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2018 Non-Traded Retail Energy Report

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Sector Summary

For 2018, eight sponsor companies raised about $401 million for use within various non-traded energy programs. That represents a year over year increase of 21.5% from $330 million raised by the sector in 2017, a commendable result after considering the pricing volatility observed in Q4 2018 in the oil market.

Leading the sector in terms of capital raised was Mewbourne Development Corporation ("**Mewbourne**"), $116.7 million, which was followed by U.S. Energy Development Corp. ("**U.S. Energy**"), $100 million, and MDS Energy ("**MDS**"), $65 million.

Of eight sponsor companies, five reported varying levels of program capital growth from 2017 to 2018 (63% of the sector), with each of these five companies also reporting capital growth for a second consecutive year. This trend compares favorably to what we observed from 2015-2016, in which only two of nine sponsors reported growth in program capital raising year over year.

The biggest mover in terms of raised capital in 2018 was MDS, which doubled its capital raise from $32 million in 2017 to $65 million in 2018. Also deserving of honorable mention was (i) Mewbourne, which increased its annual raise from $78 million in 2017 to $116.7 million in 2018 (i.e., 50% growth year over year), and (ii) Montego Minerals, which increased its capital raise by about $28 million year over year (going from no capital raised in 2017 to funding two programs this year after undergoing a planning and structuring year).

A chart of the year over year fundraising totals of the eight retail energy sponsors we cover is provided below (with U.S. Energy's numbers reflecting estimated results based upon numbers that were reported in late December 2018):

Company	**Strategy**	**2018 Raise**	**2017 Raise**	**2016 Raise**
Mewbourne	Drilling-Horizontal Wells in Permian, Tx Panhandle and Anadarko Basin	$116.7 mm	$78 mm	$63 mm
MDS	Drilling-Horizontal Wells in Marcellus Shale	$65.5 mm	$32 mm	$23 mm
APX	Drilling-Mississippian Oil Targets in Illinois Basin	$23.4 mm	$28 mm	$18 mm
John Henry Oil	Drilling-Trenton Black River Oil Targets in Tennessee	$4.9 mm	$4.5 mm	$3.0 mm
U.S. Energy	Drilling-Horizontal Wells in Eagleford Shale	$100 mm (estimate)	$109 mm	$147 mm

Waveland	Opportunity Fund Targeting Leases and Upstream Private Equity (Permian Basin, San Juan Play in NM, STACK Play in Oklahoma)	$33 mm (second program runs through 2019)	$40 mm	$10 mm
Resource Royalty	1031 Programs Acquiring Minerals and Royalties in STACK Play of Oklahoma	$30 mm	$28.5 mm	$9.1 mm
Montego Minerals	1031 Programs Acquiring Minerals and Royalties in the Permian Basin, East Texas, and in Central Oklahoma	$27.9 mm	$0 (Planning Year)	NA

2018 Totals by Strategy

Drilling	$290.1 million (70%)
Opportunity Funds	$53 million (13%)
Minerals/Royalties	$57.9 million (15%, up from $28.5 million in 2017)

Four 1031 programs were collectively funded by Resource Royalty and Montego Minerals in 2018. Resource Royalty acquired leased minerals primarily in the north-central Oklahoma STACK/SCOOP Plays, whereas Montego Minerals acquired leased minerals primarily in the Permian Basin and in East Texas. While 1031 energy capital accounted for about 15% of the total retail energy capital, this asset type did experience fairly significant growth in 2018.

Waveland Energy's fund raising numbers are primarily comprised of the capital raised within the closing months of Waveland Resource Partners IV. This fund raised about $80 million of retail capital from mid-year 2016 through Q1 2018. Waveland Energy's opportunity fund program, Waveland Resource Partners V, opened its program late in 2018, will run its offering through December 31, 2019, and is targeting $100 million in raised capital. Waveland Energy reports that 11 firms have signed selling agreements, with an additional 14 firms conducing due diligence at this time.

Perspective Regarding the Future

While the size of the retail energy sponsor group remained stable year over year (e.g., eight sponsors in 2018, eight sponsors in 2017, and nine sponsors in 2016), the capital pool increased significantly in 2018. The pace of capital growth in this sector has been steady yet arguably conservative at times over the past four years ($247 million 2015, $300 million 2016, $330 million 2017, and $401 million 2018). We believe this trend is due to severe levels of market volatility, coupled with the fact that the sector is endeavoring to regain investor trust that was lost as a result of performance failures by several companies that no longer raise capital in the retail channel.

