks still in the game to engage in stretch lending to energy companies has moderated as well, thanks to the Comptroller of the Currency's revised and stricter lending guidelines.

"The E&P industry's need for capital is still growing," Green said. "For example, companies are increasingly drilling multi-well pads. We recently saw a Delaware Basin company with 24 wells planned in one section, which obviously results in a very large call on capital."

At the same time, just as the OCC narrowed the fairway on what is considered a "pass" RBL or credit, many of the credits extended during the downturn are coming due soon. More than \$208.6 billion in upstream debt existed at the end of 2017, and an estimated \$76 billion was not in compliance with the new bank guidelines at the end of 2016, he said.

"As these credits mature and roll off, some of them will be renewedbut many will not. We think there is a gap where some companies cannot renew their RBL and thus, will need to explore other sources of capital."

Until 2014, the senior secured RBL was bulletproof and loan recoveries averaged 98%, he said. Through 2015, there was a significant drop-off in the recovery factor, down to 81%, according to Moody's Investors Service, he said, and numerous second-lien facilities and unsecured bonds were "completely wiped out."

Madava looks primarily to provide unitranche facilities in the middle market, well-hedged but relying as heavily on PDP reserves as banks do. "We are targeting middle-market upstream and midstream companies, many of which will be sponsor-backed." Madava seeks to fill a growing gap between first-lien lending provided by the regulated banks and other capital providers that include private equity, hedge funds and energy credit funds. It will advance 70% to 100% of PDP with a typical size of \$25 million to \$100 million. It also will consider second-lien/Holdco type of structures or preferred equity.

—Leslie Haines

As of mid-July, there were three E&P deals in the highyield market, ranging from \$400 million to \$850 million. "But that leaves issuers seeking smaller issues of \$200 million to \$300 million left to explore other sources," observed Dittmann. "Fortunately, for those good issuers, we've seen a market open up in club term loan syndications."

Club term loan syndications are generally driven by an anchor investor and rounded out with three or four other lenders, according to Dittmann. Examples include Triple Crown Energy LLC (lead placement agent: Wells Fargo), Sundance Energy (Morgan Stanley) and Admiral Permian Resources LLC (UBS). Angelo Gordon participated as an anchor investor in two of these three deals.

"Growing demand for our capital is fortuitous, as at the same time there's a multiple-prong de-risking going on in the E&P sector," Dittmann said. "Higher oil prices mean more revenue, and producers are increasingly spending within cash flow. Average leverage is coming down across the space. E&Ps are hedging more, taking more revenue volatility out of the mix."

In addition, to a growing extent, "E&Ps are now using revolvers as originally intended: unfunded, for short-term capital needs, rather than as a replacement for term debt, simply because it was cheaper," he continued. "The problem is revolvers come with 'sole discretion borrowing bases,' making them a very volatile liability for a long-term asset base.

By contrast, secured, non-reserve-based term debt comes with a degree of insurance given the absence of the sole discretion borrowing base mechanism."

More recently, in a very interesting development, Dittmann observed that "private-equity-backed companies are experiencing an exit problem because both the asset sale and IPO markets have resisted smaller packages.

We are seeing an ever-growing dialog with PE-backed teams to facilitate the next, unanticipated stage of their growth. Structure and use of proceeds vary, but come in the form of delayed draw term loans, dividend recaps and DrillCos." ■



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PRIVATE EQUITY

Investment Appetite Evolves As Recovery Continues

Private capital is looking for conventional, non-operated and mineral deals as well as more PUDs.

By Gregory DL Morris

rivate capital providers of both equity and debt are evolving rapidly to provide the necessary funding for unconventional development that is accelerating and yet, being consolidated at the same time. In the foreground, fewer larger independents are producing returns that are prompting private equity (PE) to continue holding. In the background, limits on reserve-based lending are forcing lenders and alternative capital providers to get creative.

Post Oak Energy Capital closed Fund IV in November 2017 with an effective date of March

1, 2018, and has already made two investments from it, \$100 million each to management teams with which it has done business before. In line with its prior funds, Fund IV was closed at \$600 million, and Post Oak expects to make six to eight commitments from it. Post Oak has invested in 25 companies since forming Fund I in late 2011, primarily focused on upstream oil and gas investments, with two oilfield service and two midstream investments.

The first new transaction out of Fund IV was with Crown Oil Partners/BC Operating of Midland, Texas. In 2017, that team sold its assets in New Mexico to Marathon Oil Corp. for \$1.1 billion, marking the entry of that producer into the Delaware Basin.

"We have invested with Crown Oil Partners/BC Operating through multiple companies and are excited to continue," said Frost Cochran, managing director. "They have just secured the beginnings of an operating position."

The other investment made out of Fund IV is a \$100 million reinvestment with a known management teamin this case, it is the third go-round. Saxet III Minerals LLC is an owner of mineral rights in resource plays in the Midcontinent, Permian Basin and Bakken Shale.

These two initial investments were relatively easy calls, but Cochran laments that the options drop off quickly at the edge of town. "We have spent significant time looking at new teams in areas where

we do not already back existing teams. We have been diligent to date in our investigation of the quality of the rock and in the execution required to exploit these areas that has been shown." In more marginal areas, he added, it is more important for teams to make a strong investment case.

There have also been deals that were not completed. "We have worked on capital support for existing operating companies with both public and private parties," Cochran said. "But none bore fruit. In most cases that was because the sellers could not come to terms. We would be in the middle of a transaction and the sellers would move the goalposts." He acknowledged that sort of thing is not unusual in a rising commodity market, but the event is no less frustrating.

That is not to say there is any lack of deal flow. "There is a constant stream of small deals, usually acreage swaps for optimization," Cochran said. "There can sometimes be a bit of cash to round out a deal, but mostly the idea is to make an even exchange. Those types of transactions, especially if they are net neutral on financing, don't make the headlines. It's really just trading baseball cards. That activity is natural and has been steady at the rate of several transactions a month."

Reeling in the years

Several capital providers have noted that buyers are waiting longer into the development cycle than they have in recent years, but Cochran said that is really only a reversion to the



"We are seeing more proposals with earn-outs tied to future commodity prices. That's something that is easy to measure...," said Curt Shaefer, managing director, Outfitter Energy Capital.

historic mean. "That is now just back to normal, that we expect to own assets into production. There was a period when buyers wanted to purchase sooner than that, but now they want some production and operational history."

He also noted that some buyers are asking that personnel be included in a transaction; sometime just a few key people, other times most of the staff. "Also, every sale these days seems to come with some equity portion." Most PE firms are content to be holding assets longer, but the new equity tails can be more complicated, depending on the PE firm's mandate.

Sometimes fund managers get to adjust their mandate. The founders of Outfitter Energy Capital are the former managers of the private-equity arm of Tudor, Pickering, Holt & Co. Outfitter continues to manage the funds its partners helped establish for TPH, known as TPH Partners, as well as its own.

For the latter, Outfitter makes equity commitments of \$20 million to \$100 million for upstream operators. It also makes "opportunistic" investments in the midstream, according to Curt Schaefer, managing partner with Outfitter.

Midstream includes water, he noted. Recently there was

a sale of the water assets of an upstream company within TPH Partners II.

If further capital is needed, the managers seek direct investments from limited partners, rather than commit more capital from the fund. That is done in order to prevent over-concentration of risk.

"We try to find operators who know an area very well, so we don't need 50,000 acres," Schaefer said. "Maybe we only need 10,000 to 20,000 acres of good rock, in the fairway or just off, as long as there is good support for the rock quality."

Value remains an important factor in that rationale. "Valuations are still high in some places, but we are starting to see some moderation," Schaefer said. "Prices are coming back to earth." That has a great deal to do with the outlook for crude prices.

Where there have been dislocations on price expectations, buyers have been more willing to get creative on deal

structuring. "We are seeing more proposals with earn-outs tied to future commodity prices. That is something that is easy to measure and can't be manipulated by either side, so it is a reasonable approach to bridge a valuation gap," Schaefer said.

Shortness of reserve-based lending

Strong global demand and relatively stable prices are also bringing back the original upstream option: reservoirs. "People are looking again at conventional development," Schaefer said. "The interesting thing about those assets is that because of the lack of competition, the usual metrics don't apply, at least for now."

In that newly reopened conventional segment, smaller PE firms have an opportunity to get in on low-cost production. "There is a real chance to buy smart," Schaefer said. "The problem is an exit strategy. The upstream MLPs are gone. There is a void in the buyer universe. Someone will step forward, but at present who or when is not clear. PE firms are always thinking about an exit, but if that cannot be identified clearly at the inception, it is often too big a risk."

Outfitter itself does not participate directly in either pure non-operated or mineral-rights investments. There is some

non-operated participation by some portfolio companies, but that is a small percentage of what they do and their primary focus is operated positions. "Those can be attractive segments, but not for us," Schaefer explained. "You can't control the pace of development, there is often a lack of visibility and there is not a clear exit strategy. That is part of the reason those tend to trade at a discount." He added that there has developed a "decently liquid market for both of these types of assets, but they trade at a discount largely due to the factors already cited."

Schaefer says he has seen more creativity in use of debt, but is careful to stress that this is not the same kind of creativity that got the financial sector into trouble in the last recession. To the contrary, the new regulations on lending have forced upstream operators and investors to look for sound but flexible ways of lending.

"Given the tight handcuffs imposed by the Office of the Comptroller of the Currency] on commercial banks, 3.5x EBITDA, there is still a need for cash to develop reserves. It used to be that was accomplished through reserve-based lending. That is not as easily accomplished, so there are now a lot of new groups on the debt side to meet the need," Schaefer said.

Sometimes that drives some drift. "There are mezzanine lenders that start conservative and then become more aggressive as competition for deals heats up. They start to take on more risk and it starts to look more like equity."

NewCo over DrillCo

"We are players in the lower middle market," said Todd Overbergen, managing partner with Stellus Capital Management. "We work under the big-ticket PE houses with a more project-oriented approach. We will work with a team that has an unconventional acreage position and drill it until it is all 'PUD up' [proved undeveloped reserves]."

