

PENN VIRGINIA CORPORATION



MANGROVE
P A R T N E R S

INVESTOR PRESENTATION

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- Executive Summary
- About Penn Virginia
- About Denbury Resources
- Why Was This Merger Pursued?
- Transaction Evaluation
- Conclusion

Executive Summary

Mangrove is soliciting proxies against the proposed merger with Denbury

- **Mangrove is a significant and long-standing shareholder of Penn Virginia.** Mangrove owns approximately 11.4% of Penn Virginia's common stock and has been one of Penn Virginia's largest shareholders since it completed its financial restructuring in late 2016. Another long-standing holder of over 5% of Penn Virginia's common stock has also independently publicly announced its opposition to the transaction. Approval requires over 2/3^{rds} of shares outstanding to be voted in favor of the transaction. The \$45 million break fee is not payable by Penn Virginia should shareholders vote down the transaction, but there is a break fee if the Board changes its recommendation.
- **Mangrove believes that Penn Virginia is a highly compelling investment as a standalone company.** Since its financial restructuring, Penn Virginia has demonstrated the value of its drilling inventory, made two value-enhancing acquisitions, and outperformed its E&P peers by 60%⁽¹⁾. Penn Virginia enjoys better growth, better margins, and a better balance sheet than its peer group yet it trades at a discount on multiple metrics.
- **The proposed merger is terrible for Penn Virginia Shareholders.** The market value of the proposal has represented a significant discount to Penn Virginia's share price and an even greater discount to its fundamental value⁽²⁾. The transaction provides no meaningful financial or operational synergies and meets none of the strategic criteria that we believe investors value. Furthermore, the proposed combination would result in a company with lower growth, a more expensive valuation, worse margins, and unacceptable balance sheet risk.
- **The market's reaction to the proposed transaction has been a disaster.** It has been cited by UBS as having the worst initial reaction of any E&P transaction in its 20+ years of tracking such data. Denbury's continued underperformance since the announcement makes it clear that this transaction fails to meet the objectives of investors in either company.

Source: Bloomberg and Company Filings.

(1) Performance from November 15, 2016 to March 20, 2019 relative to the S&P Oil & Gas Exploration and Production Select Industry Index

(2) Based on closing prices for the month beginning February 21, 2019 and ending March 20, 2019, the discount has ranged from 6.1% to 16.3% and averaged 10.1%.

About Penn Virginia

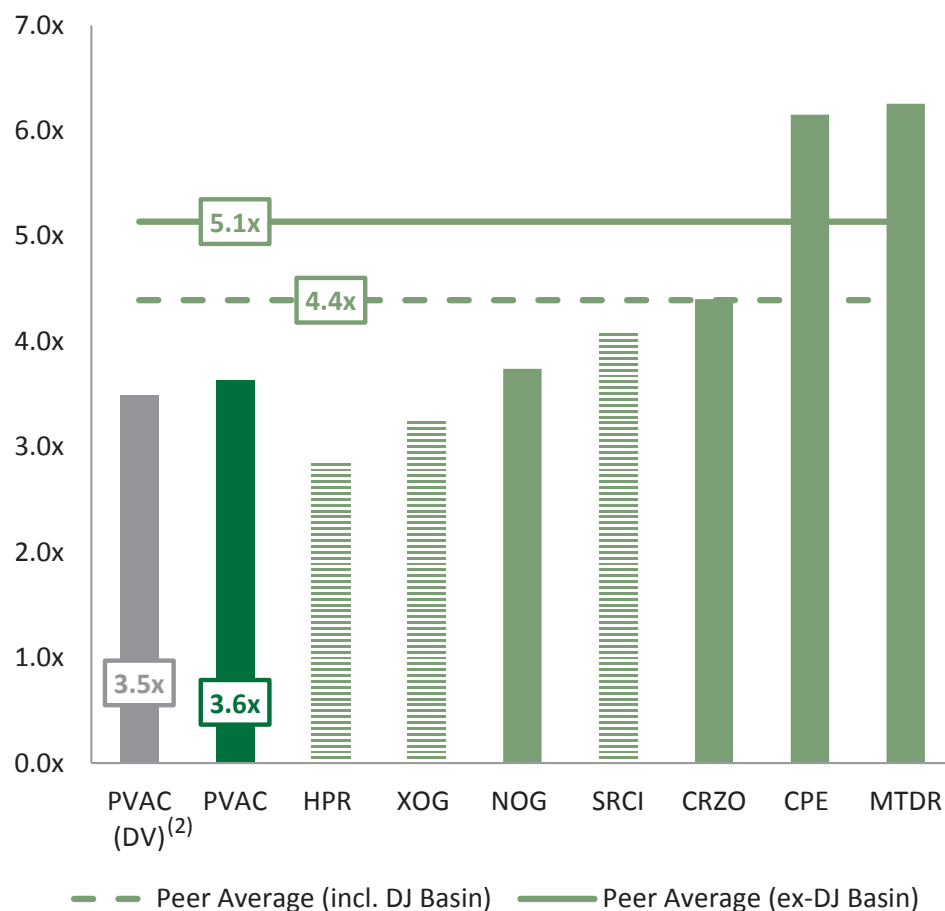
Penn Virginia is a highly compelling investment opportunity

- Undervalued
- Attractive growth profile
- Strong and improving inventory position and balance sheet
- Advantaged pricing and low cost structure
- Peer-leading margins and returns
- Demonstrated ability to grow through value-enhancing A&D
- Enhanced Oil Recovery (“EOR”) provides additional upside

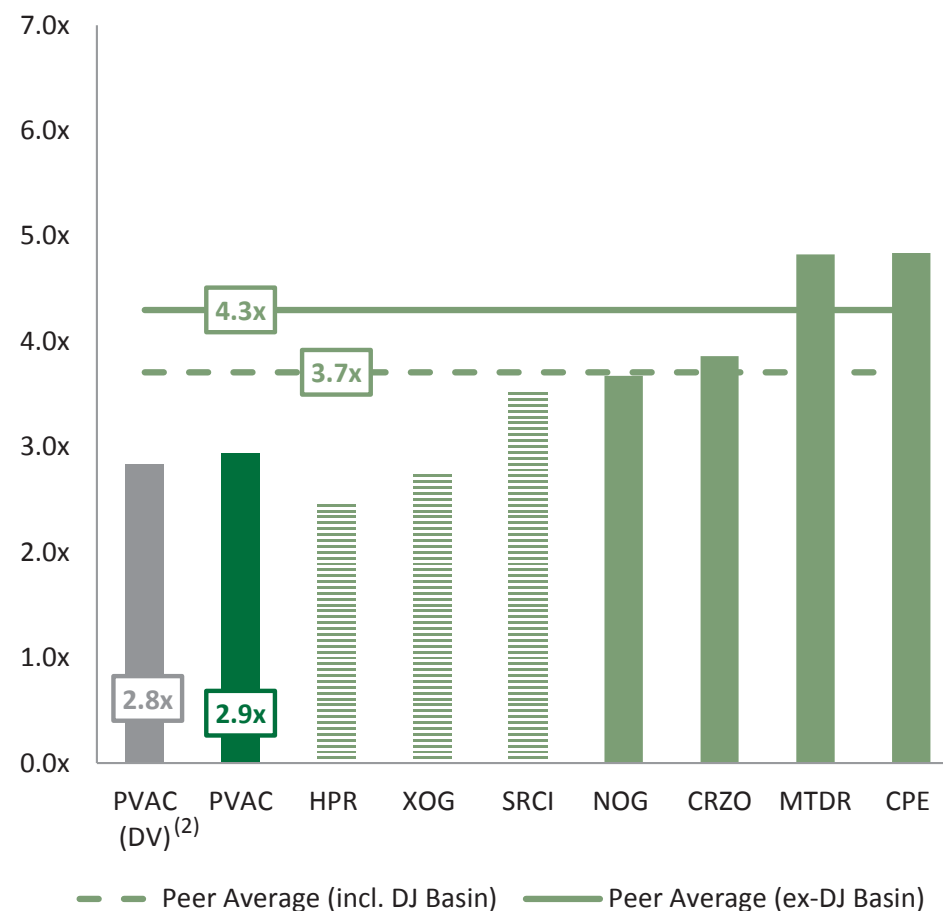
Penn Virginia – Undervalued vs. Peer Group⁽¹⁾



EV/2019E EBITDA



EV/2020E EBITDA



Source: Bloomberg Consensus.

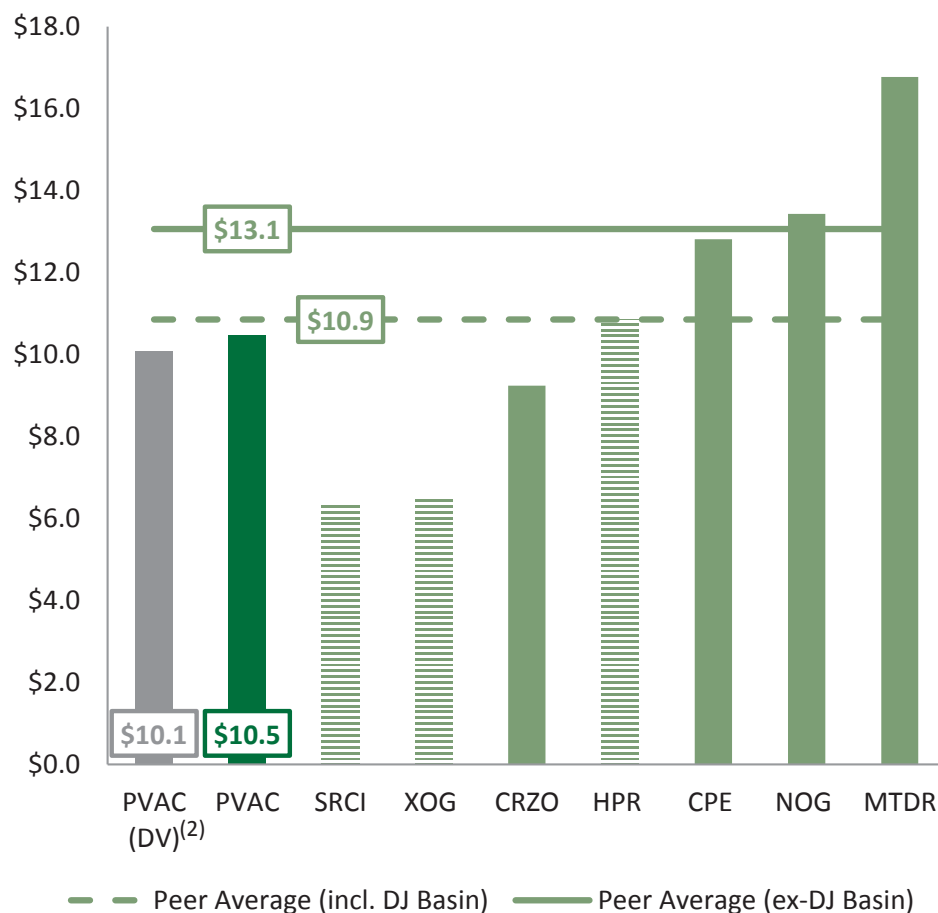
(1) Based on Penn Virginia's Peer Group as disclosed in the 2018 Annual Meeting Definitive Proxy. Please see end notes for more details on peer group methodology.

(2) DV signifies the implied value of Penn Virginia's shares based on the proposed consideration of 12.4 shares of Denbury and \$25.86 in cash.

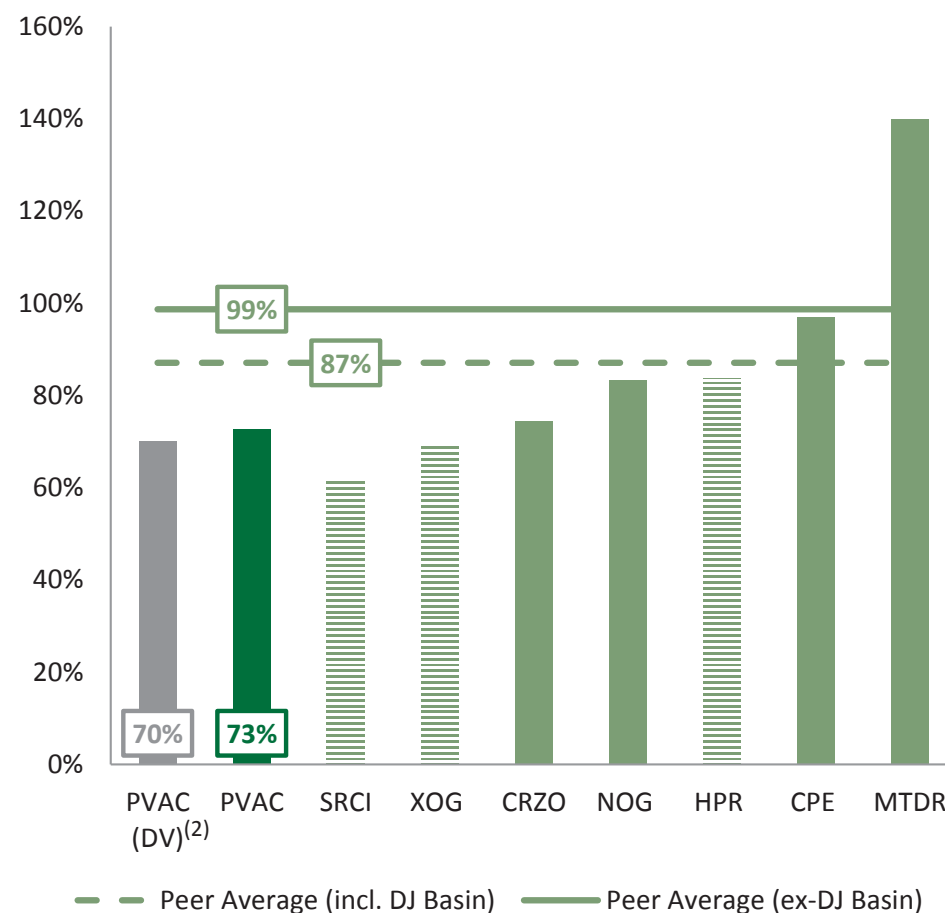
Penn Virginia – Undervalued vs. Peer Group⁽¹⁾



EV/2018 YE Reserves



EV/2018 PV-10



Source: Bloomberg and Company Filings.

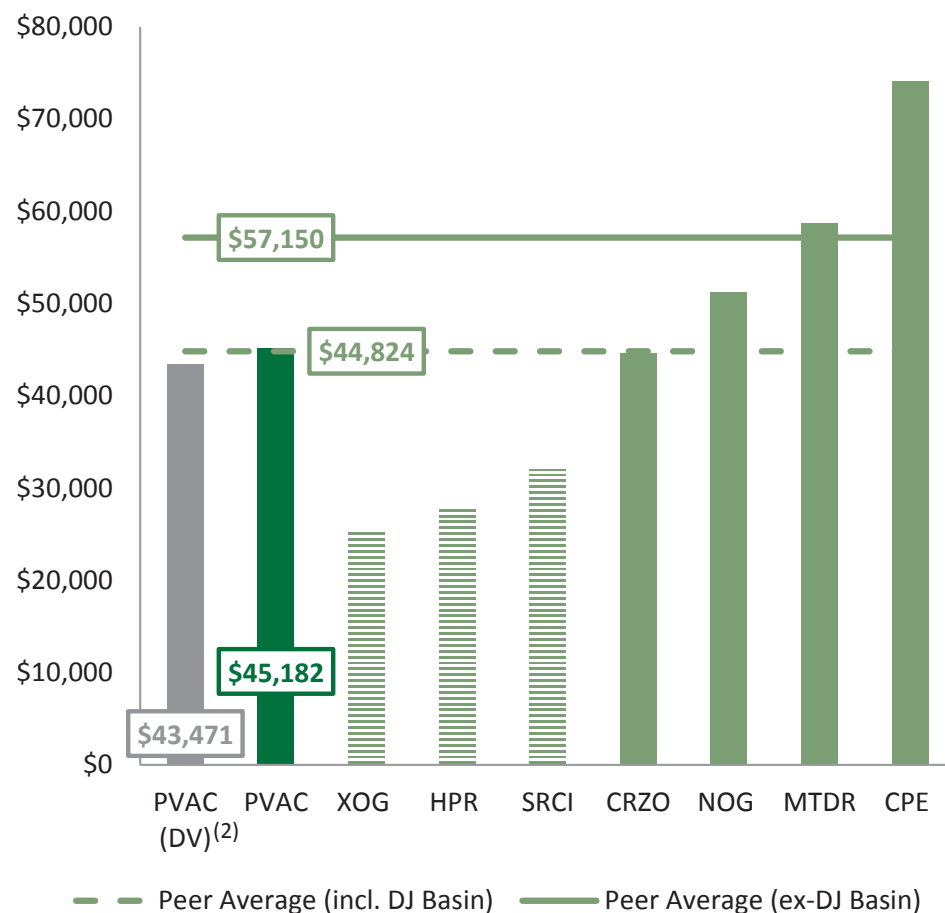
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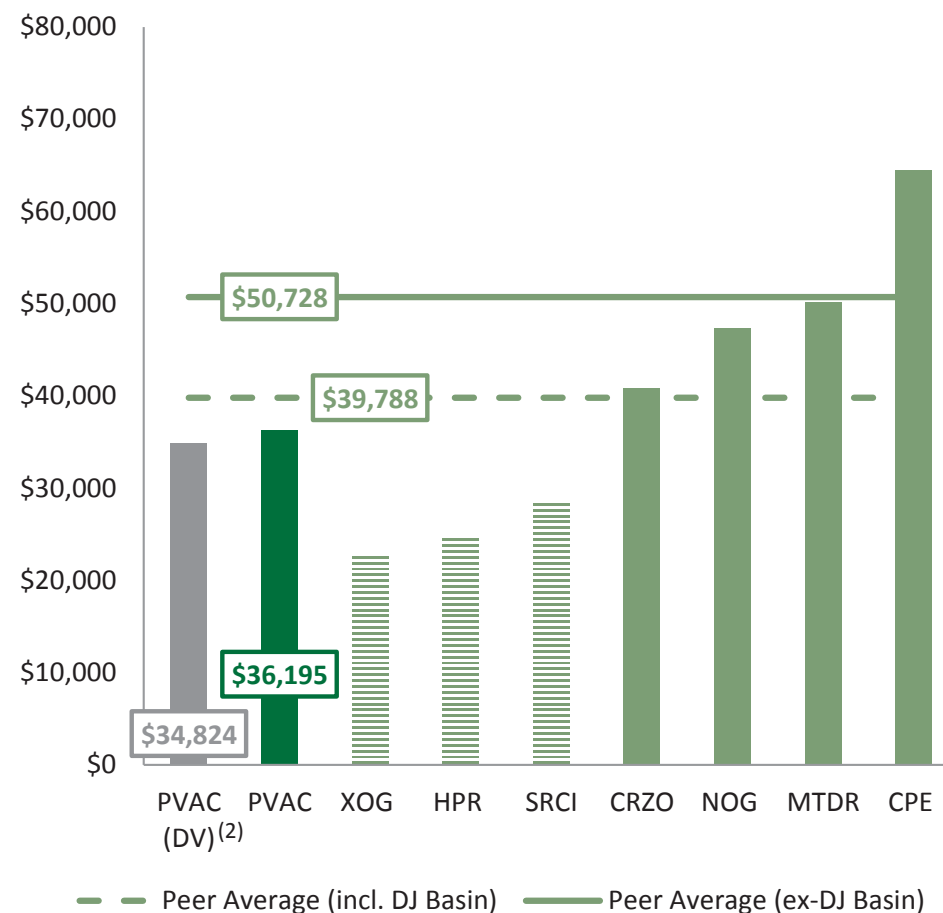
Penn Virginia – Undervalued vs. Peer Group⁽¹⁾



EV/2019E Production



EV/2020E Production



Source: Bloomberg Consensus.