Despite the challenges, program capital increases have, in fact, been realized within the sector for three consecutive years. We believe that the overall strength of the sponsor group today compared to what was the case ten years ago bodes well for this segment going into 2019 and later years, with the capitalizations and performance level of the present group being better than that of the sector ten years ago (with about 30 companies raising close to a billion in retail capital in 2008, but with a substantial majority of these companies not achieving their performance goals).

Performance News

In addition to sharing its capital raise numbers, Mewbourne, APX, and Resource Royalty provided us with performance reports in relation to a number of operational investment programs.

As MDS also recently shared distribution information, we have added that to our report.

Note that a more complete explanation of each sponsor's performance will be provided in our upcoming sponsor due diligence opinions this year.

A summary of the information is provided below.

Mewbourne

Program	Cumulative Cash on Cash	Trailing 12 Months
MEP 2014	64%	12.51%
MEP 2015	70%	19.26%
MEP 2016	69%	43.32%
MEP 2017	24%	24%

Observation: The performance of these programs illustrates: (i) the advantages of pursuing a multi-year drilling schedule as opposed to playing the IDC game; and (ii) the value of putting cap. ex. to work when AFE prices are lower versus higher.

APX Energy

The New Harmony – C drilling program, which raised approximately $15.561 million in 2016, returned 47% cash on cash through December 2018 (17 distribution months, 34-well program).

The initial year federal income tax deduction for the New Harmony – C drilling program was reported to be 77% of the invested capital.

Observation: APX/Campbell Energy's strategy to focus in the north part of the New Harmony fault system appears to be working based upon early distributions from the 2016 program.

<u>Resource Royalty</u>

The performance of six direct title programs were reported as follows:

Program	Well Count	Start Date	12-Month Trailing Return
Preston Fisher 33		Q4 2016	11.39%
Blaine Fisher	29	Q2 2017	5.25%
King Woods	28	Q3 2017	11.88%
Canadian River	42	Q4 2017	12.67%
King River	50	Q1 2018	12.32%*

*annualized

Observation: Well counts rising in programs with an Anadarko Basin focus.

<u>MDS Energy</u>

MDS distribution summary – August 2018 distribution

Partnership	Month %	Total Number of Distributions	May Pricing	Total % Cash on Cash	Annualized % Cash on
MDS 2017, 7.5% discount	0.64	2	$2.49	1.32	7.91
MDS 2017	0.59	2	$2.40	1.22	7.32
MDS 2016, 7.5% discount	1.85	6	$2.26	11.62	23.24
MDS 2016	1.71	6	$2.26	10.75	20.55
MDS 2015, 7.5% discount	1.41	19	$2.23	34.85	16.98
MDS 2015	1.31	19	$2.23	32.24	15.70
MDS 2014	0.89	31	$2.24	24.24	10.71

Observation: Better gas pricing reflected within recent distributions.

Market Outlook

By analogy, the 1031 real estate asset class went through restructuring and came back from about $250 mm in 2009-2010 to $1.3 billion in 2016, to $1.75 billion in 2017, and to about $2 billion in 2018.

In contrast, we continue to anticipate a "slow climb" back to pre-2015 raise numbers (i.e., $800 million), as oil prices remain uncertain but with a few indicators suggesting that oil/gas may be poised to rebound to some extent (i.e., due to OPEC production cuts).

The following market information was derived from a number of informational sources:

<u>Oil</u>

In 2018, West Texas Intermediate ("**WTI**") crude oil spot prices averaged $65 per barrel ("**bbl**"), up $14/bbl from $51/bbl in 2017, and up $18/bbl from $47/bbl in 2016.

WTI's average of $65/bbl in 2018 outperformed the EIA's forecast of $58/bbl. Reasons for the outperformance would appear to include: (i) OPEC's general cooperation with output quotas; (ii) world GDP/demand; and (iii) a weaker U.S. Dollar through much of the first six months of 2018 (i.e., 0.80-0.84 to $1 conversion rate observed in the first six months of 2018).

Despite upward pricing movements in 2018, oil prices have come down significantly over the past two months. The West Texas Intermediate spot price as of January 2, 2018 was $47.34 per bbl. Reasons for recent downward price pressure include (i) a stronger U.S. Dollar (i.e., 0.88 to 1 conversion rate observed in the later months of 2018); (ii) a reduction in oil demand due to a feared economic slowdown in world GDP; and (iii) a sentiment that OPEC's output quotas will not keep pace with U.S. shale oil production.

In its December 2018 outlook, the EIA forecasted Brent spot prices to average $61/bbl in 2019, with WTI crude oil prices expected to be about $7/bbl lower than Brent prices in 2019.