Stellus operates with the approach that once a producing company gets beyond \$500 million, it becomes more difficult to find a buyer. "The public companies are all still digesting the big transactions, but there are still buyers at our level of asset sales in the \$150 million to \$500 million range."

As an example, Stellus has just completed a deal to support an initiative in the Eagle Ford where a team is drilling horizontal wells in the Austin Chalk near the Giddings Trend. "We put together the funding, and the first two wells were to be completed in September. We love it when a management team also invests their own time and a significant amount of money."

Overbergen makes a clear distinction between the traditional NewCo LLC structure that Stellus prefers, and the DrillCo structure that has become common.

"With NewCo we own 50% or more and the partners own the rest. DrillCos are mostly debt vehicles; they certainly get a

> debt-like return. It is an entity appropriate just for certain de-risked acreage. The capital provider gets first money out plus a return. The working interest reverts to the operator. We prefer to have some control and to have an uncapped upside."

Equity may be acting a bit like debt in some cases because debt is looking less like debt. "It used to be that an entrepreneur would put in some capital to drill some wells and then go to a bank to finish the program," Overbergen recalled. "Now with the limitations on commercial banks there is a need to replace that capital. We can come in with NewCo equity, and we are starting to see more funds put together to underwrite unitranche and stretch debt."

Back on the equity side, Stellus prefers operating interest in unconventional assets to non-operated for the same reason it eschews DrillCos. But it will consider a project in mineral rights. "We have participated in that segment

historically," Overbergen said, "and we are glad to see that it is becoming more liquid with more institutional buyers for what used to be a highly individual asset."

In a back-to-the-future note, Overbergen noted that Stellus "has always looked at conventional reservoir assets, and we will continue to. We see favorable operations with lots of running room and compelling returns." The snag, of course, is the lack of any obvious exit strategy in today's market.

"Conventional is not a PUD play today," Overbergen said. "People will generally only pay PDP [proved developed producing] value for conventional assets that are PDP with PUD upside. There are a lot of conventional assets that make sense at \$60 per barrel and we think buyers will be coming back to the market as the returns come back. We are looking at hold times of three to five years and by that time the markets will likely have changed. In the meantime, we are underwriting the returns of converting PUDs and probables to PDP."



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LENDING TRENDS

Upstream Producers Watch Energy Lending's Upswing

An improved oil market sets the stage for brighter days in energy lending.

By Ellen Chang

The market for energy lending is on the upswing as crude oil and natural gas prices have stabilized and energy lenders and their E&P clients have more confidence in the production of upstream companies that underpins lending. Lending to oil and gas companies has increased as market volatility has declined and a more stable outlook emerges.

The upstream market has "vastly improved" in 2018 compared with 18 to 24 months ago when the energy industry underwent a "very dark period," said Brian Tate, executive managing director and energy and natural resources group head for Regions Securities.

With oil prices now hovering between \$65 per barrel (bbl) and \$70/bbl, the environment has improved. The market began to reverse course in 2017 as oil prices recovered and banks regained confidence in the growth of companies.

In December 2017, Regions Securities was the sole lead arranger for a \$150 million senior secured credit facility for Winright Resources. This year the bank has been involved in several major loans and capital market transactions. It served as the joint book-running manager for \$600 million in senior notes for CenterPoint Energy, as co-manager for \$400 million in senior notes for Oasis Petroleum Inc. and as the joint lead arranger for a \$1 billion senior secured credit facility for Chief Oil & Gas LLC.

The bank also served as the co-documentation agent for a \$700 million reserve-backed loan and was a joint book-running manager for the \$850 million, 9.75% senior notes issued by Comstock Resources Inc. The company had exchanged 88.5 million shares of common stock with Dallas businessman Jerry Jones for oil and gas properties in North Dakota and Montana valued at \$620 million, along with a comprehensive refinancing plan that included a cash tender offer for the outstanding senior notes, a redemption of any untendered senior notes and the closing of a new bank credit facility.

"The Comstock refinancing transaction is a good example of Regions Securities' ability to raise capital in both the

bank and bond markets to support our clients' growth strategies," Tate said.

Leverage levels for many producers have also dipped compared with when oil prices were barely breaking the \$40/bbl level, he added. For the past six months, the upstream sector has shown signs of a remarkable turnaround, resulting in Regions Securities adding new clients who are entering into new reserve-backed loans and issuing high-yield bonds.

"We are two to three times better off today as most producers are now operating well above their breakeven level, have positive cash flows and are living within their means," Tate said. "The experience of the last three years has motivated upstream companies to deleverage their balance sheets and rightsize their leverage levels."

Debt markets gaining traction

Where is the focus now? It is on increasing producers' borrowing base loans and conducting their semiannual redeterminations. Many companies now see the

merits of obtaining new loans because they did not have access to capital markets for the past few years. In addition, some are pursuing their first bond issuance in several years as the environment for interest rates is headed upward.

"When you look at our current rising rate environment, it is very wise to tap the capital markets and issue a 10-year bond at a fixed rate," he said. The bonds give companies more flexibility for the next decade until they mature, giving them the ability to pay off their bank loans.

"It is a very attractive time to be issuing debt in the capital markets," Tate said.

Rising oil prices have helped upstream companies tremendously, allowing them to optimize production, operate at profitable levels, generate free cash flow, pay down debt and allocate more money for capex.

"Right now you have an environment where oil prices have been relatively stable," he said. "The economy was overheating when oil prices were in the \$90s. When oil prices reached \$110 a barrel, companies were worried it would crash, but when it was only \$26 a barrel, companies knew prices would turn around eventually. Oil prices are right where they should be—not in that overheated or depressed place."

Another risk is the overproduction of oil, resulting in oversupply that causes prices to plummet. Hedging allows companies to lock in today's prices.

Energy lending activity rises

The energy lending market has turned a corner as more loans and transactions are being completed, said Mark Thompson, a senior vice president of the oil and gas division at U.S. Bank in Denver.

Activity has increased among the bank's clients, who

include 55% producers, 40% midstream companies and 5% refining companies, he said. In 2018, U.S. Bank has doubled its transactions compared to 2017 and has worked with a number of public and private companies of various sizes, and smaller private companies backed by private-equity firms.

"Energy banks are clearly open for business," he said. "In the past 18 months, more lending transactions have been able to be completed."

The stability of oil and gas prices has led to an increase in activity, as many companies are able to grow organically, while others are pursuing mergers or property acquisitions for immediate growth and to position themselves for additional growth.

"Producers were eager to step up their development activity when oil prices first began to recover in 2016 and this led to the most recent price pullback in the spring of last year," Thompson said. "Producers seem to be evaluating their development opportunities with a more

critical eye since then and keeping their capex within cash flow while avoiding taking on new debt."

One trend the bank has noticed during the past three borrowing base cycles is that many of these clients are able to grow their reserves, cash flow and bank borrowing base loan commitments without a corresponding increase in their funded debt, he said.

"Loan commitment utilization rates for some companies are actually decreasing," he said. Companies are now able to grow their earnings without obtaining higher leverage levels.

"We are generally not seeing an increase in outstanding loans or commitment utilization," Thompson said. "The way a lot of bankruptcies were resolved has made equity and debt markets fairly cautious."



head, Regions Securities

During the past few months, companies are also closing more offerings as oil prices have remained relatively stable.

M&A tailwinds and headwinds

One positive trend is that many companies are seeking more merger and acquisition (M&A) activity, including private-equity-backed companies buying non-core assets from other companies. The larger producing companies are narrowing their development focus by acquiring additional properties in their core operating areas while divesting properties in areas they consider to be non-core to their overall portfolio. This creates opportunities for banks to provide financing to the buyers.

The acquiring companies tend to have one thing in common: a large amount of liquidity from equity commitments, allowing them to purchase smaller E&P companies utilizing bank debt, he said.

In fact, Thompson said, the majority of new lending relationships his bank has entered into during the past two years have been with recently formed private-equity-backed E&Ps that have acquired properties from other companies, rather than with companies needing to expand their bank syndicates to accommodate organic growth. Although both situations create new lending opportunities for banks, acquisition financing tends to lead to a greater increase in funded loans and higher commitment utilization, he said.

"M&A activity can be a double-edged sword for banks though, particularly with some of the larger acquisitions such as Concho's acquisition of RSP Permian and EQT's acquisition of the Rice companies this year," Thompson said. "In these cases, banks typically lose their relationships with the acquired companies, but may not have an opportunity to expand their relationships with the acquiring companies. This creates quite a headwind for banks that are trying to grow loans."

While some investment banks are missing out on more bond and equity issues due to the surge in acquisition activity, often the acquiring company issues bonds a few months after the deal is completed to pay down the bank loan.

The lending guidelines approved in 2016 by the Office of the Comptroller of the Currency (OCC) leveled the playing field for energy banks. Now, loan transactions are structured within these guidelines, but one consequence is that banks are finding it more difficult to be creative and provide credit facilities outside of those guidelines. Banks also have to reserve more capital behind oil and gas reserve-based loans, which increases the cost of financing.

"Most bank loan transactions are now structured within or close to the OCC's cash flow leverage and loan payout guidelines," Thompson said.

One negative consequence of these relatively rigid guidelines is that domestic banks now have less latitude to use their lending experience to provide more aggressive credit outside of these guidelines when it might be warranted.

"An aggressive loan has to be more harshly riskrated, which requires more bank capital to support them, which increases banks' costs of providing the loan from a return-on-capital perspective," Thompson said.

Since oil prices have been less volatile in 2018, it benefits producers and creditors who are wary of price trend uncertainty.

"After having been through the collapse of oil and gas prices the past few years, both banks and bond and equity markets that were snakebitten by a number of bankruptcies still have some concerns about providing capital to producers," Thompson said. "We are satisfied that oil and gas prices seem to be at an equilibrium level without resulting in an oversupply—the inventory numbers in the past year have demonstrated that."

> A looming threat is a potential slowdown in the global economy and its impact on oil and natural gas demand. Geopolitical risks are always possible as many countries face uncertainty in their currency, such as Venezuela, or trade tariffs, such as Iran.

