



2017 Capitalization Rate Study  
*Final*

**Gas Pipelines**

---

**MONTANA DEPARTMENT OF REVENUE**

---

**Yield Capitalization Rate Study  
Industry: Gas Pipelines  
2017 Assessment Year**

---

**Capital Structure**

Equity	<b>60.00%</b>	<i>Page GP-4</i>
Debt	<b>40.00%</b>	<i>Page GP-4</i>

**Equity Cost of Capital**

Capital Asset Pricing Model	9.99%	<i>Page GP-5</i>
Dividend Growth Model (g = Earnings Growth)	13.00%	<i>Page GP-9</i>
Dividend Growth Model (g = Dividend Growth)	10.75%	<i>Page GP-9</i>
	<b>11.00%</b>	

**Debt Cost of Capital**

Standard and Poor's Yield to Maturity	5.25%	<i>Page GP-16</i>
Mergent's Corporate Bond Yields:		
A	3.96%	
Baa - Corporate (Annual Avg)	4.72%	
Baa - Corporate (4th Qtr Avg)	4.64%	
Baa - Corporate (December)	4.83%	
	<b>5.00%</b>	

---

**Gas Pipelines - 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	60.00%	11.00%		11.00%	6.60%
Debt	40.00%	5.00%	38.00%	3.10%	1.24%
<b>WACC</b>	<b>100.00%</b>				<b>7.84%</b>
<b>WACC (Rounded)</b>					<b>7.90%</b>

---

---

**MONTANA DEPARTMENT OF REVENUE**

---

**Direct Capitalization Rate Study  
Industry: Gas Pipelines  
2017 Assessment Year**

---

**Capital Structure**

Equity	<b>60.00%</b>	<i>Page GP-4</i>
Debt	<b>40.00%</b>	<i>Page GP-4</i>

**Equity Cost of Capital**

NOI After-tax	<b>5.00%</b>	<i>Page GP-17</i>
GCF	<b>9.70%</b>	<i>Page GP-17</i>

**Debt Cost of Capital**

Standard and Poor's Current Yield	6.50%	<i>Page GP-20</i>
Calculated Current Yield	4.60%	<i>Page GP-21</i>
	<b>5.50%</b>	

---

**Gas Pipelines - NOI After-tax Direct Capitalization Rate**

---

Source of Capital	Capital Structure	Cost of Capital	Marginal Tax Rate	After-tax Cost of Capital	Weighted Cost
Equity	60.00%	5.00%		5.00%	3.00%
Debt	40.00%	5.50%	38.00%	3.41%	1.36%
<b>Total</b>	<b>100.00%</b>				<b>4.36%</b>
<b>Total (Rounded)</b>					<b>4.40%</b>

---



---

**Gas Pipelines - GCF Direct Capitalization Rate**

---

Source of Capital	Capital Structure	Cost of Capital	Marginal Tax Rate	After-tax Cost of Capital	Weighted Cost
Equity	60.00%	9.70%		9.70%	5.82%
Debt	40.00%	5.50%	38.00%	3.41%	1.36%
<b>WACC</b>	<b>100.00%</b>				<b>7.18%</b>
<b>Total (Rounded)</b>					<b>7.20%</b>

---

**MONTANA DEPARTMENT OF REVENUE**

Support for Capital Structure  
Industry: Gas Pipelines  
2017 Assessment Year

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Company	Ticker Symbol	Industry Group	Financial Strength	Shares Outstanding	Avg. 4Q Stock Price	MV Common Stock	MV Preferred Stock*	MV Long Term Debt*	PV of Operating Leases	Total Common, Preferred, LT Debt, & OpLeases	% Common	% Preferred	% Debt & OpLeases
										G+H+I+J			
		Value Line	Value Line	10-K	Yahoo	ExF	10-K	10-K	10-K	(\$000)	G/K	H/K	(I+J)/K
				(000)		(\$000)	(\$000)	(\$000)	(\$000)	(\$000)			
Boardwalk	BWP	PIPEMLP	C++	250,300	17.18	4,299,737	0	3,709,200	21,678	8,030,615	54%	0%	46%
Enbridge Energy Partners LLP	EEP	PIPEMLP	B	262,208	24.35	6,385,649	1,191,500	6,500,000	98,397	14,175,546	45%	8%	47%
Energy Transfer	ETP	PIPEMLP	B++	529,869	35.86	19,002,877	33,000	33,850,000	218,103	53,103,980	36%	0%	64%
EnLink Midstream Partners LP	ENLK	PIPEMLP	B	342,856	17.52	6,006,271	794,000	3,225,800	90,699	10,116,769	59%	8%	33%
Enterprise Products	EPD	PIPEMLP	B+	2,117,588	25.95	54,947,890	0	21,950,000	327,780	77,225,670	71%	0%	29%
EQT Midstream Partners LP	EQM	PIPEMLP	B++	80,582	74.22	5,980,778	0	981,585	0	6,962,363	86%	0%	14%
ONEOK Partners LP	OKS	PIPEMLP	B+	212,838	41.50	8,831,712	0	7,100,000	11,321	15,943,033	55%	0%	45%
Spectra Energy Partners, LP	SEP	PIPEMLP	B++	308,400	43.18	13,316,712	0	6,855,000	146,714	20,318,426	66%	0%	34%
Western Gas Equity Partners, LP	WGP	PIPEMLP	B+	218,929	43.12	9,440,565	0	3,224,199	8,419	12,673,183	74%	0%	26%
Western Gas Partners LP	WES	PIPEMLP	B+	130,672	56.36	7,364,454	639,545	3,196,199	8,419	11,208,618	66%	6%	29%
Williams Ptrs.	WPZ	PIPEMLP	B	607,065	35.98	21,842,183	0	19,000,000	208,968	41,051,151	53%	0%	47%
<b>All Companies</b>						157,418,827	2,658,045	109,591,983	1,140,498	270,809,353	<b>58%</b>	<b>1%</b>	<b>41%</b>
<b>Average</b>											<b>60%</b>	<b>2%</b>	<b>38%</b>
<b>Median</b>											<b>59%</b>	<b>0%</b>	<b>34%</b>
High											86%	8%	64%
Low											36%	0%	14%
<b>Say</b>											<b>60%</b>		<b>40%</b>

\*Market value of preferred stock assumed to equal book value. Market value of long term debt is fair value.

**Notes/Rational for Changes to Guideline Companies**

**2017 Guideline Company Changes**

Targa Resources VL Tissue unavailable, no stock data

Removed the following comparable compared to last year:

EQT Corp (EQT)	To focus on limited partners
Kinder Morgan Inc. (KMI)	Different ownership structure than the majority of industry
ONEOK Inc. (OKE)	To focus on limited partners
Spectra Energy Corp. (SE)	To focus on limited partners
Targa Resources Corp.(TRGP)	To focus on limited partners
TransCanada P.L. (TRP)	Different ownership structure than the majority of industry and primarily a Canadian company
Williams Companies (WMB)	To focus on limited partners
Enlink Midstream LLC (ENLC)	To focus on limited partners

---

**MONTANA DEPARTMENT OF REVENUE**

---

**Capital Asset Pricing Model (CAPM)  
Industry: Gas Pipelines  
2017 Assessment Year**

---

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

$k_e =$	Cost of Equity	<b>Gas PL</b>
$R_f =$	Risk Free Rate	<b>9.99%</b>
$\beta =$	Beta	2.79%
$ERP =$	Equity Risk Premium ( $R_m - R_f$ )	1.20
$R_m =$	Market Rate of Return	6.00%
		8.79%

---

**Risk Free Rate Measures ( $R_f$ ):**

---

The Value Line Investment Survey: Selection & Opinion<sup>1</sup>

January 6, 2017

Page 3197

Selected Yields on Taxable U.S. Treasury Securities

10-year	2.51%
30-year	3.09%

Federal Reserve Statistical Release<sup>2</sup> and U.S. Department of the Treasury, Daily Treasury Yield Curve Rates<sup>3</sup>

U.S. government securities, Treasury constant maturities, Nominal, December 30, 2016

10-year	2.45%
20-year	2.79%
30-year	3.06%

**Risk Free Rate Selected**

**2.79%**

<sup>1</sup> "Value Line Selection & Opinion", Value Line (January 6, 2017)

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

<sup>3</sup> <https://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yieldYear&year=2016>

---

**MONTANA DEPARTMENT OF REVENUE**

---

**Capital Asset Pricing Model (CAPM)  
Industry: Gas Pipelines  
2017 Assessment Year**

---

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

**Equity Risk Premium Measures (ERP = Rm - Rf)**

---

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

	<u>R<sub>m</sub><sup>4</sup></u>	<u>R<sub>m</sub></u>	<u>R<sub>f</sub></u>	<u>ERP</u>
ERP - <i>Ex Ante</i>	8.00%	8.00%	2.79%	5.21%

Duff & Phelps, 2017 Valuation Handbook

		<u>R<sub>m</sub><sup>4</sup></u>	<u>R<sub>m</sub></u>	<u>R<sub>f</sub></u>	<u>ERP</u>
ERP "Historical" - <i>Ex Post</i>	<i>Arithmetic Avg.</i>	9.73%	9.66%	2.72%	6.94%
ERP "Supply-side" - <i>Ex Post</i>	<i>Arithmetic Avg.</i>	8.76%	8.69%	2.72%	5.97%
ERP "Adj. Supply-side" - <i>Ex Post</i>	<i>Arithmetic Avg.</i>	7.89%	7.82%	2.72%	5.10%
ERP "Conditional" - <i>Ex Ante</i>			9.50%	4.00%	5.50%

Damodaran Implied ERP (Jan 1, 2017)

	<u>R<sub>m</sub><sup>4</sup></u>	<u>R<sub>m</sub></u>	<u>R<sub>f</sub></u>	<u>ERP</u>
Implied Premium (FCFE) - <i>Ex Ante</i>	8.48%	8.14%	2.45%	5.69%
Implied Premium (FCFE with sustainable payout) - <i>Ex Ante</i>	7.29%	6.95%	2.45%	4.50%

	<u>R<sub>m</sub><sup>4</sup></u>	<u>R<sub>m</sub></u>	<u>R<sub>f</sub></u>	<u>ERP</u>
<u>Average</u>	8.36%	8.39%		5.56%
<u>Median</u>	8.24%	8.14%		5.50%
<u>High</u>	9.73%	9.66%		6.94%
<u>Low</u>	7.29%	6.95%		4.50%

**Equity Risk Premium Selected**

<b>8.79%</b>	<b>2.79%</b>	<b>6.00%</b>
--------------	--------------	--------------

<sup>4</sup> R<sub>m</sub> estimated using selected Risk Free Rate (R<sub>f</sub>)

---

**MONTANA DEPARTMENT OF REVENUE**

---

Capital Asset Pricing Model (CAPM)  
 Industry: Gas Pipelines  
 2017 Assessment Year

---

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

**Inflation and Growth Estimates<sup>5</sup>**

---

	<u>Inflation</u> (CPI)	<u>Real Growth</u> (GDP)	<u>Nominal</u> <u>Growth</u>	<u>Nominal Growth</u>	
				<u>Low</u>	<u>High</u>
Livingston Survey	2.30%	2.20%	4.50%		
Survey of Professional Forecasters	2.30%	2.45%	4.75%		
Congressional Budget Office	2.53%	2.17%	4.70%		
Office of Budget and Management	2.38%	2.07%	4.45%		
OASDI Trustee Report	2.70%	2.70%	5.40%		
Average	2.44%	2.32%	4.76%		
Median	2.38%	2.20%	4.58%		
High	2.70%	2.70%	5.40%		
Low	2.30%	2.07%	4.37%		
<b>Say</b>	<b>2.40%</b>	<b>2.20%</b>	<b>4.60%</b>	<b>4.37%</b>	<b>5.40%</b>
<b>Rounded</b>					<b>6.00%</b>

<sup>5</sup> Real Growth Sources: "The Livingston Survey", Federal Reserve Bank of Philadelphia (December 9, 2016); "Survey of

**MONTANA DEPARTMENT OF REVENUE**

Support for Beta Selection in CAPM  
 Industry: Gas Pipelines  
 2017 Assessment Year

A	B	C	D	E
Company	Ticker Symbol	Industry Group	Financial Strength	Beta
		<i>Value Line</i>	<i>Value Line</i>	<i>Value Line</i>
Boardwalk	BWP	PIPEMLP	C++	0.90
Enbridge Energy Partners LLP	EEP	PIPEMLP	B	1.15
Energy Transfer	ETP	PIPEMLP	B++	1.25
EnLink Midstream Partners LP	ENLK	PIPEMLP	B	1.55
Enterprise Products	EPD	PIPEMLP	B+	1.20
EQT Midstream Partners LP	EQM	PIPEMLP	B++	1.20
ONEOK Partners LP	OKS	PIPEMLP	B+	1.10
Spectra Energy Partners, LP	SEP	PIPEMLP	B++	0.85
Western Gas Equity Partners, LP	WGP	PIPEMLP	B+	1.50
Western Gas Partners LP	WES	PIPEMLP	B+	1.25
Williams Ptrs.	WPZ	PIPEMLP	B	1.45
<b>Average</b>				<b>1.22</b>
<b>Median</b>				<b>1.20</b>
High				1.55
Low				0.85
<b>Say</b>				<b>1.20</b>



**MONTANA DEPARTMENT OF REVENUE**

**Support for Yield Capitalization Cost of Equity Component - Based on Dividend Growth Model  
Industry: Gas Pipelines  
2017 Assessment Year**

