MICK YE 2021 Oil & Gas Report – Energy is Back in Play

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What was forecast by Wall Street, the U.S. press, and (quite frankly) the Biden Administration faithful as doom, disaster and the end of the oil and gas business 22 months ago, has turned to tentative optimism within the financial services sector, where public and private companies vie for retail and institutional capital. As was the case prior to the emergence of the COVID Pandemic, however, it's been a wild ride in 2020 and 2021 for the energy sector.

Energy Sector Capital Summary

In 2021, we covered ten sponsor companies, nine of which operate within the upstream ("**E&P**") oil/gas sector, and one of which provides a "back-of-the-grid" power solution to companies that require access to electricity on a 24-7 basis. These companies raised $621 million within the retail investment channel last year.

Of the $621 million, the nine E&P product sponsors raised $555.974 million within 15 separate retail syndicated programs. This represented a 103.78% year-over-year increase in funding from what was reported by these E&P sponsors in 2020 (i.e., $273 million). This also represented the highest capital raise year from the E&P sponsor group that we cover since 2014.

Leading the way in terms of fundraising was U.S. Energy Development Corp. ("**U.S. Energy**"), at $190 million, which was followed by MDS Energy ("**MDS**"), at $147 million, and Mewbourne Development Corporation ("**Mewbourne**"), at $119.80 million. In terms of funding growth, eight of the nine sponsors from the E&P group reported significant year-over-year gains in fundraising, which was a turn-around from 2020, in which only two of the nine sponsors reported growth. A chart of the fundraising totals of the E&P sponsors we covered is provided below:

(Table continued on Page 2)

Table 1 -
Capital Raised

Company	Strategy	2021 Raise	2020 Raise	2019 Raise
Mewbourne	*Drilling*-Horizontal Wells in the Permian Basin, Texas Panhandle and Anadarko Basin	$119.80 MM	$55.31 MM	$99.31 MM
MDS	*Drilling*-Horizontal Wells in the Marcellus Shale Play	$146.919 MM	$60.0 MM	$68.0 MM
APX	*Drilling*-Mississippian Oil Targets in the Illinois Basin	$19.0 MM	$12.0 MM	$21.0 MM
STL	*Drilling*-Marcellus Shale of Eastern Pennsylvania	$29.5 MM	$17.3 MM	$9.0 MM
U.S. Energy	*Drilling*-Permian Basin, Powder River Basin and Eagle Ford Shale Play; the QOF is an Opportunity Fund Seeking Working Interests and Other Upstream Assets	$145.0 MM drilling; and $45.0 MM QOF program	$64.0 MM drilling; and $20.0 MM QOF program	$99.0 MM
Waveland	*Opportunity Fund* Targeting Minerals and Non-Operated Working Interests in the Bakken Shale	$13.255 MM *	$22.0 MM	$18.6 MM
Resource Royalty	*1031 Program* Acquiring Minerals and Royalties in STACK Play of Oklahoma	$11.067 MM	$5.373 MM	$19.15 MM
Montego Minerals	*1031 Programs* Acquiring Minerals and Royalties in the Permian Basin and East Texas	$19.730 MM	$12.5 MM	$32.0 MM
JHO	*Drilling*-Oil Producing Zones in Tennessee	$6.704 MM	$4.35 MM	Did not raise capital

* Waveland was out of the market for some months in 2021 due to its transitioning from Waveland Resource Partners V to Waveland Resource Partners VI.

2021 E&P Capital by Strategy

Total Capital:	$555,974,460
Drilling:	$466,922,247 (84%)
Opportunity Funds:	$58,255,045 (10%) (includes a QOZ fund)
Minerals/Royalties:	$30,797,168 (6%) (98% structured as direct interest)

Five Internal Revenue Code ("**IRC**") Section 1031 ("**§1031**") programs were wholly or partially funded in 2021 by Resource Royalty and Montego Minerals. Overall, §1031 energy capital increased from what was reported in 2020 ($18 MM). While the assets we reviewed within the §1031 programs have been positioned to generate economic returns under conservative commodities prices, COVID-19 Pandemic developments in 2020, coupled with a severe level of commodities pricing volatility, slowed the momentum that these programs had previously built up in 2018 and 2019. Based upon current oil/gas market fundamentals, we believe this segment can achieve additional growth in 2022.

Representing the other side of the energy value chain, e2comply, LLC ("**e2C**") entered the retail broker-dealer channel in late 2020 and raised $64,846,057 from accredited investors in 2021 pursuant to its senior secured bond offering. The net proceeds from this offering are expected to be used by e2C to fund its manufacturing of back-up power systems that enable certain companies that require power on a 24-7 basis (e.g., hospitals, utilities, bakeries) to function on a continuous basis, while also allowing such companies to run the back-up system at times when it is cost-effective to do so (which helps the consumer businesses to save money on their monthly power costs). Driving the appeal of e2C's offering, in part, was the Texas power crisis of 2021, which was caused by a winter storm that caused the state's electric grid operator to lose control of the power supply, leaving millions of people and many businesses without access to electricity.