> Producers in many states are now reevaluating their plays with a more critical eye because oil prices dipped to \$26/bbl two years ago. Banks have also been fairly conservative with their oil and gas price decks to evaluate production loans. When prices fell by such a large percentage, banks focused on credit quality within their own portfolios because some producers had reduced their drilling activity.

> However, the stability and improvement of prices is leading banks to raise their price decks and approve more loans.

> "There are more opportunities for the energy banks and more of these are getting done now," Thompson said.

> The robust market activity has resulted in larger borrowing bases for E&P

companies, said Lester Keliher, executive vice president of energy for Texas Capital Bank.

"Continued strong oil prices have resulted in a more vibrant finance market than a year ago, though now it is more competitive," he said. "Competition is showing up primarily as pricing pressure and higher advance rates, which is good for producers."



lending transactions have been able

to be completed."—Mark Thompson,

senior vice president of oil and gas divi-

sion, U.S. Bank

Midstream lending concerns

The construction of several pipelines from the Permian Basin to Houston refiners or export facilities is a positive step that helps producers move oil and gas, but many of these pipelines will not come online until 2019 or 2020.

On the hedging front, the Permian basis differential has emerged as a reminder of incremental risk since the spread can range from \$5/bbl to \$15/bbl, depending on the length of time the multiple planned pipelines will be constructed.

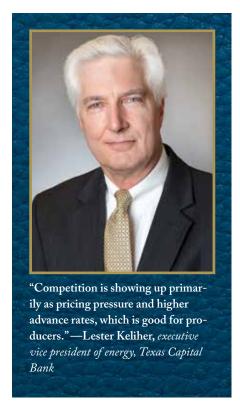
The question for producers: Is it smart for them to continue drilling if shipping is so expensive or should they wait for the pipelines to be built?

"We expect the larger companies and majors to partially reduce their production ramp-up and wait to see, which could be a good thing and might take some downward pressure off oil prices," Keliher said. "Right now, the Permian is creating such a boom market, and there is so much oil and gas available nationally, that we are seeing downward pressure on both commodities."

The surge in gathering and pipeline construction in the Permian market has changed midstream financing terms. This has resulted in banks financing systems during construction with the transaction being structured on a debt-to-capital basis, compared with post-construction as a multiple of cash flow, which was the strategy used in the past, he said.

Banks also generally have greater interest in minimum volume commitment contracts than life-of-lease contracts, although in prolific basins, acreage dedication contracts have worked well in areas with significant development and with shippers with large capex budgets, Keliher said.

"These are basically construction loans and only work in very prolific markets," he said.



Private-equity-backed firms face challenges

The time line for holding E&P investments has also lengthened. In the past, private-equity firms would acquire acreage, drill four to 10 wells and sell to a larger producer like a major. The majors would drill over the next several years and invest larger amounts of capital.

The trend has changed and now the majors have acquired enough acreage to satisfy their inventory for a while, resulting in the buy-side becoming muted, Keliher said.

Today private-equity-backed companies have to wait longer to exit their investments and are forced to decide how to allocate capital for current and future drilling.

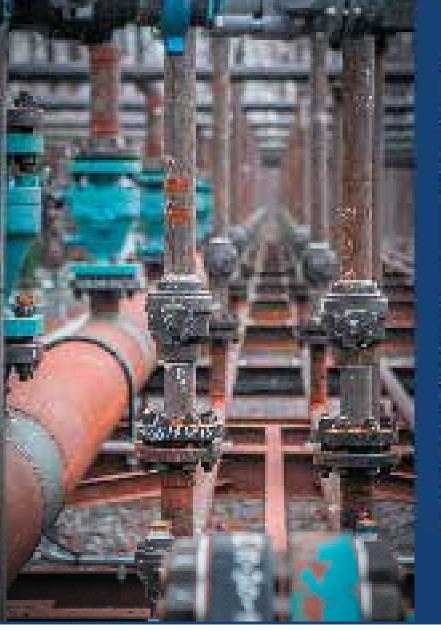
"We have seen a slowdown on the acquisition side and companies are being forced to hold their assets for four to five years instead of two years and flipping the acreage," he said. "Now management has to decide how

to finance themselves while continuing to fund their drilling program until they can find a buyer."

Since private-equity firms and management teams generally prefer debt over investing more of their own capital in these assets, it is creating opportunities for bankers.

"The economics are a little more challenging," he said, "but it is still a great time to be in the oil and gas industry."





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FINANCIAL NEWS ROUNDUP

Industry Signposts Reveal 2018-2019 Trends

The news briefs compiled here examine the general direction of market sentiment.

Compiled by Oil and Gas Investor

Throughout the year, we think it is useful and important to provide some general context for capital providers and those seeking capital infusions, as we believe market sentiment and various macro factors can affect what is possible and on what terms.

Naturally, the forward commodity price takes center stage in any financial negotiation. But equally not to be overlooked are the key qualities of a management team, its assets and its business plan, which will remain the primary drivers that underpin any decisions on a term sheet.

Whether you are an executive of an E&P startup or of a more established company looking to grow, plotting the budget parameters and the next strategic moves requires broad thinking about the macros just as much as looking in the weeds. Here, we provide some signposts we have seen from a variety of sources in recent weeks.

Service cost trends

"Given significant changes to completion designs over the last three years, sand has become an important component in a well's authorization for

expenditure (AFE). While proppant cost ran hard in 2017, regional supply growth in the Permian and other prolific oil and gas basins is set to create an inflation tailwind in 2019.

"Based on recent conversations with our coverage, roughly 40% to 50% of Permian operators' proppant needs began to be sourced locally as of second-quarter 2018 with the Delaware lagging the Midland in terms of adoption. By year-end, our coverage (on average) expects to source 70% to 80% of proppant locally. This is important as cost to buy in-basin product looks to be running about 50% below Northern White or Brady Brown sand pricing. This should translate to a \$250,000 to \$500,000 reduction in well cost or 4% to 6% of the average AFE."—Tudor, Pickering, Holt & Co.

"Broadly speaking, most E&Ps at the [August 2018 Enercom investment] conference expect service cost inflation to be tame over the coming months; Wage inflation, potential cost increases related to steel tariffs (wellheads, steel pipe, etc.), and land drilling day rates seemed to be the areas where operators believe non-trivial inflation is most likely."—Simmons & Co., energy specialists of Piper Jaffray

"...This isn't a down-cycle. It is a pause. Activity will begin to pick up in the Permian by mid-2019, to have production growth ready for the opening of new pipeline capacity. Companies are hiring and adding unfinished inventory in preparation.

"It is a point on which we have very high conviction. The problem is, though, where does pricing bottom? 'When' can be figured out. Where,' in terms of margins, is a very different issue. From reports we are getting on everything except drilling rigs, pricing and the always 'more impactful' utilization are declining. Reports are of undercutting pricing by about 20% in some instances, and competitors are matching that."—Credit Suisse

Capex

Out of 40 public E&Ps covered by Raymond James' research analysts, "notably, 50% of our coverage beat Street production estimates [in the second quarter], 60% beat on cash flow per share, and 60% beat on EBITDA, while about 60% missed on capital spending, and nearly 70% raised capex guidance for the year."

"At face value, the market seems to view almost any capex increase as a negative (an ode to the desire for greater capital discipline), especially when coupled with limited production growth. However, we believe that the issue here is more of timing rather than rampant service cost inflation and falling capital efficiencies.

"For larger operators that are in the process of switching to larger batch-style completions, much of the capital increases can be linked to large multiwell projects where the production impact will not be felt until 2019."—Raymond James

Chinese oil demand

"China's crude oil imports from the U.S. fell sharply in July and August from June as state-owned Sinopec, the world's biggest refiner by capacity, was forced to reverse plans to lift significantly higher volumes of U.S. crude this year.

"China received 14.1 million barrels (MMbbl) of U.S. crude in June, which was a historic high, but volumes subsequently fell to 9.6 MMbbl in July, and August arrivals in China were expected to be at 8.5 MMbbl, Platts' database indicated."—S&P Global Platts

Oil exports

"The prevailing consensus view is that, given the magnitude of new Permian pipelines expected to be brought online in second-half 2019, about 1.8 million barrels per day (MMbbl/d), Permian transportation occlusions will be concurrently relieved with the commissioning of these projects in the second half of next year. But, Plains All American Pipeline, speaking at the Enercom conference in August, disabused the Street of such a seamless outcome.

"Plains said that pipelines coming online, but without sufficient downstream connectivity, will still yield constraints. It added that "requisite Gulf Coast export capacity will likely not be ready as pipelines are commissioned [because] 'construction of the docks will carry on into 2020, so there's a chance that some of this bleeds over.'

"Current Permian oil production, according to the Energy Information Administration (EIA), is in the vicinity of 3.3 MMbbl/d. Current nameplate takeaway capacity is 3.6 MMbbl/d and effective capacity is likely closer to 3.4 MMbbl/d."—Simmons & Co.

Gas storage

"After marking our storage balances to market to account for recent data, demand outperforming our expectations thus far in [fiscal year] FY 2018, our storage estimate for Nov. 1 decreases to 3.2 trillion cubic feet (Tcf) from 3.4 Tcf, down from between 3.4 Tcf and 3.6 Tcf previously, which screens favorably relative to the prior year and 5-year average, both at about 3.8 Tcf.

"However, our Nov. 1, 2019, storage estimate (which assumes 'normal' weather) remains unchanged at 3.7 Tcf to 3.9 Tcf."—Simmons & Co.

At 2.435 Tcf as of late August, Lower 48 inventories measure 21.9% below year-ago levels and 19.7% below the five-year average.—EIA

Natural gas price outlook

"Given our forward expectations for storage, we continue to believe there should be an upward bias to the forward strip through FY 2019 (FY 2018 strip and FY 2019 strip: \$2.90/ Henry Hub and about \$2.80/Henry Hub). Notwithstanding the potential for more favorable near-term pricing, we continue to view natural gas as a range-bound commodity over the medium term."—Simmons & Co.

Global LNG

European Commission energy and trade officials came to Washington, D.C., in August to follow up on an energy agreement made earlier between the Commission's president, Jean-Claude Juncker, and President Donald Trump. Europe pledged to import more LNG. It received about 10% of total U.S. LNG exports in 2017, up from 5% in 2016. Europe has imported more than 40 LNG cargoes since Cheniere Energy Inc.'s Sabine Pass export terminal opened.