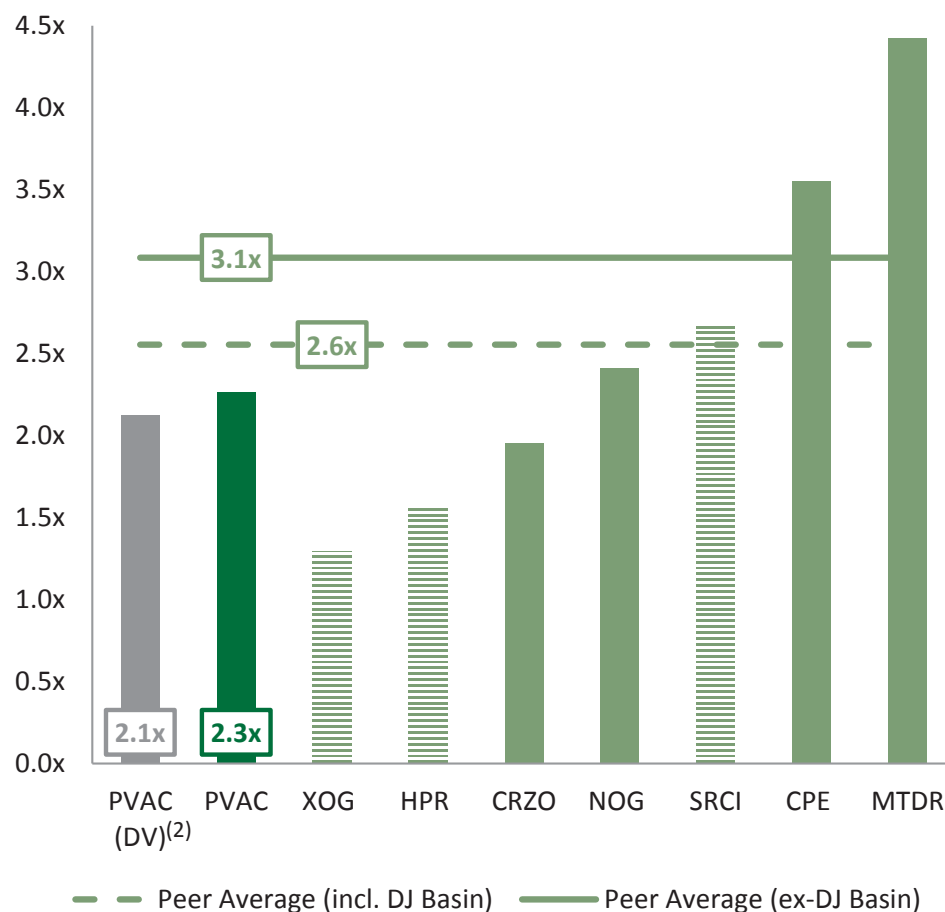
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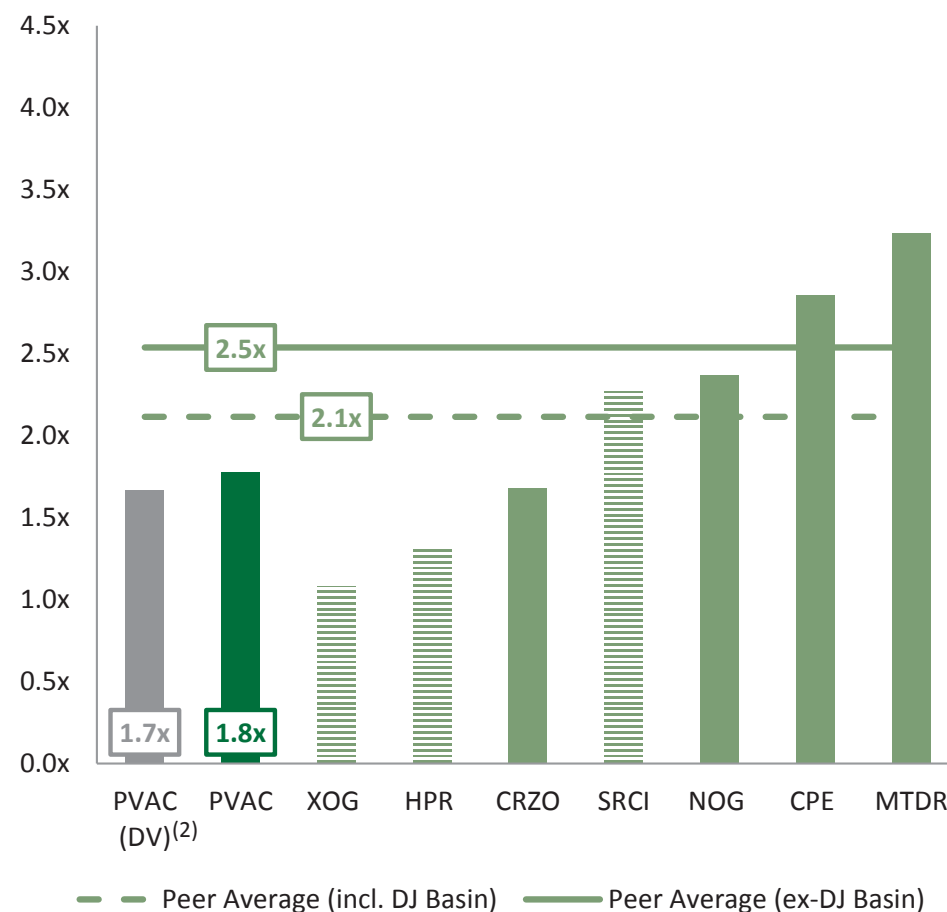
Penn Virginia – Undervalued vs. Peer Group⁽¹⁾



Price/2019E CFPS



Price/2020E CFPS



Source: Bloomberg Consensus.

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(2) DV signifies the implied value of Penn Virginia's shares based on the proposed consideration of 12.4 shares of Denbury and \$25.86 in cash.

“Primary development of Penn Virginia’s unconventional position adds significant and flexible short-cycle growth capacity and generates even more free cash flow than Denbury does all on its own.”

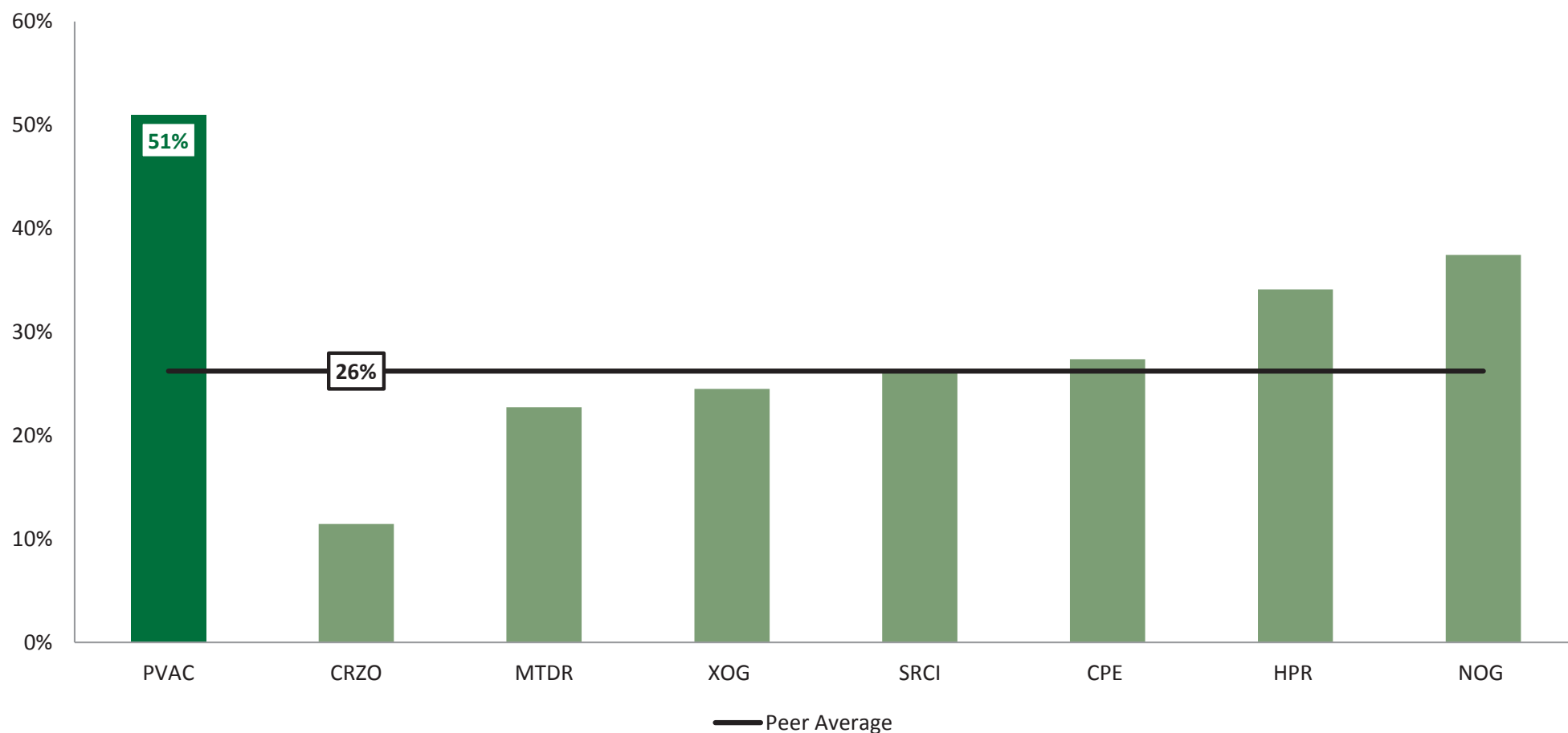
– Chris Kendall, Denbury CEO (11/8/2018)

Source: Denbury Q3 2018 Earnings Call.

Penn Virginia – Peer-Leading Growth Profile⁽¹⁾



2017 - 2020E Production CAGR



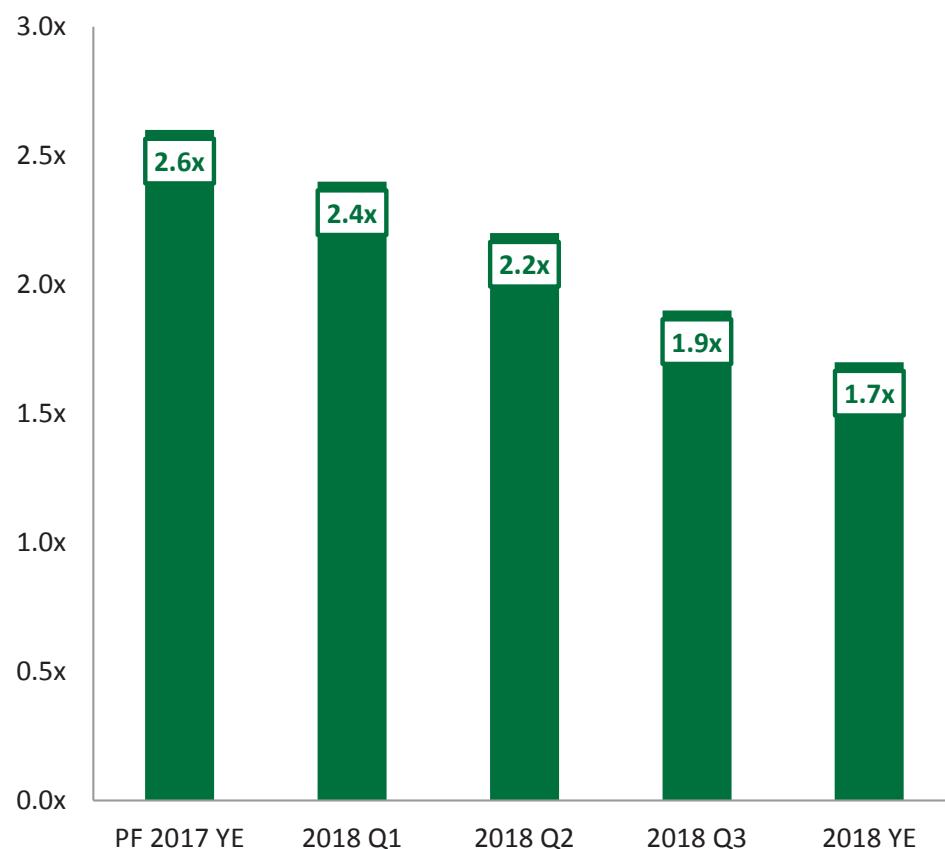
Source: Bloomberg Consensus.

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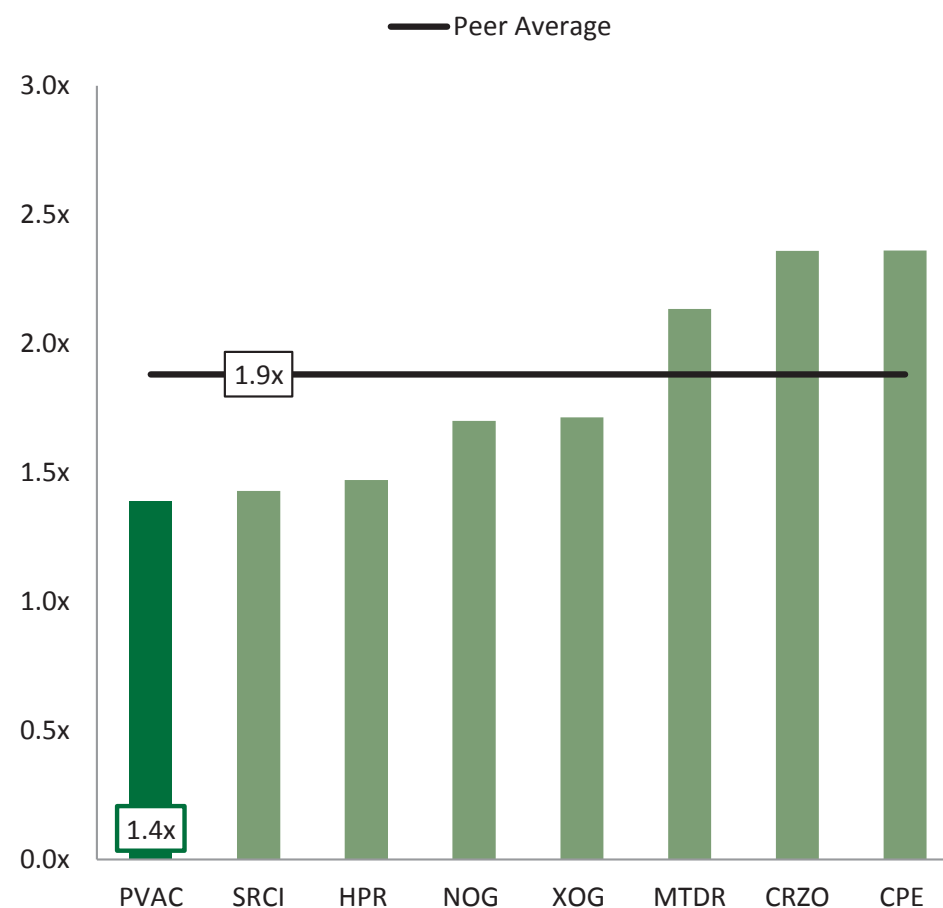
Penn Virginia – Strong and Improving Balance Sheet



LTM Net Debt to Adjusted EBITDAX



Net Debt/2019E EBITDA⁽¹⁾



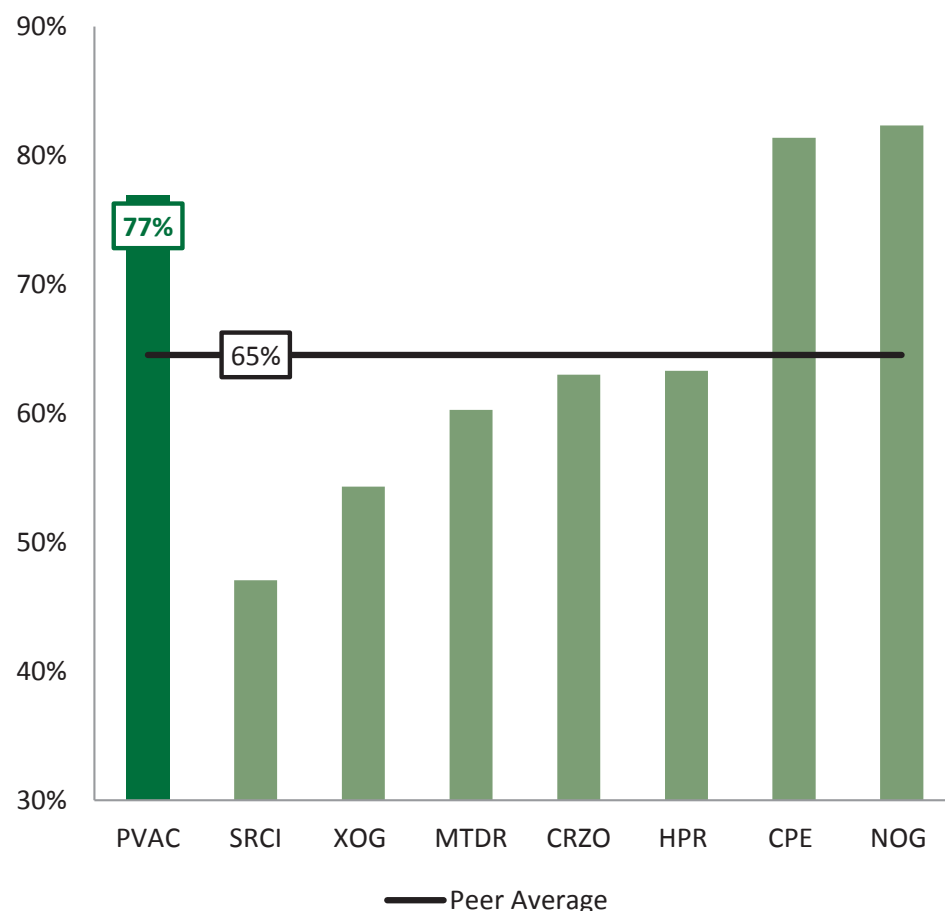
Source: Bloomberg Consensus and Company Filings.

