

# COST OF CAPITAL STUDY

**YIELD CAPITALIZATION**  
**2021 Assessment Year**

APPENDIX C

## Pipeline Industry

<b>EQUITY RATE</b>						<b>11.00%</b>	
<b>CAPITAL ASSET PRICING MODEL</b>							PAGE
	CAPM Ex Ante		6.25%				4
<b>DIVIDEND GROWTH MODELS Single Stage</b>							
	Value Line, based on Dividends Growth		13.75%				5
	Value Line, based on Earnings Growth		NMF				6
	Value Line, based on Return on Equity		NMF				7
<b>DIVIDEND GROWTH MODELS Sustainable Growth</b>							
	Value Line, based on Dividends Growth		12.00%				5a
	Value Line, based on Earnings Growth		12.00%				6a
<b>FCFE GROWTH MODEL Multi Stage</b>							
			8.50%				8
				<b>RANGE</b>	6.25% - 13.75%		
<b>DEBT RATE</b>						<b>3.50%</b>	9
<b>MARKET CAPITAL STRUCTURE</b>							
	Equity	55%	x	11.00%	=	6.05%	3
	Debt	45%	x	3.50%	=	1.58%	3
	Marginal Tax Rate	24%	=	(1-.24)	x	1.58%	
						<u>1.20%</u>	
<b>WEIGHTED AVERAGE COST OF CAPITAL</b>						<b>7.25%</b>	

# SUPPORT FOR GUIDELINE COMPANIES

Washington State Department of Revenue

2021 Assessment Year

Pipeline Industry

Capital Structure at Book Value

Company	Ticker	Beta	Fin'l Strength	P/E Ratio	Div'd Yield	Common Stock	%	Preferred Stock	%	Long Term Debt	%	Total Debt & Equity
Enbridge Inc	enb.to	0.90	B++	18.1	8.1%	53,628,220,000	43.1%	7,747,000,000	6.2%	62,967,000,000	50.6%	124,342,220,000
Kinder Morgan Inc	kmi	1.10	B	NMF	7.7%	31,428,484,000	49.5%			32,100,000,000	50.5%	63,528,484,000
ONEOK Inc	oke	1.50	B+	17.2	10.0%	6,052,000,000	29.8%			14,249,300,000	70.2%	20,301,300,000
Pembina Pipeline Corp	ppl.to	1.15	B++	21.9	8.4%	17,545,000,000	57.1%	2,424,000,000	7.9%	10,737,000,000	35.0%	30,706,000,000
TC Energy Corp	trp	1.05	B++	12.7	5.9%	18,283,000,000	37.5%	2,818,000,000	5.8%	27,660,800,000	56.7%	48,761,800,000
The Williams Cos Inc	wmb	1.30	B	22.4	8.0%	16,104,000,000	42.3%			21,951,000,000	57.7%	38,055,000,000
<b>Mean</b>		<b>1.17</b>		<b>18.5</b>	<b>8.0%</b>	<b>23,840,117,333</b>	<b>43.2%</b>		<b>6.6%</b>	<b>28,277,516,667</b>	<b>53.5%</b>	
<b>Harmonic Mean</b>		<b>1.14</b>					<b>41.5%</b>		<b>6.5%</b>		<b>51.1%</b>	
<b>Weighted Mean</b>						<b>143,040,704,000</b>	<b>43.9%</b>	<b>12,989,000,000</b>	<b>4.0%</b>	<b>169,665,100,000</b>	<b>52.1%</b>	<b>325,694,804,000</b>
<b>Median</b>		<b>1.13</b>			<b>8.0%</b>		<b>42.7%</b>		<b>6.2%</b>		<b>53.7%</b>	

# SUPPORT FOR CAPITAL STRUCTURE Market Value

Washington State Department of Revenue

2021 Assessment Year

Pipeline Industry

Company	Ticker	Stock Price	Common Shares	Common Stock	%	Preferred Stock	%	Long Term Debt	%	Total Debt & Equity
Enbridge Inc	enb.to	39.97	2,026,000,000	80,979,220,000	55.8%	7,747,000,000	5.3%	56,325,000,000	38.8%	145,051,220,000
Kinder Morgan Inc	kmi	13.43	2,264,300,000	30,409,549,000	43.6%	-		39,306,000,000	56.4%	69,715,549,000
ONEOK Inc	oke	37.53	445,000,000	16,700,850,000	50.6%	-		16,300,000,000	49.4%	33,000,850,000
Pembina Pipeline Cor	ppl.to	29.83	550,000,000	16,406,500,000	61.8%	2,424,000,000	9.1%	7,707,000,000	29.0%	26,537,500,000
TC Energy Corp	trp	40.72	940,000,000	38,276,800,000	46.5%	2,818,000,000	3.4%	41,222,000,000	50.1%	82,316,800,000
The Williams Cos Inc	wmb	20.05	1,220,000,000	24,461,000,000	47.5%	-		27,043,000,000	52.5%	51,504,000,000
<b>Mean</b>					<b>51.0%</b>		<b>6.0%</b>		<b>46.0%</b>	
<b>Harmonic Mean</b>					<b>50.3%</b>		<b>5.1%</b>		<b>43.7%</b>	
<b>Weighted Mean</b>				<b>207,233,919,000</b>	<b>50.8%</b>	<b>12,989,000,000</b>	<b>3.2%</b>	<b>187,903,000,000</b>	<b>46.0%</b>	<b>408,125,919,000</b>
<b>Median</b>					<b>49.1%</b>		<b>5.3%</b>		<b>49.7%</b>	
<b>Std Dev</b>					<b>6.7%</b>		<b>2.9%</b>		<b>10.2%</b>	
<b>Coefficient of Variation</b>					<b>13.2%</b>		<b>48.7%</b>		<b>22.1%</b>	
<b>Target</b>					<b>55%</b>				<b>45%</b>	<b>100%</b>

# SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT CAPITAL ASSET PRICING MODEL

2021 Assessment Year

## Ex Ante $K_e = R_f + B (R_p)$

<b>Ke = Cost of Equity</b>				<b>6.25%</b>
				to page 1
	Rm =	rate of return	5.65%	
	Rf =	risk free rate	1.65%	
	Rp =	risk premium	4.00%	
	B =	Beta	1.15	page 7
<b>Rp = Risk Premium</b>				<b>4.00%</b>
				to above
<b>Shannon Pratt and Roger Grabowski</b>			3.50% - 6.00%	
		Cost of Capital, App and Exam, 5th Ed, 2014		
<b>Dr. Aswath Damodaran</b>			4.72%	chart page 15
		<a href="http://pages.stern.nyu.edu/~adamodar/">http://pages.stern.nyu.edu/~adamodar/</a>	4.00%	adjusted for Rf
		2020 Implied Premium		
<b>John Graham &amp; Campbell Harvey</b>			6.20%	10 year expected real ret
		Duke CFO magazine Global Business Outlook survey	6.30%-7.32%	95% Interval 10 year exp
		4th Qtr 2020	5.48%	adjusted for Rf
			0.93%	Rf rate used in survey
<b>Rf = Risk Free Rate</b>				<b>1.65%</b>
				to above
<b>Value Line Investment Survey, Selected Yields January 10, 2020, page 1313</b>				
	as of 12-28-20	US Treasury Securities year end data		
		5 year	0.37%	
		10 year	0.94%	
		30 year	1.67%	
		30 year Zero	NA	
<b>Federal Reserve Statistical Release (<a href="http://www.federalreserve.gov/Releases/H15/Current/">http://www.federalreserve.gov/Releases/H15/Current/</a>)</b>				
	as of 12-31-20	Treasury Constant Maturities		
		5 year	0.36%	
		10 year	0.93%	
		20 year	1.45%	
		30 year	1.65%	
		20 year TIPS	-0.61%	2.06%
		30 year TIPS	-0.37%	2.02%
				TIPS inflation indication
<b>Inflation</b>				<b>2.00%</b>
				to appraisal template
<b>Value Line Investment Survey, Economic Series January 1, 2021, page 1500</b>				
		Consumer Price Index Annual Rate of Change 2023-2025	2.30%	
<b>The Livingston Survey December 18, 2020, page 4, 10</b>				
		Inflation median (measured by the CPI) over next 10 years	2.23%	
<b>Gross Domestic Product (GDP) Nominal</b>				<b>3.80%</b>
				real GDP + inflation est
<b>Federal Reserve Projected Long Run Real GDP Growth</b>				
		Median Projection Value From Dec 16, 2020 Report		1.80%
		<a href="https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20201216.pdf">https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20201216.pdf</a>		
<b>Congressional Budget Office Real GDP Economic Projections</b>				Table 2.3, pg 15
		The Budget and Economic Outlook 2021-2031	2021-2025	1.90%
		Average Percentage Change Year to Year	2026-2031	1.70%
		<a href="https://www.cbo.gov/system/files/2021-02/56970-Outlook.pdf">https://www.cbo.gov/system/files/2021-02/56970-Outlook.pdf</a>		
<b>Federal Reserve Bank of Philadelphia</b>				
		The Livingston Survey, December 18, 2020, page 4, 10		
		Average Annual Real GDP Growth Rate for Next 10 Years		2.20%
		<a href="https://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey">https://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey</a>		

## SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

Washington State Department of Revenue

2021 Assessment Year

Pipeline Industry

### Based on Dividend Growth

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

Ke = Cost of Equity  
 D1 = Expected Dividends  
 Po = Current Price  
 G = Sustainable Growth

Company	Ticker	Stock Price (Po)	Expected Dividend (D1)	Dividend Yield (D1/Po)	Dividend Growth (G)	Ke with Short Term Growth
Enbridge Inc	enb.to	39.970	3.24	8.11%	3.50%	11.61%
Kinder Morgan Inc	kmi	13.430	1.07	7.97%	11.00%	18.97%
ONEOK Inc	oke	37.530	3.85	10.26%	5.50%	15.76%
Pembina Pipeline Corp	ppl.to	29.830	2.63	8.82%	5.00%	13.82%
TC Energy Corp	trp	40.720	2.50	6.14%	6.00%	12.14%
The Williams Cos Inc	wmb	20.050	1.64	8.18%	5.50%	13.68%
<b>Mean Range</b>						<b>14.33%</b>
<b>Harmonic Mean Range</b>						<b>13.95%</b>
<b>Median Range</b>						<b>13.75%</b>
<b>Max</b>						<b>18.97%</b>
<b>Min</b>						<b>11.61%</b>
<b>Std Dev Range</b>						<b>2.70%</b>
<b>Coefficient of Variation</b>						<b>18.84%</b>
<b>Say</b>						<b>13.75%</b>

## SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

Washington State Department of Revenue

2021 Assessment Year

Pipeline Industry

### Based on Dividend Growth

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

Ke = Cost of Equity  
 D1 = Expected Dividends  
 Po = Current Price  
 G = Sustainable Growth

Company	Ticker	Stock Price (Po)	Expected Dividend (D1)	Dividend Yield (D1/Po)	Dividend Growth (G)	Dividend Growth LT	Ke Sustainable
Enbridge Inc	enb.to	39.97	3.24	8.11%	3.50%	3.50%	11.61%
Kinder Morgan Inc	kmi	13.43	1.07	7.97%	11.00%	3.80%	11.77%
ONEOK Inc	oke	37.53	3.85	10.26%	5.50%	3.80%	14.06%
Pembina Pipeline Corp	ppl.to	29.83	2.63	8.82%	5.00%	3.80%	12.62%
TC Energy Corp	trp	40.72	2.50	6.14%	6.00%	3.80%	9.94%
The Williams Cos Inc	wmb	20.05	1.64	8.18%	5.50%	3.80%	11.98%
<b>Mean Range</b>							<b>11.99%</b>
<b>Harmonic Mean Range</b>							<b>11.87%</b>
<b>Median Range</b>							<b>11.87%</b>
<b>Max</b>							<b>14.06%</b>
<b>Min</b>							<b>9.94%</b>
<b>Std Dev Range</b>							<b>1.35%</b>
<b>Coefficient of Variation</b>							<b>11.23%</b>
<b>Say</b>							<b>12.00%</b>

## SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

Washington State Department of Revenue

2021 Assessment Year

Pipeline Industry

### Based on Dividend Growth

$$K_e = (D_1 / P_o) + G$$

Ke = Cost of Equity  
 D1 = Expected Dividends  
 Po = Current Price  
 G = Sustainable Growth

Company	Ticker	Stock Price (Po)	Expected Dividend (D1)	Dividend Yield (D1/Po)	Earnings Growth (G)	Dividend Growth LT	Ke Sustainable
Enbridge Inc	enb.to	39.97	3.24	8.11%	6.50%	3.80%	11.91%
Kinder Morgan Inc	kmi	13.43	1.07	7.97%	16.50%	3.80%	11.77%
ONEOK Inc	oke	37.53	3.85	10.26%	9.50%	3.80%	14.06%
Pembina Pipeline Corp	ppl.to	29.83	2.63	8.82%	6.50%	3.80%	12.62%
TC Energy Corp	trp	40.72	2.50	6.14%	6.50%	3.80%	9.94%
The Williams Cos Inc	wmb	20.05	1.64	8.18%	12.00%	3.80%	11.98%
<b>Mean Range</b>							<b>12.04%</b>
<b>Harmonic Mean Range</b>							<b>11.92%</b>
<b>Median Range</b>							<b>11.94%</b>
<b>Max</b>							<b>14.06%</b>
<b>Min</b>							<b>9.94%</b>
<b>Std Dev Range</b>							<b>1.34%</b>
<b>Coefficient of Variation</b>							<b>11.09%</b>
<b>Say</b>							<b>12.00%</b>

**SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT  
DIVIDEND GROWTH MODEL**

Washington State Department of Revenue

2021 Assessment Year

Pipeline Industry

**Based on Earnings Growth**

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

Ke = Cost of Equity  
 D1 = Expected Dividends  
 Po = Current Price  
 G = Sustainable Growth

Company	Ticker	Stock Price (Po)	Expected Dividend (D1)	Dividend Yield (D1/Po)	Earnings Growth (G)	Ke with Short Term Growth
Enbridge Inc	enb.to	39.970	3.24	8.11%	6.50%	14.61%
Kinder Morgan Inc	kmi	13.430	1.07	7.97%	16.50%	24.47%
ONEOK Inc	oke	37.530	3.85	10.26%	9.50%	19.76%
Pembina Pipeline Corp	ppl.to	29.830	2.63	8.82%	6.50%	15.32%
TC Energy Corp	trp	40.720	2.50	6.14%	6.50%	12.64%
The Williams Cos Inc	wmb	20.050	1.64	8.18%	12.00%	20.18%
<b>Mean Range</b>						<b>17.83%</b>
<b>Harmonic Mean Range</b>						<b>16.95%</b>
<b>Median Range</b>						<b>17.54%</b>
<b>Max</b>						<b>24.47%</b>
<b>Min</b>						<b>12.64%</b>
<b>Std Dev</b>						<b>4.40%</b>
<b>Coefficient of Variation</b>						<b>24.70%</b>

Say **NMF**



# SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

Washington State Department of Revenue

2021 Assessment Year

Pipeline Industry

**Based on Return on Equity**  $K_e = (D1 / P_o) + G$

- Ke** = Cost of Equity
- D1** = Expected Dividends
- E1** = Expected Earnings
- Po** = Current Price
- G** = Sustainable Growth
- b** = Retained Earnings % = (1 - Payout Ratio)
- ROE** = Return on Equity = (E1 / Po)

