

# MIDSTREAM

*Business*

THE MIDSTREAM

**500**

*Our annual ranking of the sector's major players*

JUNE 2019

A supplement to  
Oil and Gas  
Investor

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**On the cover:** The 2019 Midstream 50 operators delivered stock-market gains and losses during 2018, while delivering more infrastructure to get hydrocarbons to markets.

# EnCap Flatrock Midstream By the Numbers

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# Something's Happening

By Paul Hart, Midstream Editor-At-Large

*“You can observe a lot by just watching.”*

—Yogi Berra

**F**rom my office in the Dallas-Fort Worth area, I can see the Union Pacific Railroad track that runs to and from Odessa, Pecos and Midland, Texas. A vast number of westbound hopper cars, I assume filled with sand, make up a growing share of the many freight trains that rumble past daily.

Sand? That's an educated guess, of course, since I can't see inside them. They may be filled with corn, soybeans, polyethylene pellets or Nerf balls. So it's just a hunch on my part.

But what I don't have to guess at is the impressive number of flatcars laden with big-inch pipe—all headed west. I've seen entire trains, maybe 50 cars, with what must be 30- or 36-inch pipe, rumbling by.

That's a lot of steel.

Separately, a recent trip across Central Texas found the otherwise empty farm road I drove suddenly crossed by a busy pipeline-construction crew, working a recently cleared right of way, with a dozen or two trucks and cars parked on the shoulders—well off the pavement to keep the safety manager happy.

I passed several trucks pulling what appeared to be gas-processing-plant modules on a recent trip along Interstate 20. My landman son-in-law has stories of having to sleep in his pickup on trips west from his Fort Worth home. These tales are funny around the dinner table; not so much when every motel has its “No Vacancy” light on.

And recent trips to Oklahoma and North Dakota found similar action to serve Midcontinent and Bakken producers.

Hmm, from what I observe, somewhere there's a lot going on.

All those U.S. Energy Information Administration reports with production charts, traversed by an X axis steadily headed northeast, are another clue. Crude oil, natural gas and NGL volumes continue to surge.

It's a nice problem to have, but the midstream must hustle to catch up with it all—thus that pipe and related anecdotes. The buildup contributed greatly to the excellent programs and lively conversations at the recent Hart Energy DUG Permian conference in Fort Worth and GPA Midstream convention in San Antonio.

**But what I don't have to guess at is the impressive number of flatcars laden with big-inch pipe—all headed west.**

This issue features the Midstream 50, our annual benchmark on the sector's biggest publicly held players. And the numbers look positive. But I wish they looked better and I wish Wall Street would take notice. Never mind, say many investors, who seem unimpressed with traditional energy investments of any kind nowadays. And that makes the buildout particularly tough to pull off.

Where will the money come from?

We feature in this issue several observations on how the sector will pay for all the new infrastructure that must go in place to serve the industry. It will get done; it has to.

However the sector pays for it, it will be a massive undertaking. All that pipe ain't cheap and plenty more will be needed by the energy industry in the next few years. The Permian, after all, is a massive operation nowadays and, by some estimates, the largest oil field in the world.

U.S. Energy Information Administration numbers place Permian crude production at around 4 million barrels per day. That's astounding, given that just 10 years ago the number was one-fourth as much.

And did I mention natural gas and NGL too? The numbers are extravagant. Elsewhere in the nation, we have become a significant producer of petroleum products and a growing presence in LNG. That requires substantial midstream investment in new tankage, new docks, new liquefaction plants—and much more.

It's challenging, but certainly a nice problem to have.

Fulfilling the needs of producers will take a lot of work and we should be glad

private enterprise—not a bureaucrat in a Washington cubicle—will decide how and where to do it all.

Governments have a bad record of investing where the economic action *was*—not where it *will be*.

By my observation, private enterprise consistently does a better job of development in any sector and should get thanks for pushing the U.S. to the forefront of the world's oil and gas business.

Something's happening. And that's a good thing. ■

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# In Constant Demand

**Increasing unconventional-play takeaway capacity continues, as moving gas deeper into the U.S. Northeast and both oil and gas to foreign markets via the Gulf Coast are a work in progress.**

*By Joseph Markman*

**B**oth the output from the big plays and the number of pipelines taking it away are increasing. The next step is what a slew of recent projects are intended to do: get hydrocarbons to demand centers—in both the gas-hungry U.S. Northeast and growing markets overseas.

## **Permian Basin**

We'll start with a big number: 1 million barrels per day (MMbbl/d). At the close of January, Exxon Mobil Corp., Plains All American Pipeline LP and Lotus Midstream LLC announced they will build a pipeline that will have that capacity to move oil and condensates from Wink, Texas, in the Permian to Webster on the Texas Gulf Coast.

Plains will handle construction, which is expected to start operations in the first half of 2021.

On the natural gas side, EagleClaw Midstream announced a final investment decision to move forward on its Delaware Link Pipeline, which will have capacity to move 1.2 billion cubic feet per day (Bcf/d) from its processing plants in Reeves County, Texas, in the Delaware Basin to the Permian's Waha Hub. EagleClaw indicated that it might, depending on producer interest, increase the 30-inch pipe's size and capacity.

## **Gulf Coast**

It seems Cheniere Energy Partners LP's Sabine Pass plant in Cameron Parish, La., is too new to be the grizzled veteran of Gulf Coast LNG-export projects. But, even as a new wave of terminals prepares

to ship natural gas, the Sabine plant's capacity is still growing.

On March 7, the company announced substantial completion of Train 5, meaning commissioning was completed for the 4.5-million-ton-per-year facility; commercial delivery is set for August.

But on that very day, whippersnapper Rio Grande LNG LLC, a unit of NextDecade Corp., closed a 30-year lease agreement with the Brownsville (Texas) Navigation Board for a 984-acre parcel that will be home to a large-scale LNG-export terminal.

The facility, along with the associated Rio Bravo Pipeline, could ultimately pump more than \$15 billion into Cameron County, Texas.

Not all projects are centered about burgeoning gas production. Sentinel Midstream's Texas GulfLink project near Freeport, Texas, is all about loading VLCCs (Very Large Crude Carriers) full of oil to foreign markets.

The planned facility will boast an onshore terminal with as much as 18 million barrels of storage, an offshore 42-inch pipeline and a manned offshore platform. The expectation is to provide capacity that will average export loading of 1.2 MMbbl/d per calendar year.

"Texas GulfLink will provide the United States with an economical solution to clear the over-supply barrels destined for the Gulf Coast," said Sentinel Midstream president and CEO Jeff Ballard.

## **Midcontinent**

Also in the first quarter, Navigator Energy Services LLC announced it would

significantly expand its Glass Mountain Pipeline System as it began initial construction of its 20-inch Cushing Express Pipeline.

The expansion involves five new origination points in Canadian, Kingfisher and Grady counties, Okla., extending service into the Stack, Woodford/Cana, Merge and Scoop plays. The project will add about 750,000 barrels of storage capacity and long-term agreements with operators that represent 50,000 bbl/d of existing production and almost 600,000 operated acres.

Cushing Express is designed to transport segregated crudes from the field to destinations at the Cushing, Okla., trading hub. That will add an initial 250,000 bbl/d of incremental deliverability.

## **Marcellus-Utica**

The Williams Cos.' binding open season for the Regional Energy Access expansion of its Transco Pipeline ended in April. The pipe, yet to be approved by regulators, will bring about 1 Bcf/d from the Marcellus Shale to northeastern U.S. delivery points in Pennsylvania and New Jersey.

Regional Energy Access involves what the company expects will be 34 miles of selected pipeline loop segments and additional compression along the existing Transco corridor. The project has an in-service target date of November 2022.

TransCanada Corp. announced it gained approval from the Federal Energy Regulatory Commission to increase gas flow on its Mountaineer XPress project and begin operating the Gulf XPress,

## Projects

both linking Appalachian gas with demand markets.

Mountaineer's \$3.2-billion investment bought 170 miles of 36-inch-diameter pipeline, three new compressor stations and modifications to three existing compressor stations.

The line, which is locked into long-term contracts, can move 2.7 Bcf/d to markets on the Columbia Gas Transmission System.

The partial in-service of the \$600-million Gulf Xpress puts four new compressor stations in Kentucky,

Tennessee and Mississippi into operation. Those facilities represent 60% of the project's total capacity. ■

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### Selected Recent Midstream Construction Projects

Operator/Developer	Project	Location	Added Capacity	Play	Status/Completion
<b>PERMIAN BASIN</b>					
Exxon Mobil Corp., Plains All American Pipeline LP, Lotus Midstream LLC	Crude oil pipeline	Wink, Texas, to Webster, Texas	1 MMbbl/d	Permian Basin	Operations expected to start in 1H 2021.
Targa Resources Corp.	Grand Prix Pipeline	Lea County, N.M., to Midland County, Texas	450 Mbbl/d to 950 Mbbl/d of NGL	Permian Basin	Open season closed on March 29.
Enterprise Products Partners LP	Shin Oak NGL Pipeline	Orla, Texas, to Reeves County, Texas	250,000 bbl/d of NGL	Permian Basin	Now in service.
Tellurian Inc.	Permian Global Access Pipeline	Waha, Texas, to Gillis, La.	2 Bcf/d	Permian Basin	Binding open season ended May 24.
EagleClaw Midstream	Delaware Link Pipeline	Delaware Basin to Waha hub	1.2 Bcf/d	Permian Basin	Final investment decision made.
EagleClaw Midstream	Pecos Bend IV processing plant	Pecos, Texas	N/A	Permian Basin	Commissioning began.
<b>GULF COAST</b>					
Sentinel Midstream	Texas GulfLink	Freeport, Texas	1.2 MMbbl/d, 18 MMbbl of storage	N/A	Preparing permit application for proposed deepwater oil-export terminal.
Moda Midstream LLC	Moda Ingleside Energy Center expansion	Corpus Christi, Texas	10 MMbbl of oil storage	N/A	With expansion, terminal can handle VLCCs.
Plains All American Pipeline LP	Capline Pipeline reversal	Cushing, Okla., to St. James, La.	200 Mbbl/d	N/A	Pipeline expected to enter service 3Q 2020.
Exxon Mobil Corp., Plains All American Pipeline LP, Lotus Midstream LLC	Crude oil pipeline	West Texas to Gulf Coast	1 MMbbl/d of crude, condensate	Permian Basin	Plains to lead construction, start operations in 1H 2021.
Cheniere Energy Inc.	Midship Pipeline	Scoop/Stack to Gulf Coast	1.44 MMdth per day	Scoop/Stack	FERC has cleared proceed; secured financing from EIG Global Energy Partners.
JupiterMLP LLC	Jupiter Pipeline	West Texas to the Gulf Coast	Up to 1 MMbbl/d	Permian Basin	Secured financial backing from Charon System Advisors. In-service date is 4Q 2020.
Energy Transfer LP, Phillips 66 Partners	Bayou Bridge Pipeline	Lake Charles and St. James, La.	N/A	N/A	Project Phase 2 completed; open season for expanded joint tariff transportation service onto the system.
Energy Transfer LP, Shell US LNG LLC	Lake Charles LNG	Lake Charles, La.	16.45 mtpa	N/A	Companies sign a project framework agreement.
Cheniere Energy Inc.	Sabine Pass Train 5	Cameron Parish, La.	4.5 mtpa	N/A	Train 5 substantially completed.
NextDecade Corp.	Rio Grande LNG LLC	Port of Brownsville, Texas	Up to 27 mtpa	N/A	Project enters lease agreement.

*continued next page*



Operator/Developer	Project	Location	Added Capacity	Play	Status/Completion
<b>MARCELLUS-UTICA</b>					
TransCanada Corp.	Mountaineer Xpress Project	Kentucky, Tennessee, Mississippi	2.7 Bcf/d	Appalachia	FERC approved full in-service.
The Williams Cos.	Regional Energy Access	Northeastern U.S.	1 MMdth/d	Appalachia	Binding open season announced March 8.
<b>MIDCONTINENT</b>					
Navigator Energy Services LLC	Glass Mountain Pipeline System	Central Oklahoma	250 Mbbbl/d of oil, 750 Mbbbl of storage	Stack, Woodford/Cana, Merge, Scoop	System expansion; construction begins on Cushing Express Pipeline.
The Williams Cos, Targa Resources Corp.	NGL deals, projects to link Conway, Kan., to Mont Belvieu, Texas, hubs.	Bluestem in Conway to Grand Prix pipeline in southern Oklahoma.	120 Mbbbl/d	Scoop, Stack	Completion expected 1Q 2021.
<b>ROCKIES</b>					
Tallgrass Energy LP, Kinder Morgan Inc.	Combination of Pony Express with Cheyenne Plains	Wyoming/Colorado to Cushing, Okla.	800 Mbbbl/d light crude, 150 Mbbbl/d heavy crude	Powder River, D-J, Williston, Western Canadian	Combination project scheduled to begin service in 2H 2020.
<b>CANADA</b>					
Chevron Canada Ltd., Woodside Energy Ltd.	Kitimat LNG plant	Kitimat, British Columbia	9 mtpa	N/A	Companies applied for license to nearly double facility to 18 mtpa.

Source: Hart Energy

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# THE MIDSTREAM

# 500

*Our annual ranking of the sector's major players*

**“The sector is in improving health. If you look at the financial metrics of this group, on average they are better than in 2015, 2016 and 2017. Though the stock prices may not reflect it, leverage and payout metrics have improved meaningfully.”**

*—Ethan Bellamy, managing director and senior research analyst,  
Robert W. Baird & Co. Inc.*

# A Midstream Shuffle

You might call the year “pretty good.” Now, if only Wall Street would pay attention again.

By Paul Hart

**T**hings calmed down on the 2019 Midstream 50. There were none of the gigantic zooms up and down that occurred in the prior year, with more typical shuffles by a few points up or down the rule this time around.

Compare those minor moves to last year’s rankings when Enbridge Inc. shot to the top of the list with its Spectra Energy Corp. megadeal. Calgary-based Enbridge rose to No. 1 from No. 4 with that acquisition. That’s a stupendous jump, given Enbridge lives up there in the list’s high-rent district, a neighborhood where a billion here or there can get lost in routine deals.

Even more impressive last year was a 30-point skyrocket, to No. 10 from No. 40, by Cheniere Energy Inc.—a 1,077% increase in EBITDA—as its long-promised LNG-export operation in Cameron Parish, La., started making cold. A steady stream of tankers dropped anchor to load at its dock on the Sabine River, with a concurrent new revenue stream.

## Take a look

Although overall trends this time around for the 50 largest publicly held firms were positive, not all enjoyed good news. The biggest challenge for all was how to get investors to look at midstream.

“Despite much better sector fundamentals in 2018 vs. the previous years, the midstream-sector stocks did not do great due to market skepticism on recovery, among other factors,” Sunil Sibal, senior analyst for energy infrastructure and MLPs at Seaport

Global Securities LLC, told *Midstream Business*.

The Midstream 50 lists the top, publicly held midstream-sector players, whether MLPs or conventional corporations, by EBITDA, as compiled by Barclays. Interpretation of and reporting on the rankings is done by *Midstream Business*.

The 2019 rankings are based on 2018 full-year data, either fiscal or calendar, depending on which a company reports and which is deemed by Barclays to be most appropriate in comparison. Changes shown in the accompanying tables are against the 2018 Midstream 50 rankings, which were based on comparable 2017 financials.

All financials are in U.S. dollars.

## Top 10

For the 2019 list, Enbridge remained at the top, with EBITDA of \$9.92 billion, an impressive 25% rise. Energy Transfer LP continued at No. 2 at \$9.5 billion, a 30% increase from the prior year. Perennial big player Kinder Morgan Inc. remained the show horse with EBITDA of \$7.57 billion, a 5% increase.

Elsewhere at the top of the list, Enterprise Products Partners LP swapped places with TransCanada Corp. at Nos. 4 and 5 on the strength of a 29% increase in EBITDA. TransCanada’s EBITDA increased 16%.

Tulsa, Okla.-based Williams Cos. Inc. remained No. 6 with \$4.64 billion in EBITDA, up 2%. Rounding out the Top 10, in order, were MPLX LP, Plains All American Pipeline LP, Cheniere Energy and ONEOK Inc.

The biggest percentage gain in EBITDA came from USA Compression Partners LP, ranked No. 34 overall. It saw cash flow rise 134% to \$320 million for the year. Tallgrass Energy LP, No. 25, enjoyed an impressive 118% EBITDA increase. Another big mover was BP Midstream Partners LP, the sector player for supermajor BP Plc. Its EBITDA rose 80% as it climbed to No. 39 on the list from No. 47 in 2018, its debut on the Midstream 50.

Five firms on this year’s list recorded EBITDA declines: Green Plains Partners LP, Sprague Resources LP, Buckeye Partners LP, Blueknight Energy Partners LP and Martin Midstream Partners LP. PBF Logistics LP’s EBITDA remained flat, year over year.

For the entire field of 50, total EBITDA was \$78.5 billion, a 25% increase from \$62.7 billion from the previous list.

## Revenue rankings

Energy Transfer placed first in revenue at \$54.1 billion, well ahead of Enterprise Products, reporting \$36.5 billion, with Enbridge close behind Enterprise at \$35.8 billion.

Blueknight Energy Partners had the biggest jump in revenue, a 112% increase to \$385 million, placing No. 46 by revenue. Blueknight ranked No. 49 by EBITDA. Close behind, USA Compression, No. 37 by revenue, scored a 111% percent gain in revenues to \$584 million. It ranked No. 34 by EBITDA.

Total revenue for the 50 firms on the list was \$343.2 billion, a healthy 19% increase from \$289.3 billion a year earlier.

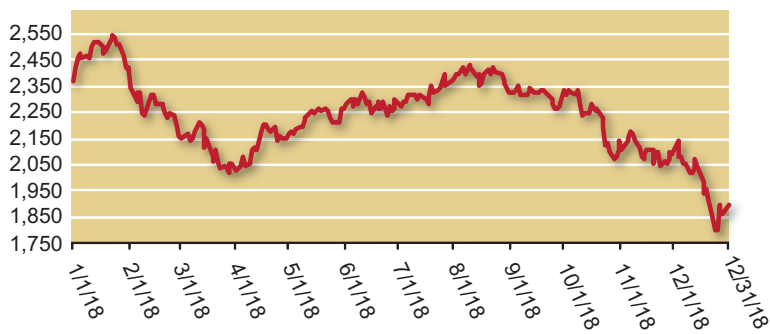
## THE MIDSTREAM 50 FOR 2019, RANKED BY EBITDA (\$MM)

Rank	Ticker	Company Name	2017 EBITDA	2018 EBITDA	% Change	2017 Revenue	2018 Revenue	% Change	12/31/17 Assets
1.	ENB	Enbridge Inc.	\$7,955	\$9,919	25%	\$34,218	\$35,804	5%	\$124,982
2.	ET	Energy Transfer LP	\$7,320	\$9,510	30%	\$40,523	\$54,087	33%	\$86,246
3.	KMI	Kinder Morgan Inc	\$7,198	\$7,568	5%	\$13,705	\$14,144	3%	\$79,055
4.	EPD	Enterprise Products Partners	\$5,615	\$7,223	29%	\$29,242	\$36,534	25%	\$54,418
5.	TRP	TransCanada Corp.	\$5,688	\$6,611	16%	\$10,370	\$10,560	2%	\$66,388
6.	WMB	Williams Cos.	\$4,531	\$4,638	2%	\$8,031	\$8,686	8%	\$46,352
7.	MPLX	MPLX	\$2,004	\$3,475	73%	\$3,691	\$6,049	64%	\$19,500
8.	PAA	Plains All American	\$2,078	\$2,684	29%	\$26,223	\$34,055	30%	\$25,351
9.	LNG	Cheniere Energy Inc	\$1,824	\$2,641	45%	\$5,601	\$7,987	43%	\$27,906
10.	OKE	ONEOK Inc.	\$1,987	\$2,448	23%	\$12,174	\$12,593	3%	\$16,846
11.	MMP	Magellan Midstream Partners	\$1,303	\$1,396	7%	\$2,508	\$2,827	13%	\$7,394
12.	TRGP	Targa Resources	\$1,140	\$1,366	20%	\$8,815	\$10,484	19%	\$14,389
13.	WES	Western Midstream Partners LP	\$1,061	\$1,206	14%	\$2,248	\$1,990	(11%)	\$8,014
14.	ANDX	Andeavor Logistics	\$949	\$1,201	27%	\$3,249	\$2,380	(27%)	\$9,505
15.	PSXP	Phillips 66 Partners	\$754	\$1,137	51%	\$934	\$1,045	12%	\$5,334
16.	DCP	DCP Midstream	\$1,017	\$1,092	7%	\$8,462	\$9,822	16%	\$13,878
17.	ENBL	Enable Midstream Partners	\$924	\$1,074	16%	\$2,803	\$3,431	22%	\$11,593
18.	ENLC	EnLink Midstream LLC	\$873	\$1,042	19%	\$5,740	\$7,699	34%	\$10,538
19.	BPL	Buckeye Partners	\$1,114	\$1,005	(10%)	\$3,648	\$4,108	13%	\$10,305
20.	EQM	EQT Midstream Partners	\$689	\$998	45%	\$896	\$1,495	67%	\$7,999
21.	SUN	Sunoco Logistics	\$638	\$732	15%	\$16,994	\$11,723	(31%)	\$8,344
22.	AM	Antero Midstream Corp.	\$529	\$717	36%	\$772	\$1,029	33%	\$3,042
23.	GEL	Genesis Energy	\$577	\$716	24%	\$2,028	\$2,913	44%	\$7,137
24.	NS	Nustar Energy	\$595	\$666	12%	\$1,814	\$1,962	8%	\$6,535
25.	TGE	Tallgrass Energy LP	\$300	\$654	118%	\$656	\$793	21%	\$4,292
26.	SHLX	Shell Midstream Partners	\$481	\$636	32%	\$470	\$525	12%	\$1,367
27.	APU	Amerigas	\$560	\$622	11%	\$2,564	\$2,856	11%	\$4,192
28.	HESM	Hess Midstream Partners	\$399	\$497	24%	\$566	\$662	17%	\$2,635
29.	NGL	NGL Energy Partners	\$373	\$464	24%	\$16,016	\$24,197	51%	\$6,316
30.	CEQP	Crestwood Equity Partners	\$395	\$420	6%	\$3,881	\$3,645	(6%)	\$4,285
31.	SEMG	SemGroup Corp.	\$328	\$394	20%	\$2,082	\$2,503	20%	\$5,377
32.	AROC	Archrock, Inc.	\$280	\$352	26%	\$795	\$904	14%	\$2,408
33.	HEP	Holly Energy Partners	\$345	\$347	1%	\$454	\$506	11%	\$2,154
34.	USAC	USA Compression Partners	\$130	\$320	146%	\$277	\$584	111%	\$1,719
35.	GLP	Global Partners	\$224	\$311	39%	\$8,921	\$12,673	42%	\$2,320
36.	SMLP	Summit Midstream Partners	\$290	\$294	1%	\$489	\$507	4%	\$2,895
37.	SPH	Suburban Propane Partners	\$252	\$283	12%	\$1,244	\$1,348	8%	\$2,236
38.	NBLX	Noble Midstream Partners	\$179	\$275	54%	\$239	\$496	107%	\$830
39.	BPMP	BP Midstream Partners	\$109	\$196	80%	\$108	\$116	8%	\$606
40.	CNXM	CNX Midstream Partners	\$166	\$189	14%	\$234	\$257	10%	\$927
41.	OMP	Oasis Midstream Partners	\$119	\$178	49%	\$182	\$272	49%	\$710
42.	DKL	Delek Logistics Partners	\$115	\$164	43%	\$538	\$658	22%	\$444
43.	PBFX	PBF Logistics	\$152	\$152	0%	\$258	\$283	10%	\$748
44.	TLP	TransMontaigne Partners	\$109	\$133	23%	\$183	\$228	24%	\$987
45.	MMLP	Martin Midstream Partners	\$156	\$124	(21%)	\$946	\$973	3%	\$1,253
46.	SRLP	Sprague Resources	\$109	\$102	(7%)	\$2,855	\$3,771	32%	\$1,363
47.	CCLP	CSI Compressco	\$84	\$99	18%	\$296	\$439	48%	\$743
48.	GPP	Green Plains Partners	\$70	\$66	(5%)	\$107	\$101	(6%)	\$92
49.	BKEP	Blueknight Energy Partners	\$70	\$60	(14%)	\$182	\$385	112%	\$341
50.	USDP	USD Partners	\$56	\$57	0%	\$109	\$119	10%	\$301

