PENN VIRGINIA CORPORATION

Fourth Quarter and Year-End 2019 Earnings Presentation

February 28, 2020

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Forward-Looking and Cautionary Statements

PENN VIRGINIA CORPORATION

Certain statements contained herein that are not descriptions of historical facts are “forward-looking” statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. We use words such as “anticipate,” “guidance,” “assumptions,” “projects,” “estimates,” “outlook,” “expects," "continues," "intends," “plans,” "believes," “working,” “beyond,” “forecasts," "future,“ “potential,” “may,” “foresee,” “possible,” “should,” “would,” “could” and variations of such words or similar expressions in this presentation to identify forward-looking statements. Because such statements include assumptions, risks, uncertainties and contingencies, actual results may differ materially from those expressed or implied by such forward-looking statements. These risks, uncertainties and contingencies include, but are not limited to, the following: risks related to potential and completed acquisitions, including related costs and our ability to realize their expected benefits; our ability to satisfy our short-term and long-term liquidity needs, including our inability to generate sufficient cash flows from operations or to obtain adequate financing to fund our capital expenditures and meet working capital needs; negative events or publicity adversely affecting our ability to maintain our relationships with our suppliers, service providers, customers, employees, and other third parties; plans, objectives, expectations and intentions contained in this communication that are not historical; our ability to execute our business plan in volatile and depressed commodity price environments; the decline in and volatility of expected and realized commodity prices for oil, NGLs, and natural gas; our ability to develop, explore for, acquire and replace oil and gas reserves and sustain production; our ability to generate profits or achieve targeted reserves in our development and exploratory drilling and well operations; our ability to meet guidance, market expectations and internal projections, including type curves; any impairments, write-downs or write-offs of our reserves or assets; the projected demand for and supply of oil, NGLs and natural gas; our ability to contract for drilling rigs, frac crews, materials, supplies and services at reasonable costs; our ability to renew or replace expiring contracts on acceptable terms; our ability to obtain adequate pipeline transportation capacity or other transportation for our oil and gas production at reasonable cost and to sell our production at, or at reasonable discounts to, market prices; the uncertainties inherent in projecting future rates of production for our wells and the extent to which actual production differs from that estimated in our proved oil and gas reserves; use of new techniques in our development, including choke management and longer laterals; drilling, completion and operating risks, including adverse impacts associated with well spacing and a high concentration of activity; our ability to compete effectively against other oil and gas companies; leasehold terms expiring before production can be established and our ability to replace expired leases; environmental obligations, costs and liabilities that are not covered by an effective indemnity or insurance; the timing of receipt of necessary regulatory permits; the effect of commodity and financial derivative arrangements with other parties, and counterparty risk related to the ability of these parties to meet their future obligations; the occurrence of unusual weather or operating conditions, including force majeure events; our ability to retain or attract senior management and key employees; our reliance on a limited number of customers and a particular region for substantially all of our revenues and production; compliance with and changes in governmental regulations or enforcement practices, especially with respect to environmental, health and safety matters; physical, electronic and cybersecurity breaches; uncertainties relating to general domestic and international economic and political conditions; the impact and costs associated with litigation or other legal matters; and other risks set forth in our filings with the SEC. Additional information concerning these and other factors can be found in our press releases and public filings with the SEC. Many of the factors that will determine our future results are beyond the ability of management to control or predict. In addition, readers should not place undue reliance on forward-looking statements, which reflect management’s views only as of the date hereof. The statements in this communication speak only as of the date of communication. We undertake no obligation to revise or update any forward-looking statements, or to make any other forward-looking statements, whether as a result of new information, future events or otherwise, except as may be required by applicable law.

Oil and Gas Reserves

Statements of reserves are only estimates and may not correspond to the ultimate quantities of oil and gas recovered. Investors are urged to consider closely the disclosure in Penn Virginia’s public filings with the SEC, including its Annual Report on Form 10-K for the fiscal year ended December 31, 2019, which is available on its website at www.pennvirginia.com under Investors – SEC Filings. You can also obtain these reports from the SEC’s website at www.sec.gov.

Definitions

Proved reserves are those quantities of oil and gas which, by analysis of geosciences and engineering data, can be estimated with reasonable certainty to be economically producible from a given date forward, from known reservoirs, and under existing economic conditions, operating methods and government regulation before the time at which contracts providing the right to operate expire, unless evidence indicates that renewal is reasonably certain, regardless of whether the estimate is a deterministic estimate or probabilistic estimate. Probable reserves are those additional reserves that are less certain to be recovered than proved reserves, but which are as likely than not to be recoverable (there should be at least a 50% probability that the quantities actually recovered will equal or exceed the proved plus probable reserve estimates). Possible reserves are those additional reserves that are less certain to be recoverable than probable reserves (there should be at least a 10% probability that the total quantities actually recovered will equal or exceed the proved plus probable plus possible reserve estimates). Estimated ultimate recovery (EUR) is the sum of reserves remaining as of a given date and cumulative production as of that date. EUR is a measure that by its nature is more speculative than estimates of reserves prepared in accordance with SEC definitions and guidelines and accordingly is less certain.

Cautionary Statements

The estimates and guidance presented in this presentation, including those regarding inventory of drilling locations, are based on assumptions of capital expenditure levels, prices for oil, natural gas and NGLs, current indications of supply and demand for oil, well results and operating costs. The guidance, estimates and type curves provided or used in this presentation do not constitute any form of guarantee or assurance that the matters indicated will be achieved. Statements regarding inventory are based on current information, assumptions regarding well costs, the drilling program and economics and are subject to material change. The number of locations shown as being in the Company’s current estimated inventory is not a guarantee of the number of wells that will actually be drilled and completed or the results or return that will be achieved. While we believe these estimates and the assumptions on which they are based are reasonable, they are inherently uncertain and are subject to, among other things, significant business, economic, operational and regulatory risks and uncertainties and are subject to material revision. Actual results may differ materially from estimates and guidance.

Reconciliation of Non-GAAP Financial Measures

This presentation contains references to certain non-GAAP financial measures. Reconciliations between GAAP and non-GAAP financial measures are available in the appendix to this presentation. The non-GAAP financial measures presented may not provide information that is directly comparable to that provided by other companies, as other companies may calculate such financial results differently. The Company's non-GAAP financial measures are not measurements of financial performance under GAAP and should not be considered as alternatives to amounts presented in accordance with GAAP. The Company views these non-GAAP financial measures as supplemental and they are not intended to be a substitute for, or superior to, the information provided by GAAP financial results.

PVAC Investment Thesis

PENN VIRGINIA CORPORATION

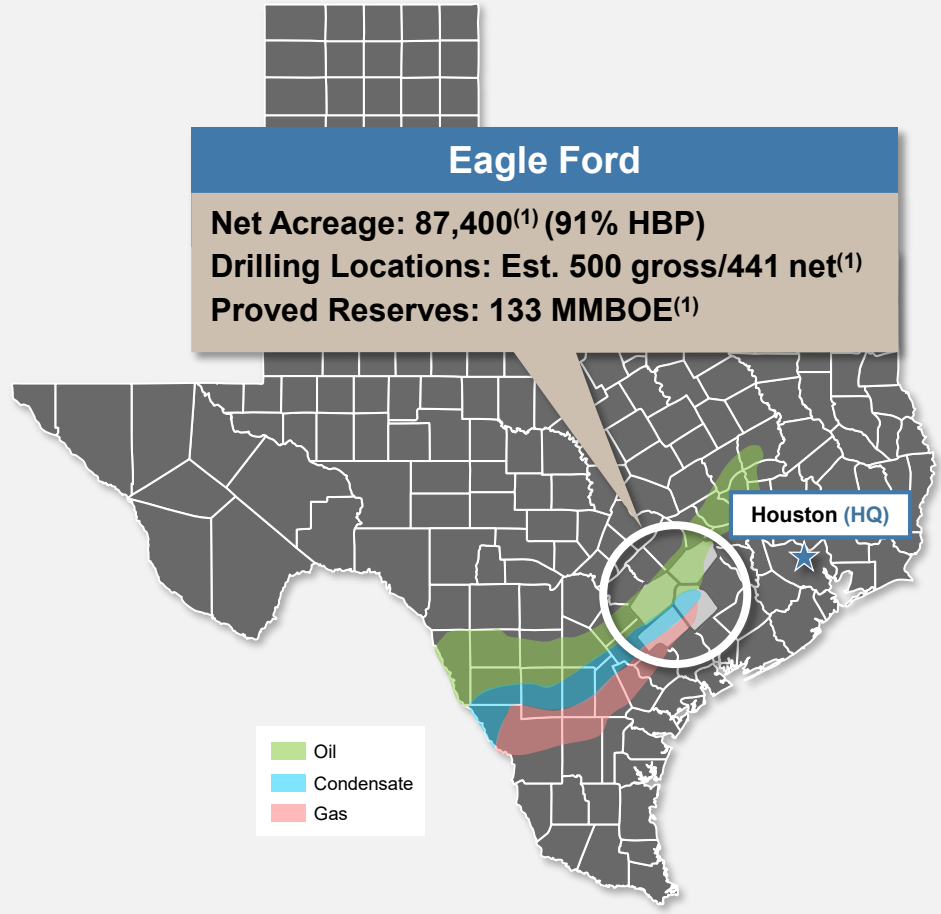
Expect to be Free Cash Flow Positive for Full Year 2020[1]

1) Free cash flow is a non-GAAP financial measure. Definitions of non-GAAP financial measures and reconciliations of non-GAAP financial measures to the closest GAAP-based financial measures appear at the end of this presentation. Free Cash Flow ("FCF") expectations are based on $50/Bbl WTI.

Company Overview

PENN VIRGINIA CORPORATION

- 100,200 gross (87,400 net) acres[1] in Gonzales, Fayette, Lavaca and DeWitt counties; 99% Operated; 91% HBP
- Substantial Lower Eagle Ford inventory estimated at 500 gross locations (441 net)[1]
- Production: 76% oil / 90% liquids[2]; access to LLS/MEH markets and robust adjusted EBITDAX margins
- Targeting Y-o-Y production growth of mid-single digit[3] for 2020
- SEC PV-10 Total Proved $1.6 B[1][4]
  - SEC PV-10 Proved Developed: $1.0 B[1][4]
  - SEC PV-10 Proved Developed to Net Debt: 1.82x[5]



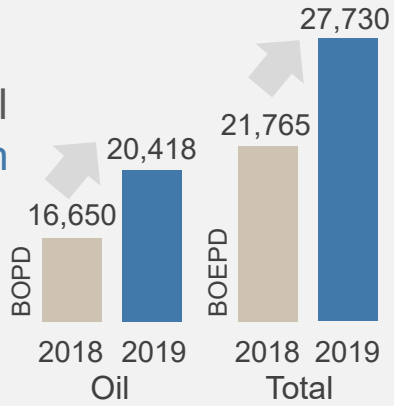
1) As of December 31, 2019.
2) For the fourth quarter 2019.
3) Based on mid-point of Guidance as of February 27, 2020. All guidance is subject to change without notice depending upon a number of factors, including commodity prices, industry conditions and other factors that are beyond the Company's control. The Company undertakes no obligation to update its guidance.
4) PV-10 value is a non-GAAP measure reconciled to GAAP standardized measure in the appendix of this presentation.
5) Net Debt is a non-GAAP measure reconciled in the appendix of this presentation.