Company	Ticker	Stock Price (Po)	Expected Dividend (D1)	Expected Earnings (E1)	Dividend Yield (D1/Po)	Retained Earnings (b)	ROE (E1/Po)	Growth (b*ROE)	Ke Dividends	Ke Earnings
Enbridge Inc	enb.to	39.970	3.24	2.80	8.11%	-42.0%	7.01%	-2.94%	5.16%	4.06%
Kinder Morgan Inc	kmi	13.430	1.07	1.00	7.97%	NMF	7.45%	NMF	NMF	NMF
ONEOK Inc	oke	37.530	3.85	2.95	10.26%	NMF	7.86%	NMF	NMF	NMF
Pembina Pipeline Corp	ppl.to	29.830	2.63	2.30	8.82%	NMF	7.71%	NMF	NMF	NMF
TC Energy Corp	trp	40.720	2.50	3.30	6.14%	30.0%	8.10%	2.43%	8.57%	10.54%
The Williams Cos Inc	wmb	20.050	1.64	1.20	8.18%	NMF	5.99%	NMF	NMF	NMF
<b>Mean</b>									<b>6.87%</b>	<b>7.30%</b>
<b>Harmonic Mean</b>									<b>6.44%</b>	<b>5.86%</b>
<b>Median</b>									<b>6.87%</b>	<b>7.30%</b>
<b>Std Dev</b>									<b>2.41%</b>	<b>4.58%</b>
<b>Coefficient of Variation</b>									<b>35.08%</b>	<b>62.70%</b>

say **NMF**

## SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT FREE CASH FLOW TO EQUITY MODEL MULTI STAGE

Washington State Department of Revenue

2021 Assessment Year

Pipeline Industry

Company	Ticker	Stock Price	Expected Earnings	P/E	Payout Ratio	ROE	Ke
Enbridge Inc	enb.to	39.97	2.80	14.28	126.00%	9.50%	7.86%
Kinder Morgan Inc	kmi	13.43	1.00	13.43	NMF	6.00%	9.09%
ONEOK Inc	oke	37.53	2.95	12.72	NMF	22.50%	9.69%
Pembina Pipeline Corp	ppl.to	29.83	2.30	12.97	NMF	7.00%	9.37%
TC Energy Corp	trp	40.72	3.30	12.34	75.00%	11.50%	9.46%
The Williams Cos Inc	wmb	20.05	1.20	16.71	NMF	9.00%	6.37%
<b>Mean</b>				<b>13.74</b>	<b>100.50%</b>	<b>10.92%</b>	<b>8.64%</b>
<b>Harmonic Mean</b>				<b>13.60</b>	<b>94.03%</b>	<b>9.13%</b>	<b>8.45%</b>
<b>Median</b>				<b>13.20</b>	<b>100.50%</b>	<b>9.25%</b>	<b>9.23%</b>
<b>Industry Summary</b>				<b>13.50</b>	<b>94.00%</b>	<b>9.50%</b>	

**Say 8.50%**

## SUPPORT FOR DEBT RATING AND DEBT YIELD

Washington State Department of Revenue

2021 Assessment Year

Pipeline Industry

Company	Ticker	Mergent's Ratings	S&P Ratings
Enbridge Inc	enb.to	Baa2	BBB+
Kinder Morgan Inc	kmi	Baa2	BBB
ONEOK Inc	oke	Baa3	BBB
Pembina Pipeline Corp	ppl.to		BBB
TC Energy Corp	trp	Baa1	BBB+
The Williams Cos Inc	wmb	Baa3	BBB
<b>Overall Average Debt Rating</b>		<b>Baa2</b>	<b>BBB</b>

Mergen Bond Quarterly Update

Mergent's Bond Record January 2021, page 251				
<b>Corporate</b>	<b>Aaa</b>	<b>Aa</b>	<b>A</b>	<b>Baa</b>
October	2.35%	2.55%	2.88%	3.44%
November	2.30%	2.47%	2.79%	3.30%
December	2.26%	2.44%	2.72%	3.16%
<b>4th Qtr Average</b>	<b>2.30%</b>	<b>2.49%</b>	<b>2.80%</b>	<b>3.30%</b>
<b>Public Utilities</b>	<b>Aaa</b>	<b>Aa</b>	<b>A</b>	<b>Baa</b>
October		2.72%	2.95%	3.27%
November		2.63%	2.85%	3.17%
December		2.57%	2.77%	3.05%
<b>4th Qtr Average</b>		<b>2.64%</b>	<b>2.86%</b>	<b>3.16%</b>
<b>Industrials</b>	<b>Aaa</b>	<b>Aa</b>	<b>A</b>	<b>Baa</b>
October	2.35%	2.37%	2.81%	3.60%
November	2.30%	2.30%	2.72%	3.41%
December	2.26%	2.31%	2.66%	3.27%
<b>4th Qtr Average</b>	<b>2.30%</b>	<b>2.33%</b>	<b>2.73%</b>	<b>3.43%</b>

		Avg YTM	Med YTM
<b>Moody's Long Term Bond Yield</b>	<b>Baa2</b>	3.32%	3.24%
<b>S&amp;P's Long Term Bond Yield</b>	<b>BBB</b>	3.46%	3.28%

Bloomberg Dec 2020		20y	25Y	30Y
	<b>BBB</b>	3.44%	3.44%	3.63%

<b>Debt Yield Rate</b>	<b>3.50%</b>
------------------------	--------------

to page 1

## SUPPORT FOR DIRECT CAPITALIZATION EQUITY COMPONENT

2021 Assessment Year

Pipeline Industry

Company	Ticker	Stock Price	2020		2021		2020		2021	
			Actual Earnings Ratio (EPS/P)		Projected Earnings Ratio (PEPS/P)		Cash Flow Ratio (CF/P)		Projected Cash Flow Ratio	
Enbridge Inc	enb.to	39.970	2.42	6.1%	2.80	7.0%	4.06	10.2%	4.35	10.9%
Kinder Morgan Inc	kmi	13.430	0.05	0.4%	1.00	7.4%	1.01	7.5%	2.15	16.0%
ONEOK Inc	oke	37.530	2.55	6.8%	2.95	7.9%	3.75	10.0%	4.25	11.3%
Pembina Pipeline Corp	ppl.to	29.830	2.10	7.0%	2.30	7.7%	3.10	10.4%	3.45	11.6%
TC Energy Corp	trp	40.720	3.40	8.3%	3.30	8.1%	5.25	12.9%	5.30	13.0%
The Williams Cos Inc	wmb	20.050	1.05	5.2%	1.20	6.0%	2.55	12.7%	2.70	13.5%
<b>Mean</b>			<b>5.6%</b>		<b>7.4%</b>		<b>10.6%</b>		<b>12.7%</b>	
<b>Harmonic Mean</b>			<b>1.7%</b>		<b>7.3%</b>		<b>10.3%</b>		<b>12.5%</b>	
<b>Median</b>			<b>6.4%</b>		<b>7.6%</b>		<b>10.3%</b>		<b>12.3%</b>	
<b>Max</b>			<b>8.3%</b>		<b>8.1%</b>		<b>12.9%</b>		<b>16.0%</b>	
<b>Min</b>			<b>0.4%</b>		<b>6.0%</b>		<b>7.5%</b>		<b>10.9%</b>	
<b>Std Dev</b>			<b>2.8%</b>		<b>0.8%</b>		<b>2.0%</b>		<b>1.9%</b>	
<b>Coefficient of Variation</b>			<b>49.3%</b>		<b>10.4%</b>		<b>18.8%</b>		<b>15.0%</b>	
<b>Say</b>			<b>6.0%</b>		<b>7.5%</b>		<b>10.0%</b>		<b>12.5%</b>	