"The EU is ready to facilitate more imports of LNG from the U.S.," Juncker said. "The growing exports of U.S. LNG, if priced competitively, could play an increasing and strategic role in EU gas supply."—Bloomberg

"U.S. LNG exports have nearly quadrupled from 184 billion cubic feet (Bcf) in 2016 to 706.4 Bcf in 2017. That was worth about \$3.3 billion. Estimates say they will rise to more than 1 Tcf in 2018, making the U.S. one of the world's biggest LNG exporters.

"In first-half 2019, look for Tellurian Inc. to reach a final investment decision and begin construction of its Driftwood LNG export terminal in Louisiana. Operations could begin in 2023. The \$27 billion project involves GE, Total and Bechtel. Driftwood's production capacity will be about 4 Bcf/d, or 27.7 million tonnes per annum."—Reuters

Gas exports to Mexico

Four natural gas pipelines are expected to start operations by year-end, thus significantly increasing U.S. natural gas exports to Mexico. Natural gas exports across the southern border already reached more than 5 Bcf/d in July.—EIA

General investor sentiment

"Higher crude prices inspire E&Ps to spend, to the dismay of investors. Investors prefer setting a capital budget at \$50/bbl or \$55/bbl and not changing it with higher crude prices. Fear that E&Ps will return to spending over capital return drove stocks lower, in our view. E&P capital increases without corresponding production growth [on second-quarter calls] were met with disappointment from investors."—Cowen & Co.

Institutional data tracker Pregin, based in London, conducts a survey of institutional investors' plans and sentiments every June, receiving 530 responses this year. This includes pension and endowment funds, family offices and portfolio money managers.

The 2018 results indicate that in order to diversify, 50% of these investors allocate capital to at least three or more alternative asset classes. Categories include natural resources (comprised of oil and gas, timber and mining), real estate, infrastructure, debt funds, and private equity and/or hedge funds. The bulk of the choices they commit capital to is private equity and real estate investment funds, with 37% choosing natural resources as a portion of their portfolio, primarily in North America.

Some 56% of all investors who responded said they think the equity market cycle has peaked.

Some 62% of the investors in natural resources specifically said they plan to commit fresh capital in second-half 2018 and 18% said first-half 2019, suggesting an active year ahead. Also, 30% said they plan to invest more capital in natural resources now than in the past 12 months. However, an even greater percentage, 43%, said they plan to invest more in infrastructure opportunities.—Preqin

Private-equity news

Juniper Capital III LP closed at its hard cap of \$677.5 million, including \$27.5 million from the general partner, Juniper Capital Advisors, which is based in Houston. It makes upstream commitments in the range of \$25 million to \$75 million.

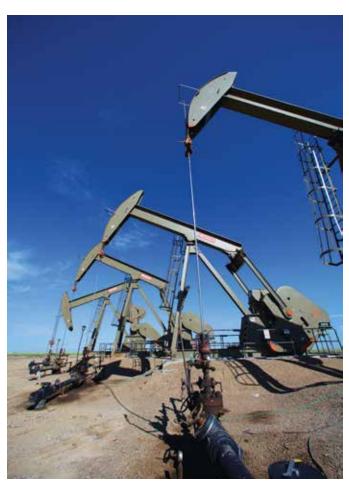
Tailwater Capital LLC closed Tailwater Energy Fund II at a hard cap of \$900 million and raised a co-investment of \$100 million, to total \$1 billion of fresh capital to be used to acquire and grow midstream assets. It also will participate in non-operated upstream opportunities in select basins via the firm's E&P-related funds.

Houston-based Candor Midstream LLC, led by President and CEO Darrel Hagerman, a 33-year energy industry veteran, secured \$200 million in new funding from EnCap Flatrock Midstream in August. Candor provides midstream services to U.S. oil and gas producers.

Houston-based Commander Oilfield Services LLC, which provides pumping solutions for the oil and gas industry, received \$5 million in additional financing from Tiger Capital Group. The capital infusion will help Commander grow by adding specialized equipment and expanding its services. Commander is backed by **Norse Partners**, a Norwegian firm.

Morgan Stanley Energy Partners (MSEP) said it has acquired a majority equity stake in Midland, Texas-based Catalyst Energy Services LLC, a provider of pressure pumping services. The financial terms were not disclosed. Proceeds from MSEP's investment will be used to purchase state-of-the-art, Tier Four pressure pumping equipment specifically designed to maximize pumping efficiency.

Post Oak Energy Capital LP, through investment partnerships it manages, announced that it led a \$100 million equity commitment to Saxet III Minerals LLC, Houston. The management team will co-invest alongside Post Oak, which also funded Saxet I and Saxet II.



Want to accelerate production? Increase reserves? Rationalize your capital structure?

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Munich Re, the multinational insurer that knows the energy business through its longstanding presence in energy risk underwriting, is pleased to offer an additional service: reserve-based lending to established middlemarket oil and gas producers in North America.

"We are excited to enter the market by providing a nondilutive, unitranche debt alternative to producers," says Vice President Chad Mabry, who joined Munich Re this year after a career as an E&P research analyst.

"Our target size is \$50 million to \$250 million, we are agnostic as to which basin or play, and we can conclude most transactions in about 60 days."

Munich Re is able to advance more capital on PUDs than a traditional bank RBL, providing greater total leverage to E&Ps looking to grow reserves through the drillbit. "We are fortunate in that the multibillion-dollar, AArated balance sheet of Munich Re provides us with substantial capacity. We can offer a complete financing solution, whether to finance growth or monetize your PUD locations, or to hedge your risk," Mabry says.

Munich Re offers a project finance structure whereby the subject properties are placed in a special purpose vehicle that shields the rest of the client's assets, says Justin Moers, managing director. "The advantage is that recourse is limited to the properties involved, allowing a more tailored use of leverage" he says.

"With our structure, the risks you are exposed to are limited to those within your control. As long as you deliver wells on time and on budget, you should be very successful."

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CATHAY BANK

Traditional Lending Takes On New Restrictions



"Clients have been very receptive to an established institution breaking in to provide senior bank debt. We are also keeping it very focused on RBL and related services."

—Dale Wilson, senior vice president and manager, oil and gas group, Cathay Bank

ith the double whammy of a tumble in oil prices and new restrictions on reserve-based lending (RBL) several years ago, more than a few banks that had been active lenders of development capital to upstream independents dialed back their activity. Some even left the sector entirely. Suppliers of second-lien, mezzanine, stretch and other forms of debt started moving in.

But one bank saw opportunity where others pulled back. Cathay Bank, based in California, entered the RBL arena just a year ago and has already established revolvers for multiple E&P clients. The bank itself is not new, dating its charter to 1962. "It was a good time for a bank with a strong balance sheet where there had been a lack of support," said Dale Wilson, senior vice president and

manager of the oil and gas group. "Clients have been very receptive to an established institution breaking in to provide senior bank debt. We are also keeping it very focused on RBL and related services."

Both operators and lenders already active in RBL have bemoaned the new restrictions imposed by the Office of the Comptroller of the Currency (OCC). Those limit RBL to a range of 2x to 4x trailing 12-month EBIT-DAX, with 3.5x the most common ceiling. Undaunted, Cathay saw an opportunity during a time when others saw only greater risk.

"With regulatory clarity everyone can participate," said Kelly Wu, executive vice president and head of corporate banking at Cathay. "The OCC wants to keep leverage at a certain rate, and that created an even playing field for lenders. At the same time, commodity pricing was still depressed, so we

saw more upside potential than downside risk. That is especially true for a well-capitalized bank with a strong platform. And we had one of our best years ever last year."

Cathay General Bancorp is the holding company, which is traded on the Nasdaq Global Select Market (NASDAQ: CATY). Cathay Bank operates 41 branches in California, 12 branches in New York state, three in the Chicago area, three in the state of Washington, two in Texas, and one branch each in Maryland, Massachusetts, Nevada and New Jersey. It has a full branch in Hong Kong, as well as three overseas representative offices in Beijing, Shanghai, and Taipei. As of Dec. 31, 2017, total assets were more than \$15.6 billion and market cap was about \$3.5 billion.

"We saw an opportunity to grow into a sector that is a significant portion of the U.S. gross domestic

product," Wu said. "The opportunity actually opened early in 2017 when we started recruiting. We brought Dale in and Stephen Bacala. Dale has almost 30 years of RBL and energy banking experience with HSBC, Citi, and Bank of America, as well as four years with Devon Energy Corp. as corporate treasurer. Stephen has six years of energy banking with several specialty institutions."

The focus for Cathay is very much on traditional senior secured RBL with conforming structures. That may include contracted or hedged offtake agreements. Cathay works directly with independent producers, as well as with other lenders to provide five-year revolving loans to fund drilling. While the preference is for first lien, Cathay will consider transaction structures that include second lien whereby there could be significant proved, developed, producing value that over-collateralizes the first lien.

Neither Wu nor Wilson would name specific borrowers, but they did describe a wide portfolio of public and private operators with annual revenues ranging from \$10 million to \$2 billion, EBITDA of \$5 million to \$500 million, and a credit rating of B to BBB- and non-rated. Public companies have a market capitalization of \$200 million to \$2 billion. Target deal size is \$30 million to \$1 billion.

"These borrowers are active around the Lower 48 states in various basins," Wilson said. Returning to the opportunities opened by the OCC limits on leverage, he added, "We have to be broad-based. The rules apply to everyone regardless of whether they are in oil or gas or in what basin. What the rules have allowed us to do is to go wide in our client selection rather than just having to focus on operators in one basin, such as the Permian or Eagle Ford."

Given the bank's strong connections across the Pacific Ocean, Wu

noted "a strong cross-border capability for inbound opportunities. Although we are an American bank with a long history, the bank is a link to potential strategic and private-equity buyers in Asia for oil and gas assets in the U.S."

