



MONTANA
DEPARTMENT OF
REVENUE

**2023 Capitalization Rate Study
Pipelines - Liquid**

Completed: March 24, 2023

MONTANA DEPARTMENT OF REVENUE

Yield Capitalization Rate Conclusion

Industry: Pipelines - Liquid

2023 Assessment Year

Capital Structure ^[1]

Equity	50.00%
Debt	50.00%

Equity Cost of Capital

		Weighting
Capital Asset Pricing Model - Ex Post ^[2]	12.74%	56%
Capital Asset Pricing Model - Ex Ante ^[2]	10.96%	14%
3 Stage Dividend Discount Model - Dividends ^[3]	21.70%	15%
3 Stage Dividend Discount Model - Earnings ^[3]	21.95%	15%
Weighted Average	15.22%	100%
Selected Cost of Equity	15.22%	

Debt Cost of Capital

		Weighting
A - Mergent's - Avg. YTM of A Rated Corporate Bonds ^[4]	5.12%	0%
Baa - Mergent's - Avg. YTM of Baa Rated Corporate Bonds ^[4]	5.59%	80%
Ba - MTDOR High Yield Debt Study ^[5]	6.97%	20%
B - MTDOR High Yield Debt Study ^[5]	7.71%	0%
Weighted Average	5.87%	100%
Selected Cost of Debt	5.87%	

Weighted Average Cost of Capital (WACC)

Source of Capital	Capital Structure	Cost of Capital	Marginal Tax Rate	After-tax Cost of Capital	Weighted Cost
Equity	50.00%	15.22%		15.22%	7.61%
Debt	50.00%	5.87%	24.00%	4.46%	2.23%
WACC	100.00%				9.84%
WACC (Rounded)					9.85%

Notes

- [1] From worksheet: Capital Structure
- [2] From worksheet: Capital Asset Pricing Model Summary
- [3] From worksheet: Yield Equity Summary
- [4] January 2023, Mergent Bond Record
- [5] Montana Department of Revenue High Yield Debt Study

MONTANA DEPARTMENT OF REVENUE

Direct Capitalization Rate Conclusion

Industry: Pipelines - Liquid

2023 Assessment Year

Capital Structure ^[1]

Equity	50.00%
Debt	50.00%

Equity Capitalization Rate ^[2]

NOI After-tax	10.10%
GCF	17.30%

Debt Capitalization Rate ^[3]

Calculated Current Yield	4.82%
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NOI After-tax Direct Capitalization Rate

Source of Capital	Capital Structure	Capitalization Rate	Marginal Tax Rate	After-tax Capitalization Rate	Weighted Capitalization Rate
Equity	50.00%	10.10%		10.10%	5.05%
Debt	50.00%	4.82%	24.00%	3.66%	1.83%
Total	100.00%				6.88%
Total (Rounded)					6.90%

GCF Direct Capitalization Rate

Source of Capital	Capital Structure	Capitalization Rate	Marginal Tax Rate	After-tax Capitalization Rate	Weighted Capitalization Rate
Equity	50.00%	17.30%		17.30%	8.65%
Debt	50.00%	4.82%	24.00%	3.66%	1.83%
WACC	100.00%				10.48%
Total (Rounded)					10.50%

Notes:

[1] From worksheet: Capital Structure

[2] From worksheet: Direct Equity Summary

[3] From worksheet: Calculated Current Yield

MONTANA DEPARTMENT OF REVENUE

Selection of Guideline Companies**Industry: Pipelines - Liquid****2023 Assessment Year**

Screening Requirements:

The universe of companies is all companies listed in Value Line under the Pipeline MLPs industry.

Companies were then selected using the following screening criteria:

1. Primarily engaged in the transportation, storage, and terminaling of crude oil, refined products, and liquified petroleum gas.
2. Actively traded on an American exchange.
3. Incorporated as a limited partnership.
4. Operate in the North / central regions of the West and Midwest
5. No significant merger & acquisition activity during the year.