The EIA's market sentiments last month, which forecasted an average WTI price of $54/bbl for 2019, are moderately more optimistic than the NYMEX futures prices observed on January 2, 2019 for the next 12 months:

Strip Jan. 2, 2019 NYMEX Contract Month	Contract Price
Feb. 2019	$47.24/bbl
July 2019	$49.00/bbl
Dec. 2019	$50.28/bbl

While OPEC is positioned to continue output-related cooperation, the U.S. shale industry continues to drill wells and to increase oil production at an alarming rate. For 2017, the EIA forecasted oil production to average 9.2 million bbls per day, which was materially consistent with the 9.4 million bbls actually produced that year. In 2018, however, actual U.S. oil production exceeded the EIA's forecast by a significant percentage (i.e., 11 million bbls per day actual vs. EIA's 10 million bbls per day forecasted).

Presently, U.S. oil production is 11.7 million bbls day, which the EIA expects will continue to increase in 2019 (i.e., 12.1 million bbls/day average forecasted by the EIA).

Despite an oil price drop in Q4 2018, in which we saw prices decrease from $70/bbl on October 2, 2018 to slightly under $50/bbl at year-end, the U.S. rig count increased by about 2.94% over such period, with Baker Hughes reporting 1,083 land rigs in operation as of December 28, 2018 compared to 1,052 land rigs in operation as of October 5, 2018.

U.S. oil production appears to be moving in the same direction as the rig count, with the U.S. production increasing from 11.1 million bbls/day at the end of September 2018 to 11.7 million bbls reported in late December 2018 (i.e., 4.4% production increase reported Q4 2018).

Despite lower oil prices, there are a select number of fields in the U.S. where oil can be produced at lower $30-50/bbl prices.

Not surprisingly, the break-evens of the fields tend to correlate positively with the areas of the U.S. where rig activity continues to be very high.

A summary of this correlation can be observed within the following tables:

Table I – Break Even

Field	Break-Even/BBL
Midland-Sprayberry/Wolfcamp	$32
Eagleford Oil	$36-42
Bakken/Core	$36
Delaware-Wolfcamp/Bone Spring	$37-43
N. Central Oklahoma STACK	$35-40
Eagleford Condensate	$45-47
Central Oklahoma SCOOP	$40-50
Bakken/Non-Core	$50

Raymond James Equity Research

Table II – Rig Activity

Field	Rigs – Dec. 28, 2018	Rigs – Year Ago	Change
Permian (Midland/Del. Basins)	486	398	+22%
Eagleford (S. Texas)	80	70	+14%
Cana Woodford (Central Oklahoma)	59	73	-19%
Bakken Shale	56	47	+19%

Baker Hughes Rig Count

Natural Gas

As reported by the EIA, natural gas inventory in the U.S. stood at 2,725 bcf on December 21, 2018, 18% below the natural gas inventory reported a year ago, and 19% below the five-year average.

Despite lower inventory, natural gas futures prices remain consistent with market prices observed since 2015:

Strip Jan. 2, 2019 NYMEX Contract Month	Contract Price
Feb. 2019	$2.95/mcf
July 2019	$2.70/mcf
Dec. 2019	$2.90/mcf

Natural gas price average – past six years

2013	$3.73
2014	$4.37
2015	$2.62
2016	$2.52
2017	$2.99
2018	$3.16

We note that despite the natural gas prices observed within the mainstream market, it is important to also consider circumstances that cause local natural gas prices to deviate from the main market. **Such facts and circumstances include gas supplies in an area and the area's ability to carry the supplies to market (i.e., takeaway capacity).**

Areas of the U.S. where most of the domestic natural gas is produced include Appalachia (Marcellus/Utica), 31,037 mcf/day, Permian Basin, 9,721 mcf/day, Haynesville Shale Play (E. Texas and W. Louisiana), 9,721 mcf/day, Anadarko Basin (STACK/SCOOP Plays), 7,535 mcf/day, and Eagleford Shale Play, 7,206 mcf/day. Coincidentally, areas of high production can experience bottlenecks in gas takeaway capacity from time to time. This truism has played out, historically, in Pennsylvania, the core of the Marcellus Shale Play, and most recently in the Permian Basin, which accounts for over 40% of the rigs operating in the U.S.