Wilson elaborated: "If there was an equity investor out of Asia, the bank would be well positioned to facilitate. We understand investment in U.S. oil and gas. We have seen some private equity out of Asia, and we are a bank for one of those investors. But there is not any special focus that we have identified of capital from that region actively seeking specific opportunities in the U.S."



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Stephen Bacala

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EIV CAPITAL LLC

A Strong Partner For Energy Investment



"Shifting priorities for producers as they seek to maximize capital efficiency requires an experienced team that can quickly take advantage of opportunities regardless of size, geography or industry vertical."

—Patti Melcher, managing partner, EIV Capital

7 IV Capital, based in Houston, is an energy private investment firm that provides growth equity capital to small-cap and mid-cap North American energy companies. Founded in 2009, EIV has approximately \$1 billion in assets under management, raising three funds employing similar strategies, closing its most recent \$450 million fund in early 2017.

Experienced, entrepreneurial team sets itself apart

In the current environment with numerous funding options available, EIV's diversity of energy industry experience allows it to differentiate itself as a potential partner for entrepreneurs. Collectively, the EIV investment team has 200-plus years of experience investing in and operating energy companies with a diverse array of backgrounds, including operational, entrepreneurial,

commercial and financial. Due to this broad assortment of experience, EIV can quickly understand the business, capital and leadership requirements necessary for a potential partner to achieve long-term growth and profitability as well as identify and avoid possible challenges.

EIV's partners have started their own businesses and understand the passion and determination required to drive success in a growing business.

The firm puts a premium on being available for the entrepreneurs we work with and fosters a culture focused on transparency in decision-making and open lines of communication.

In many of its recent investments, EIV spent considerable time alongside its potential partner refining the business plan or providing strategic guidance prior to making an initial capital investment. EIV provides valuable, practical solutions and advice to its partners using firsthand personal experience, both at the outset of a partnership and during the company's growth.

The firm's people-first focus and nimble investment strategy led to starting a midstream engineering company at the bottom of the last cycle, which now has 200 employees and four offices providing funding for one of the first oilfield water midstream business platforms, investing in a renewable natural gas and CNG fueling business, and funding multiple traditional midstream gathering and processing businesses spanning from East Texas to West Virginia.

Focused investment strategy

EIV invests the majority of its capital in traditional midstream businesses such as transportation, logistics and processing. The firm also pursues opportunities throughout the energy value chain, including post-completion oilfield services, downstream, petrochemical, power and renewables.

EIV's thorough understanding of the energy industry allows it to partner with entrepreneurs focused on providing high-quality service to producers, midstream companies or other customers regardless of investment size.

While EIV's typical equity investment ranges from \$20 million to \$80 million, EIV is willing to invest up to \$200 million if the opportunity has an appropriate risk-adjusted return. EIV's focus on supporting teams as they build and operate good businesses, vs. having an emphasis on capital deployment, allows it to pursue niche opportunities and support its partners as their businesses grow into stable, profitable enterprises with steady cash flows that are attractive to potential acquirers.

EIV's recent activity across its funds continues to demonstrate the firm's capabilities. In April, EIV extended its relationship with Fullstream Energy Holdings, committing \$180 million toward the company's Marcellus greenfield pipeline and compression project in West Virginia.

EIV worked alongside management as the commercial and capital scope of the project shifted, ultimately providing flexible equity support to assure success of the project and provide incremental capital to expand the project's scope.

In January and August EIV helped support Woodland Midstream's commercial activities in East Texas as the company added two material bolton projects to its existing footprint. Woodland initially partnered with EIV in mid-2015 and successfully built an organic business focused on providing gathering and processing services primarily for new horizontal Cotton Valley and Haynesville drilling activity in East Texas.

Management and EIV's patient approach to shifting producer dynamics in 2016 and early 2017 positioned

the company to be well-situated to provide greenfield solutions for producers to access the optimal downstream market pricing for their commodities.

EIV's partnership with H2O Midstream to pursue oilfield water midstream opportunities expanded in 2018 as the water midstream market continued to mature.

Well before oilfield water logistics was a hot topic, EIV identified the sector as primed for growth, professionalization and cost savings. H2O



Midstream acquired Encana Corp.'s produced water infrastructure in Howard County, Texas, as its initial asset. The asset footprint included approximately 125 miles of gathering lines and 80,000 barrels per day (Mbbl/d) of disposal capacity.

H2O expanded both its customer relationships to include seven contracted producers today and its operating asset base to include 150 miles of high-pressure and low-pressure gathering lines, 150 Mbbl/d of disposal capacity, and the first commercial truckless produced water hub in Texas.

H2O was recently named as University Land's preferred water service provider across the southern Delaware Basin, an area of increased commercial activity for the company.

In February 2016, EIV partnered with CAM Integrated Solutions to form a new engineering, procurement and construction management company. CAM is focused on supporting midstream companies and producers with the "first mile" midstream tie-in from the wellhead to the main header/gathering system in top-tier producing basins within the Lower 48. EIV and CAM felt this market was underserved, as most engineering companies focus on larger projects.

CAM's experienced management team has built a well-regarded engineering firm of approximately 200 employees serving top producers within its first three years of operation.

Recently, EIV worked with management as they sought to integrate fabrication capabilities into their service offering for clients. Management has demonstrated integrating fabrication capabilities can cut design to field instillation time by up to 50% as CAM emphasizes a coordinated team-based approach to solving customer needs.

Personal support and relationships

EIV's experience allows it to provide commercial, financial, accounting and/or operational support to its partners that may not have a full suite of upper-level management in an effort to control costs.

By concentrating its investment focus and limiting the number of investments per fund, typically eight to 12, EIV ensures its operationally focused team can be a resource for its entrepreneurial partners throughout the investment life cycle. This ongoing support allows executive teams to focus on what they do best.

While the executive teams might be small, EIV firmly believes that partnering with the right people is key to

EIV CAPITAL LLC

delivering successful results. For that reason, EIV seeks to partner with motivated, ethical and experienced partners and enjoys getting to know its partners on a personal and professional level both prior to and during the company's growth cycle.

Establishing these personal relationships early creates a culture encouraging open dialogue and regular communication, allowing EIV and its partners to collaborate to avoid potential pitfalls, quickly act on growth opportunities, or solve the unforeseen issues that occur in a growing business.

Current opportunity set

Throughout its existence, EIV has upheld its fundamental strategy: to partner with high-quality management teams to pursue business plans based on solid operating fundamentals and

strong customer relationships requiring long-term service. These opportunities exist and can be profitable regardless of size, market cycle or geography.

The current environment presents opportunities for both first-time and serial entrepreneurs to identify inefficient or underutilized assets and work with capital providers, such as EIV, to enhance midstream operations, improve customer service and drive returns.

As unconventional basins mature, EIV is spending more time with entrepreneurs seeking to provide small-scale services (sub-\$100 million projects) to producers that recently consolidated large positions. EIV is happy working with teams and producers with line of sight to self-contained projects.

A lack of a requirement for broader platforms puts the focus on building and maintaining quality assets and focusing on the customer. EIV's institutional relationships give teams the confidence in capital support as projects and customer needs grow.

Most of EIV's investments are sourced through the team's personal and professional relationships, and EIV continues to evaluate a substantial number of high-quality opportunities. EIV is excited to partner with knowledgeable executive teams to develop profitable, customer-driven assets in the current environment.



eivcapital.com







GREY ROCK ENERGY PARTNERS

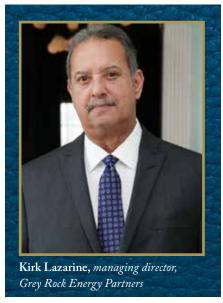
Building A Diversified Direct-Investment Portfolio



t Grey Rock Energy Partners, we are committed to building a diversified, direct-investment portfolio in premier basins across the nation. With a focus on nonoperated working interests and joint ventures, we partner with best-inclass operators, building investment positions with low breakeven costs.

Grey Rock recently closed its third fund, which was oversubscribed with \$232.5 million in capital commitments. This fund was raised entirely through institutional investors with the majority being repeat investors who participated in prior Grey Rock funds.

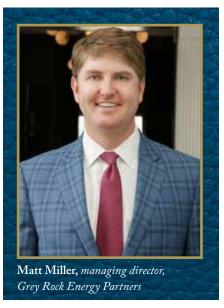
Based in Dallas, Grey Rock targets and acquires non-operated working interests in core unconventional basins by acquiring non-ops directly from current owners, or by providing joint venture capital to experienced operators.



With more than \$450 million of assets and committed capital under management, Grey Rock currently has interests in more than 2,000 wells in core areas of the Permian Basin, Bakken Shale, Eagle Ford Shale, Haynesville Shale and Oklahoma's Scoop play. The team has also evaluated investments in the Marcellus/Utica shales and the Powder River, San Juan and Denver-Julesburg basins.

World-class team

Grey Rock was founded and is led by three managing directors: Kirk Lazarine, Matt Miller and Griffin Perry. Together, they have more than 50 years of experience in the energy business, boasting a broad range of expertise and a proven track record of success in identifying and developing strategic investments.