Full Year 2019 Highlights

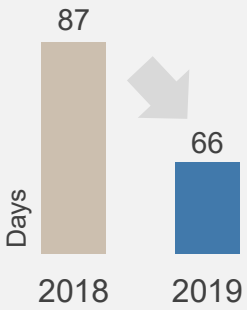
PENN VIRGINIA CORPORATION

Grew Total Production **27%**

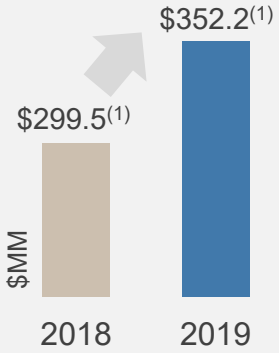
Oil Production **23%**



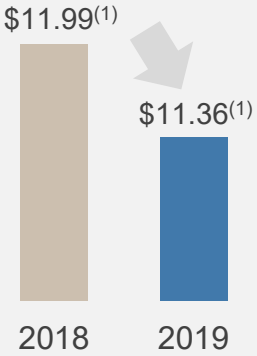
Decreased Cycle Time **24%**



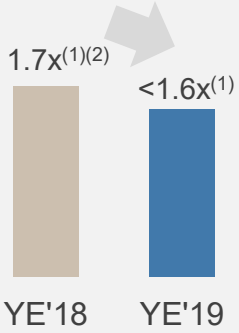
Increased Adjusted EBITDAX **18%**



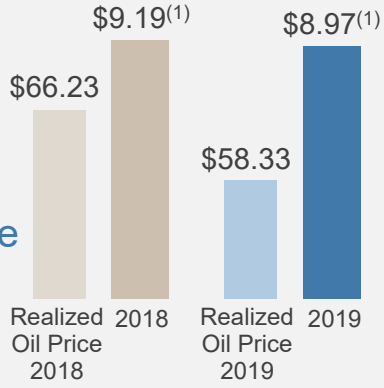
Improved Adjusted Direct Operating Expenses per BOE **5%**



Decreased Leverage Ratio



Significant Adjusted Net Income per Share

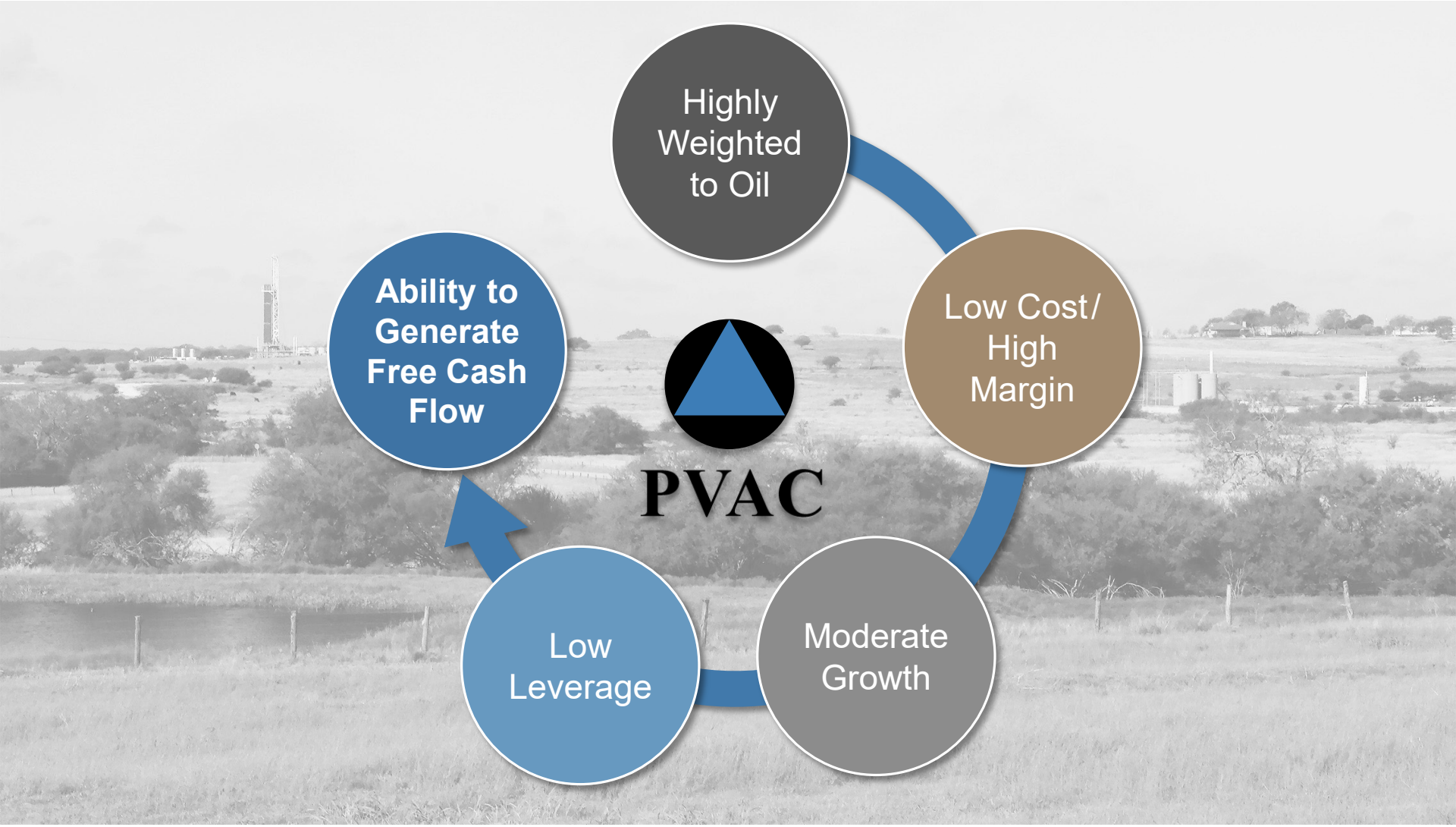


Generated Free Cash Flow for 4Q'19

1) These non-GAAP financial measures are defined and reconciled in the appendix of this presentation.
2) Pro forma for acquisitions.

Note. Leverage Ratio is defined as Net Debt to LTM Adjusted EBITDAX. Net Debt and Adjust EBITDAX are non-GAAP measures defined and reconciled in the Appendix. Cycle time is defined as the time from spud of first well on pad to first production.

Investment Thesis



Well Positioned in Oil Window of the Eagle Ford

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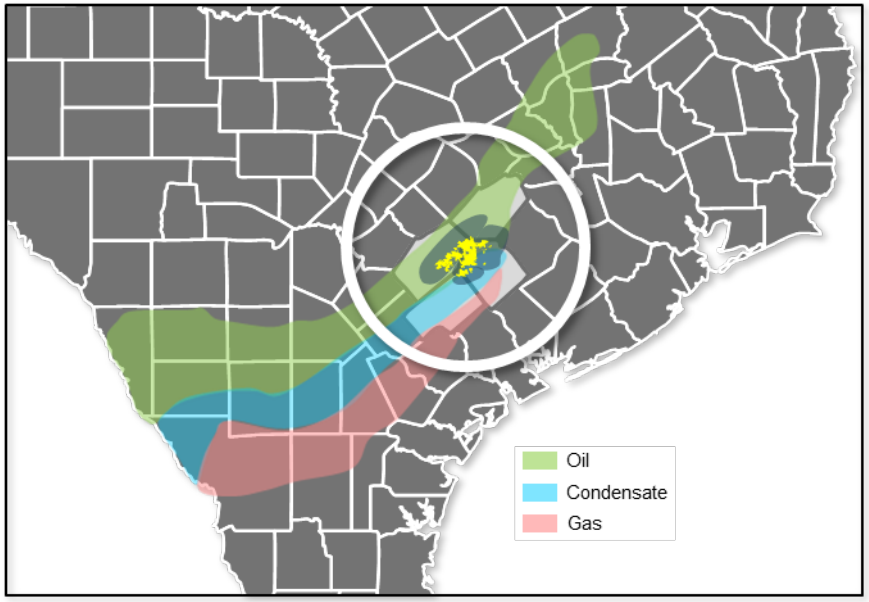
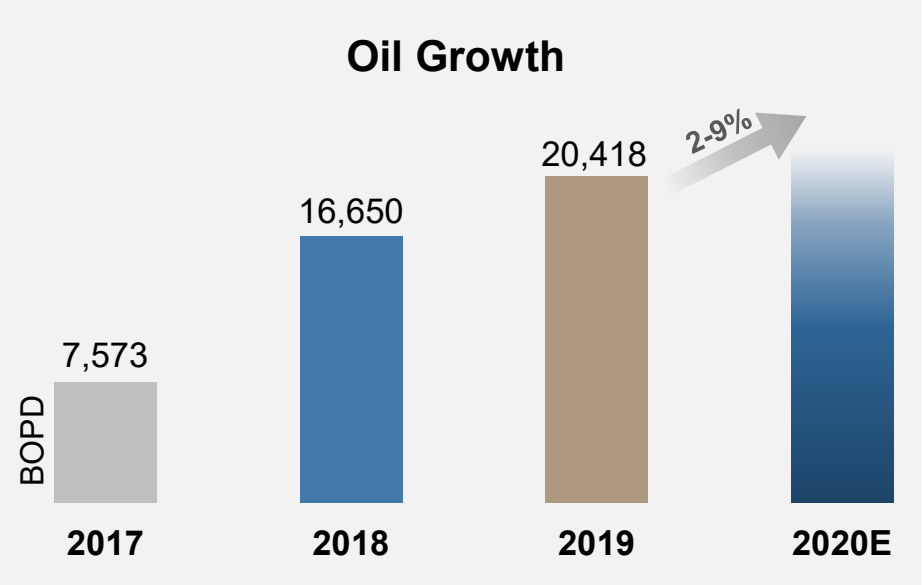
Highly Weighted to Oil → Low Cost/ High Margin → Moderate Growth → Low Leverage → Ability to Generate Free Cash Flow

Expect ~76% of Total Production to be Crude Oil





We Believe PVAC Is One of The Oiliest Small Caps of Its Peers

Note: Guidance as of February 27, 2020. All guidance is subject to change without notice depending upon a number of factors, including commodity prices, industry conditions and other factors that are beyond the Company's control. The Company undertakes no obligation to affirm or update its guidance.