We note that the size of the E&P sponsor group that we cover has been stable over the past couple of years (e.g., eight to ten sponsors in 2017-2021), with drilling programs outpacing royalties and opportunistic funds in terms of fundraising. The fundraising of this sponsor group has been choppy since 2017 ($330 MM 2017, $401 MM 2018, $369 MM 2019, $273 MM 2020, and $556 MM in 2021). The choppiness has been caused by severe market volatility, coupled with the fact that the sector continues to seek the reestablishment of investor trust that was lost as a result of performance failures by several companies that no longer raise capital in the retail channel. Based upon current market fundamentals, however, the E&P sponsor group appears to be well positioned to achieve a better level of performance than what was the case years ago.

What's Driving the Market Today?

The following market information was derived from multiple informational sources:

Oil

As of February 8, 2022, the WTI spot price for oil was $89.11 per barrel ("**bbl**") of oil, with the Brent spot price being $90.42 per bbl. The Energy Information Administration ("**EIA**") forecasts WTI spot prices to average $79 per bbl in 2022, **but with the EIA's estimate for 2023 dropping to $64 per bbl**. Within its Short-Term Energy Outlook ("**STEO**") published on February 8, 2022, the EIA acknowledged the present tightness of global oil inventories, **while also stating its belief that downward price pressure will emerge in the middle months of 2022 as oil production from the U.S. and the OPEC + countries outpace the emerging growth in world oil consumption**.

The EIA estimates that 99.0 million bbls of oil per day were consumed globally in January 2022, which represented an increase of 6.6 million bbls per day from January 2021. The EIA also forecasts that global consumption of oil will average 100.6 million bbls per day for all of 2022, which is up 3.5 million bbls per day from 2021 and exceeds the 2019 average of 100.3 million bbls per day. The EIA forecasts that global consumption of oil will increase by 1.9 million bbls per day in 2023 (which arguably presents a "*counter-argument*" to its $64 bbl price forecast for 2023 if U.S. and OPEC + oil production falls short of the growth expectations for next year).

The EIA reports in its STEO that U.S. oil production reached 11.8 million bbls a day in November, the most in any month since April 2020. The EIA expects that that oil production will

rise to an average of 12.0 million bbls per day in 2022 and 12.6 million bbls per day in 2023, which would be record-high production on an annual-average basis. **Again, this rising trend in U.S. oil production is the supporting thesis for the EIA's belief that oil prices will eventually fall back to a $60-$70 per bbl level next year.**

We note that the EIA's pricing sentiment contrasts with the oil forecasts published recently by Raymond James and Goldman Sachs, which have forecast WTI oil prices to remain at a high level (i.e., $80 bbl plus) next year. We also note that the EIA's pricing sentiment is lower in comparison to the NYMEX futures prices published on February 8, 2022, which were in the $80s per bbl through 2022 and the $70s per bbl in 2023.

February 8, 2022

NYMEX Contract Month	Contract Price
Mar. 2022	$88.88/bbl
Sept. 2022	$81.93/bbl
Mar. 2023	$77.50/bbl
Mar. 2024	$72.83/bbl
Mar. 2025	$69.04/bbl

In his market podcast shown on February 5, 2022, Dan Steffens, President of the Energy Prospectus Group, published a rather bullish sentiment for oil remaining at $80 bbl for this year and 2023. In support of his viewpoint, Mr. Steffens stated that the "*global oil market is tight and is probably getting tighter*" in the future. Some other points mentioned in support of his optimism include the following:

- COVID is losing its grip on the U.S. and world economies, and travel restrictions are being lifted in many countries;
- OPEC + is not keeping pace with its published quota increases (with the shortfall being 790,000 bbls per day in Dec. 2021);
- Petroleum inventories are now at an unhealthy level of 28 days of consumption (with 30 days being the safety threshold in Mr. Steffen's viewpoint); and
- The world is using more oil today than it produces (with the spread being 1.5 million bbls per day through all of 2021).

Mr. Steffen's optimism is shared by Raymond James, which published a pricing expectation of $70 bbl to $80 bbl in December 2021, and with its year-end 2022 expectation of $80 bbl expected to remain through 2023. According to Raymond James' pricing analysts, oil prices "*need to move meaningfully higher*" to incentivize supply growth to reach a balanced oil market in 2023. **Again, we note that the severity of production increases in the U.S. and worldwide remains the wild card with respect to market pricing for late 2022 and 2023**.