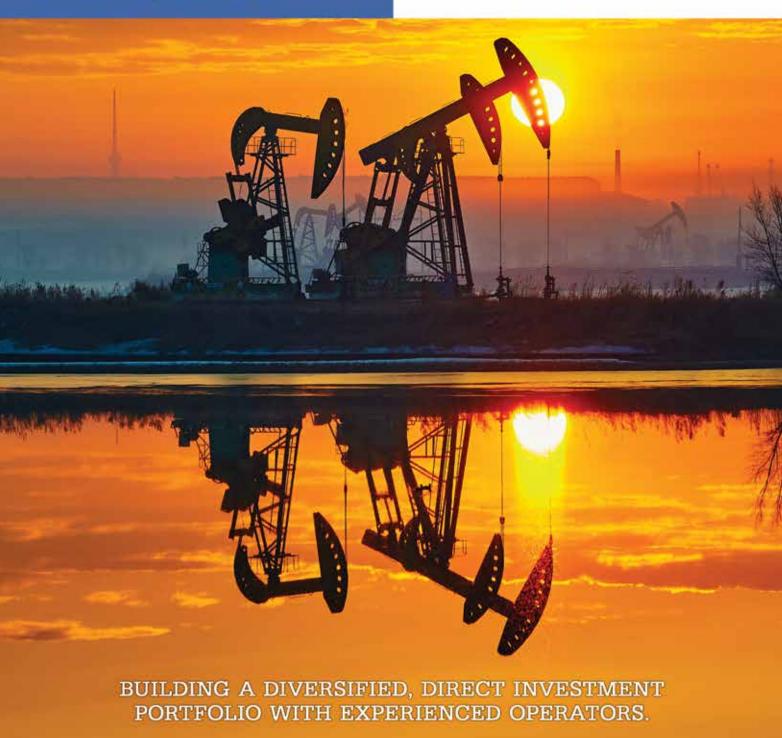
"We believe that developing a worldclass team with deep operational and financial expertise enables us to be a premier partner for operators and a preferential counterparty for sellers. Grey Rock is well positioned to deliver healthy, risk-adjusted returns in underserved areas of the oil and gas market, and we are excited about the opportunities we see going forward in the energy industry," said Matt Miller, managing director.



greyrockep.com

With more than \$450 million of assets and committed capital under management, we are focused on acquiring non-operated working interest and participating in joint-ventures in core basins. We partner with experienced operators and currently have interests in more than 2,000 wells in the Permian, Bakken, Eagle Ford, SCOOP and Haynesville plays.





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JUNIPER CAPITAL ADVISORS LP

Flexibility To Create Meaningful Value



"We generally target a minimum of 20,000 acres and we use a proprietary, well-level database along with our in-house experience and technical expertise to move quickly."

-Edward Geiser, managing partner, Juniper Capital Advisors LP

n a story demonstrating strategy and execution, Juniper Capital Advisors LP closed its second institutional fund earlier this year at the hard cap of \$677.5 million; of that, more than 30% has been allocated to three investments and about 10% has been deployed. Including the two funds and two smaller coinvestment vehicles, the total assets under management exceeded \$1.2 billion for the firm as of June 30.

This follows on a history of raising capital in good times and bad.

"The first quarter of 2015 was a wonderful time to deploy capital," said Edward Geiser, managing partner, "but it was not such a great time to be raising institutional capital for the first time." Nevertheless, that is exactly what Juniper Capital did. Juniper Capital II reached a first close

at approximately \$125 million by the end of 2015, which allowed it to begin executing on its investment strategy while continuing to raise capital. The fund conducted its final close at its hard cap of \$500 million a little less than a year later. Since that time, it has allocated all of its capital across nine upstream investments and about 70% has been called and deployed.

Today, Juniper has controlling equity stakes in 12 private energy companies, with one of those focused on the midstream business and the rest on upstream outfits.

Juniper's target investment size of less than \$100 million of equity per investment is large enough to create meaningful value with management teams, but small enough to avoid broadly marketed processes. And, its ability to expand the capital base of investments through co-investments from its A-list investor base provides a lot of flexibility to the firm and its portfolio companies.

"The oldest portfolio company we own is less than three years old, which is less than our typical development period for an investment, so we have not had a monetization yet from the two most recent funds. However, we have made a lot of operational progress with many of our investments and may have some news soon," Geiser said.

Before the formation of Juniper, Geiser was a managing director at Och-Ziff Capital Management, where he focused on private investing in the North America energy industry. "I focused on private, mostly upstream, investments. That was during the time that some of the top names in energy private equity were beginning to raise

JUNIPER CAPITAL ADVISORS LP

much larger funds. I thought that left a bit of a vacuum at the smaller end of the market, and that is what we have worked to address."

The senior members of the Juniper team, including Geiser, Richard Gordon and Kevin Cumming, initially began working together about 18 years ago. Collectively, they have been involved with more than 40 private investments in the energy industry with more than \$1 billion of private-equity capital invested since 2003.

Early in his career, Geiser assisted with the formation and investments of the first Juniper Capital fund, working for Gordon, who established the firm in 2003 with a smaller "friends and family" fundraise. "It's the same three guys who were the investment team for the first fund that now lead the firm together," Geiser said. "In that first fund we made eight investments, which produced some good results. It was a fantastic time to learn the private energy investing business from a veteran in the industry and by executing a range of deals."

Prior to Juniper, Gordon was a vice chairman of Merrill Lynch's investment banking group and head of the firm's energy and power groups. Between that first fund and the fundraising of Juniper Capital II in 2015,

Geiser honed his skills and expanded his network while at Och-Ziff. At that time, Cumming worked for another energy-focused private-equity firm and then co-founded a private energy company based in Colorado, gaining critical experience along the way. Once the trio reunited, they brought on key members of the team and now have a group of 13 professionals, including technical, financial and legal specialists with experience in various aspects of energy and private investing.

The broad background and network of the group is reflected in its diverse portfolio of operating companies, all with material positions in their respective focus areas. Juniper has two upstream portfolio companies in the D-J Basin in southeastern Wyoming and northern Colorado. That is also where its sole midstream company operates. Juniper also has pairs of portfolio companies in the Permian Basin, Powder River Basin and in the Eagle Ford.

"We also have a few other holdings in other basins," Geiser noted, "including the western Fort Worth Basin, where there are stacked oil formations at relatively shallow depths, and in southern Michigan, where our operating partners are working to redevelop a legacy oil field using today's technology."

The firm's most recent investment is in the Louisiana Austin Chalk, near an area where a number of larger players, including ConocoPhillips, EOG Resources Inc. and Marathon, have recently established acreage positions.

Each of its investments reflects Juniper's approach. "We can focus on smaller deal sizes and partnering with smart, scrappy operators to build high-quality positions in attractive plays. We generally target a minimum of 20,000 acres and we use a proprietary well-level database along with our in-house experience and technical expertise to move quickly," Geiser said.

"Once our position is established, we look to prove the productivity of the area by drilling, and we really focus on creating true partnerships with our management teams through clear and regular communication. This helps us not just at the time the investment is established, but also through its development and eventual monetization."



juncap.com





LIME ROCK PARTNERS

Lime Rock's Permian Crown Jewel Shines



"About two-thirds of overall capital commitments are to core positions. But if you look at actual money spent, checks written, only about half of that committed to the core has been spent."

—Jonathan Farber, managing director and co-founder of Lime Rock Partners

ust as operators show ingenuity in unlocking shale resources, private equity players have done the same on the capital side. A prime example is how Lime Rock Partners recently created a new fund to enable it and its limited partner (LP) investors to retain control of their crown jewel in the Permian Basin.

Lime Rock funds have received more than \$8.6 billion in total private capital commitments since being founded in 1988.

At midyear Lime Rock closed Fund IV Acquisition Fund (AF) at \$1.9 billion and with it, acquired the remaining assets of Lime Rock Partners IV, vintage 2006, with the objective of further appreciation of those assets.

The vast majority of the value now in the AF is in the controlling interest in CrownRock LP, a Midland,

Texas-based oil and gas producer operated by CrownQuest Operating LLC, which is also of Midland.

CrownRock is the largest privateequity-backed private oil and gas company in the Permian Basin, with more than 90,000 operated acres in the core areas of the Northern Midland Basin. It has become one of the most active private drillers in the U.S. and a significant resource holder in the basin, with production in excess of 50,000 barrels of oil equivalent per day.

"Most competitors took nice gains on their Permian positions," said J. McLane, who was promoted to chief investment officer in July. "No one gets fired for making 2x or 3x on their money. We had drilled 1,100 vertical wells and realized that we had at least 2,500 horizontal Tier One locations. Even though we had held CrownRock

for 11 years, we had only drilled 2% of the wells."

CrownQuest's management and employees and Lime Rock formed CrownRock in 2007 and remain the only common equity owners. All Fund IV limited partners had the option of reinvesting their Fund IV holding into the AF or receiving full or partial payment.

The AF, in which HarbourVest Partners served as the lead investor, received \$741 million in new capital commitments from a diverse group of primary and secondary investors and from Fund IV. However, employees of Lime Rock constitute, as a group, the single largest investor in the acquisition fund.

"Just as shale has unlocked incredible opportunities for development, it has also shrunk the group of assets

CROWNROCK TIME LINE

- **2007** Partnership formed between Lime Rock and CrownQuest Operating
- **2008** CrownRock achieves 20,000 net core Wolfberry acres
- **2009** Lime Rock invests last dollar of primary capital into the business (about \$75 million total)
- **2010** CrownRock achieves 45,000 net core Wolfberry acres
- **2011** CrownRock drills its 100th well and issues its first of a series of publicly traded bonds at \$150 million

- **2013** CrownRock adds 10th vertical-directed Wolfberry rig
- **2014** CrownRock drills its 1.000th vertical Wolfberry well and achieves 90,000 net core Wolfberry acres
- **2015** CrownRock adds first horizontaldirected rig
- **2017** CrownRock completes debt refinancing and first \$1 billion notes offering
- **2018** CrownRock adds sixth horizontal-directed rig; Lime Rock completes continuation fund to extend CrownRock holding period for up to 7 years

that are attractive for investment," McLane explained.

"Twenty years ago we were looking at production in Norway, Canadian gas, reservoirs around the U.S."

Thanks to the unconventional bonanza in the U.S. and parts of Canada, "a lot of oil and gas worldwide has become un-investable," McLane said. "That is because it can't compete. So investors are turning to alternative strategies. That includes holding onto a solid asset if you can continue development."

Exposure to the core

Jonathan Farber, managing director and co-founder of Lime Rock, elaborated. "Private equity did extraordinarily well in the 'land-grab' phase of unconventional development. Some acreage was acquired and eventually sold at 10x or more what was paid for it. Those who sold at \$10,000 or \$20,000 an acre felt they got fair value. Recent sales in the Permian have been at around \$40,000 to \$50,000 an acre.

"Now that we are seeing more resource-rich development, drilling has become more complicated. But fully valued, some Permian positions could be worth \$150,000 an acre."

It is no secret that the Permian is hyper-competitive. Farber noted another interesting statistic: "About two-thirds of overall capital commitments are to core positions. But if you look at actual money spent, checks written, only about half of that committed to the core has been spent."