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

$K_e$  = Cost of Equity

$D_1$  = Expected Dividend

$g$  = Expected Long Term Growth

$P_0$  = Current Price Per Share

A	B	C	D	E	F	G	H	I	J	K
Company Name	Ticker	Avg. 4Q Stock Price  $P_0$	2017 Expected Dividend  $D_1$	Taxable Entity?	2017 Expected Dividend Adj for Tax If taxable = "No" $D_1 \times (1-.38)$	Dividend Yield  $D_1/P_0$	Multistage Long Term Earnings Growth Estimate  $g =$ Earnings $g$	Multistage Long Term Dividends Growth Estimate  $g =$ Dividends $g$	Cost of Equity  $K_e$ $g =$ Earnings $g$	Cost of Equity  $K_e$ $g =$ Dividend $g$
		<i>Yahoo</i>	<i>Value Line</i>			<i>F/C</i>	<i>Multi Stg g Wrksht</i>	<i>Multi Stg g Wrksht</i>	<i>G+H</i>	<i>G+I</i>
Boardwalk	BWP	17.18	0.40	No	0.25	1.44%	11.51%	3.33%	12.96%	4.78%
Enbridge Energy Partners LLP	EEP	24.35	2.37	No	1.47	6.03%	4.53%	4.28%	10.56%	10.31%
Energy Transfer	ETP	35.86	4.40	No	2.73	7.61%	9.31%	5.85%	16.92%	13.46%
EnLink Midstream Partners LP	ENLK	17.52	1.56	No	0.97	5.52%	4.53%	5.22%	10.05%	10.74%
Enterprise Products	EPD	25.95	1.67	No	1.04	3.99%	9.62%	8.05%	13.61%	12.04%
EQT Midstream Partners LP	EQM	74.22	3.61	No	2.24	3.02%	10.88%	13.40%	13.90%	16.41%
ONEOK Partners LP	OKS	41.50	3.34	No	2.07	4.99%	6.48%	5.22%	11.47%	10.21%
Spectra Energy Partners, LP	SEP	43.18	2.85	No	1.77	4.09%	4.59%	7.74%	8.68%	11.83%
Western Gas Equity Partners, LP	WGP	43.12	0.00	No	0.00	0.00%	14.85%	4.53%	14.85%	4.53%
Western Gas Partners LP	WES	56.36	3.53	No	2.19	3.88%	12.14%	7.42%	16.02%	11.31%
Williams Ptrs.	WPZ	35.98	2.40	No	1.49	4.14%	4.53%	1.76%	8.66%	5.90%
<b>Average</b>						<b>4.06%</b>	<b>8.45%</b>	<b>6.07%</b>	<b>12.52%</b>	<b>10.14%</b>
<b>Median</b>						<b>4.09%</b>	<b>9.31%</b>	<b>5.22%</b>	<b>12.96%</b>	<b>10.74%</b>
High						7.61%	14.85%	13.40%	16.92%	16.41%
Low						0.00%	4.53%	1.76%	8.66%	4.53%
<b>Say</b>									<b>13.00%</b>	<b>10.75%</b>

MONTANA DEPARTMENT OF REVENUE

Support for Yield Capitalization Cost of Equity Component - Multi-Stage Growth Model  
 Industry: Gas Pipelines  
 2017 Assessment Year

Company	Boardwalk	BWP
Value Line 5 yr est. earnings growth		13.50%
LT nominal economic growth rate		8.14%
Year	Weight	Adj. Growth Rate
1	30	0.14
2	29	0.14
3	28	0.14
4	27	0.14
5	26	0.14
6	25	0.13
7	24	0.13
8	23	0.12
9	22	0.12
10	21	0.12
11	20	0.11
12	19	0.11
13	18	0.11
14	17	0.10
15	16	0.10
16	15	0.10
17	14	0.09
18	13	0.09
19	12	0.09
20	11	0.08
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>11.51%</b>
Value Line 5 yr est. div'd growth		0.50%
LT nominal economic growth rate		8.14%
Year	Weight	Adj. Growth Rate
1	30	0.01
2	29	0.01
3	28	0.01
4	27	0.01
5	26	0.01
6	25	0.01
7	24	0.01
8	23	0.02
9	22	0.02
10	21	0.03
11	20	0.03
12	19	0.04
13	18	0.04
14	17	0.05
15	16	0.05
16	15	0.06
17	14	0.06
18	13	0.07
19	12	0.07
20	11	0.08
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>3.33%</b>

Company	Enbridge Energy	EEP
Selected Inflation Rate - CAPM		2.40%
LT nominal economic growth rate		8.14%
Year	Weight	Adj. Growth Rate
1	30	0.02
2	29	0.02
3	28	0.02
4	27	0.02
5	26	0.02
6	25	0.03
7	24	0.03
8	23	0.03
9	22	0.04
10	21	0.04
11	20	0.05
12	19	0.05
13	18	0.05
14	17	0.06
15	16	0.06
16	15	0.06
17	14	0.07
18	13	0.07
19	12	0.07
20	11	0.08
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>4.53%</b>
Value Line 5 yr est. div'd growth		2.00%
LT nominal economic growth rate		8.14%
Year	Weight	Adj. Growth Rate
1	30	0.02
2	29	0.02
3	28	0.02
4	27	0.02
5	26	0.02
6	25	0.02
7	24	0.03
8	23	0.03
9	22	0.04
10	21	0.04
11	20	0.04
12	19	0.05
13	18	0.05
14	17	0.05
15	16	0.06
16	15	0.06
17	14	0.07
18	13	0.07
19	12	0.07
20	11	0.08
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>4.28%</b>

Company	Energy Transfer	ETP
Value Line 5 yr est. earnings growth		10.00%
LT nominal economic growth rate		8.14%
Year	Weight	Adj. Growth Rate
1	30	0.10
2	29	0.10
3	28	0.10
4	27	0.10
5	26	0.10
6	25	0.10
7	24	0.10
8	23	0.10
9	22	0.10
10	21	0.09
11	20	0.09
12	19	0.09
13	18	0.09
14	17	0.09
15	16	0.09
16	15	0.09
17	14	0.09
18	13	0.08
19	12	0.08
20	11	0.08
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>9.31%</b>
Value Line 5 yr est. div'd growth		4.50%
LT nominal economic growth rate		8.14%
Year	Weight	Adj. Growth Rate
1	30	0.05
2	29	0.05
3	28	0.05
4	27	0.05
5	26	0.05
6	25	0.05
7	24	0.05
8	23	0.05
9	22	0.05
10	21	0.06
11	20	0.06
12	19	0.06
13	18	0.06
14	17	0.07
15	16	0.07
16	15	0.07
17	14	0.07
18	13	0.07
19	12	0.08
20	11	0.08
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>5.85%</b>

MONTANA DEPARTMENT OF REVENUE

Support for Yield Capitalization Cost of Equity Component - Multi-Stage Growth Model  
 Industry: Gas Pipelines  
 2017 Assessment Year

Company	Enlink Midstream	ENLK
Selected Inflation Rate - CAPM		2.40%
LT nominal economic growth rate		8.14%
Year	Weight	Adj. Growth Rate
1	30	0.02
2	29	0.02
3	28	0.02
4	27	0.02
5	26	0.02
6	25	0.03
7	24	0.03
8	23	0.03
9	22	0.04
10	21	0.04
11	20	0.05
12	19	0.05
13	18	0.05
14	17	0.06
15	16	0.06
16	15	0.06
17	14	0.07
18	13	0.07
19	12	0.07
20	11	0.08
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>4.53%</b>
Value Line 5 yr est. div'd growth		3.50%
LT nominal economic growth rate		8.14%
Year	Weight	Adj. Growth Rate
1	30	0.04
2	29	0.04
3	28	0.04
4	27	0.04
5	26	0.04
6	25	0.04
7	24	0.04
8	23	0.04
9	22	0.05
10	21	0.05
11	20	0.05
12	19	0.06
13	18	0.06
14	17	0.06
15	16	0.06
16	15	0.07
17	14	0.07
18	13	0.07
19	12	0.08
20	11	0.08
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>5.22%</b>

Company	Enterprise Prod.	EPD
Value Line 5 yr est. earnings growth		10.50%
LT nominal economic growth rate		8.14%
Year	Weight	Adj. Growth Rate
1	30	0.11
2	29	0.11
3	28	0.11
4	27	0.11
5	26	0.11
6	25	0.10
7	24	0.10
8	23	0.10
9	22	0.10
10	21	0.10
11	20	0.10
12	19	0.09
13	18	0.09
14	17	0.09
15	16	0.09
16	15	0.09
17	14	0.09
18	13	0.09
19	12	0.08
20	11	0.08
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>9.62%</b>
Value Line 5 yr est. div'd growth		8.00%
LT nominal economic growth rate		8.14%
Year	Weight	Adj. Growth Rate
1	30	0.08
2	29	0.08
3	28	0.08
4	27	0.08
5	26	0.08
6	25	0.08
7	24	0.08
8	23	0.08
9	22	0.08
10	21	0.08
11	20	0.08
12	19	0.08
13	18	0.08
14	17	0.08
15	16	0.08
16	15	0.08
17	14	0.08
18	13	0.08
19	12	0.08
20	11	0.08
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>8.05%</b>

Company	EQT Midstream	EQM
Value Line 5 yr est. earnings growth		12.50%
LT nominal economic growth rate		8.14%
Year	Weight	Adj. Growth Rate
1	30	0.13
2	29	0.13
3	28	0.13
4	27	0.13
5	26	0.13
6	25	0.12
7	24	0.12
8	23	0.12
9	22	0.11
10	21	0.11
11	20	0.11
12	19	0.11
13	18	0.10
14	17	0.10
15	16	0.10
16	15	0.10
17	14	0.09
18	13	0.09
19	12	0.09
20	11	0.08
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>10.88%</b>
Value Line 5 yr est. div'd growth		16.50%
LT nominal economic growth rate		8.14%
Year	Weight	Adj. Growth Rate
1	30	0.17
2	29	0.17
3	28	0.17
4	27	0.17
5	26	0.17
6	25	0.16
7	24	0.15
8	23	0.15
9	22	0.14
10	21	0.14
11	20	0.13
12	19	0.13
13	18	0.12
14	17	0.12
15	16	0.11
16	15	0.11
17	14	0.10
18	13	0.10
19	12	0.09
20	11	0.09
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>13.40%</b>

MONTANA DEPARTMENT OF REVENUE

Support for Yield Capitalization Cost of Equity Component - Multi-Stage Growth Model  
 Industry: Gas Pipelines  
 2017 Assessment Year

Company	ONEOK Partners	OKS
Value Line 5 yr est. earnings growth	5.50%	
LT nominal economic growth rate	8.14%	
Year	Weight	Adj. Growth Rate
1	30	0.06
2	29	0.06
3	28	0.06
4	27	0.06
5	26	0.06
6	25	0.06
7	24	0.06
8	23	0.06
9	22	0.06
10	21	0.06
11	20	0.06
12	19	0.07
13	18	0.07
14	17	0.07
15	16	0.07
16	15	0.07
17	14	0.07
18	13	0.08
19	12	0.08
20	11	0.08
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>6.48%</b>
Value Line 5 yr est. div'd growth		3.50%
LT nominal economic growth rate		8.14%
Year	Weight	Adj. Growth Rate
1	30	0.04
2	29	0.04
3	28	0.04
4	27	0.04
5	26	0.04
6	25	0.04
7	24	0.04
8	23	0.04
9	22	0.05
10	21	0.05
11	20	0.05
12	19	0.06
13	18	0.06
14	17	0.06
15	16	0.06
16	15	0.07
17	14	0.07
18	13	0.07
19	12	0.08
20	11	0.08
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>5.22%</b>

Company	Spectra Partners	SEP
Value Line 5 yr est. earnings growth	2.50%	
LT nominal economic growth rate	8.14%	
Year	Weight	Adj. Growth Rate
1	30	0.03
2	29	0.03
3	28	0.03
4	27	0.03
5	26	0.03
6	25	0.03
7	24	0.03
8	23	0.04
9	22	0.04
10	21	0.04
11	20	0.05
12	19	0.05
13	18	0.05
14	17	0.06
15	16	0.06
16	15	0.06
17	14	0.07
18	13	0.07
19	12	0.07
20	11	0.08
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>4.59%</b>
Value Line 5 yr est. div'd growth		7.50%
LT nominal economic growth rate		8.14%
Year	Weight	Adj. Growth Rate
1	30	0.08
2	29	0.08
3	28	0.08
4	27	0.08
5	26	0.08
6	25	0.08
7	24	0.08
8	23	0.08
9	22	0.08
10	21	0.08
11	20	0.08
12	19	0.08
13	18	0.08
14	17	0.08
15	16	0.08
16	15	0.08
17	14	0.08
18	13	0.08
19	12	0.08
20	11	0.08
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>7.74%</b>

Company	Western Equity	WGP
Value Line 5 yr est. earnings growth	18.80%	
LT nominal economic growth rate	8.14%	
Year	Weight	Adj. Growth Rate
1	30	0.19
2	29	0.19
3	28	0.19
4	27	0.19
5	26	0.19
6	25	0.18
7	24	0.17
8	23	0.17
9	22	0.16
10	21	0.15
11	20	0.15
12	19	0.14
13	18	0.13
14	17	0.13
15	16	0.12
16	15	0.11
17	14	0.11
18	13	0.10
19	12	0.09
20	11	0.09
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>14.85%</b>
Selected Inflation Rate - CAPM		2.40%
LT nominal economic growth rate		8.14%
Year	Weight	Adj. Growth Rate
1	30	0.02
2	29	0.02
3	28	0.02
4	27	0.02
5	26	0.02
6	25	0.03
7	24	0.03
8	23	0.03
9	22	0.04
10	21	0.04
11	20	0.05
12	19	0.05
13	18	0.05
14	17	0.06
15	16	0.06
16	15	0.06
17	14	0.07
18	13	0.07
19	12	0.07
20	11	0.08
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>4.53%</b>

MONTANA DEPARTMENT OF REVENUE

Support for Yield Capitalization Cost of Equity Component - Multi-Stage Growth Model  
 Industry: Gas Pipelines  
 2017 Assessment Year

