

July 22, 2019

Covering the Week of July 12 to July 18, 2019

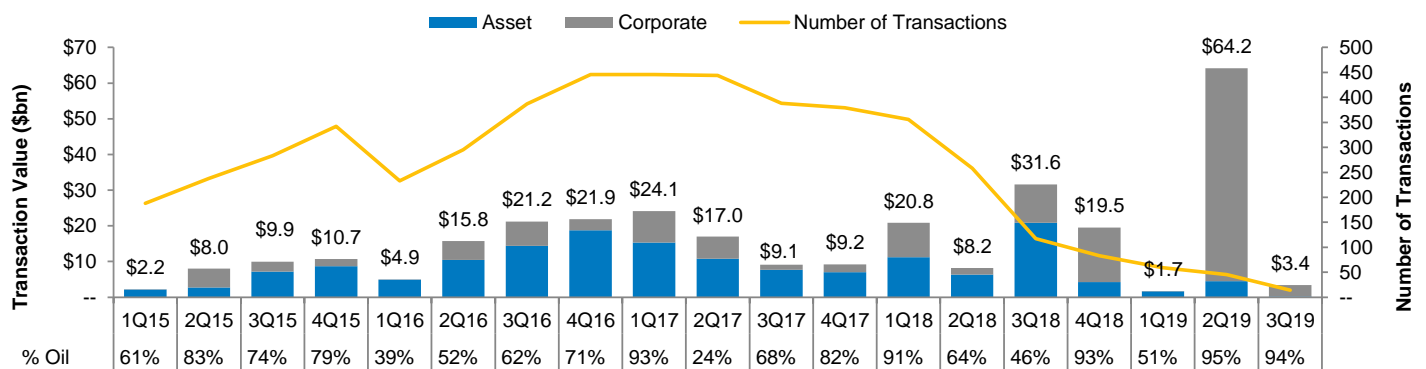
## Week in Review

- Callon Petroleum entered into an agreement to acquire Carrizo Oil & Gas in an all-stock transaction valued at approximately \$3.2 billion (see page 4 for more detail)
- Sundance Energy entered into a definitive agreement to sell 6,100 net acres in the Eagle Ford (Dimmit County) for \$29.5 million
- Kimmeridge Energy Management Company and Desert Royalty Company entered into definitive agreements to combine their respective Delaware Basin oil and gas royalty assets
- BCE-Mach II (a partnership between Bayou City Energy and Mach Resources) signed two separate PSAs to acquire properties in Oklahoma and Texas

## Key Industry Indicators

Indicator	Current Value	Week's Change	% Change	Direction
Prompt Oil Price (\$/bbl)	\$55.30	(\$4.90)	(8.1%)	↓
Prompt Gas Price (\$/mmbtu)	\$2.29	(\$0.13)	(5.4%)	↓
Wkly Trans. Value (\$mm)	\$3,230	\$3,065	nmf	↑
Wkly Trans. Count	7	4	133%	↑
US Rig Count	954	(4)	(0.4%)	↓
US Oil Prod'n (mmbbl/d)	12.0	(0.3)	(2.4%)	↓
US Gas Prod'n (bcf/d) <sup>(1)</sup>	109.9	--	--	—
US Oil Storage (mmbbl)	455.9	(3.1)	(0.7%)	↓
US Gas Storage (tcf)	2.5	0.1	2.5%	↑

## Quarterly Deal Activity



All references to last week in the comments below are through Thursday

## Commodities

- Oil ended last week down. Hurricane Barry did not wreck as much havoc on refineries as expected. There were rumors that the U.S. and Iran were signaling a willingness to talk, but Iran denied that it would even entertain the idea of negotiations with the U.S. Iran seized a foreign ship, and the U.S. shot down an Iranian drone in the Strait of Hormuz. The near-term contract closed down \$4.90, or 8.1%, at \$55.30
- Natural gas ended last week down. There were a few shut-ins from Hurricane Barry. LNG feedgas demand came back above 6.2 bcf/d on increased flows to Freeport LNG (250 mmcf) and Sabine Pass was above 3.25 bcf/d. The near-term contract closed down \$0.13, or 5.4%, at \$2.29

## Equity Markets

- S&P E&P<sup>(2)</sup> underperformed last week (7.5)% vs. SPX<sup>(2)</sup> (0.2)%
- The major U.S. equity indexes finished mixed last week. Consumer discretionary, consumer staples, and materials finished higher. Financials, health care, industrials, and real estate finished lower

## Debt Markets

- Six issuers priced six tranches for \$7.6 billion in proceeds
- U.S. high yield funds reported an inflow of \$573 million
- ETFs reported an inflow of \$152 million, while mutual funds reported an inflow of \$421 million
- High yield index yield was 6.11%; high yield energy index yield was 8.75%

1 Source: BMO Transaction Database, Baker Hughes, BMO Commodity Products Group, Bloomberg, EIA, PLS  
 Note: Current quarter's data is through the week covered by this issue.  
 1. EIA U.S. natural gas gross withdrawals and production reported monthly as of April 2019.  
 2. S&P E&P = S&P Oil & Gas E&P Select Industry, SPX = S&P 500 Index.

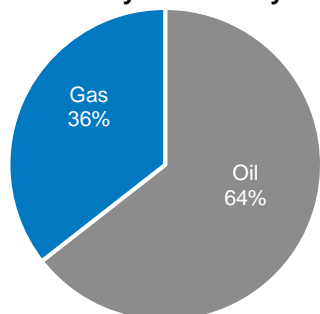
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## The 10 Most Recent Asset Transactions Over \$20 Million

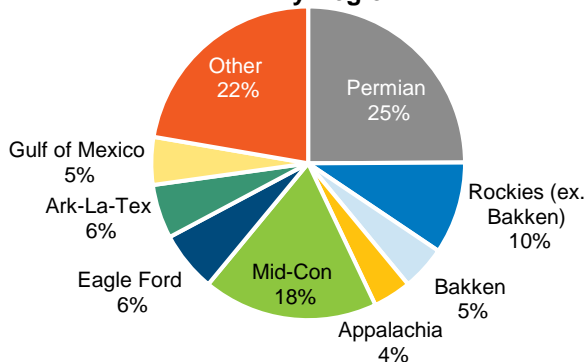
Ann'd Date	Buyer	Seller	Area	Asset Description	Value <sup>(1)</sup> (\$mm)	Proved Multiple (\$/boe)	Prod. Multiple (\$/boe/d)	Net Acres (\$/acre)
17-Jul-19	Undisclosed Buyer	Sundance Energy	Eagle Ford	6,100 net acres in Dimmit County	\$30	n.a.	\$28,069	\$4,836
08-Jul-19	NextEra Energy Inc	Encana	Mid-Continent	140,000 net acres in Arkoma Basin	\$165	n.a.	\$12,857	\$1,179
27-Jun-19	Oil Search	Armstrong Oil & Gas Inc	Alaska	Additional interests in Alaska	\$450	n.a.	n.a.	n.a.
27-Jun-19	W&T Offshore	ExxonMobil	Gulf of Mexico	Mobile Bay assets	\$200	\$2.70	\$10,101	n.a.
24-Jun-19	Alliance Resource Partners	Wing Resources	Permian	Midland Basin mineral interests	\$145	n.a.	n.a.	nmf
12-Jun-19	Glendale Energy; TPG	Undisclosed Seller	Mid-Continent	Non-op interests in STACK	\$55	n.a.	n.a.	n.a.
23-May-19	Riverside Energy	Riviera Resources Inc	Other	1,400 net wells in Michigan	\$45	\$1.38	n.a.	n.a.
13-May-19	Equinor	Shell	Gulf of Mexico	22.45% WI in Caesar-Tonga Field	\$965	n.a.	\$60,313	n.a.
07-May-19	Sabinal; Undisclosed	Diamondback Energy	Permian	CBP, NW Shelf, & Midland Basin	\$322	n.a.	\$49,538	\$2,927
02-May-19	Undisclosed Buyer	California Resources Corp	California	50% WI in assets in San Joaquin Basin	\$203	n.a.	\$88,000	n.a.

Blue = BMO provided transaction advisory services    Green = BMO provided acquisition financing or related services  
Purple = BMO provided both transaction advisory services and acquisition financing or related services