	12/31/18 Assets	% Change	12/31/17 Dist. Yield	12/31/18 Dist. Yield	% Change	12/31/17 Price	12/31/18 Price	% Change	Annualized Distribution at 12/31/17	Annualized Distribution at 12/31/18
	\$128,851	3%	5.29%	7.33%	(39%)	\$39.11	\$31.08	(21%)	\$2.07	\$2.28
	\$88,246	2%	7.07%	9.24%	(31%)	\$17.26	\$13.21	(23%)	\$1.22	\$1.22
	\$78,866	(0%)	2.77%	5.20%	(88%)	\$18.07	\$15.38	(15%)	\$0.50	\$0.80
	\$56,970	5%	6.41%	7.08%	(10%)	\$26.51	\$24.59	(7%)	\$1.70	\$1.74
	\$76,366	15%	3.96%	5.97%	(51%)	\$48.64	\$35.70	(27%)	\$1.93	\$2.13
	\$45,302	(2%)	3.94%	6.89%	(75%)	\$30.49	\$22.05	(28%)	\$1.20	\$1.52
	\$22,779	17%	6.85%	8.55%	(25%)	\$35.47	\$30.30	(15%)	\$2.43	\$2.59
	\$25,511	1%	5.81%	5.99%	(3%)	\$20.64	\$20.04	(3%)	\$1.20	\$1.20
	\$31,987	15%	NA	NA	NA	\$53.84	\$59.19	10%	NA	NA
	\$18,232	8%	5.58%	6.34%	(14%)	\$53.45	\$53.95	1%	\$2.98	\$3.42
	\$7,748	5%	5.19%	6.99%	(35%)	\$70.94	\$57.06	(20%)	\$3.68	\$3.99
	\$16,938	18%	7.52%	10.11%	(34%)	\$48.42	\$36.02	(26%)	\$3.64	\$3.64
	\$9,236	15%	9.26%	14.14%	(53%)	\$37.16	\$27.73	(25%)	\$3.44	\$3.92
	\$10,295	8%	7.83%	8.11%	(4%)	\$50.32	\$50.81	1%	\$3.94	\$4.12
	\$5,819	9%	5.18%	7.93%	(53%)	\$52.35	\$42.11	(20%)	\$2.71	\$3.34
	\$14,266	3%	8.59%	11.78%	(37%)	\$36.33	\$26.49	(27%)	\$3.12	\$3.12
	\$12,444	7%	8.95%	9.40%	(5%)	\$14.22	\$13.53	(5%)	\$1.27	\$1.27
	\$10,694	1%	8.86%	16.44%	(85%)	\$17.60	\$9.49	(46%)	\$1.56	\$1.56
	\$9,356	(9%)	10.19%	10.35%	(2%)	\$49.55	\$28.99	(41%)	\$5.05	\$3.00
	\$9,456	18%	5.61%	10.45%	(86%)	\$73.10	\$43.25	(41%)	\$4.10	\$4.52
	\$4,879	(42%)	11.63%	12.14%	(4%)	\$28.40	\$27.19	(4%)	\$3.30	\$3.30
	\$3,546	17%	7.40%	16.82%	(127%)	\$19.72	\$11.18	(43%)	\$1.46	\$1.88
	\$6,479	(9%)	9.13%	11.91%	(30%)	\$22.35	\$18.47	(17%)	\$2.04	\$2.20
	\$6,349	(3%)	8.01%	11.47%	(43%)	\$29.95	\$20.93	(30%)	\$2.40	\$2.40
	\$5,894	37%	4.31%	8.55%	(98%)	\$25.74	\$24.34	(5%)	\$1.11	\$2.08
	\$1,914	40%	4.47%	9.75%	(118%)	\$29.82	\$16.41	(45%)	\$1.33	\$1.60
	\$4,006	(4%)	8.22%	15.02%	(83%)	\$46.23	\$25.30	(45%)	\$3.80	\$3.80
	\$2,820	7%	6.50%	8.72%	(34%)	\$19.81	\$16.98	(14%)	\$1.29	\$1.48
	\$5,956	(6%)	11.10%	16.27%	(47%)	\$14.05	\$9.59	(32%)	\$1.56	\$1.56
	\$4,295	0%	9.30%	8.60%	8%	\$25.80	\$27.91	8%	\$2.40	\$2.40
	\$5,210	(3%)	5.96%	13.72%	(130%)	\$30.20	\$13.78	(54%)	\$1.80	\$1.89
	\$2,553	6%	10.86%	7.05%	35%	\$10.50	\$7.49	(29%)	\$1.14	\$0.53
	\$2,103	(2%)	8.00%	9.35%	(17%)	\$32.49	\$28.56	(12%)	\$2.60	\$2.67
	\$3,775	120%	12.70%	16.18%	(27%)	\$16.54	\$12.98	(22%)	\$2.10	\$2.10
	\$2,424	4%	11.08%	12.27%	(11%)	\$16.70	\$16.30	(2%)	\$1.85	\$2.00
	\$3,021	4%	11.22%	22.89%	(104%)	\$20.50	\$10.05	(51%)	\$2.30	\$2.30
	\$2,152	(4%)	9.91%	12.45%	(26%)	\$24.22	\$19.27	(20%)	\$2.40	\$2.40
	\$1,998	141%	3.91%	8.12%	(108%)	\$50.00	\$28.84	(42%)	\$1.95	\$2.34
	\$693	14%	5.10%	7.76%	(52%)	\$20.57	\$15.54	(24%)	\$1.05	\$1.21
	\$925	(0%)	7.22%	8.55%	(18%)	\$16.77	\$16.28	(3%)	\$1.21	\$1.39
	\$964	36%	8.60%	11.26%	(31%)	\$17.44	\$15.99	(8%)	\$1.50	\$1.80
	\$625	41%	9.15%	11.08%	(21%)	\$31.70	\$29.25	(8%)	\$2.90	\$3.24
	\$956	28%	9.26%	10.05%	(9%)	\$20.95	\$20.10	(4%)	\$1.94	\$2.02
	\$999	1%	7.81%	7.93%	(2%)	\$39.45	\$40.58	3%	\$3.08	\$3.22
	\$1,033	(18%)	14.29%	19.46%	(36%)	\$14.00	\$10.28	(27%)	\$2.00	\$2.00
	\$1,245	(9%)	10.54%	18.43%	(75%)	\$24.20	\$14.49	(40%)	\$2.55	\$2.67
	\$827	11%	13.71%	1.72%	87%	\$5.47	\$2.32	(58%)	\$0.75	\$0.04
	\$81	(12%)	10.05%	14.00%	(39%)	\$18.70	\$13.57	(27%)	\$1.88	\$1.90
	\$323	(5%)	11.37%	27.83%	(145%)	\$5.10	\$1.15	(77%)	\$0.58	\$0.32
	\$287	(5%)	12.44%	13.78%	(11%)	\$11.25	\$10.45	(7%)	\$1.40	\$1.44

Source: Barclays

## The Midstream 50 Stock Index Weighted by Market Cap

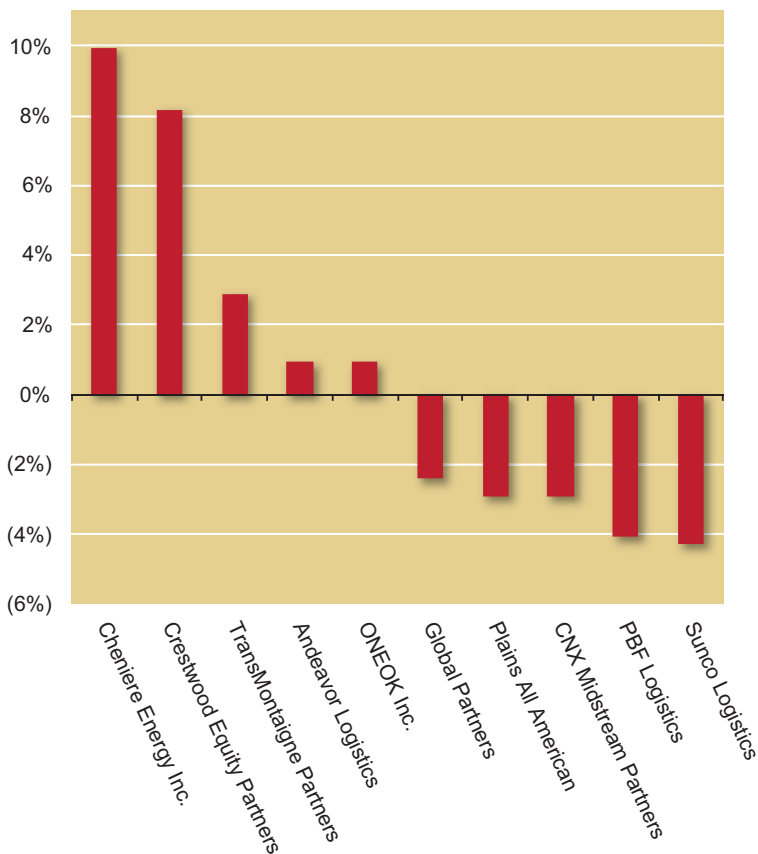


Source: Bloomberg, Hart Energy. Does not include TransMontaigne Partners.

## THE MIDSTREAM 50 PERFORMANCE FOR 2018

	EBITDA	Revenue	Assets	Distribution Yield	Stock Price
Average	25%	23%	11%	(42%)	(22%)
Median	20%	15%	4%	(34%)	(21%)

## The Midstream 50 Stock-Price Leaders



## Wall Street yawns

But if the sector's financials looked acceptable last year—certainly better than the prior two years—it didn't impress investors. The result showed in sagging share and unit prices. Only five of the 50 firms on the list managed to record year-over-year increases in stock price.

That compares with 13 increases the prior year, a mark most industry observers considered doleful.

Cheniere led with a 10% increase, closing out 2018 at \$59.19 per unit, as its LNG sales continued to swell. Crestwood Equity Partners LP managed an 8% gain while TransMontaigne Partners LP ticked up a mere 3%. Andeavor Logistics LP and ONEOK were up 1%.

At the far end of the scale, Blueknight units plunged 77% and CSI Compressco LP 58%.

The net result was a 20% drop in the index, weighted by market cap.

Sagging stock prices created some impressive yield distributions—if they can be maintained. Blueknight returned 27.83% last year as its unit price sagged to \$1.15 from \$5.10, while its annualized distribution stood at 32 cents, down from 58 cents.

Summit Midstream Partners LP fared little better with a 22.9% return. Its unit price sagged by half, to \$10.05 from \$20.50, while its annualized distribution remained unchanged at \$2.30.

The equity-market problem proved a particular handicap for the smaller players.

"Big picture, our ratings are becoming more bifurcated as, increasingly, the space is shaking out the haves from the have nots," U.S. Capital Advisors LLC reported in its summary of fourth-quarter midstream earnings.

Stifel Financial Corp.'s analysts sounded a similar theme in a report published as 2019's second quarter began. "Smaller midstream entities will struggle to attract capital with management teams facing strategic alternatives, such as going private or cutting distributions," they wrote in their April Energy Playbook.

"We prefer large-cap names, given diversified footprints, investment-grade balance sheets, robust distribution coverage and minimal, if any, external equity requirements."

## THE MIDSTREAM 50 BY DISTRIBUTION YIELD

Rank	Company Name	12/31/17 Dist. Yield	12/31/18 Dist. Yield	% Change	12/31/17 Price	12/31/18 Price	% Change	Annualized Distribution at 12/31/17	Annualized Distribution at 12/31/18
1.	Blueknight Energy Partners	11.37%	27.83%	(145%)	\$5.10	\$1.15	(77%)	\$0.58	\$0.32
2.	Summit Midstream Partners	11.22%	22.89%	(104%)	\$20.50	\$10.05	(51%)	\$2.30	\$2.30
3.	Martin Midstream Partners	14.29%	19.46%	(36%)	\$14.00	\$10.28	(27%)	\$2.00	\$2.00
4.	Sprague Resources	10.54%	18.43%	(75%)	\$24.20	\$14.49	(40%)	\$2.55	\$2.67
5.	Antero Midstream Corp.	7.40%	16.82%	(127%)	\$19.72	\$11.18	(43%)	\$1.46	\$1.88
6.	EnLink Midstream LLC	8.86%	16.44%	(85%)	\$17.60	\$9.49	(46%)	\$1.56	\$1.56
7.	NGL Energy Partners	11.10%	16.27%	(47%)	\$14.05	\$9.59	(32%)	\$1.56	\$1.56
8.	USA Compression Partners	12.70%	16.18%	(27%)	\$16.54	\$12.98	(22%)	\$2.10	\$2.10
9.	Amerigas	8.22%	15.02%	(83%)	\$46.23	\$25.30	(45%)	\$3.80	\$3.80
10.	Western Midstream Partners LP	9.26%	14.14%	(53%)	\$37.16	\$27.73	(25%)	\$3.44	\$3.92
11.	Green Plains Partners	10.05%	14.00%	(39%)	\$18.70	\$13.57	(27%)	\$1.88	\$1.90
12.	USD Partners	12.44%	13.78%	(11%)	\$11.25	\$10.45	(7%)	\$1.40	\$1.44
13.	SemGroup Corp.	5.96%	13.72%	(130%)	\$30.20	\$13.78	(54%)	\$1.80	\$1.89
14.	Suburban Propane Partners	9.91%	12.45%	(26%)	\$24.22	\$19.27	(20%)	\$2.40	\$2.40
15.	Global Partners	11.08%	12.27%	(11%)	\$16.70	\$16.30	(2%)	\$1.85	\$2.00
16.	Sunoco Logistics	11.63%	12.14%	(4%)	\$28.40	\$27.19	(4%)	\$3.30	\$3.30
17.	Genesis Energy	9.13%	11.91%	(30%)	\$22.35	\$18.47	(17%)	\$2.04	\$2.20
18.	DCP Midstream	8.59%	11.78%	(37%)	\$36.33	\$26.49	(27%)	\$3.12	\$3.12
19.	Nustar Energy	8.01%	11.47%	(43%)	\$29.95	\$20.93	(30%)	\$2.40	\$2.40
20.	Oasis Midstream Partners	8.60%	11.26%	(31%)	\$17.44	\$15.99	(8%)	\$1.50	\$1.80
21.	Delek Logistics Partners	9.15%	11.08%	(21%)	\$31.70	\$29.25	(8%)	\$2.90	\$3.24
22.	EQT Midstream Partners	5.61%	10.45%	(86%)	\$73.10	\$43.25	(41%)	\$4.10	\$4.52
23.	Buckeye Partners	10.19%	10.35%	(2%)	\$49.55	\$28.99	(41%)	\$5.05	\$3.00
24.	Targa Resources	7.52%	10.11%	(34%)	\$48.42	\$36.02	(26%)	\$3.64	\$3.64
25.	PBF Logistics	9.26%	10.05%	(9%)	\$20.95	\$20.10	(4%)	\$1.94	\$2.02
26.	Shell Midstream Partners	4.47%	9.75%	(118%)	\$29.82	\$16.41	(45%)	\$1.33	\$1.60
27.	Enable Midstream Partners	8.95%	9.40%	(5%)	\$14.22	\$13.53	(5%)	\$1.27	\$1.27
28.	Holly Energy Partners	8.00%	9.35%	(17%)	\$32.49	\$28.56	(12%)	\$2.60	\$2.67
29.	Energy Transfer LP	7.07%	9.24%	(31%)	\$17.26	\$13.21	(23%)	\$1.22	\$1.22
30.	Hess Midstream Partners	6.50%	8.72%	(34%)	\$19.81	\$16.98	(14%)	\$1.29	\$1.48
31.	Crestwood Equity Partners	9.30%	8.60%	8%	\$25.80	\$27.91	8%	\$2.40	\$2.40
32.	CNX Midstream Partners	7.22%	8.55%	(18%)	\$16.77	\$16.28	(3%)	\$1.21	\$1.39
33.	MPLX	6.85%	8.55%	(25%)	\$35.47	\$30.30	(15%)	\$2.43	\$2.59
34.	Tallgrass Energy LP	4.31%	8.55%	(98%)	\$25.74	\$24.34	(5%)	\$1.11	\$2.08
35.	Noble Midstream Partners	3.91%	8.12%	(108%)	\$50.00	\$28.84	(42%)	\$1.95	\$2.34
36.	Andeavor Logistics	7.83%	8.11%	(4%)	\$50.32	\$50.81	1%	\$3.94	\$4.12
37.	TransMontaigne Partners	7.81%	7.93%	(2%)	\$39.45	\$40.58	3%	\$3.08	\$3.22
37.	Phillips 66 Partners	5.18%	7.93%	(53%)	\$52.35	\$42.11	(20%)	\$2.71	\$3.34
39.	BP Midstream Partners	5.10%	7.76%	(52%)	\$20.57	\$15.54	(24%)	\$1.05	\$1.21
40.	Enbridge Inc.	5.29%	7.33%	(39%)	\$39.11	\$31.08	(21%)	\$2.07	\$2.28
41.	Enterprise Products Partners	6.41%	7.08%	(10%)	\$26.51	\$24.59	(7%)	\$1.70	\$1.74
42.	Archrock, Inc.	10.86%	7.05%	35%	\$10.50	\$7.49	(29%)	\$1.14	\$0.53
43.	Magellan Midstream Partners	5.19%	6.99%	(35%)	\$70.94	\$57.06	(20%)	\$3.68	\$3.99
44.	Williams Cos.	3.94%	6.89%	(75%)	\$30.49	\$22.05	(28%)	\$1.20	\$1.52
45.	ONEOK Inc.	5.58%	6.34%	(14%)	\$53.45	\$53.95	1%	\$2.98	\$3.42
46.	Plains All American	5.81%	5.99%	(3%)	\$20.64	\$20.04	(3%)	\$1.20	\$1.20
47.	TransCanada Corp.	3.96%	5.97%	(51%)	\$48.64	\$35.70	(27%)	\$1.93	\$2.13
48.	Kinder Morgan Inc	2.77%	5.20%	(88%)	\$18.07	\$15.38	(15%)	\$0.50	\$0.80
49.	CSI Compressco	13.71%	1.72%	87%	\$5.47	\$2.32	(58%)	\$0.75	\$0.04
50.	Cheniere Energy Inc	NA	NA	NA	\$53.84	\$59.19	10%	NA	NA

## THE MIDSTREAM 50 BY CHANGE IN ASSETS (\$MM)

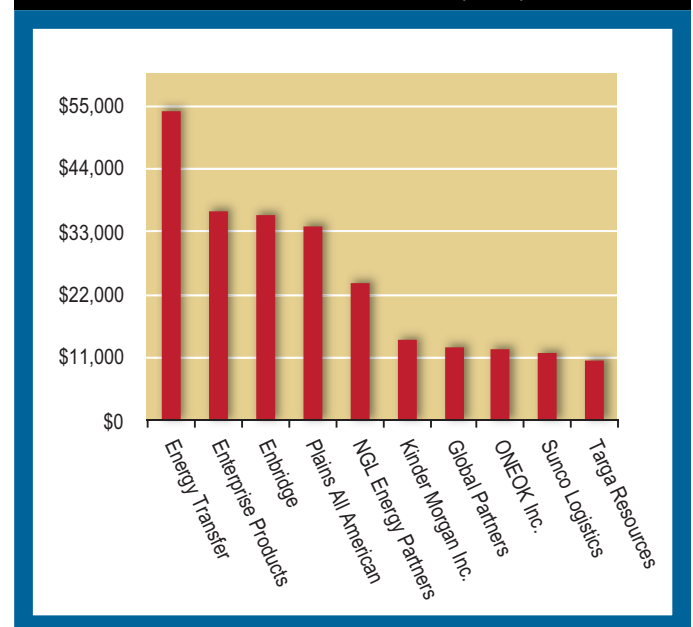
Rank	Company Name	12/31/17 Assets	12/31/18 Assets	% Change
1.	Noble Midstream Partners	\$830	\$1,998	141%
2.	USA Compression Partners	\$1,719	\$3,775	120%
3.	Delek Logistics Partners	\$444	\$625	41%
4.	Shell Midstream Partners	\$1,367	\$1,914	40%
5.	Tallgrass Energy LP	\$4,292	\$5,894	37%
6.	Oasis Midstream Partners	\$710	\$964	36%
7.	PBF Logistics	\$748	\$956	28%
8.	EQT Midstream Partners	\$7,999	\$9,456	18%
9.	Targa Resources	\$14,389	\$16,938	18%
10.	MPLX	\$19,500	\$22,779	17%
11.	Antero Midstream Corp.	\$3,042	\$3,546	17%
12.	Western Midstream Partners LP	\$8,014	\$9,236	15%
13.	TransCanada Corp.	\$66,388	\$76,366	15%
14.	Cheniere Energy Inc	\$27,906	\$31,987	15%
15.	BP Midstream Partners	\$606	\$693	14%
16.	CSI Compressco	\$743	\$827	11%
17.	Phillips 66 Partners	\$5,334	\$5,819	9%
18.	Andeavor Logistics	\$9,505	\$10,295	8%
19.	ONEOK Inc.	\$16,846	\$18,232	8%
20.	Enable Midstream Partners	\$11,593	\$12,444	7%
21.	Hess Midstream Partners	\$2,635	\$2,820	7%
22.	Archrock, Inc.	\$2,408	\$2,553	6%
23.	Magellan Midstream Partners	\$7,394	\$7,748	5%
24.	Enterprise Products Partners	\$54,418	\$56,970	5%
25.	Global Partners	\$2,320	\$2,424	4%
26.	Summit Midstream Partners	\$2,895	\$3,021	4%
27.	Enbridge Inc.	\$124,982	\$128,851	3%
28.	DCP Midstream	\$13,878	\$14,266	3%
29.	Energy Transfer LP	\$86,246	\$88,246	2%
30.	EnLink Midstream LLC	\$10,538	\$10,694	1%
31.	TransMontaigne Partners	\$987	\$999	1%
32.	Plains All American	\$25,351	\$25,511	1%
33.	Crestwood Equity Partners	\$4,285	\$4,295	0%
34.	CNX Midstream Partners	\$927	\$925	(0%)
35.	Kinder Morgan Inc	\$79,055	\$78,866	(0%)
36.	Williams Cos.	\$46,352	\$45,302	(2%)
37.	Holly Energy Partners	\$2,154	\$2,103	(2%)
37.	Nustar Energy	\$6,535	\$6,349	(3%)
39.	SemGroup Corp.	\$5,377	\$5,210	(3%)
40.	Suburban Propane Partners	\$2,236	\$2,152	(4%)
41.	Amerigas	\$4,192	\$4,006	(4%)
42.	USD Partners	\$301	\$287	(5%)
43.	Blueknight Energy Partners	\$341	\$323	(5%)
44.	NGL Energy Partners	\$6,316	\$5,956	(6%)
45.	Sprague Resources	\$1,363	\$1,245	(9%)
46.	Buckeye Partners	\$10,305	\$9,356	(9%)
47.	Genesis Energy	\$7,137	\$6,479	(9%)
48.	Green Plains Partners	\$92	\$81	(12%)
49.	Martin Midstream Partners	\$1,253	\$1,033	(18%)
50.	Sunoco Logistics	\$8,344	\$4,879	(42%)

## Arrivals and departures

There were the usual comings and goings within the list, including some well-known names in the sector. The biggest name to disappear, Boardwalk Pipeline Partners LP—ranked No. 19 on last year's list with EBITDA of \$791 million—left as general partner Loews Corp. acquired the outstanding units in Boardwalk that it did not already hold.