Company Ticker	Transportation etc. of petroleum liquids	Actively traded on an American Exchange	Incorporated as LP	Operates in North / West Region	Consider as Potential Guideline Company	Not Engaged in Material M&A Activity	Use as Guideline Company	Note
CAPL	No							
CEQP	No							
CQP	No							
DCP	No							
DKL	Yes	Yes	Yes	No	No			
EPD	No							
ET	No							
GEL	Yes	Yes	Yes	No	No			
GLP	No							
GPP	No							

MONTANA DEPARTMENT OF REVENUE

Selection of Guideline Companies

Industry: Pipelines - Liquid

2023 Assessment Year

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Company Ticker	Transportation etc. of petroleum liquids	Actively traded on an American Exchange	Incorporated as LP	Operates in North / West Region	Consider as Potential Guideline Company	Not Engaged in Material M&A Activity	Use as Guideline Company	Note
HEP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
HESM	No							
MMLP	No							
MMP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
MPLX	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
NGL	No							
NS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
PAA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
PAGP	No							
SMLP	No							
SPH	No							
WES	No							

MONTANA DEPARTMENT OF REVENUE

Support for Capital Structure
Industry: Pipelines - Liquid
2023 Assessment Year

(\$ and Shares Outstanding In Millions, Except Per Share Amounts)

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Ticker Symbol	Company	Industry Group	Financial Strength	Shares Outstanding	End of Year Closing Stock Price	MV Common Stock	MV Preferred Stock	MV Long Term Debt	PV of Operating Leases	Total Common, Preferred, LT Debt, & Op Leases	% Common	% Preferred	% Debt & Op Leases
		<i>Value Line</i>	<i>Value Line</i>	<i>10-K</i>	<i>Yahoo</i>	<i>ExF</i>	<i>10-K</i>	<i>10-K</i>	<i>10-K</i>	<i>G+H+I+J</i>	<i>G/K</i>	<i>H/K</i>	<i>(I+J)/K</i>
							<i>Note [1]</i>	<i>Note [2]</i>					
HEP	Holly Energy Part.	PIPEMLP	C+	126.44	18.12	2,291	0	1,588	3	3,881	59%	0%	41%
MMP	Magellan Midstream	PIPEMLP	B+	203.29	50.21	10,207	0	4,233	148	14,588	70%	0%	30%
MPLX	MPLX LP	PIPEMLP	B+	1,001.04	32.84	32,874	611	17,986	276	51,747	64%	1%	35%
NS	NuStar Energy L.P.	PIPEMLP	B	110.82	16.00	1,773	1,203	3,225	62	6,264	28%	19%	52%
PAA	Plains All Amer. Pipe.	PIPEMLP	B	698.35	11.76	8,213	2,292	7,646	379	18,530	44%	12%	43%
All Companies						53,067	4,106	33,090	865	91,128	58%	5%	37%
Average											52%	8%	40%
Median											54%	7%	39%
Trimmed Average											54%	7%	39%
High											70%	19%	52%
Low											28%	0%	30%
Selected											50%		50%

Notes

[1] Market value of preferred stock assumed to equal book value
[2] Market value of debt is fair value of long term debt from 10-K notes

MCA 15-1-210, rationale for changes to guideline companies:

2023 - Added HEP

		Median	
Current Year	54%	7%	39%
Prior Year	46%	7%	47%
2 Years Prior	49%	0%	51%
3 Year Average	<u>50%</u>	<u>4%</u>	<u>46%</u>

MONTANA DEPARTMENT OF REVENUE

Capital Asset Pricing Model (CAPM)

Industry: Pipelines - Liquid

2023 Assessment Year

$$k_e = R_f + \beta \times ERP$$

		<i>Ex Post</i>	<i>Ex Ante</i>
$k_e =$	Cost of Equity	12.74%	10.96%
$R_f =$	Risk Free Rate	4.14%	4.14%
$\beta =$	Beta	1.20	1.20
$ERP =$	Equity Risk Premium ($R_m - R_f$)	7.17%	5.68%
$R_m =$	Market Rate of Return	11.31%	9.82%

Risk Free Rate Measures (R_f):

The Value Line Investment Survey: Selection & Opinion^[1]

January 6, 2023 Page 1465

Selected Yields on Taxable U.S. Treasury Securities as of 12/27/22

10-year	3.84%
30-year	3.93%

Federal Reserve Statistical Release^[2]

U.S. government securities, Treasury constant maturities, Nominal, December 30, 2022

10-year	3.88%
20-year	4.14%
30-year	3.97%

Risk Free Rate Selected 4.14%

Notes

[1] "Value Line Selection & Opinion", Value Line (January 6, 2023)

[2] <https://www.federalreserve.gov/datadownload/Choose.aspx?rel=H.15>

Ex Post - Equity Risk Premium Measures ($ERP = R_m - R_f$)