Company	Western Partners	WES
Value Line 5 yr est. earnings growth		14.50%
LT nominal economic growth rate		8.14%
Year	Weight	Adj. Growth Rate
1	30	0.15
2	29	0.15
3	28	0.15
4	27	0.15
5	26	0.15
6	25	0.14
7	24	0.14
8	23	0.13
9	22	0.13
10	21	0.13
11	20	0.12
12	19	0.12
13	18	0.11
14	17	0.11
15	16	0.11
16	15	0.10
17	14	0.10
18	13	0.09
19	12	0.09
20	11	0.09
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>12.14%</b>
Value Line 5 yr est. div'd growth		7.00%
LT nominal economic growth rate		8.14%
Year	Weight	Adj. Growth Rate
1	30	0.07
2	29	0.07
3	28	0.07
4	27	0.07
5	26	0.07
6	25	0.07
7	24	0.07
8	23	0.07
9	22	0.07
10	21	0.07
11	20	0.07
12	19	0.07
13	18	0.08
14	17	0.08
15	16	0.08
16	15	0.08
17	14	0.08
18	13	0.08
19	12	0.08
20	11	0.08
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>7.42%</b>

Company	Williams Ptrs.	WPZ
Selected Inflation Rate - CAPM		2.40%
LT nominal economic growth rate		8.14%
Year	Weight	Adj. Growth Rate
1	30	0.02
2	29	0.02
3	28	0.02
4	27	0.02
5	26	0.02
6	25	0.03
7	24	0.03
8	23	0.03
9	22	0.04
10	21	0.04
11	20	0.05
12	19	0.05
13	18	0.05
14	17	0.06
15	16	0.06
16	15	0.06
17	14	0.07
18	13	0.07
19	12	0.07
20	11	0.08
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>4.53%</b>
Value Line 5 yr est. div'd growth		-2.00%
LT nominal economic growth rate		8.14%
Year	Weight	Adj. Growth Rate
1	30	-0.02
2	29	-0.02
3	28	-0.02
4	27	-0.02
5	26	-0.02
6	25	-0.01
7	24	-0.01
8	23	0.00
9	22	0.01
10	21	0.01
11	20	0.02
12	19	0.02
13	18	0.03
14	17	0.04
15	16	0.04
16	15	0.05
17	14	0.06
18	13	0.06
19	12	0.07
20	11	0.08
21	10	0.08
22	9	0.08
23	8	0.08
24	7	0.08
25	6	0.08
26	5	0.08
27	4	0.08
28	3	0.08
29	2	0.08
30	1	0.08
<b>Weighted Average</b>		<b>1.76%</b>

MONTANA DEPARTMENT OF REVENUE

Support for Yield Capitalization Cost of Debt Component - Yield to Maturity From Standard & Poor's Bond Guide  
 Industry: Gas Pipelines  
 2017 Assessment Year

Company Name	Coupon	CUSIP	Issue	Maturity Date	Years to Maturity	Old S&P Bond Rating	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Avg Full Year	Avg 4th QTR
XTO Energy Inc.	5.65	98385XAH9	Sr Nts	04/01/2016	0	AAA	1.09	0.95											1.02%	
XTO Energy Inc.	6.1	98385XAJ5	Sr Nts	04/01/2036	20	AAA	3.93	3.85	3.90	3.95	3.97	3.65	3.66	3.67	3.86	3.86	4.34	4.40	3.92%	4.20%
XTO Energy Inc.	6.25	98385XAL0	Sr Nts	08/01/2017	1	AAA	1.27	1.25	1.07	0.88	0.91	0.91	0.92	0.90	1.16	1.16	1.26	1.14	1.07%	1.19%
XTO Energy Inc.	6.75	98385XAM8	Sr Nts	08/01/2037	21	AAA	3.98	3.89	3.92	3.94	3.79	3.50	3.51	3.52	3.76	3.76	4.19	4.15	3.83%	4.03%
XTO Energy Inc.	5.5	98385XAP1	Sr Nts	06/15/2018	2	AAA	1.44	1.41	1.53	1.64	1.33	0.96	1.08	1.19	1.34	1.34	1.64	1.68	1.38%	1.55%
XTO Energy Inc.	6.38	98385XAQ9	Sr Nts	06/15/2038	22	AAA	4.09	4.00	3.96	3.92	3.90	3.64	3.58	3.59	3.87	3.87	4.29	4.19	3.91%	4.12%
Texaco Capital	9.75	881685AN1	GtdDeb	03/15/2020	4	AA	3.09	2.88	2.94	3.00	3.07	2.61	2.80	2.26	2.23	2.23	2.79	2.93	2.74%	2.65%
Texaco Capital	8.875	881685AV3	GtdDeb	09/01/2021	5	AA	2.89	2.68	3.09	3.49	3.56	3.11	3.22	2.15	2.13	2.13	2.68	2.83	2.83%	2.55%
Texaco Capital	8.625	881685AX9	GtdDeb	11/15/2031	15	AA	4.34	4.29	4.27	4.25	4.15	3.73	3.72	3.80	3.63	3.63	4.09	4.09	4.00%	3.94%
Texaco Capital	8.625	881685AY7	GtdDeb	04/01/2032	16	AA	4.29	4.34	4.39	4.44	4.42	4.13	4.14	4.14	4.06	4.06	4.51	4.52	4.29%	4.36%
Texaco Capital	8	881685BB6	GtdDeb	08/01/2032	16	AA	4.37	4.44	4.49	4.54	4.52	4.23	4.24	4.24	4.06	4.06	4.52	4.52	4.35%	4.37%
ANR Pipeline	7.38	001814AQ5	Deb	2/15/2024	8	A-	4.79	4.53	4.59	4.65	4.67	4.28	4.39	4.47	4.66	4.66	4.09	4.08	4.49%	4.28%
ANR Pipeline	9.62	001814AR3	Deb	11/1/2021	5	A-	3.95	4.19	4.06	3.93	4.01	3.17	2.42	2.60	2.53	2.92	3.10	3.28%	2.85%	
EOG Resources, Inc.	5.88	26875PAA9	Sr Nts	09/15/2017	1	A-	1.89	2.08	1.86	1.64	1.63	1.38	1.62	1.19	1.39	1.39	1.57	1.64	1.61%	1.53%
Enron Oil & Gas	6.65	293562AD6	Nts	04/01/2028	12	A-	4.88	4.80	4.96	5.12	5.23	4.68	4.69	4.73	4.82	4.82	5.33	5.11	4.93%	5.09%
Transcanada Pipelines Ltd	9.88	893526BY8	Deb	01/01/2021	5	A-	4.05	4.12	3.83	3.53	3.46	3.22	3.09	2.80	2.65	2.65	3.14	3.06	3.30%	2.95%
Transcont'l Gas PipeLine	7.08	893570BL4	Deb	07/15/2026	10	A-	6.78	7.07	6.14	5.20	5.21	4.66	4.35	4.05	4.23	4.23	4.63	4.34	5.07%	4.40%
Transcont'l Gas PipeLine	7.25	893570BM2	Deb	12/01/2026	10	A-	6.69	7.10	6.30	5.50	5.51	4.97	4.65	4.35	4.75	4.75	5.15	4.86	5.38%	4.92%
Atlantic Richfield	9	048825AW3	Deb	04/01/2021	5	A	3.83	3.62	4.09	4.55	4.75	4.14	3.71	3.53	2.99	2.99	3.55	3.60	3.78%	3.38%
Atlantic Richfield	9	048825AY9	Deb	05/01/2031	15	A	5.63	5.43	5.48	5.53	5.57	5.26	4.70	4.78	4.73	4.73	5.26	5.32	5.20%	5.10%
Atlantic Richfield	9.125	048825AZ6	Deb	08/01/2031	15	A	5.00	4.84	4.99	5.13	5.16	4.85	4.75	4.82	4.98	4.98	5.51	5.58	5.05%	5.36%
Atlantic Richfield	8.25	048825BA0	Deb	02/01/2022	6	A	4.30	4.11	02/01/2022	3.48	3.55	3.07	3.26	2.43	2.89	2.89	3.41	3.29	3.37%	3.20%
Atlantic Richfield	8.75	048825BB8	Deb	03/01/2032	16	A	5.69	5.49	5.54	5.58	5.55	5.12	5.13	5.04	4.76	4.76	5.22	5.18	5.25%	5.05%
Burlington Resources Inc.	9.125	122014AE3	Deb	10/01/2021	5	A	5.07	4.80	4.32	3.84	3.65	3.15	3.26	3.73	2.72	2.72	3.17	3.42	3.65%	3.10%
Burlington Resources Inc.	8.2	122014AH6	Deb	03/15/2025	9	A	6.17	6.50	5.48	4.46	4.53	3.98	4.09	4.00	4.13	4.13	4.05	3.94	4.62%	4.04%
Burlington Resources Inc.	6.875	122014AJ2	Deb	02/15/2026	10	A	6.75	6.17	5.44	4.70	4.78	4.83	4.72	4.63	4.43	4.43	4.95	4.76	5.05%	4.71%
Burlington Resources Inc.	7.375	122014AL7	Deb	03/01/2029	13	A	7.06	6.78	6.07	5.35	5.27	4.74	4.77	4.56	4.50	4.96	4.66	4.56	5.27%	4.71%
Burlington Resources Fin	7.2	12201PAB2	Gtd Nt	8/15/2031	15	A	6.35	6.54	6.00	5.45	5.26	5.09	4.62	4.35	4.33	4.33	4.80	4.55	5.14%	4.56%
Conoco Inc	6.95	208251AE8	Nts	04/15/2029	13	A	6.66	6.38	5.67	4.95	4.87	4.39	4.42	4.21	4.15	4.15	4.61	4.31	4.90%	4.36%
ConocoPhillips	5.9	20825CAF1	Nts	10/15/2032	16	A	6.23	6.28	5.50	4.71	5.02	4.44	4.25	4.44	4.33	4.33	4.79	4.56	4.91%	4.56%
Conoco Funding	7.25	20825UAC8	Sr Nt	10/15/2031	15	A	6.39	6.65	6.28	5.90	5.22	5.07	4.69	4.37	4.44	4.44	4.79	4.65	5.24%	4.63%
Louisiana Land/Exp	7.65	546268AG8	Deb	12/01/2023	7	A	5.67	5.32	4.69	4.05	4.12	3.54	3.82	3.71	3.91	3.91	4.44	4.71	4.32%	4.35%
Occidental Petroleum Corp.	9.25	674599BE4	Sr Deb	08/01/2019	3	A	2.84	2.68	2.66	2.63	2.57	2.17	2.31	2.41	2.45	2.45	2.81	2.71	2.56%	2.66%
Occidental Petroleum Corp.	7.2	674599BM6	Sr Deb	4/1/2028	12	A	5.45	5.21	4.68	4.15	4.19	3.73	3.57	3.73	3.82	3.82	4.44	4.42	4.27%	4.23%
Occidental Petroleum Corp.	8.45	674599BT1	Sr Nts	02/15/2029	13	A	4.85	4.61	4.08	3.55	4.19	3.73	3.57	3.73	3.79	3.79	4.41	4.39	4.06%	4.20%
Occidental Pete Corp Med Term	8.75	67461FED5	Deb	1/15/2023	7	A	4.26	4.00	4.06	4.12	4.18	3.73	3.86	4.02	4.12	4.12	4.67	4.45	4.13%	4.41%
Phillips Petroleum	6.65	718507BH8	Deb	07/15/2018	2	A	3.28	3.98	3.27	2.56	2.63	2.27	2.37	1.75	1.59	1.59	1.94	1.99	2.44%	1.84%
Phillips Petroleum	7	718507BK1	Deb	03/30/2029	13	A	7.03	6.76	6.01	5.26	5.15	4.67	4.46	4.25	4.58	4.58	5.01	4.61	5.20%	4.73%
Apache Corp.	7.7	037411AJ4	Nts	03/15/2026	10	BBB+	5.57	5.46	5.39	5.32	5.41	4.86	4.60	4.68	4.59	4.59	5.25	5.03	5.06%	4.96%
Apache Corp.	7.95	037411AK1	Nts	04/15/2026	10	BBB+	5.55	5.44	5.49	5.53	5.25	4.71	4.69	4.35	4.51	4.51	5.17	4.73	4.99%	4.80%
Apache Corp.	7.625	037411AL9	Deb	11/01/2096	80	BBB+	7.95	7.68	6.86	6.04	6.23	5.80	5.58	5.74	5.83	5.83	6.33	5.85	6.31%	6.00%
Apache Corp.	7.38	037411AM7	Deb	08/15/2047	31	BBB+	7.45	7.18	6.36	5.54	5.73	5.30	5.08	5.24	5.17	5.17	5.67	5.20	5.76%	5.35%
Apache Corp.	7	037411AN5	Sr Nts	02/01/2018	2	BBB+	3.75	4.94	3.99	3.03	3.05	2.44	2.36	2.26	1.77	1.77	2.34	2.04	2.81%	2.05%
Apache Corp.	7.62	037411AP0	Sr Nts	07/01/2019	3	BBB+	3.16	4.89	4.07	3.25	3.28	2.61	2.31	2.26	1.84	1.84	2.51	2.23	2.85%	2.19%
Apache Corp.	6	037411AR6	Nts	01/15/2037	21	BBB+	7.13	7.71	6.60	5.48	5.52	4.93	4.85	4.90	4.71	4.71	5.13	4.85	5.54%	4.90%
Canadian Natural Resources L	6.45	136385AE1	Nt	6/30/2033	17	BBB+	8.56	9.36	8.06	6.76	6.70	6.21	5.60	5.54	5.53	5.53	5.69	5.32	6.57%	5.51%
Devon Fin Corp	7.95	251799AA0	Sr Deb	04/15/2032	16	BBB+	8.80	10.95	9.09	7.23	7.27	6.40	5.84	5.94	5.42	5.42	5.81	5.40	6.96%	5.54%
ENSCO International Inc.	7.2	26874QAB6	Deb	11/15/2027	11	BBB+	12.48	15.42	14.06	12.69	11.74	11.71	10.46	10.36	8.73	8.73	8.91	8.40	11.14%	8.68%
Enterprise Products Oper	6.65	293791AP4	Sr Nts 'B'	10/15/2034	18	BBB+	6.67	6.31	5.85	5.38	5.51	5.02	4.59	4.73	4.99	4.99	5.36	4.95	5.36%	5.10%
Enterprise Products Oper	5.75	293791AT6	Sr Nts 'B'	03/01/2035	19	BBB+	6.61	6.12	5.73	5.33	5.24	4.87	4.64	4.75	4.94	4.94	5.33	5.00	5.29%	5.09%
Enterprise Prods Oper L P	4.59	293791AV1	Jr Sub Nt Fixed/fltg Rate	08/01/2066	50	BBB+	10.48	10.94	10.58	10.21	9.66	9.50	9.14	4.80			4.92	4.91	8.51%	4.92%
OceanEnergy	8.25	674812AK8	Sr Nts 'B'	07/01/2018	2	BBB+	7.64	8.22	6.61	5.00	3.90	4.18	3.91	5.21	4.80	4.80	5.19	5.08	5.38%	5.02%
Amerada Hess Corp.	7.875	023551AF1	Nts	10/01/2029	13	BBB	8.00	9.31	7.87	6.42	6.50	5.66	5.67	5.59	5.40	5.40	6.02	5.66	6.46%	5.69%