Restructurings and mergers also claimed such well-known list participants at Valero Energy Partners LP, rolled into parent Valero Energy Corp., and Dominion Midstream Partners LP, merged into Dominion Energy Inc. as 2019 began.

## The Midstream 50 Revenue Leaders (\$MM)



ArcLight Energy Partners Fund VI LP announced as 2018 ended that it would acquire the remaining units in TransMontaigne Partners that it did not already hold and unitholders approved the deal early this year. The New York Stock Exchange delisted TransMontaigne in February.

ArcLight also announced a merger with American Midstream Partners LP, No. 39 on last year's Midstream 50.

Petroleum products-focused Sunoco Logistics Partners LP earned its place in the sun, at No. 21, separate from its parent, No. 2 Energy Transfer.

A name that lingered on the new Midstream 50—but won't be around next time—is Andeavor Logistics (formerly San Antonio-based Tesoro Logistics), which merged along with its parent, Andeavor Corp., into Marathon Petroleum Corp. in 2018. Marathon also is the parent of MPLX, which moved up one notch in the list to No. 7 with a substantial 73% increase in EBITDA to \$3.5 billion.



And in May, IFM Investors announced the acquisition of No. 19 Buckeye Partners LP in an all-cash deal with an equity value of \$6.5 billion.

Newcomers on this year's list include No. 27 Amerigas Partners LP, a major player in NGL and LP terminals. Philadelphia-based UGI Utilities Inc. is its general partner.

Coming in at No. 37 was another familiar name in gas liquids, Suburban Propane Partners LP. Green Plains Partners, appearing at No. 48, focuses on motor fuels and ethanol storage and distribution.

Last but not least at No. 50, USD Partners LP rounded out this year's list. USD specializes in midstream logistics assets, such as rail terminals.

### Looking ahead

Ethan Bellamy, managing director and senior research analyst at Robert W. Baird & Co. Inc., told *Midstream Business* he sees the positive trends that began in 2018 continuing this year and into the near future.

"The sector is in improving health," Bellamy said. "If you look at the financial metrics of this group, on average they are better than in 2015, 2016 and 2017. Though the stock prices may not reflect it, leverage and payout metrics have improved meaningfully."

The first numbers released on 2019 performance, for the first quarter, confirm that trend, according to a report published by Seaport Global.

"Midstream equities had a good start to this year with the Alerian Midstream Energy Select Index (AMEI) ... outpacing the 15.9% gains in the broader S&P 500 Index and also the broader energy index (XLE) that gained 17.2%," the Seaport analysts wrote.

They added, "Midstream equities have also seen some performance dispersion. Among names under our coverage, ONEOK and Williams have outperformed their peers while Plains All American has lagged a bit and Targa Resources [Corp.] significantly."

Seaport's Sibal emphasized last year's dismal performance by midstream issues with more favorable results—so far—for 2019: The AMEI price was down 22.5% in 2018, "a move similar to the move from start of 2015 to the end of 2017."

However, year-to-date in 2019 the AMEI price is up ~18%, "so things are looking much better," he added.

With that backdrop, the Seaport report projected these themes for first-quarter earnings:

**A quickening upstream pace and resulting midstream volume and cash-flow growth.** "Advantage Permian. The commentary from the upstream community on capital discipline has brought increasing focus on slowing production growth and its impact on midstream volumes and cash flows.

"The well-completion data reported by the U.S. Energy Information Administration through March 2019, however, shows the U.S. shale basins continue to make strong progress on completions...."

### THE MIDSTREAM 50 BY CHANGE IN EBITDA (\$MM)

Rank	Company Name	2017 EBITDA	2018 EBITDA	% Change
1.	USA Compression Partners	\$130	\$320	146%
2.	Tallgrass Energy LP	\$300	\$654	118%
3.	BP Midstream Partners	\$109	\$196	80%
4.	MPLX	\$2,004	\$3,475	73%
5.	Noble Midstream Partners	\$179	\$275	54%
6.	Phillips 66 Partners	\$754	\$1,137	51%
7.	Oasis Midstream Partners	\$119	\$178	49%
8.	Cheniere Energy Inc	\$1,824	\$2,641	45%
9.	EQT Midstream Partners	\$689	\$998	45%
10.	Delek Logistics Partners	\$115	\$164	43%
11.	Global Partners	\$224	\$311	39%
12.	Antero Midstream Corp.	\$529	\$717	36%
13.	Shell Midstream Partners	\$481	\$636	32%
14.	Energy Transfer LP	\$7,320	\$9,510	30%
15.	Plains All American	\$2,078	\$2,684	29%
16.	Enterprise Products Partners	\$5,615	\$7,223	29%
17.	Andeavor Logistics	\$949	\$1,201	27%
18.	Archrock, Inc.	\$280	\$352	26%
19.	Enbridge Inc.	\$7,955	\$9,919	25%
20.	NGL Energy Partners	\$373	\$464	24%
21.	Hess Midstream Partners	\$399	\$497	24%
22.	Genesis Energy	\$577	\$716	24%
23.	ONEOK Inc.	\$1,987	\$2,448	23%
24.	TransMontaigne Partners	\$109	\$133	23%
25.	SemGroup Corp.	\$328	\$394	20%
26.	Targa Resources	\$1,140	\$1,366	20%
27.	EnLink Midstream LLC	\$873	\$1,042	19%
28.	CSI Compressco	\$84	\$99	18%
29.	Enable Midstream Partners	\$924	\$1,074	16%
30.	TransCanada Corp.	\$5,688	\$6,611	16%
31.	Sunoco Logistics	\$638	\$732	15%
32.	CNX Midstream Partners	\$166	\$189	14%
33.	Western Midstream Partners LP	\$1,061	\$1,206	14%
34.	Suburban Propane Partners	\$252	\$283	12%
35.	Nustar Energy	\$595	\$666	12%
36.	Amerigas	\$560	\$622	11%
37.	DCP Midstream	\$1,017	\$1,092	7%
37.	Magellan Midstream Partners	\$1,303	\$1,396	7%
39.	Crestwood Equity Partners	\$395	\$420	6%
40.	Kinder Morgan Inc	\$7,198	\$7,568	5%
41.	Williams Cos.	\$4,531	\$4,638	2%
42.	Summit Midstream Partners	\$290	\$294	1%
43.	Holly Energy Partners	\$345	\$347	1%
44.	USD Partners	\$56	\$57	0%
45.	PBF Logistics	\$152	\$152	0%
46.	Green Plains Partners	\$70	\$66	(5%)
47.	Sprague Resources	\$109	\$102	(7%)
48.	Buckeye Partners	\$1,114	\$1,005	(10%)
49.	Blueknight Energy Partners	\$70	\$60	(14%)
50.	Martin Midstream Partners	\$156	\$124	(21%)

## THE MIDSTREAM 50 BY STOCK-PRICE CHANGE

Rank	Company Name	12/31/17 Price	12/31/18 Price	% Change
1.	Cheniere Energy Inc	\$53.84	\$59.19	10%
2.	Crestwood Equity Partners	\$25.80	\$27.91	8%
3.	TransMontaigne Partners	\$39.45	\$40.58	3%
4.	Andeavor Logistics	\$50.32	\$50.81	1%
5.	ONEOK Inc.	\$53.45	\$53.95	1%
6.	Global Partners	\$16.70	\$16.30	(2%)
7.	Plains All American	\$20.64	\$20.04	(3%)
8.	CNX Midstream Partners	\$16.77	\$16.28	(3%)
9.	PBF Logistics	\$20.95	\$20.10	(4%)
10.	Sunoco Logistics	\$28.40	\$27.19	(4%)
11.	Enable Midstream Partners	\$14.22	\$13.53	(5%)
12.	Tallgrass Energy LP	\$25.74	\$24.34	(5%)
13.	USD Partners	\$11.25	\$10.45	(7%)
14.	Enterprise Products Partners	\$26.51	\$24.59	(7%)
15.	Delek Logistics Partners	\$31.70	\$29.25	(8%)
16.	Oasis Midstream Partners	\$17.44	\$15.99	(8%)
17.	Holly Energy Partners	\$32.49	\$28.56	(12%)
18.	Hess Midstream Partners	\$19.81	\$16.98	(14%)
19.	MPLX	\$35.47	\$30.30	(15%)
20.	Kinder Morgan Inc	\$18.07	\$15.38	(15%)
21.	Genesis Energy	\$22.35	\$18.47	(17%)
22.	Phillips 66 Partners	\$52.35	\$42.11	(20%)
23.	Magellan Midstream Partners	\$70.94	\$57.06	(20%)
24.	Suburban Propane Partners	\$24.22	\$19.27	(20%)
25.	Enbridge Inc.	\$39.11	\$31.08	(21%)
26.	USA Compression Partners	\$16.54	\$12.98	(22%)
27.	Energy Transfer LP	\$17.26	\$13.21	(23%)
28.	BP Midstream Partners	\$20.57	\$15.54	(24%)
29.	Western Midstream Partners, LP	\$37.16	\$27.73	(25%)
30.	Targa Resources	\$48.42	\$36.02	(26%)
31.	Martin Midstream Partners	\$14.00	\$10.28	(27%)
32.	TransCanada Corporation	\$48.64	\$35.70	(27%)
33.	DCP Midstream	\$36.33	\$26.49	(27%)
34.	Green Plains Partners	\$18.70	\$13.57	(27%)
35.	Williams Companies	\$30.49	\$22.05	(28%)
36.	Archrock, Inc.	\$10.50	\$7.49	(29%)
37.	Nustar Energy	\$29.95	\$20.93	(30%)
37.	NGL Energy Partners	\$14.05	\$9.59	(32%)
39.	Sprague Resources	\$24.20	\$14.49	(40%)
40.	EQT Midstream Partners	\$73.10	\$43.25	(41%)
41.	Buckeye Partners	\$49.55	\$28.99	(41%)
42.	Noble Midstream Partners	\$50.00	\$28.84	(42%)
43.	Antero Midstream Corp.	\$19.72	\$11.18	(43%)
44.	Shell Midstream Partners	\$29.82	\$16.41	(45%)
45.	Amerigas	\$46.23	\$25.30	(45%)
46.	EnLink Midstream, LLC	\$17.60	\$9.49	(46%)
47.	Summit Midstream Partners	\$20.50	\$10.05	(51%)
48.	Semgroup Corporation	\$30.20	\$13.78	(54%)
49.	CSI Compressco	\$5.47	\$2.32	(58%)
50.	Blueknight Energy Partners	\$5.10	\$1.15	(77%)

**Returning cash to shareholders vs. fortifying balance sheets.** “We think this remains an open question as investors look to stability and sustainability of commodity prices and U.S. production growth. We think midstream players with a balanced approach are likely favored by investors as long as this does not lead to tapping equity markets to finance growth projects.”

**A focus on operating costs.** “In an environment where E&P customers are super-focused on margin improvement vs. growth, midstream-provider revenues are likely to come under increasing pressure. We think this could put pressure on midstream operators to reduce operating cost and G&A in order to improve profitability.”

**NGL price weakness.** “NGL prices have lagged crude prices, with ethane and propane leading the weakness.

“Weakness in end-use demand as demonstrated by weakness in ethylene and polymer-grade propylene prices—U.S. Gulf Coast prices down 26.5% and down 10.9%, respectively, year to date—has put pressure on petchem profitability, impacting demand as well as new-project start-up timing, while the growing NGL supply provides additional pressure.”

**Potential risks to the midstream.** “Despite the strong performance year to date, we believe sector valuations are supportive, devoid of a sharp downturn in commodity complex and upstream activity.

“With the U.S. becoming increasingly reliant on exporting hydrocarbon and, thus, building infrastructure to support that trade, a big slowdown in global demand and further flare-up in trade tensions likely pose the biggest risk to the U.S. midstream players in our view.”

### New, pricey

U.S. Capital Advisors analysts noted in their earnings summary that, although upstream players have “gotten a big dose of religion” about living within their means, the same can’t be said for the midstream as production continues to grow. That creates the need for new, pricey infrastructure.

“Despite the producer pullback in spending, oil and gas production is growing and needs infrastructure to accommodate that growth,” they added. “But that means higher capex and, thus, more financing, which investors are not particularly keen on.

“Aggregate expected capex spend for our midstream universe for 2019 is up 5%, or \$1.6 billion, to \$32.6 billion post-Q4 earnings calls.”

That will be tough “since equity funding is basically taboo,” so watch for midstream players to take on debt to get the job done, they added.

A Stifel report focused on four midstream trends, including the preference for large-cap players noted by U.S. Capital: An improving financial profile; tightness following by an unconstrained environment as significant new infrastructure goes on stream late this year and in 2020; returning capital next year, “either

accelerating distribution growth or share buybacks to absorb excess cash flow; and the struggle of midstream operators to attract capital.

### Structural shift

Another big shift Baird's Bellamy sees is the midstream's continuing move to a more traditional corporate structure and away from MLPs. He cited three reasons.

"If you tally the top 50, I think you'll find a continued shift away from the partnership model and toward regular C-corporations," Bellamy explained. "A few things have driven this. First, lower corporate tax rates suppress the partnership tax advantage.

**“Despite much better sector fundamentals in 2018 vs. the previous years, the midstream-sector stocks did not do great due to market skepticism on recovery, among other factors.”**

—**Sunil Sibal**, senior analyst for energy infrastructure, MLPs and utilities, Seaport Global Securities LLC

"Second, the Federal Energy Regulatory Commission's policy on natural gas pipeline tariffs makes the partnership structure less attractive for those assets. Third, the legacy incentive structures for partnerships can't be justified by recent returns, and many sponsors have elected to do away with the partnership structure in concert with an elimination of those incentives."

Seaport's Sibal also commented on the trend toward C-corp structures, noting he uses the broader AMEI as a benchmark as, "considering the move from MLP to the C-corp structure, this has become more representative of midstream names in my view."

So 2018 may have been pretty good for the sector. What will it take to make it very good—and get investors to start considering midstream issues again?

"Simplified structures and improved financial profiles create financial flexibility," the Stifel analysts wrote. "Investment should moderate in 2020—confirmation needed—with either accelerating distribution growth or share buybacks absorbing excess cash flow, which should drive outperformance." ■

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## THE MIDSTREAM 50 BY CHANGE IN REVENUE (\$MM)

Rank	Company Name	2017 Revenue	2018 Revenue	% Change
1.	Blueknight Energy Partners	\$182	\$385	112%
2.	USA Compression Partners	\$277	\$584	111%
3.	Noble Midstream Partners	\$239	\$496	107%
4.	EQT Midstream Partners	\$896	\$1,495	67%
5.	MPLX	\$3,691	\$6,049	64%
6.	NGL Energy Partners	\$16,016	\$24,197	51%
7.	Oasis Midstream Partners	\$182	\$272	49%
8.	CSI Compressco	\$296	\$439	48%
9.	Genesis Energy	\$2,028	\$2,913	44%
10.	Cheniere Energy Inc	\$5,601	\$7,987	43%
11.	Global Partners	\$8,921	\$12,673	42%
12.	EnLink Midstream LLC	\$5,740	\$7,699	34%
13.	Energy Transfer LP	\$40,523	\$54,087	33%
14.	Antero Midstream Corp.	\$772	\$1,029	33%
15.	Sprague Resources	\$2,855	\$3,771	32%
16.	Plains All American	\$26,223	\$34,055	30%
17.	Enterprise Products Partners	\$29,242	\$36,534	25%
18.	TransMontaigne Partners	\$183	\$228	24%
19.	Enable Midstream Partners	\$2,803	\$3,431	22%
20.	Delek Logistics Partners	\$538	\$658	22%
21.	Tallgrass Energy LP	\$656	\$793	21%
22.	SemGroup Corp.	\$2,082	\$2,503	20%
23.	Targa Resources	\$8,815	\$10,484	19%
24.	Hess Midstream Partners	\$566	\$662	17%
25.	DCP Midstream	\$8,462	\$9,822	16%
26.	Archrock, Inc.	\$795	\$904	14%
27.	Magellan Midstream Partners	\$2,508	\$2,827	13%
28.	Buckeye Partners	\$3,648	\$4,108	13%
29.	Phillips 66 Partners	\$934	\$1,045	12%
30.	Shell Midstream Partners	\$470	\$525	12%
31.	Holly Energy Partners	\$454	\$506	11%
32.	Amerigas	\$2,564	\$2,856	11%
33.	PBF Logistics	\$258	\$283	10%
34.	CNX Midstream Partners	\$234	\$257	10%
35.	USD Partners	\$109	\$119	10%
36.	Suburban Propane Partners	\$1,244	\$1,348	8%
37.	Williams Cos.	\$8,031	\$8,686	8%
37.	Nustar Energy	\$1,814	\$1,962	8%
39.	BP Midstream Partners	\$108	\$116	8%
40.	Enbridge Inc.	\$34,218	\$35,804	5%
41.	Summit Midstream Partners	\$489	\$507	4%
42.	ONEOK Inc.	\$12,174	\$12,593	3%
43.	Kinder Morgan Inc	\$13,705	\$14,144	3%
44.	Martin Midstream Partners	\$946	\$973	3%
45.	TransCanada Corp.	\$10,370	\$10,560	2%
46.	Green Plains Partners	\$107	\$101	(6%)
47.	Crestwood Equity Partners	\$3,881	\$3,645	(6%)
48.	Western Midstream Partners LP	\$2,248	\$1,990	(11%)
49.	Andeavor Logistics	\$3,249	\$2,380	(27%)
50.	Sunoco Logistics	\$16,994	\$11,723	(31%)

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# Providing Innovative Injection Well Solutions

**I**njection wells serve many purposes, such as the safe and permitted disposal of oilfield produced water, waste injection, brine mining, desalination brine, and hazardous chemicals in formations deep underground. WSP USA's expert geoscience team and drilling team each have a strong track record of drilling injection wells for the many varied purposes our clients require.

WSP is well known for extensive capabilities in creating underground storage caverns in salt formations and in hard rock. The firm is also recognized as an expert in designing, drilling, completing and operating injection wells. WSP has permitted, drilled, completed, operated, and reported on injection wells in most states, and we're expanding internationally.

WSP has a wealth of experience with the permitting, design, installation and repair of class 2 oilfield injection wells throughout the U.S. and abroad. Our expert staff has developed proven project management procedures related to design, installation, workover, and repair projects, and are fully up to date with current technologies.

The technical expertise and innovative approach WSP provides has helped clients design, drill and maintain

underground storage and disposal wells under various conditions safely and efficiently, and adapt to unusual or unexpected challenges that may arise in uncertain underground environments.

**WSP has provided a wide range of specialty well services to support injection, storage, geothermal energy and in-situ mining activities to numerous clients, including many Fortune 500 clients.**

Our drilling engineers are experienced in drilling through difficult underground environments, including thick salt deposits, thick sections of "gumbo" shale, over-pressured

*Photos courtesy WSP USA ©2016*





zones, lost circulation zones, and underground disposal zones containing 100 percent waste. To ensure that viable location is selected for an injection well, WSP designs and installs test wells that enable the evaluation of site-specific subsurface conditions generating data that determines the most appropriate project design and project feasibility.

Recently one of our major clients invited the firm to evaluate a cavern development plan for an existing salt dome location in Texas. A component of that plan was leaching the caverns based on the existing injection well capacity.

However, during the initial evaluation, WSP identified that by doubling the leaching rate, the cavern completion time could be cut dramatically, allowing the caverns to be ready for operation sooner. We demonstrated to the client that the infrastructure required to leach more quickly was feasible on the site, and within the existing site footprint – no additional land would be required for the leaching process. This was quite an exciting discovery. It not only lowered the cost for the client, but the time that it took to develop the project was also reduced.

Unfortunately, this led to another challenge, as it was determined that the existing brine injection well could not flow enough leaching brine to enable the “fast track” to support the leaching plan.

The WSP team jumped at the chance to evaluate the existing injection well for the client to determine if the injection rate could be improved. This evaluation showed stimulation and re-perforation would improve the rate; but still, to achieve the “fast track” injection rate would require drilling a new injection well. It was determined that we could keep the injection well

cost lower by using the existing well and drilling one new well. The client supported the idea and sanctioned WSP to develop the permit applications.

An integral part of WSP’s injection well project work is the permitting process, led by the firm’s team in Houston. Permit applications for disposal into a non-productive formation were prepared by the team for client approval, a routine professional service the firm provides. This close collaboration with the client allowed WSP to showcase its problem-solving prowess, providing an “above and beyond” solution for the client.

WSP has provided a wide range of specialty well services to support injection, storage, geothermal energy and in-situ mining activities to numerous clients, including many Fortune 500 clients. WSP is plugged in to the requirements of industrial and commercial clients as well as the demands of state and federal regulatory agencies. An industry-leading understanding of geology, formation properties and well control allows our professionals to provide consistent, efficient service while finding the best solutions to suit each client’s individual needs. ■

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# Private Equity's Growing Role

Private capital has been crucial to the sector's growth and its role continues to expand.

*By Bill Waldrip and Billy Lemmons*

**M**uch has changed in the 11 years we at EnCap Flatrock Midstream have been investing on behalf of our limited partners, but today we are as optimistic about the future as ever. There is an expanding opportunity set for the private midstream-capital provider and the independent service provider.

We believe there will be a growing number of attractive acquisition and partnership opportunities. We see a strong need to move hydrocarbons from the wellhead to the water.

And talented professionals in the midstream sector agree and view partnerships with venture capital and private-equity firms as great vehicles for taking control of their futures.

#### **Expanding role**

The rise of the independent midstream-service provider during the past 15 years has been extremely beneficial to the upstream sector and, ultimately, to downstream consumers.

For many years, we've said that one of the benefits of private capital in our

space is playing a "farm team" role for the strategics, the MLPs. And this holds true today.

Public companies face a different set of expectations relative to predictability of earnings than private companies do. Private companies can play a vital role in sorting through both greenfield and brownfield opportunities, seasoning out risks and timelines, and building scale to a point that the opportunity is better suited for the next form of capital and/or operator.



Tugs jockey the French-flagged, Very Large Crude Carrier *Anne* at the Moda Ingleside Energy Center at the mouth of the Corpus Christi Ship Channel. Private-equity-backed Moda Midstream LLC owns and operates the terminal, which can load such outsize tankers and has 2.1 million barrels of storage capacity, with an additional 10 million under construction. The export terminal is already one of the largest in the U.S. Source: *EnCap Flatrock Midstream*

## Private Equity

Sometimes that's a strategic player with a bigger balance sheet, more manpower, strategic and operational synergies, and so on.

More recently, it may mean the company is just more leverageable or attractive to an investor, like an infrastructure fund. Our long-term view is that midstream platforms of scale, with great management teams and strong balance sheets, will eventually be great fits for public investors.

Independent midstream-service providers backed by private capital are a permanent and positive force in the business. And we can't say enough about how important our relationships are with our many friends across the industry.