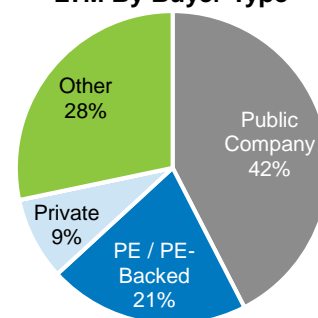
LTM By Commodity <sup>(2)</sup>



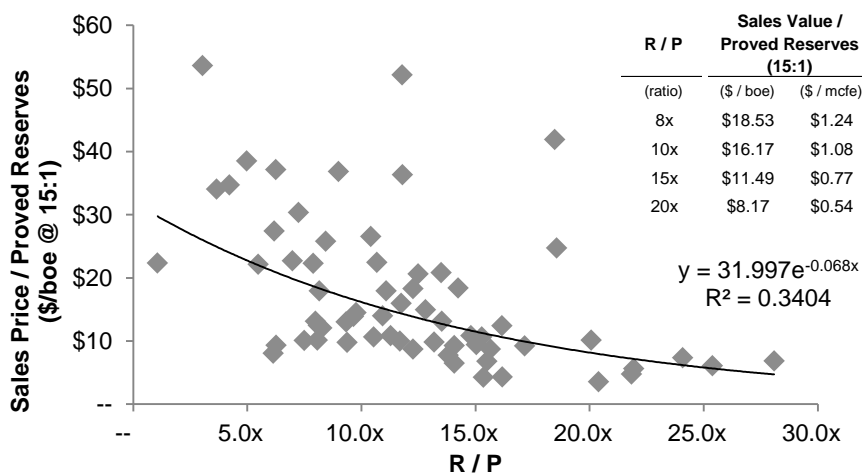
LTM By Region <sup>(2)</sup>



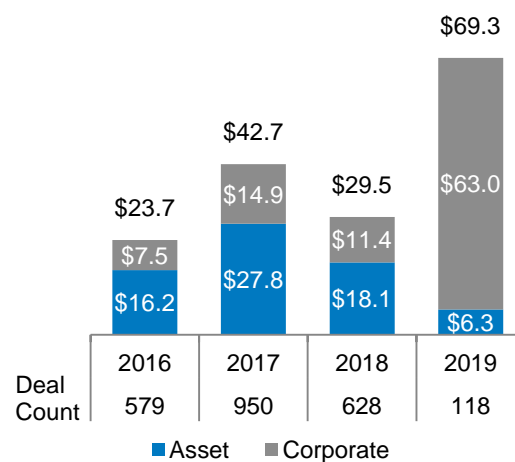
LTM By Buyer Type <sup>(2)</sup>



## A&D Valuation Trends<sup>(3)</sup>



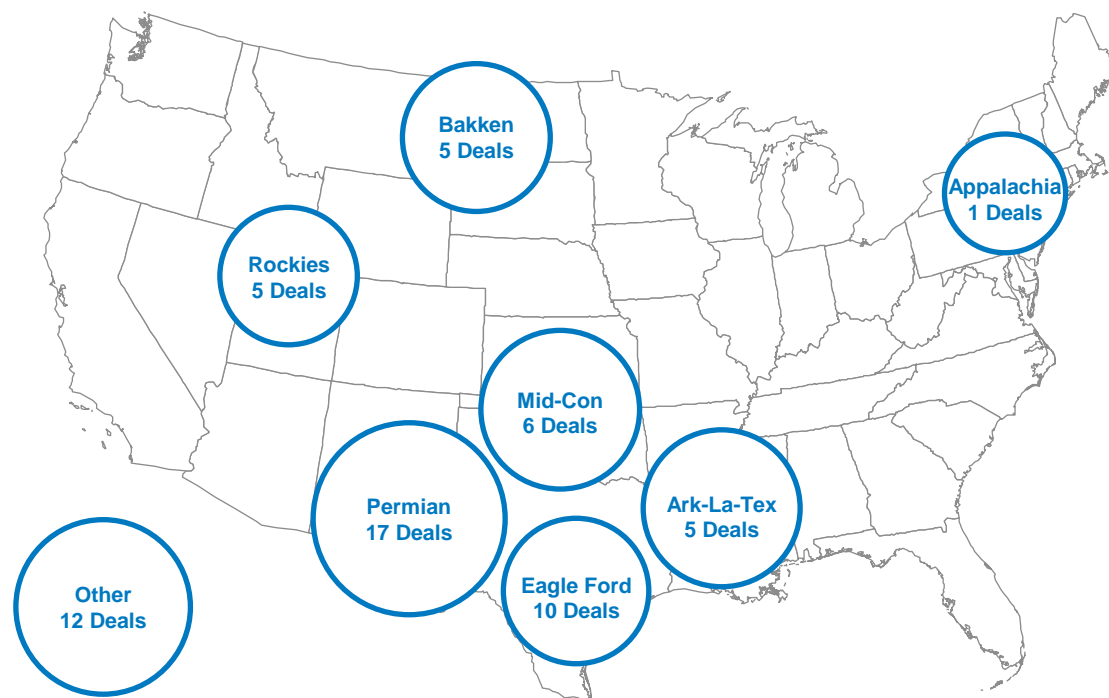
## YTD Deal Activity (\$bn)<sup>(4)</sup>



2 Source: BMO Transaction Database, Baker Hughes, BMO Commodity Products Group, Bloomberg, PLS  
 1. Represents total enterprise value.    2. Calculated as percentage of total LTM transaction count (number of transactions, not dollar value).  
 3. 65 transactions from January 2015 to 2019 with transaction value >\$20mm. Adjusted for changes in price outlooks. Recalculated boe reserves are on a 15:1 (gas:oil) basis. Acreage transactions excluded by using deals with PDP of >= 40% of total proved.  
 4. Year-to-date data is through this week's date for each respective year.

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## Select Significant Deals on the Market



## M&A&D Headlines

- [Callon to Acquire Carrizo in All-Stock Transaction](#)
- [Sundance Energy Australia Limited Announces Agreement to Sell Dimmit County Assets for US\\$29.5 Million](#)
- [Kimmeridge Minerals and Desert Royalty Announce Strategic Combination](#)
- [Mach Resources Announces First Acquisitions Within Its New Partnership with Bayou City Energy, BCE-Mach II LLC](#)

## Industry Headlines

- [Iran Says It Seized Foreign Oil Tanker, Escalating Regional Tensions](#)
- [Iran Says Missing Tanker Had Problems and Was Towed for Repairs](#)
- [Iran Says It Seized Ship for Smuggling, Stoking Tensions](#)
- [EIA: Summer Natural Gas Prices On Track to Be the Lowest Since 1998](#)
- [U.S. Gulf of Mexico Oil, Gas Producers Begin Restarting After Barry](#)
- [Russian Oil Output Back to OPEC Deal Levels](#)
- [No Fast Exit from Permian Oil for Private Equity, RS Energy Says](#)
- [U.S. DUC Shale Backlog Declines, Except in Permian Basin](#)

(Click headline to link to the full article)

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## Interesting Deal of the Week: Callon Petroleum Company Acquires Carrizo Oil & Gas for \$3.2 Billion

### TRANSACTION SUMMARY

- On July 15, 2019, Callon Petroleum Company (“Callon”) (NYSE: CPE) announced an agreement to acquire Carrizo Oil & Gas, Inc. (“Carrizo”) (NASDAQ: CRZO) in an all-stock transaction valued at \$3.2 billion
  - Carrizo shareholders will receive 2.05 Callon shares for each share of Carrizo common stock
    - Represents \$13.12 per Carrizo share based on Callon’s closing price on July 12
      - 18% premium to Carrizo’s trailing 60-day volume weighted average price
      - 25% premium to Carrizo’s closing price on July 12
- The transaction has been unanimously approved by the Boards of Directors at both Callon and Carrizo
- The combined company will be led by Callon’s executive management team and will remain headquartered in Houston, TX
- This transaction is expected to close Q4 2019

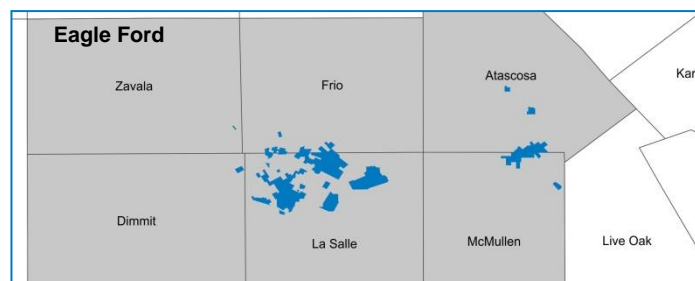
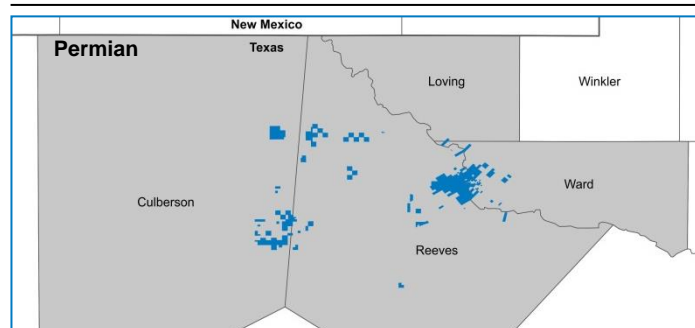
### ASSET SUMMARY

- 122,500 net acres in the Delaware Basin and the Eagle Ford
  - 46,000 net acres in the Delaware Basin
  - 76,500 net acres in the Eagle Ford
- Q1 2019 production of 62 mboe/d
- 2018YE proved reserves of 329.4 mmboe
- >2,000 net undrilled locations as of YE 2018
  - >1,400 Delaware Basin net locations
  - >600 Eagle Ford net locations

### OBSERVATIONS

- Expands Callon’s position in the Permian Basin and adds Eagle Ford footprint
- Following the close of the transaction, Callon shareholders will own 54% of the combined company and Carrizo shareholders will own 46%

### ACQUIRED ASSETS



**Carrizo Assets**

### TRANSACTION METRICS

Purchase Price (US\$ mm)	
<b>Total Consideration</b>	<b>\$3,200</b>
Metrics	
Net Acres	122,500
Q1 2019 Net Production (boe/d)	62,000
Net Locations	2,000
Proved Reserves (mmboe)	329
Multiples	
TEV / Net Acres (\$/acre)	\$26,122
TEV / Adj. Net Acres (\$/acre) <sup>(1)</sup>	\$10,939
TEV / Q1 2019 Net Production (\$/boe/d)	\$51,613
TEV / Net Location (\$mm/location)	\$1.6
TEV / Adj. Net Location (\$mm/location) <sup>(1)</sup>	\$0.7
TEV / Proved Reserves (\$/boe)	\$9.71

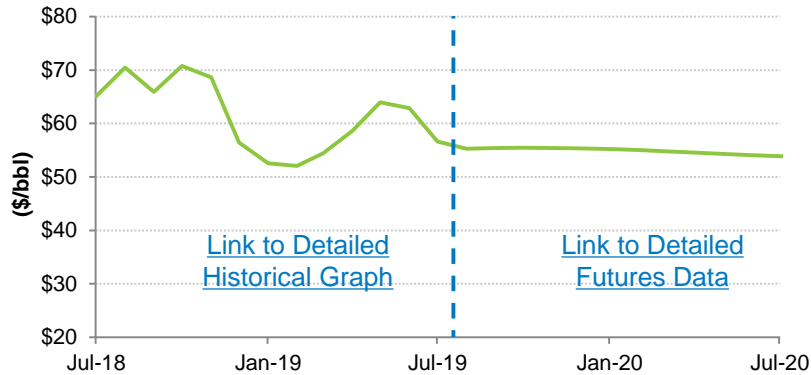
Source: Press releases, company presentations

1. Based on \$30,000 per flowing boe.

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## Commodity Prices

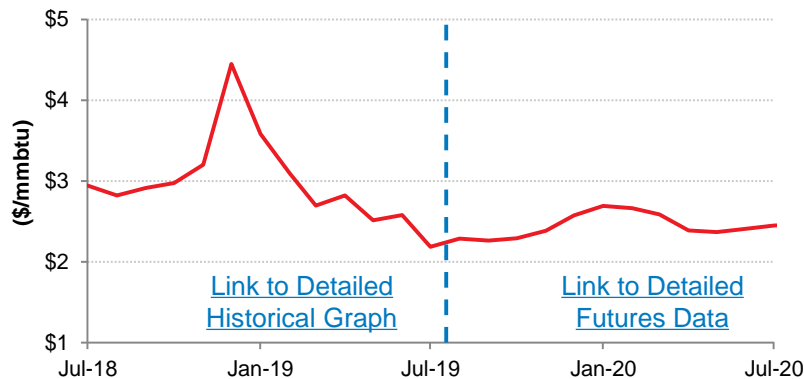
### WTI OIL (HISTORICAL / FORECAST)



**NYMEX WTI Futures as of 18-Jul-19 Close (\$/bbl)**

Period <sup>(1)</sup>	Current	Last Wk.	6 Mo. Ago	1 Yr. Ago
12 Mo. Strip	\$54.91	\$59.34	\$54.99	\$64.74
2019	\$55.39	\$60.15	\$54.95	\$63.31
2020	\$54.03	\$58.07	\$54.98	\$59.97
2021	\$52.14	\$55.59	\$54.10	\$57.28
2022	\$51.47	\$54.45	\$53.51	\$55.34
2023	\$51.66	\$54.20	\$53.28	\$54.07

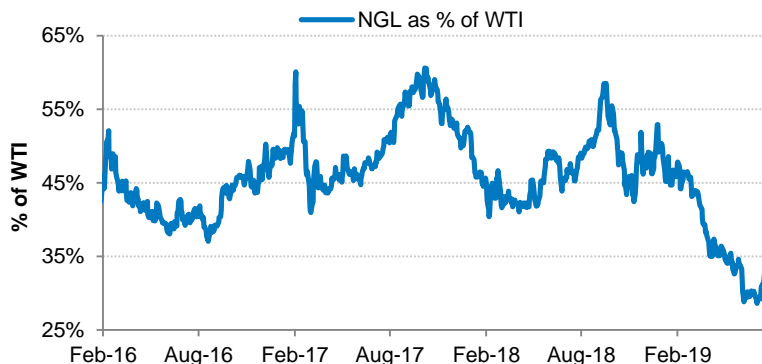
### HENRY HUB NATURAL GAS (HISTORICAL / FORECAST)