The conclusion, Farber said, is that "the Permian is actually under-drilled based on relative quality of locations. Half of all U.S. drilling activity is in the Permian Basin. But if the entire U.S. fleet were managed by one rational allocation, there would actually be more drilling in the Permian."

Given that new reality, private equity is challenged to find creative ways to respond. "Others have answered by looking for value in fringe areas, by looking in other regions, and by investing in DrillCos. But historical returns on many of those strategies have not been great," Farber said.

He continued, "Our answer has been to create structures in the Permian that build exposure to the core. We have invested in Permian and other core shale minerals. We have put close to \$1 billion to work in what we feel are attractively priced long-term growth assets. We have invested in service companies focused on shale."

This strategy recapitulates the original thesis. Upstream independents and the service companies that support them have adapted to the new reality of the shale bonanza. Capital formation is starting to as well.

"When we look in and around the area where CrownRock operates," McLane said, "we see about a dozen remaining meaningful operators controlling almost all the acreage. At the same time there are 80,000 mineral owners. The nature of the opportunity set has fundamentally changed." ■



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PEARL ENERGY INVESTMENTS

Juality Partners Propel Pearl



"We worked with one of our teams to close a strategic acquisition which required closing in six weeks."

—Stewart Coleman, managing director, Pearl Energy Investments

earl Energy Investments is a Dallas-based energy investment firm with \$1.2 billion of committed capital under management. Founded in 2015 by Billy Quinn, the firm closed on its first fund in September 2015 and second fund in July 2017, both at their hard caps. Pearl focuses on partnering with best-inclass management teams to invest in the lower-to-middle market North American upstream, midstream and oilfield services sectors. The firm typically targets opportunities requiring \$25 million to \$100 million of equity capital.

The Pearl investment team has extensive investing and operating experience in the energy industry and believes in creating aligned partnerships with its portfolio company partners. To that end, each fund that Pearl manages will only invest in eight to 12 companies.

"We purposefully set out to size our funds and target equity commitments in this way, which allows us to exclusively pursue our highest-conviction invest-

ment opportunities in any given basin and avoid having competing companies in our portfolio," Quinn said. "We don't believe in stacking teams on top of one another. We prefer to back one team in a given basin, unless there is a meaningful differentiation with their strategy, life cycle or focus within a larger basin."

Pearl does not require an asset in hand in order to make an initial investment, in keeping with its philosophy of "management team first."

Since closing Fund II last summer, Pearl has closed commitments to four portfolio companies, including its first midstream commitment to date, Mettle Midstream Partners. Led by partners Matthew Innamorati and Drew Bredthauer, Mettle is a fullservice midstream provider focused on developing creative solutions that meet the growing demand for midstream infrastructure across North America.

"With substantial dry powder, we remain opportunistic, looking to partner with high quality management teams pursuing compelling business plans," said Pearl managing director Stewart Coleman.

"One aspect that we think differentiates Pearl is our ability to move quickly

and support our portfolio company partners with follow-on capital. As an example, we recently worked with one of our teams on a strategic acquisition which required closing in six weeks, while increasing equity commitments to the company by over \$200 million."

We asked Coleman if, in light of recent Permian Basin bottlenecks, the company is favoring investments in other basins.

"To start, all our investments are driven by the great management teams we partner with and where their specific expertise lies, so we don't favor any specific basin over another. That said, we view current Permian midstream constraints as a transitory issue, with solutions in process across all commodity streams," he said. "While current pricing factors into our hedging and capital budgeting decisions, we continue to view the Permian as a great place to deploy capital." ■



pearl-energy.com



PETROCAP

25 Years Of Project Partnerships



"PetroCap was able to see the attractive value potential in a legacy dry gas basin when others were avoiding gas plays altogether."

—Lane Britain, partner, PetroCap

ounded in 1992, PetroCap has offered E&P companies an alternative to typical energy private equity for more than 25 years. PetroCap works with experienced operating companies on oil and gas development projects with the goal of being a partner, not a boss.

Rather than backing a management team and becoming a controlling shareholder, PetroCap buys a majority non-operated working interest in a specific project as defined by the operator. This structure gives management teams control over their operating companies and allows them flexibility to pursue other oil and gas projects outside of their partnership with PetroCap. The relationship is governed by a joint operating agreement and side letter, both familiar to all operators.

With more than \$800 million of committed capital raised since 2010, PetroCap's differentiated strategy was created to provide capital to the independent operator and has found significant demand from this underserved segment of the oil and gas industry. Their target investment profile consists of an experienced operating team with an attractive drilling project requiring total capital between \$25 million and \$75 million, net to PetroCap.

Since 2010, PetroCap has invested in 17 projects with 15 operators in seven states.

PetroCap looks more like an oil company than an investment firm. "We have engineers, geologists, land people and accountants," said David Hopson, partner, "not directors, vice presidents and analysts. Our team spends more time looking at logs and

production curves than financial models." This unique team makeup allows PetroCap to collaborate with its operating partners and add value to all aspects of the project, including land/ leasing, drilling, production, geology, finance and overall project strategy.

"We target projects in basins with the highest full-cycle drilling economics. We are agnostic as to basin or commodity but tend to avoid areas with high entry costs and competition," said Marc Manzo, partner.

PetroCap's recent investments illustrate that approach. It formed two joint ventures with Catamount Energy Partners, a Denver-based operator, to acquire and develop San Juan Basin gas fields with multilateral horizontal wells targeting the Fruitland Coal and Mancos formations in La Plata and Archuleta counties, Colo.

"PetroCap was able to see the attractive value potential in a legacy dry gas basin when others were avoiding gas plays altogether," said Lane Britain, partner.

In addition to the San Juan, PetroCap also has active investments in conventional and unconventional projects on the Eastern Shelf and Central Basin Platform of the Permian, Williston, Eagle Ford and Anadarko basins and on the Texas Gulf Coast and in East Texas.

The smaller size and type of investments also mean that PetroCap does not face the same challenges to monetization that larger private-equity funds are encountering with the public markets currently unreceptive to most energy offerings.

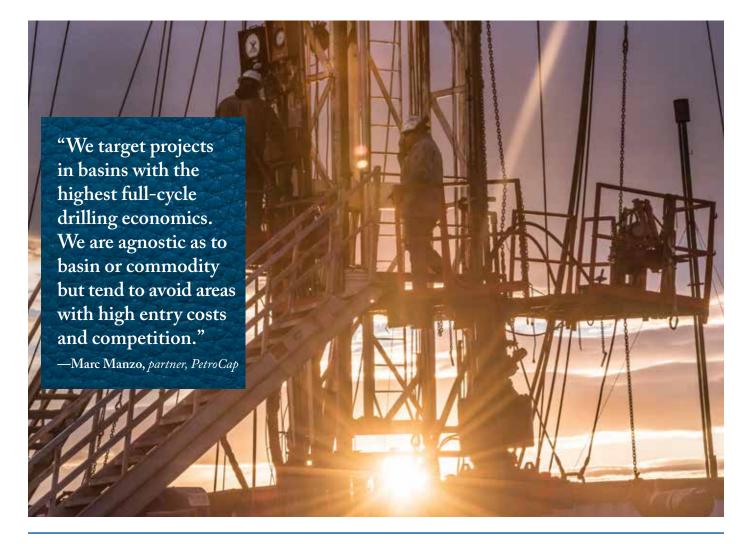
"We are happy to sell to public companies, and we have done so," Britain said. "But our usual exit is to independent operators. Sometimes they are private-equity-backed, but not necessarily. Our assets are often seen as ideal for a production-focused company or a springboard from which an operator can explore a deeper bench that is known, but which our operator has not developed."



petrocap.com

"We have engineers, geologists, land people and accountants, not directors, vice presidents and analysts. Our team spends more time looking at logs and production curves than financial models."—David Hopson,

partner, PetroCap





STEPHENS ENERGY GROUP

Ready To Run With Financing Opportunities



"Lately we are seeing a lot of acquisition financing opportunities. We're being contacted by groups that have won in an auction process and seek financing to complete the transaction."

-Keith Behrens, managing director and group head of energy, Stephens

tephens is a unique investment bank in that it may invest its own money alongside that of clients, meaning that it can provide varying forms and amounts of equity. "That has been a unique characteristic since our founding in the 1930s," said Keith Behrens, managing director and group head of energy. "We advise on raising third-party capital and have been fairly active in investing our own money."

Recently, Stephens has increased its activity in the midstream space, and is also working on several new privateequity deals. "We have a broad geographic area of focus in the oil and gas space, really anywhere in the Lower 48," Behrens said. "Lately we are seeing a lot of acquisition financing opportunities. We're being contacted by groups that have won in an auction process and seek financing to complete the transaction."

Keeping pace with demand, Stephens has substantially invested in growing its equity capital markets business and building up its bookrunning capabilities, said Wilbur Ellis, managing director, equity capital markets.

"Firm-wide, Stephens has served as a book-runner on 43% of its public equity deals in 2018 to date, up from 9% of public equity deals in 2012. Also of note, Stephens has served as a book-runner in the last three follow-on offerings for Abraxas Petroleum Corp."

In 2018 to date, Stephens has underwritten one IPO in energy, Quintana Energy Services, which raised \$96 million. The firm has also underwritten two follow-on offerings in energy, Halcon Resources Corp. and Carrizo Oil & Gas Inc. These two raised a combined \$282 million.

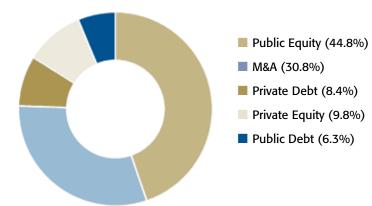
"Our energy pipeline remains strong for the remainder of 2018, with five Stephens-underwritten energy IPOs expected to price this year," Ellis said. Since 2009, Stephens has underwritten 64 energy public equity offerings that raised a combined \$25.6 billion.

The firm's equity capital markets practice is supported by full institutional equity sales, trading and research groups focused on the public companies in the sector.