MONTANA DEPARTMENT OF REVENUE

Support for Yield Capitalization Cost of Debt Component - Yield to Maturity From Standard & Poor's Bond Guide  
 Industry: Gas Pipelines  
 2017 Assessment Year

Company Name	Coupon	CUSIP	Issue	Maturity Date	Years to Maturity	Old S&P Bond Rating	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Avg Full Year	Avg 4th QTR
Amerada Hess Corp.	7.3	023551AJ3	Nts	08/15/2031	15	BBB	8.76	9.18	7.84	6.50	6.47	5.75	5.65	5.73	5.58	5.58	6.24	5.70	6.58%	5.84%
Diamond Shamrock	7.65	252747AF7	Deb	07/01/2026	10	BBB	5.24	5.15	4.58	4.01	4.29	4.08	4.02	3.80	3.92	3.92	4.39	4.50	4.33%	4.27%
Enbridge Energy Partners, L.P.	5.95	29250RAD8	Sr Nts 'B'	06/01/2033	17	BBB	7.24	7.44	7.21	6.98	6.96	6.67	6.68	5.73	5.97	5.97	6.43	6.32	6.63%	6.24%
Enbridge Energy Partners, L.P.	5.88	29250RAH9	Nt	12/15/2016	0	BBB	3.40	4.35	3.12	1.89	1.88	0.95	1.14	1.46	1.77	1.77			2.17%	1.77%
Kinder Morgan EGY Ptnrs	7.4	494550AJ5	Nt	03/15/2031	15	BBB	8.20	8.29	7.52	6.75	6.78	6.61	5.92	6.14	5.63	5.63	6.21	5.63	6.61%	5.82%
Kinder Morgan EGY Ptnrs	7.75	494550AL0	Nt	03/15/2032	16	BBB	8.56	8.28	7.62	6.95	6.93	6.47	6.19	6.00	5.55	5.55	6.05	5.59	6.64%	5.73%
Kinder Morgan EGY Ptnrs	7.3	494550AQ9	Sr Nt	08/15/2033	17	BBB	8.39	8.06	7.49	6.92	6.97	6.41	6.06	5.82	5.63	5.63	6.04	5.70	6.59%	5.79%
Kinder Morgan EGY Ptnrs	6	494550AU0	Sr Nt	02/01/2017	1	BBB	4.25	3.92	3.11	2.29	2.10	1.87	1.55	1.70	1.72	1.72	1.68	2.16	2.34%	1.85%
Kinder Morgan EGY Ptnrs	6.5	494550AV8	Sr Nt	02/01/2037	21	BBB	8.24	8.08	7.41	6.73	6.79	6.05	5.88	5.99	5.88	5.88	6.19	5.72	6.57%	5.93%
Kinder Morgan EGY Ptnrs	6.95	494550AW6	Sr Nt	01/15/2038	22	BBB	8.24	8.08	7.35	6.62	6.66	6.18	5.88	5.82	5.77	5.77	6.13	5.67	6.51%	5.86%
Kinder Morgan Fin Co Ulc	6.4	49455WAF3	Gtd Nt	01/05/2036	20	BBB	8.13	7.98	8.11	8.24	8.25	7.96	7.83	7.77	7.65	7.65	8.05	7.85	7.96%	7.85%
Lakehead Pipe Line Co	7	511546AA1	Sr Nt	10/1/2018	2	BBB	4.76	4.69	4.89	5.08	5.15	4.83	4.95	5.06	5.06	5.06	5.35	5.31	5.02%	5.24%
Marathon Oil Corp.	6.8	565849AB2	Nts	03/15/2032	16	BBB	9.59	10.75	8.92	7.08	7.22	6.54	6.09	6.31	5.92	5.92	6.42	5.70	7.20%	6.01%
Murphy Oil Corp.	7.05	626717AA0	Nts	05/01/2029	13	BBB	12.44	12.66	10.45	8.24	7.22	6.94	6.78	7.29	6.57	6.57	6.54	6.22	8.16%	6.44%
ONEOK Partners, L.P.	6.15	68268NAB9	Gtd Sr Nt	10/1/2016	0	BBB	2.77	4.23	3.44	2.64	2.74	1.97	2.14	1.67					2.70%	
ONEOK Partners, L.P.	6.65	68268NAC7	Gtd Sr Nt	10/1/2036	20	BBB	8.79	9.23	8.25	7.27	6.91	6.21	5.83	5.93	5.41	5.41	5.84	5.55	6.72%	5.60%
Plains All Amer Pipeline L P	5.88	72650RAF9	Sr Nt	08/15/2016	0	BBB	2.78	2.82	2.25	1.68	2.18	1.98							2.28%	
Plains All Amer Pipeline L P	6.7	72650RAM4	Sr Nt	5/15/2036	20	BBB	8.24	8.79	7.94	7.08	7.32	6.71	5.78	6.01	5.73	5.73	6.27	5.90	6.79%	5.97%
Talisman Energy Inc.	7.25	87425EAE3	Deb	10/15/2027	11	BBB	7.35	8.66	8.72	8.77	8.81	8.82	8.70	8.71	6.78	6.78	7.29	7.06	8.04%	7.04%
USX Corp.	9.375	902905AL2	Deb	05/15/2022	6	BBB	9.46	10.55	9.03	7.50	8.27	7.09	4.74	4.98	4.09	4.09	4.63	4.09	6.54%	4.27%
USX Corp.	8.5	902905AN8	Deb	03/01/2023	7	BBB	8.69	9.62	8.41	7.20	7.74	7.27	6.82	6.60	5.83	5.83	6.37	5.48	7.16%	5.89%
USX Corp.	8.125	902905AQ1	Deb	07/15/2023	7	BBB	8.59	11.90	9.81	7.72	6.93	6.47	5.83	5.75	5.48	5.48	5.75	5.18	7.07%	5.47%
Valero Energy Corp. (New)	8.75	91913YAB6	Nts	06/15/2030	14	BBB	7.23	7.22	6.58	5.94	6.53	5.57	5.62	5.31	5.15	5.15	5.62	5.48	5.95%	5.42%
Valero Energy Corp. (New)	7.5	91913YAE0	Nts	04/15/2032	16	BBB	6.93	6.97	6.33	5.69	6.28	5.80	5.49	5.16	5.00	5.00	5.34	5.33	5.78%	5.22%
Valero Energy Corp. (New)	6.62	91913YAL4	Nts	06/15/2037	21	BBB	6.94	6.79	6.22	5.64	6.42	5.88	5.63	5.34	5.26	5.26	5.74	5.31	5.87%	5.44%
Valero Energy Corp. (New)	6.12	91913YAM2	Nts	06/15/2017	1	BBB	3.06	3.46	2.73	2.00	2.06	2.07	1.23	1.36	0.58	0.58	0.00	0.00	1.59%	0.19%
Williams Ptns L P	7.25	96950HAD2	Sr Nt	2/1/2017	1	BBB	7.23	7.54	5.32	3.10	2.66	1.94	1.83	1.42	1.64	1.64	1.81	2.30	3.20%	1.92%
Anadarko Petroleum Corp.	7.25	032511AH0	Deb	03/15/2025	9	BBB	7.26	7.28	7.15	7.01	6.91	6.21	6.17	6.12	5.71	5.71	5.27	5.03	6.32%	5.34%
Anadarko Petroleum Corp.	7.73	032511AJ6	Deb	09/15/2096	80	BBB	8.57	8.47	7.85	7.22	7.30	6.78	6.81	6.81	6.66	6.66	7.10	6.82	7.25%	6.86%
Anadarko Petroleum Corp.	7.25	032511AK3	Deb	11/15/2096	80	BBB	9.50	9.34	8.40	7.46	7.30	6.78	6.71	6.71	6.43	6.43	6.85	6.50	7.37%	6.59%
Anadarko Petroleum Corp.	7	032511AL1	Deb	11/15/2027	11	BBB	8.70	10.03	8.45	6.86	6.76	6.06	6.02	6.06	5.61	5.61	4.92	4.69	6.65%	5.07%
Anadarko Petroleum Corp.	6.62	032511AM9	Deb	01/15/2038	12	BBB	8.70	10.03	8.45	6.86	6.76	6.06	6.02	6.07	5.66	5.66	5.09	4.84	6.68%	5.20%
Anadarko Petroleum Corp.	7.2	032511AN7	Deb	03/15/2029	13	BBB	8.25	9.58	8.25	6.92	6.83	6.16	5.83	5.87	5.41	5.41	5.12	5.21	6.57%	5.25%
Anadarko Petroleum Corp.	5.95	032511AX5	Sr Nts	09/15/2016	0	BBB	3.42	5.28	3.03	0.77									3.12%	
Anadarko Petroleum Corp.	6.45	032511AY3	Sr Nts	09/15/2036	20	BBB	8.55	8.54	7.18	5.81	6.02	5.40	5.30	5.31	4.96	4.96	5.46	4.98	6.04%	5.13%
Buckeye Partners, L.P.	5.12	118230AE1	Fixed Rt Nts	07/01/2017	1	BBB-	3.78	3.78	3.11	2.43	2.41	2.17	2.39	2.49	2.49	2.49	2.63	2.74	2.74%	2.62%
Energen Corp MTN BE	7.32	29285AAP1	MTN Tranche # Tr 00014	7/28/2022	6	BBB-	9.51	11.40	9.19	6.98	6.69	6.75	6.53	5.46	4.86	4.86	5.15	5.03	6.87%	5.01%
Energy Transfer Partners, L.P.	6.12	29273RAE9	Sr Nt	2/15/2017	1	BBB-	5.06	5.79	4.59	3.39	2.04	1.83	2.00	1.21	1.43	1.43	1.72	1.73	2.69%	1.63%
Energy Transfer Partners, L.P.	6.62	29273RAF6	Sr Nt	10/15/2036	20	BBB-	8.59	8.30	7.54	6.78	7.01	6.34	5.89	5.98	5.74	5.74	6.19	5.93	6.67%	5.95%
Enterprise Prods Oper L P	8.38	293791AV1	Jr Sub Nt Fixed/ftg Rate	08/01/2066	50	BBB-	10.48	10.94	10.58	10.21	9.66	9.50	9.14	4.80	0.00	0.00	4.92	4.91	7.09%	3.28%
Kerr-McGee Corp.	7.125	492386AK3	Deb	10/15/2027	11	BBB-	7.85	9.37	8.20	7.03	6.54	6.02	5.98	5.93	5.73	5.73	6.25	5.43	6.67%	5.80%
Kerr-McGee Corp.	7.875	492386AT4	Nts	09/15/2031	15	BBB-	8.10	9.22	7.84	6.46	6.48	6.19	5.94	5.82	5.18	5.18	5.79	5.20	6.45%	5.39%
Kerr-McGee Corp.	6.95	492386AU1	Nts	07/01/2024	8	BBB-	7.20	8.52	6.94	5.35	5.31	4.56	4.52	4.46	3.91	3.91	4.44	4.21	5.28%	4.19%
Northwest Pipeline	7.12	667748AF4	Deb	12/01/2025	9	BBB-	9.09	8.07	7.06	6.05	6.37	5.62	4.67	4.49	4.34	4.34	4.91	4.59	5.80%	4.61%
Sunoco Logistics Ptns Operat	6.12	86765BAE9	Sr Nt	05/15/2016	0	BBB-	2.12	4.16											3.14%	
Union Pacific Resources Group	7.5	907834AB1	Deb	10/15/2026	10	BBB-	8.25	9.58	8.00	6.41	6.38	5.69	5.66	5.60	4.62	4.62	5.12	4.88	6.23%	4.87%
Union Pacific Resources Group	7.5	907834AC9	Deb	11/01/2096	-116	BBB-	9.50	9.34	8.43	7.52	7.60	7.09	7.02	7.01	6.73	6.73	7.11	6.77	7.57%	6.87%
Union Pacific Resources Group	7.05	907834AF2	Deb	05/15/2018	2	BBB-	4.84	4.84	4.95	5.06	5.13	3.01	3.19	3.29	3.29	3.29	3.57	4.06	4.04%	3.64%
Union Pacific Resources Group	7.15	907834AG0	Deb	05/15/2028	12	BBB-	8.25	9.27	7.86	6.45	6.40	5.86	5.82	5.33	5.31	5.31	5.06	4.79	6.31%	5.05%
Williams Companies, Inc. (The)	7.625	969457AW0	Nts	07/15/2019	3	BBB-	13.20	13.41	13.36	13.30	13.65	12.92	12.88	10.39	8.03	8.03	4.36	4.26	10.65%	5.55%
Williams Companies, Inc. (The)	7.5	969457BB5	Deb	01/15/2031	15	BBB-	12.52	11.10	9.75	8.39	7.84	7.56	6.68	6.02	5.92	5.92	6.38	6.08	7.85%	6.13%
Williams Companies, Inc. (The)	7.75	969457BD1	Nts	06/15/2031	15	BBB-	12.74	11.36	9.94	8.52	8.03	7.69	6.72	6.16	6.17	6.17	6.66	6.26	8.04%	6.36%
Williams Companies, Inc. (The)	7.875	969457BG4	Nts	09/01/2021	5	BBB-	12.08	11.77	9.59	7.41	6.83	6.48	5.53	4.28	4.18	4.18	4.61	4.45	6.78%	4.41%
Williams Companies, Inc. (The)	8.75	969457BM1	Nts	03/15/2032	16	BBB-	13.48	11.67	10.15	8.63	8.34	8.23	6.93	6.37	6.33	6.33	6.88	6.54	8.32%	6.58%
Boardwalk Pipelines Llc	5.5	096629AA8	Nt	2/1/2017	1	BB+	4.40	6.70	5.28	3.86	3.94	2.79	2.00	2.55	2.55	2.55	2.69	2.12	3.25%	2.45%
Boardwalk Pipelines Lp	5.88	096630AA6	Sr Nt	11/15/2016	0	BB+	5.03	5.86	5.70	5.53	2.26	1.98	2.17	1.29					3.73%	
Pioneer Natural Resources Co	6.88	723787AF4	Sr Nts	05/01/2018	2	BB+	4.94	5.05	3.97	2.88	2.87	2.19	2.10	2.20	1.97	1.97	2.26	2.19	2.88%	2.14%
Pioneer Natural Resources Co	6.65	723787AG2	Sr Nts	03/15/2017	1	BB+	5.04	5.03	4.05	3.07	2.16	1.70	1.73	2.33	1.37	1.37	1.38	1.58	2.57%	1.44%
Chesapeake Energy Corp.	6.5	165167BS5	Sr Nts	08/15/2017	1	BB-			10.61	21.21	12.15	15.47	11.70	6.49	4.36	4.36	2.56	1.65	9.06%	2.86%
Chesapeake Energy Corp.	6.88	165167BU0	Sr Nts	11/15/2020	4	BB-			11.48	22.96	19.47	17.66	16.04	10.54	8.58	8.58	8.85	6.64	13.08%	8.02%
Chesapeake Energy Corp.	2.75	165167BW6	Contingent Sr Nt Conv	11/15/2035	19	BB-	2.76		12.40	24.79	24.83	24.85	24.87	24.90	24.99	24.99			21.04%	24.99%