Natural Gas

In January, the natural gas spot price at Henry Hub averaged $4.38 per mcf, up from the December average of $3.76 per mcf. Higher prices in January were a result of colder-than-normal

weather in parts of the country, particularly the Northeast where demand increased for natural gas used for space heating and for power generation. Colder-than-normal temperatures in January 2022 resulted in U.S. natural gas inventories falling below the five-year U.S. average to end the month at 2.3 trillion cubic feet ("**TCF**"). The EIA expects natural gas inventories to fall by about 730 billion cubic feet ("**Bcf**") for the rest of the 2022 withdrawal season, ending March just below 1.6 Tcf (i.e., 8% less than the 2017–2021 average for that time of year).

In addition to colder weather patterns in the Northeast, U.S. liquid natural gas exports ("**LNG**") continue to grow at a significant clip. The EIA reports that U.S. LNG exports averaged 11.2 Bcf per day in January 2022, up from 10.4 Bcf per day in 4Q 2021. This export growth is being supported by large price differences between the Henry Hub price in the U.S. and spot prices in Europe and Asia. On this point, inventories in Europe remain much lower than their five-year averages and are contributing to strong demand for LNG imports. The EIA anticipates high levels of LNG exports to continue into 2022.

The tightness in U.S. natural gas inventories has presented opportunities for natural gas producers to lock in healthy natural gas prices at levels above the prices that have been observed over the past five years. This observation is supported by the following futures prices.

Strip February 9, 2022

NYMEX Contract Month	Contract Price
Mar. 2022	$4.03/mcf
Apr. 2022	$3.99/mcf
May 2022	$4.02/mcf
June 2022	$4.07/mcf
Jan. 2023	$4.53/mcf
Jan. 2024	$3.84/mcf

Natural gas price average – past five years

2017	$2.99/mcf
2018	$3.15/mcf
2019	$2.58/mcf
2020	$2.03/mcf
2021	$3.89/mcf

What's Going On in the Field?

In January 2002, U.S. oil production was 11.5 million bbls per day, which was 0.30 million bbls per day less than what was reported in December 2021. Despite the slight month-to-month reduction in production, oil production has rebounded from the COVID affected levels reported throughout 2020 (i.e., 10.78 million bbls per day Apr. through Dec. 2020) and all of 2021 (i.e., 11.17 million bbls per day). This increase in U.S. oil production is driven by improved market

fundamentals that have driven oil prices higher over the past six months. This increase in oil production is further reflected by a higher U.S. rig count, which has increased from 392 rigs running in February 2021 to 613 rigs running currently (which, although is short of the 768 rigs running pre-Covid, nonetheless represents a rebound in drilling over the past year).

Basin	2/4/2022 Rig Count	Year Ago Rig Count	Jan. 2020 Pre-COVID
Arkoma/Woodford Region	26	9	23
Barnett Shale	2	1	2
DJ-Niobrara	12	5	20
Eagle Ford Shale	50	28	67
Granite Wash	5	0	1
East Texas & Haynesville Shale	54	47	49
Marcellus Shale	33	30	40
Mississippian Play	1	0	2
Permian Basin	294	198	403
Utica Shale	12	7	11
Williston Basin/Bakken	31	12	52

Baker Hughes, 2/4/22, 3/6/20

On a positive note, oil drilling has increased to various levels within all eleven major oil/gas basins covered by Baker Hughes' rig count data. The major U.S. basins that have experienced the most growth in terms of increased rig counts from a year ago include the Williston Basin/Bakken Shale (up 158%), Eagle Ford Shale (up 78%), and Permian Basin (48%). Stronger market fundamentals on the natural gas side have also help to improve drilling activities in the gas producing Arkoma/Woodford Region (up 188%), Utica Shale (up 71%), and Marcellus Shale Play (up 25%).

Motivation to Drill –
What are the Break-Evens?

Despite favorable market fundamentals for oil pricing in 2022, a stable oil market commands a world supply/demand balance. Notwithstanding, today's favorable oil market fundamentals present opportunities for U.S. E&P companies to recapture their profits lost during COVID by increasing their drilling and production. An illustration "*suggesting*" how much profit can potentially be recaptured by oil/gas producers is shown within the following table (with break-evens reported on a "**per bbl**" basis):

Table 2
Break Even Points

Play	**Avg. Break Even Drilling**	**Avg. Price to Recover Op. Costs**
Permian-Midland	$46	$27
Permian-Delaware	$49	$26
Permian-Other	$53	$33