**NYMEX Gas Futures as of 18-Jul-19 Close (\$/mmbtu)**

Period <sup>(1)</sup>	Current	Last Wk.	6 Mo. Ago	1 Yr. Ago
12 Mo. Strip	\$2.45	\$2.56	\$3.03	\$2.73
2019	\$2.36	\$2.50	\$3.02	\$2.70
2020	\$2.52	\$2.60	\$2.75	\$2.62
2021	\$2.56	\$2.60	\$2.65	\$2.57
2022	\$2.74	\$2.76	\$2.83	\$2.71
2023	\$2.74	\$2.76	\$2.83	\$2.71

### NGL PRICING<sup>(2)</sup>



**Historical Prices as of 18-Jul-19 Close (\$/gal)**

NGLs	Current	Last Wk.	6 Mo. Ago	1 Yr. Ago
Ethane	\$0.18	\$0.16	\$0.30	\$0.36
Propane	\$0.51	\$0.50	\$0.69	\$0.89
Butane	\$0.50	\$0.50	\$0.68	\$0.96
Iso-butane	\$0.67	\$0.72	\$0.80	\$1.10
Pentane+	\$1.07	\$1.18	\$1.07	\$1.47

Source: BMO Commodity Products Group, Bloomberg, FactSet

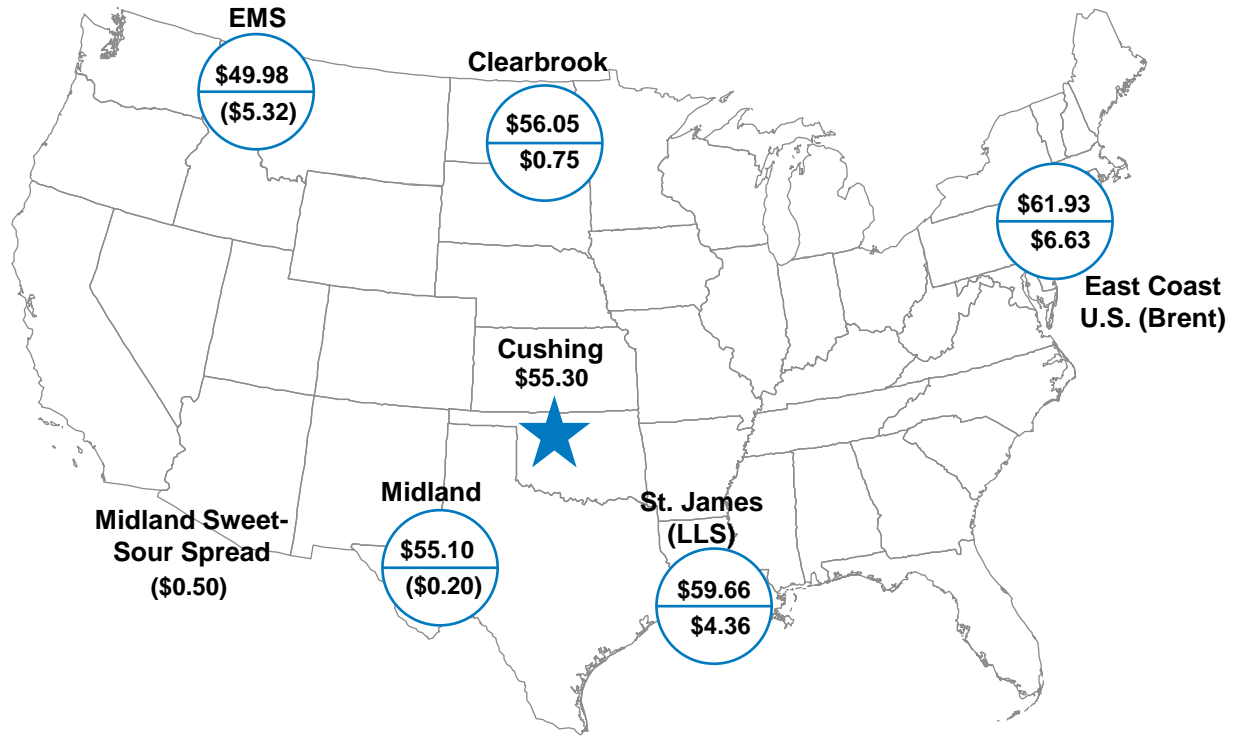
5 | 1. Future prices are calendar year average unless stated otherwise.  
2. Assumes typical Gulf Coast barrel composition.

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## Commodity Prices (cont'd)

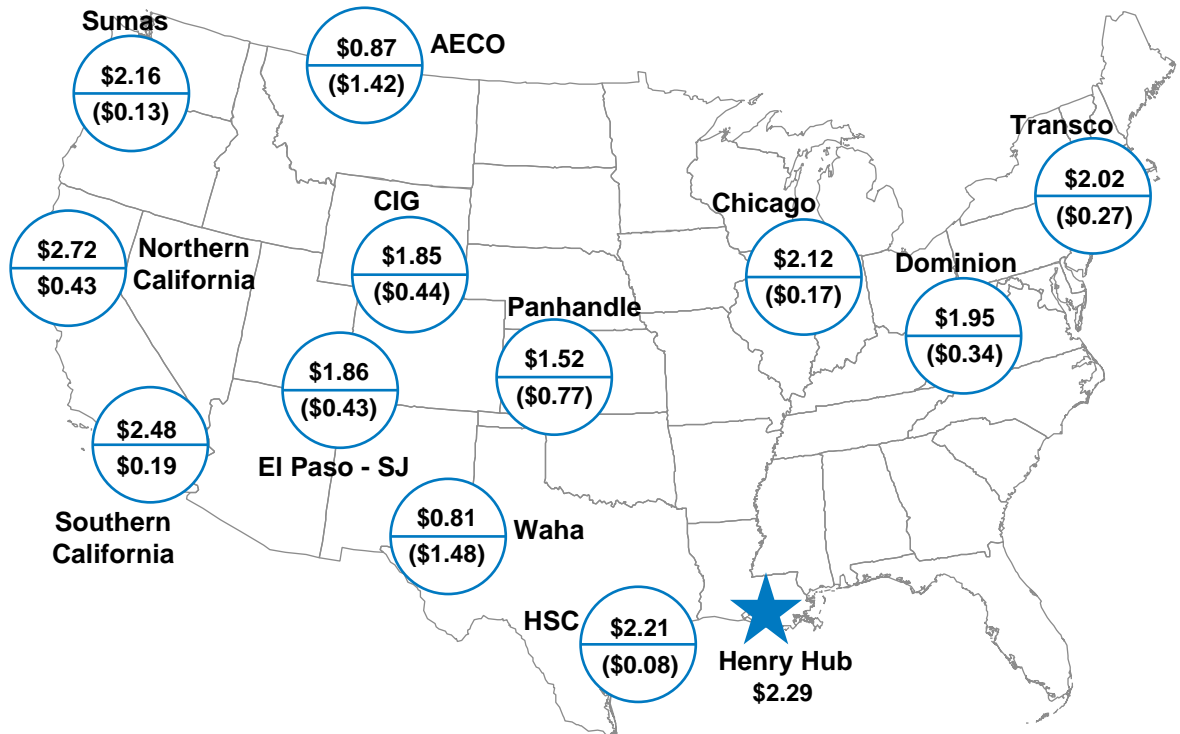
OIL PRICING & DIFFERENTIALS TO CUSHING WTI (\$ / BBL) – AS OF 18-JUL-19

**Legend**



NATURAL GAS PRICING & DIFFERENTIALS TO HENRY HUB (\$ / MMBTU) – AS OF 18-JUL-19

**Legend**



Source: BMO Commodity Products Group, Bloomberg

Note: Prices and differentials are for prompt month futures except for Clearbrook which is based on spot prices.

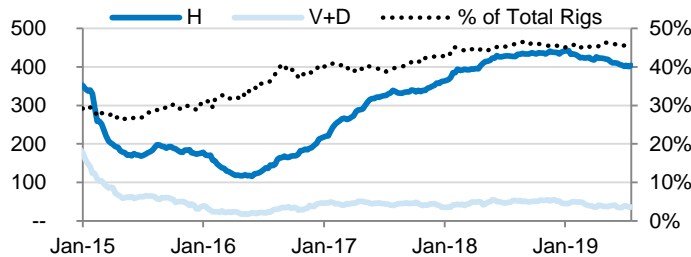
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## Permian Snapshot

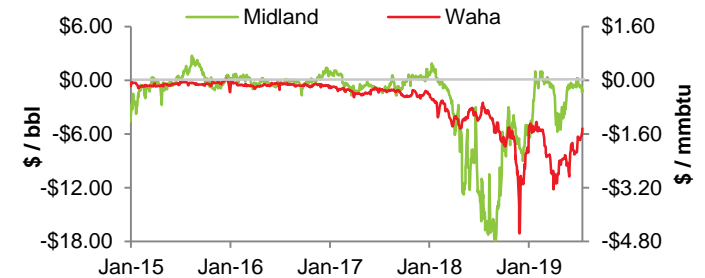
Item	Value	Wkly Change	Last Week
Rig Count	440	↑ 3	437
Permitting Activity	101	↓ (47)	148

Item	Value	Wkly Change	Last Week
Oil Differential	(\$1.05)	↓ (\$0.45)	(\$0.60)
Gas Differential	(\$1.44)	↑ \$0.29	(\$1.73)