(1) Based on Penn Virginia's Peer Group as disclosed in the 2018 Annual Meeting Definitive Proxy. Please see end notes for more details on peer group methodology.

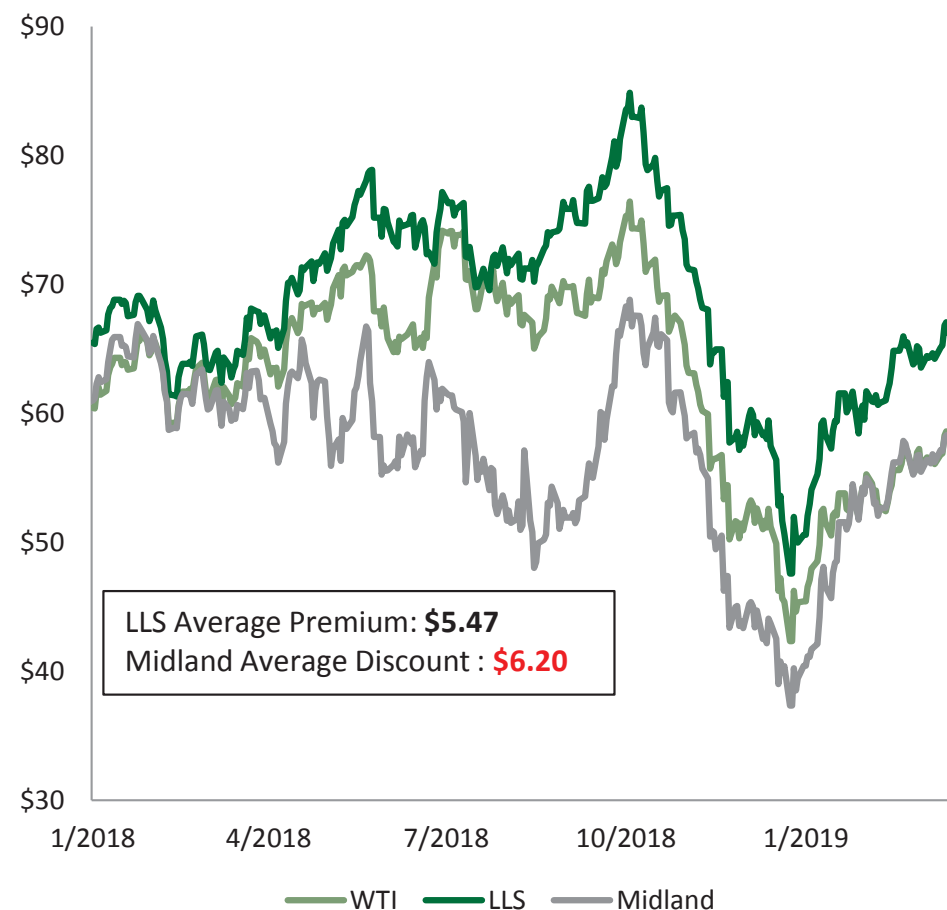
Penn Virginia – High Oil Cut and Advantaged Pricing



Oil Cut⁽¹⁾



Benchmark Pricing



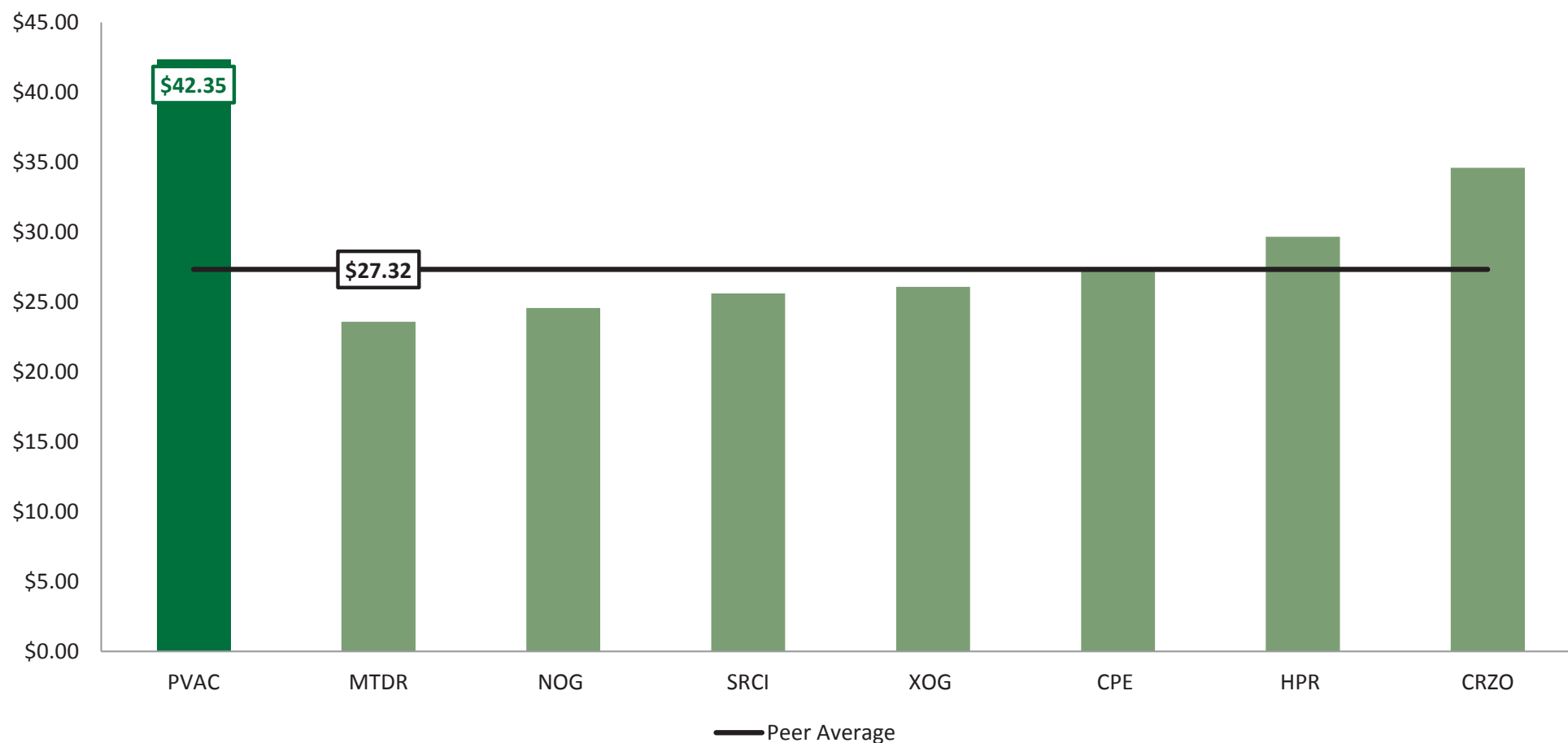
Source: Bloomberg and Company Filings.

(1) Based on Penn Virginia's Peer Group as disclosed in the 2018 Annual Meeting Definitive Proxy. Please see end notes for more details on peer group methodology.

Penn Virginia – Peer-Leading Margins⁽¹⁾



2018 Q4 Operating Cash Flow per BOE (unhedged)



Source: Company Filings.

(1) Based on Penn Virginia's Peer Group as disclosed in the 2018 Annual Meeting Definitive Proxy. Please see end notes for more details on methodology.

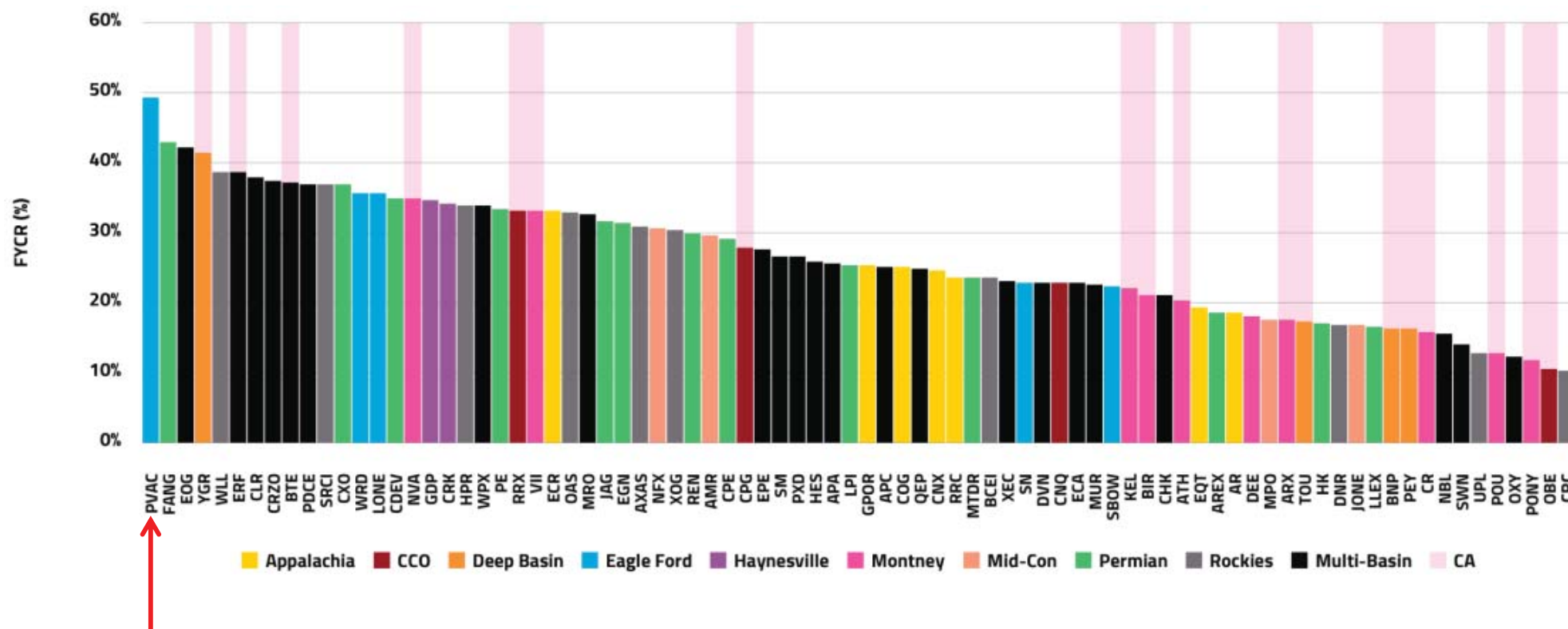
*“So as good as Denbury’s operating margins are,
Penn Virginia’s are that much stronger.”*

– Chris Kendall, Denbury CEO (11/15/2018)

Source: Denbury at Bank of America Merrill Lynch 2018 Global Energy Conference.

Penn Virginia – Industry-Leading Returns

RS Energy's Ranking of First Year Capital Return⁽¹⁾

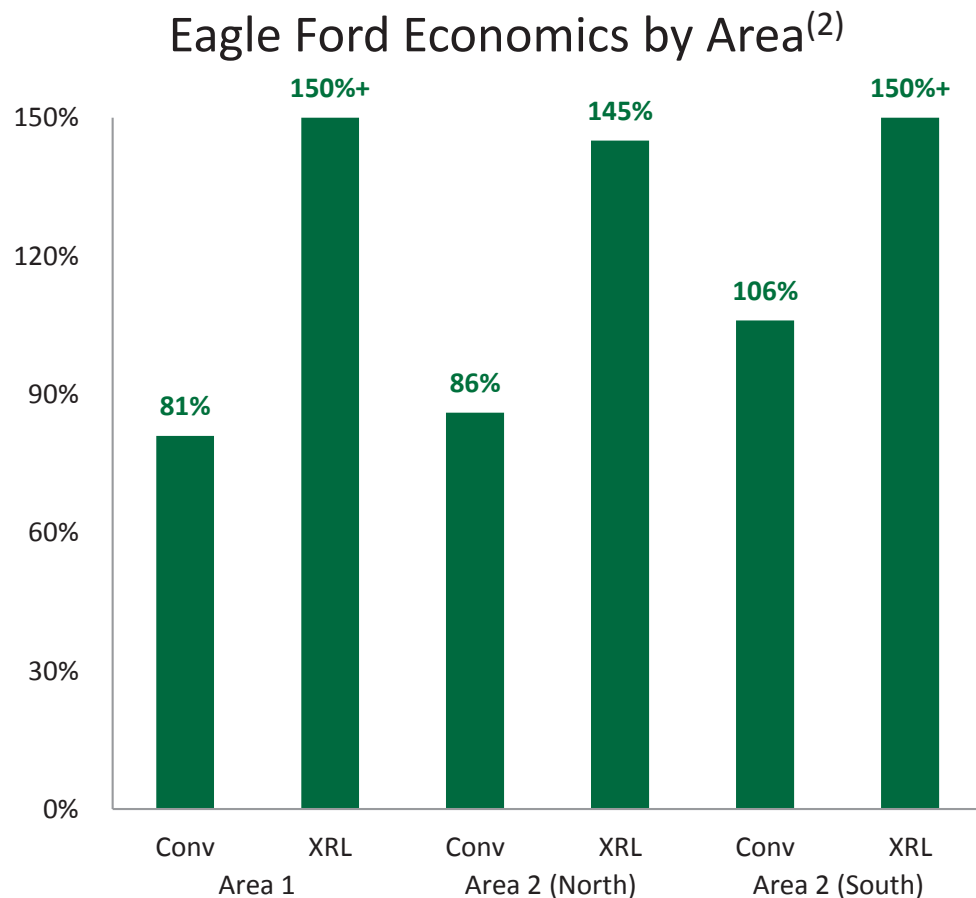


Source: RS Energy Group (10/17/2018).

(1) First Year Capital Returned ("FYCR") is defined by RS Energy Group as the Field Level Cash Flows divided by Capital Expenditures and calculates how much Capital Expenditures a Company gets back in the same Fiscal Year.

PVAC has demonstrated the quality and increased the size of its inventory

- Increased inventory by
 - 33% with the Devon Acquisition⁽¹⁾
 - 21% with the Hunt Acquisition⁽¹⁾
- Current Inventory⁽³⁾
 - Gross Locations: 531
 - Rig years (gross): 29
 - Average Working Interest: 85%
 - Oil Cut: 71%



Source: Company Filings.

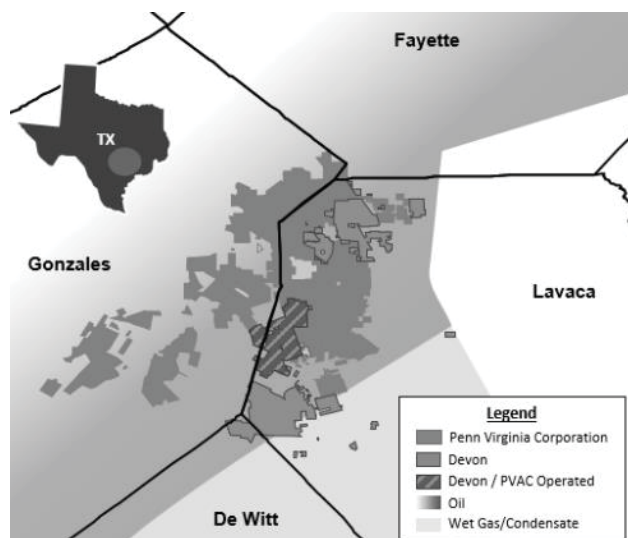
(1) Inventory defined as net treatable lateral length.

(2) Based on management's internal estimates as of June 30, 2018; economics based on \$60 WTI, \$3 natural gas and Gen 4 completion.

(3) As of 12/31/2018.