While substantial natural gas differentials were experienced in the Marcellus Play a couple of years ago, the addition of transmission infrastructure has reduced gas price differentials from $1 per mcf and higher in 2015-2017 to about $0.40 per mcf today. Based upon DTI gas pricing, the pricing differential expected for gas produced in eastern Pennsylvania that is purchased by Dominion Energy Transmission, Inc. is expected to average $0.47 per mcf in 2019 (Source: CME futures), which is again lower than the differentials observed 2-3 years ago.

Unfortunately, higher differentials are being experienced by operators that deliver their natural gas to the Waha Hub in Pecos County, Texas, which currently services the Delaware and Midland Basins. At this time, the pricing differential for gas delivered to the Waha Hub is expected to average about $1.50 per mcf in 2019, with higher differentials close to $2 per mcf expected in Q1 2019. While infrastructure projects are planned for the area, media sources are projecting a 12-month period before the positive effects of the projects are realized. While the presence of wet gas helps to bump the effective natural gas prices realized by some operators in the Permian, we would suggest the financial modeling of lower gas prices for at least 24 months in this area as a best practice.

<u>Market Pricing Summaries</u>

Oil Spot Price (1/2/18):	$47.34 (2018 avg. was $65/bbl)
NYMEX Gas (Feb. 2018 deliveries):	$2.95 mcf (2018 avg. was $3.16/mcf)
Nymex Futures 2019/oil:	$47-50 per bbl (CME 1/2/19)
NYMEX Futures 2019/gas:	$2.70-3.01 mcf (CME 1/2/19)
DTI Avg. 2019 Differential:	$0.47 per mcf (CME 1/2/19)

WAHA Avg. 2019 Differential:	$1.50 per mcf (CME 1/2/19)
ILL/Countrymark Differential (12/18):	$7 per bbl (preferred pricing terms available for certain operators based upon volumes)

What Makes Sense in 2019

While pricing fundamentals remain a wildcard for 2019, there continue to be areas in the U.S. where oil/gas can be developed economically. Notwithstanding, cautious underwriting practices are key, as it is important to understand the break-evens of projects given their locations and corresponding challenges. Pro formas must factor relevant commodities pricing discounts based upon local supply/demand and available infrastructure. Additionally, special cost related considerations, such as water disposal, sponsor/manager compensation, and load, must be built into the economic underwriting models. With your assistance we have largely eliminated abusive turnkey structures and excessive management fees, but in 2018 our petroleum engineers identified several deals with aggressive and unobtainable assumptions.

As stated last year, and in respect to programs that are taking a non-operated working interest in projects, look for opportunities where the project developers have proof of concept and strategic alliances with major companies/investors. As to drilling focused programs, we need to continue to convince most of the drilling sponsor group that capital deployment over multiple years makes sense. Those that drill over multiple years do better.

As we encouraged last year, more of our client base is looking to minerals and royalties as potential opportunistic assets. This was demonstrated by a noticeable uptick in the capital raised to purchase mineral assets in 2019. Looking back at the prior performance history of a certain sponsor that dominated the royalty segment of the asset class for years, it is noteworthy that this sponsor's portfolio of programs performed quite well in the 2000-2005 vintage years when oil was $20-$50 bbl and when commodities were generally on a more stable ground. Thus, there may be market upside left to capture within plays that have diverse commodities streams and good avenues to markets.

While the media continue to favor West Texas in terms of economics, **remember that there are core and non-core areas in all popular plays**. This is another area where the value of independent project underwriting comes into play.

Summary

As we predicted a year ago, retail energy capital raise numbers displayed growth in 2018, and we continue to believe that 2016-2018 could be good vintage years for the group of retail sponsors that raised capital over the past couple of years in terms of performance. A smaller but better group is reestablishing the market. While capital raise numbers have yet to reach the levels of capital raised five years ago, the "foundation for growth" continues to be on better ground than what we had years ago in a promoter-infested environment.

On a final note, we believe it is noteworthy to mention the findings of a recent article we came across that highlights the continuing and irresponsible use of leverage by many public and private upstream companies in the U.S. The source places the debt at $280 billion U.S., with 90% of the debt being attributed to shale oil producers. Using break even prices quoted by certain of the public companies, the source estimates that the upstream industry will spend $20 billion this year in covering interest payments, which accounts for 1.5 million of the U.S. daily oil production. More alarming, the source estimates the production burden to pay off the leverage at 9 billion bbls, which equates roughly to what the U.S. upstream industry produced over the past 10 years. On a better note, we mention that that <u>limited</u> leverage is being used today by the operators that raise money for drilling from retail investors, which generally bodes well from a due diligence perspective.

Word to the wise-don't be too quick to approve the unproven sponsor and stay disciplined on due diligence.

Underwrite, underwrite, underwrite.