Gulf Coast Advantage – Selling into LLS/MEH Market

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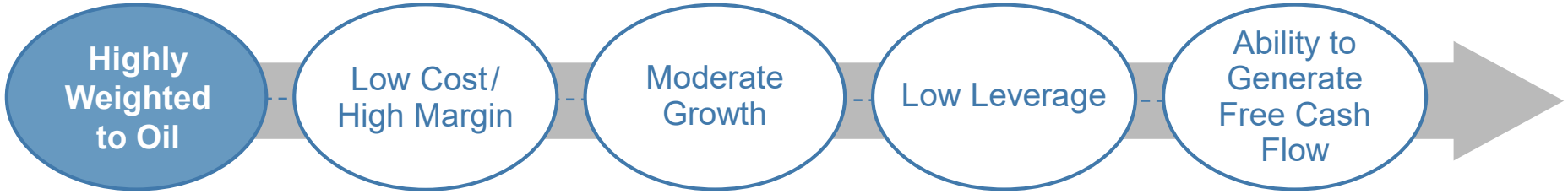
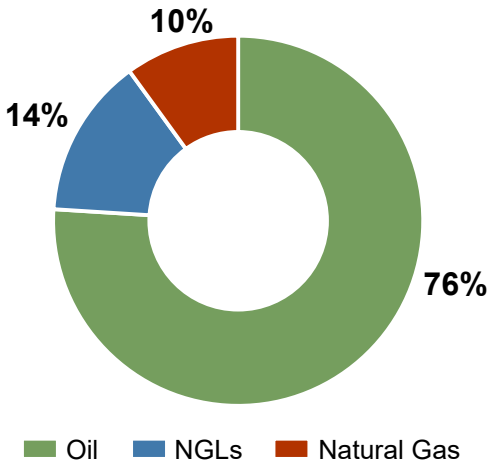


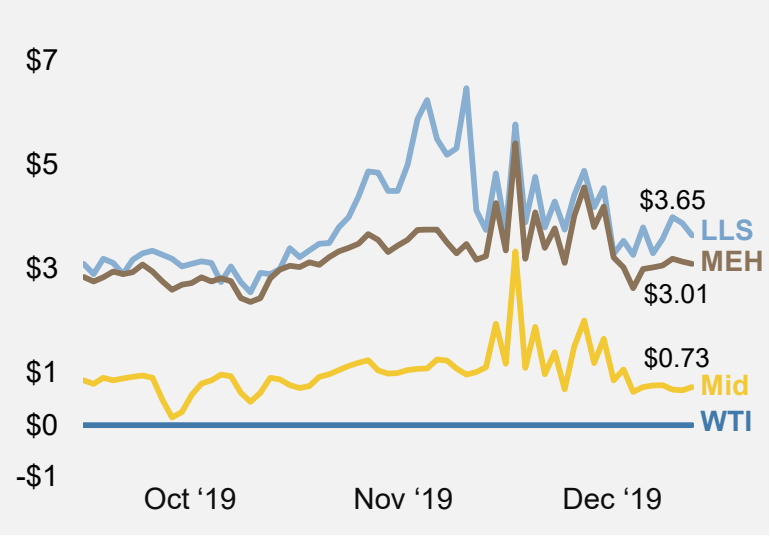
LLS/MEH – Significant Premium Over WTI and Midland Prices

- 4Q 2019 Production: 90% Liquids; 76% Oil
- Receives LLS/MEH Pricing, Premium Over WTI and Midland
- Realized $56.40 per Barrel in 4Q 2019, or 99% of WTI
- Blended Oil Yields ~45 Degree API Gravity

4Q 2019 Production Mix



4Q 2019
LLS vs. WTI vs. MEH and Midland Pricing



Low Operating Expense with Continued Improvement

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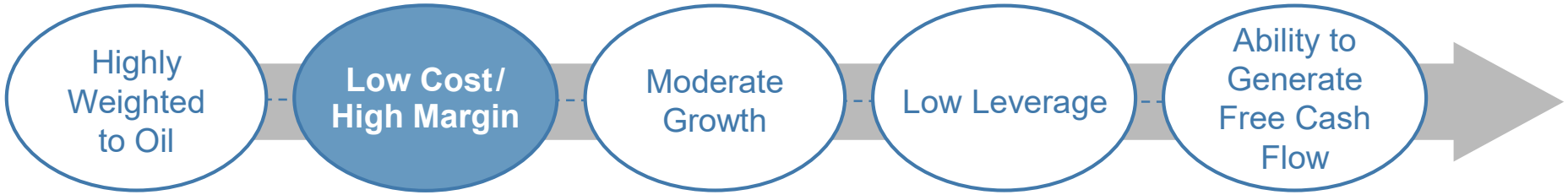
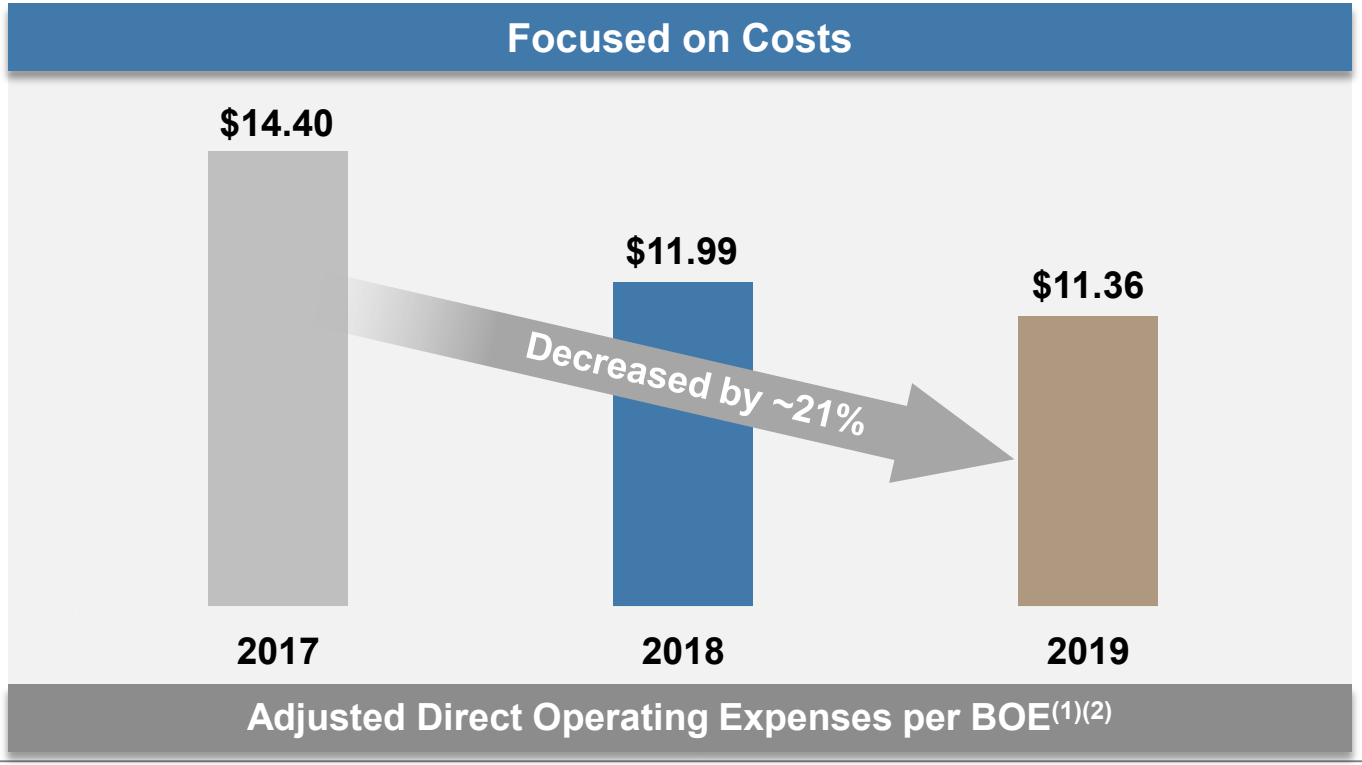


- LOE per BOE declined by ~26% from 2017
- Adjusted Cash G&A[1] per BOE declined by ~41% from 2017



1) Adjusted Cash G&A per BOE is a non-GAAP financial measures. Definitions of non-GAAP financial measures and reconciliations of non-GAAP financial measures to the closest GAAP-based financial measures appear at the end of this presentation.
2) Adjusted Direct Operating Expenses per BOE is comprised of the sum of (Lease Operating Expense + GPT Expense + Adjusted Cash G&A Expense[1] + Production and Ad Valorem Taxes)/Total Production.

Improving Operational Efficiencies with a Strong Safety Culture

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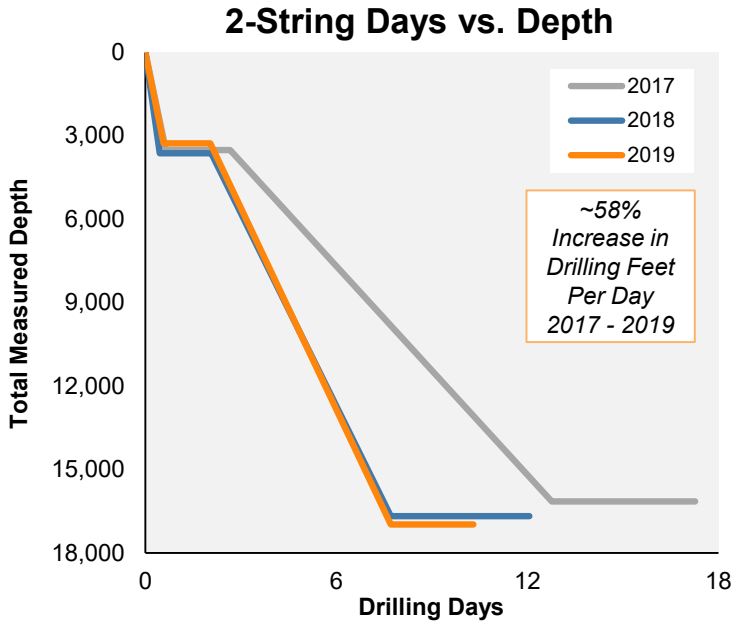
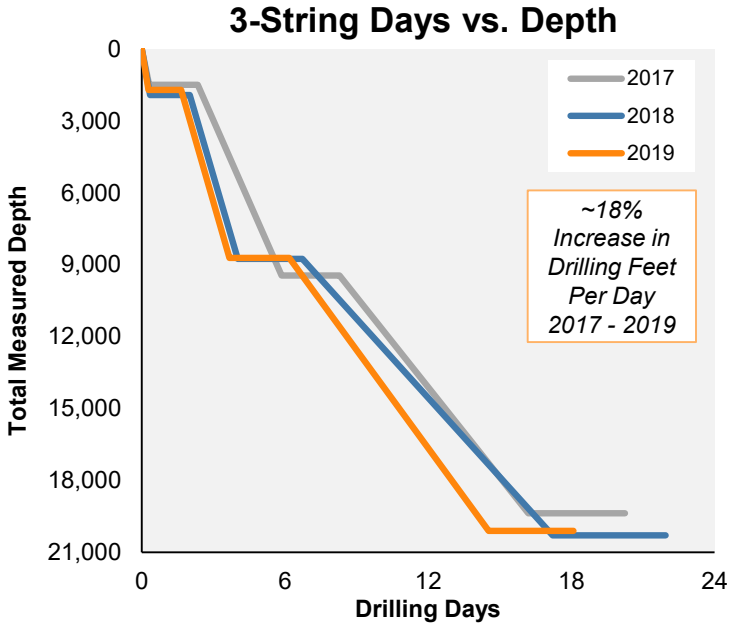
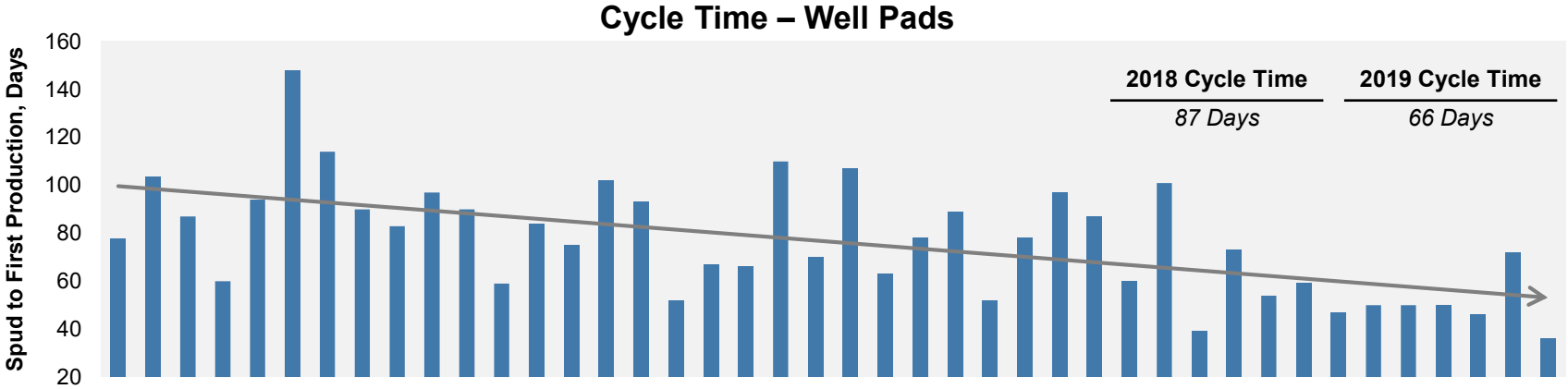