Their trust and confidence are earned at every interaction we have and make a huge difference in getting deals done. This has expanded the number of investment channels for private capital.

EnCap Flatrock Midstream provides value-added growth capital to proven management teams focused on midstream-infrastructure opportunities across North America. The firm was formed in 2008 by a partnership of EnCap Investments LP and Flatrock Energy Advisors LLC.

Based in San Antonio with offices in Oklahoma City and Houston, the firm manages investment commitments of nearly \$9 billion from a broad group of prestigious institutional investors.

EnCap Flatrock is the largest venture-capital firm in the U.S. focused exclusively on the midstream and is currently making commitments to new management teams from EFM Fund IV, a \$3.25-billion fund.

### Acquisitions, partnerships

There has certainly been a disruption to what has been the fundamental industry model of the past 10 to 15 years. We see this as a transitional time that has opened a window for us to put more money to work in the M&A channel than what we typically see.

In the past few years, we've been involved in several deals that would have normally been captured by the strategics. We've been fortunate to have already taken a couple of those deals full cycle.

Last fall, we acquired the Centurion crude oil pipeline in the Permian Basin and the Ingleside, Texas, export terminal from Occidental Petroleum Corp.

Our Lotus Midstream LLC and Moda Midstream LLC teams, respectively, are actively developing the growth potential we see on both platforms.

These deals were large at a combined \$2.6 billion and really speak to the confidence Occidental had in our teams as they remain a large customer on both platforms. We are looking to do more deals like this with players that want to monetize assets and focus their capital on their core businesses.

**For many years, we've said that one of the benefits of private capital in our space is playing a "farm team" role for the strategics, the MLPs. And this holds true today.**

Most recently, Nuevo Midstream Dos LLC acquired Republic Midstream LLC, a crude oil gathering, storage and intermediate-transportation system in the Eagle Ford Shale. Nuevo also plans to expand the system, through additional acquisitions or brownfield development—or both.

Transactions like these are filling a void that has developed as MLPs clean up their balance sheets and change corporate structures. There is no doubt that capital markets have cooled on the MLP space for the time being. But our long-term view is that the large strategics in the midstream space are world-class infrastructure companies that are integral to making the global economy function.

The companies and people that "move the molecules" aren't going anywhere. But we do see venture capital and private equity filling a role on both the financing and M&A fronts until capital markets are

satisfied that the industry has finished cleaning up its collective balance sheet and structure.

We also believe we will see more greenfield and brownfield partnerships between the strategics and private equity. We have always believed private capital plays an important role in the industry's aggregate balance sheet. In many ways it is the "swing supplier" in the midstream-capital market.

EnCap Flatrock portfolio company Lotus recently entered a joint venture with industry leaders Exxon Mobil Corp. and Plains All American Pipeline LP to construct the Wink-to-Webster Pipeline from the Permian to the Texas Gulf Coast. And we recently saw our friends at Blackstone Group LP announce major deals with Targa Resources Corp. and Kinder Morgan Inc.

We believe more of these deals will happen and we're proud that the quality of our management teams and the size of our investment platform allow us to serve and/or partner with industry leaders like ExxonMobil, Occidental and Plains.

### Wellhead to water

The Permian is still the most active basin in the country; the economics are extremely attractive. Moving hydrocarbons from the wellhead to the water is an expanding market and we believe we'll see even more venture-capital and private-equity involvement in large capital projects.

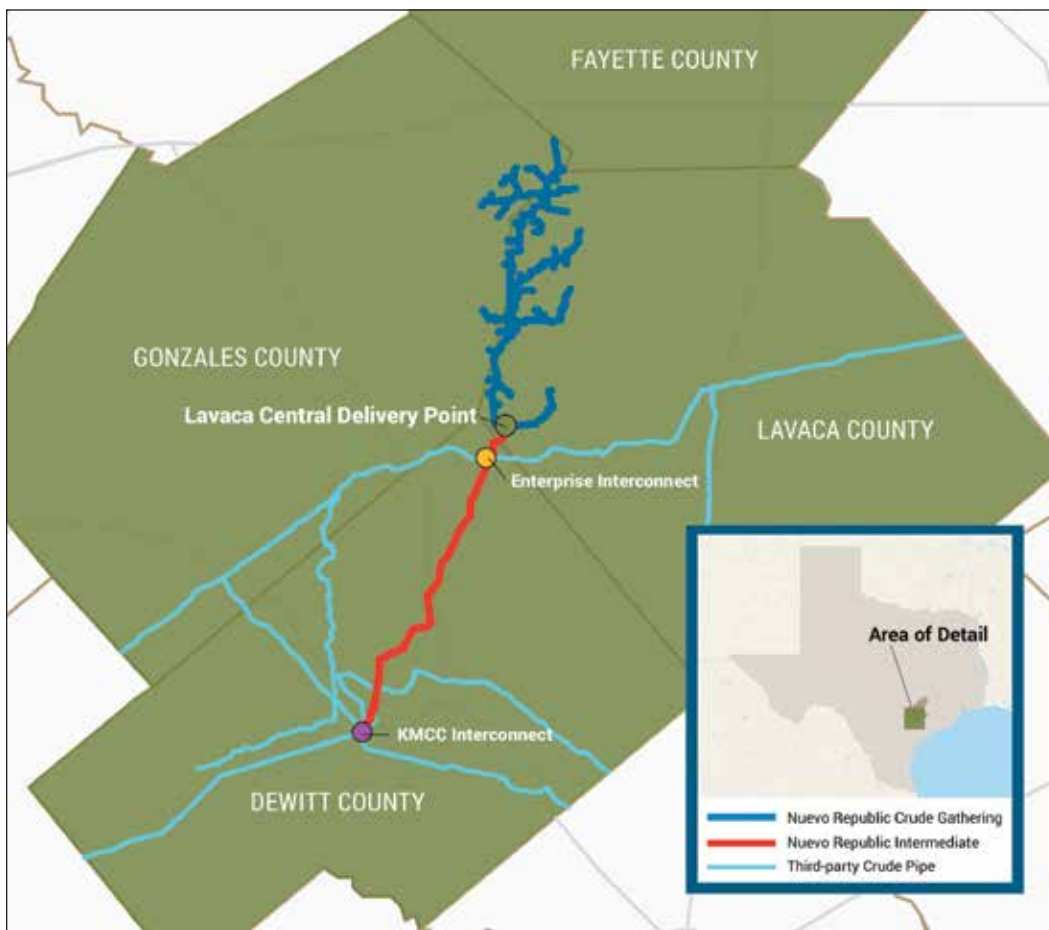
These include large gathering systems like the Centurion Pipeline System, takeaway pipelines like Wink-to-Webster and export infrastructure at the landing zones like Moda Midstream's Ingleside Energy Center at the Port of Corpus Christi.

Ancillary to this, but important, are projects that ensure connectivity. For example, our portfolio company Cogent Midstream LLC recently announced that it will build a 25-mile pipeline to connect its Big Lake gas-processing complex in the Midland Basin to Kinder Morgan's Gulf Coast Express Pipeline (GCX Pipeline).

### Midstream talent

We believe our competitors and friends in venture capital and private equity will agree that these dynamics





Nuevo Midstream Dos LLC plans to expand the Republic Midstream LLC system, which it recently acquired. Serving the Eagle Ford, the system currently consists of some 100 miles of gathering lines, a central delivery point (CDP) with 300,000 barrels of crude storage, a six-bay truck station and an approximately 26-mile line from the CDP to the Kinder Morgan Inc. Crude and Condensate Pipeline and Enterprise Products Partners LP Eagle Ford Crude Oil Pipeline System. *Source: EnCap Flatrock Midstream*



create a very positive environment for talented midstream professionals who want to take control of their futures by forming management teams and seeking growth capital.

During the past two years, we've backed six new companies formed by seasoned midstream professionals, including from EnLink Midstream LLC, Crestwood Equity Partners LP, Enbridge Inc. and Sunoco Logistics Partners LP/ Energy Transfer LP.

The initial commitments we made to these teams exceed \$1.6 billion, combined. And, in January 2018, we closed EFM Fund IV to fuel the continued growth of our portfolio companies.

Things are moving fast in midstream. For example, just six short months after our initial \$400-million commitment to Lotus and with our support, Lotus acquired the Centurion system in a bundled, \$2.6-billion deal that included Moda's acquisition of the Ingleside Energy Center.

Two months later, Lotus entered the previously mentioned joint venture with ExxonMobil and Plains to build the Wink-to-Webster pipeline.

As our management teams make deals and dig into new projects, the majority of our initial commitments have increased substantially. ■

*Bill Waldrip and Billy Lemmons are co-founders and managing partners of EnCap Flatrock Midstream.*

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Brian Bravo  
Co-Head of Midstream  
Energy Investment Banking  
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May 2019  
Pending



**\$57,000,000,000**

Sale to  
**Occidental Petroleum**  
Joint Financial Advisor


May 2019  
Pending



**\$14,000,000,000**

Acquisition of **Andeavor Logistics**  
Sole Financial Advisor  
to the Conflicts Committee

May 2019  
Pending



**\$310,000,000**

Sale of Gas and Water Midstream Assets  
to **EagleClaw Midstream** and  
**WaterBridge Resources, LLC**  
Sole Financial Advisor


April 2019  
Pending



**\$3,600,000,000**

Sale to  
**Stonepeak Infrastructure Partners**  
Joint Financial Advisor


March 2019  
Pending



**\$2,127,000,000**

Acquisition of **Murphy Oil's  
Malaysia Oil & Gas Business**  
Sole Financial Advisor

March 2019



**\$1,155,000,000**

Credit Facility to Finance Acquisition of  
Majority Stake by  
**Blackstone Infrastructure Partners**  
Joint Lead Arranger

March 2019  
Pending



**\$930,000,000**

Sale to  
**TPG Capital, L.P.**  
Joint Financial Advisor


March 2019



**Undisclosed**

Sale to  
**Nuevo Midstream Dos, LLC**  
Sole Financial Advisor


March 2019



**Undisclosed**

Sale of 38% stake in **UED** to  
**Williams**  
Sole Financial Advisor


February 2019



**Undisclosed**

Sale to  
**EQT Partners**  
Sole Financial Advisor


December 2018  
Pending



**Undisclosed**

Sale to  
**DEA Deutsche Erdoel AG**  
Sole Financial Advisor

August 2018  
Pending



**\$353,000,000**

Merger with  
**Blue Ridge Mountain Resources, Inc.**  
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New pipe going in the ground is altering crude oil flows—and prices. Source: Shutterstock

# Crude's Little Secrets

**The Permian and Bakken basins are poised for change in 2019.**

*By Shirin Lakhani*

**D**uring the past 10 years, the midstream-heavy Alerian MLP Index Trust (AMZX) has traded within a tight correlation with WTI, implying midstream-sector performance dips when prices dip and rises when prices experience uplift.

However, this narrative is dangerously oversimplified, considering the steady growth in U.S. oil and gas production during the past decade, regardless of the direction prices fleetingly float.

Earlier this year, East Daley Capital Advisors Inc. published its annual report, “Dirty Little Secrets,” demystifying the disconnect by urging the market to shift

its focus back to the basics of midstream fundamentals. So long as there is drilling, volumes must flow. So long as volumes flow, there remains opportunity for midstream growth.

“Dirty Little Secrets” takes a balanced approach to midstream fundamentals by examining industry tailwinds in conjunction with midstream-company treadmills, defined as legacy-asset cash-flow-decline risks.

The report also makes predictions for oil, gas and NGL supply/demand fundamentals out of Cushing, northeastern Pennsylvania and the U.S. Gulf Coast—in addition to the Permian, Bakken and Denver-

Julesburg basins as well as the Guernsey, Wyo., hub.

About a fourth of the way into the year, several “dirty secrets” were already becoming market realities, including a shift in outflows of Permian crude volumes and the impending blowout of Bakken basis.

## **Slide to the Gulf**

In the “Crude Circus” chapter, East Daley revealed its expectations for the Midland-Cushing and Midland-Gulf spreads to widen in the first half of 2019, followed by a sharp tightening in the second half on the heels of soon-to-be-overbuilt

## Crude Pipelines

crude-takeaway capacity out of the Permian Basin.

As a result, northbound pipelines, including Basin, Centurion and Sunrise, would experience significant volume declines into 2020, reducing daily flow into Cushing by an estimated 500,000 barrels.

As new pipes come online out of the Permian, namely EPIC, Gray Oak and Cactus II, legacy lines will face the risk of lower re-contracting rates, reduced utilization and, notably, less marketing upside. Nearly five months into the year, the market is already bearing witness to this phenomenon.

The approximately 500,000 barrels a day (bbl/d) of volumes predicted to no longer flow northbound into Cushing will instead flow to the more premium-priced Gulf Coast market. Most of this displacement will occur as EPIC's 400,000 bbl/d of capacity comes online in the third quarter as line filling is expected to start this month.

The Cactus II expansion begins operations in September with an initial capacity of 400,000 bbl/d and Gray Oak comes online in the fourth quarter with 900,000 bbl/d.

**So long as there is drilling, volumes must flow. So long as volumes flow, there remains opportunity for midstream growth.**

### Party crashers

Enterprise Products Partners LP crashed the 2019 expansion party early with its Seminole NGL-to-crude conversion (Midland-to-ECHO II), bringing 200,000 bbl/d online ahead of schedule in the first quarter.

What's more, Enterprise, with some molecular magic of its own, managed to also expand its existing Permian crude-takeaway pipe, Midland-to-ECHO I, by an incremental 45,000 bbl/d, from 575,000 to 620,000.

The combined 245,000 bbl/d of additional egress connecting Midland to the Gulf Coast tightened spreads

significantly in the first quarter, with Midland trading at a premium to Cushing at times.

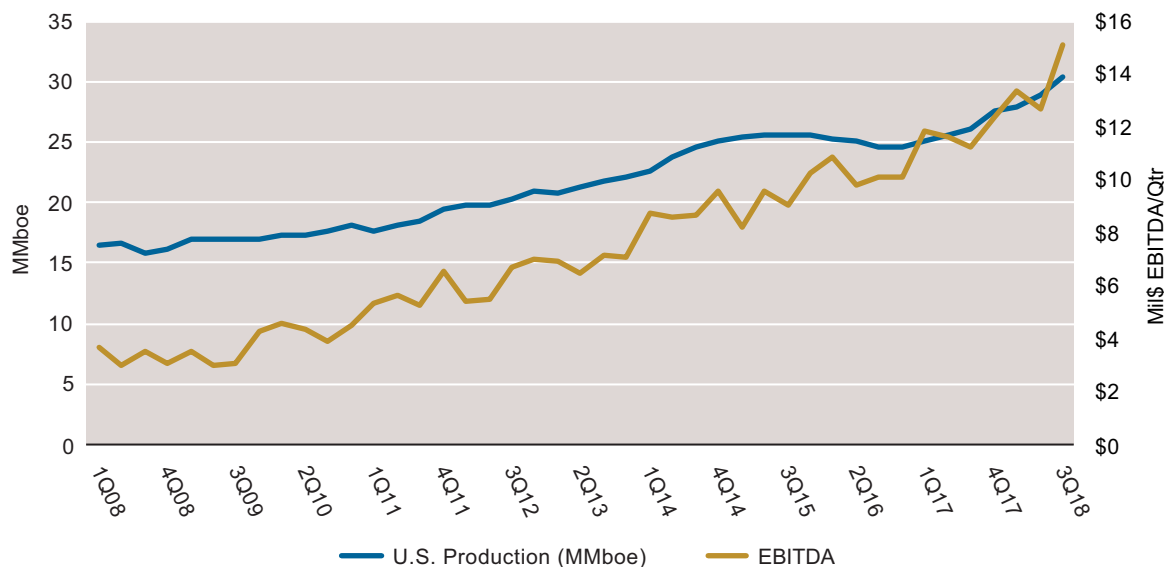
Meanwhile, East Daley's forecast for northbound volumes shifted from mere prophesy to reality as Sunrise-expansion daily barrels dropped by some 90,000 from November 2018 to February 2019.

Plains All American Pipeline LP, the company behind the Sunrise project, has about a third of the space on the expansion reserved for its own marketing arm. Plains has managed to keep its own barrels relatively flat since November, despite the tighter spread between Midland and Cushing, likely a result of strategic hedging.

The spread between the supply hub—Midland—and the storage hub—Cushing—has once again widened, as was anticipated in "Dirty Little Secrets" and as would have likely been the case *sans* Enterprise's early, incremental 245,000 bbl/d of capacity.

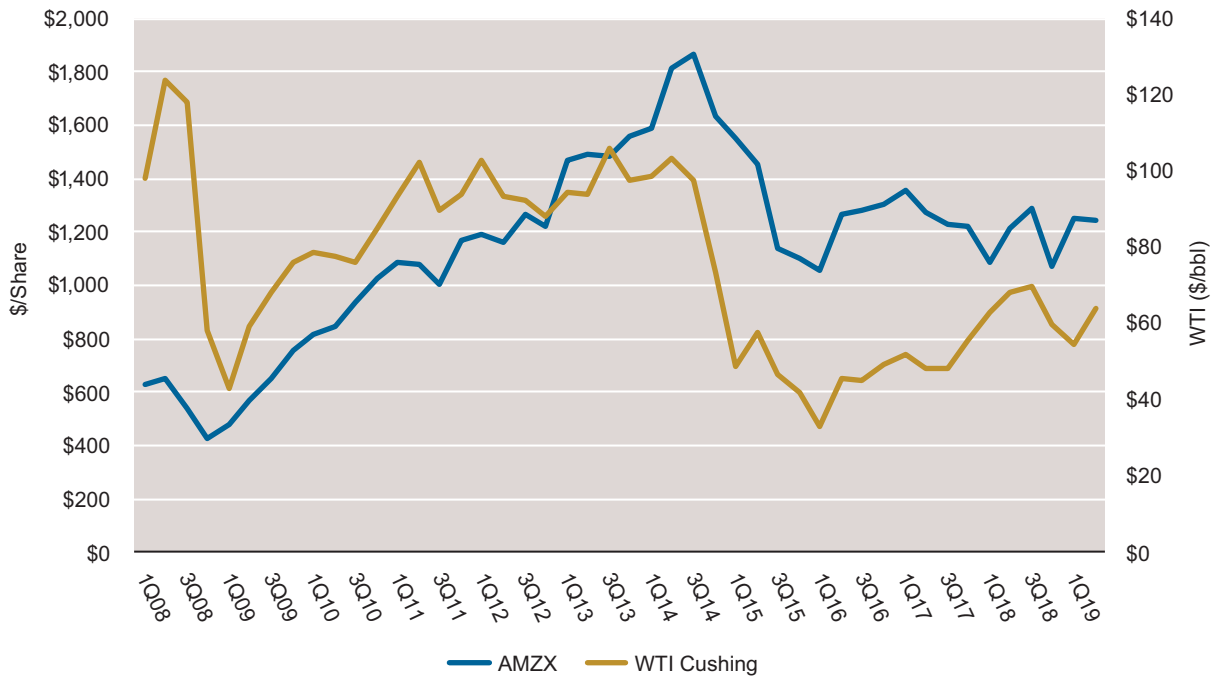
As the spread tightens once more into the second half of 2019, East Daley anticipates the volume-shift trailer previewed in the first quarter to become a full-fledged feature film by year-end.

### U.S. Production vs. Midstream EBITDA



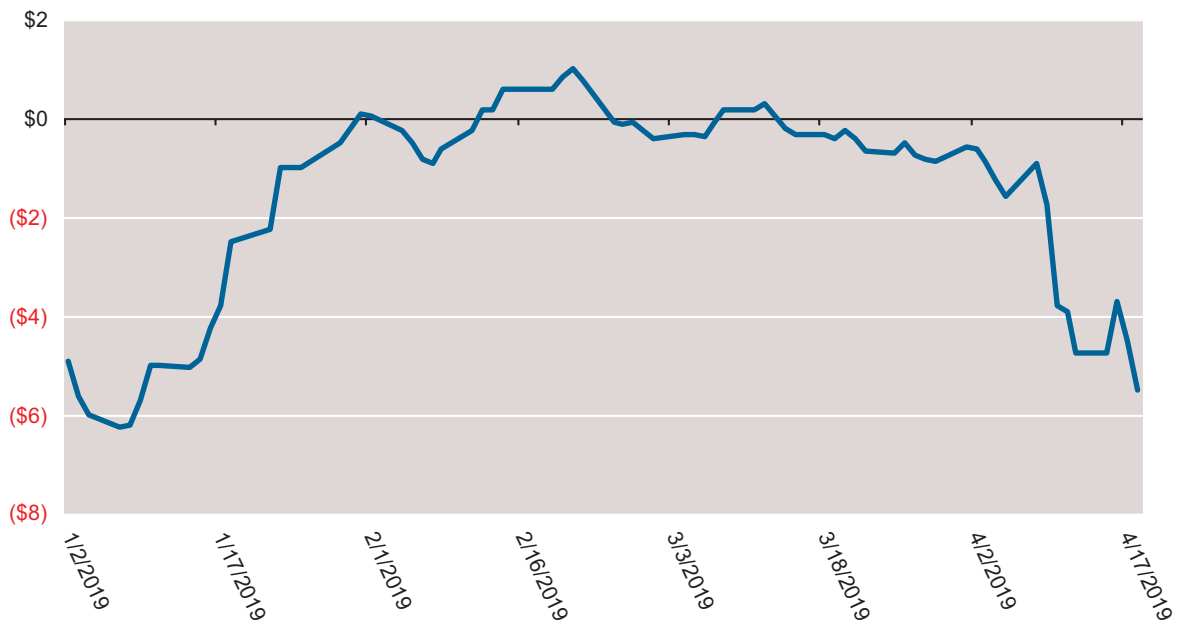
Source: East Daley Production Scenario Tool, Bloomberg

### Alerian (AMZX) Index vs. WTI-Cushing



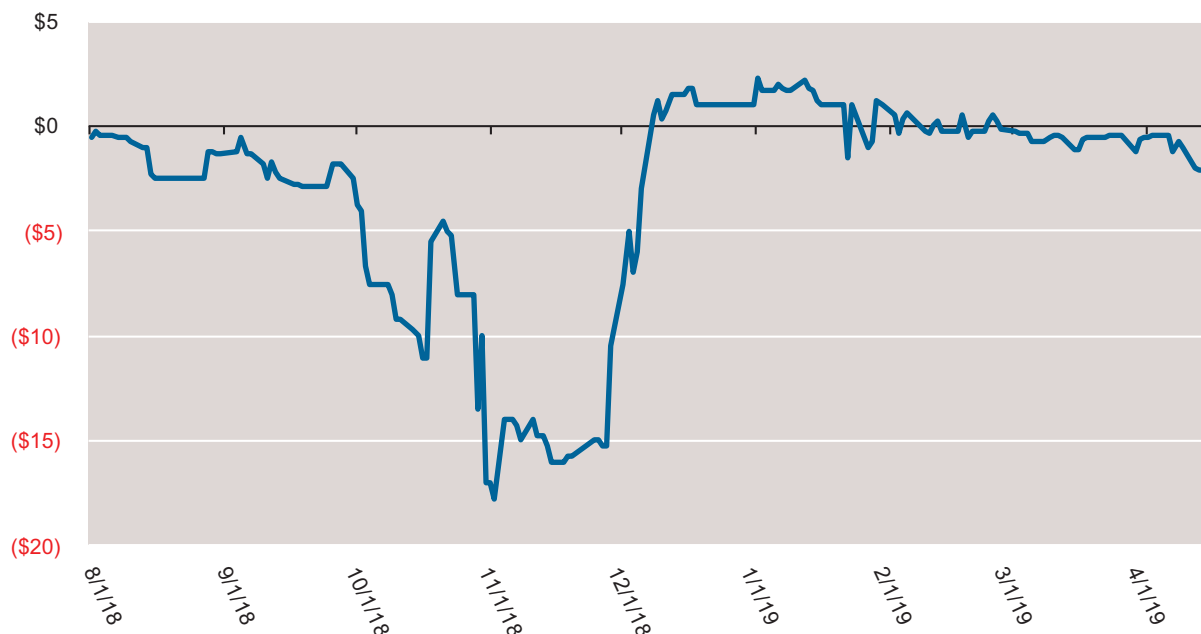
Source: Bloomberg

### Midland-WTI Spread (\$/bbl)



Source: Bloomberg

## Clearbrook-WTI Spread (\$/bbl)



Source: Bloomberg

### Bakken BYOB

While spreads out of the Permian induce a shift in strategy favoring fee-based midstream revenues over large quarterly swings in marketing, Clearbrook basis (the proxy for Bakken crude prices) faces the opposite problem as incremental production and already-tight effective capacity make this basin ripe for another price blowout—blowing your own basis.