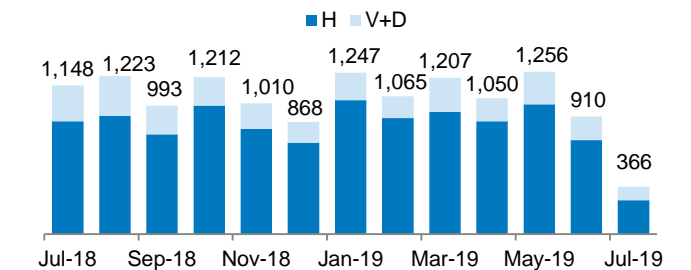
### RIG COUNT



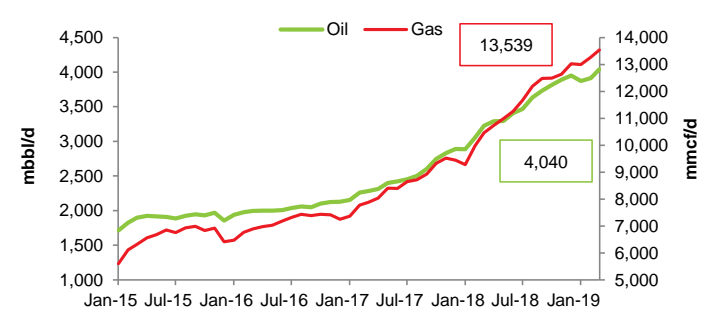
### DIFFERENTIALS



### PERMITTING ACTIVITY BY MONTH



### GROSS PRODUCTION

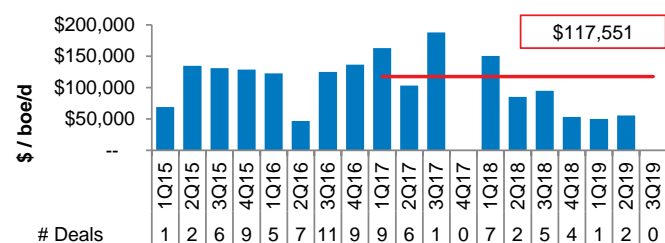


### TRANSACTION ACTIVITY (EXCLUDES CORPORATE DEALS)

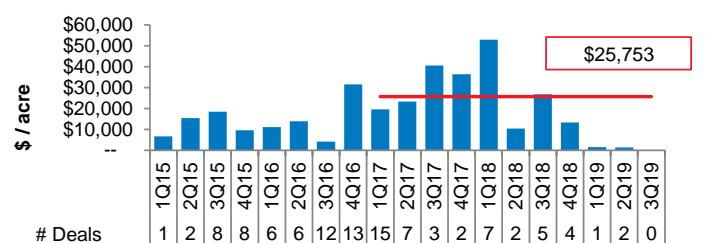
Ann'd Date	Buyer	Seller	Asset Description	Value <sup>(1)</sup> (\$mm)	Proved Multiple (\$/boe)	Prod. Multiple (\$/boe/d)	Net Acres (\$/acre) <sup>(2)</sup>
24-Jun-19	Alliance Resource Partners	Wing Resources	Midland Basin mineral interests	\$145	n.a.	n.a.	n/mf
07-May-19	Sabinal; Undisclosed	Diamondback Energy	CBP, NW Shelf, & Midland Basin	\$322	n.a.	\$49,538	\$2,927
08-Apr-19	Sequitur Energy Resources	Callon	9,850 net acres in Reagan & Upton, TX	\$260	n.a.	\$65,000	\$26,396
27-Mar-19	Undisclosed Buyer	Rosehill Resources	~880 net acres in Lea Co., NM	\$22	n.a.	n.a.	\$25,000
26-Feb-19	Ring Energy Inc	Wishbone Energy Partners	37,206 net Central Basin Platform acres	\$300	\$8.75	\$50,000	\$8,063
			<b>Mean</b>	<b>\$210</b>	<b>\$8.75</b>	<b>\$54,846</b>	<b>\$15,597</b>
			<b>Median</b>	<b>\$260</b>	<b>\$8.75</b>	<b>\$50,000</b>	<b>\$16,532</b>

Blue = BMO provided transaction advisory services Green = BMO provided acquisition financing or related services  
Purple = BMO provided both transaction advisory services and acquisition financing or related services

### TRANSACTION PRODUCTION MULTIPLES<sup>(3)</sup>



### TRANSACTION ADJUSTED NET ACRE MULTIPLES<sup>(3,4)</sup>



Source: BMO Transaction Database, Baker Hughes, BMO Commodity Products Group, Bloomberg, Drilling Info, PLS

Note: Current quarter's data is through the week covered by this issue.

- Represents total enterprise value. Excludes transactions with deal value <\$20 million.
- \$/acre multiple not adjusted for value associated with production.
- Red line denotes average since 01-Jan-17. Calculated as the weighted average of each quarter's transactions.
- Production valued at \$45,000/boepd in 2014, \$30,000/boepd in 2015, \$35,000/boepd in 2016 & 2017, and \$40,000/boepd in 2018 & 2019.

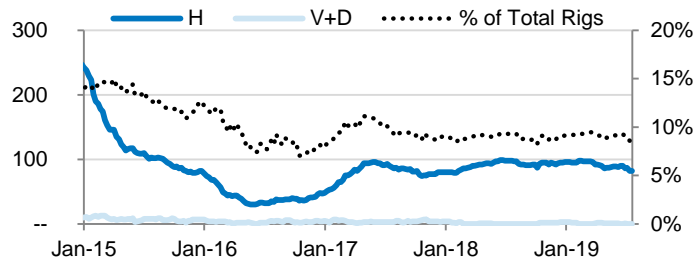
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## Eagle Ford Snapshot

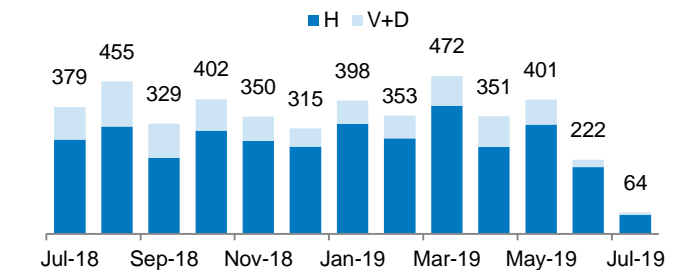
Item	Value	Wkly Change	Last Week
Rig Count	82	█ --	82
Permitting Activity	21	↓ (10)	31

Item	Value	Wkly Change	Last Week
Oil Differential	\$3.80	↓ (\$0.70)	\$4.50
Gas Differential	(\$0.07)	↓ (\$0.03)	(\$0.04)

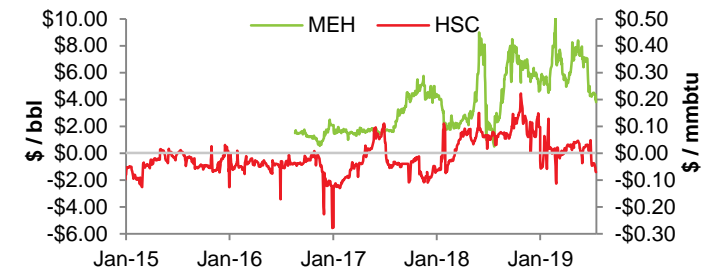
### RIG COUNT



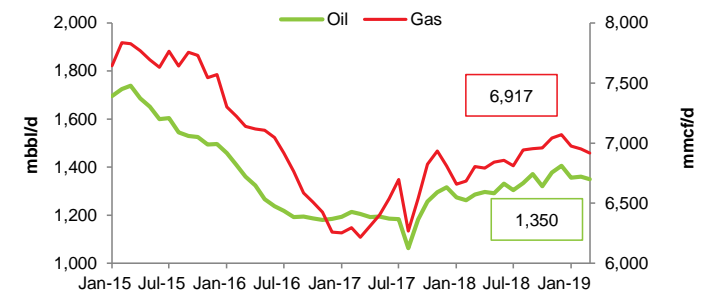
### PERMITTING ACTIVITY BY MONTH



### DIFFERENTIALS



### GROSS PRODUCTION

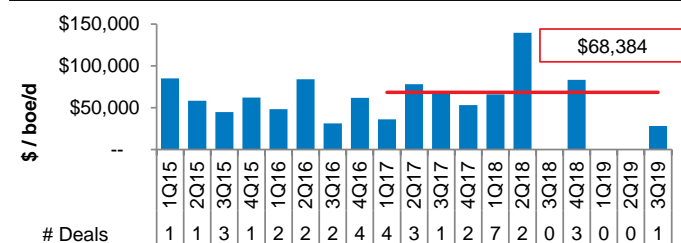


### TRANSACTION ACTIVITY (EXCLUDES CORPORATE DEALS)

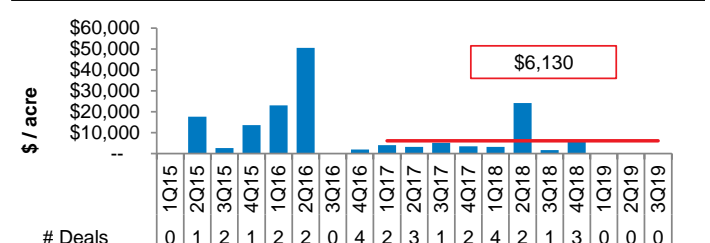
Ann'd Date	Buyer	Seller	Asset Description	Value <sup>(1)</sup> (\$mm)	Proved Multiple (\$/boe)	Prod. Multiple (\$/boe/d)	Net Acres (\$/acre) <sup>(2)</sup>	
17-Jul-19	Undisclosed Buyer	Sundance Energy	6,100 net acres in Dimmit County	\$30	n.a.	\$28,069	\$4,836	
19-Nov-18	Lonestar Resources Inc	Sabine Oil & Gas Corp	2,706 net acres in Eagle Ford	\$39	\$2.98	\$48,375	\$14,302	
20-Sep-18	WildHorse	Undisclosed Seller	20,305 net Eagle Ford/Austin Chalk acres	\$35	n.a.	n.a.	\$1,743	
07-Sep-18	Undisclosed Buyer	Viking Minerals LLC	1,191 net royalty acres in Eagle Ford	\$28	n.a.	n.a.	nmf	
31-Jul-18	EP Energy Corp	Undisclosed Seller	Additional working interests in Eagle Ford	\$31	n.a.	n.a.	n.a.	
				<b>Mean</b>	<b>\$33</b>	<b>\$2.98</b>	<b>\$38,222</b>	<b>\$6,960</b>
				<b>Median</b>	<b>\$31</b>	<b>\$2.98</b>	<b>\$38,222</b>	<b>\$4,836</b>

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### TRANSACTION PRODUCTION MULTIPLES<sup>(3)</sup>



### TRANSACTION ADJUSTED NET ACRE MULTIPLES<sup>(3,4)</sup>



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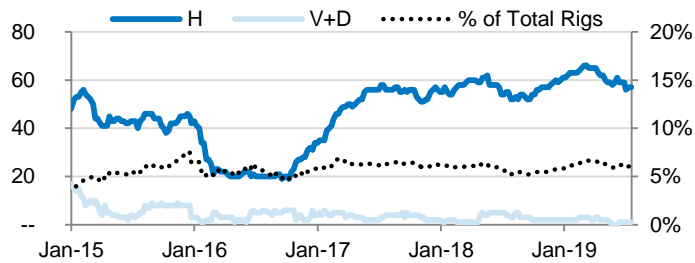
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## Ark-La-Tex Snapshot

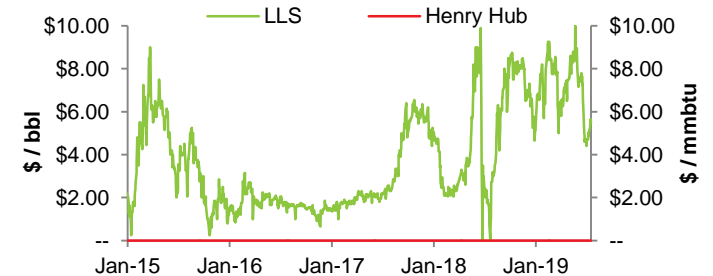
Item	Value	Wkly Change	Last Week
Rig Count	58	█ --	58
Permitting Activity	13	█ ↑ 2	11

Item	Value	Wkly Change	Last Week
Oil Differential	\$5.50	█ ↑ \$0.50	\$5.00
Gas Differential	--	█ --	--