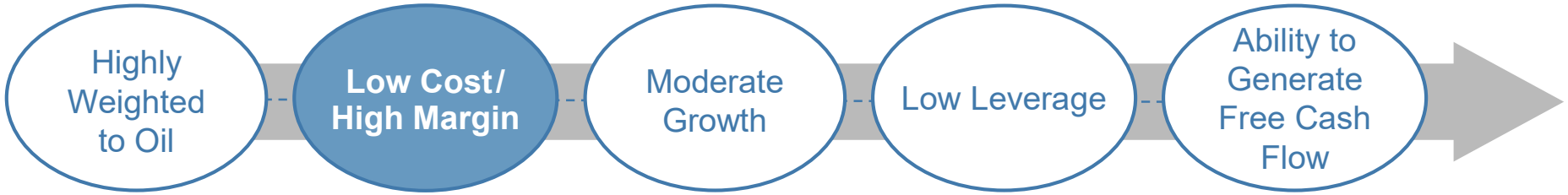


Achieved a Total Recordable Incident Rate ("TRIR") of 0.27 for 2019

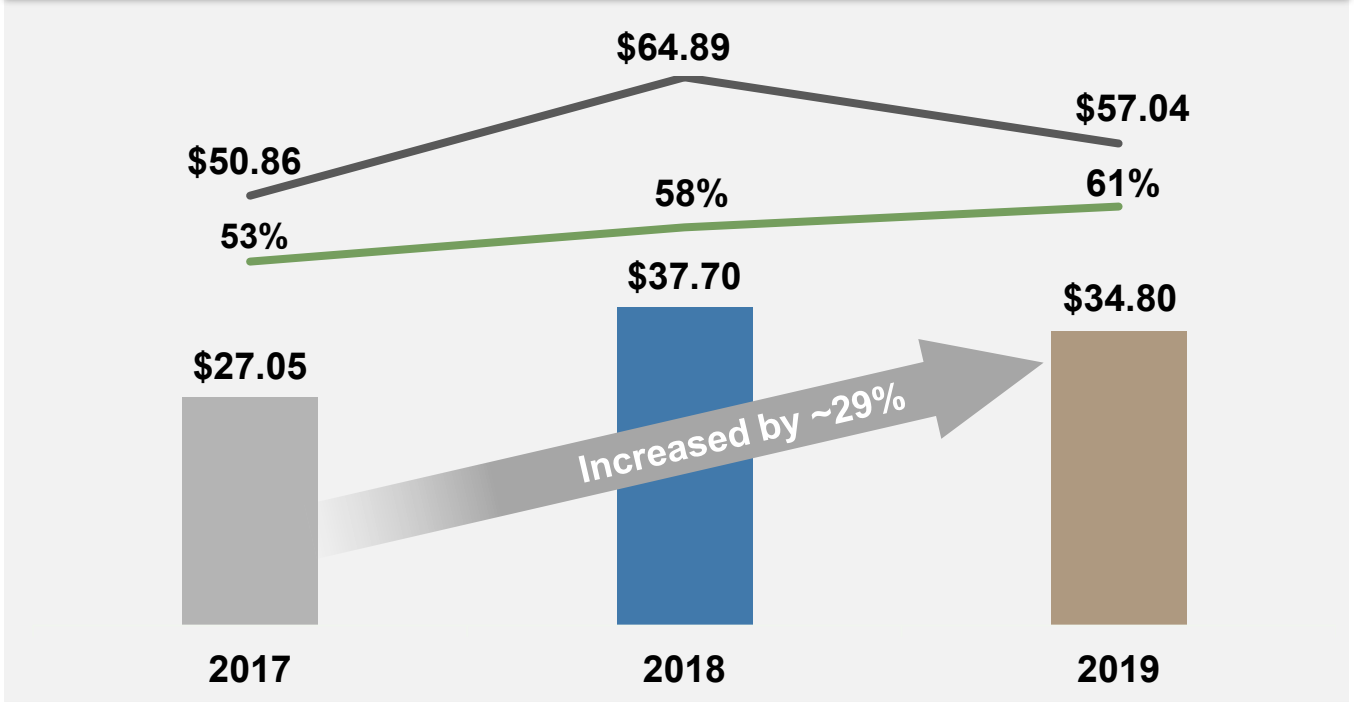
Note: Does not include 3-String Deep wells.
Cycle time is defined as the time from spud of first well on pad to first production.

Peer Leading Margin

PENN VIRGINIA CORPORATION



LLS/MEH Pricing and Low Cost Structure Yield Strong Margins



High Adjusted EBITDAX per BOE[1]

Note: Margin = Adjusted EBITDAX per BOE/WTI Price.

1) Adjusted EBITDAX per BOE is a non-GAAP financial measure. Definitions of non-GAAP financial measures and reconciliations of non-GAAP financial measures to the closest GAAP-based financial measures appear at the end of this presentation.

Delivering Moderate Oil Growth at Reduced Capex

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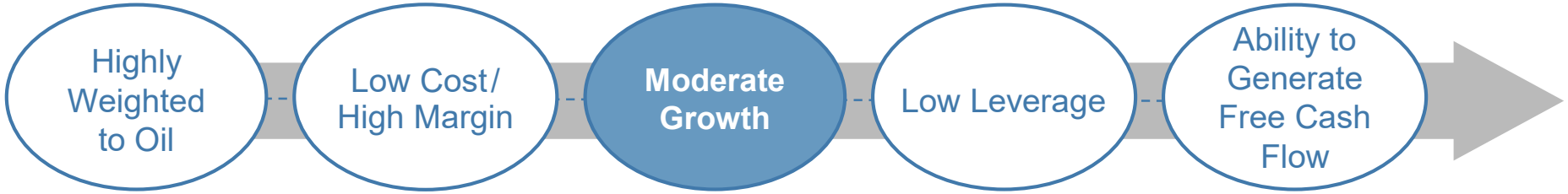
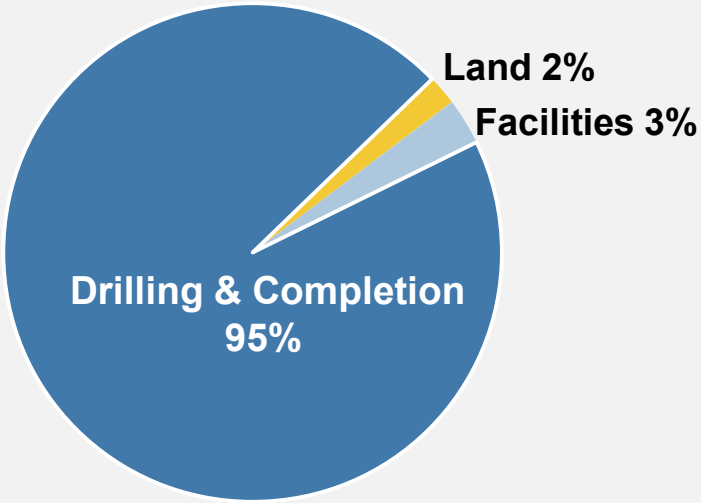


- Plan Calls for Similar Development Pace as 2019 with Capital Reflecting an Anticipated 15-20% Cost Reduction Over 2019
- Plan Results in Moderate Oil 2-9% Growth While Producing Free Cash Flow
- Estimated 2020 Capital Expenditures: Between $280 MM and $310 MM
  - 2020 Plan to Spud 47 Gross Wells (~40 Net Wells) vs. (41 Net Wells in 2019)
    - 1Q'20 – 12 Gross Wells (~10 Net Wells)
  - 2020 Plan to Turn in Line 50 Gross Wells (~43 Net Wells) vs. (43 Net Wells in 2019)
    - 1Q'20 – 10 Gross Wells (~8 Net Wells)

2020 Capital by Type



Expect to Generate Free Cash Flow in 2020

1) Guidance as of February 27, 2020. All guidance is subject to change without notice depending upon a number of factors, including commodity prices, industry conditions and other factors that are beyond the Company's control. The Company undertakes no obligation to affirm or update its guidance.

Low Leverage with Continued Improvement

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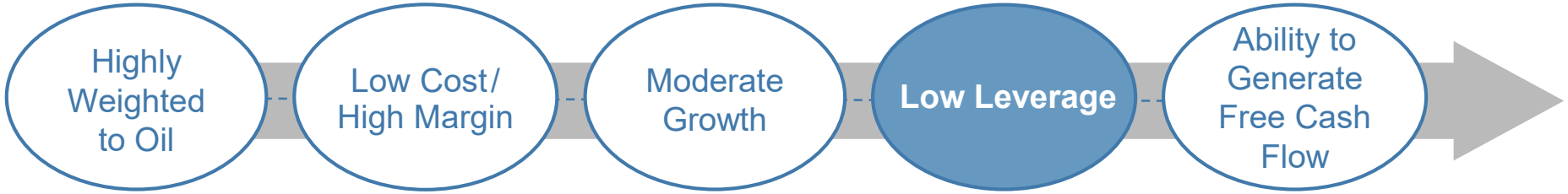

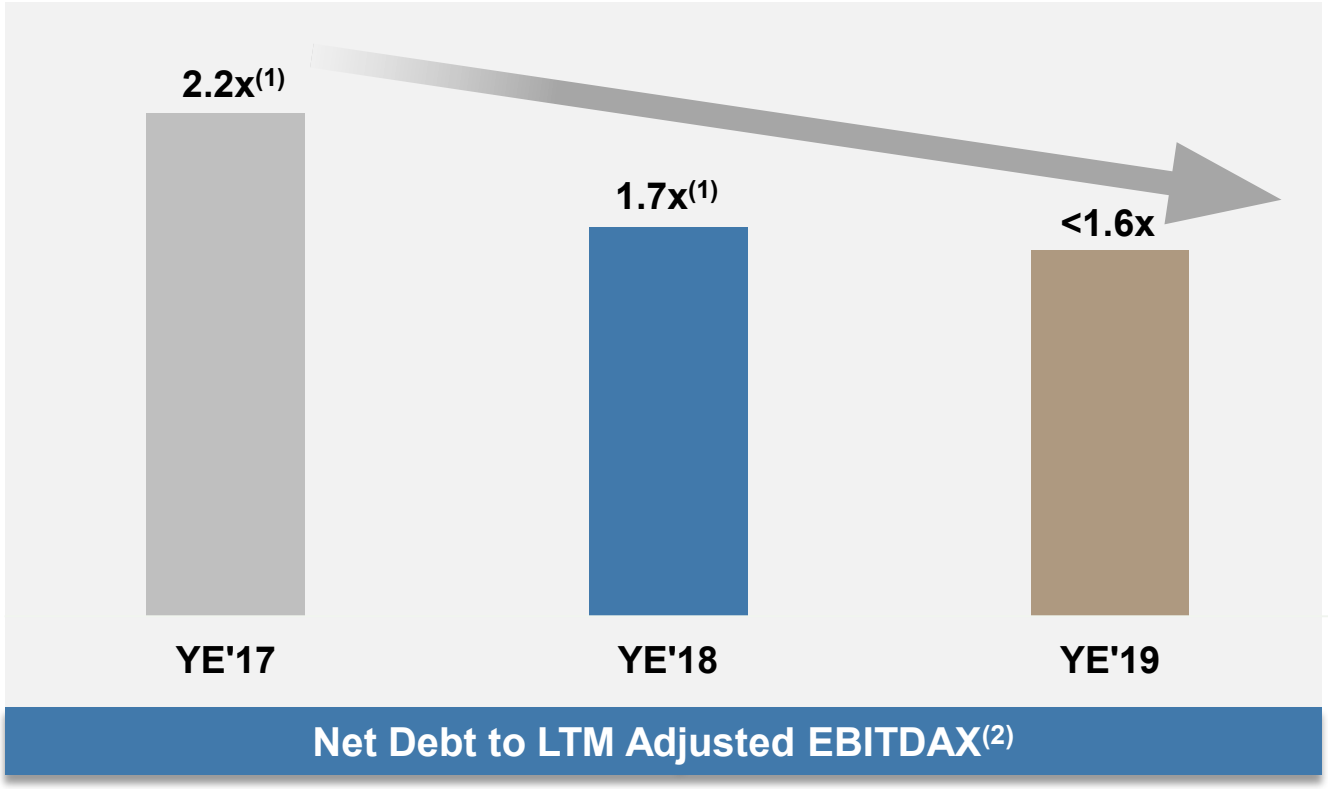

1) Pro forma for acquisitions and divestitures.
2) Leverage Ratio is defined as Net Debt to LTM Adjusted EBITDAX. Net Debt and Adjust EBITDAX are non-GAAP measures defined and reconciled in the Appendix of this presentation.