Source: VL/Year End Stock Price

# SUPPORT FOR DIRECT CAPITALIZATION EQUITY COMPONENT

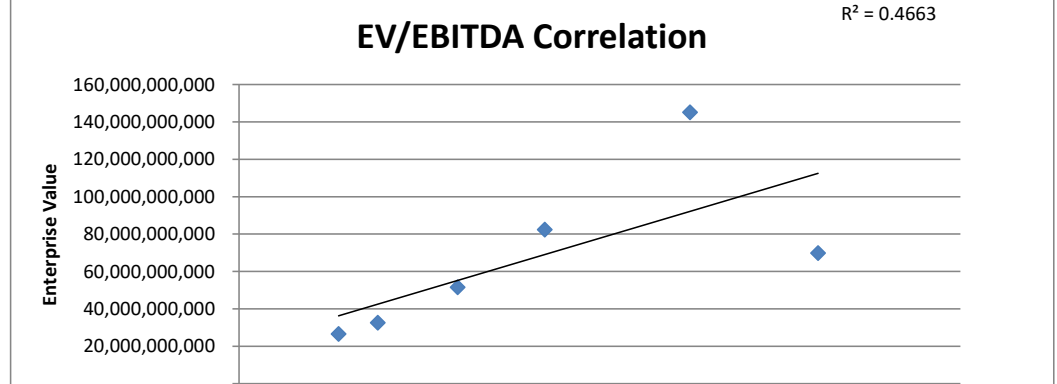
2021 Assessment Year

Company	Ticker	Stock Price	Enterprise Value	EBITDA Historical	Annual Change VL	EBITDA Forecast	EV / EBITDA Forecast	Revenue Forecast	EV / Sales Forecast	Cashflow Forecast	Debt Service	EV / CF Forecast
Enbridge Inc	enb.to	39.970	145,051,220,000	8,752,000,000	7.14%	9,377,142,857	15.47	43,457,700,000	3.34	8,813,100,000	1,971,375,000	13.45
Kinder Morgan Inc	kmi	13.430	69,715,549,000	5,656,000,000	112.87%	12,040,000,000	5.79	14,151,875,000	4.93	4,868,245,000	1,375,710,000	11.17
ONEOK Inc	oke	37.530	32,475,622,000	2,545,892,000	13.33%	2,885,344,267	11.26	10,390,750,000	3.13	1,891,250,000	570,500,000	13.19
Pembina Pipeline Corp	ppl.to	29.830	26,537,500,000	1,860,000,000	11.29%	2,070,000,000	12.82	6,985,000,000	3.80	1,897,500,000	269,745,000	12.24
TC Energy Corp	trp	40.720	82,316,800,000	6,296,000,000	0.95%	6,355,961,905	12.95	10,434,000,000	7.89	4,982,000,000	1,442,770,000	12.81
The Williams Cos Inc	wmb	20.050	51,504,000,000	4,292,000,000	5.88%	4,544,470,588	11.33	8,906,000,000	5.78	3,294,000,000	946,505,000	12.15
							<b>Mean</b>	<b>11.60</b>	<b>4.81</b>			<b>12.50</b>
							<b>Harmonic Mean</b>	<b>10.53</b>	<b>4.33</b>			<b>12.45</b>
							<b>Median</b>	<b>12.08</b>	<b>4.36</b>			<b>12.53</b>
							<b>Std Dev</b>	<b>3.23</b>	<b>1.81</b>			<b>0.83</b>

Source: **Say** **12.00** **4.50** **12.50**  
 Value Line & Morning Star

### Forecast EV/EBITDA By Rank

Guideline Companies	EV/EBITDA forecast	
Kinder Morgan Inc	5.79	<b>8.58 Low Harmonic mean</b>
ONEOK Inc	11.26	
The Williams Cos Inc	11.33	
Pembina Pipeline Corp	12.82	<b>9.00 Say</b>
TC Energy Corp	12.95	<b>13.75 High Average</b>
Enbridge Inc	15.47	
		<b>12.95 High Median</b>
		<b>13.64 High Harmonic mean</b>
		<b>13.50 Say</b>



## SUPPORT FOR DIRECT CAPITALIZATION EQUITY COMPONENT

2021 Assessment Year

Pipeline Industry

Company	Ticker	Stock Price	Revenues		Cash Flow		Earnings		Book Value	
				Multiple		Multiple		Multiple		Multiple
Enbridge Inc	enb.to	39.970	19.29	2.07	4.06	9.84	2.42	16.52	26.47	1.51
Kinder Morgan Inc	kmi	13.430	5.17	2.60	1.01	13.30	0.05	268.60	13.88	0.97
ONEOK Inc	oke	37.530	19.35	1.94	3.75	10.01	2.55	14.72	13.60	2.76
Pembina Pipeline Corp	ppl.to	29.830	11.25	2.65	3.10	9.62	2.10	14.20	31.90	0.94
TC Energy Corp	trp	40.720	10.85	3.75	5.25	7.76	3.40	11.98	19.45	2.09
The Williams Cos Inc	wmb	20.050	6.25	3.21	2.55	7.86	1.05	19.10	13.20	1.52
<b>Mean</b>			<b>2.70</b>		<b>9.73</b>		<b>57.52</b>		<b>1.63</b>	
<b>Harmonic Mean</b>			<b>2.57</b>		<b>9.42</b>		<b>17.73</b>		<b>1.41</b>	
<b>Median</b>			<b>2.62</b>		<b>9.73</b>		<b>15.62</b>		<b>1.51</b>	
<b>Max</b>			<b>3.75</b>		<b>13.30</b>		<b>268.60</b>		<b>2.76</b>	
<b>Min</b>			<b>1.94</b>		<b>7.76</b>		<b>11.98</b>		<b>0.94</b>	
<b>Say</b>			<b>2.60</b>		<b>9.50</b>		<b>15.00</b>		<b>1.50</b>	

Source: VL/Year End Stock Price

## DATA INPUT

Washington State Department of Revenue

2021 Assessment Year

Pipeline Industry

Guideline Companies		Stock Price 12/31/20	Historic Figures (2020)													
			Beta Levered	Fin'I Strength	Revenues Per Share	Cash Flow Per Share	Earnings Per Share	Dividends Per Share	Bk Value Per Share	Common Shares	LTD (BV)	Trailing P/E Ratio	Div Yield	Operating Margin	Calculated Debt	
Name	Ticker	Yahoo	V L	V L	V L	V L	V L	V L	V L	V L	V L	V L	V L	V L	V L	Formula
Enbridge Inc	enb.to	39.97	0.90	B++	19.29	4.06	2.42	3.24	26.47	2,026,000,000	62,967,000,000	18.1	7.6%	29.5%	113.62%	
Kinder Morgan Inc	kmi	13.43	1.10	B	5.17	1.01	0.05	1.04	13.88	2,264,300,000	32,100,000,000	NMF	7.1%	48.3%	114.34%	
ONEOK Inc	oke	37.53	1.50	B+	19.35	3.75	2.55	3.74	13.60	445,000,000	14,249,300,000	17.2	6.4%	23.5%	114.79%	
Pembina Pipeline Corp	ppl.to	29.83	1.15	B++	11.25	3.10	2.10	2.51	31.90	550,000,000	10,737,000,000	21.9	7.2%	33.5%	109.44%	
TC Energy Corp	trp	40.72	1.05	B++	10.85	5.25	3.40	2.40	19.45	940,000,000	27,660,800,000	12.7	5.5%	30.0%	121.11%	
The Williams Cos Inc	wmb	20.05	1.30	B	6.25	2.55	1.05	1.60	13.20	1,220,000,000	21,951,000,000	22.4	7.2%	54.0%	121.03%	
												average	18.5		36.5%	
<b>Average</b>												harmonic mean	17.7		33.5%	
<b>Harmonic Mean</b>												median	18.1		31.8%	
<b>Median</b>																