Penn Virginia has a proven track record of value-enhancing M&A

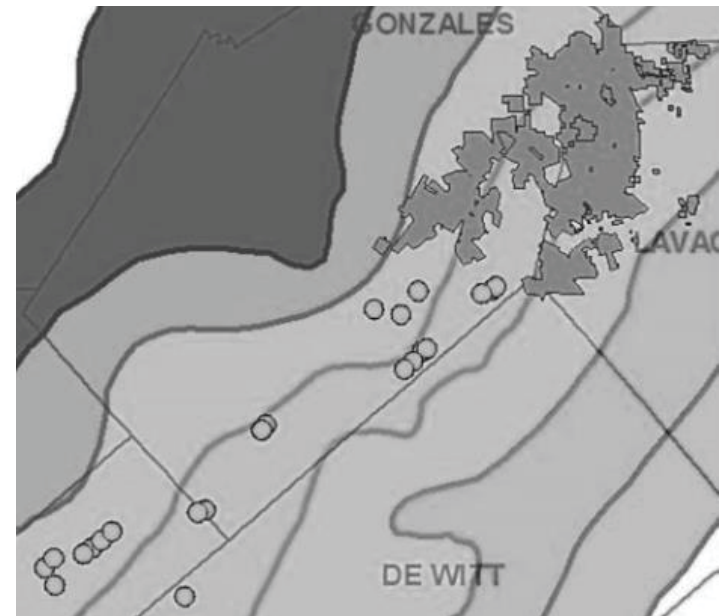
	Devon Acquisition	Hunt Acquisition
Accretive to:		
Earnings	✓	✓
Cash Flow	✓	✓
Net Asset Value/Share	✓	✓



Source: Company Filings.

Penn Virginia has significant potential for Enhanced Oil Recovery (“EOR”)

- Penn Virginia’s acreage is on trend and immediately offsets successful EOR pilots
- Denbury believes that there is 60-140 MMBO of EOR potential on Penn Virginia’s acreage and projects a 30%-70% increase in total recoverable resource
- Significantly de-risked by over 25 projects from at least 6 Eagle Ford operators
- All EOR Eagle Ford pilots are based on cyclic injection of rich hydrocarbon gas (not CO₂)
- While we appreciate Denbury’s enthusiasm for this opportunity, we do not believe that a merger is required for Penn Virginia to pursue it



Source: Company Filings.

“I would compare the returns in the Eagle Ford to anything,’ he said, given its \$4-5 million/well completion costs, oiliness, and Louisiana light sweet pricing. ‘There’s really nothing today on a zone-by-zone basis that can touch the Eagle Ford.’”

– Lee Tillman, Marathon Oil President and CEO (3/13/2019)

Source: Comments made on March 12, 2019 during a panel presentation at CERAWeek as reported on March 13, 2019 by the Journal of Petroleum Technology.

About Denbury Resources

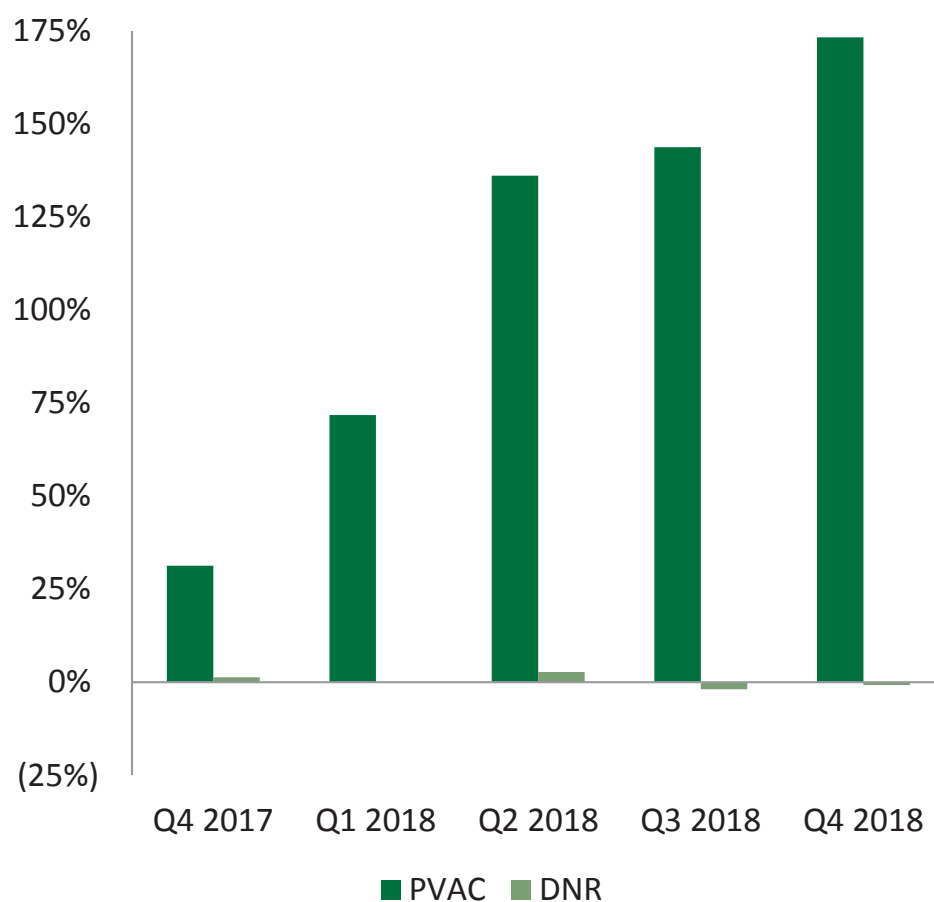
Denbury has little in common with Penn Virginia

- Pursues CO₂ Enhanced Oil Recovery to redevelop mature conventional oil fields after primary and secondary production has occurred
- Projects require significant capital investments which often occur years in advance of incremental production
- High and relatively inflexible operating costs result in significant operational leverage
- High debt load creates significant balance sheet risk and limits growth

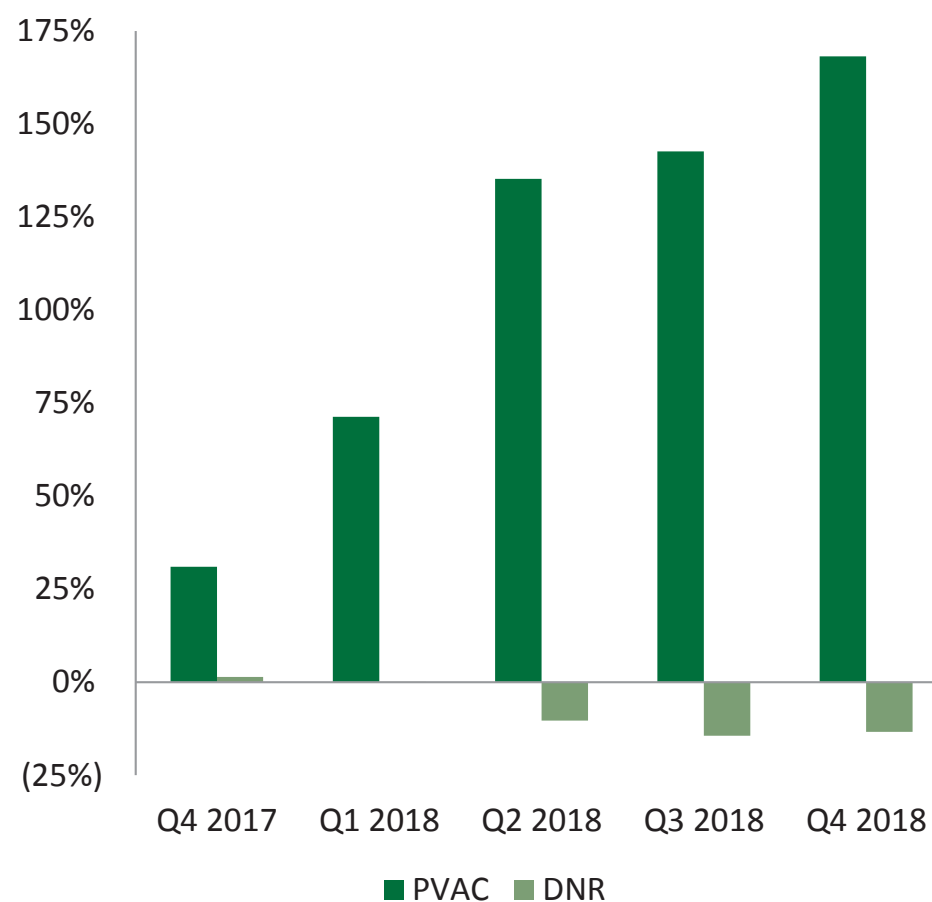
Source: Company Filings.

Denbury vs. Penn Virginia – Production Growth

Production Growth⁽¹⁾



Production per Share Growth⁽¹⁾

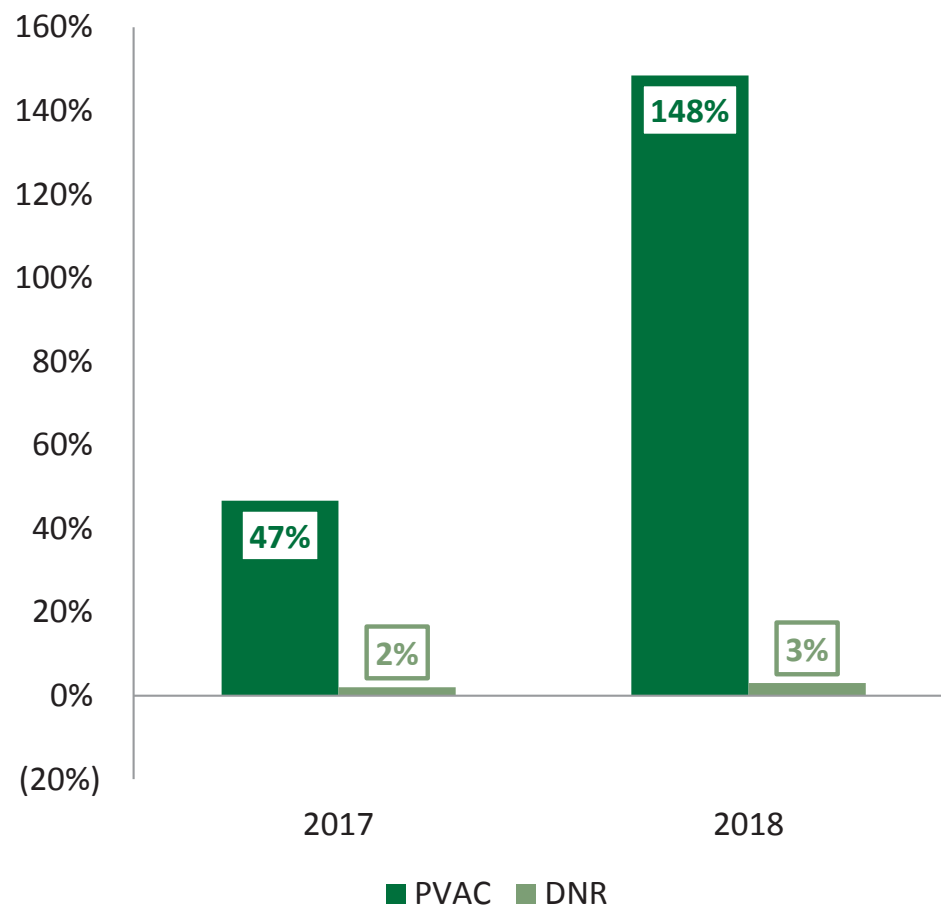


Source: Company Filings.

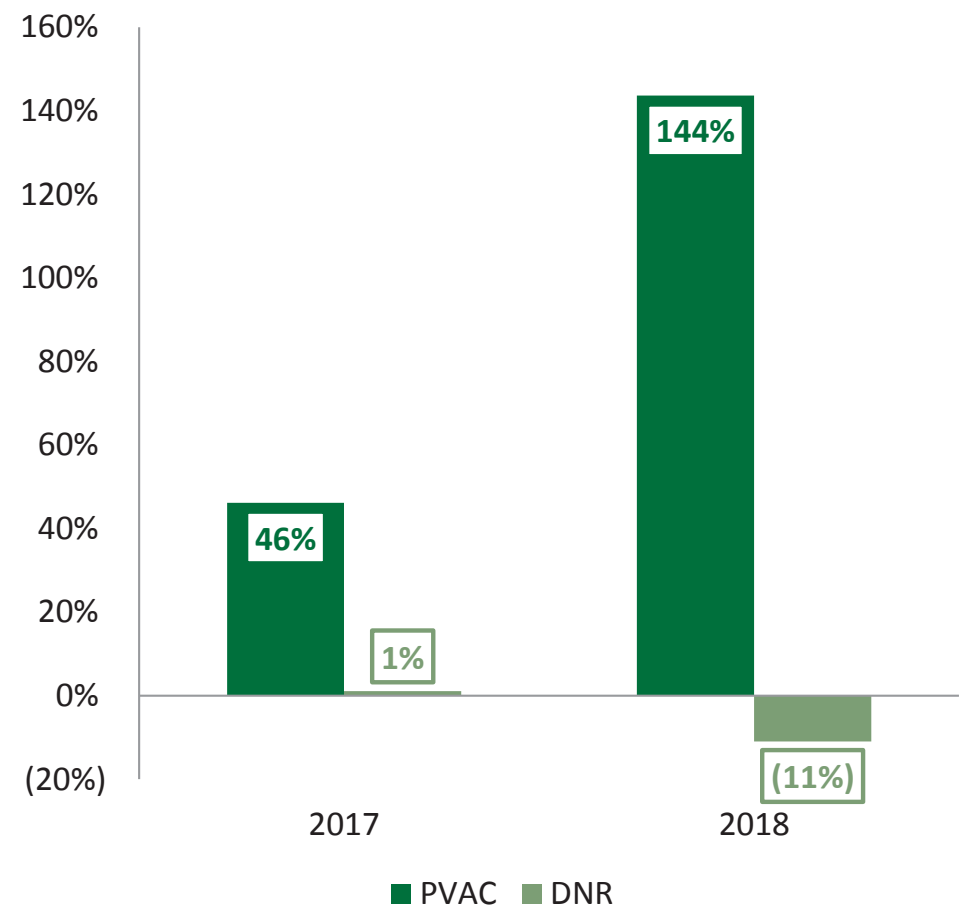
(1) Reflects percentage change relative to Q3 2017.

Denbury vs. Penn Virginia – Reserve Growth

Reserve Growth⁽¹⁾



Reserve per Share Growth⁽¹⁾

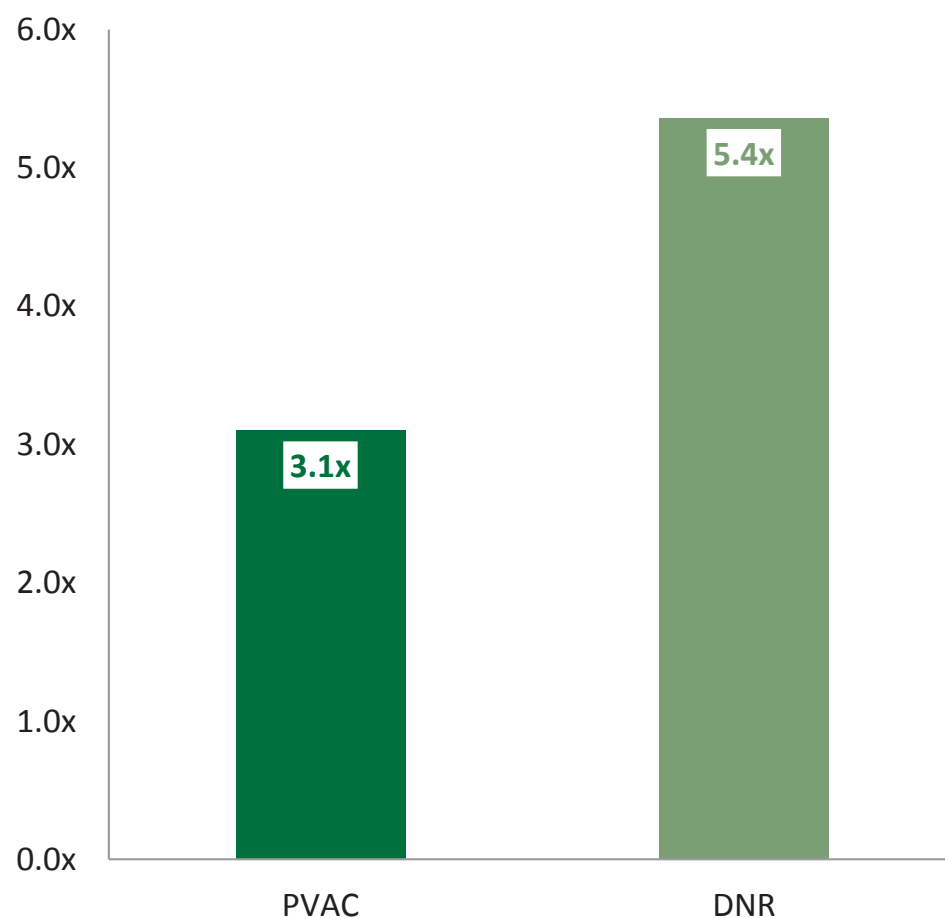


Source: Company Filings.