3Q 2019 Oil Weighting

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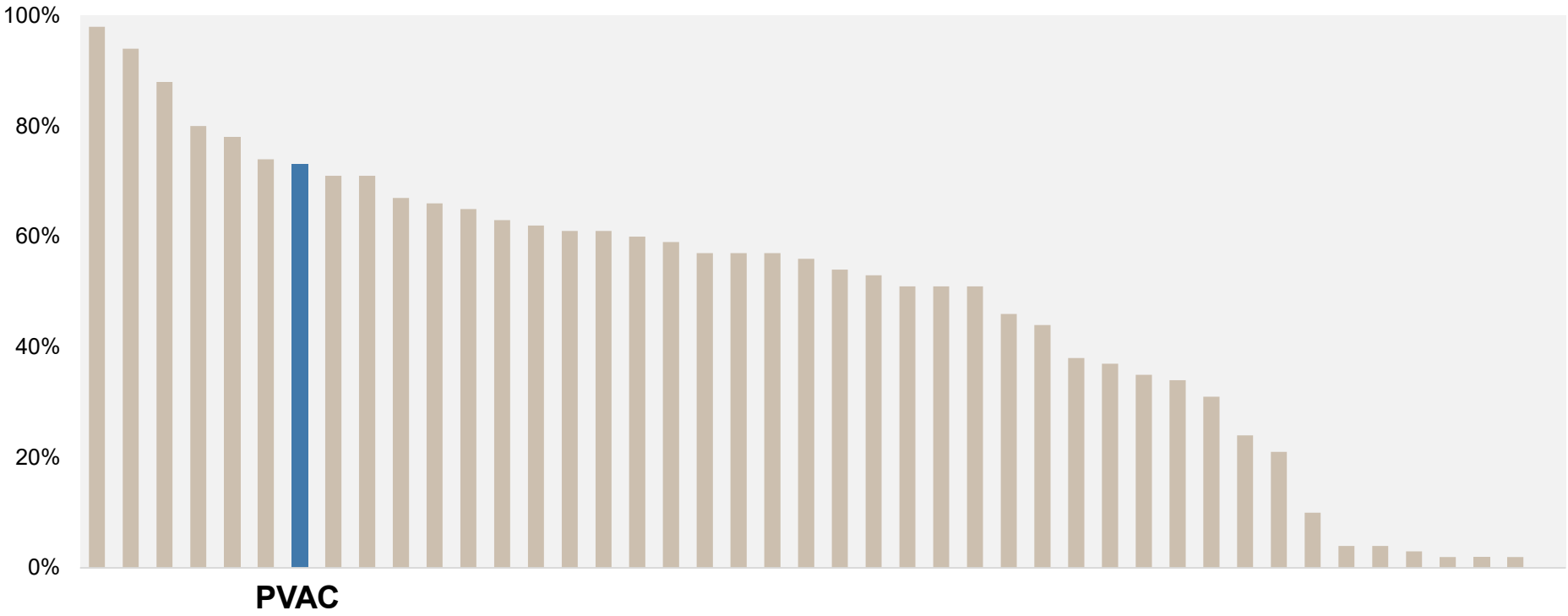
PVAC Has One of The Highest Percent Oil in E&P Sector

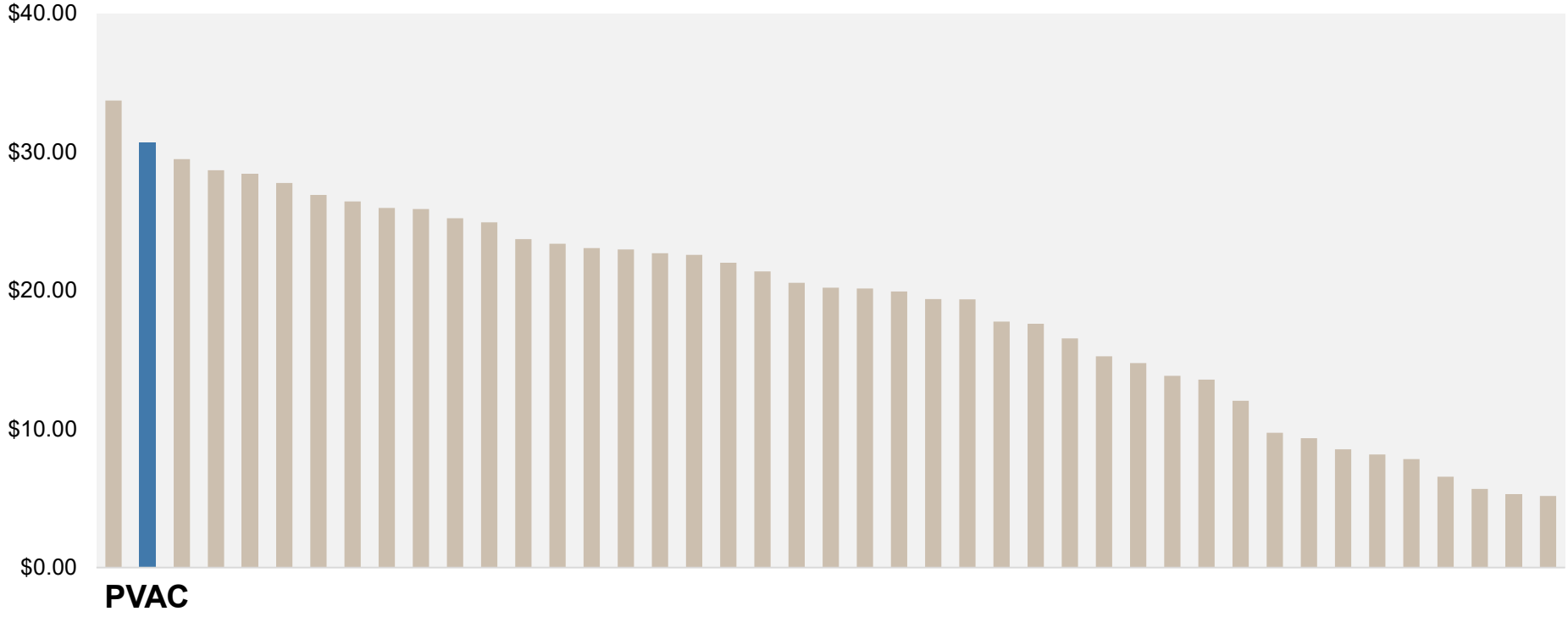


Source: Press releases, presentations and other public data.
Note: Peers include: APA, AR, BCEI, BRY, CHK, CLR, COG, CPE, CRK, CXO, DNR, DVN, EOG, ERF, FANG, GDP, GPOR, HES, KOS, LLEX, LPI, MR, MRO, MTDR, MUR, NBL, NOG, OAS, OXY, PDCE, PE, PXD, QEP, REI, RRC, SM, SWN, TALO, UNT, WLL, WPX, WTI and XEC.

2020E Peer Group Margin

PENN VIRGINIA CORPORATION

PVAC Projected to Have One of The Highest EBITDA per BOE



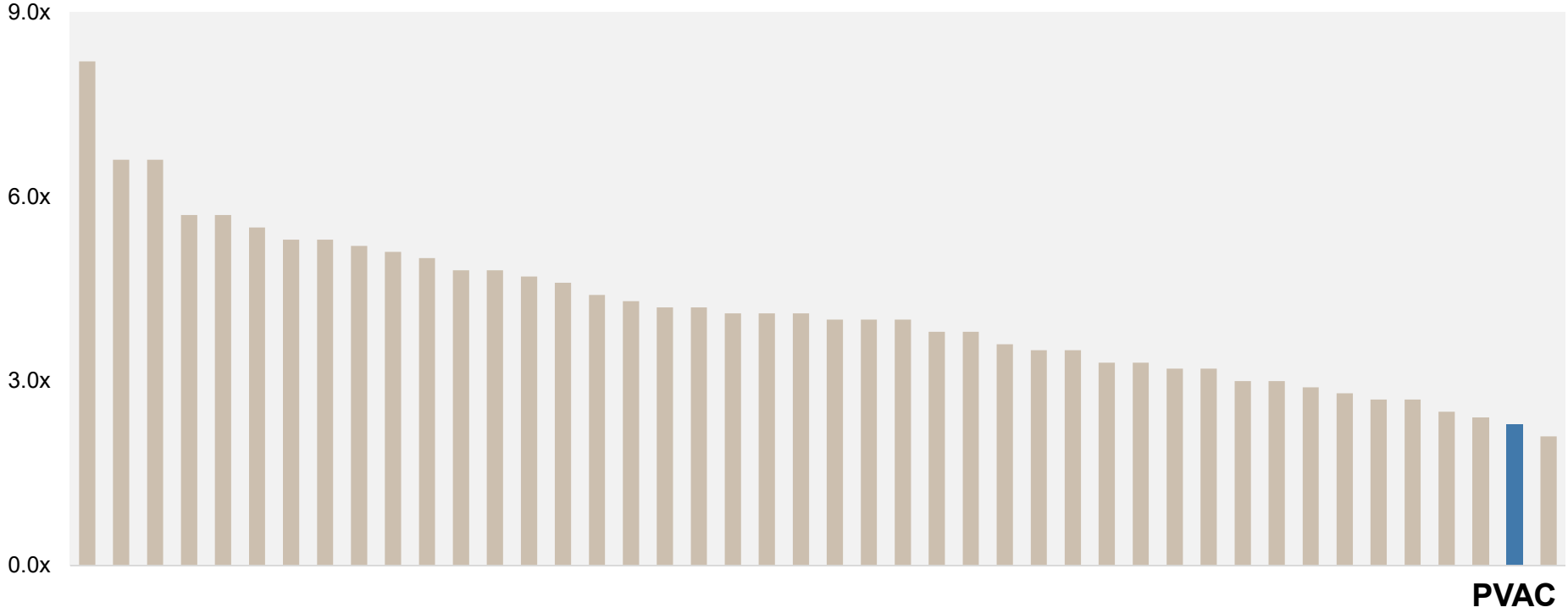
Disclaimer: PVAC and Peer data is based on the arithmetic average of all consensus estimates publicly available at the time of publication of the consensus figures on Factset. Any opinions, forecasts, estimates, projections or predictions regarding Penn Virginia and its peers' performance by the analysts are theirs alone and do not in any way represent the opinions, forecasts, estimates, projections or predictions of Penn Virginia or its management. In providing these figures, Penn Virginia does not imply its endorsement of, or concurrence with, such information. The figures are provided for information purposes only and should not be relied upon in making an investment decision.