Kroll, 2023 Cost of Capital Navigator

		<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
ERP "Historical" - <i>Ex Post</i>	<i>Arithmetic Avg.</i>	11.31%	4.14%	7.17%
ERP "Supply-side" - <i>Ex Post</i>	<i>Arithmetic Avg.</i>	10.49%	4.14%	6.35%
Ex Post Equity Risk Premium Selected		<u><u>11.31%</u></u>	<u><u>4.14%</u></u>	<u><u>7.17%</u></u>

MONTANA DEPARTMENT OF REVENUE

Capital Asset Pricing Model (CAPM)

Industry: Pipelines - Liquid

2023 Assessment Year

$$k_e = R_f + \beta \times ERP$$

Ex Ante - Equity Risk Premium Measures (ERP = Rm - Rf)

DOR 3 Stage Dividend Growth Model, S & P 500, See Exhibit

	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
ERP - <i>Ex Ante</i>	8.81%	4.14%	4.67%

Kroll, 2023 Cost of Capital Navigator

	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
ERP "Conditional" - <i>Ex Ante</i>	9.50%	3.50%	6.00%

Damodaran Implied ERP (Jan 1, 2023)

	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
Implied Premium - <i>Ex Ante</i> - Trailing 12 month, with adjusted payout	8.99%	3.88%	5.11%
Implied Premium - <i>Ex Ante</i> - Trailing 12 month cash yields	9.82%	3.88%	5.94%
Implied Premium - <i>Ex Ante</i> - Average CF yield last 10 years	9.73%	3.88%	5.85%
Implied Premium - <i>Ex Ante</i> - Net cash yield	9.56%	3.88%	5.68%
Implied Premium - <i>Ex Ante</i> - Normalized earnings and payout	8.71%	3.88%	4.83%

	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
<u>Average</u>	9.30%		5.44%
<u>Median</u>	9.50%		5.68%
<u>High</u>	9.82%		6.00%
<u>Low</u>	8.71%		4.67%

Ex Ante Equity Risk Premium Selected

9.82%	4.14%	5.68%
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MONTANA DEPARTMENT OF REVENUE

Support for Beta Selection in CAPM

Industry: Pipelines - Liquid

2023 Assessment Year

A	B	C	D	E
Ticker Symbol	Company	Industry Group	Financial Strength	Beta
		<i>Value Line</i>	<i>Value Line</i>	<i>Value Line</i>
HEP	Holly Energy Part.	PIPEMLP	C+	0.95
MMP	Magellan Midstream	PIPEMLP	B+	1.10
MPLX	MPLX LP	PIPEMLP	B+	1.00
NS	NuStar Energy L.P.	PIPEMLP	B	1.20
PAA	Plains All Amer. Pipe.	PIPEMLP	B	1.40
Average				1.18
Median				1.15
Trimmed Average				1.15
High				1.40
Low				1.00
Selected				1.20

MONTANA DEPARTMENT OF REVENUE

Inflation & Real Growth
Industry: Pipelines - Liquid
2023 Assessment Year

A	B	C	D	Nominal Growth	
				E	F
Source Description	Inflation (CPI)	Real Growth (GDP)	Nominal Growth	Low	High
Livingston Survey ^[1]	2.55%	1.97%	4.52%		
Survey of Professional Forecasters ^[2]	2.44%	1.96%	4.40%		
Congressional Budget Office ^[3]	2.30%	1.80%	4.10%		
Average	2.43%	1.91%	4.34%		
Median	2.44%	1.96%	4.40%		
High	2.55%	1.97%	4.52%		
Low	2.30%	1.80%	4.10%		
Selected	2.45%	2.00%	4.45%	4.10%	4.52%

Inflationary Trend Factors						
Year	Dec. CPI-U Index	Percent Change From Previous	Dec. to Dec. Conversion Factor	Annual Avg. CPI-U Index	Percent Change From Previous	Annual Conversion Factor
	<i>Note [5]</i>	<i>Note [6]</i>	<i>Note [7]</i>	<i>Note [5]</i>	<i>Note [6]</i>	<i>Note [7]</i>
2011	225.672	2.9%	1.3152	224.939	3.1%	1.3010
2012	229.601	1.7%	1.2927	229.594	2.0%	1.2747
2013	233.049	1.5%	1.2735	232.957	1.4%	1.2563
2014	234.812	0.8%	1.2640	236.736	1.6%	1.2362
2015	236.525	0.7%	1.2548	237.017	0.1%	1.2347
2016	241.432	2.0%	1.2293	240.007	1.2%	1.2194
2017	246.524	2.1%	1.2039	245.120	2.1%	1.1939
2018	251.233	1.9%	1.1814	251.107	2.4%	1.1655
2019	256.974	2.2%	1.1550	255.657	1.8%	1.1447
2020	260.474	1.3%	1.1394	258.811	1.2%	1.1308
2021	278.802	6.6%	1.0645	270.970	4.5%	1.0800
2022	296.797	6.1%	1.0000	292.655	7.4%	1.0000