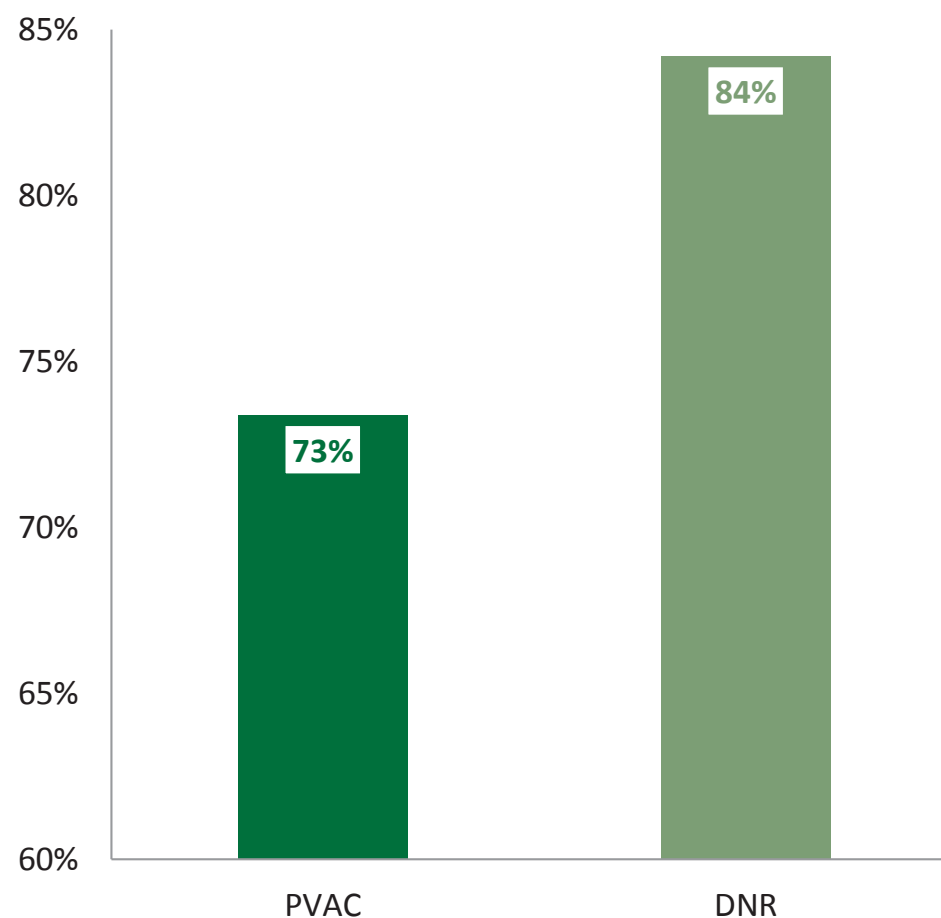
(1) Reflects percentage change relative to 2016.

Denbury vs. Penn Virginia – Valuation

2019E Enterprise Value/EBITDA⁽¹⁾



EV/2018 PV10⁽²⁾



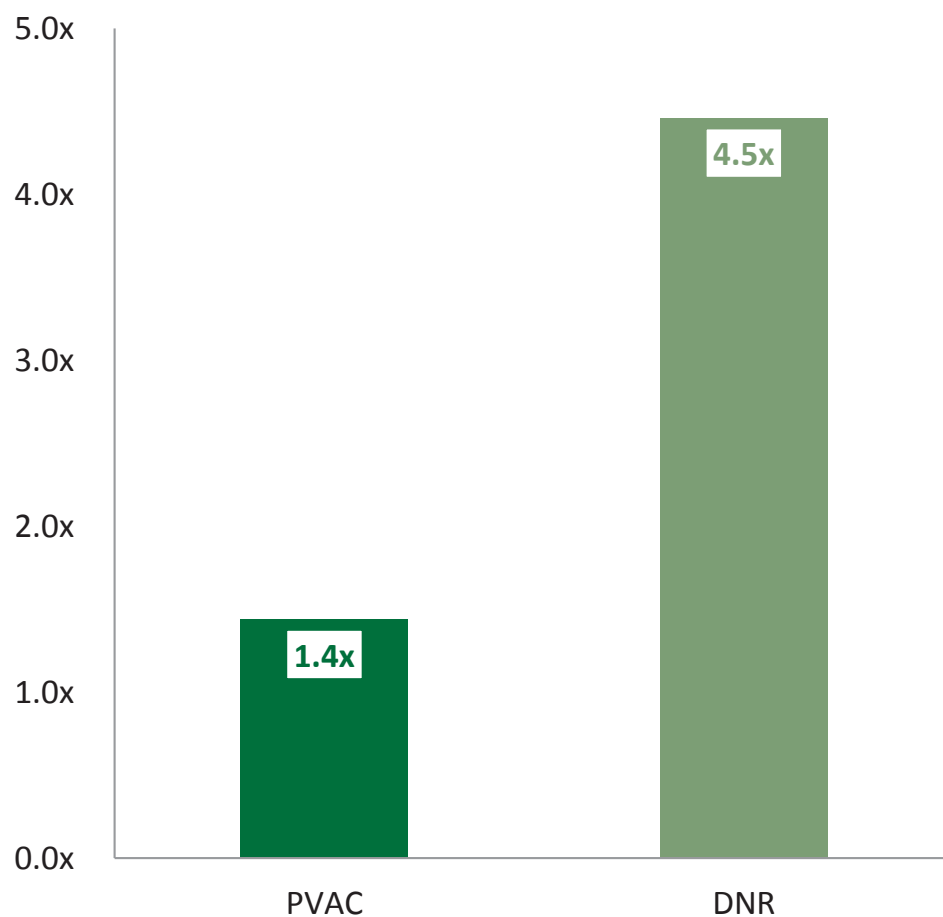
Source: Company Filings

(1) Mangrove Estimates based on the midpoint of guidance and using strip pricing as of March 20, 2019.

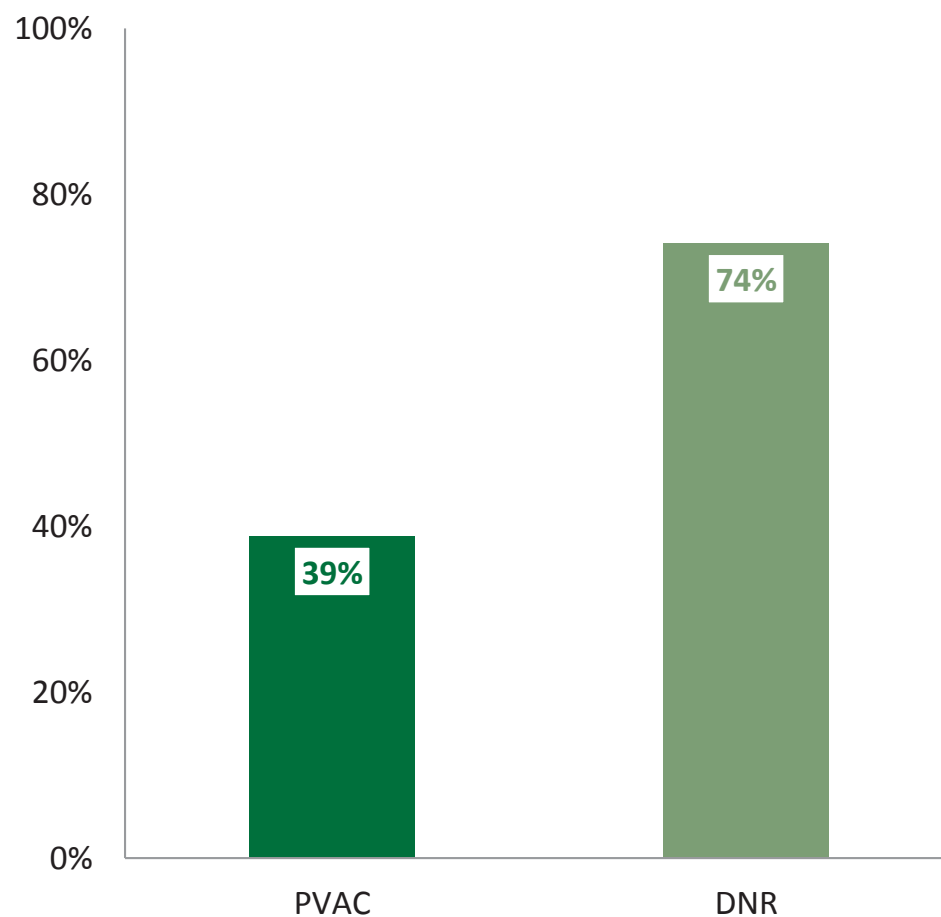
(2) PV-10 based on SEC pricing as disclosed in Company Filings.

Denbury vs. Penn Virginia – Balance Sheet Strength

Net Debt/LQA Adj. EBITDA



Net Debt as a % of Enterprise Value



Source: Company Filings and Bloomberg.

Denbury Resources – Financial Stress Becomes Financial Distress

Denbury 2019E Oil Price Sensitivity⁽¹⁾

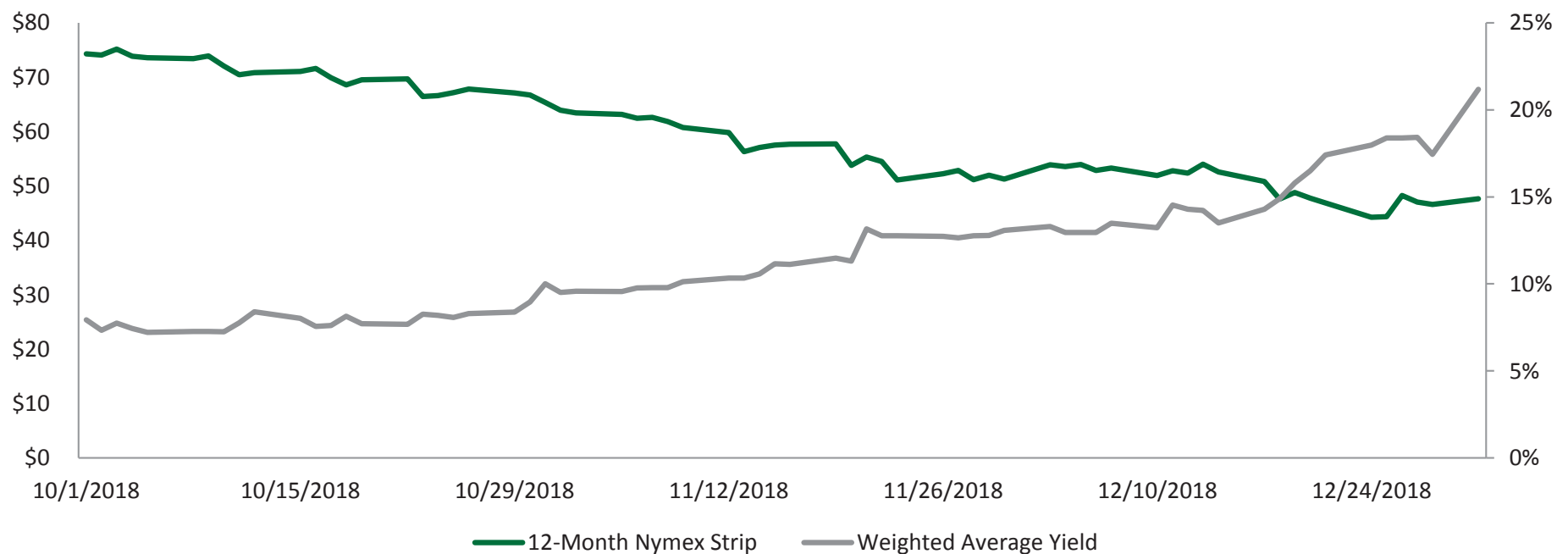


Source: Company Filings.

(1) Mangrove estimates utilizing the midpoint of Denbury 2019 guidance.

Denbury's bond prices have clearly demonstrated the market's concern

Denbury Senior Unsecured Notes



Bonds continue to convey distress with a weighted average yield of over 17% despite WTI oil prices of approximately \$60

Source: Bloomberg.

“We identify the following company-specific risks for DNR, including:

(1) Insufficient cash flow generation or earnings growth to reduce leverage and improve credit metrics.

(2) Forced to sell additional assets and more valuable assets in order to reduce leverage.

(3) Additional debt-equity swaps that further dilute shareholders.”

– UBS (12/9/2018)

“DNR is also highly levered with the company looking for opportunistic ways to reduce leverage to normal levels.”

– RBC (10/30/2018)

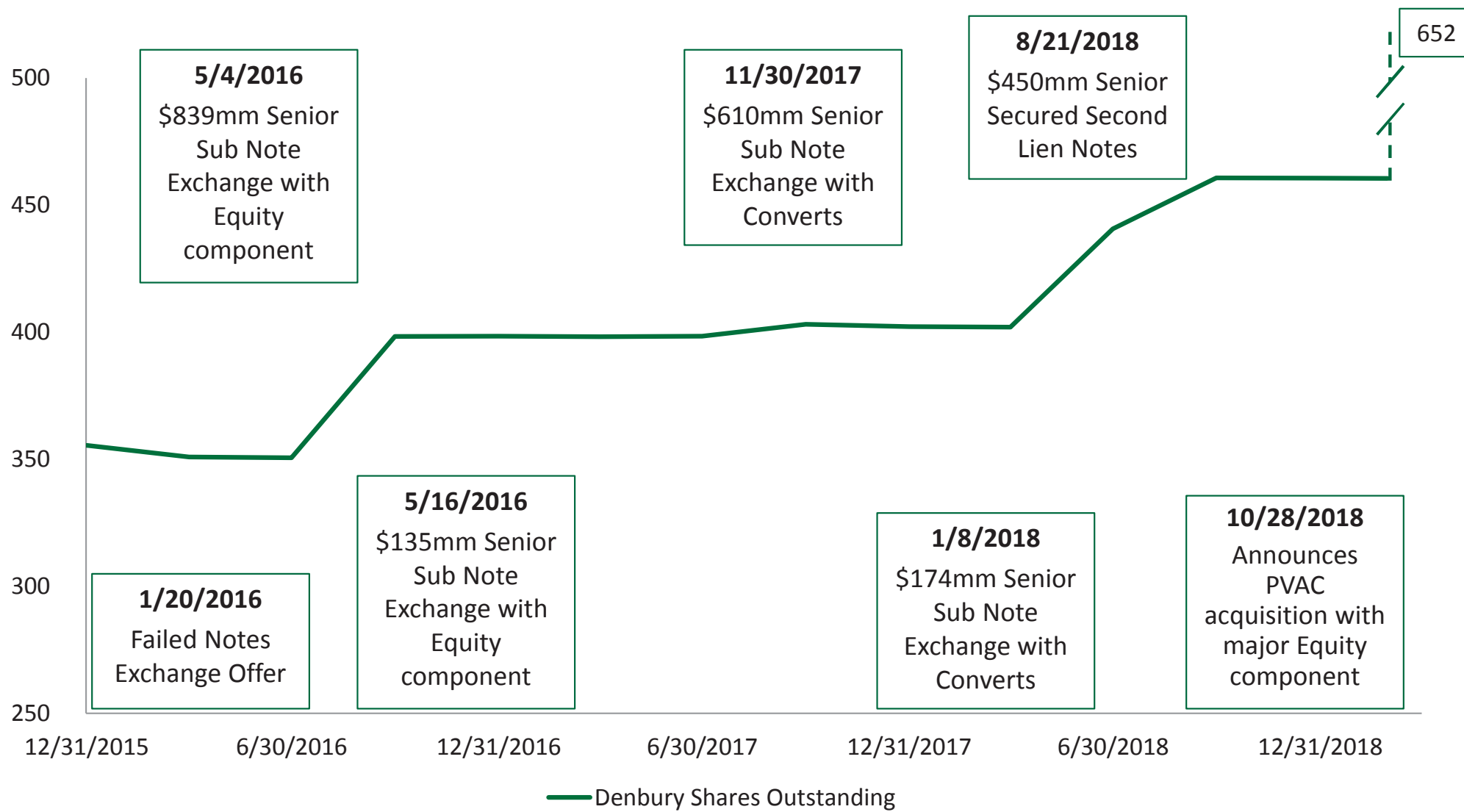
Source: Wall Street Research.

Why Was This Transaction Pursued?

We believe that Denbury is seeking to address its two key structural flaws:

- Excessive indebtedness
- Limited ability to grow

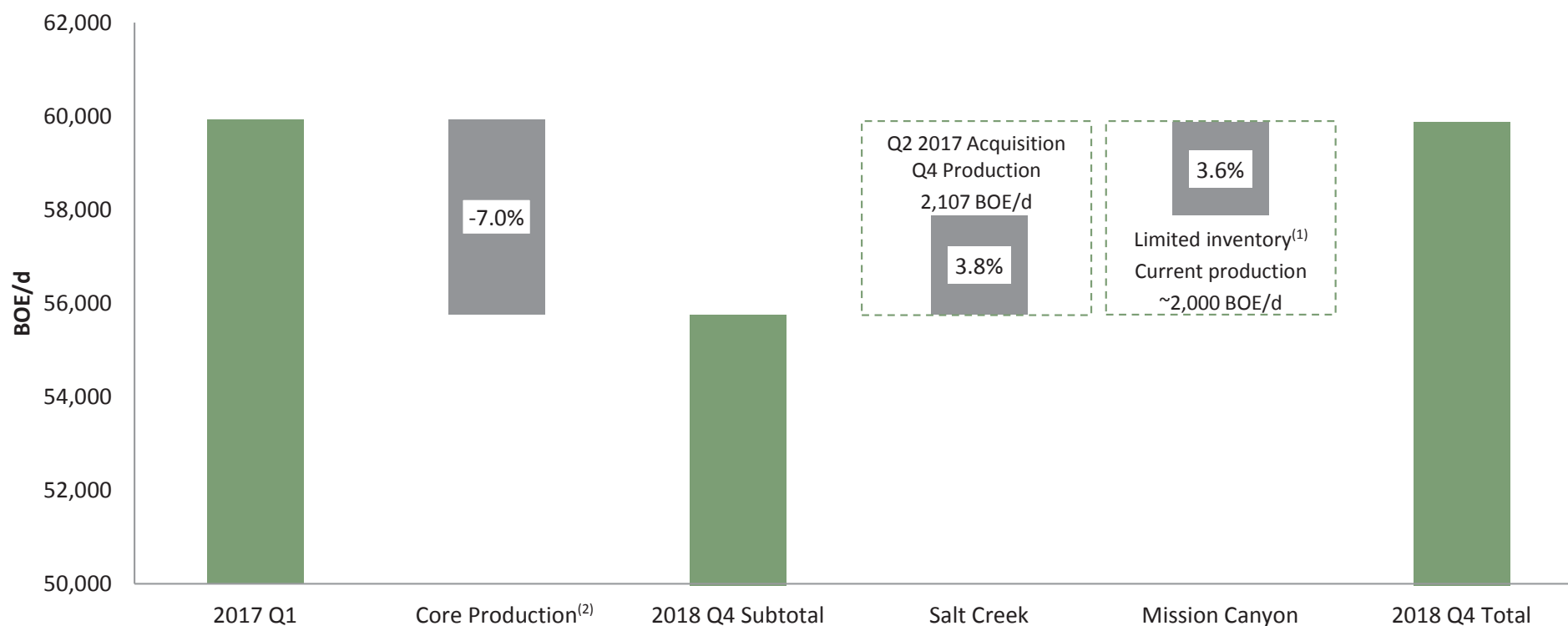
Denbury's Ongoing Balance Sheet Repair



Source: Company Filings and Bloomberg.