		Projected (Next Year) 2021										Income Statement	Balance Sheet			
All DIV' ds to Net Profits	Rtn on Shrhldrs Equity	Revenues Per Share	Cash Flow Per Share	Earnings Per Share	Dividends Per Share	Bk Value Per Share	All DIV' ds to Net Profits	Rtn on Shrhldrs Equity	CF Projection 24-26	Earnings Projection 24-26	Operating Income	Current Assets	PP & E Gross	Intangibles (excl. GW)	Current Liabilities	
V L	V L	V L	V L	V L	V L	V L	V L	V L	V L	V L	Morningstar	Morningstar	Morningstar	Morningstar	Morningstar	
142%	8.0%	21.45	4.35	2.80	3.24	26.45	126%	9.50%	5.50	3.80	5,968,000,000	5,513,000,000	29,057,000,000	2,766,000,000	10,484,000,000	
NMF	Nil	6.25	2.15	1.00	1.07	16.10	NMF	6.00%	2.75	1.60	3,492,000,000	3,203,000,000	53,654,000,000	4,074,000,000	5,074,000,000	
NMF	18.0%	23.35	4.25	2.95	3.85	13.00	NMF	22.50%	6.30	4.75	1,967,230,000	1,869,775,000	23,072,935	381,435,000	1,344,547,000	
NMF	6.5%	12.70	3.45	2.30	2.63	33.50	NMF	7.00%	4.85	3.55	1,335,000,000	742,000,000	16,721,000,000	1,598,000,000	1,336,000,000	
70%	12.5%	11.10	5.30	3.30	2.50	28.05	75%	11.50%	6.40	4.25	4,353,000,000	3,901,000,000	28,238,000,000	9,509,000,000	8,990,000,000	
NMF	8.0%	7.30	2.70	1.20	1.64	13.40	NMF	9.00%	3.95	1.75	2,571,000,000	1,429,000,000	42,489,000,000	7,959,000,000	2,319,000,000	
<b>106%</b>	<b>10.6%</b>						<b>average</b>			<b>4.96</b>						
	<b>9.3%</b>						<b>Median</b>			<b>5.18</b>						
	<b>8.0%</b>						<b>Harmonic mean</b>			<b>4.55</b>						



Long Term Debt Less Current Maturities	Cash Flow Statement	Other Financials	
	Depreciation & Amortization	Carrying Value Debt	Fair Value Debt
	Morningstar	10-K	10-K
47,114,000,000	2,784,000,000	49,575,000,000	56,325,000,000
32,131,000,000	2,164,000,000	34,376,000,000	39,306,000,000
14,228,421,000	578,662,000	14,200,000,000	16,300,000,000
7,707,000,000	525,000,000	8,157,000,000	8,927,000,000
32,558,000,000	1,943,000,000	34,037,000,000	41,222,000,000
21,451,000,000	1,721,000,000	22,344,000,000	27,043,000,000

## STOCK PRICE

Washington State Department of Revenue

2021 Assessment Year

Pipeline Industry

**30.26**  
**2020 Year End**

Enbridge Inc	enb.to								
Date	Open	High	Low	Close	Adj. Close*	Volume			
12/31/2020	40.75	41.06	40.67	40.71	39.97	3,527,800			<b>39.97</b>
Kinder Morgan Energy	kmi								
Date	Open	High	Low	Close	Adj. Close*	Volume			
12/31/2020	13.53	13.72	13.47	13.67	13.43	15,013,400			<b>13.43</b>
ONEOK Inc	oke								
Date	Open	High	Low	Close	Adj. Close*	Volume			
12/31/2020	37.91	38.47	37.66	38.38	37.53	2,191,000			<b>37.53</b>
Pembina Pipeline Corp	ppl.to								
Date	Open	High	Low	Close	Adj. Close*	Volume			
12/31/2020	30.5	30.7	29.96	30.19	29.83	2,649,000			<b>29.83</b>
TransCanada Corp	trp								
Date	Open	High	Low	Close	Adj. Close*	Volume			
12/31/2020	40.18	41.12	40.11	40.72	40.72	1,623,200			<b>40.72</b>
Williams Cos	wmb								
Date	Open	High	Low	Close	Adj. Close*	Volume			
12/31/2020	19.92	20.11	19.85	20.05	20.05	6,848,600			<b>20.05</b>

Source:

finance.yahoo.com

Historical Stock Quotes

# IMPLIED PREMIUMS FOR US MARKET

Updated January 5, 2020

These implied premiums are calculated using the S&P 500.