Midstream upside

In addition to those upstream and oilfield services transactions, Stephens has also been active in midstream. One archetypal deal was concluded late in 2016, when Producers Midstream LP secured a \$100 million initial equity commitment from Tailwater Capital LLC. At the time, Producers was a

ENERGY GROUP TRANSACTION MIX



Source: Stephens Inc.

newly formed portfolio company with a broad geographic scope. The initial focus was on greenfield projects and acquisitions in Texas, Oklahoma and New Mexico. Stephens acted as placement agent to Producers Midstream.

Since the closing, Producers Midstream has secured an acreage dedication from Charger Shale Oil and announced building a 260-million-cubic-feet-per-day (MMcf/d) cryogenic gas gathering plant in Culberson County, Texas, according to Paul Moorman, managing director, energy investment banking.

The project is being executed as Culberson Midstream. The system is anchored by more than 40,000 net dedicated acres and a 1,000-square-mile area of mutual interest from Charger Shale Oil. Culberson, operated by Producers Midstream, follows the new "three pipes in a ditch" philosophy of handling oil, gas and water for upstream operators developing the prolific Wolfcamp, Bone Spring and Avalon formations in the western Delaware Basin.

Recent A&D deals

Another important development from 2016 that has borne fruit in the last two years was the addition of Charlie Lapeyre, head of A&D, to the energy group. Since he joined, the group has executed 10 acquisition and divestiture deals worth close to \$200 million. There are another dozen transactions in the works at various stages.

One of the more recent ones closed was Viking Minerals, for which Stephens provided sell-side advisory services. In March 2018, Viking completed the sale of 777 net royalty acres, leased by ConocoPhillips, in DeWitt and Karnes counties, Texas, in the core of the Eagle Ford Shale. Stephens served as exclusive financial adviser to Viking on the transaction, which netted \$28 million.

Stephens has made those types of transactions a stock in trade. In April 2017, Elm Ridge Exploration completed the sale of its San Juan Basin upstream and midstream oil and gas assets with Stephens as exclusive financial adviser on the transaction.

The upstream assets consisted of about 185,000 net acres in New Mexico and Colorado, and included more than 350 producing wells. That was in addition to undeveloped upside potential in the San Juan Basin in the Mancos/ Gallup, Fruitland Coal, Mesa Verde, Pictured Cliffs, Chacra and Dakota formations. The midstream assets consisted of more than 150 miles of gas gathering lines and associated gas processing and treating plants in Colorado and New Mexico.

Stephens has been a principal investor in energy since 1952, advising a client base of public and private companies on public and private debt and equity throughout their life cycles. The energy investment banking practice began in 2009 and has completed more than 140 transactions. There are 10 professionals in the energy investment banking group covering exploration and production, MLPs and oilfield services.

Another recent trend that Behrens noted is the attractiveness of proved developed producing assets.

"Buyers are content to pay for production and not anything more," he said. "We are seeing more of that. There are definitely private-equity funds that like this approach. They figure that if they are allocating value just to the current production, they're getting any upside for free."

Behrens has generated and led the execution of various mergers and acquisitions, public and private equity, as well as senior and mezzanine debt transactions representing in excess of 175 deals and \$36 billion in transaction volume.

Helping early-stage teams

There is no shortage of funds willing to back specialized entities to support particular drilling programs, known as DrillCos. "There are 15 to 20 groups providing private equity for capital to drill," Behrens said. "They also invest at the working-interest level. They do not take positions as a corporate equity investor."

Taking a closer look, however, Behrens still sees an underserved market on the small side. "There is a void. Drill-Co investors usually want to see at least five or six wells drilled before they show interest. But there are also a lot of early-stage management teams that only have one or two producing wells. That puts them in something of a Catch 22: They need capital to complete those few more wells, but they need the wells to secure favorable capital.

"The cost of DrillCo capital is about 5% below the cost of capital for traditional private equity," Behrens noted. So it is better to get that if it can be had. "You do want to bring that in first, before PE, if possible."

That said, the stock in trade for Stephens is both raising traditional funds for private equity as well as securing DrillCo financing. "We act as bankers

STEPHENS ENERGY GROUP

on a deal to bring in third-party capital. There is also the lower-cost bucket, which is debt. We do second liens and unitranche debt financings. And as noted, we also invest our own capital."

The goal for most operators is a simpler balance sheet, Behrens said. "If you want to sleep soundly at night, we can secure traditional private equity. That is more expensive. We can also run a parallel option on private debt-not bank debt. It is more like stretch debt or junior debt."

Another source of capital that Behrens said should not be overlooked is divestitures. "The acquisition and divestiture market can be very attractive as a source of capital," he said. "Proceeds from non-core areas can be redirected to core areas."

If an asset or a whole company fits the profile, Stephens has been active in the public equity markets.

"The asset or the company has to be big enough and the management team has to be strong. We have closed more than 140 deals in the past nine years. About 50% of those were public equity offerings, about 30% were M&A transactions and the other 20% were private capital raises."



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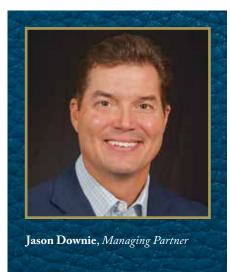
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Tailwater Capital LLC





7ailwater Capital LLC is a highly specialized middle-market private-equity firm focused exclusively on the energy sector. Edward Herring and Jason Downie, the firm's two managing partners, co-founded Tailwater Capital in 2013 to be the preferred source of private-equity capital for oil and gas entrepreneurs. Today, Tailwater manages \$2.1 billion in committed capital deployed across five funds targeting midstream and non-operated working interest upstream opportunities.

With a well-established track record consisting of more than 65 transactions in the upstream and midstream sectors worth \$16.6 billion, Tailwater believes that alignment of interests and a longterm partnership approach are two essential ingredients for creating value.

"Edward and I co-founded Tailwater in January 2013 after focusing on energy investing at a large generalist private-equity firm together, and have been working together for over 19 years. We learned that a 'onesize-fits-all' approach to private equity often risks falling short of achieving goals, particularly in the dynamic energy sector. As a result, we take the time to understand what is important

to the management team, and structure our investments to address their needs while providing our investors exceptional returns. Aligning interests from the start eliminates friction, makes for a more motivated team and builds value for everyone. That makes Tailwater Capital a preferred source of private-equity capital for leading energy entrepreneurs," said Downie.

Tailwater is actively funding both midstream and upstream opportunities. The firm's midstream strategy is straightforward, concentrated on teams with projects for de-bottlenecking areas where production growth is outpacing the existing infrastructure. If operators are expected to continue drilling in an area at prevailing commodity prices, then the chances are high there will be a long-term need for midstream solutions.

On the upstream side, Tailwater prefers to invest in non-operated working interests. The firm can manage risk by building a diversified portfolio of interests while maintaining investment selectivity and flexibility along the way.

"This two-pronged strategy midstream and upstream—provides our investors with complementary strategies and provides us a strong and sustainable competitive advantage," explained Downie.

Edward Herring described Tailwater's strategy this way: "Some of our best investments have come to us at a very early stage, and we don't want to say 'no' to a good idea just because it doesn't fit a certain template. If a team is in the right basin and their project can generate good economic returns with an interesting value proposition, then we want to look at it. Oftentimes, we find that if one producer has a problem that's not being met by a large MLP or a service provider, then other producers are probably having the same problem. As a result, what originally looked like a small midstream project can become a large business if you are creative."

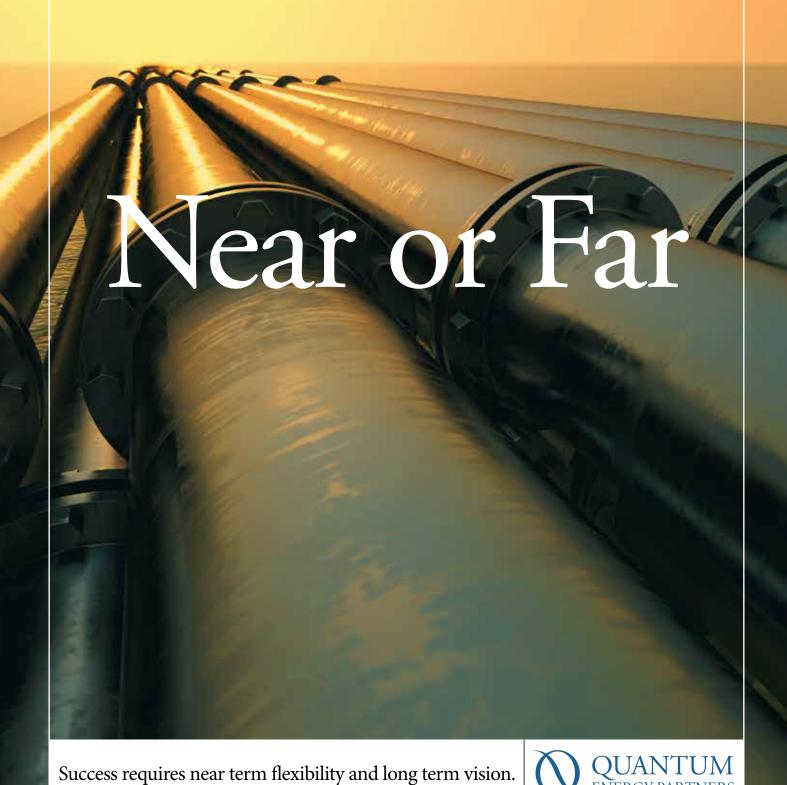
By design, Tailwater has a higher concentration limit, meaning it can invest in multiple projects with the same team. Instead of funding six teams with six projects, Tailwater has the ability to cultivate multiple projects behind the same team and feels that flexibility can lead to better returns for investors and management teams.

"With this approach, our teams can be collaborative and not feel like they are competing with Tailwater's other portfolio companies. That's different than other shops, and it improves our ability to establish alignment from the beginning," explained Herring. "We view trust, transparency and partnership as core to all of our deals. You put all that together, and it's a win-win for Tailwater, our management partners and our investors."



tailwatercapital.com

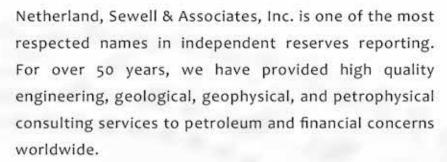




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