Notes

[1] Federal Reserve Bank of Philadelphia The Livingston Survey December 16, 2023 Table 3 Inflation Rate and Real GDP mean

<https://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey>

[2] Federal Reserve Bank of Philadelphia Survey of Professional Forecasters February 10, 2023 Table 8 and Table 9 Average over next 10-Year mean

<https://www.philadelphiafed.org/surveys-and-data/real-time-data-research/survey-of-professional-forecasters>

[3] The Budget and Economic Outlook: 2023 To 2033, Table B-1

<https://www.cbo.gov/about/products/budget-economic-data#4>

[5] Historical Consumer Price Index for All Urban Consumers (CPI-U): U.S. city average, all items, index averages (1982-84=100, unless otherwise noted)

<https://www.bls.gov/cpi/tables/supplemental-files/historical-cpi-u-202212.pdf>

[6] (Row year - Previous Year) / Row Year

[7] Most current year / Row year

MONTANA DEPARTMENT OF REVENUE

3 Stage Dividend Discount Model (DDM)

Industry: Pipelines - Liquid

2023 Assessment Year

$$k_e = (D_1 / P_0) + g$$

k_e = Cost of Equity

D_1 = Expected Dividend

P_0 = Current Price Per Share

g = Sustainable Long-Term Growth

A	B	C	D	E	F	G	H	I
Ticker	Company	2022 Year End Stock Price	2023 Est Div'ds Decl'd per sh	Expected Equity Payout Yield	Sustainable Long-Term Growth Rate ^[1]	Sustainable Long-Term Growth Rate ^[1]	Cost of Equity Dividend Growth	Cost of Equity Earnings Growth
		<i>Yahoo</i>	<i>Value Line</i>	<i>D/C</i>	<i>Dividends</i>	<i>Earnings</i>	<i>E+F</i>	<i>E+G</i>
		P_0	D_1	D_1/P_0	g	g	k_e	k_e
HEP	Holly Energy Part.	18.12	1.40	7.73%	9.18%	9.00%	16.91%	16.73%
MMP	Magellan Midstream	50.21	4.35	8.66%	10.61%	8.92%	19.27%	17.58%
MPLX	MPLX LP	32.84	2.95	8.98%	3.58%	0.06%	12.56%	9.04%
NS	NuStar Energy L.P.	16.00	1.60	10.00%	14.10%	16.28%	24.10%	26.28%
PAA	Plains All Amer. Pipe.	11.76	1.07	9.10%	30.47%	20.43%	39.57%	29.53%
Average							23.87%	20.61%
Median							21.69%	21.93%
Trimmed Average							21.69%	21.93%
High							39.57%	29.53%
Low							12.56%	9.04%
Selected							21.70%	21.95%

Notes:

[1] From worksheet: DDM Sustainable Long-Term Growth

MONTANA DEPARTMENT OF REVENUE

Support for DDM - Short Term Growth Rate Calculations

Industry: Pipelines - Liquid

2023 Assessment Year

A	B	C	D	E	F	G
Ticker	Company	End of Year Closing Stock Price	Div'ds Decl'd per sh 2023 Est	Expected Dividend Yield	Div'ds Decl'd per sh 2025-2027 Est	Short-Term Growth Rate
		<i>Yahoo</i>	<i>Value Line</i>	<i>D / C</i>	<i>Value Line</i>	<i>Note [1]</i>
HEP	Holly Energy Part.	18.12	1.40	7.73%	1.90	10.72%
MMP	Magellan Midstream	50.21	4.35	8.66%	6.15	12.24%
MPLX	MPLX LP	32.84	2.95	8.98%	3.25	3.28%
NS	NuStar Energy L.P.	16.00	1.60	10.00%	2.50	16.04%
PAA	Plains All Amer. Pipe.	11.76	1.07	9.10%	2.65	35.30%