One-off developments have masked Denbury's declining core business

Denbury Production Bridge (Q1 2017 - Q4 2018)



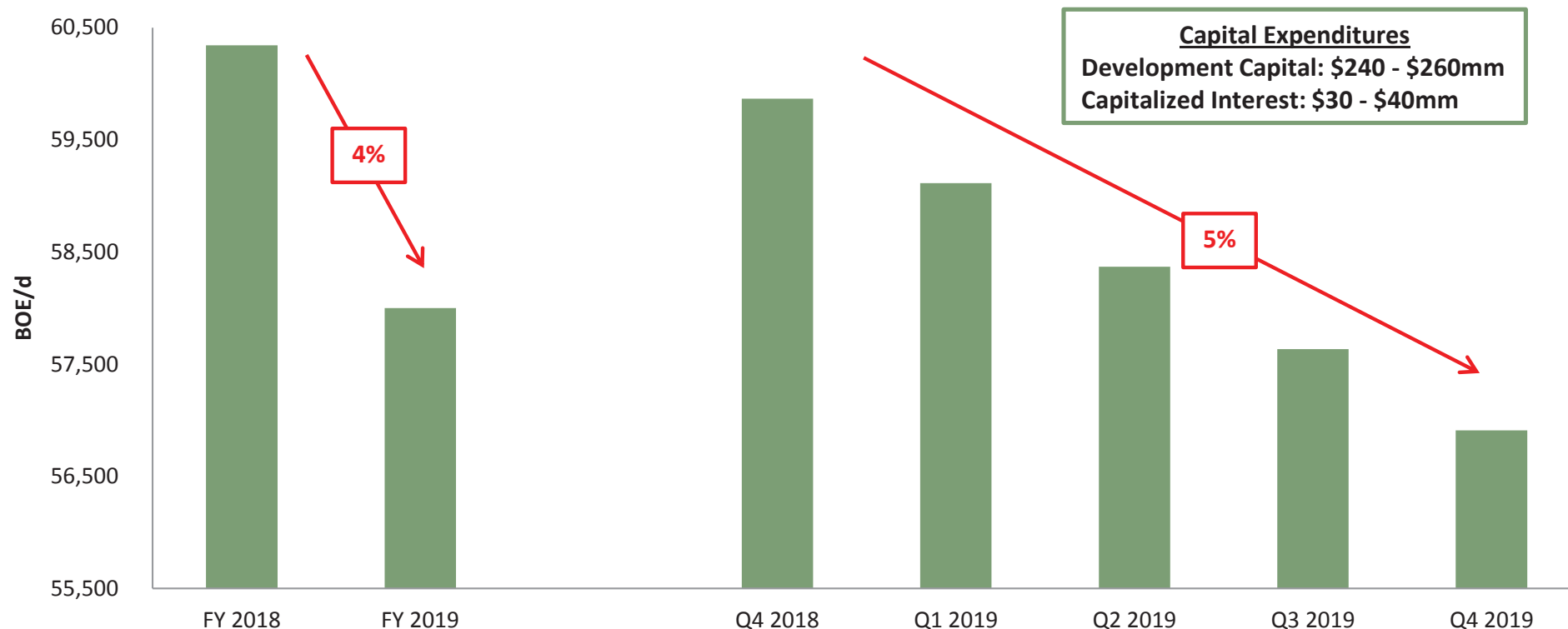
Source: Company Filings.

(1) Denbury disclosed 2,000 BOE/d of production and identified up to 14 additional locations in Mission Canyon.

(2) The 7% decline in core production occurred despite capital expenditures of over \$500M during this period.

Continued production declines expected for 2019⁽¹⁾

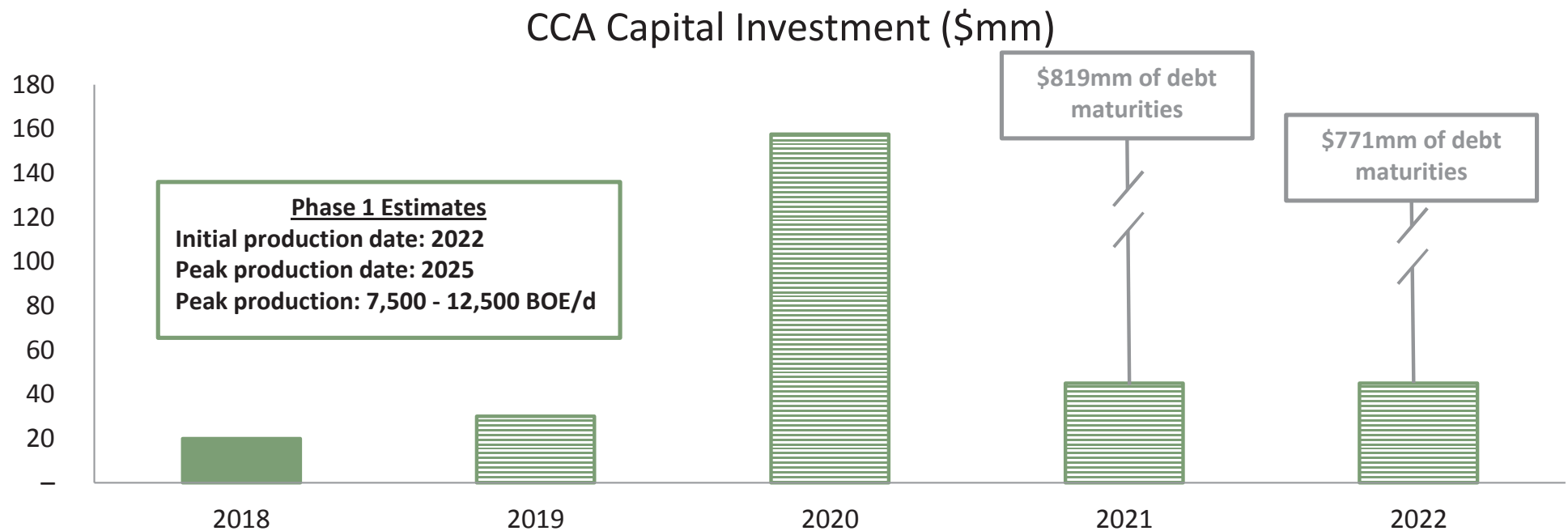
Denbury's Expected Production Profile



Source: Company Filings.

(1) Based on the midpoint of Denbury guidance and assumes a linear progression throughout the year.

Denbury's core growth opportunity requires significant capital and is years away from providing incremental production



Volatile oil prices, elevated leverage, and impending debt maturities make it difficult to fund EOR development at CCA

Source: Company Filings.

Why Did Denbury Pursue This Transaction?



While we recognize that Denbury needs to fix its balance sheet and growth problems, helping it do so is not a relevant goal for Penn Virginia Shareholders

We believe that Penn Virginia was seeking to provide an exit for shareholders who participated in the Company's financial restructuring

- Two of these shareholders have board representation and a low cost basis
- We suspect that they and their fellow board members mistakenly believed that this transaction would provide ~\$80/share of value and did not appreciate how overvalued Denbury's shares were at the time
- We believe the board was focused on price and failed to consider the complete lack of strategic attractiveness of the resulting entity

Penn Virginia's ill-fated decision was justified by a fairness opinion that we believe is both flawed and now significantly out of date

- Not rolled forward to reflect current commodity prices
- Nor sensitized to show outcomes over a range of commodity prices
- Utilizes many questionable assumptions
- Fails to consider risks stemming from Denbury's financial and operational leverage

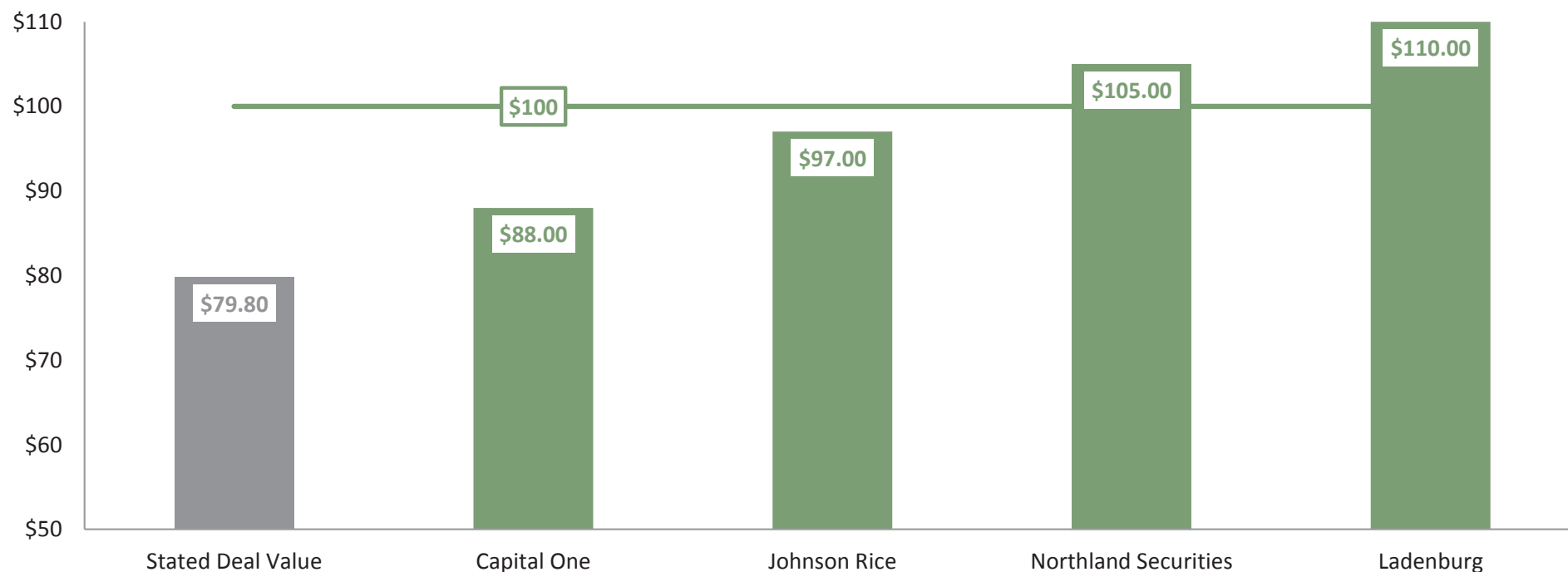
Source: Company Filings.

Transaction Evaluation

Is the value to be received by the target shareholders reasonable?

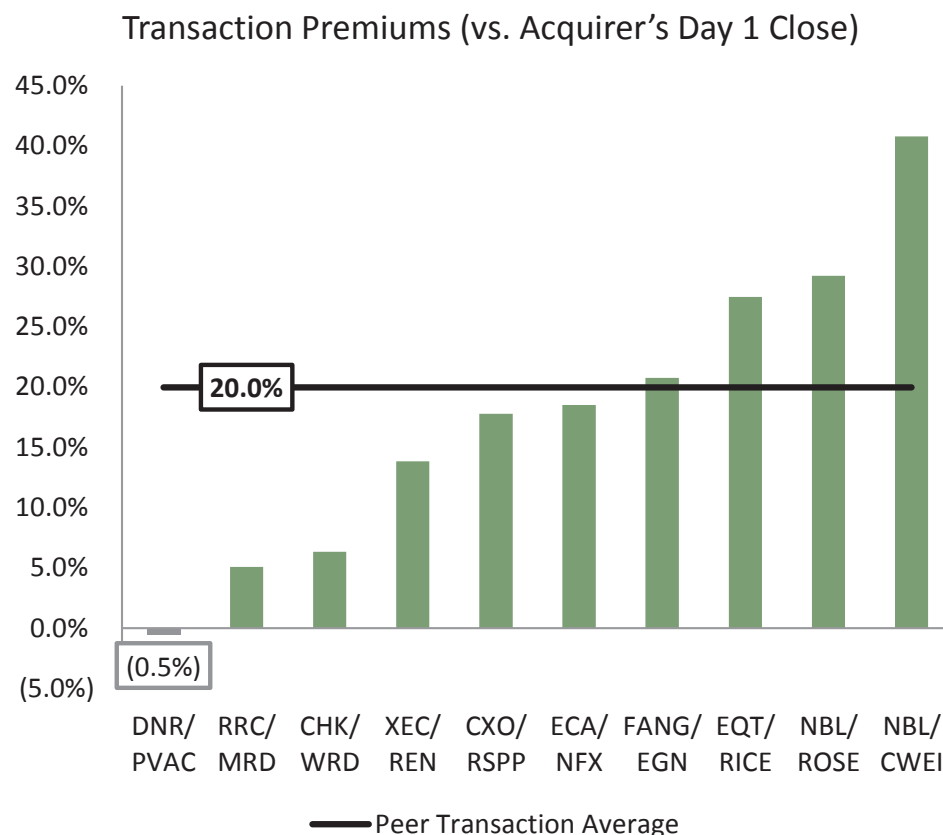
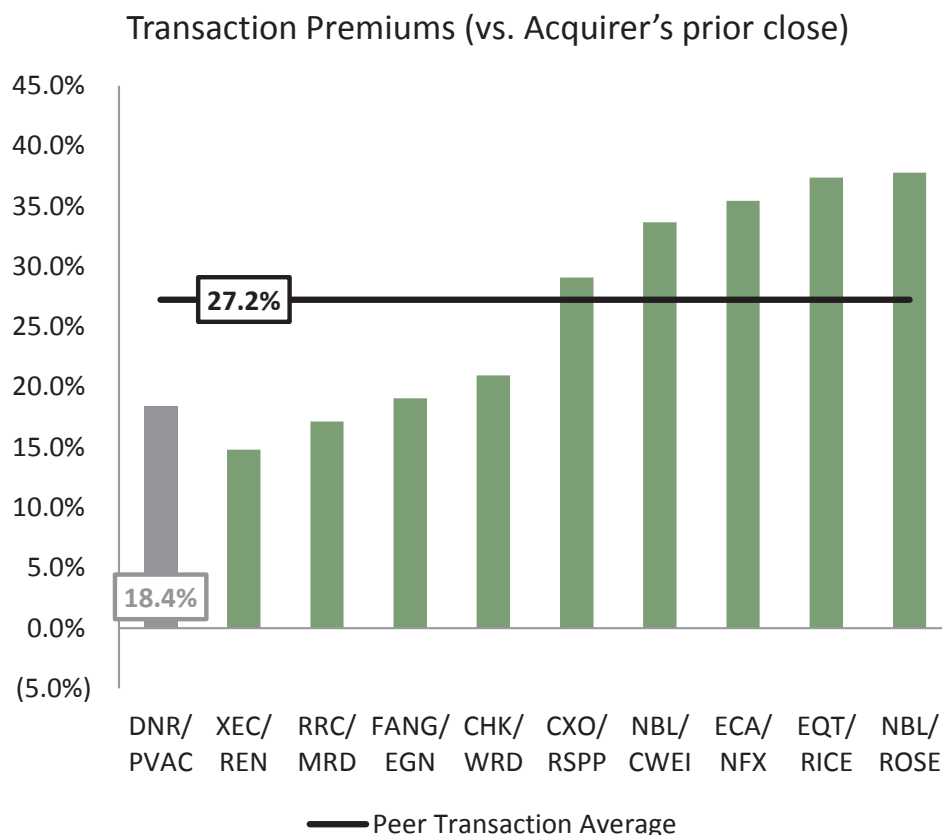
The announced value of the transaction was significantly lower than every Wall Street target price for Penn Virginia's shares at that time

Wall Street Target Prices vs. Stated Deal Value



Source: Bloomberg and Wall Street Research.