**MONTANA DEPARTMENT OF REVENUE**

**Support for Yield Capitalization Cost of Debt Component - Yield to Maturity From Standard & Poor's Bond Guide  
Industry: Gas Pipelines  
2017 Assessment Year**

Company Name	Coupon	CUSIP	Issue	Maturity Date	Years to Maturity	Old S&P Bond Rating	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Avg Full Year	Avg 4th QTR	
Chesapeake Energy Corp.	2.5	165167BZ9	Contingent Sr Nt Conv	5/15/2037	21	BB-	7.11	8.73	6.35	3.96	2.98	2.95	2.85	2.56	2.53	2.53	2.51	2.47	3.96%	2.50%	
Chesapeake Energy Corp.	2.5	165167CA3	Sr Contingent Conv Nt	5/15/2037	21	BB-	7.11	8.73	6.35	3.96	2.98	2.95	2.85	2.56	2.53	2.53	2.51	2.47	3.96%	2.50%	
Chesapeake Energy Corp.	2.25	165167CB1	Contingent Sr Nt Conv	12/15/2038	22	BB-	10.21	12.99	9.31	5.63	4.17	3.51	3.36	2.85	2.65	2.65	2.59	2.35	5.19%	2.53%	
Chesapeake Energy Corp.	7.25	165167CC9	Sr Nt	12/15/2018	2	BB-			10.88	21.76	15.85	14.86	11.94	7.48	5.84	5.84	5.28	3.01	10.27%	4.71%	
Plains Exploration & Production	7	726505AC4	Sr Nts	03/15/2017	1	BB-															
Swift Energy Co.	7.12	870738AF8	Sr Nts	06/01/2017	1	BB-															
KN Energy	6.67	482620AS0	Deb	11/01/2027	11	BB	7.29	7.30	7.30	7.30	7.31	7.31	7.31	7.32	7.32	7.32	7.33	7.33	7.31%	7.33%	
KN Energy	7.25	482620AW1	Sr Deb	03/01/2028	12	BB	8.76	8.60	8.23	7.85	5.96	6.78	6.10	6.21	6.24	6.24	7.01	6.33	7.03%	6.53%	
Range Resources Corp.	7.5	75281AAH2	Sr Sub Nts	10/01/2017	1	BB	5.12	5.02	4.88	4.74	4.58	4.38	4.18	3.93	3.29	3.29	2.93	2.43	4.06%	2.88%	
Range Resources Corp.	7.25	75281AAJ8	Sr Sub Nts	05/01/2018	2	BB	5.51	5.45	5.39	5.32	5.24	5.15	5.06	4.95	4.71	4.71	4.58	4.41	5.04%	4.57%	
Berry Petroleum Co.	8.25	085789AC9	Sr SubNts	11/01/2016	0	B	2.68	2.10	1.11	0.12									1.50%		
Cimarex Energy Co.	7.12	171798AA9	Sr Nts	05/01/2017	1	NR	4.17	3.99	3.74	3.49	3.19	2.79	2.35	1.74					3.18%		
Pioneer Natural Resources Co.	7.2	723787AB3	Sr Nt	6/15/2028	12	NR	6.25	6.92	6.34	5.75	5.87	5.46	4.72	4.79	4.30	4.30	4.86	4.82	5.36%	4.66%	
Range Resources Corp.	7.5	75281AAG4	Sr Sub Nts	05/15/2016	0	NR															
Sunoco, Inc.	5.75	86764PAD1	Nts	01/15/2017	1	NR	5.03	4.48	3.76	3.03	2.39	2.13	2.33	1.55	1.43	1.43	1.77		2.67%	1.60%	
							129	123	122	124	124	122	122	121	121	117	117	116	115	126	118

NOTES:

Data downloaded from the S&P website and missing data supplemented from month end Bond Guides when available.  
  means the data was not available in S&P Guide  
  means issuance matured or called

All Bonds		Annual	4th Qtr
All Bonds			
All Ratings		5.50%	4.76%
Investment Grade (BBB- & Above)		5.24%	4.63%
<b>Bonds With 20 or More Years to Maturity</b>			
All Ratings		5.71%	5.30%
Investment Grade (BBB- & Above)		6.26%	5.44%
<b>Say:</b>		<b>5.25%</b>	



**MONTANA DEPARTMENT OF REVENUE**

Support for Direct Capitalization Cost of Equity ( $k_e$ )

Industry: Gas Pipelines

2017 Assessment Year

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Company	Ticker Symbol	Avg. 4Q 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)
		<i>Yahoo</i>	<i>Value Line</i>	<i>Value Line</i>	<i>C/D</i>	<i>C/E</i>	<i>1/F</i>	<i>1/G</i>	<i>Value Line</i>	<i>Value Line</i>	<i>C/J</i>	<i>C/K</i>	<i>1/L</i>	<i>1/M</i>
Boardwalk	BWP	17.18	1.20	1.30	14.32	13.21	6.99%	7.57%	2.18	2.50	7.88	6.87	12.69%	14.55%
Enbridge Energy Partners LLP	EEP	24.35	0.32	0.50	76.10	48.71	1.31%	2.05%	2.26	2.15	10.78	11.33	9.28%	8.83%
Energy Transfer	ETP	35.86	0.19	1.45	188.75	24.73	0.53%	4.04%	6.93	3.05	5.18	11.76	19.32%	8.50%
EnLink Midstream Partners LP	ENLK	17.52		0.30		58.39		1.71%		0.45		38.93		2.57%
Enterprise Products	EPD	25.95	1.20	1.40	21.62	18.53	4.62%	5.40%	2.01	1.95	12.91	13.31	7.75%	7.51%
EQT Midstream Partners LP	EQM	74.22	5.20	5.50	14.27	13.49	7.01%	7.41%	7.45	8.00	9.96	9.28	10.04%	10.78%
ONEOK Partners LP	OKS	41.50	2.25	2.50	18.44	16.60	5.42%	6.02%	4.15	4.85	10.00	8.56	10.00%	11.69%
Spectra Energy Partners, LP	SEP	43.18	3.10	3.45	13.93	12.52	7.18%	7.99%	5.22	5.50	8.27	7.85	12.09%	12.74%
Western Gas Equity Partners, LP	WGP	43.12	1.53	0.00	28.18		3.55%		1.52	0.00	28.37		3.52%	
Western Gas Partners LP	WES	56.36	1.75	2.75	32.20	20.49	3.11%	4.88%	4.80	6.00	11.74	9.39	8.52%	10.65%
Williams Ptrs.	WPZ	35.98		1.75		20.56		4.86%	0.43	2.70	83.67	13.33	1.20%	7.50%
<b>Average</b>					<b>45.31</b>	<b>24.72</b>	<b>4.41%</b>	<b>5.19%</b>			<b>18.88</b>	<b>13.06</b>	<b>9.44%</b>	<b>9.53%</b>
<b>Median</b>					<b>21.62</b>	<b>19.51</b>	<b>4.62%</b>	<b>5.14%</b>			<b>10.39</b>	<b>10.36</b>	<b>9.64%</b>	<b>9.74%</b>
High					188.75	58.39	7.18%	7.99%			83.67	38.93	19.32%	14.55%
Low					13.93	12.52	0.53%	1.71%			5.18	6.87	1.20%	2.57%
<b>Say</b>							<b>5.00%</b>						<b>9.70%</b>	

MONTANA DEPARTMENT OF REVENUE

Support for Direct Capitalization Cost of Debt Component - Current Yield From Standard & Poor's Bond Guide  
 Industry: Gas Pipelines  
 2017 Assessment Year