A	B	C	D	E
Ticker	Company	Earnings per share 2023 Est	Earnings per share 2025-2027 Est	Short-Term Growth Rate
		<i>Value Line</i>	<i>Value Line</i>	<i>Note [1]</i>
HEP	Holly Energy Part.	2.15	2.90	10.49%
MMP	Magellan Midstream	4.60	6.15	10.16%
MPLX	MPLX LP	4.85	4.10	-5.45%
NS	NuStar Energy L.P.	1.20	2.00	18.56%
PAA	Plains All Amer. Pipe.	1.40	2.65	23.70%

Notes

[1] 4 year compound annual growth rate (CAGR) - 3 periods

MONTANA DEPARTMENT OF REVENUE

Support for DDM - Sustainable Long Term Growth

Industry: Pipelines - Liquid

2023 Assessment Year

Dividend Growth Rate									Stage 1				
Ticker	Company	Year End Stock Price	Expected Short-Term Dividend Growth Rate	Expected Long-Term Growth Rate	Expected Dividend Yield	Internal Rate of Return	Implied Sustainable Long-Term Growth Rate (g)	Initial Investment	D ₁	D ₂	D ₃	D ₄	D ₅
		Yahoo	Note [1]	Note [2]	D_1/P_0	$K_e = IRR \text{ of } D_1 : D_{500}$	$g = IRR - Div. \text{ Yield}$						
HEP	Holly Energy Part.	18.12	10.72%	4.45%	7.73%	16.91%	9.18%	(18.12)	1.40	1.55	1.72	1.90	2.10
MMP	Magellan Midstream	50.21	12.24%	4.45%	8.66%	19.27%	10.61%	(50.21)	4.35	4.88	5.48	6.15	6.90
MPLX	MPLX LP	32.84	3.28%	4.45%	8.98%	12.56%	3.58%	(32.84)	2.95	3.05	3.15	3.25	3.36
NS	NuStar Energy L.P.	16.00	16.04%	4.45%	10.00%	24.10%	14.10%	(16.00)	1.60	1.86	2.15	2.50	2.90
PAA	Plains All Amer. Pipe.	11.76	35.30%	4.45%	9.10%	39.57%	30.47%	(11.76)	1.07	1.45	1.96	2.65	3.59

Earnings Growth Rate									Stage 1				
Ticker	Company	Year End Stock Price	Expected Short-Term Earnings Growth Rate	Expected Long-Term Growth Rate	Expected Dividend Yield	Internal Rate of Return	Implied Sustainable Long-Term Growth Rate (g)	Initial Investment	D ₁	D ₂	D ₃	D ₄	D ₅
		Yahoo	Note [1]	Note [2]	D_1/P_0	$K_e = IRR \text{ of } D_1 : D_{500}$	$g = IRR - Div. \text{ Yield}$						
HEP	Holly Energy Part.	18.12	10.49%	4.45%	7.73%	16.73%	9.00%	(18.12)	1.40	1.55	1.71	1.89	2.09
MMP	Magellan Midstream	50.21	10.16%	4.45%	8.66%	17.58%	8.92%	(50.21)	4.35	4.79	5.28	5.82	6.41
MPLX	MPLX LP	32.84	-5.45%	4.45%	8.98%	9.04%	0.06%	(32.84)	2.95	2.79	2.64	2.49	2.36
NS	NuStar Energy L.P.	16.00	18.56%	4.45%	10.00%	26.28%	16.28%	(16.00)	1.60	1.90	2.25	2.67	3.16
PAA	Plains All Amer. Pipe.	11.76	23.70%	4.45%	9.10%	29.53%	20.43%	(11.76)	1.07	1.32	1.64	2.03	2.51

Notes:

[1] From worksheet: DDM Short Term Growth Rate Calculations

[2] From worksheet: Inflation & Real Growth

MONTANA DEPARTMENT OF REVENUE

Support for DDM - Sustainable Long Term Growth

Industry: Pipelines - Liquid

2023 Assessment Year

Dividend	Stage 2															Stage 3		
Ticker	D ₆	D ₇	D ₈	D ₉	D ₁₀	D ₁₁	D ₁₂	D ₁₃	D ₁₄	D ₁₅	D ₁₆	D ₁₇	D ₁₈	D ₁₉	D ₂₀	D ₂₁	D ₂₂	D ₅₀₀
HEP	2.32	2.56	2.82	3.11	3.43	3.79	4.18	4.61	5.08	5.61	6.18	6.82	7.52	8.30	9.15	9.56	9.98	10,902,334,328
MMP	7.71	8.61	9.62	10.75	12.01	13.42	14.99	16.75	18.71	20.90	23.35	26.09	29.14	32.56	36.37	37.99	39.68	43,330,331,297
MPLX	3.47	3.59	3.71	3.83	3.96	4.09	4.23	4.37	4.52	4.67	4.83	4.99	5.16	5.33	5.51	5.75	6.01	6,564,135,830
NS	3.34	3.85	4.44	5.12	5.90	6.80	7.84	9.04	10.42	12.01	13.85	15.96	18.40	21.20	24.44	25.53	26.67	29,119,165,264
PAA	4.78	6.37	8.48	11.30	15.06	20.06	26.73	35.61	47.45	63.23	84.24	112.24	149.55	199.27	265.50	277.32	289.66	316,315,558,104

Earnings	Stage 2															Stage 3		
Ticker	D ₆	D ₇	D ₈	D ₉	D ₁₀	D ₁₁	D ₁₂	D ₁₃	D ₁₄	D ₁₅	D ₁₆	D ₁₇	D ₁₈	D ₁₉	D ₂₀	D ₂₁	D ₂₂	D ₅₀₀
HEP	2.30	2.53	2.78	3.06	3.37	3.71	4.09	4.50	4.95	5.45	6.00	6.61	7.28	8.01	8.82	9.21	9.62	10,506,958,648
MMP	7.03	7.72	8.48	9.31	10.22	11.22	12.31	13.52	14.84	16.29	17.89	19.64	21.56	23.67	25.98	27.14	28.35	30,954,288,398
MPLX	2.37	2.37	2.38	2.39	2.39	2.40	2.41	2.41	2.42	2.43	2.43	2.44	2.45	2.46	2.46	2.57	2.69	2,934,313,801
NS	3.72	4.37	5.15	6.05	7.12	8.37	9.85	11.58	13.62	16.03	18.85	22.17	26.08	30.67	36.08	37.68	39.36	42,984,616,991
PAA	3.07	3.75	4.60	5.63	6.89	8.43	10.32	12.64	15.47	18.94	23.18	28.38	34.74	42.53	52.06	54.38	56.80	62,026,454,618

MONTANA DEPARTMENT OF REVENUE

Support for Yield Capitalization Rate - Debt Rating

Industry: Pipelines - Liquid

2023 Assessment Year

A	B	C	D	E	F
Ticker Symbol	Company	Industry Group	Financial Strength	Moody's Long Term Rating	Yield to Maturity
		<i>Value Line</i>	<i>Value Line</i>	<i>Moodys.com</i>	
HEP	Holly Energy Part.	PIPEMLP	C+	Baa1	5.59%
MMP	Magellan Midstream	PIPEMLP	B+	Baa1	5.59%
MPLX	MPLX LP	PIPEMLP	B+	Baa2	5.59%
NS	NuStar Energy L.P.	PIPEMLP	B	Ba3	6.97%
PAA	Plains All Amer. Pipe.	PIPEMLP	B	Baa3	5.59%
	Average				5.87%
	Median				5.59%
	Trimmed Average				5.59%
	High				6.97%
	Low				5.59%
	Selected				5.87%