In “Dirty Little Secrets,” East Daley cleared many of the misconceptions enshrouding this prolific basin by calculating a true effective capacity for Bakken egress rather than relying on outright pipe capacity, which is also what equipped the firm to successfully predict the 2018 Clearbrook blowout.

Using that same methodology, East Daley continues to believe incremental Bakken production, combined with northbound takeaway constraints into Canada, will put significant pressure on Clearbrook basis, particularly in the second half, risking a blowout close to rail economics—assuming an expansion project does not come to the basin’s rescue in the interim.

The basis has not yet reached the wide spreads witnessed in November 2018, but the Bakken is well on track for downward price movement during the course of the year.

Energy Transfer LP confirmed in the first quarter that it plans to expand the Dakota Access Pipeline (DAPL), one of the largest egress pipes out of the basin, from 525,000 bbl/d to 570,000. However, the latest reported volumes for DAPL indicate the pipe averaged 565,000 a day in fourth-quarter 2018, well above its original stated capacity.

This implies that either Energy Transfer’s marketing arm is benefitting from the additional barrels or the expandable capacity for the pipe is greater than the stated 570,000—or both.

What most market participants miss about the Bakken is the effect that spreads between WTI and the Gulf Coast can have on Clearbrook.

### Another whistle

As additional Permian egress tightens prices between the Permian triangle—Midland, Cushing and the Gulf Coast—rail out of the Bakken becomes

uneconomic, as spreads farther down the tracks no longer justify the long haul from the Dakotas/Montana to Houston.

The result is even tighter egress out of the basin and yet another whistle from the Clearbrook pressure-cooker.

Indeed, the story of crude flows between price hubs is far more complex and interconnected than meets the eye. There is, however, upside for midstream companies already on the Bakken playing field, including Energy Transfer, which is arguably best equipped to commission a brownfield expansion on DAPL and its Energy Transfer Crude Oil Pipeline.

Kinder Morgan Inc.’s Double H Pipeline could also benefit from a brownfield expansion and/or increased rate stability. True Oil LLC’s Butte and Belle Fourche pipelines could witness increased flows and TransCanada Corp.’s Keystone XL Pipeline could add a much-needed argument to its beleaguered greenfield expansion endeavors. ■

*Shirin Lakhani is senior equity fundamentals analyst at East Daley Capital Advisors Inc.*

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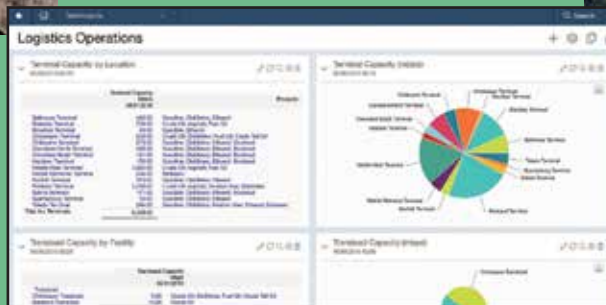
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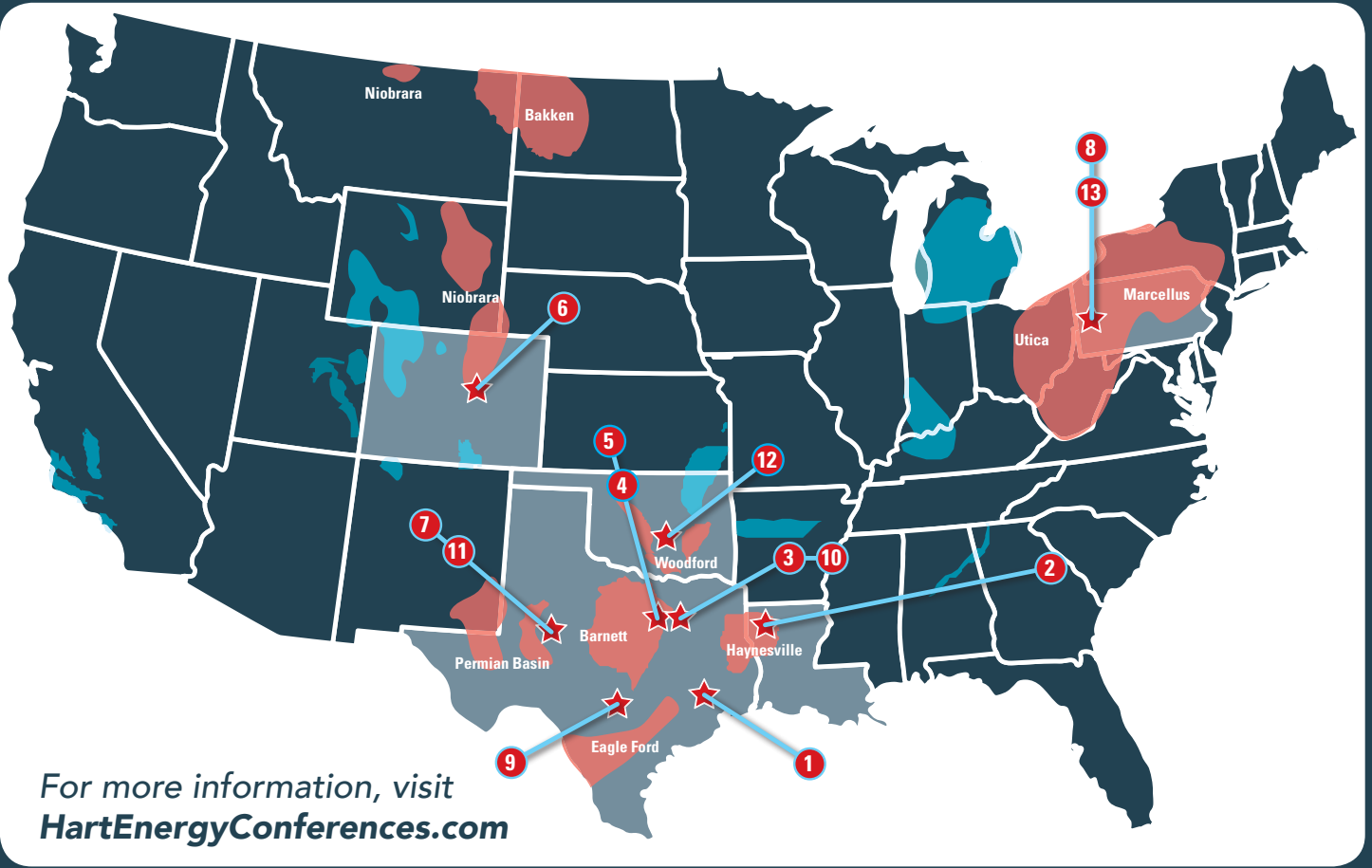
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IN ENERGY

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**2**

CONFERENCE & EXHIBITION  
**DUG**  
HAYNESVILLE

Feb. 19 – 20  
Shreveport, LA

**3**

**energycapital**  
CONFERENCE

March 5  
Dallas, TX

**4**

**DUG**  
SAND and WATER

April 15  
Fort Worth, TX

**5**

CONFERENCE & EXHIBITION  
**DUG**  
PERMIAN BASIN

April 15 – 17  
Fort Worth, TX

**6**

CONFERENCE & EXHIBITION  
**DUG**  
ROCKIES

May 14 – 15  
Denver, CO

**7**

CONFERENCE & EXHIBITION  
**MIDSTREAM**  
TEXAS

June 5 – 6  
Midland, TX

**8**

CONFERENCE & EXHIBITION  
**DUG**  
EAST

June 18 – 20  
Pittsburgh, PA

**9**

CONFERENCE & EXHIBITION  
**DUG**  
EAGLE FORD

Sept. 24 – 26  
San Antonio, TX

**10**

**A&D** STRATEGIES AND OPPORTUNITIES  
Conference & Workshop

Oct. 22 – 23  
Dallas, TX

**11**

**EXECUTIVE OIL**  
CONFERENCE & EXHIBITION

Nov. 4 – 6  
Midland, TX

**12**

CONFERENCE & EXHIBITION  
**DUG**  
MIDCONTINENT

Nov. 19 – 21  
Oklahoma City, OK

**13** **NEW DATES**

**MARCELLUS-UTICA**  
**MIDSTREAM**  
CONFERENCE & EXHIBITION

Dec. 3 – 5  
Pittsburgh, PA



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CONFERENCE & EXHIBITION



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[DUGHaynesville.com](http://DUGHaynesville.com)

CONFERENCE & EXHIBITION



**April 15 – 17**  
Fort Worth, TX  
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**May 14 – 15**  
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**June 18 – 20**  
Pittsburgh, PA  
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CONFERENCE & EXHIBITION



**Sept. 24 – 26**  
San Antonio, TX  
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**EXECUTIVE OIL**  
CONFERENCE & EXHIBITION

**Nov. 4 – 6**  
Midland, TX  
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From gathering and processing to transportation, storage and exports, the midstream conferences connect operators, service providers and their financial partners to core issues affecting midstream business.



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Midland, TX  
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NEW DATES



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**Oct. 22 – 23**  
Dallas, TX  
[ADStrategiesConference.com](http://ADStrategiesConference.com)

For more information, visit [HartEnergyConferences.com](http://HartEnergyConferences.com)

# The Interview

## Project Adapt

One of the sector's most-experienced and best-known CEOs shares personal insights on the downturn and managing for the future.



**A**n Alerian co-founder, board member and the former president and CEO, Kenny Feng has led insightful interviews in the podcast series “Energy Titans” with successful energy industry senior executives. One of Feng’s recent conversations was with Crestwood Equity Partners LP chairman, president and CEO Robert G. “Bob” Phillips, a 42-year industry veteran. Crestwood ranks No. 30 on this year’s Midstream 50 list of the sector’s largest publicly held firms.

Phillips discussed several important topics, but took time in particular to discuss what Crestwood management did to weather the industry downturn that began in late 2014. He related its plan closely to what midstream operators must do as industry veterans, like him, prepare to pass leadership to a new generation in the near future. —Paul Hart



**Bob Phillips**

**FENG** Please talk a little bit about the origin of Crestwood.

**PHILLIPS** Crestwood is truly a dream come true for me. It's the culmination of everything I have learned over my 42-year career. I go back to starting as a young man with Gulf Oil Co. as a gas-contracts representative—administrating contracts, learning the business from the ground up from a major's perspective. Then later, I moved on to Tenneco [Inc.] Finally, I was with a small independent company, long since gone but very famous back then, Tejas.

**FENG** You've been through a lot of business cycles. How did you prepare your team for the cycle we've just been through?

**PHILLIPS** We got to the big downturn in 2015, and, like everyone in the business, we recognized we had too much leverage. We were under-covered from a distribution standpoint. Our corporate

structure was too complicated. We had IDRs [incentive distribution rights].


While we were early in the cycle, it was clear to me that investors were not going to like IDRs when growth stopped. We set out a strategy to try to fix what we thought were the problems that we were going to face over the next several years.

I remember specifically telling the team in the spring of 2015 that we need to get ready for lower and longer. "This is probably going to be a four- or five-year cycle. We've got to reduce costs. We've got to create more efficiencies in our organization. We've got to simplify our structure. We've got to right-size our distribution. We've got to pay down a significant amount of debt and get our balance sheet in good shape.

"If we can do all that, we'll be more competitive than anybody else. If we can be more competitive, then, when this market starts to turn back around, we'll be in great shape."

That's exactly what we did in 2015 and 2016. We merged our general partner and limited partner together. We simplified our structure and we eliminated the IDRs. We paid down 40% of our debt—about \$1.3 billion in 2016—through divestitures. We formed strategic joint ventures in all of the high-growth basins because we knew that—when prices improved and producers went back to drilling—we were going to have some significant capital-investment opportunities. We wanted to have partners to be able to help us with those projects.

**FENG** Talk a little bit about that conversation that you had in 2015 with your team. How did you share your foresight—not necessarily from a timing perspective but from a "this is what's going to happen" perspective? What elements of your work history—your leadership—gave you the ability to see that?



New pipe crosses the North Dakota prairie, part of a debottlenecking project for Crestwood Equity Partners LP's 619-mile Arrow gathering and processing system serving Bakken producers. Photo source: Crestwood Equity Partners LP

**PHILLIPS** Well, that's exactly where my 42 years in the business came to provide a benefit—not only my requirements as a CEO to provide good leadership, but also to have a vision to lead the company.

All of the cycles I've been through, whether they were up or down, required a recognition of where you were in a cycle. Then, you had to make a commitment to either upsizing or downsizing your organization—your competitive footprint.

You have to make sure you have the right balance sheet to be competitive and aggressive in the regions that you operate in. Having experienced all these cycles over the years, when I looked at the fundamentals, this helped as lower prices set in in late 2014 and through 2015.

There inevitably had to be a slowdown in drilling activity. We knew that we needed to get ready for a three- or four-year downturn. Now, as it actually turned out, it was more of a V-shaped recovery than U-shaped. The companies that took it seriously, that cut their costs, that improved their efficiency, then reorganized themselves, were ready for a lower-for-longer environment.

Those were the ones that were more ready for the recovery when it happened. I think Crestwood was one of those.

I brought in my people in early 2015 and I said, "We are about to enter a cycle that you guys haven't seen before, but I've seen it a number of times. We're going to have an internal project to respond."

We called it Project Adapt—and this was just a year from our Inergy Midstream LP merger. We were actually still growing on a run-rate basis at the time. We were going to get the organization ready for three or four years of low prices, low activity. It started first with fixing the balance sheet and then it went to fixing the organization.

Then, frankly, it went to rebranding the organization around customer service—because you and I know that, in these tough, challenging markets, the only real differentiator is the level of customer service that you show.

I think we did a good job of turning the company around. We were rewarded for that in 2017 and 2018 with a better-performing unit price than most. Crestwood had better overall valuations

than a lot of our peers, some of whom were significantly larger than us.

They just simply didn't move as quickly. Or, they didn't reorganize as deeply and permanently as they should have.

**“It always surprised me that our entire industry hasn't reacted as quickly as we did at Crestwood to sell assets and deleverage balance sheets. I think, as an industry, we're still suffering a little bit from that today.”**

**FENG** As a CEO leading an organization going into tough times, from a macro-perspective and having to adapt, how do you sell that? How do you sell that internally to your team?

**PHILLIPS** Well, you raise an interesting question. Another way to ask that is "How do you manage millennials in a downturn?" Let me tell you, the old answer of "just trust me" doesn't work with this generation.

We spend a lot of time on the front end of our organizational assessment in trying to plan out what our activity level will be over the next several years at certain commodity prices. Where are we going to grow? Where were we going to shrink? Which assets could we effectively consider core? Which assets would be non-core?

Ultimately, the non-core assets would be divested, even though it's not really an accepted practice to sell an asset in a downturn because it's like catching a falling knife. You can never sell it for enough value to redeploy the capital.

In this case, it was about selling assets and paying down debt—as opposed to capital redeployment. Not only were investors wanting that to happen, but, eventually, they were demanding that it would happen. It always surprised me that our entire industry hasn't reacted as quickly as we did at Crestwood to sell assets and deleverage balance sheets.

I think, as an industry, we're still suffering a little bit from that today. Guys are just now simplifying their structures, reducing their leverage and improving coverage.

It was the right thing to do to take care of all of our constituents. We have our shareholders to think about. We have our employees to think about. We have our business partners to think about. We have our vendors. Finally, we have the communities that we live in to think about. These are all important constituents or stakeholders in our business.

We have not only a fiduciary duty, but we have a real duty to think hard about how to remake or reposition the company so that it cannot only survive, but, then, when the recovery starts, be in a good position actually to take advantage. We can get back a lot of value that we lost on the downturn.

It wasn't just about cutting costs. We didn't go "every other guy needs to leave" or "I'm going to give you a mandate and tell you that you need to cut \$20 million a year out of your budget."

What we did was we broke the company down into eight different groups. We created steering committees for each group. I made them do their own self-assessment about what they needed and what they didn't at certain levels of activity. Then they came back to me with recommendations: We need to cut this, we need to keep this, we need to consolidate this, we need to do this better. Over a 90-day period, we created a plan.

Then I said, "I think that's a great idea. Let's go do that."

What I have found over the years, particularly in being a mentor to a lot of really young executives, is it's not only better if they think it's their idea, but if they can build ownership in it and realize that we're doing it not from top down



Crestwood's 200-million-cubic-foot-per-day Orla plant in Reeves County, Texas, went online last year, serving the Delaware Basin. Photo source: Crestwood Equity Partners LP

but from bottom up. It always works out better that way. It was very much a bottoms-up process.

Dozens of people were on the steering committees. Hundreds of people were involved. When we got to the end of Project Adapt, everyone took ownership. They were proud of what we'd done.

I'm proud that, more than three years later, they know they did the right thing. It's a great lesson for them to learn in their careers, I have a lot of young people working for me. They're going to have very long careers. I'm not going to be around next time to say, "Hey, guys I've seen this movie before, we need to start cutting." It was all about what to do after we had years of acquisition and growth, and integration and growth.

**FENG** Let's talk a little bit more about mentorship, or advice, for somebody who's just been tapped for the CEO job. You have decades of experience as a CEO, founder, chairman, and president. What are the core elements of how you think about what it means to be the chief executive in a company? What are the responsibilities of it? How do you grow into that role over time?

**PHILLIPS** I think I'm particularly well-suited to discuss this topic. I've been a public-company CEO since 1987. I was 32 years old when I did my first IPO.

I've learned a lot over the years. I've had the benefit of working around some really good CEOs that have mentored me.

My No. 1 lesson for anyone taking over the top job is you have to lead by example. You really do. There's a lot of leadership advice out there about how to be a great leader. One guy may feel comfortable being a Jack Welch and another guy may feel comfortable being a Boone Pickens. There are all different types of leaders. You have to be your kind of leader, but you always have to lead by example.

The one thing I know for certain is every day when you walk in, they're all watching you. If you walk in in a bad mood, they are going to be in a bad mood. If you walk in optimistic, they're going to be optimistic: Lead by example.

One of my favorite sayings is "Before I was a leader, it was all about me. Now that I'm a leader, it's all about them." It really is about building not only the next generation of leaders, but building your organization around you and recognizing that no one CEO can do everything.

A CEO has to build a good team. He has to have trust in a team. He has to turn the business over to the team. They've got to learn to make their own decisions. Sometimes they have to make their own mistakes to really learn those lessons well. I'd like to think that my best

quality as a CEO is leading by example, setting a good tone at the top, setting the priorities the way they should be set.

In the 42 years that I've been in the business, environmental, health, safety and compliance have always been a priority—with safety, of course, being the top priority.

Every company that I've ever run has had an oversized commitment to the environment, to the safety of our employees, our business partners, the public and to regulatory compliance. That's because, really, I believe this is the future of our industry.

As an industry, we are an infrastructure play. To continue to build more infrastructure, we have to embrace the operating principles that regulators would like. We have an operating license and we have to continue to earn that operating license. We do that by operating with a small footprint and being committed to the environment, to people, to good policy and procedure, and good practice. That's always been the top priority.

**FENG** Can you talk about the different macro-environments? Given your skill set, given what you believe you are best at doing, is there a particular business environment or stage in the life of a company that you feel, A, you enjoy the most and, then, B, you feel you are best at dealing with?

**PHILLIPS** I think it's one and the same. I enjoy building a company; I think I'm pretty good at building a company. I've always been challenged with selling; I'm not a natural seller.

While I have a private-equity partner in First Reserve [Corp.] and they've been a fabulous partner, I think we broke the mold on the traditional private-equity formula: "I'll give you two years, two counties in West Texas and \$200 million. Go see if you can build something and we'll sell it to the next guy."

That was never our model from Day One. It was to build a sustainable company that played an important role in the business, while at the same time understanding that we have a fiduciary responsibility to our stakeholders and investors to create value. If somebody comes along someday and wants to own it, then they can have it at the right price. That's the bargain—or the contract—that we make as a public company.

This is not my company. This company belongs to the investors. While it may have my name on it and while I may have been the only guy there at the beginning, it is very much a company that is built for our shareholders to create value.

**FENG** How does one assess, from the operator perspective, what the right relationship is on the financing side?

**PHILLIPS** That's an easy one. It's not necessarily the guy that will write you the biggest check. It's absolutely not the guy that you think has the lowest cost of capital. It is the guy that you have the best relationship with, that you feel comfortable with. Because, when you join forces with a private-equity partner, you really are getting married for some period of time.

The longer the better, but inevitably there will be a time period in which you have great alignment of interest, you're pulling the wagon the same way. It's just like commercial bankers: You really need someone you can trust, somebody that sees the world the same way that you do, has the same sense for return on invested capital, the same objectives about how to manage the capitalization of the business.

There is the old private-equity model, where you put as much debt on the business as you possibly can.

That increased the returns and made everybody look better when the private-equity guy sold out his interest; he'd have a higher return on investment.

That model doesn't really work anymore. While there's still plenty of leverage to put on businesses, there's a lot more real equity going into the business.

**“Another way to ask that is ‘How do you manage millennials in a downturn?’ Let me tell you, the old answer of ‘just trust me’ doesn't work with this generation.”**

**FENG** You had talked a little bit about the different stakeholders of the company, including the community. I see there are, obviously, a lot of demands on your time. You have an open-door policy. At the same time, if everybody came to your door at once, you have a limitation. How do you decide what is not a good use of time?

**PHILLIPS** Well, I still have my primary responsibility to our investors to make sure that the company is operating appropriately, that we're putting out good guidance and, then, delivering on that guidance, that we've steered the ship the right direction—given the constantly changing market conditions, regulatory challenges and capital-market challenges.

I think we do that pretty effectively as an executive team. We have six executives that form Crestwood's executive committee.

I have long since realized that it's a lot better if we all collaborate on important business decisions, instead of Bob telling them this is what we're going to do next. We get better ownership that way and

it's a much more thorough underwriting process that we go through to make important investment decisions. I spend a fair amount of time with the board and with the executive committee.

I've reached a point in my career where I feel good about leaving the day-to-day affairs of the business to the next level down. It's now their turn to learn how to run a business on a day-to-day basis. I feel very comfortable with that. I think they feel very comfortable in assuming those responsibilities. That leaves me a fair amount of time to think about what are the broader issues.

At the beginning of last year, we formed our Crestwood theme, which is “communication, collaboration and customer service.” That communication is between our internal Crestwood groups, and Crestwood and its customers. Our collaboration is with our internal groups, and Crestwood and our business partners. Customer service is the differentiator in tough, competitive, challenging markets. We've seen the benefit of that at Crestwood over the last couple years.