Company Name	Coupon	CUSIP	Issue	Maturity Date	Years to Maturity	Old S&P Bond Rating	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Avg Full Year	Avg 4th QTR
XTO Energy Inc.	5.65	98385XAH9	Sr Nts	04/01/2016	0	AAA	5.60	5.62											5.61%	
XTO Energy Inc.	6.1	98385XAJ5	Sr Nts	04/01/2036	20	AAA	4.69	4.64	4.68	4.71	4.73	4.54	4.55	4.56	4.68	4.68	4.96	5.00	4.70%	4.88%
XTO Energy Inc.	6.25	98385XAL0	Sr Nts	08/01/2017	1	AAA	5.81	5.83	5.84	5.85	5.88	5.90	5.93	5.95	6.02	6.02	6.04	6.06	5.93%	6.04%
XTO Energy Inc.	6.75	98385XAM8	Sr Nts	08/01/2037	21	AAA	4.82	4.77	4.80	4.82	4.72	4.55	4.56	4.57	4.73	4.73	4.99	4.97	4.75%	4.90%
XTO Energy Inc.	5.5	98385XAP1	Sr Nts	06/15/2018	2	AAA	5.02	5.03	5.06	5.09	5.07	5.05	5.08	5.11	5.15	5.15	5.19	5.21	5.10%	5.18%
XTO Energy Inc.	6.38	98385XAQ9	Sr Nts	06/15/2038	22	AAA	4.78	4.73	4.71	4.68	4.67	4.52	4.48	4.49	4.67	4.67	4.93	4.88	4.68%	4.83%
Texaco Capital	9.75	881685AN1	GtdDeb	03/15/2020	4	AA	7.76	7.73	7.78	7.82	7.87	7.79	7.87	7.77	7.84	7.84	8.00	8.07	7.84%	7.97%
Texaco Capital	8.875	881685AV3	GtdDeb	09/01/2021	5	AA	6.79	6.74	6.89	7.04	7.08	6.97	7.02	6.73	6.78	6.78	6.96	7.02	6.90%	6.92%
Texaco Capital	8.625	881685AX9	GtdDeb	11/15/2031	15	AA	5.80	5.78	5.78	5.77	5.72	5.49	5.50	5.55	5.48	5.48	5.73	5.74	5.65%	5.65%
Texaco Capital	8.625	881685AY7	GtdDeb	04/01/2032	16	AA	5.74	5.78	5.82	5.85	5.84	5.68	5.70	5.71	5.67	5.67	5.94	5.95	5.78%	5.85%
Texaco Capital	8	881685BB6	GtdDeb	08/01/2032	16	AA	5.62	5.66	5.70	5.73	5.73	5.56	5.58	5.59	5.50	5.50	5.76	5.77	5.64%	5.68%
ANR Pipeline	7.38	001814AQ5	Deb	2/15/2024	8	A-	6.30	6.20	6.23	6.26	6.28	6.15	6.20	6.23	6.32	6.32	6.12	6.13	6.23%	6.19%
ANR Pipeline	9.62	001814AR3	Deb	11/1/2021	5	A-	7.46	7.56	7.54	7.52	7.57	7.32	7.11	7.19	7.23	7.23	7.37	7.45	7.38%	7.35%
EOG Resources, Inc.	5.88	26875PAA9	Sr Nts	09/15/2017	1	A-	5.52	5.55	5.55	5.55	5.57	5.57	5.60	5.60	5.65	5.65	5.68	5.70	5.60%	5.68%
Enron Oil & Gas	6.65	293562AD6	Nts	04/01/2028	12	A-	5.73	5.69	5.77	5.85	5.92	5.65	5.66	5.68	5.73	5.73	5.98	5.88	5.77%	5.86%
Transcanada Pipelines Ltd	9.88	893526BY8	Deb	01/01/2021	5	A-	7.85	7.77	7.87	7.76	7.77	7.73	7.72	7.66	7.69	7.69	7.85	7.86	7.77%	7.80%
Transcont'l Gas PipeLine	7.08	893570BL4	Deb	07/15/2026	10	A-	6.92	7.08	6.63	6.17	6.17	5.94	5.80	5.69	5.78	5.78	5.95	5.84	6.15%	5.86%
Transcont'l Gas PipeLine	7.25	893570BM2	Deb	12/01/2026	10	A-	6.95	7.21	6.77	6.36	6.37	6.12	5.98	5.86	6.05	6.05	6.23	6.11	6.33%	6.13%
Atlantic Richfield	9	048825AW3	Deb	04/01/2021	5	A	7.25	7.21	7.37	7.53	7.61	7.45	7.34	7.32	7.22	7.22	7.39	7.43	7.36%	7.35%
Atlantic Richfield	9	048825AY9	Deb	05/01/2031	15	A	6.71	6.59	6.63	6.66	6.69	6.51	6.19	6.24	6.23	6.23	6.54	6.59	6.48%	6.45%
Atlantic Richfield	9.125	048825AZ6	Deb	08/01/2031	15	A	6.33	6.24	6.34	6.43	6.45	6.27	6.22	6.28	6.38	6.38	6.70	6.76	6.40%	6.61%
Atlantic Richfield	8.25	048825BA0	Deb	02/01/2022	6	A	6.83	6.78	6.70	6.61	6.65	6.52	6.60	6.37	6.55	6.55	6.72	6.70	6.63%	6.66%
Atlantic Richfield	8.75	048825BB8	Deb	03/01/2032	16	A	6.63	6.50	6.64	6.57	6.56	6.30	6.31	6.27	6.12	6.12	6.40	6.38	6.39%	6.30%
Burlington Resources Inc.	9.125	122014AE3	Deb	10/01/2021	5	A	7.62	7.54	7.40	7.26	7.22	7.09	7.14	7.31	7.06	7.06	7.21	7.31	7.27%	7.19%
Burlington Resources Inc.	8.2	122014AH6	Deb	03/15/2025	9	A	7.19	7.35	6.90	6.45	6.49	6.27	6.32	6.30	6.38	6.38	6.35	6.32	6.56%	6.35%
Burlington Resources Inc.	6.875	122014AJ2	Deb	02/15/2026	10	A	6.81	6.53	6.21	5.88	5.92	5.94	5.90	5.87	5.80	5.80	6.02	5.95	6.05%	5.92%
Burlington Resources Inc.	7.375	122014AL7	Deb	03/01/2029	13	A	7.18	7.02	6.62	6.22	6.17	5.90	5.92	5.82	5.81	5.81	6.05	5.90	6.20%	5.92%
Burlington Resources Fin	7.2	12201PAB2	Gtd Nt	8/15/2031	15	A	6.65	6.77	6.44	6.10	5.99	5.89	5.63	5.49	5.49	5.49	5.75	5.62	5.94%	5.62%
Conoco Inc	6.95	208251AE8	Nts	04/15/2029	13	A	6.78	6.62	6.23	5.84	5.80	5.56	5.58	5.49	5.47	5.47	5.70	5.56	5.84%	5.58%
ConocoPhillips	5.9	20825CAF1	Nts	10/15/2032	16	A	6.11	6.14	5.67	5.19	5.37	5.05	4.95	5.06	5.00	5.00	5.25	5.13	5.33%	5.13%
Conoco Funding	7.25	20825UAC8	Sr Nt	10/15/2031	15	A	6.68	6.85	6.62	6.38	5.97	5.89	5.68	5.50	5.55	5.55	5.75	5.68	6.01%	5.66%
Louisiana Land/Exp	7.65	546268AG8	Deb	12/01/2023	7	A	6.81	6.67	6.44	6.20	6.23	6.04	6.15	6.13	6.22	6.22	6.42	6.52	6.34%	6.39%
Occidental Petroleum Corp.	9.25	674599BE4	Sr Deb	08/01/2019	3	A	7.63	7.62	7.65	7.67	7.69	7.64	7.70	7.76	7.84	7.84	7.94	7.95	7.74%	7.91%
Occidental Petroleum Corp.	7.2	674599BM6	Sr Deb	4/1/2028	12	A	6.24	6.12	5.86	5.60	5.63	5.42	5.35	5.43	5.49	5.49	5.79	5.79	5.68%	5.69%
Occidental Petroleum Corp.	8.45	674599BT1	Sr Nts	02/15/2029	13	A	6.28	6.16	5.90	5.63	5.96	5.74	5.67	5.76	5.81	5.81	6.13	6.13	5.91%	6.02%
Occidental Pete Corp Med Term	8.75	67461FED5	MTN Tranche # Tr 00100	1/15/2023	7	A	6.90	6.81	6.85	6.89	6.93	6.78	6.85	6.92	6.99	6.99	7.20	7.14	6.94%	7.11%
Phillips Petroleum	6.65	718507BH8	Deb	07/15/2018	2	A	6.16	6.27	6.19	6.11	6.14	6.11	6.14	6.10	6.13	6.13	6.18	6.21	6.16%	6.17%
Phillips Petroleum	7	718507BK1	Deb	03/30/2029	13	A	7.02	6.86	6.44	6.02	5.97	5.73	5.63	5.53	5.70	5.70	5.92	5.73	6.02%	5.78%
Apache Corp.	7.7	037411AJ4	Nts	03/15/2026	10	BBB+	6.62	6.57	6.55	6.52	6.57	6.32	6.21	6.26	6.24	6.24	6.53	6.44	6.42%	6.40%
Apache Corp.	7.95	037411AK1	Nts	04/15/2026	10	BBB+	6.71	6.66	6.69	6.72	6.59	6.35	6.35	6.20	6.30	6.30	6.60	6.41	6.49%	6.44%
Apache Corp.	7.625	037411AL9	Deb	11/01/2096	80	BBB+	7.95	7.68	6.87	6.05	6.24	5.81	5.60	5.75	5.84	5.84	6.34	5.86	6.32%	6.01%
Apache Corp.	7.38	037411AM7	Deb	08/15/2047	31	BBB+	7.45	7.20	6.50	5.80	5.96	5.61	5.44	5.56	5.51	5.51	5.91	5.53	6.00%	5.65%
Apache Corp.	7	037411AN5	Sr Nts	02/01/2018	2	BBB+	6.59	6.74	6.65	6.55	6.57	6.53	6.55	6.56	6.57	6.57	6.64	6.64	6.60%	6.62%
Apache Corp.	7.62	037411AP0	Sr Nts	07/01/2019	3	BBB+	6.66	7.03	6.89	6.74	6.76	6.66	6.63	6.65	6.63	6.63	6.76	6.74	6.73%	6.71%
Apache Corp.	6	037411AR6	Nts	01/15/2037	21	BBB+	6.84	7.28	6.46	5.64	5.66	5.27	5.23	5.26	5.14	5.14	5.41	5.23	5.71%	5.26%
Canadian Natural Resources L	6.45	136385AE1	Nt	6/30/2033	17	BBB+	7.96	8.57	7.62	6.66	6.62	6.29	5.91	5.87	5.86	5.86	5.97	5.74	6.58%	5.86%
Devon Fin Corp	7.95	251799AA0	Sr Deb	04/15/2032	16	BBB+	8.57	10.26	8.86	7.45	7.47	6.90	6.54	6.61	6.30	6.30	6.54	6.29	7.34%	6.38%
ENSCO International Inc.	7.2	26874QA86	Deb	11/15/2027	11	BBB+	10.61	12.85	11.79	10.72	10.03	10.00	9.15	9.08	8.06	8.06	8.17	7.86	9.70%	8.03%
Enterprise Products Oper	6.65	293791AP4	Sr Nts 'B'	10/15/2034	18	BBB+	6.67	6.41	6.11	5.80	5.88	5.57	5.31	5.39	5.86	5.56	5.79	5.54	5.80%	5.63%
Enterprise Products Oper	5.75	293791AT6	Sr Nts 'B'	03/01/2035	19	BBB+	6.33	5.99	5.74	5.48	5.42	5.19	5.05	5.12	5.24	5.24	5.48	5.28	5.46%	5.33%
Enterprise Prods Oper L P	4.59	293791AV1	Jr Sub Nt Fixed/fltg Rate	08/01/2066	50	BBB+	10.46	10.92	10.56	10.20	9.65	9.49	9.13	4.77			4.89	4.88	8.50%	4.89%
OceanEnergy	8.25	674812AK8	Sr Nts 'B'	07/01/2018	2	BBB+	8.14	8.24	7.99	7.74	7.59	7.65	7.64	7.83	7.82	7.82	7.88	7.89	7.85%	7.86%
Amerada Hess Corp.	7.875	023551AF1	Nts	10/01/2029	13	BBB	7.96	8.84	7.91	6.97	7.02	6.53	6.54	6.51	6.41	6.41	6.76	6.57	7.04%	6.58%
Amerada Hess Corp.	7.3	023551AJ3	Nts	08/15/2031	13	BBB	8.32	8.62	7.70	6.78	6.76	6.32	6.29	6.31	6.23	6.23	6.63	6.31	6.87%	6.39%
Diamond Shamrock	7.65	252747AF7	Deb	07/01/2026	10	BBB	6.42	6.38	6.13	5.87	6.01	5.92	5.91	5.82	5.89	5.89	6.10	6.16	6.04%	6.05%
Enbridge Energy Partners, L.P.	5.95	29250RAD8	Sr Nts 'B'	06/01/2033	17	BBB	6.81	6.94	6.79	6.63	6.61	6.41	6.42	5.81	5.96	5.96	6.25	6.18	6.40%	6.13%
Enbridge Energy Partners, L.P.	5.88	29250RAH9	Nt	12/15/2016	0	BBB	5.75	5.80	5.77	5.73	5.75	5.74	5.77	5.80	5.84	5.84			5.78%	5.84%

**MONTANA DEPARTMENT OF REVENUE**

Support for Direct Capitalization Cost of Debt Component - Current Yield From Standard & Poor's Bond Guide  
 Industry: Gas Pipelines  
 2017 Assessment Year

Company Name	Coupon	CUSIP	Issue	Maturity Date	Years to Maturity	Old S&P Bond Rating	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Avg Full Year	Avg 4th QTR
Kinder Morgan Egy Ptnrs	7.4	494550AJ5	Nt	03/15/2031	15	BBB	7.94	8.01	7.50	6.98	7.00	6.89	6.47	6.61	6.31	6.31	6.65	6.32	6.92%	6.43%
Kinder Morgan Egy Ptnrs	7.75	494550AL0	Nt	03/15/2032	16	BBB	8.34	8.13	7.67	7.20	7.19	6.89	6.71	6.59	6.33	6.33	6.63	6.35	7.03%	6.44%
Kinder Morgan Egy Ptnrs	7.3	494550AQ9	Sr Nt	08/15/2033	17	BBB	8.11	7.85	7.44	7.03	7.07	6.68	6.46	6.30	6.19	6.19	6.45	6.24	6.83%	6.29%
Kinder Morgan Egy Ptnrs	6	494550AU0	Sr Nt	02/01/2017	1	BBB	5.89	5.88	5.86	5.83	5.84	5.85	5.86	5.89	5.93	5.93	5.95	5.98	5.89%	5.95%
Kinder Morgan Egy Ptnrs	6.5	494550AV8	Sr Nt	02/01/2037	21	BBB	7.86	7.72	7.20	6.67	6.72	6.17	6.05	6.13	6.06	6.06	6.27	5.95	6.57%	6.09%
Kinder Morgan Egy Ptnrs	6.95	494550AW6	Sr Nt	01/15/2038	22	BBB	7.99	7.85	7.27	6.69	6.73	6.37	6.15	6.11	6.08	6.08	6.33	6.01	6.64%	6.14%
Kinder Morgan Fin Co Ulc	6.4	49455WAF3	Gtd Nt	01/05/2036	20	BBB	7.70	7.59	7.69	7.78	7.79	7.56	7.45	7.41	7.31	7.31	7.62	7.46	7.56%	7.46%
Lakehead Pipe Line Co	7	511546AA1	Sr Nt	10/1/2018	2	BBB	6.63	6.63	6.67	6.71	6.72	6.69	6.72	6.74	6.76	6.76	6.80	6.81	6.72%	6.79%
Marathon Oil Corp.	6.8	565849AB2	Nts	03/15/2032	16	BBB	8.80	9.70	8.34	6.98	7.07	6.63	6.35	6.49	6.25	6.25	6.56	6.12	7.13%	6.31%
Murphy Oil Corp.	7.05	626717AA0	Nts	05/01/2029	13	BBB	10.78	10.94	9.36	7.78	7.15	6.98	6.89	7.19	6.77	6.77	6.76	6.58	7.83%	6.70%
ONEOK Partners, L.P.	6.15	68268NAB9	Gtd Sr Nt	10/1/2016	0	BBB	6.01	6.08	6.07	6.06	6.07	6.08	6.10	6.12					6.07%	
ONEOK Partners, L.P.	6.65	68268NAC7	Gtd Sr Nt	10/1/2036	20	BBB	8.34	8.70	7.91	7.12	6.84	6.33	6.06	6.13	5.78	5.78	6.07	5.88	6.75%	5.91%
Plains All Amern Pipeline L P	5.88	72650RAF9	Sr Nt	08/15/2016	0	BBB	5.77	5.79	5.80	5.80	5.82	5.84							5.80%	
Plains All Amern Pipeline L P	6.7	72650RAM4	Sr Nt	5/15/2036	20	BBB	7.89	8.33	7.66	6.98	7.16	6.71	6.05	6.21	6.02	6.02	6.39	6.14	6.80%	6.18%
Talisman Energy Inc.	7.25	87425EAE3	Deb	10/15/2027	11	BBB	7.30	8.07	8.10	8.13	8.15	8.16	8.08	8.08	7.00	7.00	7.27	7.15	7.71%	7.14%
USX Corp.	9.375	902905AL2	Deb	05/15/2022	6	BBB	9.41	9.90	9.25	8.60	8.92	8.46	7.60	7.71	7.44	7.44	7.64	7.48	8.32%	7.52%
USX Corp.	8.5	902905AN8	Deb	03/01/2023	7	BBB	8.59	9.00	8.48	7.95	8.18	7.99	7.81	7.73	7.46	7.46	7.66	7.35	7.97%	7.49%
USX Corp.	8.125	902905AQ1	Deb	07/15/2023	7	BBB	8.34	9.93	8.94	7.95	7.62	7.43	7.19	7.17	7.08	7.08	7.19	6.99	7.74%	7.09%
Valero Energy Corp. (New)	8.75	91913YAB6	Nts	06/15/2030	14	BBB	7.71	7.71	7.31	6.91	7.28	6.70	6.74	6.56	6.48	6.48	6.76	6.69	6.94%	6.64%
Valero Energy Corp. (New)	7.5	91913YAE0	Nts	04/15/2032	16	BBB	7.11	7.14	6.73	6.31	6.69	6.39	6.20	6.00	5.92	5.92	6.12	6.12	6.39%	6.05%
Valero Energy Corp. (New)	6.62	91913YAL4	Nts	06/15/2037	21	BBB	6.87	6.75	6.33	5.91	6.47	6.08	5.90	5.71	5.66	5.66	5.99	5.70	6.09%	5.78%
Valero Energy Corp. (New)	6.12	91913YAM2	Nts	06/15/2017	1	BBB	5.88	5.92	5.89	5.85	5.87	5.89	5.87	5.90	5.92	5.92	5.92	5.92	5.90%	5.92%
Williams Ptns L P	7.25	96950HAD2	Sr Nt	2/1/2017	1	BBB	7.24	7.26	7.15	7.03	7.03	7.03	7.05	7.07	7.15	7.15	7.18	7.21	7.13%	7.18%
Anadarko Petroleum Corp.	7.25	032511AH0	Deb	03/15/2025	9	BBB	7.25	7.26	7.20	7.13	7.09	6.78	6.77	6.74	6.58	6.58	6.40	6.31	6.84%	6.43%
Anadarko Petroleum Corp.	7.73	032511AJ6	Deb	09/15/2096	80	BBB	8.57	8.47	7.85	7.22	7.30	6.79	6.81	6.81	6.66	6.66	7.10	6.82	7.25%	6.86%
Anadarko Petroleum Corp.	7.25	032511AK3	Deb	11/15/2096	80	BBB	9.50	9.34	8.40	7.46	7.30	6.78	6.71	6.71	6.44	6.44	6.85	6.50	7.37%	6.60%
Anadarko Petroleum Corp.	7	032511AL1	Deb	11/15/2027	11	BBB	7.99	8.82	7.87	6.92	6.87	6.50	6.48	6.51	6.29	6.29	5.96	5.86	6.86%	6.04%
Anadarko Petroleum Corp.	6.62	032511AM9	Deb	01/15/2028	12	BBB	7.82	8.64	7.70	6.75	6.69	6.33	6.31	6.33	6.14	6.14	5.86	5.75	6.70%	5.92%
Anadarko Petroleum Corp.	7.2	032511AN7	Deb	03/15/2029	13	BBB	7.85	8.73	7.88	7.03	6.98	6.60	6.42	6.44	6.21	6.21	6.06	6.11	6.88%	6.13%
Anadarko Petroleum Corp.	5.95	032511AX5	Sr Nts	09/15/2016	0	BBB	5.85	5.92	5.88	5.83	5.83	5.83	5.83	5.83					5.85%	