The announced premium was low and was negative after the first trading day

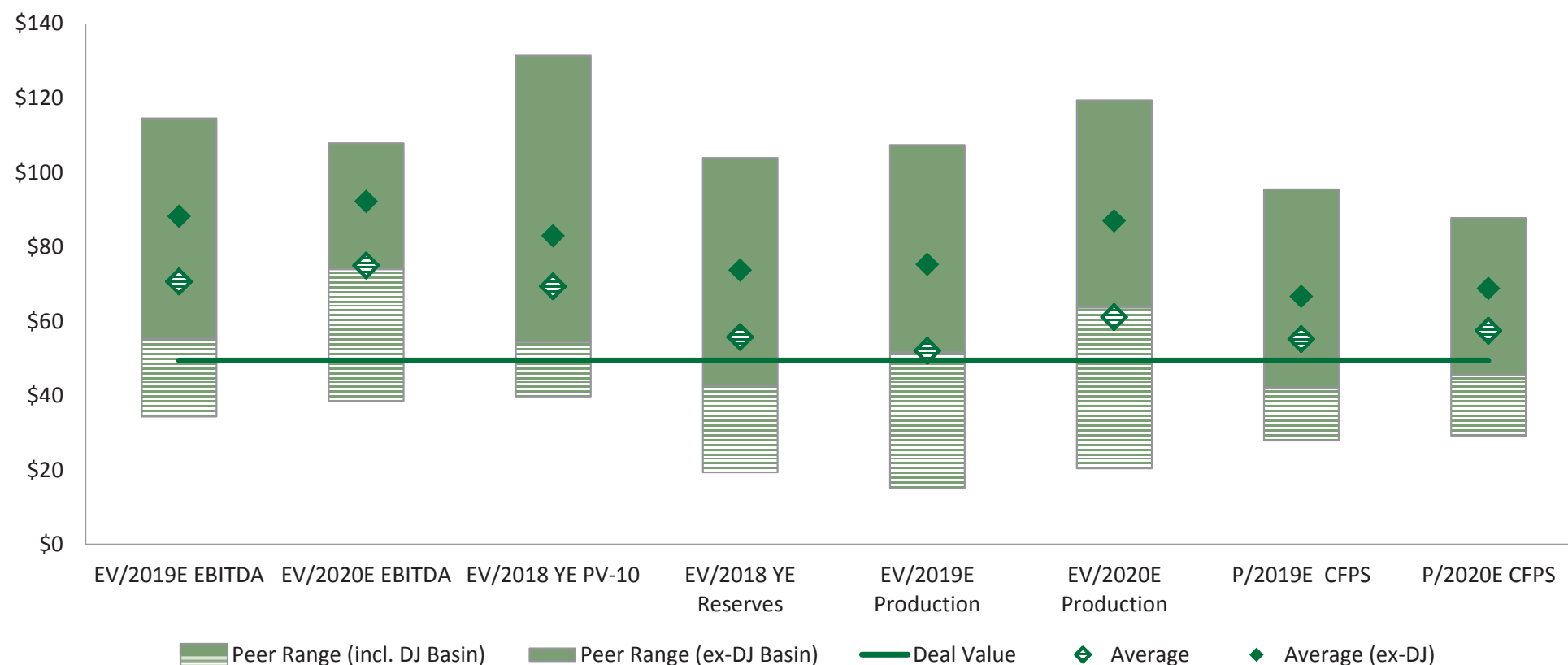


Source: Bloomberg.

Note: Charts compare the pre-announcement price of the target to the value of the transaction as announced and as of the close of the first trading day.

The proposed transaction is at a discount to Penn Virginia’s trading peers

Penn Virginia Trading Peers vs. Current Deal Value⁽¹⁾



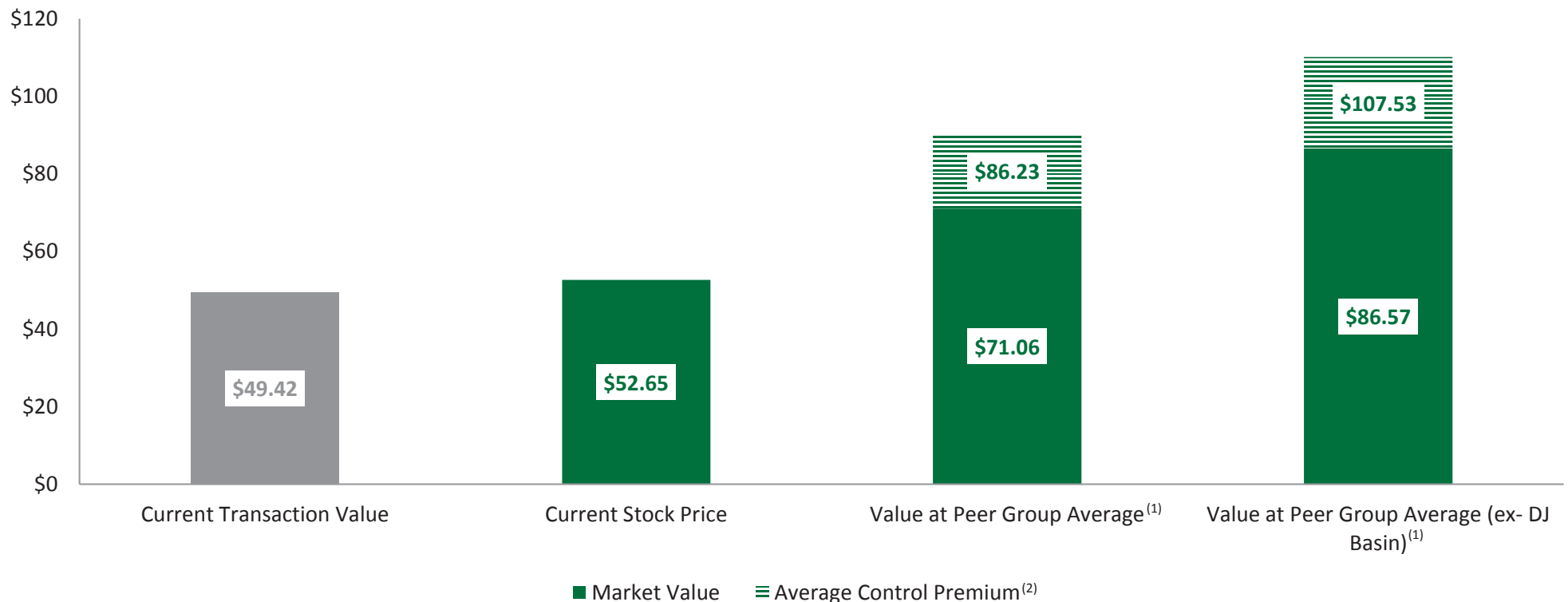
Source: Bloomberg and Company Filings.

(1) Deal value as of closing prices on March 20, 2019.

Valuation – Provides a Discount Rather than a Premium

The market value of the proposed transaction is at a discount to Penn Virginia's stock price and fundamental value and offers no premium for control

Penn Virginia Per Share Value



Source: Bloomberg.

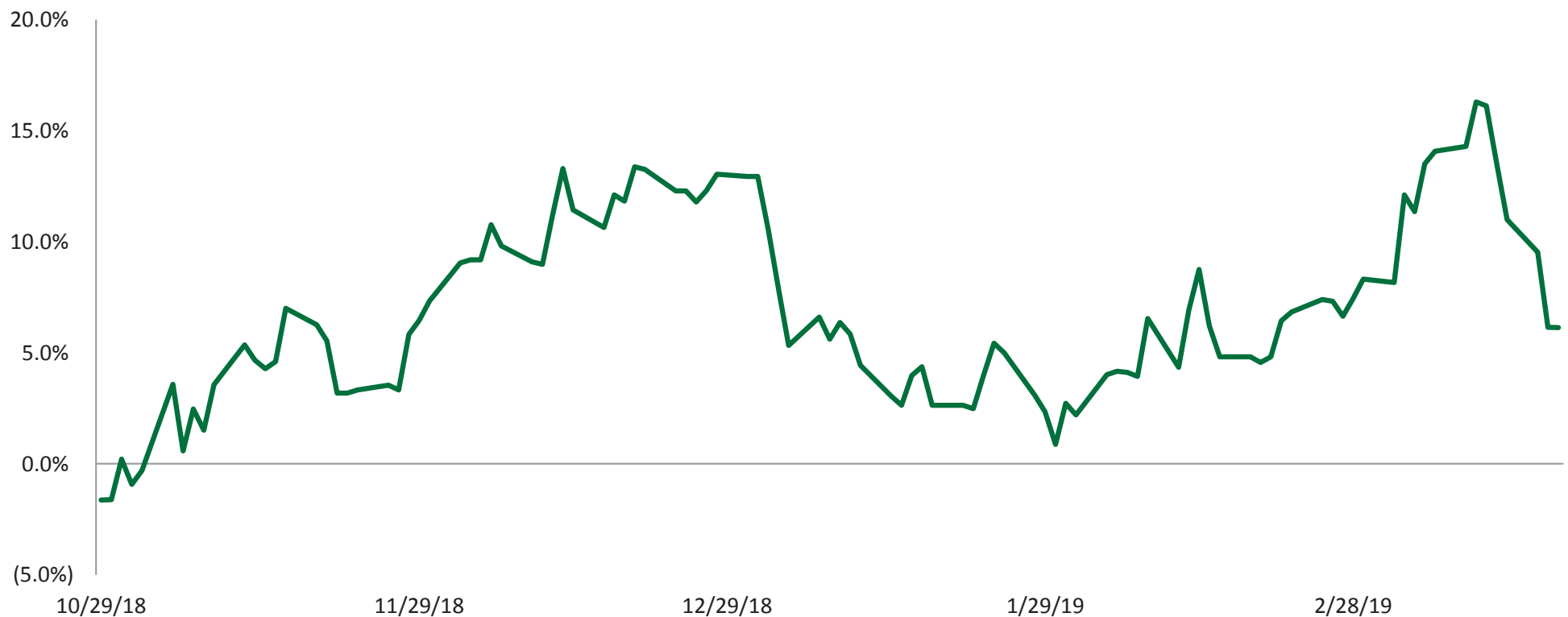
(1) Value is based on a 50% weighting to EV/2019E and 2020E EBITDA and a 50% weighting to EV/2018 YE PV-10 metrics as shown on slide 44.

(2) Premium of 27.2% based on average of comparable transaction as shown on slide 43.

Valuation – Provides a Discount Rather than a Premium

Penn Virginia's stock has consistently traded significantly above the value of the proposed transaction

Penn Virginia's Trading Premium to the Proposed Terms



Source: Bloomberg.

“Our initial takeaway is that we fail to see a very strong rationale for the transaction from PVAC shareholders’ perspective.”

– Cowen (10/29/2018)

“The transaction was a bit of a surprise to us given DNR’s focus on EOR projects.”

– Capital One (11/20/2018)

“A surprising announcement because DNR is largely an EOR-focused company but EOR-potential does not really appear to be the central basis for this deal.”

– Cowen (10/29/2018)

“We see this as a relatively surprising deal given DNR’s pre-existing leverage issues as well as the relative immaturity of the Eagle Ford EOR play.”

– RBC (10/29/2018)

“Denbury’s EV was valued at nearly double PVAC’s EBITDA multiple on 2019E”

– Cowen (10/29/2018)

“The mostly all-stock deal valued at \$1.7B or ~\$80/share is below our \$88/share NAV for PVAC and well below the Street target price of \$103.”

– Capital One (10/29/2018)

Source: Wall Street Research.

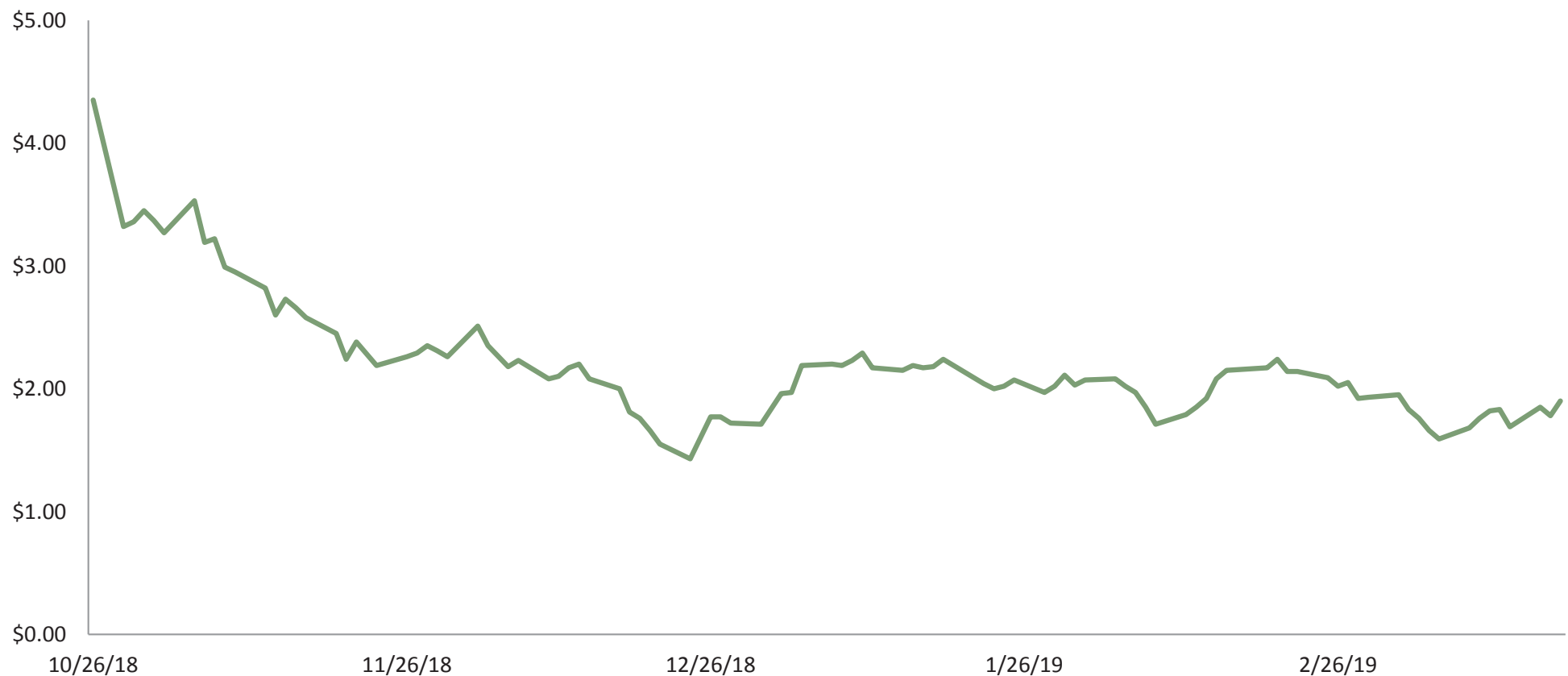
Note: Emphasis added.

We believe that it is in the best interest of Penn Virginia Shareholders to vote **AGAINST** the merger as it (1) fails to recognize the value of its business relative to its trading peers, (2) offers no control premium, and (3) is valued at a discount to the trading price of Penn Virginia's shares

How has the market responded to the proposed deal?
A negative market reaction should cause closer scrutiny of a deal.

Denbury's stock has fallen 59% since the deal announcement

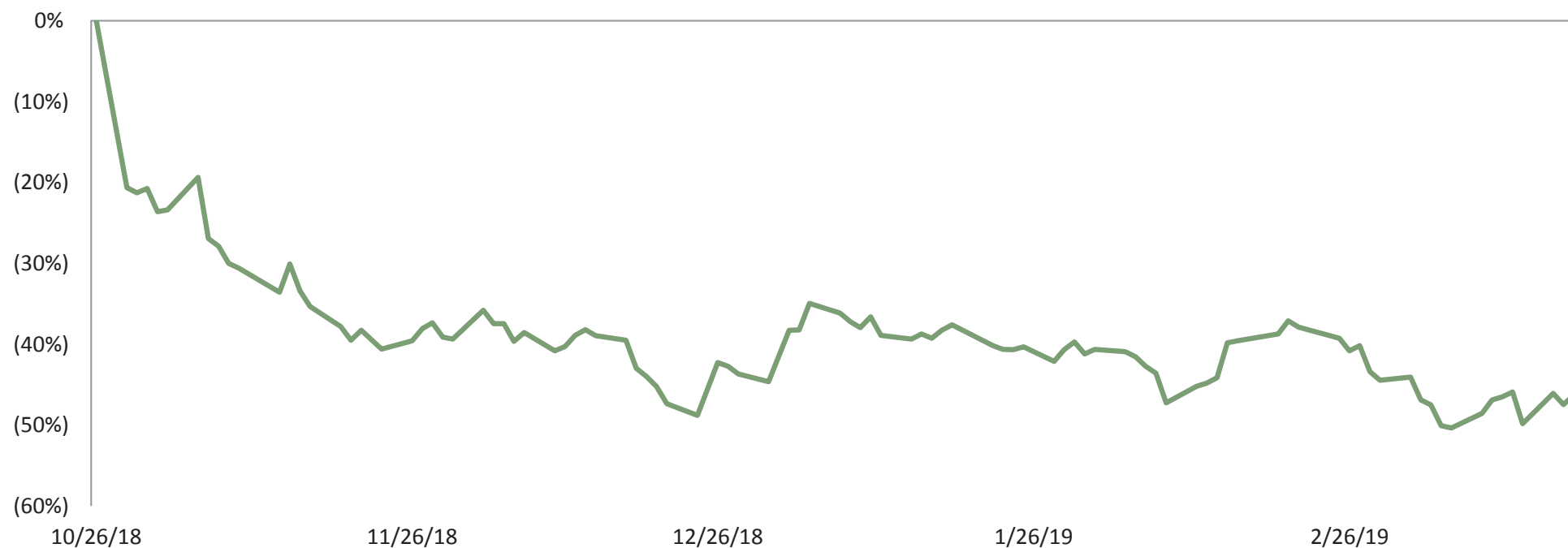
Denbury's Stock Performance



Source: Bloomberg.