Our theme for 2019 is environment, health and safety, and sustainability. We intend to be the midstream leader in this area and have already had an opportunity to make several industry speeches or speak to groups, both downstream as well as upstream, and to trade associations. For example, there was the recent meeting where I was collaborating with other CEOs to try and impress upon them the importance that now is the time to do all this.

I'm in a period in my career and in my life where mentorship is really important to me. I have a number of mentees in the Crestwood organization. I'm also mentoring individuals outside of the company and in other businesses.

I really feel that's me giving back for the years of experience I've had. Then finally, there's community engagement. I do that both on behalf of Crestwood as well as our own personal Phillips Family Foundation and the things that we like to contribute to.

I have a very full plate. I'm always spending time thinking about what's the next big chess move that we need to make to continue to position Crestwood in the right spot. ■



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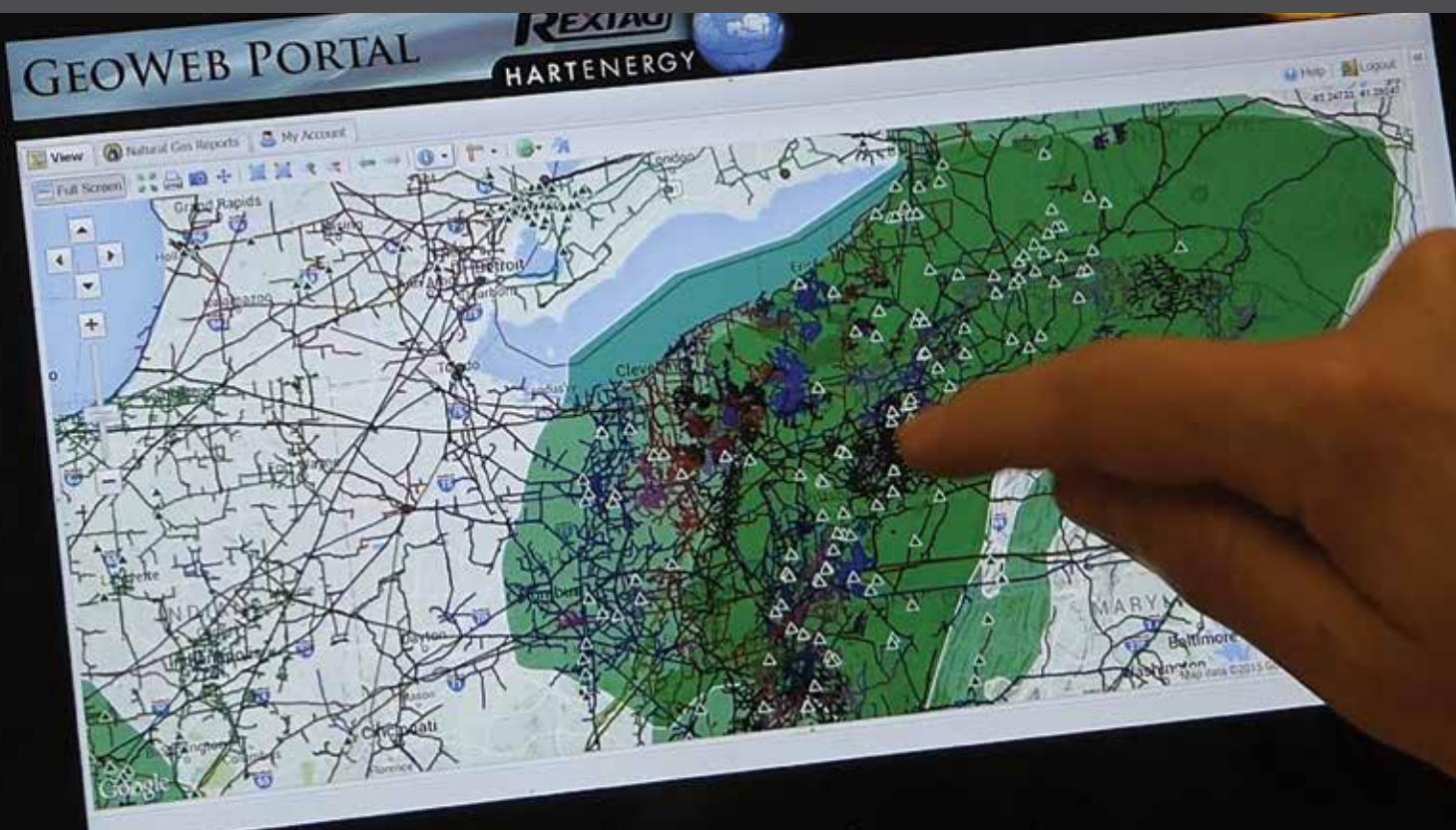
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# Acquisition Funding

**How lender sign-up occurs in funding midstream acquisitions is looking more like how it's done in LBOs.**

*By Daniel Allison*

**L**ongstanding norms and practices in midstream borrowing are changing and legacy midstream companies have an opportunity to capitalize on new terms being dictated by private-equity firms, which are increasingly common acquirers in the midstream sector. Many of these acquisitions are funded, at least in part, by secured, syndicated loans.

Acquisition financing has been utilized in the midstream space for decades. However, up until very recently, the lender's agreement to provide the financing was frequently on a best-efforts basis.

Even in a committed financing, the lender's obligation to fund may be subject to extensive conditions, including diligence and an agreed amount of syndication of the loan. The conditions

created risk that the loan would not be available to the borrower/purchaser at the time of closing.

With the advent of numerous oil-and-gas- or infrastructure-focused private-equity funds, sponsors and borrowers are now applying "fully committed" and "limited conditionality" principles that have been employed in other industries to debt-financed midstream acquisitions.

Moreover, the entire approach of obtaining and negotiating syndicated loans for acquisition financing is changing to incorporate borrower-friendly practices and deal terms not previously pervasive in the midstream-financing area.

## **What it is**

Although the term "acquisition financing" is broad, what is meant in this article is the use of a loan to fund

a portion of the price of purchasing a target company or assets.

In most cases in the midstream area, the target will immediately grant liens and guarantee the loan. So the target is responsible for most, if not all, of the credit support for the loan.

The loan will be funded substantially concurrent with the closing of the acquisition and the proceeds of the loan are paid to the seller as a portion of the purchase price. If the acquisition is not consummated or the commitment was negotiated in connection with a bid that is ultimately not accepted, the loan is never funded and the parties simply walk away.

The commitment letter for the acquisition-financing loan is typically signed concurrently or prior to the signing of the binding acquisition agreement. If the acquisition agreement

## Financing

has a condition to the purchaser's obligation to close that requires obtaining financing—referred to as a “financing out”—then the binding nature of the debt commitment letter is not a significant concern.

Historically, in the midstream area, many purchasers were able to negotiate a financing-out. Even when not, purchasers were comfortable that a lender's “commitment” was sufficient to rely upon in entering the binding purchase agreement, even if subject to diligence and significant uncertainty as to loan-agreement terms.

In other cases, purchasers may have felt there were other mitigating factors that made it acceptable to assume any risk of the loan falling through, such as funding the purchase price with equity or cash on hand and obtaining a loan later—or the break fee was an acceptable risk to assume.

### New entrants

With the increased number of energy or infrastructure funds managed by conventional private-equity firms, the market for acquisition financing in the midstream area has seen a shift in practices and in terms of loan agreements.

Many private-equity firms managing the newly formed energy or infrastructure funds have decades of experience dealing with leveraged buyouts in other markets and expect the borrower-friendly terms and practices that are common in such markets.

Over time, lenders in these other markets have realized that there is competition to make any acquisition financing. And they have become accustomed to private-equity firms knowing and dictating the best terms they can get that can still be syndicated.

Additionally, these private-equity firms recognize the importance of certainty that the funds will be available once the conditions to closing the acquisition are satisfied.

One of the main characteristics that distinguish this process is the negotiation of commitment papers with multiple potential lenders at the same time. Thus, the sponsor's counsel drafts the term sheet and distributes it to multiple banks

simultaneously for each to react and incorporate their terms.

In many cases, all the lenders will be represented by a single law firm that segregates representation of each lender. This allows a more efficient diligence process: The diligence may be done just once for all lenders. And it effectively shares the legal costs by reimbursing all expenses at closing of the winning loan facility.

## **The negotiation practices and strategies in sponsored acquisition financing are now creating prevalently borrower-friendly terms throughout the midstream-lending market.**

### Implications

Many term sheets in midstream-acquisition financing have left much to be agreed in good-faith negotiations of the ultimate loan documents, which would occur after signing the acquisition agreement and prior to closing. The new trend is moving towards much longer and greater-detailed term sheets, spanning 75 or more pages.

The point of this level of specificity is twofold. First, it eliminates, or at least greatly narrows, any points that the lenders could say they cannot concede, thus an impasse in acquisition funding.

Secondly, it allows negotiation of as many terms as possible while the borrower still has greater negotiating leverage—due to that prospective lenders know other lenders are still “bidding” to lead the loan.

Many of the private-equity firms now obtaining midstream-acquisition financings have experience with

the real risks and consequences of getting caught between a recalcitrant lender and a binding obligation to consummate an acquisition.

They are also well aware that a bid that does not include a financing-out is seen by a seller as more attractive. As such, there is a much greater emphasis on certainty of funding.

The effort to increase certainty takes the form of “certain funds” provisions. These eliminate or greatly narrow any gap between conditions in the binding acquisition agreement being met—and the purchaser having an obligation to close—and the lender's obligation to fund the loan.

Additionally, the conditions to funding the loan would not include any satisfactory diligence on behalf of the lenders that, in many cases, requires the lenders get satisfied with the state of diligence or the adequacy of indemnities in the purchase agreement prior to signing the acquisition agreement.

Also, the conditions to loan-funding would not tie other funding conditions to the acquisition-closing conditions. And they would not limit the representations that must be made by the borrower to the most fundamental representations—e.g., due authority and power to execute the documents, no conflict with laws, etc.

In addition to reducing conditionality, borrowers are now negotiating much more flexibility in how to run their business, overcoming lenders' desire to contain their collateral and restrict risky actions by the borrower.

This is due, at least in part, to the fact that private-equity firms are accustomed to drafting acquisition-financing commitment papers and sending the papers to potential lenders to react—as opposed to the traditional rule that lenders control the drafting.

This has two systemic benefits. First, it creates a negotiation environment wherein the borrower has “home field” advantage and has already drafted the preferred flexibility. Secondly, it not-too-subtly informs the lenders that there is competition for the lead-agent role—and for the underwriting compensation.

The flexibility that is now becoming more common includes the concept of an unrestricted subsidiary—that

is, subsidiaries that are not part of the loan collateral and not subject to the loan's restrictions.

Loan agreements will permit some amount of investments in unrestricted subsidiaries as well as some amount of dividends to the owners of the borrower. Both would traditionally be severely limited or outright prohibited.

This designation creates great optionality for businesses to pursue joint ventures and riskier ventures or to otherwise develop value outside the collateral for the loan.

Additionally, the financial model is moving beyond a simple definition of EBITDA in accordance with generally accepted accounting principles (GAAP) to now include dozens of add-backs that are negotiated and frequently have nothing to do with GAAP, such as projected synergies and savings in run-rate costs.

In addition to creating greater potential leverage capacity by increasing the calculated EBITDA, many loan agreements now have “grower” baskets—that is, exceptions to the loan document's restriction on such actions—for debt, liens, investments and dividends, which are defined as the greater of a fixed dollar amount and a percentage of EBITDA.

Thus, the add-backs to EBITDA have a domino effect of increasing flexibility in each such basket.

#### **Borrower-friendly**

The negotiation practices and strategies in sponsored acquisition-financing are now creating prevalent borrower-friendly terms throughout the midstream-lending market. One example is EBITDA add-backs specific to the midstream industry, such as exclusion of line-fill adjustments or overwriting GAAP's treatment of certain minimum volume commitments.

Additionally, borrowers are becoming more wary of mortgage, title and reporting requirements.

Many midstream loan agreements were initially drafted from the perspective of either an upstream loan or a project-finance loan. In either case, lenders expected continuous title reporting and near-total mortgage coverage.

However, the development of gathering systems is not always achieved in large chunks. Frequently, it is the accumulation of rights of way and easements over time and as needed.

As such, a loan agreement that requires perpetual total mortgage coverage is essentially a loan agreement in which the borrower is constantly in breach. Borrowers have been successful in softening the language to only require compliance annually or quarterly and the coverage requirement is almost never complete coverage.

Another major point for many midstream borrowers is the flexibility to fund joint ventures and have the EBITDA count to the loan group's calculation—thereby helping the financial covenant compliance of the borrower—while avoiding granting their lender any liens on the joint venture entity itself.

**Borrowers have been successful in softening the language to only require compliance annually or quarterly and the coverage requirement is almost never complete coverage.**

Lenders have taken varying approaches on the permitted size and conditions to allowing this flexibility. But, in the end, most lenders agree to some amount of accommodation on this front, which obviates the need for a future waiver—and the fee associated therewith—at the time of creating or entering the joint venture.

One might expect that this greater flexibility comes at a cost. But the underwriting and upfront fees associated with these deals have largely stayed steady.

Of course, a fully committed loan will have a higher underwriting fee than a best-efforts engagement. But the price of prior, loosely committed financings was approximately the same as the price for completely committed, certain-funds facilities with much greater borrower-negotiated covenant exceptions.

#### **Further implications**

These trends are certainly benefiting private-equity-sponsored buyers. However, the developments have also had further effects on the market as a whole.

Other borrowers are now able to negotiate more flexibility, more EBITDA add-backs and looser mortgage requirements because lenders now know that those provisions will preclude a successful syndication of the loan.

Additionally, by running each potential loan with a group of banks, banks are now seeing detailed negotiations on a greater number of deals. As such, the market is more efficient because lenders have more data points and know what other lenders may accept—either as lead or as a participant in a syndicated loan.

Thus, the gap has shrunk between the best deal that a borrower may achieve and what is truly important to lenders participating in the midstream financing market.

While acquisition financing has existed for decades, private-equity firms' search for returns, coupled with a growing midstream market, has resulted in the advent of strategies and practices in midstream acquisition financing that have been honed over years of high-volume leveraged buyouts in other industries.

These factors are creating more efficient markets and greater borrower flexibility, while reducing funding risks associated with funding at closing of acquisitions. The result is improved predictability for midstream companies—whether buyer or seller. ■

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*Daniel Allison is counsel in the Houston office of Sidley Austin LLP, focusing on commercial lending and other complex commercial-finance and energy transactions.*



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# One View

**It's critical to integrate data into a single source to improve fiscal management.**

*By Mary Campos*

**D**ata drive decisions affecting the lifecycle of assets from planning through decommissioning. People then interpret and use data to manage processes established to maintain business objectives.

The integration of people, process and data is the foundation for effective safety-management systems, while simultaneously providing needed

insights on the project, the program and operational health.

Today, much of these data sit in disparate sets that are manually integrated—often by more than one management group. There is no “one solution” that will fit every need; therefore, the journey begins with understanding the outcomes that drive business decisions to effectively reduce risk and to manage spend.

#### **Too late**

Financial risk—and its effective management—are critical to increasing reliability and, ultimately, asset return on investment. A common thought in the industry is “I don’t know our budget is exceeded until it’s too late.” Project budgets that require inter-discipline coordination are often managed in parallel by the respective discipline, then rolled up into the overall budget.

## Driving Outcomes

To drive key business decisions, more efficient reporting and data accessibility are needed. The result is increased safety and reliability, while also efficiently managing and reducing spending.

Let's start with a common challenge that exists throughout the industry today: evaluating the constraints/feasibility of a proposed development. All disciplines have a critical part in determining and delivering the successful business outcome, but first they must address if the project is feasible.

Respective budgets are managed in parallel with technical requirements. It is a challenging task to gather all the project data—GIS, financial, engineering, environmental, compliance, operations—efficiently and maintain it for the life of an asset.

Having all the data managed, integrated and visualized in one view is essential. To complete this, it is essential to understand the data that are driving the outcomes/decisions. This connects the data driving the decisions to address the causal factors at the onset.

### Breaking silos

The result is an optimized management of the spend, including large budget items, and planning, repair and maintenance across the network of assets. The picture of your managed, integrated and visualized data breaks down silos and improves collaboration between management and stakeholders and reduces associated financial and technical project risks.

However, the lingering question that needs to be answered throughout projects is outcomes, requiring management across all the disciplines to ensure timely, on-budget completion.

Data driving the questions/outcomes need to be identified so they can be mapped out to understand integration points, drive data management and integration strategies. Complexities are associated with the data driving the project and the ability for stakeholders to understand the status of their respective counterparts.

Defining the elements that are most likely to increase the risk of an unsuccessful outcome, like the project exceeding its budget, is part of the

process. A “widget” or dashboard tool that tracks budgets through data provided by the project owner gives awareness to overspend in advance by displaying real-time financial trends.

Monitoring these trends in real time allows action to be taken well in advance to prevent or redirect prior to a spend bust. The “roll up” also provides the foundation for stronger collaboration among the stakeholders, so each can see where its piece is in relation to the others.

As indicated earlier, the overall view is critical to understanding the big picture of data, both managed and integrated. The final step is the visualization or dashboard to provide the “view” of the desired outcomes.

## **Financial risk— and its effective management— are critical to increasing reliability and, ultimately, asset return on investment.**

The dashboard can then be shared with all stakeholders in a secure manner to enhance communication; reduce risk, including financial, operations and technical; and manage document change, driving accountability.

### Sharing for strength

Since all changes to the project are documented and shared among the entire project team electronically, a stronger management process is achieved.

From the feasibility analysis through construction, operation and decommissioning, all changes and communications are saved for the lifecycle of the asset. This is also of benefit in years to come, when personnel changes and the history of the project needs to be understood.

For fiscal management, having in one place all the data that affect the overall budget is essential. The life of

the data begins with the feasibility and planning as project teams understand the challenges and build budgets to assess the financial return on investments. Each discipline is accountable for its respective scope and budget, but the project manager is responsible for the entire budget.

Senior management is provided the visualization to all the metrics that determine project success, so all stakeholders can more effectively communicate to ensure successful outcomes.

Projects vary in size, complexity and scope. With enhanced data management and integration strategies, there will be a reduction in financial and operational risk. Use of these strategies will also positively affect safety-management programs, including the management of change and integrity.

### Compliance vs. integrity

In today's regulatory climate, the focus on data is making compliance more challenging and traceability, verification and usability are not easy to achieve with deprecated processes. Compliance requires a different view than integrity.

Leveraging asset knowledge, mapping the outcomes to provide the “view” and simultaneously utilizing this information will lead to a reduction in risk, increased efficiencies and increased reliability to safer operations.

All business decisions, including compliance, are based on asset data. It is a challenging task to gather the data efficiently and maintain them for the life of an asset. Today, much of the data sit in disparate sets that are manually integrated—often by more than one management group. The potential for error is real.

There is no “one solution” that will fit every need. The journey begins with understanding the outcomes and the causal factors driving the risk to improve the business processes and decisions to effectively reduce risk. This process is essential to improving management of change-practices and safety-management programs. ■

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*Mary Campos is vice president of strategic programs for EXP Global Inc.*

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# Getting The Gas Out

**Tests validate a fouling-resistant degasification technology that eliminates dissolved gas species from produced water.**

*By Duane Germenis, Aaron Poon and Oscar Velastegui*

**H**istorically, removing dissolved gases—such as CO<sub>2</sub>, H<sub>2</sub>S and benzene, toluene, ethylbenzene and xylene (BTEX) compounds—from polluted aqueous streams has been a challenge. Conventional degasification towers have proven to be inadequate. These towers use packed beds that are highly susceptible to plugging or fouling.

In produced-water applications, where the water contains high levels of suspended solids and oil, conventional technologies tend to fail.

A fouling-resistant gas-stripping technology called CoStrip was tested as part of a pilot study for removing dissolved gas species from produced water in California. This technology from Veolia Water Technologies degases

raw water by introducing microbubbles of a stripping gas counter-current to the liquid stream. The CoStrip technology eliminates the need for upstream treatment before degasification.

Other benefits include safe operation of downstream equipment due to H<sub>2</sub>S reduction, corrosion mitigation on downstream equipment, and reduced downstream chemical consumption



The horizontal design of the degasifier allows use at installations with height restrictions.

Source: Veolia Water Technologies

and sludge generation in a chemical softening application.

### Absorption-based stripping

CoStrip employs the principle of Henry's Law: At a constant temperature, the amount of a given gas that dissolves in a given type and volume of liquid is directly proportional to the partial pressure of the gas in equilibrium with the liquid.

The technology works as follows: Eductors use a liquid recycle stream within the unit to uptake and disperse fresh gas in a series of four separation cells. In each cell, bubbles rise and maintain contact with the bulk liquid. Dissolved gases such as CO<sub>2</sub>, H<sub>2</sub>S and BTEX, which are present in the bulk liquid in each cell, migrate into the microbubbles as they rise. The mass transfer is driven by the disequilibrium of the dissolved gases present in the bulk phase and within the bubble.

Once they are at the bulk liquid/gas interface, the microbubbles burst and release gas into the headspace. The gas in the headspace is continually swept out of the unit by the introduction of fresh gas. This provides a constant gas disequilibrium within the unit.

The combined off-gas is removed from the vessel and can be treated for reuse or disposed of appropriately. The stripping gas volume provides efficient mixing and high surface-area contact with the fluid to displace undesirable

dissolved gases. The technology removes benzene, toluene, ethylbenzene, CO<sub>2</sub>, H<sub>2</sub>S and various other dissolved gases, depending on the application.

**Although nitrogen and air were the only stripping gases tested in this study, the type of stripping gas used is expected to have little impact on performance.**

### Reducing alkalinity, CO<sub>2</sub>

Besides being fouling-resistant, CoStrip offers other advantages in produced-water applications. It can remove CO<sub>2</sub>, thus reducing alkali consumption and sludge generation in downstream chemical softening processes. By reducing the feed water alkalinity and CO<sub>2</sub> concentrations, CoStrip results in the consumption of less hydrated lime and caustic soda and less calcium carbonate and magnesium hydroxide sludge.

The technology can be used as a pretreatment step to reduce operating costs for water softening systems.

Produced water typically contains sulfides and, at neutral to low pH levels, a significant portion of the sulfides will be H<sub>2</sub>S. This gas is flammable, toxic and corrosive, creating safety and air-emission issues. It can corrode downstream piping and foul downstream treatment equipment. Volatile organic compounds (VOCs) are another concern in terms of worker safety, surface water discharge regulations and air emissions.

Gasoline-range organics can damage the support layer of reverse osmosis membranes, thus shortening membrane life.

CoStrip provides downstream benefits associated with H<sub>2</sub>S removal, such as reduced capital and operating costs. For example, by eliminating H<sub>2</sub>S, there is no need to cover downstream process tanks, which would otherwise be necessary to prevent odorous emissions and ensure personnel safety. Operating costs are reduced when the need for an oxidant to remove H<sub>2</sub>S is eliminated.