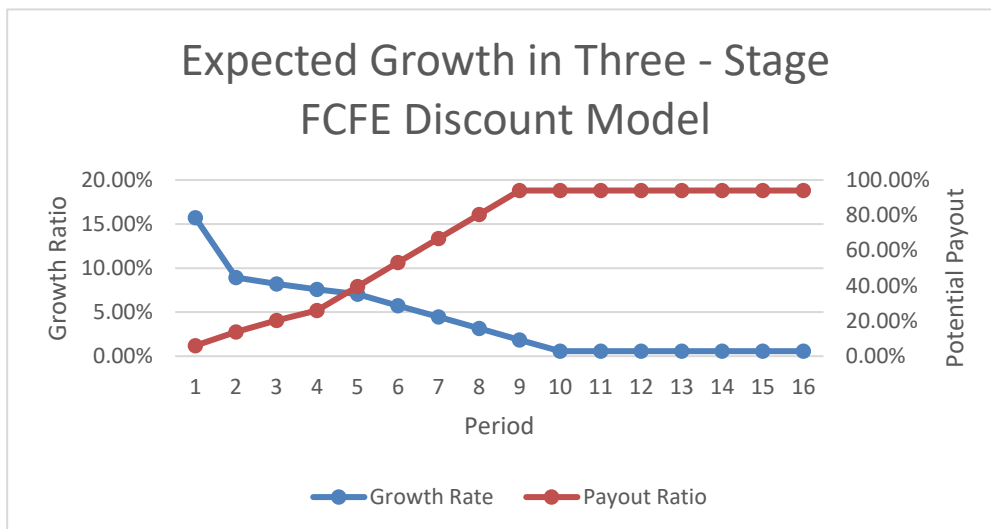
Year	Earnings Yield	Dividend Yield	S&P 500	Earnings*	Dividends*	Ends + Buy	Inge in Earn	Inge in Divid	T.Bill Rate	T.Bond Rate	Bond-Bill	toothed Grod	Premium	t Growth	Esed Premium (
1960	5.34%	3.41%	58.11	3.10	1.98										
1961	4.71%	2.85%	71.55	3.37	2.04		8.60%	2.91%	2.66%	2.76%	0.10%	2.45%			2.92%
1962	5.81%	3.40%	63.1	3.67	2.15		8.79%	5.21%	2.73%	3.85%	1.12%	4.05%	3.56%		3.56%
1963	5.51%	3.13%	75.02	4.13	2.35		12.75%	9.45%	3.12%	4.14%	1.02%	4.96%	3.38%		3.38%
1964	5.62%	3.05%	84.75	4.76	2.58		15.23%	10.08%	3.54%	4.21%	0.67%	5.13%	3.31%		3.31%
1965	5.73%	3.06%	92.43	5.30	2.83		11.20%	9.42%	3.93%	4.65%	0.72%	5.46%	3.32%		3.32%
1966	6.74%	3.59%	80.33	5.41	2.88		2.23%	1.96%	4.76%	4.64%	-0.12%	4.19%	3.68%		3.68%
1967	5.66%	3.09%	96.47	5.46	2.98		0.85%	3.37%	4.21%	5.70%	1.49%	5.25%	3.20%		3.20%
1968	5.51%	2.93%	103.86	5.72	3.04		4.81%	2.09%	5.21%	6.16%	0.95%	5.32%	3.00%		3.00%
1969	6.63%	3.52%	92.06	6.10	3.24		6.66%	6.49%	6.58%	7.88%	1.30%	7.55%	3.74%		3.74%
1970	5.98%	3.46%	92.15	5.51	3.19		-9.72%	-1.61%	6.53%	6.50%	-0.03%	4.78%	3.41%		3.41%
1971	5.46%	3.10%	102.09	5.57	3.16		1.15%	-0.74%	4.39%	5.89%	1.50%	4.57%	3.09%		3.09%
1972	5.23%	2.70%	118.05	6.17	3.19		10.76%	0.71%	3.84%	6.41%	2.57%	5.21%	2.72%		2.72%
1973	8.16%	3.70%	97.55	7.96	3.61		28.93%	13.24%	6.93%	6.90%	-0.03%	8.30%	4.30%		4.30%
1974	13.64%	5.43%	68.56	9.35	3.72		17.48%	3.14%	8.00%	7.40%	-0.60%	6.42%	5.59%		5.59%
1975	8.55%	4.14%	90.19	7.71	3.73		-17.54%	0.30%	5.80%	7.76%	1.96%	5.99%	4.13%		4.13%
1976	9.07%	3.93%	107.46	9.75	4.22		26.39%	13.10%	5.08%	6.81%	1.73%	8.19%	4.55%		4.55%
1977	11.43%	5.11%	95.1	10.87	4.86		11.53%	15.07%	5.12%	7.78%	2.66%	9.52%	5.92%		5.92%
1978	12.11%	5.39%	96.11	11.64	5.18		7.07%	6.60%	7.18%	9.15%	1.97%	8.48%	5.72%		5.72%
1979	13.48%	5.53%	107.94	14.55	5.97		25.01%	15.23%	10.38%	10.33%	-0.05%	11.70%	6.45%		6.45%
1980	11.04%	4.74%	135.76	14.99	6.44		3.01%	7.81%	11.24%	12.43%	1.19%	11.01%	5.03%		5.03%
1981	12.39%	5.57%	122.55	15.18	6.83		1.31%	6.08%	14.71%	13.98%	-0.73%	11.42%	5.73%		5.73%
1982	9.83%	4.93%	140.64	13.82	6.93		-8.95%	1.58%	10.54%	10.47%	-0.07%	7.96%	4.90%		4.90%
1983	8.06%	4.32%	164.93	13.29	7.12		-3.84%	2.76%	8.80%	11.80%	3.00%	9.09%	4.31%		4.31%
1984	10.07%	4.68%	167.24	16.84	7.83		26.69%	9.85%	9.85%	11.51%	1.66%	11.02%	5.11%		5.11%
1985	7.42%	3.88%	211.28	15.68	8.20		-6.91%	4.74%	7.72%	8.99%	1.27%	7.89%	4.03%	6.75%	3.84%
1986	5.96%	3.38%	242.17	14.43	8.19		-7.93%	-0.15%	6.16%	7.22%	1.06%	5.54%	3.36%	6.96%	3.58%
1987	6.49%	3.71%	247.08	16.04	9.17		11.10%	11.99%	5.47%	8.86%	3.39%	9.66%	4.18%	8.58%	3.99%
1988	8.20%	3.68%	277.72	24.12	10.22		50.42%	11.49%	6.35%	9.14%	2.79%	9.76%	4.12%	7.67%	3.77%
1989	6.80%	3.32%	353.4	24.32	11.73		0.83%	14.80%	8.37%	7.93%	-0.44%	9.58%	3.85%	7.46%	3.51%
1990	6.58%	3.74%	330.22	22.65	12.35		-6.87%	5.26%	7.81%	8.07%	0.26%	7.39%	3.92%	7.19%	3.89%
1991	4.58%	3.11%	417.09	19.30	12.97		-14.79%	5.03%	7.00%	6.70%	-0.30%	6.34%	3.27%	7.81%	3.48%
1992	4.16%	2.90%	435.71	20.87	12.64		8.13%	-2.59%	5.30%	6.68%	1.38%	4.67%	2.83%	9.83%	3.55%
1993	4.25%	2.72%	466.45	26.90	12.69		28.89%	0.41%	3.50%	5.79%	2.29%	4.73%	8.00%		3.17%
1994	5.89%	2.91%	459.27	31.75	13.36		18.03%	5.34%	5.00%	7.82%	2.82%	7.23%	3.06%	7.17%	3.55%
1995	5.74%	2.30%	615.93	37.70	14.17		18.74%	6.00%	3.50%	5.57%	2.07%	5.65%	2.44%	6.50%	3.29%
1996	4.83%	2.01%	740.74	40.63	14.89		7.77%	5.10%	5.00%	6.41%	1.41%	6.13%	2.11%	7.92%	3.20%
1997	4.08%	1.60%	970.43	44.09	15.52		8.52%	4.25%	5.35%	5.74%	0.39%	5.45%	1.67%	8.00%	2.73%
1998	3.11%	1.32%	1229.23	44.27	16.20		0.41%	4.37%	4.33%	4.65%	0.32%	4.60%	1.38%	7.20%	2.26%
1999	3.07%	1.14%	1469.25	51.68	16.71		16.74%	3.16%	5.37%	6.44%	1.07%	5.75%	1.20%	12.50%	2.05%
2000	3.94%	1.23%	1320.28	56.13	16.27		8.61%	-2.65%	5.73%	5.11%	-0.62%	3.71%	1.65%	12.00%	2.87%
2001	3.85%	1.37%	1148.09	38.85	15.74	30.08	-30.79%	-3.24%	1.80%	5.05%	3.25%	3.56%	1.73%	10.30%	3.62%
2002	5.23%	1.83%	879.82	46.04	16.08	29.83	18.51%	2.15%	1.20%	3.81%	2.61%	3.57%	2.29%	8.00%	4.10%
2003	4.87%	1.61%	1111.91	54.69	17.88	31.58	18.79%	11.19%	1.00%	4.25%	3.25%	5.35%	2.12%	11.00%	3.69%
2004	5.58%	1.60%	1211.92	67.68	19.407	40.60	23.75%	8.54%	2.18%	4.22%	2.04%	4.90%	2.02%	8.50%	3.65%
2005	5.47%	1.79%	1248.29	76.45	22.38	61.17	12.96%	15.32%	4.31%	4.39%	0.08%	6.16%	2.20%	8.00%	4.08%
2006	6.18%	1.77%	1418.3	87.72	25.05	73.16	14.74%	11.93%	4.88%	4.70%	-0.18%	5.93%	1.97%	12.50%	4.16%
2007	5.62%	1.89%	1468.36	82.54	27.73	95.36	-5.91%	10.70%	3.31%	4.02%	0.71%	5.03%	2.06%	5.00%	4.37%
2008	7.24%	3.11%	903.25	65.39	28.05	67.52	-20.78%	1.15%	1.59%	2.21%	0.62%	2.11%	4.05%	4.00%	6.43%
2009	5.35%	2.00%	1115.10	59.65	22.31	37.43	-8.78%	-20.46%	0.14%	3.84%	3.70%	0.28%	2.60%	7.20%	4.36%
2010	6.65%	1.84%	1257.64	83.66	23.12	55.53	40.25%	3.63%	0.13%	3.29%	3.16%	3.33%	2.24%	6.95%	5.20%
2011	7.72%	2.07%	1257.60	97.05	26.02	71.28	16.01%	12.54%	0.03%	1.88%	1.85%	2.75%	2.71%	7.18%	6.01%
2012	7.18%	2.13%	1426.19	102.47	30.44	75.90	5.58%	16.99%	0.05%	1.76%	1.71%	2.93%	2.47%	5.27%	5.78%
2013	5.81%	1.96%	1848.36	107.45	36.28	88.13	4.86%	19.19%	0.07%	3.04%	2.97%	5.01%	2.03%	4.28%	4.96%
2014	5.49%	1.92%	2058.90	113.01	39.44	101.98	5.17%	8.71%	0.05%	2.17%	2.12%	2.77%	2.24%	5.58%	5.78%
2015	5.20%	2.11%	2043.94	106.32	43.16	106.10	-5.92%	9.43%	0.21%	2.27%	2.06%	2.96%	2.46%	5.51%	6.12%
2016	4.86%	2.01%	2238.83	108.86	45.03	108.67	2.39%	4.33%	0.51%	2.45%	1.94%	2.64%	2.41%	5.54%	5.69%
2017	4.67%	1.86%	2673.61	124.94	49.73	108.28	14.77%	10.44%	1.39%	2.41%	1.02%	3.22%	2.36%	7.05%	5.08%
2018	5.92%	2.14%	2506.85	148.34	53.61	136.65	18.73%	7.80%	2.37%	2.68%	0.31%	3.24%	2.50%	4.12%	5.96%