Denbury's shares have underperformed its trading peers by 46% since the transaction was announced

Denbury's Stock Performance vs. Peer Group⁽¹⁾

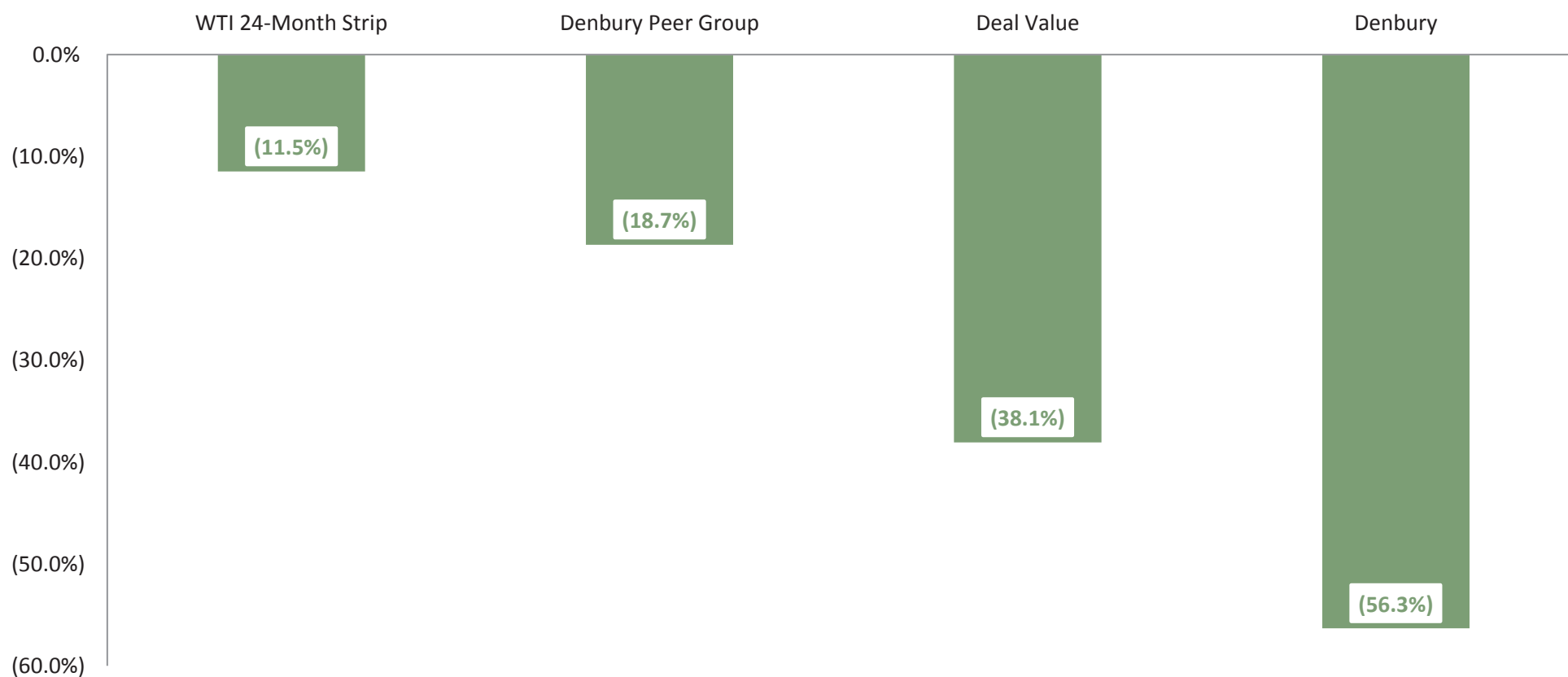


Source: Bloomberg.

(1) Based on Denbury's Peer Group as disclosed in the 2018 Annual Meeting Definitive Proxy. Please see end notes for more details on methodology.

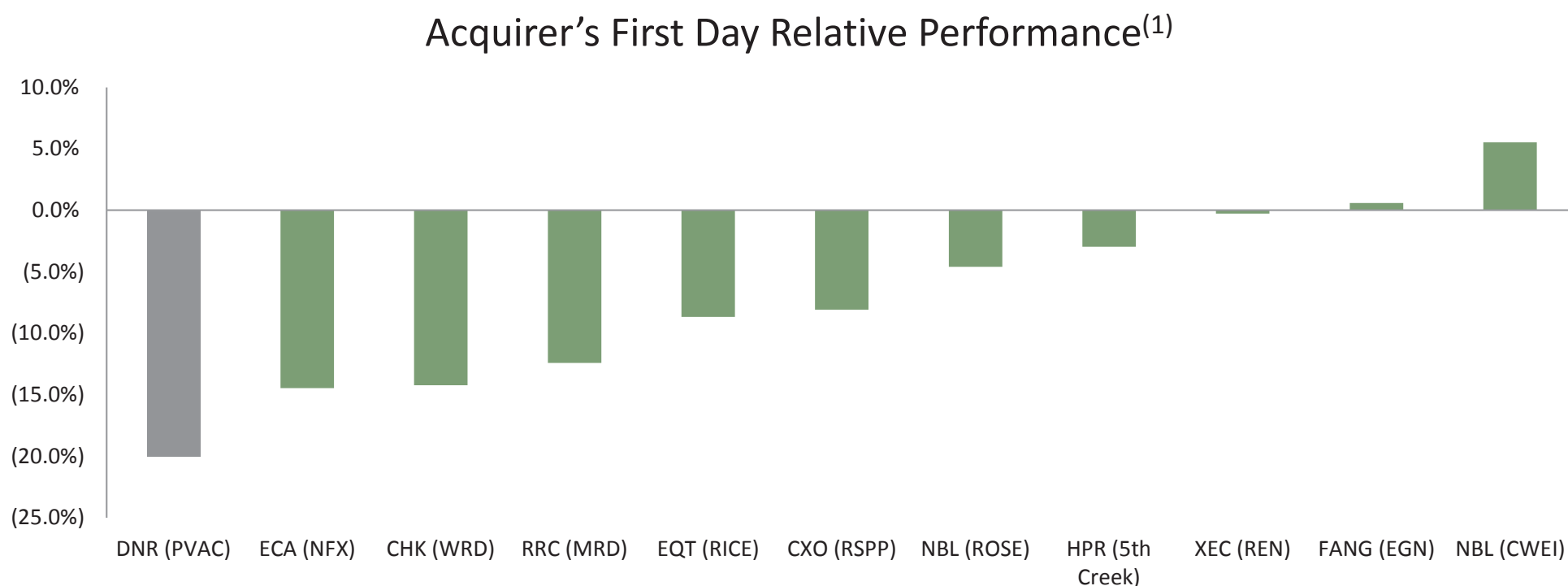
Denbury's share price has underperformed commodity prices by even more

Performance Since Announcement



Source: Bloomberg.

Worst initial reaction among recent oil & gas transactions



Cited by UBS as being the worst market reaction to any oil & gas transaction in 20+ years of tracking such data⁽²⁾

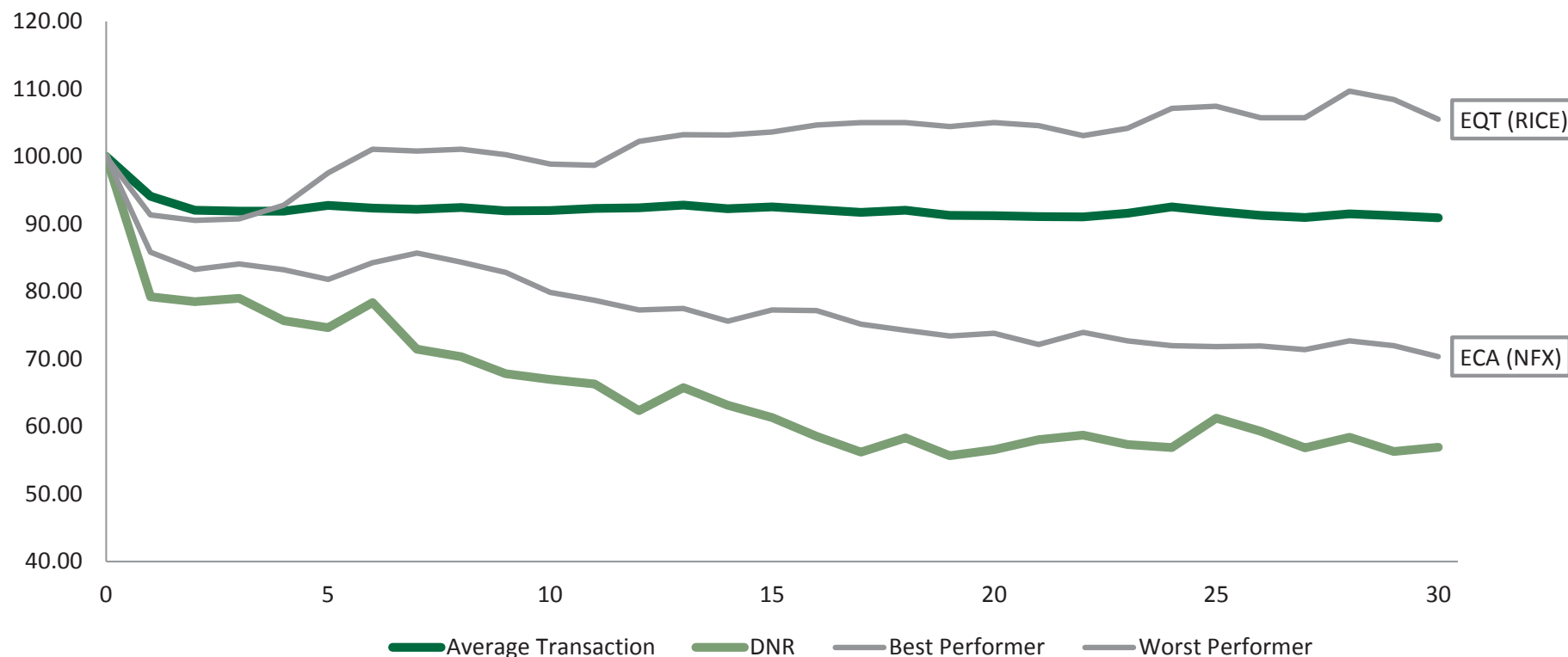
Source: Bloomberg.

(1) Relative stock performance vs. the S&P Oil & Gas Exploration and Production Select Industry Index.

(2) UBS Merger Arbitrage Note October 31, 2018.

Denbury relative performance was far worse than that of the worst performing peer acquirer

Acquirer's Stock Performance vs. E&P Index⁽¹⁾



Source: Bloomberg.

(1) Relative stock performance of acquirer's stock vs. the S&P Oil & Gas Exploration and Production Select Industry Index

"DNR's announced acquisition of PVAC was taken negatively by the market, with the stock down ~24% yesterday. Investors we spoke with pointed to incremental uncertainty surrounding DNR's existing asset base ("What does this say about existing assets?"), the lack of synergies ("What are investor's getting for the premium paid?"), the dynamics of merger arb (shorting an illiquid stock), and the overall energy market"

– UBS (10/30/2018)

"Mission drift has confused the existing [Denbury] shareholder base. The company's announcement of the cash/stock acquisition of Penn Virginia surprised us, and surprised shareholders with whom we spoke."

– Oppenheimer (11/30/2018)

"Seeking an acquisition when it [Denbury] had rich equity currency"

– Oppenheimer (11/30/2018)

"investors we have spoken with appear to have little appetite for added execution risk and/or out of basin transactions in the current market."

– Goldman Sachs (10/29/2018)

"It appears based on our data that DNR has had the worst initial acquirer price reaction in 20+ years of oil and gas mergers"

– UBS Merger Arbitrage Note (10/31/2018)

Source: Wall Street Research.

Note: Emphasis added.

Whether compared to Denbury's trading peers, commodity prices, or other oil & gas transactions, the market's reaction to the proposed transaction represents a clear and complete repudiation of this deal

We believe it is in the interests of Penn Virginia shareholders to vote
AGAINST a transaction that has been so overwhelmingly
rejected by the market

Does the deal make sense strategically? From where is the value derived?
Do significant cost and revenue synergies exist and can they be achieved?

Mangrove View: Transaction fails to meet the strategic criteria investors value

Strategic Comparison of Penn Virginia's Acquisitions to the Proposed Transaction

	Devon & Hunt	Denbury
Field Type	Unconventional	Conventional
Recovery Type	Primary	Tertiary
Recovery Method	Hydraulic Fracking	CO ₂ EOR
Geographic Fit	Overlapping/Adjacent	~100 miles apart
Field-level synergies	Very Significant	None
G&A Synergies	Target costs eliminated	Target costs largely retained

Source: Company Filings.

Note: Advantageous or shared attributes appear in Green. Disadvantageous or different attributes appear in Grey.

“Well, certainly, nothing that we can say about that right now other than the fact that I don’t see a lot of overlap between the skill set that Penn Virginia brings and the skill set that Denbury has.”

– Chris Kendall, Denbury CEO (10/29/2018)

Source: Denbury Resources Inc. to Acquire Penn Virginia Corp M&A Call Transcript.

Mangrove View: Transaction fails to meet the financial criteria investors value

Financial Comparison of Penn Virginia and Denbury to New Denbury

	<u>Penn Virginia</u>	<u>New Denbury</u>	<u>Denbury</u>
EV/2019E EBITDA	3.1x	4.4x	5.4x
2019E Production Growth	30%	5%	(4%)
EV/2018 PV-10	73%	80%	84%
EV/2018 Proved Reserves	\$10.56	\$12.02	\$12.85
EV/Flowing Barrel	\$50,545	\$54,111	\$56,257
Leverage	1.7x	3.9x	4.2x
2018 Reserve Replacement Ratio	734%	275%	109%
2018 Q4 LOE/Boe	\$4.21	\$17.58	\$23.32
2018 Q4 G&A/Boe	\$2.95	\$3.49	\$3.73
2018 Q4 Cash Interest/Boe	\$3.55	\$8.30	\$8.71
2018 Q4 Margin/Boe (unhedged)	\$42.35	\$28.02	\$23.49
PDP Decline Rate	High	Medium	Low

Source: Company Filings and Bloomberg.

Note: Advantageous or shared attributes appear in Green. Disadvantageous or different attributes appear in Grey.

Mangrove View: Penn Virginia's stated justification is flawed and unconvincing

Critique of Penn Virginia's Stated Reasons for the Transaction

<u>Justification</u>	<u>Comment</u>
Merger Consideration of \$83.77	Illusory
21% Premium	Illusory
Cash/Stock Election	De minimis Value
Greater Trading Liquidity	Limited Value
Best Strategic Transaction Available at the Time	Hardly Sufficient
Jefferies Fairness Opinion	Flawed/Stale
Diversified Asset Base	Contradicts Investor Preference
Greater Financial Capacity	Bond Market Disagrees
Leverage Denbury's EOR Expertise	Appreciated but not Required Different Technology

“The successful pilots and projects that we see happening in the Eagle Ford right now are not with CO₂, they’re with rich hydrocarbon gas. And all things being equal, I expect that the best option for EOR in the Eagle Ford is going to be rich hydrocarbon gas”

– Chris Kendall, Denbury CEO (10/29/2018)

“When we think about Denbury, most of what we’ve used across our business is Carbon Dioxide”

– Chris Kendall, Denbury CEO (12/5/2018)

Source: Denbury Resources Inc. to Acquire Penn Virginia Corp M&A Call Transcript and Denbury Resource Inc. Presentation at the Capital One Securities Conference.

*Were the terms of the transaction negotiated at arm's-length?
Was the process fair and equitable?*

Mangrove View: Broadly marketed transaction but nonetheless flawed

- Poorly timed
 - Multiple failed E&P sales processes
 - Few successful transactions
 - Lots of competing assets for sale in the Eagle Ford with few obvious buyers
- Public announcement put the board in the position of choosing between:
 - announcing a failed sales process for the second time in two years; or,
 - announcing a bad deal
- The disclosures regarding the background to the merger make clear:
 - the process was focused on the stated value of potential transactions rather than the viability of the combined business; and,
 - Penn Virginia had concerns about the potential market reaction

Conclusion

- This transaction asks Penn Virginia Shareholders to exchange their shares for a mix of cash and stock that not only provides no control premium but is worth significantly less than current market price of their investment
- This transaction provides no meaningful financial or operational synergies and meets none of the strategic criteria that we believe E&P investors value
- By agreeing to this transaction, Penn Virginia's shareholders will dilute their interest in Penn Virginia's attractive standalone prospects in favor of owning a company that has lower growth, a more expensive valuation, worse margins, and unacceptable balance sheet risk
- Finally, as shown by its disastrous market reception, it is clear that this transaction fails to meet the objectives of investors in either company

Appendix

End Notes



Peer Comparisons

For the purpose of this analysis we make use of several peer groups. Rather than selecting our own constituents, in each case we sought to use constituents that had a clear and obvious basis for inclusion or had been specified by Penn Virginia or Denbury as being appropriate peers.

Penn Virginia Valuation Peer Group

With regard to valuation comparisons for Penn Virginia, we started with the 19 companies identified in Penn Virginia's 2018 proxy material and then eliminated: companies that have been acquired (3), filed for bankruptcy (2), produce gas rather than oil (1), or have a free float of less than \$150mm (5). The resulting peer group consists of: Matador Resources Corp., Callon Petroleum Corp, SRC Energy Inc., Carrizo Oil & Gas Inc., Northern Oil and gas Inc., Extraction Oil & Gas Inc. and Highpoint Resources Corp. Of these seven companies, three operate exclusively in Colorado's DJ Basin where uncertainty related to proposed legislation that is highly adverse to the industry has depressed valuations. For this reason and where relevant, we have provided peer group averages for the full group and for the group excluding these 3 companies. It is worth noting that Guggenheim, in its fairness opinion for Denbury, eliminated all companies operating in Colorado from its analysis.

Transaction Peer Group

With regard to comparisons with other transactions, we have included all similar transactions that have been announced since January 1, 2015. Of these, nine involved a public target and acquirer while one involved a private target and public acquirer.

Denbury Trading Peers

When examining Denbury's relative stock price performance we utilized the peer group specified in Denbury's proxy materials for its 2018 annual meeting with regard to performance-based compensation that is linked to total stockholder returns. This peer group was created by Denbury to be the best available comparison for the performance of its shares.

When examining Denbury's stock price performance in comparison to that of other acquirers following the announcement of their relevant transactions, we looked at each company's performance in comparison to the S&P Oil & Gas Exploration and Production Select Industry Index.

Other Comments

Pricing

Unless otherwise noted, all prices or yields referenced in this presentation are as of March 20, 2019.

Consensus Estimates

Estimates as available on Bloomberg as of March 20, 2019. Consensus for Penn Virginia derived by hand as Bloomberg had not yet incorporated recent analyst updates.

Operating Cash Flow (unhedged)

As used in this presentation, Operating Cash Flow (unhedged) is defined as oil & gas revenue less (1) lifting and operating expense, (2) gathering, processing and transportation expense, (3) production taxes, (4) realized hedging gains (losses), and (5) cash interest incurred.

Relative Performance

As used in this presentation, relative performance reflects the percentage change in the ratio in which the price of the target security is the numerator and the price of the benchmark is the denominator.