MONTANA DEPARTMENT OF REVENUE

Support for Direct Capitalization - Equity Capitalization Rates

Industry: Pipelines - Liquid

2023 Assessment Year

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Ticker	Company	End of Year Closing Stock Price	VL Historic EPS	VL Est EPS	VL Historic P/E Ratio	VL Est P/E Ratio	Ke Estimate - Earnings (Hist. P/E)	Ke Estimate - Earnings (Est. P/E)	VL Historic Cash Flow Per Share	VL Est Cash Flow Per Share	VL Historic P/CF Ratio	VL Est P/CF Ratio	Ke Estimate Cash Flow (Hist. P/CF)	Ke Estimate Cash Flow (Est. P/CF)	Market Value of Equity	Book Value of Equity	MTBR
		Yahoo	Value Line	Value Line	C/D	C/E	1/F	1/G	Value Line	Value Line	C/J	C/K	1/L	1/M	Price x Shrs	Value Line	P/Q
HEP	Holly Energy Part.	18.12	1.77	2.15	10.24	8.43	9.77%	11.87%	2.93	2.50	6.18	7.25	16.17%	13.80%	2,291	443	5.17
MMP	Magellan Midstream	50.21	4.10	4.80	12.25	10.46	8.17%	9.56%	5.46	5.50	9.20	9.13	10.87%	10.95%	10,207	1,900	5.37
MPLX	MPLX LP	32.84	3.75	4.85	8.76	6.77	11.42%	14.77%	4.02	5.05	8.17	6.50	12.24%	15.38%	32,874	12,052	2.73
NS	NuStar Energy L.P.	16.00	0.36	1.20	44.44	13.33	2.25%	7.50%	3.53	4.20	4.53	3.81	22.06%	26.25%	1,773	1,598	1.11
PAA	Plains All Amer. Pipe.	11.76	1.19	1.40	9.88	8.40	10.12%	11.90%	1.66	2.90	7.08	4.06	14.12%	24.66%	8,213	9,972	0.82
Average					18.83	9.74	7.99%	10.93%			7.25	5.87	14.82%	19.31%			2.51
Median					11.06	9.43	9.14%	10.73%			7.63	5.28	13.18%	20.02%			1.92
Trimmed Average					11.06	9.43	9.14%	10.73%			7.63	5.28	13.18%	20.02%			1.92
High					44.44	13.33	11.42%	14.77%			9.20	9.13	22.06%	26.25%			5.37
Low					8.76	6.77	2.25%	7.50%			4.53	3.81	10.87%	10.95%			0.82
Selected					9.90		10.10%					5.78		17.30%		1.78	

MONTANA DEPARTMENT OF REVENUE

Support for Direct Capitalization - Debt Capitalization Rate

Industry: Pipelines - Liquid

2023 Assessment Year

(\$ in Millions)

A	B	C	D	E	F	G	H	I	J
Ticker	Company	Current Year Interest Exp.	Previous Year MV LT Debt	Previous Year BV LT Debt	Current Year MV LT Debt	Current Year BV LT Debt	Average MV LT Debt	Current Yield	MTBR
		<i>10-K</i>	<i>10-K</i>	<i>10-K</i>	<i>10-K</i>	<i>10-K</i>	$(D+F)/2$	(C/H)	(F/G)
HEP	Holly Energy Part.	83	1,411	1,401	1,588	1,623	1,499	5.51%	0.98
MMP	Magellan Midstream	224	5,712	5,089	4,233	5,015	4,972	4.50%	0.84
MPLX	MPLX LP	843	20,686	18,571	17,986	19,796	19,336	4.36%	0.91
NS	NuStar Energy L.P.	197	3,516	3,187	3,225	3,298	3,371	5.85%	0.98
PAA	Plains All Amer. Pipe.	405	10,020	9,220	7,646	8,446	8,833	4.59%	0.91
	All Companies	1,669			33,090	36,555	36,512	4.57%	0.91
	Average							4.82%	0.91
	Median							4.54%	0.91
	Trimmed Average							4.54%	0.91
	High							5.85%	0.98
	Low							4.36%	0.84
	Selected							4.82%	0.91