Eagle Ford	$46	$17
Other U.S. Shale	$58	$33
Other U.S. Non-Shale	$53	$34

Federal Reserve Bank of Dallas Survey
Report Updated Feb. 3, 2022

Based upon the findings of an oil/gas industry survey published by the Federal Reserve Bank of Dallas (Feb. 3, 2022), many E&P companies are, in fact, gearing up to increase their drilling and production over the next 12 months. Within a survey of several executives from 131 oil/gas drilling and field service companies, the average forecasted oil price for year-end 2022 was $75 per bbl, with the group of executives predicting natural gas to end the year at $4.06 per mcf. Coincidentally, and based upon their viewpoints about oil/gas prices, 78% of the executives from the 88 surveyed drilling companies stated that their companies intend to increase their oil/gas production over the next 12 months, with only 28% stating that they plan to either maintain or decrease their drilling. Of the 88 surveyed drilling company executives, 64% also stated that their "primary strategic goal" for 2022 is to increase or at least maintain their current oil/gas production levels. *While also acknowledging that there are forces that might serve to temper the E&P sector's motivation to drill (e.g., the ESG movement and the Biden administration's disdain for the sector), money talks (suggesting that the EIA's sentiment about 2023 oil pricing is factually supported).*

Market Volatility –
Revisiting Where We Have Been

It goes without saying that the past 15 years have been a roller coaster ride for oil/gas prices. By way of example, we've seen oil as high as $140 per bbl (July 2008) and as low as negative $37 per bbl (May 2020). While bull markets are a welcomed development for those that guide investors seeking to put money into the E&P sector, history teaches us that we need to be disciplined in terms of our return expectations. The cycles of the past several years can be summarized as follows:

- A floundering real estate market in 2007-2008 due to the sub-prime loan market collapse motivated many in the financial services sector to move money from real estate to crude, which drove oil prices to $140 bbl in July 2008. However, the Great Recession that hit in late 2008 dropped oil back to $30 bbl before a recovery to $60-80 bbl set in in late 2009/2010.

- The shale boom that took U.S. oil production from under four million bbls oil per day in late 2008 to more than nine million bbls per day in 2014 over-supplied the global market. Saudi Arabia's failed attempt to regain market share in 2014 caused the oil price to decline from over $100 per bbl to under $30 per bbl. The double bottom in early 2016 appeared to be the end of this cycle, and oil moved back over $70 per bbl in the summer of 2018.

- The U.S. vs. China trade war took oil back under $50 per bbl. The signing of phase one of the trade agreement had oil back on track to the $70s. In the first week of 2020, oil was trading over $62 per bbl, and everyone thought the price was heading higher.

- Then came COVID and the oil crash in April 2020. From April through the first week of May, we saw prices settle below $20 bbl and even dip below $0 for a day.

- Finally, COVID began to loosen its grip on world economies in 2021, which caused the world's appetite for crude to resume with a flurry. This caused worldwide oil consumption to spike from 91 million bbls day in 2020 to 97 million bbls day in 2021. This has resulted in oil prices moving back to an $80-90 bbl level in January 2022.

Despite the past rhetoric in the press, the White House and on Wall Street about renewable energy displacing crude as the world's chief source of energy, the world's appetite for crude remains steadfast. **That said, we MUST not forget the inherent volatility risks associated with oil/gas commodities, and how that has played to the chagrin of many public and private E&P companies over the past several years that over borrowed and eventually collapsed**.

Conclusion

Despite the recent and most welcomed optimism about the prospects of oil/gas, we must remain steadfast in our underwriting of oil/gas companies, because no one is immune to the next cycle. For this reason, we must pay attention to break even prices and the break points in which an E&P sponsor's pro forma becomes unprofitable. At a sponsor due diligence level, we must pay attention to a sponsor's patterns of success **in good times and bad**, as well as their short-term liquidity, leverage use, and overall dependance upon the retail channel's funding for survival. As cap. ex. and lease operating costs are already beginning to increase as a result of improved pricing fundamentals, we need to stay the course in the quest for sponsors and products that have prospects for success under less fortunate circumstances than what we are seeing today.

On the renewable energy front, we've had the opportunity in the past couple of years to review programs that were structured to provide income tax benefits from investment tax credits and accelerated equipment cost recovery deductions (e.g., bonus depreciation per IRC 179). Due to the passive nature of the equipment deductions, however; these programs have often been structured for ultra-high net worth clients with significant passive income. Notwithstanding the largely questionable alternative energy offerings we have reviewed in the past, we welcome the opportunity to review and underwrite alternative energy sponsors (such as e2C) to the retail channel that present program structures that appeal to a broader percentage of the retail investment sector.

As we have written in our past year-end reports, stay committed to cautious due diligence. As history has taught us, the next cycle will come – we just don't know when.

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