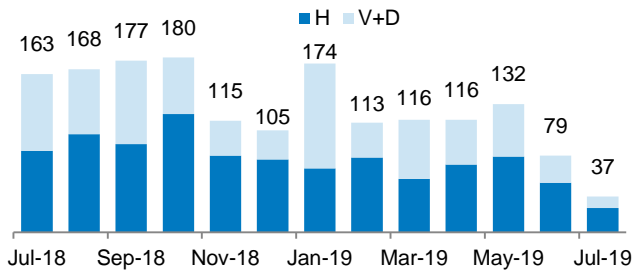
### RIG COUNT



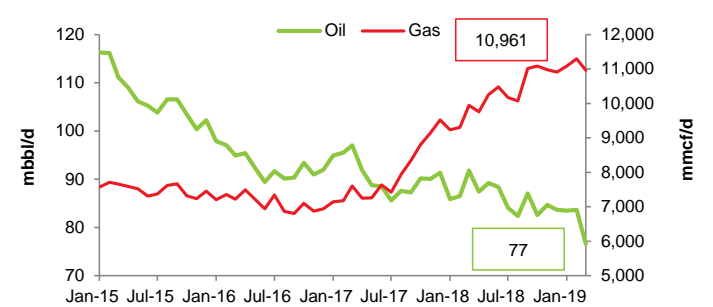
### DIFFERENTIALS



### PERMITTING ACTIVITY BY MONTH



### GROSS PRODUCTION

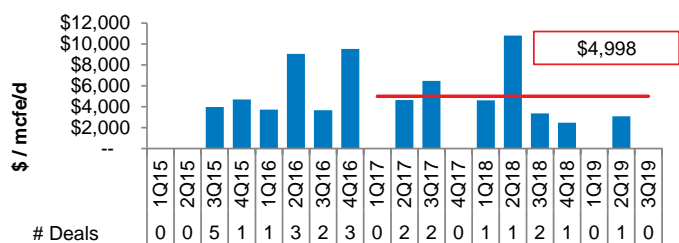


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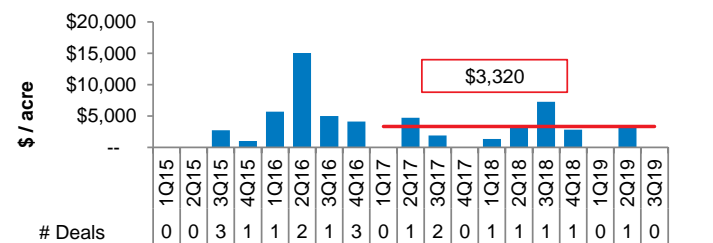
Ann'd Date	Buyer	Seller	Asset Description	Value <sup>(1)</sup> (\$mm)	Proved Multiple (\$/mcf)	Prod. Multiple (\$/mcf/d)	Net Acres (\$/acre) <sup>(2)</sup>
19-Dec-18	Comstock	Shelby Shale LLC	6,023 net acres in Haynesville	\$21	n.a.	n.a.	\$3,404
19-Nov-18	Aethon III	QEP Resources Inc	49,700 net acres in Haynesville	\$735	\$0.77	\$2,475	\$14,789
05-Sep-18	Viking Energy Group	Multiple Sellers	Texas and Louisiana assets	\$100	n.a.	n.a.	n.a.
05-Sep-18	Equinor	Texegy LLC	60,000 net acres in Austin Chalk	\$75	n.a.	n.a.	\$1,250
06-Aug-18	Mission Creek Resources	Bonanza Creek Energy Inc	11,132 net acres in the Cotton Valley	\$117	\$1.69	\$6,500	\$10,510
				<b>Mean</b>	<b>\$210</b>	<b>\$1.23</b>	<b>\$4,487</b>
				<b>Median</b>	<b>\$100</b>	<b>\$1.23</b>	<b>\$6,957</b>

Blue = BMO provided transaction advisory services    Green = BMO provided acquisition financing or related services  
Purple = BMO provided both transaction advisory services and acquisition financing or related services

### TRANSACTION PRODUCTION MULTIPLES<sup>(3)</sup>



### TRANSACTION ADJUSTED NET ACRE MULTIPLES<sup>(3,4)</sup>



9 Source: BMO Transaction Database, Baker Hughes, BMO Commodity Products Group, Bloomberg, Drilling Info, PLS  
 Note: Current quarter's data is through the week covered by this issue.  
 1. Represents total enterprise value. Excludes transactions with deal value <\$20 million.    2. \$/acre multiple not adjusted for value associated with production.  
 3. Red line denotes average since 01-Jan-17. Calculated as the weighted average of each quarter's transactions.  
 4. Production valued at \$3,000/mcfepd in 2014, and \$2,000/mcfepd in 2015, 2016, 2017, 2018, and 2019.

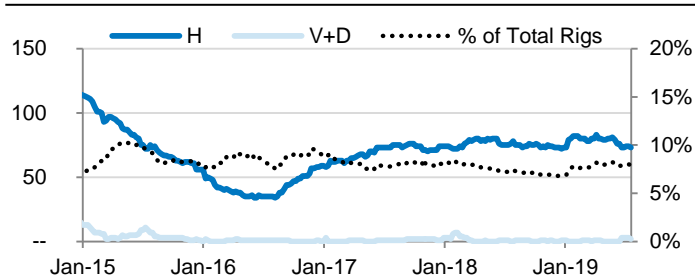
July 22, 2019

## Appalachia Snapshot

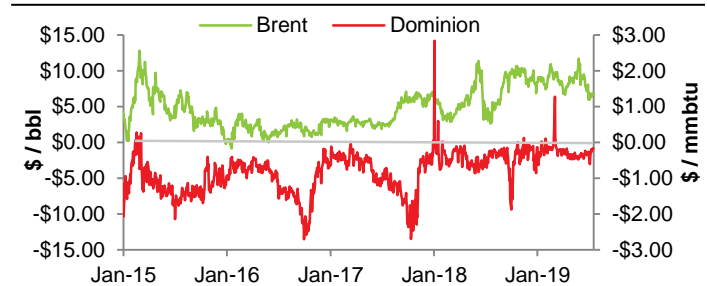
Item	Value	Wkly Change	Last Week
Rig Count	75	↓ (2)	77
Permitting Activity	24	↓ (24)	48

Item	Value	Wkly Change	Last Week
Oil Differential	\$6.63	↑ \$0.31	\$6.32
Gas Differential	(\$0.17)	↑ \$0.02	(\$0.19)

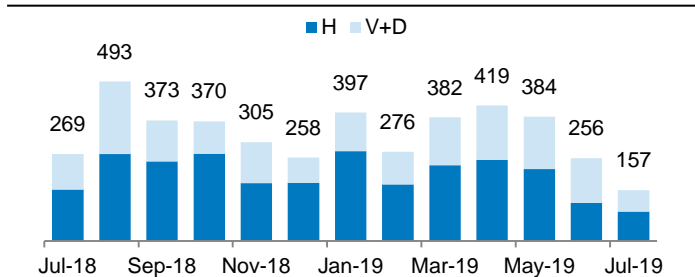
### RIG COUNT



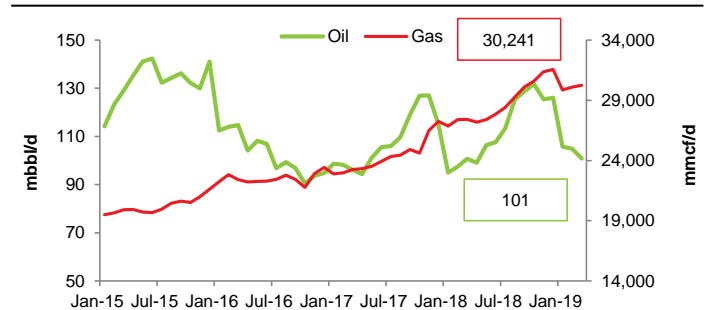
### DIFFERENTIALS



### PERMITTING ACTIVITY BY MONTH



### GROSS PRODUCTION

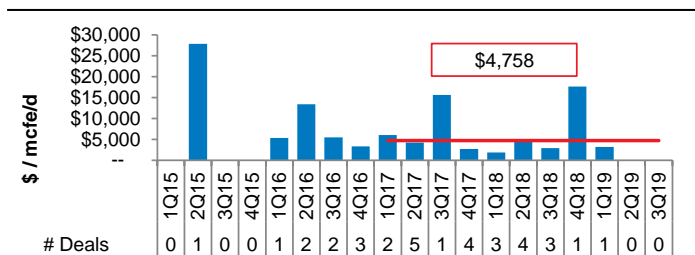


### TRANSACTION ACTIVITY (EXCLUDES CORPORATE DEALS)

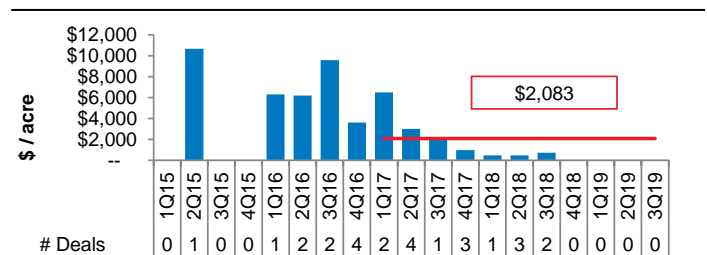
Ann'd Date	Buyer	Seller	Asset Description	Value <sup>(1)</sup>	Proved Multiple	Prod. Multiple	Net Acres	
				(\$mm)	(\$/mcf)	(\$/mcf/d)	(\$/acre) <sup>(2)</sup>	
27-Mar-19	Diversified Gas & Oil	HG Energy II LLC	Huckleberry assets in Appalachia	\$400	n.a.	\$3,227	n.a.	
15-Oct-18	Undisclosed Buyer	Range Resources Corp	Overriding royalty interests in Appalachia	\$300	n.a.	\$17,649	nmf	
27-Aug-18	PennEnergy Resources	Rex Energy Corp	141,026 net acres in PA and OH	\$601	\$0.58	\$2,781	\$4,258	
26-Jul-18	Encino Acquisition Partners	Chesapeake	938,000 net acres in the Utica	\$1,900	\$0.66	\$2,960	\$2,026	
29-Jun-18	Ascent Resources LLC	Utica Minerals; Undisclosed	35,400 acres in the Utica	\$700	n.a.	\$15,217	\$19,774	
				<b>Mean</b>	<b>\$780</b>	<b>\$0.62</b>	<b>\$8,367</b>	<b>\$8,686</b>
				<b>Median</b>	<b>\$601</b>	<b>\$0.62</b>	<b>\$3,227</b>	<b>\$4,258</b>

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Purple = BMO provided both transaction advisory services and acquisition financing or related services

### TRANSACTION PRODUCTION MULTIPLES<sup>(3)</sup>



### TRANSACTION ADJUSTED NET ACRE MULTIPLES<sup>(3,4)</sup>



Source: BMO Transaction Database, Baker Hughes, BMO Commodity Products Group, Bloomberg, Drilling Info, PLS

Note: Current quarter's data is through the week covered by this issue.

- Represents total enterprise value. Excludes transactions with deal value <\$20 million.
- \$/acre multiple not adjusted for value associated with production.
- Red line denotes average since 01-Jan-17. Calculated as the weighted average of each quarter's transactions.
- Production valued at \$3,000/mcfepd in 2014, and \$2,000/mcfepd in 2015, 2016, 2017, 2018, and 2019.