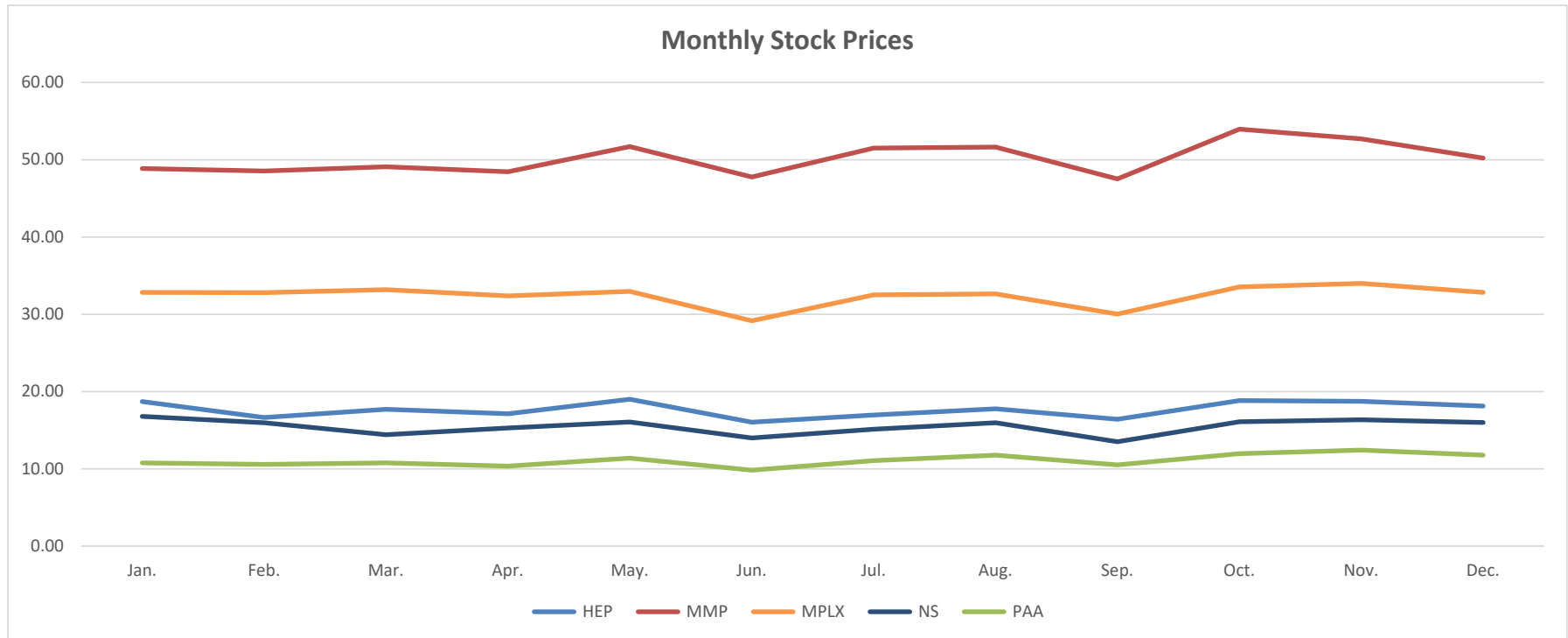
MONTANA DEPARTMENT OF REVENUE

Support of Stock Price - From YAHOO Finance

Industry: Pipelines - Liquid

2023 Assessment Year

		End of Period Closing Stock Price											
1	2	3	4	5	6	7	8	9	10	11	12	13	14
A	B	C	D	E	F	G	H	I	J	K	L	M	N
Ticker	Company	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
HEP	Holly Energy Part.	18.71	16.62	17.69	17.13	19.00	16.03	16.96	17.76	16.41	18.84	18.72	18.12
MMP	Magellan Midstream	48.87	48.52	49.07	48.45	51.70	47.76	51.50	51.63	47.51	53.95	52.70	50.21
MPLX	MPLX LP	32.82	32.78	33.18	32.36	32.95	29.15	32.51	32.62	30.01	33.54	33.99	32.84
NS	NuStar Energy L.P.	16.78	15.96	14.42	15.27	16.05	14.00	15.13	15.96	13.50	16.10	16.33	16.00
PAA	Plains All Amer. Pipe.	10.77	10.57	10.76	10.36	11.39	9.82	11.04	11.75	10.52	11.97	12.42	11.76



MONTANA DEPARTMENT OF REVENUE

Maintenance Capital Expenditures Estimate Based on Guideline Companies

Industry: Pipelines - Liquid

2023 Assessment Year

(\$ In Millions)

1	2	3	4	5	6	7	8	9	10	11	
A	B	C	D	E	F	G	H	I	J	K	L
Ticker	Company	Inflation	PP&E, Gross Current Year	PP&E, Gross Previous Year	Average PP&E (D+E)/2	Depreciation Expense 10-K	Average Life of Assets F/G			Replacement Cost (RC) Note [1] G*/(1-J)	RC as % of Depreciation K/G
		MTDOR (CPI)	10-K, Notes	10-K, Notes				Note [1] C*H	Note [1] 1/(1+C)^H		
HEP	Holly Energy Part.	2.45%	2,185	2,050	2,117	81	26	0.64	0.53	111	136.65%
MMP	Magellan Midstream	2.45%	8,164	8,046	8,105	219	37	0.91	0.41	335	153.32%
MPLX	MPLX LP	2.45%	25,911	26,546	26,229	1,203	22	0.53	0.59	1,567	130.27%
NS	NuStar Energy L.P.	2.45%	5,734	5,729	5,731	215	27	0.65	0.52	295	137.36%
PAA	Plains All Amer. Pipe.	2.45%	20,020	19,257	19,639	707	28	0.68	0.51	983	139.03%
Average											139.99%
Median											138.20%
Trimmed Average											138.20%
High											153.32%
Low											130.27%
Selected											139.99%

Notes

[1] Cornell, B. & Gerger, R. (2017). Estimating Terminal Values with Inflation: The Inputs Matter-It Is Not a Formulaic Exercise. *Business Valuation Review*, Volume 36, Number 4, 117-123.