### Three Stage Free Cash Flow to Equity Discount Model

Company **Enbridge Inc** 3.80% GDP  
 Ticker **enb.to** 13.5 Industry P/E use median  
 94.0% Target Dividend Payout Ratio  
 9.5% Target ROE

	Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		165.29%	-65.29%	2.42			(39.97)
Stage 1	1	15.70%	93.98%	6.02%	2.80	0.17		0.17
	2	8.93%	86.28%	13.72%	3.05	0.42		0.42
	3	8.20%	79.74%	20.26%	3.30	0.67		0.67
	4	7.58%	74.13%	25.87%	3.55	0.92		0.92
	5	7.04%	60.50%	39.50%	3.80	1.50		1.50
Stage 2	6	5.75%	46.88%	53.12%	4.02	2.13		2.13
	7	4.45%	33.25%	66.75%	4.20	2.80		2.80
	8	3.16%	19.63%	80.37%	4.33	3.48		3.48
	9	1.86%	6.00%	94.00%	4.41	4.15		4.15
	10	0.57%	6.00%	94.00%	4.44	4.17	60.23	64.39
Stage 3	11+	0.57%	6.00%	94.00%	4.46	4.19		

**$K_e = 7.86\%$**

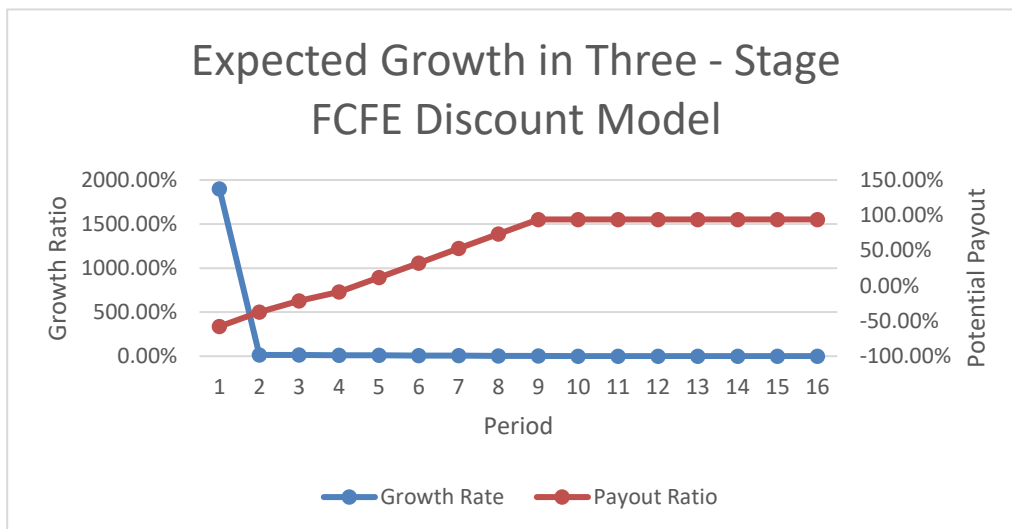


### Three Stage Free Cash Flow to Equity Discount Model

Company **Kinder Morgan** 3.80% GDP  
 Ticker **kmi** 13.5 Industry P/E use median  
 94.0% Target Dividend Payout Ratio  
 9.5% Target ROE

	Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		20000.00%	-19900.00%	0.05			(13.43)
Stage 1	1	#####	157.89%	-57.89%	1.00	(0.58)		-0.58
	2	15.00%	137.30%	-37.30%	1.15	(0.43)		-0.43
	3	13.04%	121.46%	-21.46%	1.30	(0.28)		-0.28
	4	11.54%	108.89%	-8.89%	1.45	(0.13)		-0.13
	5	10.34%	88.31%	11.69%	1.60	0.19		0.19
Stage 2	6	8.39%	67.74%	32.26%	1.73	0.56		0.56
	7	6.43%	47.16%	52.84%	1.85	0.98		0.98
	8	4.48%	26.58%	73.42%	1.93	1.42		1.42
	9	2.52%	6.00%	94.00%	1.98	1.86		1.86
	10	0.57%	6.00%	94.00%	1.99	1.87	27.00	28.87
Stage 3	11+	0.57%	6.00%	94.00%	2.00	1.88		

**Ke = 9.09%**

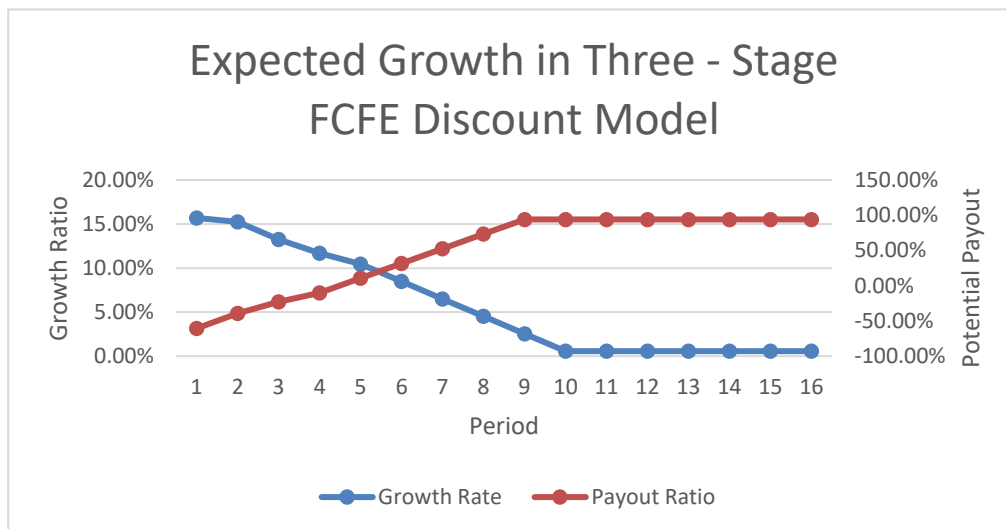


### Three Stage Free Cash Flow to Equity Discount Model

Company **ONEOK Inc** **3.80%** GDP  
 Ticker **oke** **13.5** Industry P/E use median  
**94.0%** Target Dividend Payout Ratio  
**9.5%** Target ROE

	Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		165.12%	-65.12%	<b>2.55</b>			<b>(37.53)</b>
Stage 1	1	15.69%	160.57%	-60.57%	<b>2.95</b>	(1.79)		-1.79
	2	15.25%	139.32%	-39.32%	3.40	(1.34)		-1.34
	3	13.24%	123.03%	-23.03%	3.85	(0.89)		-0.89
	4	11.69%	110.16%	-10.16%	4.30	(0.44)		-0.44
	5	10.47%	89.33%	10.67%	<b>4.75</b>	0.51		0.51
Stage 2	6	8.49%	68.50%	31.50%	5.15	1.62		1.62
	7	6.51%	47.66%	52.34%	5.49	2.87		2.87
	8	4.53%	26.83%	73.17%	5.74	4.20		4.20
	9	2.55%	6.00%	94.00%	5.88	5.53		5.53
	10	0.57%	6.00%	94.00%	5.92	5.56	80.33	85.89
Stage 3	11+	0.57%	6.00%	94.00%	5.95	5.59		

**$K_e = 9.69\%$**

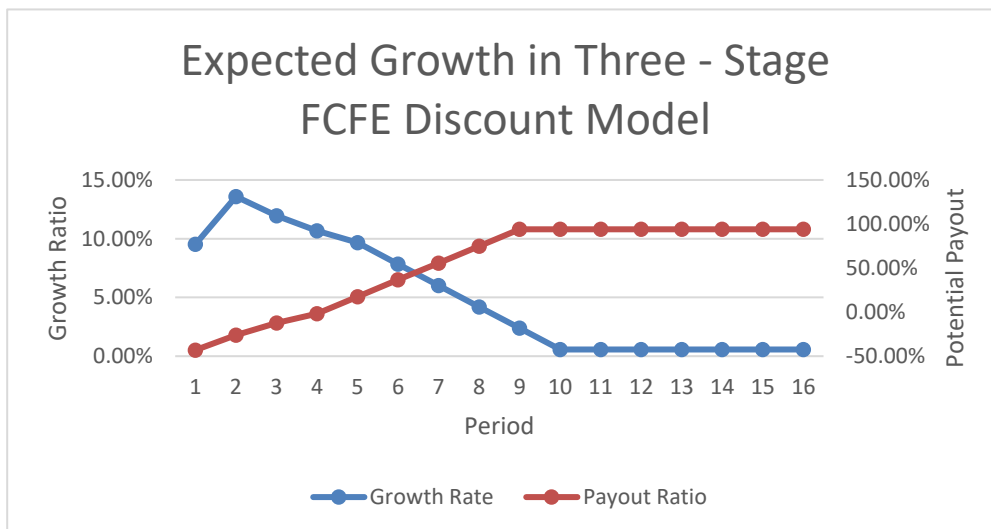


### Three Stage Free Cash Flow to Equity Discount Model

Company **Pembina Pipelin** 3.80% GDP  
 Ticker **ppl.to** 13.5 Industry P/E use median  
 94.0% Target Dividend Payout Ratio  
 9.5% Target ROE

	Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		100.25%	-0.25%	2.10			(29.83)
Stage 1	1	9.52%	143.02%	-43.02%	2.30	####		-0.99
	2	13.59%	125.91%	-25.91%	2.61	####		-0.68
	3	11.96%	112.46%	-12.46%	2.93	####		-0.36
	4	10.68%	101.61%	-1.61%	3.24	####		-0.05
	5	9.65%	82.48%	17.52%	3.55	0.62		0.62
Stage 2	6	7.84%	63.36%	36.64%	3.83	1.40		1.40
	7	6.02%	44.24%	55.76%	4.06	2.26		2.26
	8	4.20%	25.12%	74.88%	4.23	3.17		3.17
	9	2.39%	6.00%	94.00%	4.33	4.07		4.07
	10	0.57%	6.00%	94.00%	4.35	4.09	59.13	63.22
Stage 3	11+	0.57%	6.00%	94.00%	4.38	4.12		

**$K_e = 9.37%$**

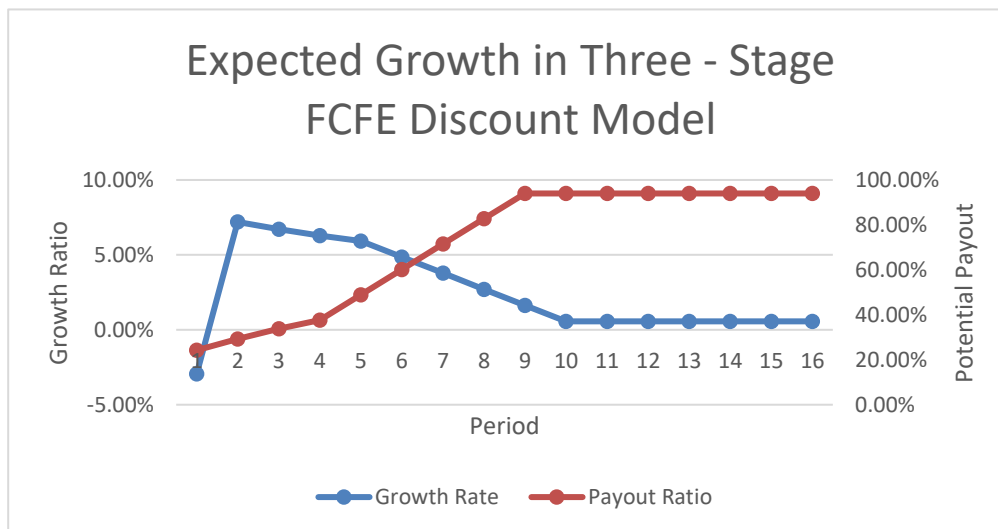


### Three Stage Free Cash Flow to Equity Discount Model

Company **TC Energy Corp** **3.80%** GDP  
 Ticker **trp** **13.5** Industry P/E use median  
**94.0%** Target Dividend Payout Ratio  
**9.5%** Target ROE

	Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		-30.96%	130.96%	<b>3.40</b>			<b>(40.72)</b>
	1	-2.94%	75.76%	24.24%	<b>3.30</b>	0.80		0.80
	2	7.20%	70.67%	29.33%	3.54	1.04		1.04
Stage 1	3	6.71%	66.23%	33.77%	3.78	1.28		1.28
	4	6.29%	62.31%	37.69%	4.01	1.51		1.51
	5	5.92%	51.04%	48.96%	<b>4.25</b>	2.08		2.08
	6	4.85%	39.78%	60.22%	4.46	2.68		2.68
	7	3.78%	28.52%	71.48%	4.62	3.31		3.31
Stage 2	8	2.71%	17.26%	82.74%	4.75	3.93		3.93
	9	1.64%	6.00%	94.00%	4.83	4.54		4.54
	10	0.57%	6.00%	94.00%	4.86	4.56	65.92	70.48
Stage 3	11+	0.57%	6.00%	94.00%	4.88	4.59		

**K<sub>e</sub> = 9.46%**





### Three Stage Free Cash Flow to Equity Discount Model

Company **The Williams Co** **3.80%** GDP  
 Ticker **wmb** **13.5** Industry P/E use median  
**94.0%** Target Dividend Payout Ratio  
**9.5%** Target ROE

	Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		150.38%	-50.38%	<b>1.05</b>			<b>(20.05)</b>
	1	14.29%	120.61%	-20.61%	<b>1.20</b>	(0.25)		-0.25
	2	11.46%	108.21%	-8.21%	1.34	(0.11)		-0.11
Stage 1	3	10.28%	98.13%	1.87%	1.48	0.03		0.03
	4	9.32%	89.76%	10.24%	1.61	0.17		0.17
	5	8.53%	73.01%	26.99%	<b>1.75</b>	0.47		0.47
	6	6.94%	56.26%	43.74%	1.87	0.82		0.82
	7	5.34%	39.50%	60.50%	1.97	1.19		1.19
Stage 2	8	3.75%	22.75%	77.25%	2.05	1.58		1.58
	9	2.16%	6.00%	94.00%	2.09	1.96		1.96
	10	0.57%	6.00%	94.00%	2.10	1.98	28.53	30.51
Stage 3	11+	0.57%	6.00%	94.00%	2.11	1.99		

**$K_e = 6.37%$**