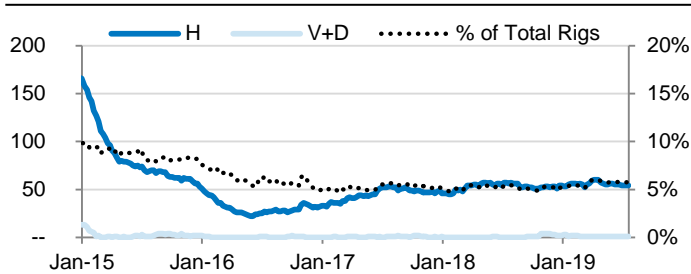
July 22, 2019

## Bakken Snapshot

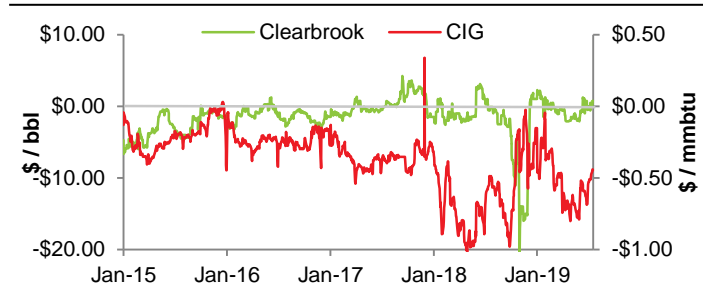
Item	Value	Wkly Change	Last Week
Rig Count	55	█ --	55
Permitting Activity	18	█ (23)	41

Item	Value	Wkly Change	Last Week
Oil Differential	\$0.75	↑ \$0.65	\$0.10
Gas Differential	(\$0.44)	↑ \$0.05	(\$0.49)

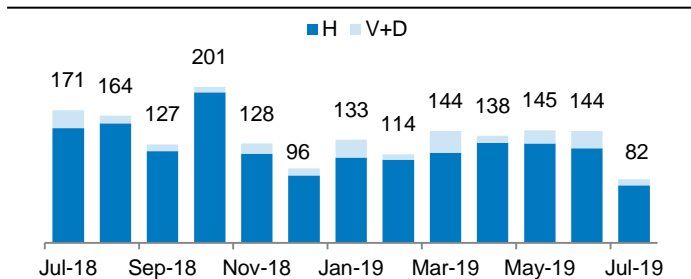
### RIG COUNT



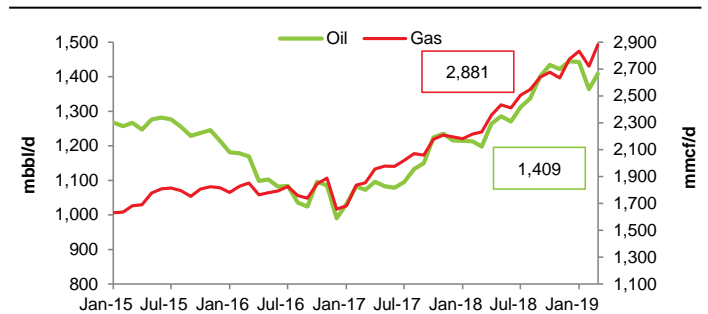
### DIFFERENTIALS



### PERMITTING ACTIVITY BY MONTH



### GROSS PRODUCTION

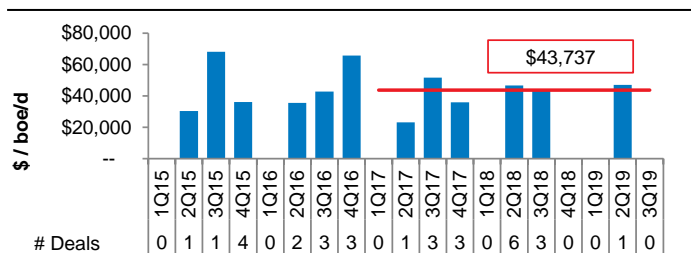


### TRANSACTION ACTIVITY (EXCLUDES CORPORATE DEALS)

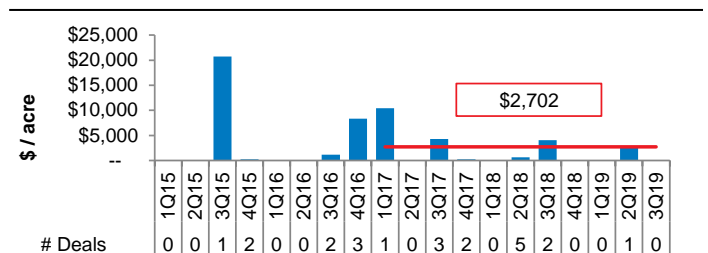
Ann'd Date	Buyer	Seller	Asset Description	Value <sup>(1)</sup> (\$mm)	Proved Multiple (\$/boe)	Prod. Multiple (\$/boe/d)	Net Acres (\$/acre) <sup>(2)</sup>
22-Apr-19	Northern Oil and Gas	Flywheel Energy LLC	18,000 net acres in Williston Basin	\$310	n.a.	\$47,014	\$17,238
31-Jul-18	Northern Oil and Gas	W Energy Partners	10,600 net acres in Williston Basin	\$288	n.a.	\$42,708	\$27,196
18-Jul-18	Northern Oil and Gas	Pivotal Petroleum Partners LP	Producing assets in Williston Basin	\$152	n.a.	\$37,032	n.a.
12-Jul-18	PetroShale Inc	Slawson Exploration Co	1,981 net acres in Williston Basin	\$55	\$6.04	\$100,000	\$27,764
06-Jul-18	Energy Resources 12 LP	Bruin E&P Partners LLC	2.8% non-operated WI in Bakken assets	\$83	n.a.	n.a.	n.a.
				<b>Mean</b>	<b>\$178</b>	<b>\$6.04</b>	<b>\$56,688</b>
				<b>Median</b>	<b>\$152</b>	<b>\$6.04</b>	<b>\$44,861</b>

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### TRANSACTION PRODUCTION MULTIPLES<sup>(3)</sup>



### TRANSACTION ADJUSTED NET ACRE MULTIPLES<sup>(3,4)</sup>



11 Source: BMO Transaction Database, Baker Hughes, BMO Commodity Products Group, Bloomberg, Drilling Info, PLS  
 Note: Current quarter's data is through the week covered by this issue.  
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 4. Production valued at \$45,000/boepd in 2014, \$30,000/boepd in 2015, \$35,000/boepd in 2016 & 2017, and \$40,000/boepd in 2018 & 2019.

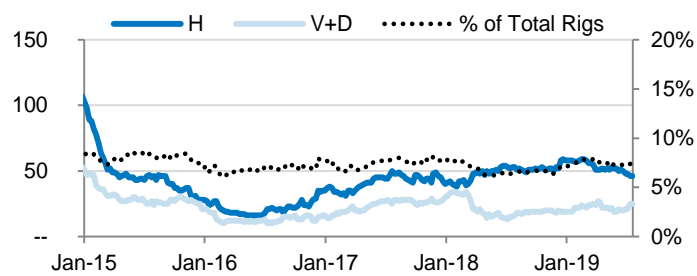
July 22, 2019

## Rockies (excl. Bakken) Snapshot

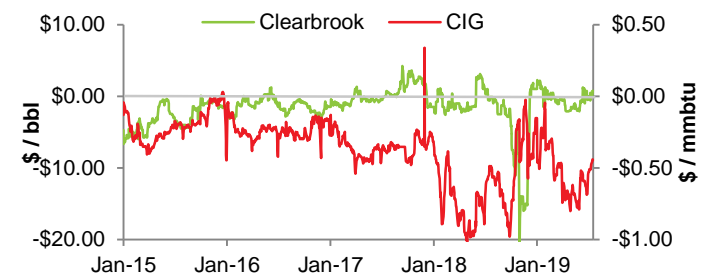
Item	Value	Wkly Change	Last Week
Rig Count	71	█	--
Permitting Activity	27	↑	3

Item	Value	Wkly Change	Last Week
Oil Differential	\$0.75	↑	\$0.65
Gas Differential	(\$0.44)	↑	\$0.05

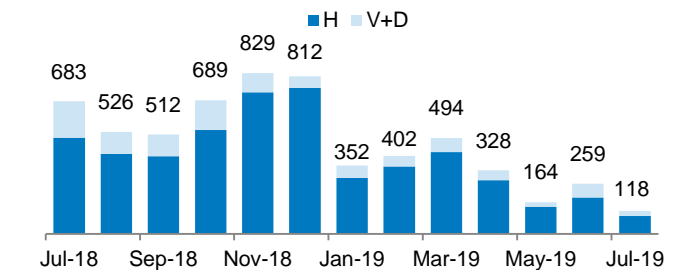
### RIG COUNT



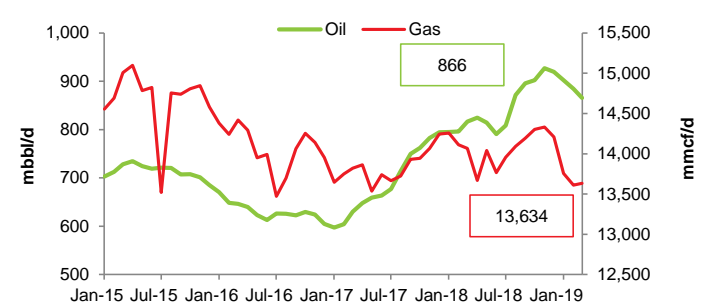
### DIFFERENTIALS



### PERMITTING ACTIVITY BY MONTH



### GROSS PRODUCTION

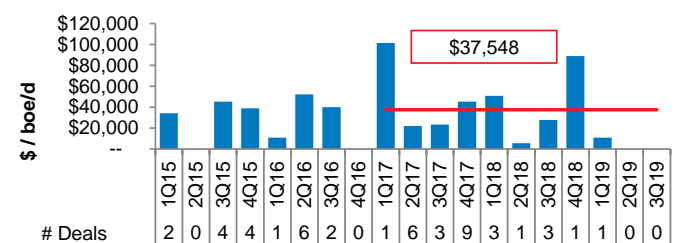


### TRANSACTION ACTIVITY (EXCLUDES CORPORATE DEALS)

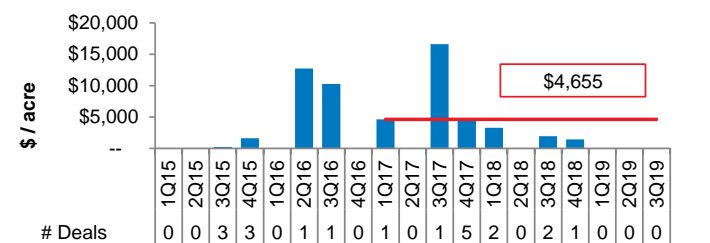
Ann'd Date	Buyer	Seller	Asset Description	Value <sup>(1)</sup> (\$mm)	Proved Multiple (\$/boe)	Prod. Multiple (\$/boe/d)	Net Acres (\$/acre) <sup>(2)</sup>
14-Feb-19	Undisclosed Buyer	Harvest Oil & Gas Corp	San Juan Basin assets	\$43	\$1.57	\$10,835	n.a.
31-Jan-19	Undisclosed Buyer	Extraction Oil & Gas	5,000 net acres in Powder River	\$22	n.a.	n.a.	\$4,480
01-Oct-18	DJR Energy LLC	Encana	182,000 net acres in San Juan Basin	\$480	n.a.	\$88,889	\$2,637
28-Aug-18	Vermilion Energy Inc	Massif Oil & Gas LLC	55,000 acres in Powder River Basin	\$150	n.a.	\$56,604	\$2,727
28-Aug-18	Rebellion Energy II LLC	Liberty Resources II LLC	19,000 net acres in Powder River Basin	\$100	n.a.	n.a.	\$5,263
			<b>Mean</b>	<b>\$159</b>	<b>\$1.57</b>	<b>\$52,109</b>	<b>\$3,777</b>
			<b>Median</b>	<b>\$100</b>	<b>\$1.57</b>	<b>\$56,604</b>	<b>\$3,604</b>

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### TRANSACTION PRODUCTION MULTIPLES<sup>(3)</sup>



### TRANSACTION ADJUSTED NET ACRE MULTIPLES<sup>(3,4)</sup>



Source: BMO Transaction Database, Baker Hughes, BMO Commodity Products Group, Bloomberg, Drilling Info, PLS

Note: Current quarter's data is through the week covered by this issue.