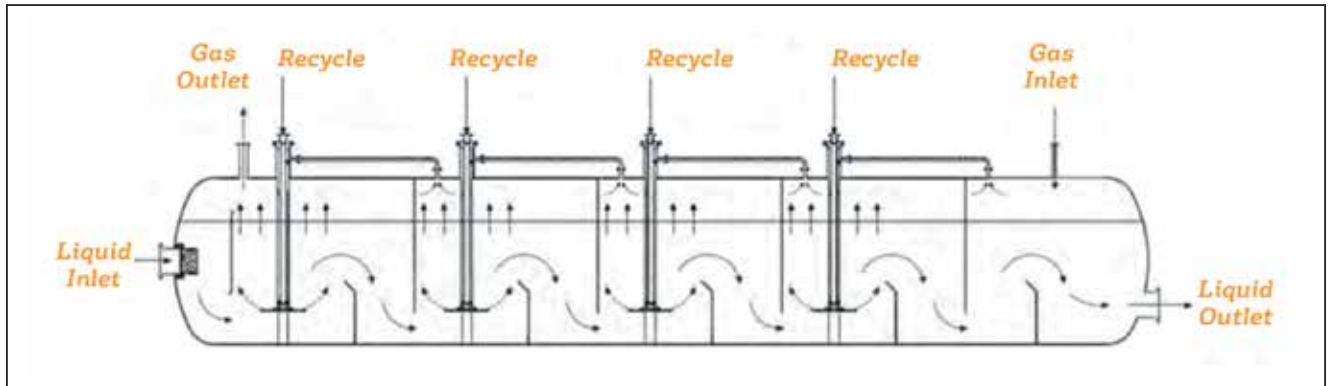
### Pilot-study results

Produced water from a storage tank was fed to a CoStrip degasifier as part of a pilot study. A series of tests were conducted using air as the stripping gas. The produced water's total dissolved solids, temperature and pH were approximately 12,000 milligrams per liter, 160 F and 6.8, respectively.

At a stripping gas utilization rate of 5.2 standard cubic feet per barrel (Scf/bbl), the CoStrip unit removed about 84% benzene, 95% toluene, 89% xylenes and 92% ethylbenzene. Also during this test, dissolved CO<sub>2</sub> was reduced by 77% and H<sub>2</sub>S by 93%.

Tests also were performed using nitrogen as the stripping gas and the nitrogen was found to perform similarly to air. At a stripping gas utilization rate of 5.2 Scf/bbl, the unit removed about 82% of benzene, 87% toluene, 88% xylenes and 91% ethylbenzene. Under the same operating conditions, dissolved CO<sub>2</sub> was reduced by 75% and H<sub>2</sub>S by 93%.

During the pilot test, calcium carbonate scaling was observed inside the degasifier. The scaling occurred because of the rise in pH between the unit's inlet and outlet during the acid gas stripping. The solubility of calcium



Source: Veolia Water Technologies

carbonate is inversely related to the pH. At lower pH, the salt is more soluble.

### Scaling potential

The scaling potential of produced water containing calcium carbonate can be measured by the Langelier Saturation Index (LSI). Positive LSI values indicate an area where the solution is unstable, beyond saturation, favoring calcium carbonate scaling. Negative LSI values indicate an area where the solution is below saturation and the dissolved salts tend to be stable in solution.

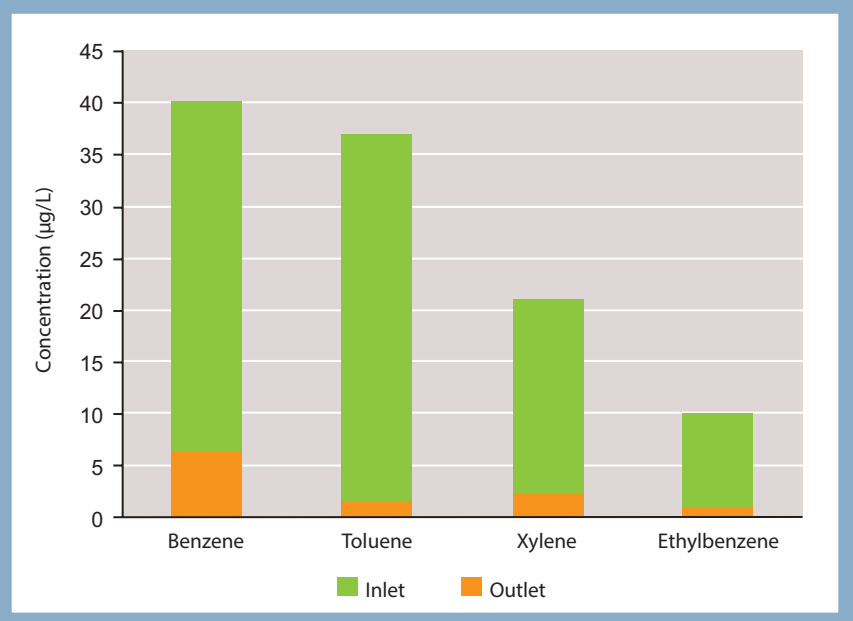
To minimize scale deposits in the unit, sulfuric acid was dosed into the degasifier to lower the scaling potential. Before acid introduction, scaling occurred quickly, at an LSI of about +1.5. After acid addition, the LSI was lowered to about +0.9. The acid injection minimized the rate of scaling in the degasifier and scaling was not observed over several weeks.

Although nitrogen and air were the only stripping gases tested in this study, the type of stripping gas used is expected to have little impact on performance. As long as the stripping gas does not contain the dissolved gases to be removed, the disequilibrium between the dissolved gases in the rising microbubbles and the bulk liquid phase will be the same, according to Henry's Law. The partition coefficient is independent of the other gas species present and solely a function of the temperature and individual gas species.

### Safety and environment

Based on the pilot-study results, the CoStrip degasifier provides many process benefits to a produced-water treatment train. H<sub>2</sub>S is removed,

### Volatile Organic Compound Removal



At an air-stripping-gas utilization rate of 5.2 Scf/bbl, more than 80% of benzene and xylenes were removed as well as more than 90% of toluene and ethylbenzene. Source: Veolia Water Technologies

thus ensuring personnel safety and minimizing environmental impacts and corrosion issues.

When used as pretreatment to chemical precipitation softening, the CoStrip degasifier removes CO<sub>2</sub>. This reduces alkali demand and sludge generation, thus minimizing life-cycle costs.

VOCs also are removed, ensuring worker safety and preventing environmental impacts with respect to air emissions and effluent water-discharge requirements.

Fouling and degradation of downstream reverse osmosis membranes are reduced by minimizing VOCs.

In our opinion, the estimated economic benefits of using the CoStrip technology include up to 30% cost reductions on chemical softening and sludge disposal and up to 35% cost savings on reverse osmosis membrane replacement. Although these savings must be evaluated on a case-by-case basis, they translate into a payback period of less than one year when gas-stripping technology is added to the treatment train. ■

*Duane Germenis, Aaron Poon and Oscar Velastegui are with Veolia Water Technologies.*



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Laying a 30-inch natural gas pipeline on a mountainside requires rigging and hazard recognitions. It takes strong working relationships and comprehensive mentor/mentee programs to properly address these potential life-threatening hazards, skills not taught in classrooms. *Source: Atlas Field Services LLC*

# Old Meets New

**Mentoring programs can help fill critical midstream jobs with qualified personnel.**

*By Justin Maloney*

**T**oday's infrastructure workforce is aging and in need of repair and replacement. Not just to backfill jobs as many retire, but to also provide the critical knowledge transfer from the highly trained and deeply experienced employees to the new workforce.

Finding and providing these qualified workers is becoming more and more difficult, bringing great risk

to employers. The U.S. Bureau of Labor Statistics reports that more than 6 million jobs are currently unfilled, with skilled-labor jobs taking the biggest hit. Not having enough employees and/or quality employees can pose a safety risk in the workplace.

One reason for the qualified-worker shortage is the difference in culture and society between age groups. Operating, maintaining and building energy

infrastructure is physically demanding work that requires long hours.

## **Nonstop**

Often, there is little to no environment for a work-life-balance culture, simply because the energy industry never stops. Because of this, the younger generation has a reduced interest in hard skill sets, such as the trades, and lack the soft skills needed to effectively

## Training

communicate during critical problem-solving exercises.

Another cause was the tremendous loss of qualified workers the energy sector saw during the economic downturn of the 1980s.

As a result, today we see a large age gap of approximately 12 to 15 years between employees in the field. This is more than a decade of lost years where replacements could have been mentored and groomed to meet tomorrow's energy needs.

Preparing to replace an aging workforce involves construction and maintenance practices often not learned in degreed programs. Generations of pipeliners have learned successful approaches in the field solely through experience.

Their practices and tricks of the trade are skills you simply cannot learn in a textbook. Textbooks cannot predict weather, equipment failures, external threats, and the ticks and tocks of operating equipment that one learns from being around it.

Trying to learn these skills without the experience from those now retired—or close to retiring—has delayed projects, increased costs and affected the integrity of systems. Some companies saw this in

## Preparing to replace an aging workforce involves construction and maintenance practices often not learned in degreed programs. Generations of pipeliners have learned successful approaches in the field solely through experience.

the early 2000s and proactively planned for this by heavily investing in mentor/mentee programs.

### 'Work smart'

A well-planned mentorship program reaps tremendous benefits if maintained well and properly managed. Education

itself is important, but pairing it with field knowledge as professionals grow is priceless. As TV personality Mike Rowe once said, "Work smart and hard."

Why is this so important in today's training for energy infrastructure? It's the fastest way to build an employee's skillset and take advantage of the opportunity to improve the next generation of energy workers.

The U.S. has experienced monumental achievements with Roosevelt's New Deal, drilling advancements to reach more fossil fuels and development of new material that are stronger than ever before. But we have also failed in areas where the rapid growth of North American energy independence has weakened the quality of workers due to lack of time for training.

When companies invest in mentorship programs, they invest in the integrity of their infrastructure and the security of their assets. It may be the single-most important investment a company makes.

These programs offer an opportunity for a younger worker to be paired with a veteran energy professional and learn from the veteran's failures and successes throughout decades of service to a given energy sector.

Mentoring new employees introduces them to older infrastructure and proven methods to recognize and troubleshoot problems that may need addressing if, for example, a Supervisory Control Data Acquisition System (SCADA) fails and power is lost. People don't realize that, during a bad storm or a catastrophic equipment failure, there is a worker out there in the elements manually operating valves, reconnecting switches and starting turbines on backup power to maintain the comforts society has collectively grown to rely on.

These efforts take skills that mentorship programs help answer.

Companies have different approaches to addressing mentorship programs, but the most important aspect to their success is timing. A new employee should be paired with a veteran worker between two and four years before that worker is scheduled to retire.

Feedback from the field and personal experience has shown that decades of



Erosion and flooding can cause damage missed by aerial patrols 1,700 feet or more in the air. Comprehensive ground right-of-way patrols by trained technicians can spot such damage before a rupture occurs. Source: Atlas Field Services LLC

learned skills cannot be transferred and learned in a matter of months. Invest in the time for a good overlap and tradeoff and it will pay dividends to the safe operations of energy infrastructures across North America.

### **Skill verification, expectations**

Today, midstream electrical and pipeline maintenance and construction rely on inspectors to oversee the quality of the work being done. They carry certifications through organizations that have difficulty verifying one's technical background to justify granting a certificate. These oversights have produced inspectors that are highly unqualified to assess the work.

When researching companies that offer inspection services, it's typical to see a "hiring for XYZ inceptor." As long as the candidate holds the certification, they'll likely qualify to be hired with little to no knowledge of the skills required to correctly perform the job.

While certifications and education are important, technical background and attitude are even more critical. If having the technical skills, what good are they if lacking communication skills to help the cause?

Atlas Field Services LLC (AFS) vets, interviews and screens safety employees through multiple veteran linemen and pipeliners to assess the actual skills many applicants claim to have. New employees are paired with a subject-matter expert in the field to assure competency and to also soften the edges if needed.

The mentor/mentee program has fostered an environment for innovative security-vulnerability assessments, pipeline construction-risk assessments in difficult country and ground patrols that have identified areas of improvement for clients at a cost efficient operation for long-term returns on safe operations.

### **Midstream's need**

Advancement in unconventional-resource drilling in this century has resulted in the need to get more hydrocarbons into midstream systems for distribution markets. This demand for new, large, interstate projects led to an industry boom. This boom came at a time with a reduced number of trained



**How to manage this tricky problem?** This in-service pipeline must operate at reduced pressure after a replacement proposal was denied due to environmental concerns. River weights were installed here to lower the pipe, although replacement of the section—with thicker pipe and a better coating—would have been preferred. Permits were blocked in court by environmentalists.

*Source: Atlas Field Services LLC*

field professionals and little time to start training a new generation.

This resulted in a decade of new professionals with resumes that reflected more experience than a 40-year veteran. Most of these candidates failed the field-assessment test when it came to boots on the ground and the request to explain processes described in their resume.

The new-age professionals that come with a willingness to learn, a fair resume and an interest to grow are the ones to invest in. It is essential to identify those individuals in an industry that has been flooded with inexperience in the past decade.

Taking more time to comb through qualified candidates and separate fact from wording on resumes will produce quality new hires. Time dedicated to building a quality program for a group of elite young professionals that want to learn is the best investment a company can make for its future.

Training directly affects the safety and security of energy infrastructure

across North America. AFS is investing in the integrity and economic strength of electrical and pipeline systems by recognizing the importance of comprehensive mentor/mentee programs to overlap field experience and blend the best practices of generations that each bring something to the table.

No matter where the energy field goes, one thing is a guarantee: You'll always need hands-on mechanics paired with technological developments to address the safety and security of the U.S.' critical energy infrastructure. The old fundamentals of field applications are just as important as the latest SCADA developments to streamline efficient operations.

Perhaps the greatest mistake is to forget about that as technology advances forward at lightning speed. ■

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*Justin Maloney is a regional field manager for Atlas Field Services LLC.*



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The July 2013 rail disaster at Lac-Mégantic, Quebec, called attention to the differing volatility—and handling requirements—of crude oils.  
Source: Shutterstock



# There's Crude Oil And There's Crude Oil

**Government rules stipulate obligations and costs for information on differing crude oil streams.**

*By Bob Nichols*

**S**ome safety and environmental advocates have argued the July 2013 Lac-Mégantic rail disaster in Québec highlighted that not all crude oil is created equal. Specifically, these critics have argued that crude from the Williston Basin's Bakken formation possesses chemical properties that vary from much of the other crude produced in the U.S.

While industry representatives have taken issue with many of the concerns about Bakken crude, the fact remains

that crude from distinct sources can differ in significant respects.

Importantly, the guidance of the U.S. Occupational Safety and Health Administration (OSHA) continues to indicate that producers and distributors of petroleum have an obligation under the agency's Hazard Communication Standard (HCS) to provide downstream recipients with a Safety Data Sheet (SDS) for crude. The SDS must properly reflect the petroleum stream at issue—rather than all crude oils, generically.

Like upstream producers, midstream businesses need to understand their SDS obligations and the cost of compliance and non-compliance.

#### **SDS background**

OSHA's HCS was adopted in 1983 for manufacturers. In 1987, the agency expanded the scope to all industries in which employees are potentially exposed to hazardous chemicals.

Under the HCS, chemical manufacturers and importers are required to

evaluate the chemicals and engage in a classification process to determine if and how each is hazardous. Information about hazards and protective measures must be conveyed to downstream employers through labels on containers and through SDS's, formerly referred to as a Material Safety Data Sheet (MSDS). Each SDS must be up to date.

In 2012, OSHA substantially revised the HCS to conform it to the United Nations' Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

for all crude oil as acceptable. This conclusion is confirmed by a March 4, 2014, OSHA interpretation letter in which it explained that “[w]hen dealing with petroleum streams, it may be more important for the user to know the concentrations of particular groups of constituents that are toxicologically similar.”

The letter ultimately recognizes and accepts that a producer of petroleum cannot provide an SDS with absolutely precise information about the constituents of the crude oil, including

The chemical manufacturer must ensure that the information provided accurately reflects the scientific evidence used in making the hazard classification. If the manufacturer preparing the SDS becomes newly aware of any significant information regarding the hazards of a chemical—or ways to protect against the hazards—this new information shall be added to the SDS within three months.

The chemical manufacturer must ensure that distributors and employers are provided with an

**As for whether a midstream crude-transportation or -storage business is a “chemical manufacturer” or “distributor,” it appears that there is a strong argument that a company that mixes crude streams from different producers is a “chemical manufacturer” that must create its own SDS.**

In the 2012 HCS, the information contained in the SDS is largely the same as what was required of the MSDS. However, the SDS must be presented in a consistent, user-friendly, 16-section format.

Under the HCS, “chemical” is defined as “any substance, or mixture of substances.” A “chemical manufacturer” includes any “employer with a workplace where chemical(s) are produced for use or distribution.” And to “produce” means “to manufacture, process, formulate, blend, extract, generate, emit, or repackage.”

### No generic crude

In a 1996 interpretation letter, OSHA concluded that “[o]il and gas producers are covered by the HCS and are considered chemical manufacturers.” It withdrew a statement that was made in a 1989 letter, citing the prior statement as “erroneous.” Further, however, OSHA stated in the 1996 letter that, as was stated in 1989, oil and gas producers can use a “generic MSDS.”

With the 2012 amendments to the HCS, it was apparent that OSHA would no longer consider a truly generic SDS

the levels of those constituents, due to the variable nature of a petroleum stream. But it is also apparent from the letter that a truly generic SDS for crude oil generally would not be adequate.

Within certain limits of reasonableness, the letter evidences that OSHA expects a crude oil producer to develop an SDS that is correct for the petroleum stream at issue.

### SDS obligations

Again, under the terms of the HCS, producers of oil and gas and other chemical manufacturers must “obtain or develop [an SDS] for each hazardous chemical they produce or import.”

The SDS must be in English and must include 16 different designated sections, addressing a variety of different concerns, such as hazard identification, accidental-release measures, and “composition information on ingredients,” “physical and chemical properties” and “stability and reactivity.” (See graphic.)

If no applicable information exists for a particular section, the manufacturer must indicate in the SDS that no applicable information was found.

appropriate SDS with the initial shipment and with the first shipment after an SDS is updated.

The manufacturer must either provide SDS's with the shipped containers or send them to the distributor or employer prior to or at the time of the shipment. The manufacturer also must provide downstream distributors or employers with an SDS upon request.

### Oil distributors

Under the HCS, a “distributor” is “a business, other than a chemical manufacturer or importer, which supplies hazardous chemicals to other distributors or to employers.” If the company is a “distributor” of the crude oil, then it must ensure that SDS's and updated information are provided to other distributors and employers downstream with their initial shipment and with the first shipment after an SDS is updated.

A distributor must either provide SDS's with the shipped containers or send them to the other distributor or employer prior to or at the time of the shipment.

As for whether a midstream crude-transportation or -storage business is a “chemical manufacturer” or “distributor,” it appears that there is a strong argument that a company that mixes crude streams from different producers is a “chemical manufacturer” that must create its own SDS.

Additionally, the concept of the midstream business simply passing along to all downstream recipients of its commingled product the disparate SDS’s received from the original producers seems untenable.

Of course, for a midstream business to comply with OSHA’s HCS requirements, the company should require the businesses from which it receives crude oil to provide it with SDS’s. Those SDS’s would be key to the midstream company’s development of an appropriate SDS.

Again, a producer is supposed to provide an SDS before or at the time of the first shipment. Also, if a recipient downstream requests a SDS, the producer must provide the SDS “upon request.”

### Cost of compliance

A midstream business producing a mixture of petroleum streams is well advised to provide an appropriate SDS to downstream recipients. But creating an SDS will not always be a simple undertaking.

As indicated by OSHA guidance, including the 2014 interpretation letter and a 2015 instruction, establishing the contents of an appropriate SDS will require some individualized analysis of the petroleum stream at issue. The letter and instruction include essentially the same important information about how that analysis should be conducted in the case of a petroleum-stream SDS.

The American Petroleum Institute has indicated that larger energy companies typically have sizeable teams of individuals

that work on SDS development and updating—including specialists in chemistry, toxicology, industrial hygiene, occupational and environmental health, and other disciplines.

Smaller businesses may conclude that they cannot afford to devote those kinds of resources to SDS development. However, the OSHA guidance would indicate that a large team is not always necessary. A good-faith effort at compiling an appropriate SDS based upon the characteristics of the particular stream is better than making no effort at all or simply using a truly generic crude oil SDS from some source.

Additionally, covered companies should recognize highly skilled, third-party consulting firms are available to assist in development of an SDS.

As for the cost of SDS non-compliance, an OSHA “other than serious” citation currently carries a monetary penalty of up to \$13,268 per violation. It might find the failure to provide an appropriate SDS for multiple products or streams to be separate violations, thus separate fines.

Further, if OSHA were to conclude that the failure to comply with SDS requirements was “willful,” then the

potential penalty becomes as much as \$132,598 per violation.

### Downstream demand

Perhaps the greatest practical difficulty associated with non-compliance is downstream recipients’ demand, as they should, that the upstream provider supply an appropriate SDS. The midstream business will have little choice but to comply.

If the business fails to supply an appropriate SDS, it could face a host of concerns, including potential breach-of-contract claims by downstream recipients, OSHA citations and increased exposure—in the case of a fire or explosion downstream—based on the theory that the failure to provide an accurate SDS constitutes evidence of negligence.

In sum, a producer of crude oil, including the midstream producer of a mixture of crude oils from different sources, is best served by making a good-faith effort to develop, deliver and, when appropriate, update SDS’s for the streams it provides to downstream recipients. ■

*Bob Nichols is a partner with Bracewell LLP. He specializes in energy-employment issues.*

## Required Components of an SDS

- SECTION 1 | Identification
- SECTION 2 | Hazard(s) identification
- SECTION 3 | Composition/information on ingredients
- SECTION 4 | First-aid measures
- SECTION 5 | Fire-fighting measures
- SECTION 6 | Accidental-release measures
- SECTION 7 | Handling and storage
- SECTION 8 | Exposure controls/personal protection
- SECTION 9 | Physical and chemical properties
- SECTION 10 | Stability and reactivity
- SECTION 11 | Toxicological information
- SECTION 12 | Ecological information
- SECTION 13 | Disposal considerations
- SECTION 14 | Transport information
- SECTION 15 | Regulatory information
- SECTION 16 | Other information, including date of preparation or last revision

Source: Bracewell LLP



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# Don't Let Taxes Tax You

**Integrated, third-party systems can add tax-figuring capabilities to SAP's upgrade.**

*By John Beaty*

**T**oday, many fuel suppliers and distributors are developing or implementing plans to upgrade to SAP S/4HANA—the newest version of SAP's enterprise resource planning (ERP) system. And, with good reason: The companion, cloud-

based version offers an opportunity to reduce infrastructure hardware and administrative costs, gain more agility and realize additional benefits that come with cloud-based software.

SAP S/4HANA can process transactions much faster than previous

versions. It also makes it easier for enterprises to run real-time queries against application data without affecting performance—limiting the need to build multiple data marts. This also delivers valuable insights on business operations much quicker than before.

## Costs

### Figuring taxes

However, having made the decision to move, these operators are faced with a question of how to identify and calculate excise taxes with the new software.

Identifying and calculating excise taxes is not simple. They vary with tax jurisdiction, product and other factors, including blend percentages, licenses and exemptions. They are also significant: Excise taxes are usually a bigger liability for fuel suppliers and distributors than sales and use taxes; sometimes, they represent as much as 80% of total tax liability.

Previous versions of SAP did not offer the functionality needed to fully identify and calculate excise taxes. Thus, many fuel suppliers and distributors wrote their own code to create custom solutions they could then integrate into SAP.

Yet with SAP S/4HANA's new code base, these old solutions will likely require modifications or a complete redesign. In addition, the upgrade still does not offer full excise-tax identification and calculation functionality itself.

**These [third-party, cloud-based] solutions secure the benefits of more accurate, less labor-intensive calculations than that derived by custom solutions....**

In choosing to upgrade, fuel suppliers and distributors seem faced with a difficult choice. They can calculate excise taxes manually, using spreadsheets and error-prone, time-intensive processes. Or they can invest time and money in building new custom excise-tax identification and calculation solutions from the ground up, potentially slowing down their entire SAP upgrade.