**MONTANA DEPARTMENT OF REVENUE**

**Support for Direct Capitalization Cost of Debt Component - Current Yield From Standard & Poor's Bond Guide**  
**Industry: Gas Pipelines**  
**2017 Assessment Year**

Company Name	Coupon	CUSIP	Issue	Maturity Date	Years to Maturity	Old S&P Bond Rating	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Avg Full Year	Avg 4th QTR	
Anadarko Petroleum Corp.	6.45	032511AY3	Sr Nts	09/15/2036	20	BBB	8.08	8.07	7.04	6.00	6.14	5.72	5.65	5.66	5.43	5.43	5.76	5.45	6.20%	5.55%	
Buckeye Partners, L.P.	5.12	118230AE1	Fixed Rt Nts	07/01/2017	1	BBB-	5.03	5.03	5.00	4.97	4.98	4.97	5.00	5.01	5.03	5.03	5.05	5.06	5.01%	5.05%	
Energen Corp MTN BE	7.32	29265AAP1	MTN Tranche # Tr 00014	7/28/2022	6	BBB-	8.17	8.95	8.08	7.20	7.09	7.12	7.04	6.70	6.52	6.52	6.62	6.59	7.22%	6.58%	
Energy Transfer Partners, L.P.	6.12	29273RAE9	Sr Nt	2/15/2017	1	BBB-	6.06	6.10	6.05	5.99	5.95	5.96	5.99	5.99	6.04	6.04	6.06	6.09	6.03%	6.06%	
Energy Transfer Partners, L.P.	6.62	29273RAF6	Sr Nt	10/15/2036	20	BBB-	8.17	7.93	7.34	6.74	6.91	6.42	6.10	6.16	6.00	6.00	6.31	6.13	6.68%	6.15%	
Enterprise Prods Oper L P	8.38	293791AV1	Jr Sub Nt Fixed/fltg Rate	08/01/2066	50	BBB-	10.46	10.92	10.56	10.20	9.65	9.49	9.13	4.77	0.00	0.00	4.89	4.88	7.08%	3.26%	
Kerr-McGee Corp.	7.125	492386AK3	Deb	10/15/2027	11	BBB-	7.54	8.45	7.76	7.07	6.81	6.53	6.52	6.50	6.41	6.41	6.66	6.27	6.91%	6.45%	
Kerr-McGee Corp.	7.875	492386AT4	Nts	09/15/2031	15	BBB-	8.03	8.85	7.89	6.92	6.94	6.76	6.61	6.54	6.16	6.16	6.53	6.19	6.96%	6.29%	
Kerr-McGee Corp.	6.95	492386AU1	Nts	07/01/2024	8	BBB-	7.06	7.66	6.98	6.29	6.27	5.99	5.99	5.97	5.79	5.79	5.99	5.91	6.31%	5.90%	
Northwest Pipeline	7.12	667748AF4	Deb	12/01/2025	9	BBB-	8.15	7.60	7.11	6.61	6.76	6.42	6.02	5.95	5.90	5.90	6.14	6.02	6.55%	6.02%	
Sunoco Logistics Ptns Operatic	6.12	86765BAE9	Sr Nt	05/15/2016	0	BBB-	6.05	6.09											6.07%		
Union Pacific Resources Group	7.5	907834AB1	Deb	10/15/2026	10	BBB-	7.92	8.69	7.81	6.93	6.92	6.58	6.57	6.55	6.11	6.11	6.34	6.24	6.90%	6.23%	
Union Pacific Resources Group	7.5	907834AC9	Deb	11/01/2096	-116	BBB-	9.50	9.34	8.43	7.52	7.60	7.09	7.02	7.01	6.74	6.74	7.11	6.77	7.57%	6.87%	
Union Pacific Resources Group	7.05	907834AF2	Deb	05/15/2018	2	BBB-	6.73	6.74	6.77	6.79	6.80	6.56	6.60	6.63	6.67	6.67	6.72	6.78	6.70%	6.72%	
Union Pacific Resources Group	7.15	907834AG0	Deb	05/15/2028	12	BBB-	7.81	8.44	7.60	6.76	6.73	6.44	6.42	6.18	6.18	6.18	6.06	5.93	6.73%	6.06%	
Williams Companies, Inc. (The)	7.625	969457AW0	Nts	07/15/2019	3	BBB-	8.98	9.01	8.96	8.91	8.97	8.76	8.72	8.17	7.70	7.70	7.06	7.06	8.33%	7.27%	
Williams Companies, Inc. (The)	7.5	969457BB5	Deb	01/15/2031	15	BBB-	11.29	10.13	9.12	8.10	7.73	7.54	6.97	6.57	6.52	6.52	6.80	6.62	7.83%	6.65%	
Williams Companies, Inc. (The)	7.75	969457BD1	Nts	06/15/2031	15	BBB-	11.62	10.47	9.38	8.28	7.94	7.71	7.07	6.72	6.73	6.73	7.04	6.79	8.04%	6.85%	
Williams Companies, Inc. (The)	7.875	969457BG4	Nts	09/01/2021	5	BBB-	9.46	9.31	8.52	7.72	7.53	7.42	7.14	6.78	6.78	6.78	6.92	6.89	7.60%	6.86%	
Williams Companies, Inc. (The)	8.75	969457BM1	Nts	03/15/2032	16	BBB-	12.65	11.07	9.87	8.66	8.45	8.37	7.47	7.09	7.08	7.08	7.44	7.23	8.54%	7.25%	
Boardwalk Pipelines Llc	5.5	096628AA8	Nt	2/1/2017	1	BB+	5.44	5.55	5.49	5.43	5.44	5.41	5.40	5.43	5.46	5.46	5.47	5.48	5.46%	5.47%	
Boardwalk Pipelines Lp	5.88	096630AA6	Sr Nt	11/15/2016	0	BB+	5.83	5.87	5.87	5.86	5.77	5.79	5.81	5.81					5.83%		
Pioneer Natural Resources Co.	6.88	723787AF4	Sr Nts	05/01/2018	2	BB-	6.60	6.62	6.50	6.38	6.39	6.34	6.35	6.38	6.41	6.41	6.46	6.47	6.44%	6.45%	
Pioneer Natural Resources Co.	6.65	723787AG2	Sr Nts	03/15/2017	1	BB+	6.53	6.54	6.50	6.45	6.42	6.42	6.45	6.49	6.52	6.52	6.54	6.58	6.50%	6.55%	
Chesapeake Energy Corp.	6.5	165167BS5	Sr Nts	08/15/2017	1	BB-	13.35	16.04	11.89	7.73	6.93	7.14	6.84	6.50	6.39	6.39	6.32	6.31	8.49%	6.34%	
Chesapeake Energy Corp.	6.88	165167BU0	Sr Nts	11/15/2020	4	BB-	24.55		6.14	12.27	10.82	10.11	9.51	7.83	7.29	7.29	7.35	6.82	10.00%	7.15%	
Chesapeake Energy Corp.	2.75	165167BW6	Contingent Sr Nt Conv	11/15/2035	19	BB-	2.75		11.46	22.91	22.91	22.91	22.91	22.91	22.91	22.91	22.91	22.91	20.04%	22.91%	
Chesapeake Energy Corp.	2.5	165167BZ9	Contingent Sr Nt Conv	5/15/2037	21	BB-	5.02	6.21	4.68	3.15	2.70	2.68	2.64	2.52	2.51	2.51	2.50	2.49	3.30%	2.50%	
Chesapeake Energy Corp.	2.5	165167CA3	Sr Contingent Conv Nt	5/15/2037	21	BB-	5.02	6.21	4.68	3.15	2.70	2.68	2.64	2.52	2.51	2.51	2.50	2.49	3.30%	2.50%	
Chesapeake Energy Corp.	2.25	165167CB1	Contingent Sr Nt Conv	12/15/2038	22	BB-	7.50	10.22	7.18	3.94	3.12	2.79	2.72	2.50	2.41	2.41	2.38	2.29	4.11%	2.36%	
Chesapeake Energy Corp.	7.25	165167CC9	Sr Nt	12/15/2018	2	BB-	19.33	23.29	16.68	10.06	8.78	8.55	8.01	7.28	7.05	7.05	6.98	6.71	10.81%	6.91%	
Plains Exploration & Production	7	726505AC4	SrNts	03/15/2017	1	BB-															
Swift Energy Co.	7.12	870738AF8	SrNts	06/01/2017	1	BB-															
KN Energy	6.67	482620AS0	Deb	11/01/2027	11	BB	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01	7.01%	7.01%	
KN Energy	7.25	482620AW1	Sr Deb	03/01/2028	12	BB	8.16	8.05	7.83	7.60	6.54	6.99	6.62	6.68	6.70	6.70	7.12	6.76	7.15%	6.86%	
Range Resources Corp.	7.5	75281AAH2	Sr Sub Nts	10/01/2017	1	BB	7.22	7.22	7.22	7.22	7.22	7.22	7.22	7.22	7.22	7.22	7.22	7.22	7.22%	7.22%	
Range Resources Corp.	7.25	75281AAJ8	Sr Sub Nts	05/01/2018	2	BB	6.99	6.99	6.99	6.99	6.99	6.99	6.99	6.99	6.99	6.99	6.99	6.99	6.99%	6.99%	
Berry Petroleum Co.	8.25	085789AC9	Sr SubNts	11/01/2016	0	B	7.92	7.92	7.92	7.92	7.92								7.92%		
Cimarex Energy Co.	7.12	171798AA9	SrNts	05/01/2017	1	NR	6.87	6.87	6.87	6.87	6.87	6.87	6.87	6.87	6.87	6.87	6.87	6.87	6.87%	6.87%	
Pioneer Natural Resources Co.	7.2	723787AB3	Sr Nt	6/15/2028	12	NR	6.67	7.04	6.73	6.41	6.48	6.27	5.91	5.95	5.73	5.73	6.00	5.99	6.24%	5.91%	
Sunoco, Inc.	5.75	86764PAD1	Nts	01/15/2017	1	NR	5.71	5.68	5.66	5.64	5.63	5.64	5.66	5.66	5.70	5.70	5.72		5.67%	5.71%	
Texaco Capital	7.5	881685BD2	GtdDeb	03/01/2043	27	NR															
							129	126	124	124	124	123	123	122	121	118	118	118	117		

NOTES:

Data downloaded from the S&P website and missing data supplemented from month end Bond Guides when available.

means the data was not available in S&P Guide

means issuance matured or called

All Bonds	
Annual	4th Qtr

All Bonds		
All Ratings	6.73%	6.35%
Investment Grade (BBB- & Above)	6.62%	6.28%

Bonds With 20 or More Years to Maturity	
All Ratings	
All Ratings	6.02%
Investment Grade (BBB- & Above)	6.42%