Source: Consensus Estimates as of February 5, 2020.
Note: Peers include: APA, AR, BCEI, BRY, CHK, CLR, COG, CPE, CRK, CXO, DNR, DVN, EOG, ERF, FANG, GDP, GPOR, HES, KOS, LLEX, LPI, MR, MRO, MTDR, MUR, NBL, NOG, OAS, OXY, PDCE, PE, PXD, QEP, REI, RRC, SM, SWN, TALO, UNT, WLL, WPX, WTI and XEC.

2020E Peer Group Trading Multiple

PENN VIRGINIA CORPORATION

PVAC Currently at One of the Lowest Forward Multiples[1]



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Source: Consensus estimates and enterprise values from third party research report dated February 5, 2020.

Note: Peers include: APA, AR, BCEI, BRY, CHK, CLR, COG, CPE, CRK, CXO, DNR, DVN, EOG, ERF, FANG, GDP, GPOR, HES, KOS, LLEX, LPI, MR, MRO, MTDR, MUR, NBL, NOG, OAS, OXY, PDCE, PE, PXD, QEP, REI, RRC, SM, SWN, TALO, UNT, WLL, WPX, WTI and XEC.

1) EV/2020E EBITDA=Total Enterprise Value/2020E EBITDA.

Guidance

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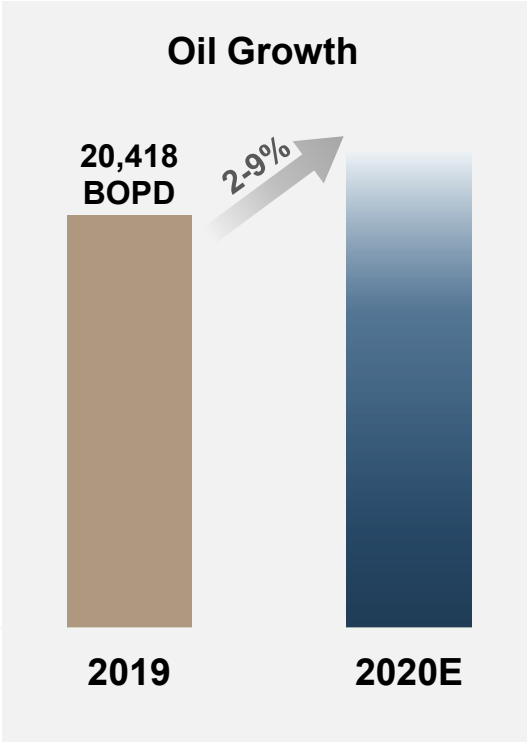
The table below sets forth the Company's guidance for 2020:

	2020
Production (BOPD)	20,800 – 22,200
Production (BOEPD)	27,300 – 29,100
Realized Price Differentials	
Oil (WTI, per barrel)	$(1.00) - $0.00
Natural gas (Henry Hub, per MMBtu)	$(0.10) - $0.10
Direct Operating Expenses	
Lease operating expenses (per BOE)	$4.15 - $4.45
GPT expenses (per BOE)	$2.35 - $2.55
Ad valorem and production taxes (percent of product revenue)	6.00% - 6.50%
Cash G&A expenses (per BOE)	$2.60 - $2.90
Capital Expenditures (millions)	
Drilling & Completion	$265 - $295
Land, Facilities and other	~$15



Expect to Grow Oil Production by 2-9% in 2020

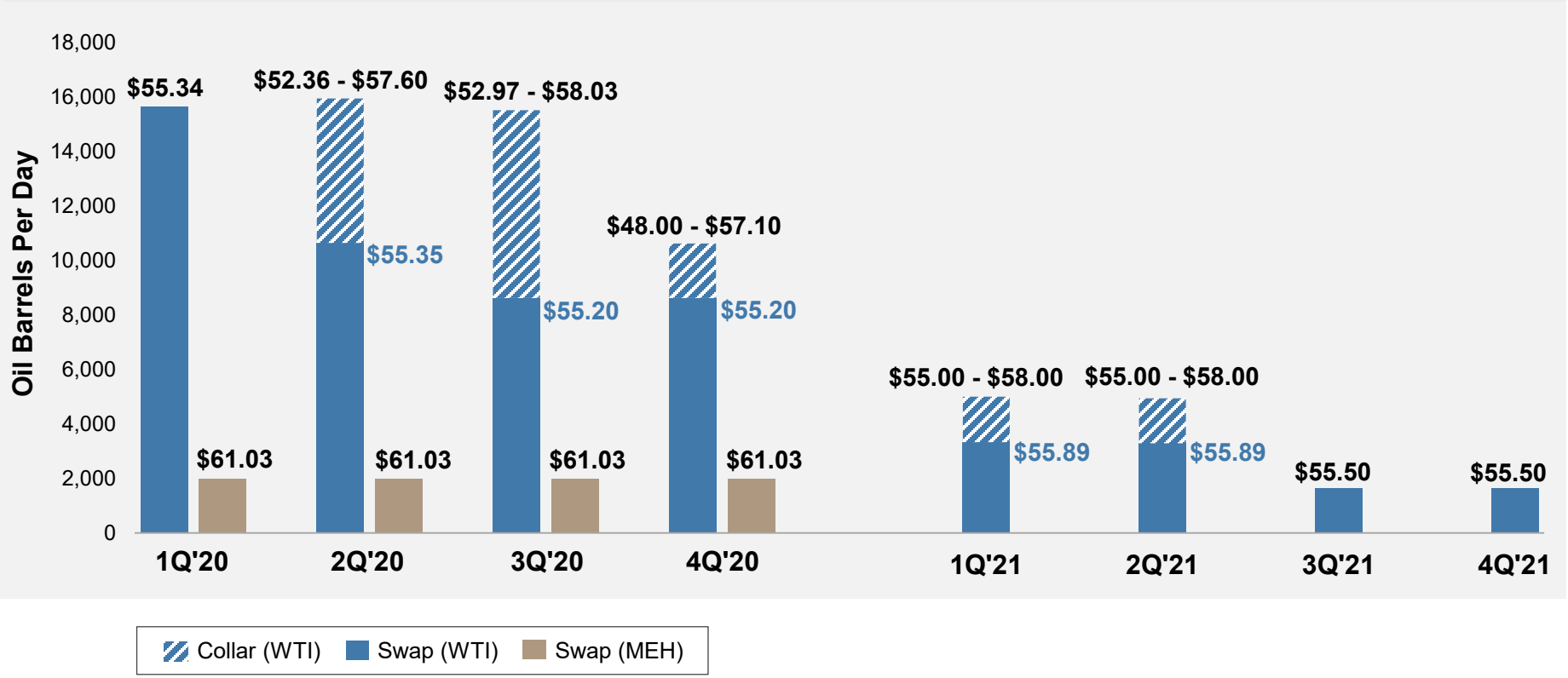
Note: Guidance as of February 27, 2020. All guidance is subject to change without notice depending upon a number of factors, including commodity prices, industry conditions and other factors that are beyond the Company's control. The Company undertakes no obligation to update its guidance.

Updated Hedge Portfolio

PENN VIRGINIA CORPORATION

- Represents approximately 76% of oil volume relative to mid-point of guidance

Mitigating Commodity Price Volatility Through Proactive Hedging Program



Note: As of January 31, 2020. 1.2 million barrels ("MMBbls") of 2021 oil volumes are subjected to sold put options with a strike price of $44.00 per Bbls.

2019 Major Accomplishments

PENN VIRGINIA CORPORATION

- ✓ Generated Free Cash Flow[1] for 4Q'19
- ✓ Grew Oil Production 23% and Total Production 27% Y-o-Y
- ✓ Increased Proved Reserves by 8% Y-o-Y to 133 MMBOE
- ✓ Achieved Record Low Operating Cost and LOE Expense
- ✓ Generated Adjusted EBITDAX of $352 Million[1]
- ✓ Improved Leverage Ratio Below 1.6x[1]
- ✓ Achieved a TRIR of 0.27 for 2019

1) This non-GAAP financial measure is defined and reconciled in the appendix of this presentation.

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Appendix

Strategic Solutions Driving LOE Costs Lower

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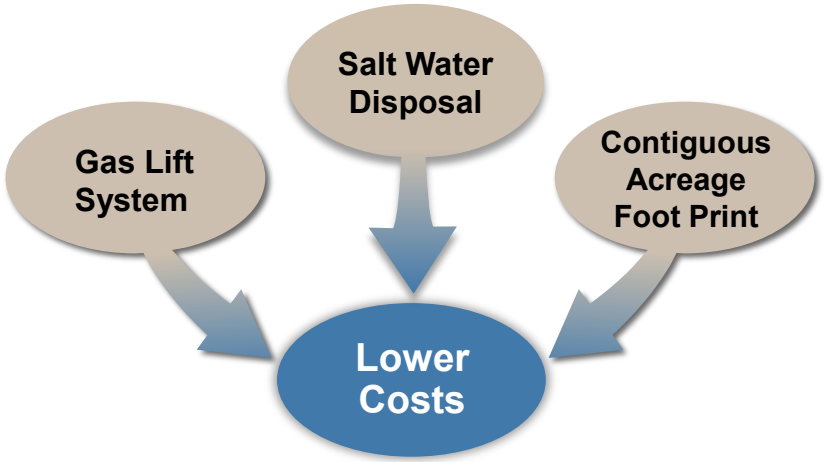
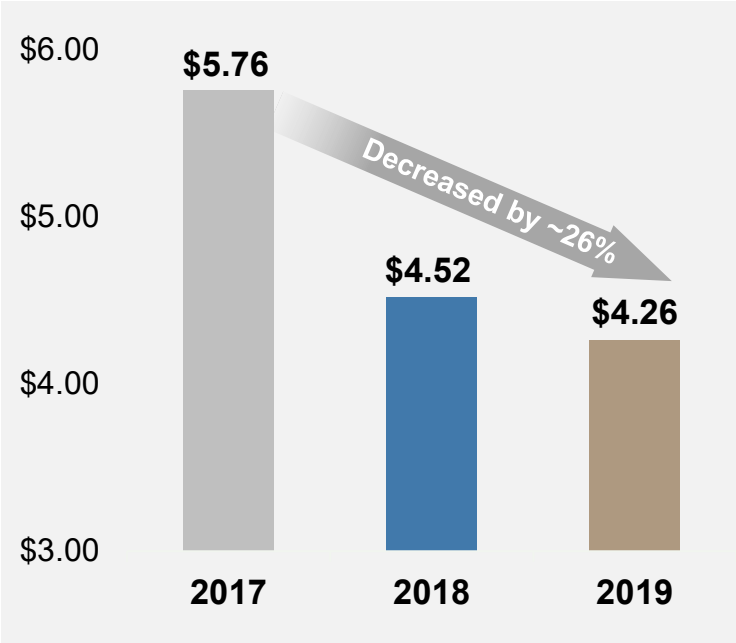
Focused on Lowering LOE Costs



- Gas Lift System
  - ~85% of PVAC wells on gas lift
  - Minimizes downhole repairs and maximizes uptime
- Salt Water Disposal System ("SWD")
  - Reduces LOE by ~$1.25 per barrel of water
  - ~30 miles of SWD gathering lines
- Contiguous Acreage Position Allows for Infrastructure Buildout and Competitive Edge of Low-cost Operator
- Oil / Gas Pipeline Infrastructure Buildout Cost Borne by Third Parties