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- Production valued at \$45,000/boepd in 2014, \$30,000/boepd in 2015, \$35,000/boepd in 2016 & 2017, and \$40,000/boepd in 2018 & 2019.

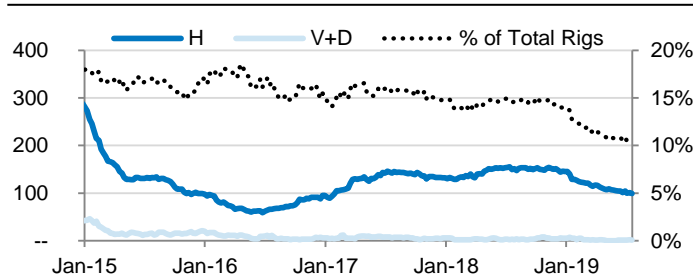
July 22, 2019

## Mid-Continent Snapshot

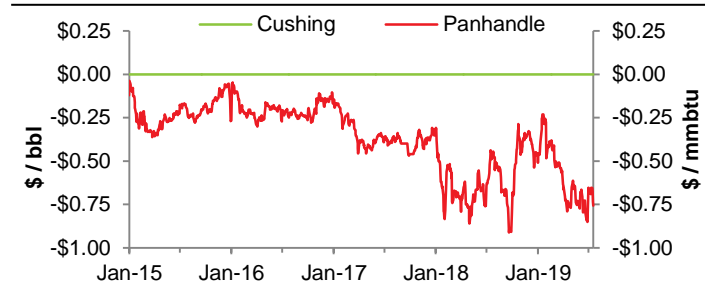
Item	Value	Wkly Change	Last Week
Rig Count	100	↓ (3)	103
Permitting Activity	53	↓ (8)	61

Item	Value	Wkly Change	Last Week
Oil Differential	--	█	--
Gas Differential	(\$0.76)	↓ (\$0.11)	(\$0.66)

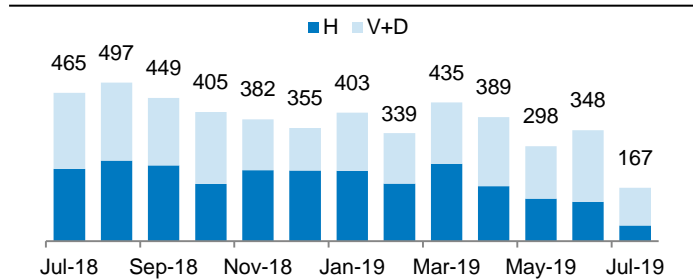
### RIG COUNT



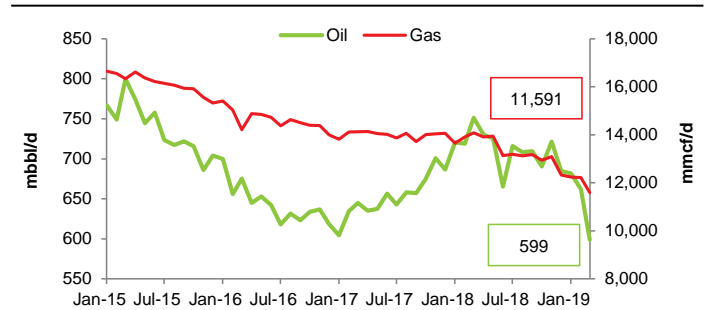
### DIFFERENTIALS



### PERMITTING ACTIVITY BY MONTH



### GROSS PRODUCTION

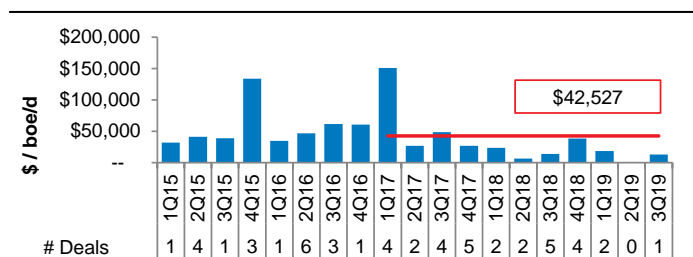


### TRANSACTION ACTIVITY (EXCLUDES CORPORATE DEALS)

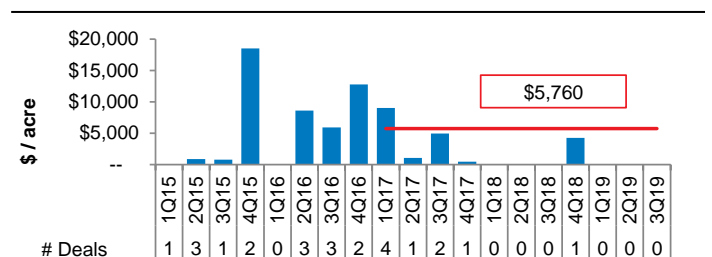
Ann'd Date	Buyer	Seller	Asset Description	Value <sup>(1)</sup> (\$mm)	Proved Multiple (\$/boe)	Prod. Multiple (\$/boe/d)	Net Acres (\$/acre) <sup>(2)</sup>
08-Jul-19	NextEra Energy Inc	Encana	140,000 net acres in Arkoma Basin	\$165	n.a.	\$12,857	\$1,179
12-Jun-19	Glendale Energy; TPG	Undisclosed Seller	Non-op interests in STACK	\$55	n.a.	n.a.	n.a.
29-Apr-19	Undisclosed Buyer	Riviera Resources Inc	Non-op Hugoton Basin	\$31	n.a.	n.a.	n.a.
31-Mar-19	Red Wolf	Apache	56k net acres in SCOOP/STACK/Merge	\$245	n.a.	\$18,421	\$4,375
19-Feb-19	Mid-Con Energy Partners	Scout Energy Partners	Caddo, Grady, and Osage cos., OK	\$28	n.a.	\$20,960	n.a.
				<b>Mean</b>	<b>n.a.</b>	<b>\$17,413</b>	<b>\$2,777</b>
				<b>Median</b>	<b>\$55</b>	<b>\$18,421</b>	<b>\$2,777</b>

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### TRANSACTION PRODUCTION MULTIPLES<sup>(3)</sup>



### TRANSACTION ADJUSTED NET ACRE MULTIPLES<sup>(3,4)</sup>





Source: BMO Transaction Database, Baker Hughes, BMO Commodity Products Group, Bloomberg, Drilling Info, PLS



Note: Current quarter's data is through the week covered by this issue.

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2. \$/acre multiple not adjusted for value associated with production.
3. Red line denotes average since 01-Jan-17. Calculated as the weighted average of each quarter's transactions.
4. Production valued at \$45,000/boepd in 2014, \$30,000/boepd in 2015, \$35,000/boepd in 2016 & 2017, and \$40,000/boepd in 2018 & 2019.

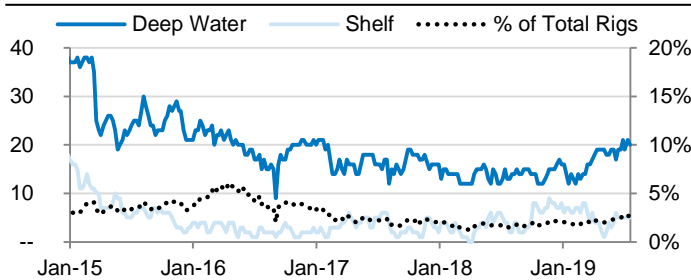
July 22, 2019

## Gulf of Mexico Snapshot

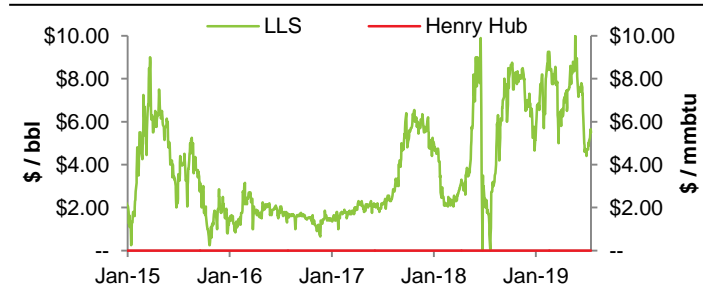
Item	Value	Wkly Change	Last Week
Rig Count	25	 (1)	26
Permitting Activity	8	 (6)	14

Item	Value	Wkly Change	Last Week
Oil Differential	\$5.50	 \$0.50	\$5.00
Gas Differential	--	 --	--