### Another way

However, there are other options fuel suppliers and distributors can explore for calculating excise taxes as they upgrade. For example, third-party, cloud-based solutions are available that can be integrated into SAP S/4HANA and automatically identify and calculate excise taxes.

These solutions secure the benefits of more accurate, less labor-intensive calculations than that derived by custom solutions—and without having to build and test them.

In addition, cloud-based excise-tax-automation solutions are proactively updated by the provider to reflect the latest changes in tax rates and regulations. Operators don't have to always carefully watch for the latest tax-rate and -rule changes and, then, tweak manual processes or custom solutions.

These solutions are also more flexible than custom solutions; they can be easily adjusted to identify and calculate taxes after a firm adds new products and customers or makes other changes to its business.

Finally, because these cloud-based solutions have isolated the excise-tax functionality from SAP S/4HANA, fuel suppliers and distributors avoid the risk that a rate, rule or other tweak to their custom solution will have an adverse effect on their SAP system.

These capabilities all make cloud-based excise-tax-automation solutions a potential plug-and-play alternative for fuel suppliers and distributors that

**Operators don't have to always carefully watch for the latest tax-rate and -rule changes and, then, tweak manual processes or custom solutions.**

do not want to use manual processes for excise-tax calculation or rebuild custom solutions when they implement the SAP upgrade.

### Maximized efficiency

By upgrading to SAP S/4HANA, fuel suppliers and distributors have the opportunity to secure a more agile and efficient ERP system that can process transactions quicker and deliver insightful reports faster, while also reducing costs related to buying and maintaining on-premises ERP system and data-mart infrastructure.

However, these fuel suppliers and distributors' tax managers might be understandably concerned that the upgrade will require them to invest in rebuilding their custom excise-tax-calculation solutions from scratch—or force them to revert to using inefficient, inaccurate, manual processes.

Cloud-based excise-tax solutions offer these tax managers an opportunity to continue to automatically identify and calculate excise taxes in SAP, while also reducing problems related to updating custom solutions to reflect changes in tax rates, rules and business strategy.

With these cloud-based solutions, excise-tax identification and calculation is no longer an obstacle for moving forward with an upgrade to SAP S/4HANA. In fact, it provides an additional way for fuel suppliers and distributors to use the upgrade to become more efficient and agile and address business challenges faster and more intelligently. ■

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*John Beaty is general manager, excise, at Avalara Inc.*

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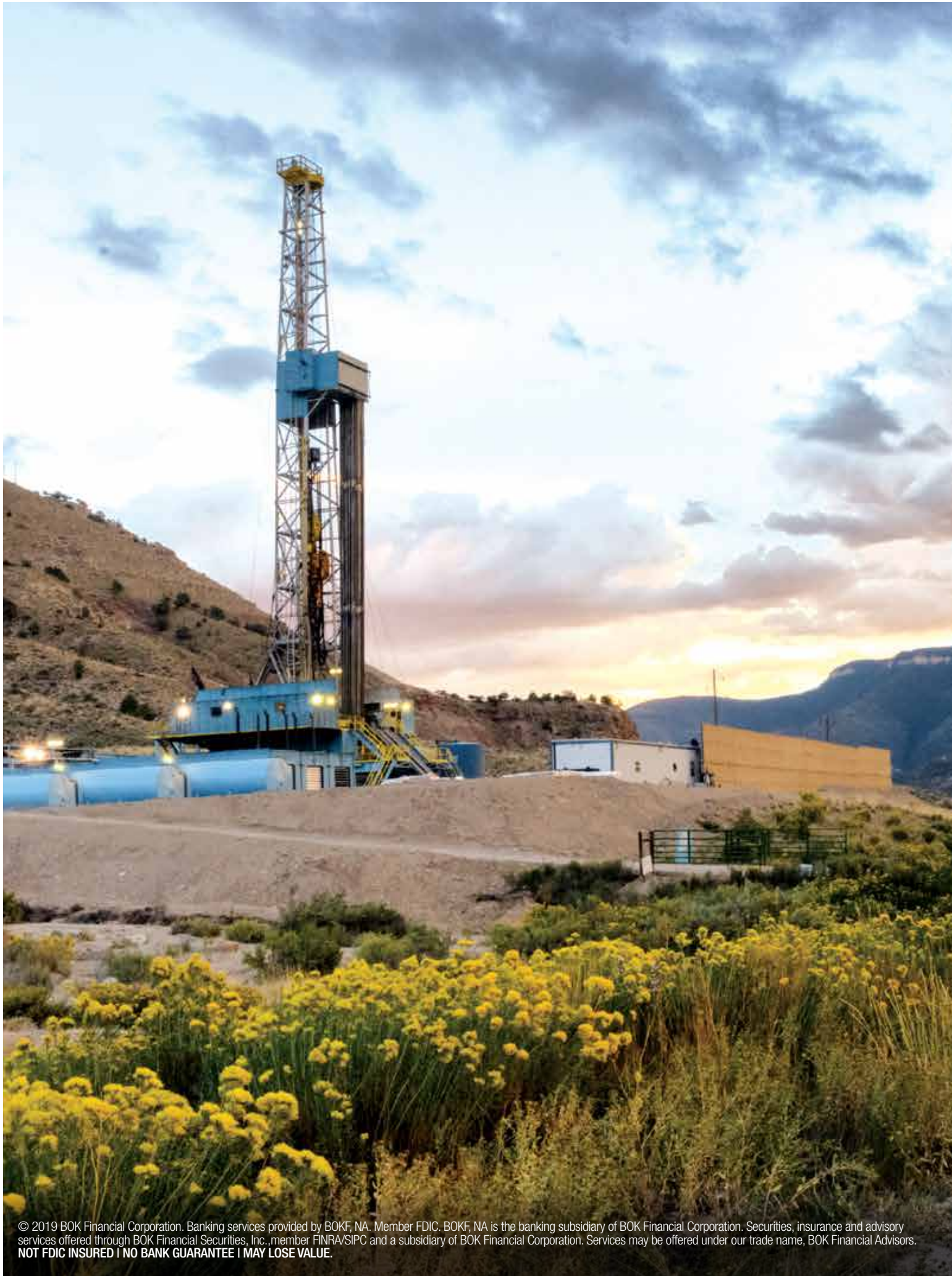
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# Private-Equity Partners

**With Wall Street's lingering hesitancy about the energy sector, private equity has taken on a larger role in financing the necessary midstream buildout.**

*By Michelle Thompson*

**W**ith the right partner by your side, anything seems possible. This is particularly true when it comes to midstream companies and the private-equity providers that financially back them.

Midstream capex is expected to average \$44 billion per year through 2035, according to a recent Interstate Natural Gas Association of America study. That's a lot of money. These selected, and other, private-equity firms are helping fuel new projects by strategically investing in promising midstream companies.

Money invested—whether by world-renowned firms or small niche organizations—is playing an indispensable role in midstream buildout.

## Alinda Capital Partners LLC

■ Greenwich, Conn.

As one of the world's largest infrastructure firms, Alinda invests in businesses across the globe. It has partnered with companies throughout Canada, Europe and more than 30 states.

In 2018, Alinda acquired minority interest in the Maurepas Pipeline from Tulsa, Okla.-based SemGroup Energy Partners LP. It paid \$350 million for 49% interest in the pipeline, which serves refineries in Louisiana's Gulf Coast region.

Alinda is also a majority stakeholder in the San Antonio-based pipeline firm Howard Midstream Energy Partners LLC. Other active midstream investments include Catalyst Midstream Partners LLC and Martin Midstream GP LLC. Overall, Alinda's infrastructure businesses serve

more than 100 million customers in more than 550 cities worldwide.

## Apollo Global Management LLC

■ New York

Just as its namesake, Apollo has developed a reputation for its knowledge and complexity. The firm is today considered one of the country's largest alternative-investment managers. Its assets under management reached \$280 billion during fourth-quarter 2018.

Its investments within the midstream world have been significant. Last August, Apollo provided Freestone Midstream Holdings LLC with a \$200-million equity commitment to support the company's business plan. The relationship allows Freestone to invest in water-sourcing and -handling assets for upstream oil and gas operators in Wyoming's Powder River Basin.

Years earlier, funds managed by Apollo gave CSV Midstream Solutions Corp. a \$500-million boost. The funds were marked in 2014 to pursue the construction and operation of midstream facilities in the Western Canadian Sedimentary Basin.

## Blackstone Energy Partners LP

■ New York

Blackstone's energy private-equity business is one of the most active investors in the midstream sector. It

has committed more than \$5 billion of equity to investments spanning the midstream value chain.

Recent investments include Delaware Basin operator EagleClaw Midstream Ventures LLC, which acquired fellow Delaware operators Caprock Midstream Holdings and Pinnacle Midstream LLC.

In addition, it has partnered with Kinder Morgan Inc. on the Permian Highway natural gas pipeline, engaged in a partnership with Targa Resources Corp. on the Grand Prix NGL pipeline and has partnered with Energy Transfer Partners LP on the Rover gas pipeline serving the Marcellus and Utica plays.

Blackstone was also the original equity sponsor of Cheniere Energy Inc.'s liquefaction facility at Sabine Pass, La. It committed \$2 billion of equity to the project.

## Cadent Energy Partners LLC

■ Rye Brook, N.Y.

Throughout the past 34 years, principals at Cadent Energy Partners LLC have invested more than \$1.1 billion. The natural resources-focused private-equity firm typically commits between \$25- and \$75 million per investment.

Unlike some of its competitors, Cadent invests across the energy spectrum, including upstream, midstream and downstream.

It is an active investor in Polyflow Holdings LLC, which manufactures and installs flexible composite pipelines for transporting hydrocarbons and rehabilitating

steel pipelines. As well as offering expansion capital, Cadent finances private mergers and acquisitions, corporate divestitures and more.

## The Carlyle Group

### ■ Washington, D.C.

As one of the world's largest investment firms, The Carlyle Group has \$216 billion of assets under management. Its global portfolio includes 276 companies, including many in the energy sector.

In January, Carlyle invested in Crimson Midstream Holdings LLC, which provides oil transportation and storage. It operates more than 2,000 miles of pipeline in the U.S.

The partnership is to enhance Crimson's support of shippers on its Gulf of Mexico, Louisiana and California pipeline systems. The investment is also to help grow its presence in those

regions as demand for U.S. oil-export infrastructure grows.

## Denham Capital Management LP

### ■ Boston

Denham Capital Management LP is a global energy and resources private-equity firm with offices in Boston, Houston, London and Perth, Australia. Its investment efforts span the oil and gas value chain, with an emphasis on North American upstream and midstream.

Its portfolio includes Spire HoldCo, focused on developing midstream infrastructure in Western Canada.

Meantime, in February, Denham parted with portfolio company WhiteWater Midstream LLC. The company was sold to funds managed by First Infrastructure Capital Advisors LLC for an undisclosed sum.

## EIV Capital LLC

### ■ Houston

EIV Capital LLC is an energy private-equity firm with about \$920 million in assets under management. It invests throughout the energy value chain, primarily partnering with growing midstream businesses.

The firm typically invests between \$20- and \$100 million per project, teaming with entrepreneurs in existing businesses or new platforms. However, it will provide up to \$200 million. For instance, EIV partnered with H2O Midstream LLC in 2016 before oilfield water was as hot a topic as today, supporting the company's growing footprint in the Permian Basin.

In early 2018, EIV extended its relationship with Fullstream Energy Holdings LLC, supporting its Marcellus greenfield pipeline and compression project. In the fall of last year, EIV

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## Key Players

backed Bayou Midstream LLC and continued its partnership with Woodland Midstream II LLC, following the successful exit of Woodland Midstream LLC.

### EnCap Flatrock Midstream

#### ■ San Antonio

EnCap Flatrock Midstream provides value-added growth capital to proven management teams focused on midstream infrastructure opportunities throughout North America. The firm was formed in 2008 in a partnership of EnCap Investments LP and Flatrock Energy Advisors LLC.

Based in San Antonio with additional offices in Oklahoma City and Houston, the firm manages investment commitments of nearly \$9 billion from a broad group of institutional investors.

The firm forges strong partnerships with seasoned management teams, providing the capital, experience, expertise, operational support and contacts required to execute business plans.

EnCap Flatrock's three co-founders—Dennis Jaggi, Bill Waldrip and Billy Lemmons—have worked together in the midstream sector for the majority of the past 30 years. Together with three additional managing partners, they lead a team of energy finance and technical professionals, including eight engineers.

An EnCap Flatrock count places it as the largest U.S. venture-capital firm focused exclusively on midstream. It is currently making commitments to new management teams from the \$3.25-billion EFM Fund IV.

Recent transactions include Lotus Midstream LLC's acquisition of the Centurion Pipeline System and Moda Midstream's acquisition of the Ingleside Energy Center, an oil-export terminal on the Corpus Christi Ship Channel. Both purchases were from Occidental Petroleum Corp.; the combined purchase price was \$2.6 billion.

Additional recent transactions include Nuevo Midstream Dos' acquisition of Republic Midstream LLC and an initial \$300-million commitment to newly formed Clear Creek Midstream LLC.

### Energy Spectrum Capital

#### ■ Dallas

Founded in 1995, Energy Spectrum Capital was the first private-equity fund manager to focus on North America's midstream energy sector. Since inception, the firm has raised seven midstream funds totaling more than \$3.5 billion.

Its seventh fund, ESP VII, was closed in 2014, totaling nearly \$1.23 billion. The firm is currently investing in lower-middle-market companies that acquire, develop and operate North American midstream energy assets.

As a cornerstone of its strategy, Energy Spectrum seeks to identify and partner with top-tier management teams. Seven of its current portfolio-company management teams are partnering with it for at least the second time. Furthermore, Energy Spectrum has partnered four times each with both Tulsa, Okla.-based Frontier Energy Services Midstream and Houston-based Laser Midstream Energy.

Laser Midstream seeks to dramatically increase efficiency in the North American oil and gas sector by acquiring, building and expanding gas, oil and water transportation and processing assets.

To date, Energy Spectrum's ESP funds have invested in more than 55 portfolio companies.

### First Reserve Corp.

#### ■ Greenwich, Conn.

Throughout the past 35 years, First Reserve has completed more than 650 transactions and raised more than \$31 billion of aggregate capital. The global private-equity investment firm focuses exclusively on the energy industry and spans the upstream, midstream and downstream sectors. Its portfolio companies have operated on six continents.

First Reserve invests in targeted sectors through its private-equity program, which encompasses a diverse energy-related investment portfolio with a buy-and-build strategy driven by growth equity.

Its portfolio includes Plains All American Pipeline LP. The MLP owns an extensive network of midstream assets in key oil- and NGL-producing basins and transportation corridors, as well as major market hubs within the U.S. and Canada.

### Five Point Energy LLC

#### ■ Houston

Five Point Energy LLC specializes within the midstream and energy-infrastructure sectors. It has more than \$2.5 billion of capital under management.

In February, Five Point announced the formation of joint venture San Mateo Midstream II LLC. San Mateo II, the second midstream partnership between Five Point and Matador Resources Co., will operate throughout the northern Delaware Basin.

Five Point's other active investments include Twin Eagle Resource Management LLC, WaterBridge Resources LLC and EVX Midstream Partners LLC.

Founded in 2012, Five Point's equity investments range from \$10- to more than \$500 million. The firm is led by energy-industry veterans who previously led successful midstream companies.

### GCP Capital Partners LLC

#### ■ New York

GCP Capital Partners LLC was formed in 2009 as the successor to Greenhill Capital Partners LP, which was founded in 2000. Today, GCP manages North American private-equity funds that have invested about \$1.3 billion in some 60 portfolio companies.

Eight have grown from acorns to mighty oaks, exiting at \$1-billion enterprise values or higher. Its investments include Energy Transfer Equity LP, one of the biggest, publicly traded MLPs in the sector. It owns gas and processing assets, as well as a retail propane-distribution business. It also owns the 1,915-mile Dakota Access Pipeline that transports Bakken and Three Forks oil from the Williston Basin to storage and hubs in Illinois and Texas.

## Haddington Ventures LLC

### ■ Houston

With a growing portfolio of midstream businesses, Haddington has invested more than \$550 million to acquire, develop and optimize companies within the sector.

Its recent investments have included an assortment of traditional midstream infrastructure opportunities, including gathering, transportation, storage and processing. The company has also expanded its reach to include services such as nitrogen rejection, helium purification, compression and produced-water treatment.

With investments spanning the U.S., Haddington's current portfolio encompasses seven midstream companies, including Eureka Resources LLC, which provides wastewater treatment and disposal in the Marcellus and Utica plays.

Some other active investments include Fairway Energy Partners LLC and Zechstein Energy Storage.

## Hunt Energy Enterprises LLC

### ■ Dallas

Hunt Energy Enterprises LLC's strategy is to invest in companies with the power to disrupt the energy industry's value chain.

It invests in new energy companies and in partnerships within conventional petroleum, alternative energy and clean power. Investing as a company that "never runs with the herd," Hunt says it has become one of the largest independent energy companies by embracing values such as entrepreneurship, creativity and teamwork.

## Kayne Anderson Capital Advisors LP

### ■ Houston

Kayne Anderson Capital Advisors LP subsidiary KA Fund Advisors LLC is a leading investor in both public and private midstream companies. It manages two publicly traded, closed-

end funds: Kayne Anderson MLP Midstream Investment Co. (KYN) and Kanye Anderson Midstream Energy Fund Inc. (KMF).

As of February, KYN's net assets were \$2.1 billion. Its largest holdings are in Enterprise Products Partners LP, which is among North America's largest midstream operators. KYN is also heavily invested in Energy Transfer Equity LP, ONEOK Inc. and Williams Cos. Inc.

KYN's long-term investments are comprised of 68% midstream MLPs, 31% midstream operators and 1% shipping MLPs.

## Macquarie Infrastructure Partners Inc.

### ■ New York City

Macquarie Infrastructure Partners Inc. (MIP) specializes in infrastructure investments throughout North America. It embarked in a significant private-equity commitment to the water midstream market in October when announcing it would invest up to \$500 million in Lagoon Water Solutions.

Initial capital investment will help Lagoon fund upstream water-related infrastructure for producers in Oklahoma's Anadarko Basin.

MIP operates within the Macquarie Infrastructure and Real Assets (MIRA) division of the Macquarie Group. In January, MIRA announced the closing of the MIP IV fund, having reached its \$5-billion hard cap.

MIP IV is MIRA's fifth North America-focused unlisted infrastructure fund. Its predecessor, MIP III, closed at its hard cap of \$3 billion in 2014.

## Old Ironsides Energy LLC

### ■ Boston

Old Ironsides Energy LLC acquires and develops assets in the upstream and midstream sectors in Canada and the U.S.

Included in its portfolio are 18 companies. It most recently partnered with Dallas-based Longhorn Midstream Holdings LLC, formed in February. In 2015, Old Ironsides

partnered with Brazos Midstream Holdings LLC to pursue acquisition and development of midstream assets throughout the U.S.

The firm was founded in 2013; its principals were previously members of Liberty Energy Holdings LLC.

## Pearl Energy Investments LP

### ■ Dallas

Pearl Energy Investments LP invests in the lower-to-middle-market North American upstream, midstream and oilfield-services sectors. It typically targets opportunities requiring between \$25- and \$100 million of equity capital and it has \$1.2 billion of committed capital under management.

In December, newly formed Cavalcade Midstream engaged in a \$150-million partnership with Pearl, Oil Ironsides Energy LLC and Natural Gas Partners (NGP). The San Antonio-based company focuses on midstream solutions in the Permian Basin.

In 2018, Pearl and NGP made a \$100-million commitment to Mettle Midstream LLC, which serves producers in unconventional shale plays throughout North America.

## Post Oak Energy Capital LP

### ■ Houston

Post Oak Energy Capital LP strives to develop a diversified portfolio of middle-market energy investments throughout the industry. It makes domestic investments in the upstream, midstream and oilfield-services sectors.

Included in its portfolio are Oryx Midstream Services LLC and Oryx Midstream Services II LLC. Midland, Texas-based Oryx provides oil- and gas-gathering and -processing services to producers throughout the Permian Basin.

In 2018, Oryx successfully completed an open season for a new regional crude-gathering and -transportation system to provide additional pipeline capacity across the booming northern Delaware Basin. Meantime, Oryx II will also operate in the Delaware.

## Key Players

### Quantum Energy Partners LLC

#### ■ Houston

Quantum Energy Partners LLC is a leading provider of private-equity capital within the energy industry. It focuses on North American upstream, midstream, oilfield service, energy technology and renewables.

Quantum is an active midstream investor. It has committed more than \$2 billion to companies across the U.S. throughout the past five years. Its investments have spanned the Delaware, Midland, Haynesville, Scoop/Stack and Marcellus/Utica plays.

Its portfolio includes XcL Midstream LLC, which operates, develops and acquires midstream assets in southwestern Appalachia, and Midland, Texas-based Oryx Midstream Services LLC.

Oryx is active in the Permian Basin, primarily focused on the Delaware Basin. It is backed by equity commitments from Quantum, Post Oak Energy Capital LP and other private investors.

### Tailwater Capital LLC

#### ■ Dallas

Led by veteran energy investors Jason Downie and Edward Herring, Tailwater Capital LLC is a growth-oriented, energy-focused and highly specialized private-equity firm. It invests across the midstream and upstream sectors.

Tailwater currently manages more than \$2.7 billion in committed capital. The team has executed more than 100 energy transactions in the upstream and midstream sectors representing more than \$19 billion in transaction value.

Founded in 2013, the firm currently has 13 investments across the midstream value chain.

### Tortoise Capital Advisors LLC

#### ■ Leawood, Kan.

Tortoise Capital Advisors LLC invests primarily in assets and services it believes are indispensable to the economy and



Private equity has grown in importance due to public-equity investors' lingering reticence to buy midstream players. Source: Shutterstock/Tpt

society. Its track record of energy-value-chain investment experience and research dates back more than 15 years.

Tortoise's infrastructure investment expertise includes midstream energy, renewables and water. It advises several energy products, representing approximately \$16 billion in assets under management. These include publicly traded closed-end funds, open-end funds, private funds and separate accounts.

Tortoise's energy strategies are primarily focused on North American long-haul pipelines that earn fee-based cash flows, with a particular focus on natural gas.

### Warburg Pincus LLC

#### ■ New York

U.S.-based Warburg Pincus is a private-equity firm with offices across the globe. It has invested more than \$72 billion in more than 845 companies both domestically and internationally.

Its portfolio includes Navitas Midstream Partners LLC, which focuses on emerging basins across North America. The company's strategy is to build an enduring, producer-focused, independent midstream company. In 2014, Warburg Pincus led a \$500-million line-of-equity commitment to Navitas.

Overall, within energy, the firm has committed more than \$10 billion to more than 50 investments globally since the late 1980s.

### Yorktown Partners LLC

#### ■ New York

This independently owned and operated asset management firm is dedicated to making private-equity investments in the energy sector.

Since founded in 1983, Yorktown Partners LLC has invested nearly \$8 billion in more than 90 companies. Most of the investments span the upstream and midstream sectors, including, for example, Vaquero Midstream LLC, which offers midstream services in emerging plays.

As well, Yorktown has been Momentum Midstream LLC's primary equity sponsor since 2004. Momentum has built, acquired, operated and maintained assets throughout North America. This includes more than 2,000 miles of gathering pipeline, 12 processing facilities, three NGL-fractionation facilities and more than 1 million barrels of storage. ■

*Michelle Thompson is a freelance writer based in Orange County, Calif., and specializes in energy topics.*

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<sup>1</sup> Interstate liquid energy pipelines have federally mandated built-in revenue increases linked to inflation. Source: Federal Energy Regulatory Commission, as of January 31, 2019.