Crude Oil Delivery Optionality

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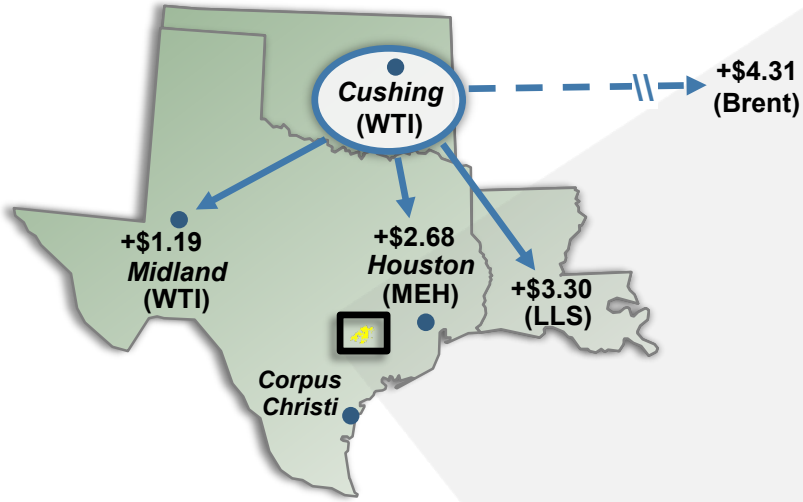
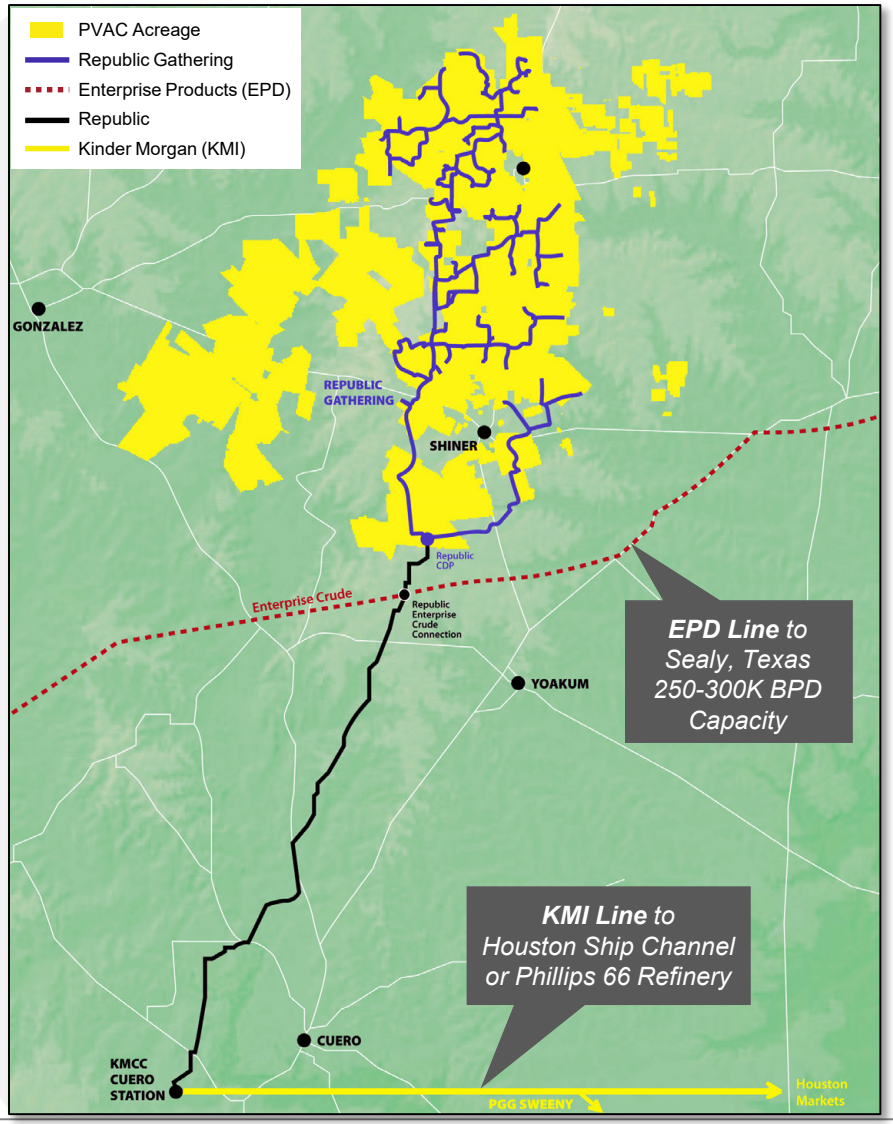
Crude Spreads Balance of 2020[1]



- Geographic Location Provides PVAC's Production Access to LLS/MEH Markets and Pricing
- Four Delivery Points
  - Kinder Morgan (KMI)
  - Enterprise Products (EPD) (Eagle Ford Crude Oil System)
  - Philips 66 Refinery – Sweeny Texas
  - Trucking to Texas Gulf Coast Ports
- Excess Capacity on Kinder Morgan and Enterprise Products Pipelines
- ~85% of PVAC Oil Production on Pipe



1) As of February 3, 2020.

Increased Proved Reserves by 8% Year over Year

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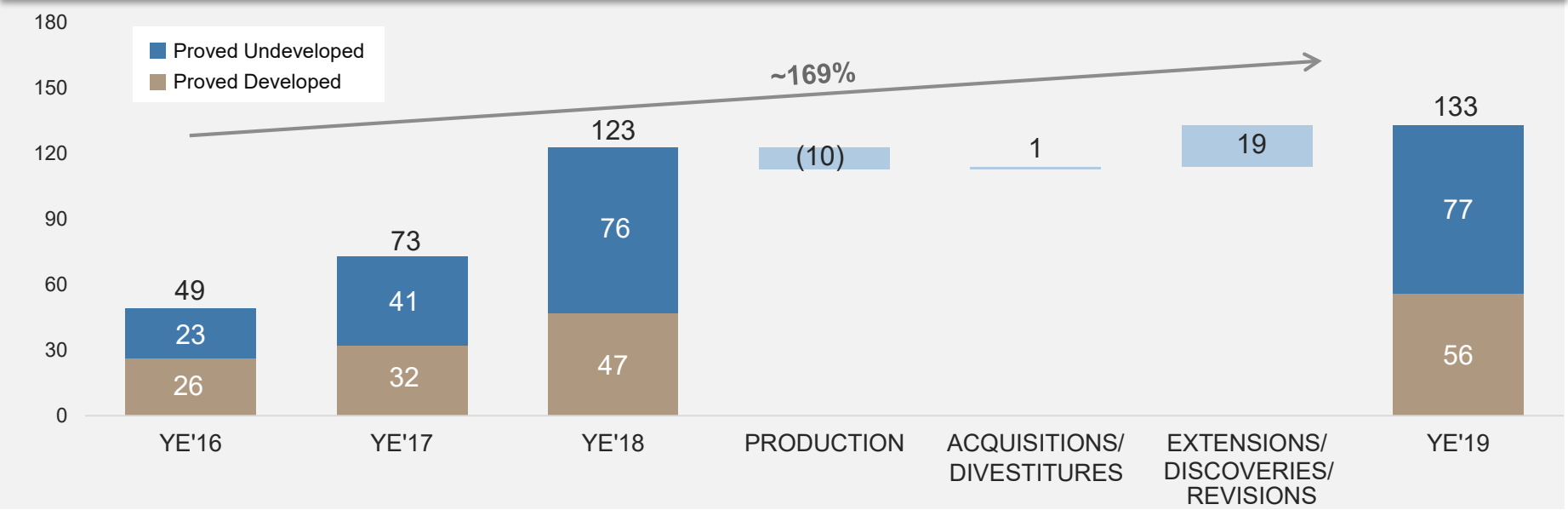
- YE'19 total proved reserves up 8% year over year
  - Proved reserves up 169% from year-end 2016
- Total reserves replacement[1] of ~201%
- SEC PV-10 Total Proved ($MM) of $1,600[2][3]

Proved Reserves Summary

YE'19	Oil MMBbl	Gas Bcf	NGL MMBbl	Total MMBoe	PV-10[2][3] $MM
PD	40.6	41.8	8.8	56.5	$1,012
PUD	58.3	48.6	10.3	76.7	$588
Total Proved	**98.9**	**90.4**	**19.2**	**133.1**	**$1,600**

Reserves Roll-Forward



1) For an explanation of this supplemental measure, see the section titled "Reserves Replacement Ratio Definition" at the end of this presentation.
2) As of December 31, 2019.
3) PV-10 is a non-GAAP measure reconciled to GAAP standardized measure in the appendix of this presentation.

Hedge Summary – Quarterly[1]

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	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21
Hedges - SWAPS ONLY								
WTI Hedges (MBO)	1,424	969	794	794	–	–	–	–
WTI Hedges (BO/d)	15,648	10,648	8,630	8,630	–	–	–	–
WTI Average Floor	$55.34	$55.35	$55.20	$55.20	–	–	–	–
WTI Average Ceiling	$55.34	$55.35	$55.20	$55.20	–	–	–	–
MEH Hedges (MBO)	182	182	184	184	–	–	–	–
MEH Hedges (BO/d)	2,000	2,000	2,000	2,000	–	–	–	–
MEH Average Floor	$61.03	$61.03	$61.03	$61.03	–	–	–	–
MEH Average Ceiling	$61.03	$61.03	$61.03	$61.03	–	–	–	–
Hedges - 2-WAY COLLARS ONLY								
WTI Hedges (MBO)	–	482	634	184	–	–	–	–
WTI Hedges (BO/d)	–	5,297	6,891	2,000	–	–	–	–
WTI Average Floor	–	$52.36	$52.97	$48.00	–	–	–	–
WTI Average Ceiling	–	$57.60	$58.03	$57.10	–	–	–	–
HH Hedges (BBtu)	540	810	810	810	–	–	–	–
HH Hedges (MMBtu/d)	5,934	8,901	8,804	8,804	–	–	–	–
HH Average Floor	$2.00	$2.00	$2.00	$2.00	–	–	–	–
HH Average Cap	$2.18	$2.18	$2.18	$2.18	–	–	–	–
Hedges - ENHANCED SWAPS ONLY								
WTI Hedges (MBO)	–	–	–	–	300	300	150	150
WTI Hedges (BO/d)	–	–	–	–	3,333	3,297	1,630	1,630
WTI Average Floor	–	–	–	–	$55.89	$55.89	$55.50	$55.50
WTI Average Cap	–	–	–	–	$55.89	$55.89	$55.50	$55.50
WTI Average Sold Put	–	–	–	–	$44.00	$44.00	$44.00	$44.00
Hedges - 3-WAY COLLARS ONLY								
WTI Hedges (MBO)	–	–	–	–	150	150	–	–
WTI Hedges (BO/d)	–	–	–	–	1,667	1,648	–	–
WTI Average Floor	–	–	–	–	$55.00	$55.00	–	–
WTI Average Cap	–	–	–	–	$58.00	$58.00	–	–
WTI Average Sold Put	–	–	–	–	$44.00	$44.00	–	–

1) As of January 31, 2020.