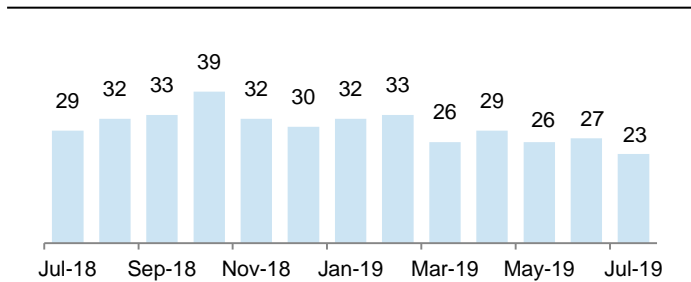
### RIG COUNT



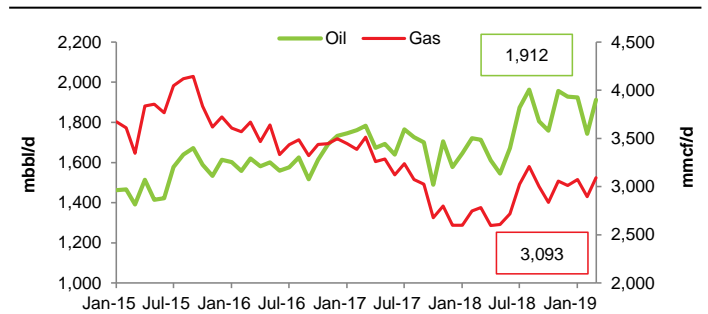
### DIFFERENTIALS



### PERMITTING ACTIVITY BY MONTH<sup>(1)</sup>



### GROSS PRODUCTION

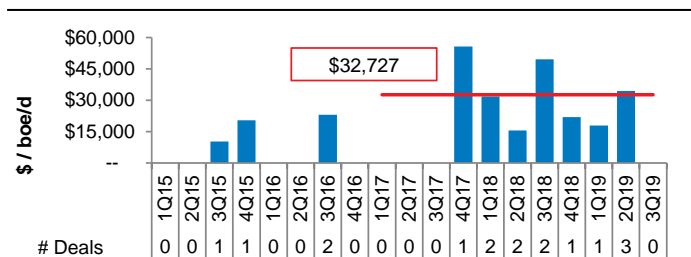


### TRANSACTION ACTIVITY (EXCLUDES CORPORATE DEALS)

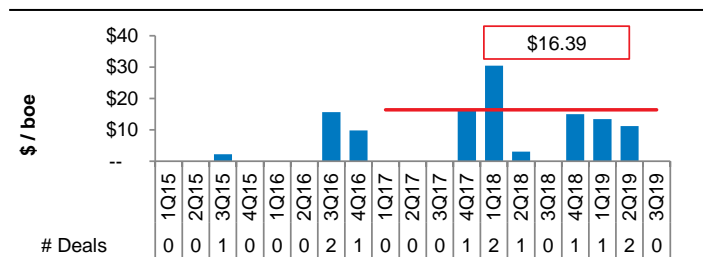
Ann'd Date	Buyer	Seller	Asset Description	Value <sup>(2)</sup> (\$mm)	Proved Multiple (\$/boe)	Prod. Multiple (\$/boe/d)	Net Acres (\$/acre) <sup>(3)</sup>	
27-Jun-19	W&T Offshore	ExxonMobil	Mobile Bay assets	\$200	\$2.70	\$10,101	n.a.	
13-May-19	Equinor	Shell	22.45% WI in Caesar-Tonga Field	\$965	n.a.	\$60,313	n.a.	
23-Apr-19	Murphy	LLOG Bluewater LLC	Mississippi Canyon & Green Canyon	\$1,375	\$20.83	\$36,184	n.a.	
16-Jan-19	Talos Energy Inc	Samson Energy Co LLC	Non-op Gulf of Mexico working interest	\$30	\$13.45	\$17,939	n.a.	
10-Oct-18	Murphy	Petrobras	Gulf of Mexico joint venture	\$900	\$15.00	\$21,951	n.a.	
				<b>Mean</b>	<b>\$694</b>	<b>\$13.00</b>	<b>\$29,298</b>	<b>n.a.</b>
				<b>Median</b>	<b>\$900</b>	<b>\$14.23</b>	<b>\$21,951</b>	<b>n.a.</b>

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### TRANSACTION PRODUCTION MULTIPLES<sup>(4)</sup>



### TRANSACTION PROVED RESERVE MULTIPLES<sup>(4)</sup>



14 Source: BMO Transaction Database, Baker Hughes, BMO Commodity Products Group, Bloomberg, Drilling Info, PLS

Note: Current quarter's data is through the week covered by this issue.

- Permits include directional and unidentified drilling permits.
- Represents total enterprise value. Excludes transactions with deal value <\$20 million.
- \$/acre multiple not adjusted for value associated with production.
- Red line denotes average since 01-Jan-17. Calculated as the weighted average of each quarter's transactions.

July 22, 2019

[Click event to open](#)

## Upcoming Industry Events

### August 2019

<a href="#">Aug 14</a>	<a href="#">IPAA Leaders in Industry Luncheon</a>
<a href="#">Aug 20</a>	<a href="#">IPAA Oil &amp; Gas Overview Course</a>
<a href="#">Aug 20</a>	<a href="#">Houston Producers Forum Luncheon</a>
<a href="#">Aug 21-22</a>	<a href="#">Summer NAPE</a>
<a href="#">Aug 23</a>	<a href="#">ADAM-Houston Monthly Luncheon</a>

### September 2019

<a href="#">Sep 11</a>	<a href="#">IPAA Leaders in Industry Luncheon</a>
<a href="#">Sep 17</a>	<a href="#">Houston Producers Forum Luncheon</a>
<a href="#">Sep 20</a>	<a href="#">ADAM-Houston Monthly Luncheon</a>
<a href="#">Sep 24-26</a>	<a href="#">DUG Eagle Ford (San Antonio)</a>
<a href="#">Sep 30-Oct 2</a>	<a href="#">SPE Annual Technical Conference and Exhibition</a>

### October 2019

<a href="#">Oct 9</a>	<a href="#">IPAA Leaders in Industry Luncheon</a>
<a href="#">Oct 15</a>	<a href="#">Houston Producers Forum Luncheon</a>
<a href="#">Oct 18</a>	<a href="#">ADAM-Houston Monthly Luncheon</a>
<a href="#">Oct 22-23</a>	<a href="#">A&amp;D Strategies and Opportunities Conference</a>

### November 2019

<a href="#">Nov 4-6</a>	<a href="#">Executive Oil Conference &amp; Exhibition</a>
<a href="#">Nov 13</a>	<a href="#">IPAA Leaders in Industry Luncheon</a>
<a href="#">Nov 15</a>	<a href="#">ADAM-Houston Monthly Luncheon</a>
<a href="#">Nov 19</a>	<a href="#">IPAA Oil &amp; Gas for Newcomers</a>
<a href="#">Nov 19</a>	<a href="#">Houston Producers Forum Luncheon</a>
<a href="#">Nov 19-21</a>	<a href="#">DUG Midcontinent (Oklahoma City)</a>
<a href="#">Nov 20-21</a>	<a href="#">11th Annual North America Assembly &amp; Dinner</a>

### December 2019

<a href="#">Dec 5</a>	<a href="#">177th OPEC Meeting</a>
<a href="#">Dec 11</a>	<a href="#">IPAA Leaders in Industry Luncheon</a>
<a href="#">Dec 17</a>	<a href="#">Houston Producers Forum Luncheon</a>
<a href="#">Dec 20</a>	<a href="#">ADAM-Houston Monthly Luncheon</a>

### January 2020

<a href="#">Jan 23</a>	<a href="#">IPAA Private Capital Conference</a>
<a href="#">Jan 17</a>	<a href="#">ADAM-Houston Monthly Luncheon</a>
<a href="#">Jan 21</a>	<a href="#">Houston Producers Forum Luncheon</a>

### February 2020

<a href="#">Feb 3-7</a>	<a href="#">NAPE Summit Week</a>
<a href="#">Feb 19</a>	<a href="#">Houston Producers Forum Luncheon</a>
<a href="#">Feb 18-19</a>	<a href="#">DUG Rockies (Denver)</a>

### March 2020

<a href="#">Mar 2</a>	<a href="#">Energy Capital Conference</a>
<a href="#">Mar 4</a>	<a href="#">Women in Energy Luncheon</a>
<a href="#">Mar 3-5</a>	<a href="#">IADC/SPE International Drilling Conference</a>
<a href="#">Mar 9-13</a>	<a href="#">Houston CERA Week</a>
<a href="#">Mar 17</a>	<a href="#">Houston Producers Forum Luncheon</a>
<a href="#">Mar 20</a>	<a href="#">ADAM-Houston Monthly Luncheon</a>

### April 2020

<a href="#">Apr 6-8</a>	<a href="#">DUG Permian (Fort Worth)</a>
<a href="#">Apr 17</a>	<a href="#">ADAM-Houston Monthly Luncheon</a>
<a href="#">Apr 20-22</a>	<a href="#">OGIS New York</a>
<a href="#">Apr 21</a>	<a href="#">Houston Producers Forum Luncheon</a>

### May 2020

<a href="#">May 15</a>	<a href="#">ADAM-Houston Monthly Luncheon</a>
<a href="#">May 19</a>	<a href="#">Houston Producers Forum Luncheon</a>
<a href="#">May 19-20</a>	<a href="#">DUG Haynesville (Shreveport)</a>

### June 2020

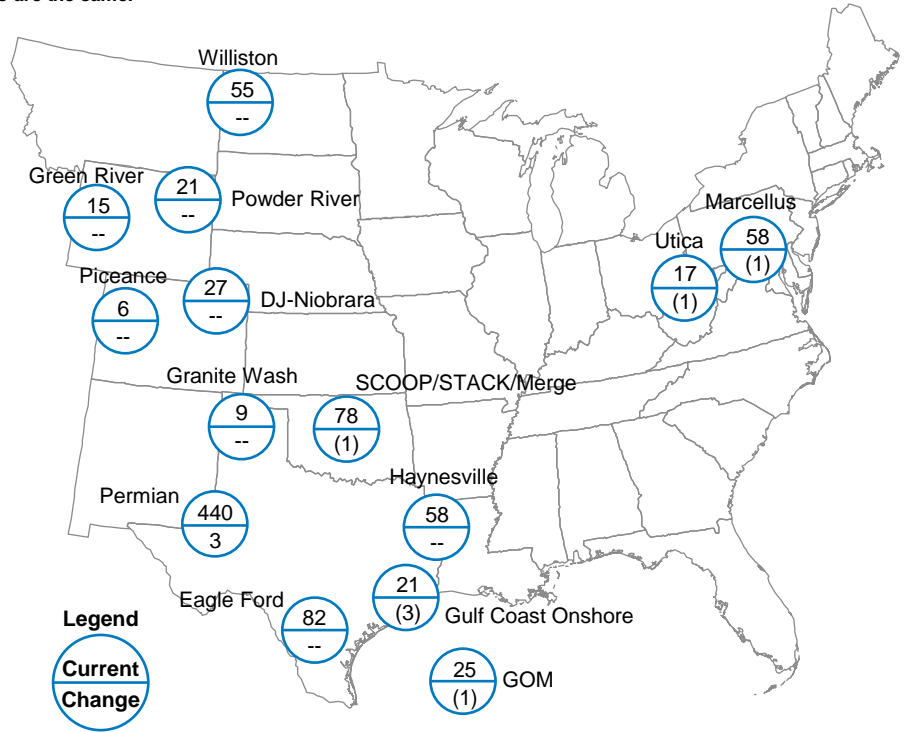
<a href="#">Jun 16</a>	<a href="#">Houston Producers Forum Luncheon</a>
<a href="#">Jun 16-18</a>	<a href="#">DUG East (Pittsburgh)</a>
<a href="#">Jun 19</a>	<a href="#">ADAM-Houston Monthly Luncheon</a>

July 22, 2019

## Rig Count Summary

BMO uses updated basin outlines, and the resulting rig counts, to more accurately represent current basin knowledge. The data below reflect these changes and is different than those shown by Baker Hughes. The totals are the same.

	This Week	Change	Last Week	Last Year
<b>Total Rigs</b>	<b>954</b>	<b>(4)</b>	<b>958</b>	<b>1,046</b>
Oil	779	(5)	784	858
Gas	174	2	172	187
Miscellaneous	1	(1)	2	1
Directional	69	(1)	70	67
Horizontal	829	(2)	831	922
Vertical	56	(1)	57	57
<b>Basin</b>				
Permian	440	3	437	477
SCOOP/STACK/Merge	78	(1)	79	112
Granite Wash	9	--	9	21
Eagle Ford	82	--	82	98
Haynesville	58	--	58	59
Marcellus	58	(1)	59	52
Utica	17	(1)	18	24
Williston	55	--	55	56
DJ-Niobrara	27	--	27	25
Green River	15	--	15	17
Powder River	21	--	21	15
Piceance	6	--	6	8
Gulf Coast Onshore	21	(3)	24	20
GOM	25	(1)	26	17
Alaska	10	2	8	5
Other	32	(2)	34	40
Mid-Con	13	(2)	15	19
Rockies	2	--	2	3
Western	17	--	17	16
Eastern	--	--	--	2



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