**Say: 6.50%**

**MONTANA DEPARTMENT OF REVENUE**

**Support for Direct Capitalization Cost of Debt Component - Calculated Current Yield**

**Industry: Gas Pipelines**

**2017 Assessment Year**

A	B	C	D	E	F	G	H	I	J	K
Company	2016 Ticker	YE 2016 Interest Exp.	YE 2015 MV LT Debt	YE 2015 BV LT Debt	YE 2016 MV LT Debt	YE 2016 BV LT Debt	2016 Avg MV LT Debt	2016 Current Yield	2016 Avg BV LT Debt	MTBR
Source		10-K	10-K	10-K	10-K	10-K	(D+F)/2	(C/H)	(E+G)/2	(H/J)
		(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)		(\$000)	
Boardwalk	BWP	182,800	3,299,700	3,460,600	3,709,200	3,558,900	3,504,450	5.22%	3,509,750	1.00
Enbridge Energy Partners LLP	EEP	445,500	5,900,000	-	6,500,000	-	6,200,000		-	
Energy Transfer	ETP	1,317,000	25,710,000	28,680,000	33,850,000	32,930,000	29,780,000	4.42%	30,805,000	0.97
Enterprise Products	EPD	982,600	19,510,000	20,870,000	21,950,000	20,850,000	20,730,000	4.74%	20,860,000	0.99
EQT Midstream Partners, LP	EQM	16,766	713,125	792,401	981,585	985,732	847,355	1.98%	889,067	0.95
ONEOK Partners LP	OKS	366,789	6,200,000	6,800,000	7,100,000	6,700,000	6,650,000	5.52%	6,750,000	0.99
Spectra Energy Partners, LP	SEP	224,000	5,906,000	6,152,000	6,855,000	6,672,000	6,380,500	3.51%	6,412,000	1.00
Targa Resources Partners LP	NGLS	233,500	4,472,000	5,164,000	4,251,600	4,207,300	4,361,800	5.35%	4,685,650	0.93
Western Gas Equity Partners, LP	WGP	116,628	2,492,466	2,690,651	3,224,199	3,119,461	2,858,333	4.08%	2,905,056	0.98
Western Gas Partners LP	WES	114,921	2,492,466	2,690,651	3,196,199	3,091,461	2,844,333	4.04%	2,891,056	0.98
Williams Partners	WPZ	949,000	16,487,000	19,675,000	19,000,000	18,563,000	17,743,500	5.35%	19,119,000	0.93
		4,504,004					95,700,270	4.71%	98,826,579	0.97
<b>Average</b>								<b>4.42%</b>		<b>0.97</b>
<b>Median</b>								<b>4.58%</b>		<b>0.98</b>
High								5.52%		1.00
Low								1.98%		0.93
<b>Say</b>								<b>4.60%</b>		<b>0.98</b>

**MONTANA DEPARTMENT OF REVENUE**

Support of Stock Price - From YAHOO Finance

Industry: Gas Pipelines

2017 Assessment Year

Ticker	Company		Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	End of Year Closing	4th Qtr Average	Annual Average
BWP	Boardwalk	high	\$ 13.04	\$ 12.86	\$ 14.83	\$ 16.50	\$ 17.98	\$ 18.16	\$ 17.97	\$ 17.50	\$ 17.40	\$ 17.87	\$ 17.50	\$ 18.49	\$ 17.36	\$ 17.18	\$ 15.61
		low	\$ 8.86	\$ 10.09	\$ 12.09	\$ 13.96	\$ 15.56	\$ 16.42	\$ 16.30	\$ 15.97	\$ 16.05	\$ 16.53	\$ 16.02	\$ 16.66			
EEP	Enbridge Energy Partners LLP	high	\$ 24.22	\$ 18.30	\$ 18.82	\$ 22.47	\$ 22.40	\$ 23.46	\$ 25.18	\$ 25.46	\$ 25.49	\$ 26.37	\$ 25.05	\$ 25.99	\$ 25.48	\$ 24.35	\$ 21.74
		low	\$ 14.30	\$ 14.27	\$ 16.35	\$ 16.86	\$ 19.75	\$ 21.17	\$ 21.97	\$ 22.06	\$ 23.08	\$ 24.01	\$ 21.78	\$ 22.92			
EEQ	Enbridge Energy Management LLC <small>February 4 Stock Split 10358:10000 &amp; Nov 4 1023:1000</small>	high	\$ 22.32	\$ 17.24	\$ 18.56	\$ 21.31	\$ 21.52	\$ 22.93	\$ 23.59	\$ 23.93	\$ 25.09	\$ 25.60	\$ 25.08	\$ 26.45	\$ 25.90	\$ 24.39	\$ 21.14
		low	\$ 13.80	\$ 13.95	\$ 15.95	\$ 16.10	\$ 19.12	\$ 20.76	\$ 21.24	\$ 21.57	\$ 21.99	\$ 23.41	\$ 22.17	\$ 23.65			
ENLC	Enlink Midstream LLC no Vlueline tissue	high	\$ 15.90	\$ 12.92	\$ 11.83	\$ 15.26	\$ 16.12	\$ 16.91	\$ 16.68	\$ 17.31	\$ 17.83	\$ 17.25	\$ 18.75	\$ 19.60	\$ 18.78	\$ 17.08	\$ 14.53
		low	\$ 9.31	\$ 6.41	\$ 8.08	\$ 9.91	\$ 12.51	\$ 14.39	\$ 14.77	\$ 14.73	\$ 15.30	\$ 14.80	\$ 14.70	\$ 17.40			
ENLK	EnLink Midstream Partners LP	high	\$ 17.04	\$ 11.84	\$ 12.60	\$ 14.71	\$ 16.80	\$ 17.79	\$ 18.45	\$ 18.30	\$ 19.89	\$ 18.84	\$ 18.22	\$ 19.30	\$ 18.03	\$ 17.52	\$ 15.18
		low	\$ 9.91	\$ 6.32	\$ 8.92	\$ 10.51	\$ 12.75	\$ 14.46	\$ 16.06	\$ 16.20	\$ 16.71	\$ 16.14	\$ 15.95	\$ 16.66			
EPD	Enterprise Products	high	\$ 26.70	\$ 24.12	\$ 25.69	\$ 27.49	\$ 28.14	\$ 29.43	\$ 30.11	\$ 28.32	\$ 27.84	\$ 27.80	\$ 26.44	\$ 27.20	\$ 26.67	\$ 25.95	\$ 25.87
		low	\$ 19.00	\$ 19.64	\$ 22.68	\$ 23.56	\$ 25.14	\$ 27.23	\$ 28.13	\$ 26.12	\$ 25.76	\$ 25.10	\$ 24.01	\$ 25.14			
EQM	EQT Midstream Partners LP	high	\$ 75.65	\$ 74.72	\$ 77.70	\$ 80.00	\$ 79.80	\$ 80.63	\$ 80.47	\$ 80.44	\$ 80.58	\$ 78.78	\$ 77.10	\$ 76.71	\$ 76.68	\$ 74.22	\$ 74.37
		low	\$ 57.88	\$ 61.13	\$ 69.15	\$ 69.22	\$ 73.46	\$ 72.28	\$ 75.66	\$ 76.25	\$ 74.49	\$ 74.32	\$ 69.21	\$ 69.20			
EQT	EQT Corp	high	\$ 62.82	\$ 62.57	\$ 68.26	\$ 73.19	\$ 73.72	\$ 80.61	\$ 79.64	\$ 73.92	\$ 75.51	\$ 74.11	\$ 74.60	\$ 75.74	\$ 65.40	\$ 69.15	\$ 68.00
		low	\$ 48.30	\$ 54.22	\$ 54.38	\$ 63.48	\$ 66.66	\$ 71.82	\$ 72.18	\$ 67.69	\$ 68.13	\$ 63.11	\$ 63.23	\$ 64.08			
ETP	Energy Transfer	high	\$ 35.39	\$ 31.69	\$ 32.56	\$ 36.59	\$ 37.20	\$ 41.29	\$ 40.78	\$ 43.50	\$ 41.52	\$ 37.48	\$ 40.70	\$ 37.14	\$ 35.81	\$ 35.86	\$ 34.42
		low	\$ 20.16	\$ 18.62	\$ 25.78	\$ 29.86	\$ 31.64	\$ 35.90	\$ 36.60	\$ 36.75	\$ 35.02	\$ 34.26	\$ 32.67	\$ 32.93			
KMI	Kinder Morgan Inc.	high	\$ 16.47	\$ 18.48	\$ 19.32	\$ 19.40	\$ 18.25	\$ 18.95	\$ 22.31	\$ 22.79	\$ 23.20	\$ 23.36	\$ 22.55	\$ 22.45	\$ 20.59	\$ 21.40	\$ 19.09
		low	\$ 11.20	\$ 13.26	\$ 17.00	\$ 16.84	\$ 16.63	\$ 17.07	\$ 17.95	\$ 19.46	\$ 21.22	\$ 19.97	\$ 19.43	\$ 20.61			
OKE	ONEOK Inc.	high	\$ 25.96	\$ 25.99	\$ 30.99	\$ 38.44	\$ 44.29	\$ 47.63	\$ 49.09	\$ 49.86	\$ 51.72	\$ 51.67	\$ 55.75	\$ 59.47	\$ 56.77	\$ 52.33	\$ 40.67
		low	\$ 18.98	\$ 18.88	\$ 23.34	\$ 27.91	\$ 34.56	\$ 42.45	\$ 43.37	\$ 42.79	\$ 45.89	\$ 47.67	\$ 45.41	\$ 54.00			
OKS	ONEOK Partners LP	high	\$ 30.33	\$ 30.26	\$ 34.00	\$ 37.21	\$ 39.93	\$ 40.60	\$ 42.34	\$ 42.02	\$ 40.23	\$ 42.49	\$ 42.59	\$ 47.01	\$ 42.24	\$ 41.50	\$ 36.35
		low	\$ 22.65	\$ 22.00	\$ 28.26	\$ 29.59	\$ 33.78	\$ 36.53	\$ 39.15	\$ 38.50	\$ 36.13	\$ 38.18	\$ 37.64	\$ 41.06			
SE	Spectra Energy Corp.	high	\$ 27.96	\$ 30.33	\$ 31.22	\$ 31.85	\$ 32.12	\$ 36.65	\$ 37.14	\$ 36.99	\$ 44.00	\$ 43.71	\$ 42.58	\$ 41.94	\$ 41.09	\$ 41.40	\$ 34.63
		low	\$ 23.29	\$ 26.11	\$ 28.86	\$ 28.84	\$ 29.76	\$ 31.37	\$ 35.73	\$ 35.30	\$ 35.28	\$ 41.23	\$ 38.76	\$ 40.15			

**MONTANA DEPARTMENT OF REVENUE**

Support of Stock Price - From YAHOO Finance

Industry: Gas Pipelines

2017 Assessment Year

Ticker	Company		Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	End of Year Closing	4th Qtr Average	Annual Average
SEP	Spectra Energy Partners, LP	high	\$ 48.80	\$ 49.70	\$ 50.48	\$ 50.43	\$ 50.38	\$ 47.58	\$ 49.45	\$ 49.39	\$ 45.91	\$ 44.89	\$ 44.30	\$ 46.46	\$ 45.84	\$ 43.18	\$ 45.57
		low	\$ 39.70	\$ 39.53	\$ 45.05	\$ 46.00	\$ 44.22	\$ 44.47	\$ 45.52	\$ 45.35	\$ 42.58	\$ 41.63	\$ 40.19	\$ 41.61			
TRGP	Targa Resources Corp	high	\$ 27.00	\$ 27.61	\$ 31.41	\$ 41.32	\$ 44.97	\$ 45.64	\$ 45.37	\$ 44.77	\$ 50.87	\$ 50.35	\$ 54.12	\$ 59.35	\$ 55.20	\$ 50.01	\$ 38.74
		low	\$ 14.76	\$ 14.55	\$ 25.36	\$ 27.09	\$ 37.31	\$ 37.92	\$ 35.66	\$ 35.35	\$ 42.77	\$ 43.49	\$ 41.35	\$ 51.39			
TRP	TransCanada P.L.	high	\$ 34.85	\$ 37.25	\$ 39.70	\$ 41.81	\$ 42.11	\$ 45.34	\$ 47.49	\$ 48.34	\$ 48.52	\$ 47.92	\$ 46.06	\$ 46.47	\$ 45.15	\$ 45.34	\$ 41.92
		low	\$ 28.40	\$ 33.20	\$ 35.06	\$ 36.76	\$ 39.13	\$ 41.29	\$ 44.77	\$ 44.78	\$ 45.23	\$ 45.18	\$ 42.69	\$ 43.71			
WES	Western Gas Partners LP	high	\$ 48.50	\$ 39.33	\$ 45.90	\$ 51.09	\$ 53.45	\$ 53.08	\$ 52.35	\$ 51.92	\$ 55.24	\$ 60.03	\$ 58.51	\$ 60.44	\$ 58.76	\$ 56.36	\$ 48.06
		low	\$ 27.85	\$ 25.40	\$ 37.69	\$ 39.73	\$ 46.27	\$ 45.12	\$ 48.20	\$ 47.43	\$ 46.85	\$ 53.52	\$ 53.13	\$ 52.52			
WGP	Western Gas Equity Partners, LP	high	\$ 37.17	\$ 30.00	\$ 35.89	\$ 42.70	\$ 45.20	\$ 44.93	\$ 39.10	\$ 37.45	\$ 42.58	\$ 46.38	\$ 45.16	\$ 45.15	\$ 42.35	\$ 43.12	\$ 37.18
		low	\$ 19.82	\$ 19.21	\$ 28.96	\$ 31.67	\$ 37.17	\$ 33.93	\$ 36.60	\$ 35.52	\$ 35.81	\$ 41.28	\$ 40.75	\$ 40.01			
WMB	Williams Cos	high	\$ 26.68	\$ 19.85	\$ 19.90	\$ 20.57	\$ 23.00	\$ 23.89	\$ 25.44	\$ 29.09	\$ 31.43	\$ 30.93	\$ 31.85	\$ 32.21	\$ 31.14	\$ 29.95	\$ 23.30
		low	\$ 12.77	\$ 10.22	\$ 14.65	\$ 14.60	\$ 18.35	\$ 19.60	\$ 19.68	\$ 22.39	\$ 27.50	\$ 28.56	\$ 27.35	\$ 28.79			
WPZ	Williams Ptrs.	high	\$ 28.66	\$ 21.76	\$ 23.99	\$ 30.30	\$ 32.62	\$ 35.36	\$ 38.05	\$ 38.38	\$ 40.36	\$ 37.78	\$ 38.32	\$ 38.49	\$ 38.03	\$ 35.98	\$ 30.43
		low	\$ 15.70	\$ 12.69	\$ 17.08	\$ 19.04	\$ 26.12	\$ 30.77	\$ 33.17	\$ 34.68	\$ 35.60	\$ 35.24	\$ 32.93	\$ 33.12			