Non-GAAP Reconciliation – “PV-10”

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Reconciliation of GAAP “Standardized Measure of Discounted Future Net Cash Flows” to Non-GAAP “PV-10”

Non-GAAP PV-10 value is the estimated future net cash flows from estimated proved reserves discounted at an annual rate of 10 percent before giving effect to income taxes. The standardized measure of discounted future net cash flows is the after-tax estimated future cash flows from estimated proved reserves discounted at an annual rate of 10 percent, determined in accordance with generally accepted accounting principles (GAAP). We use non-GAAP PV-10 value as one measure of the value of our estimated proved reserves and to compare relative values of proved reserves amount exploration and production companies without regard to income taxes. We believe that securities analysts and rating agencies use PV-10 value in similar ways. Our management believes PV-10 value is a useful measure for comparison of proved reserve values among companies because, unlike standardized measure, it excludes future income taxes that often depend principally on the characteristics of the owner of the reserves rather than on the nature, location and quality of the reserves themselves.

“Discounted Future Net Cash Flows” to Non-GAAP "PV-10"

	December 31,	
	2019	2018
	(in thousands)	
Standardized measure of future discounted cash flows	$ 1,488,882	$ 1,623,890
Present value of future income taxes discounted at 10%	111,214	145,462
PV-10	$ 1,600,096	$ 1,769,352

Reconciliation of GAAP "Net Income" to Non-GAAP "Adjusted Net Income"

PENN VIRGINIA CORPORATION

Reconciliation of GAAP "Net income" to Non-GAAP "Adjusted Net Income"

Adjusted net income is a non-GAAP financial measure that represents net income (loss) adjusted to include net cash settlements of derivatives and exclude the effects, net of income taxes, of non-cash changes in the fair value of derivatives, (gains) losses on the sales of assets, acquisition, divestiture and strategic transaction costs, executive retirement costs, net other items, reorganization items and alternative minimum tax credit adjustments. We believe that non-GAAP adjusted net income and non-GAAP adjusted net income per share amounts provide meaningful supplemental information regarding our operational performance. This information facilitates management's internal comparisons to the Company's historical operating results as well as to the operating results of our competitors. Since management finds this measure to be useful, the Company believes that our investors can benefit by evaluating both non-GAAP and GAAP results. Non-GAAP adjusted net income is not a measure of financial performance under GAAP and should not be considered as a measure of liquidity or as an alternative to net income (loss).

	2018	2019
	(in thousands, except per share amounts)	
Net income	$ 224,785	$ 70,589
Adjustments for derivatives:		
Net losses (gains)	(37,427)	68,131
Cash settlements, net	(48,291)	(4,136)
(Gain) loss on sales of assets, net	177	(5)
Acquisition, divestiture and strategic transaction costs	3,960	800
Executive retirement costs	250	-
Other, net	(193)	232
Reorganization items, net	(3,322)	-
Alternative minimum tax credit adjustments to income taxes, net	523	-
Non-GAAP Adjusted net income	$ 140,462	$ 135,611
Net income, per diluted share	$ 14.70	$ 4.67
Non-GAAP Adjusted net income, per diluted share	$ 9.19	$ 8.97

Reconciliation of GAAP "Net Income" to Non-GAAP "Adjusted EBITDAX"

PENN VIRGINIA CORPORATION

Reconciliation of GAAP "Net income" to Non-GAAP "Adjusted EBITDAX"

Adjusted EBITDAX represents net income (loss) before interest expense, income taxes, depreciation, depletion and amortization expense and share-based compensation expense, further adjusted to include the net cash settlements of derivatives and exclude the effects of (gains) losses on sales of assets, non-cash changes in the fair value of derivatives, and special items including acquisition, divestiture and strategic transaction costs, executive retirement costs, net other items, reorganization items and restructuring expenses. We believe this presentation is commonly used by investors and professional research analysts for the valuation, comparison, rating, investment recommendations of companies within the oil and gas exploration and production industry. We use this information for comparative purposes within our industry. Adjusted EBITDAX is not a measure of financial performance under GAAP and should not be considered as a measure of liquidity or as an alternative to net income (loss). Adjusted EBITDAX as defined by Penn Virginia may not be comparable to similarly titled measures used by other companies and should be considered in conjunction with net income (loss) and other measures prepared in accordance with GAAP, such as operating income or cash flows from operating activities. Adjusted EBITDAX should not be considered in isolation or as a substitute for an analysis of Penn Virginia's results as reported under GAAP.

	2017	2018	2019
	(in thousands, except per unit amounts)		
Net income	$ 32,662	$ 224,785	$ 70,589
Adjustments to reconcile to Adjusted EBITDAX:			
Interest expense, net	6,392	26,462	35,811
Income tax (benefit) expense	(4,943)	523	2,137
Depreciation, depletion and amortization	48,649	127,961	174,569
Share-based compensation expense (equity-classified)	3,809	4,618	4,082
(Gain) loss on sales of assets, net	36	177	(5)
Adjustments for derivatives:			
Net losses (gains)	17,819	(37,427)	68,131
Cash settlements, net	(3,511)	(48,291)	(4,136)
Adjustment for special items:			
Acquisition, divestiture and strategic transaction costs	1,340	3,960	800
Executive retirement costs	-	250	-
Other, net	-	(193)	232
Reorganization items, net	-	(3,322)	-
Restructuring expenses	(20)	-	-
Adjusted EBITDAX	$ 102,233	$ 299,503	$ 352,210
Net income per BOE	8.64	28.30	6.97
Adjusted EBITDAX per BOE	$ 27.05	$ 37.70	$ 34.80

Reconciliation of GAAP "Operating expenses" to Non-GAAP "Adjusted Direct Operating Expenses and Adjusted Direct Operating Expenses per BOE"

PENN VIRGINIA CORPORATION

Reconciliation of GAAP “Operating Expenses” to Non-GAAP “Adjusted Direct Operating Expenses and Adjusted Direct Operating Expenses per BOE”

Adjusted direct operating expenses and adjusted direct operating expenses per BOE are a supplemental non-GAAP financial measure that excludes certain non-recurring expenses and non-cash expenses. We believe that the non-GAAP measure of Adjusted total direct operating expense per BOE is useful to investors because it provides readers with a meaningful measure of our cost profile and provides for greater comparability period-over-period.

	2017	2018	2019
	(in thousands, except per unit amounts)		
Operating expenses - GAAP	$ 108,182	$ 232,077	$ 294,395
Less:			
Share-based compensation - equity-classified awards	(3,809)	(4,618)	(4,082)
Depreciation, depletion and amortization	(48,649)	(127,961)	(174,569)
Total cash direct operating expenses	55,724	99,498	115,744
Significant special charges:			
Acquisition, divestiture and strategic transaction costs	(1,340)	(3,960)	(800)
Executive retirement costs	-	(250)	-
Restructuring expenses	20	-	-
Non-GAAP Adjusted direct operating expenses	$ 54,404	$ 95,288	$ 114,944
Total cash direct operating expenses per BOE	$ 14.75	$ 12.52	$ 11.44
Operating expenses per BOE	$ 28.63	$ 29.21	$ 29.09
Non-GAAP Adjusted direct operating expenses per BOE	$ 14.40	$ 11.99	$ 11.36

Reconciliation of GAAP "General and Administrative Expenses" to Non-GAAP "Adjusted Cash General and Administrative Expenses"

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Reconciliation of GAAP "General and Administrative Expenses" to Non-GAAP "Adjusted Cash General and Administrative Expenses"

Adjusted cash general and administrative expense is a supplemental non-GAAP financial measure that excludes certain non-recurring expenses and non-cash share-based compensation expense. We believe that the non-GAAP measure of Adjusted cash general and administrative expenses is useful to investors because it provides readers with a meaningful measure of our recurring G&A expense and provides for greater comparability period-over-period.

	2017	2018	2019
	(in thousands, except per unit amounts)		
General and administrative expenses - direct	$ 14,392	$ 21,446	$ 21,402
Share-based compensation - equity-classified awards	3,809	4,618	4,082
GAAP General and administrative expenses	18,201	26,064	25,484
Less: Share-based compensation - equity-classified awards	(3,809)	(4,618)	(4,082)
Significant special charges:			
Acquisition, divestiture and strategic transaction costs	(1,340)	(3,960)	(800)
Executive retirement costs	-	(250)	-
Restructuring expenses	20	-	-
Non-GAAP Adjusted cash general and administrative expenses	$ 13,072	$ 17,236	$ 20,602
GAAP General and administrative expenses per BOE	$ 4.82	$ 3.28	$ 2.52
Non-GAAP Adjusted cash general and administrative expenses per BOE	$ 3.46	$ 2.17	$ 2.04

Non-GAAP Reconciliation – Free Cash Flow ("FCF")

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Definition and Explanation of Free Cash Flow

Free Cash Flow is not a measure of net income (loss) as determined by GAAP. We define Free Cash Flow as Discretionary Cash Flow (non-GAAP) less acquisition capital plus asset divestiture proceeds plus sale and use tax refunds less oil and gas capital expenditures. Discretionary Cash Flow is defined as net cash provided by operating activities (GAAP) less changes in working capital (current assets and liabilities). Free Cash flow is not a measure of financial performance under GAAP and should not be considered as a measure of liquidity or as an alternative to Net Cash Provided by Operating Activities. We believe this presentation is commonly used by investors and professional research analysts for the valuation, comparison, rating, investment recommendations of companies within the oil and gas exploration and production industry. We use this information for comparative purposes within our industry.

	4Q'19	2019
	(in thousands)	
EBITDAX, as reported	$ 96,380	$ 352,210
Interest expense, as reported, less non-cash interest	(8,633)	(36,593)
Income taxes refunded	2,471	2,471
Debt issues costs paid	-	(2,616)
Working capital and other, net	(21,585)	(8,602)
Discretionary cash flows	68,633	306,870
Capital expenditures, as reported	(64,623)	(355,851)
Acquisitions	(560)	(6,516)
Proceeds from asset sales	-	215
Sales and use tax refunds applied to capital additions	961	3,816
Capital additions, net	(64,222)	(358,336)
Free cash flow	$ 4,411	$ (51,466)
Net Debt at beginning of period	$ 559,013	$ 503,136
Less: Net debt at end of period	(554,602)	(554,602)
Free cash flow	$ 4,411	$ (51,466)

Definition of Net Debt

PENN VIRGINIA CORPORATION

Net Debt

Net debt, excluding unamortized discount and debt issuance costs is a non-GAAP financial measure that is defined as total principal amount of long-term debt less cash and cash equivalents. The most comparable financial measure to net debt, excluding unamortized discount and debt issuance costs under GAAP is principal amount of long-term debt. Net debt is used by management as a measure of our financial leverage. Net debt, excluding unamortized discount and debt issuance costs should not be used by investors or others as the sole basis in formulating investment decisions as it does not represent the Company's actual indebtedness.

	December 31, 2019	September 30, 2019	December 31, 2018
		(in thousands)	
Credit Facility	$ 362,400	$ 370,400	$ 321,000
Second Lien term loan, excludes unamortized discount and issue costs	200,000	200,000	200,000
Cash and cash equivalents	(7,798)	(11,387)	(17,864)
Net Debt	$ 554,602	$ 559,013	$ 503,136

Non-GAAP Reconciliation – Reserve Replacement Ratio

PENN VIRGINIA CORPORATION

Reserve Replacement Ratio - Definition

The Company uses the reserve replacement ratio as an indicator of the Company's ability to replenish annual production volumes and grow its reserves, thereby providing some information on the sources of future production. The reserve replacement ratio is a statistical indicator that is limited because it typically varies widely based on the extent and timing of discoveries and property acquisitions. Its predictive and comparative value is also limited for the same reasons. In addition, since the ratio does not embed the cost or timing of future production of new reserves, it cannot be used as a measure of value creation. The reserve replacement ratio of approximately 201% was calculated by dividing net proved reserve additions of 20.3 MMBOE (the sum of extensions, discoveries, revisions, purchases and sales) by production of 10.1 MMBOE.