

## COST OF CAPITAL STUDY

### YIELD CAPITALIZATION

2019 Assessment Year

APPENDIX C

### Pipeline Industry

<b>EQUITY RATE</b>						<b>12.00%</b>	
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			10.00%				8
				<b>RANGE</b>	10.00-14.00%		
<b>DEBT RATE</b>						<b>5.50%</b>	9
<b>MARKET CAPITAL STRUCTURE</b>							
	Equity	55%	x	12.00%	=	6.60%	3
	Debt	45%	x	5.50%	=	2.48%	3
	Marginal Tax Rate	24%	=	(1-.24)	x	2.48%	
						<u>1.88%</u>	
<b>WEIGHTED AVERAGE COST OF CAPITAL</b>						<b>8.48%</b>	

# SUPPORT FOR GUIDELINE COMPANIES

Washington State Department of Revenue

2019 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
Cheniere Energy Inc	lng	1.40	B	30.0	0.0%	976,163,258	3.4%			27,400,000,000	96.6%	28,376,163,258
Enbridge Inc	enb.to	1.05	B++	17.9	6.3%	61,751,735,612	47.6%	7,747,000,000	6.0%	60,327,000,000	46.5%	129,825,735,612
Kinder Morgan Inc	kmi	1.40	B	29.0	4.7%	33,705,844,079	49.9%			33,900,000,000	50.1%	67,605,844,079
ONEOK Inc	oke	1.55	B+	26.5	6.0%	6,787,464,371	44.9%			8,325,700,000	55.1%	15,113,164,371
Pembina Pipeline Corp	ppl.to	1.10	B++	20.0	5.5%	11,961,500,000	55.8%	2,423,000,000	11.3%	7,057,000,000	32.9%	21,441,500,000
Phillips 66 Ptnrs LP	psxp	1.05	B++	12.8	7.0%	2,086,218,821	41.7%			2,922,000,000	58.3%	5,008,218,821
TransCanada Corp	trp	1.10	B++	13.8	5.6%	22,307,400,000	43.3%	2,865,600,000	5.6%	26,286,500,000	51.1%	51,459,500,000
The Williams Cos Inc	wmb	1.95	B+	34.7	6.2%	14,647,558,575	40.6%			21,409,000,000	59.4%	36,056,558,575
<b>Mean</b>		<b>1.33</b>		<b>23.1</b>	<b>5.2%</b>	<b>19,277,985,590</b>	<b>40.9%</b>			<b>23,453,400,000</b>	<b>56.2%</b>	
<b>Harmonic Mean</b>		<b>1.27</b>					<b>18.0%</b>				<b>52.0%</b>	
<b>Weighted Mean</b>						<b>154,223,884,716</b>	<b>43.5%</b>	<b>13,035,600,000</b>	<b>3.7%</b>	<b>187,627,200,000</b>	<b>52.9%</b>	<b>354,886,684,716</b>
<b>Median</b>		<b>1.25</b>			<b>5.8%</b>		<b>44.1%</b>				<b>53.1%</b>	

# SUPPORT FOR CAPITAL STRUCTURE Market Value

Washington State Department of Revenue

2019 Assessment Year

Pipeline Industry

Company	Ticker	Stock Price	Common Shares	Common Stock	%	Preferred Stock	%	Long Term Debt	%	Total Debt & Equity
Cheniere Energy Inc	lng	59.190	256,885,068	15,205,027,175	34.2%	-		29,291,000,000	65.8%	44,496,027,175
Enbridge Inc	enb.to	42.410	2,022,657,570	85,780,907,544	60.9%	7,747,000,000	5.5%	47,384,000,000	33.6%	140,911,907,544
Kinder Morgan Inc	kmi	15.380	2,263,656,419	34,815,035,724	48.7%	-		36,647,000,000	51.3%	71,462,035,724
ONEOK Inc	oke	53.950	411,361,477	22,192,951,684	69.8%	-		9,600,000,000	30.2%	31,792,951,684
Pembina Pipeline Co	ppl.to	40.510	509,000,000	20,619,590,000	72.0%	2,423,000,000	8.5%	5,583,000,000	19.5%	28,625,590,000
Phillips 66 Ptnrs LP	psxp	42.110	123,811,206	5,213,689,885	64.6%	-		2,860,000,000	35.4%	8,073,689,885
TransCanada Corp	trp	35.700	918,000,000	32,772,600,000	45.7%	2,865,600,000	4.0%	36,016,000,000	50.3%	71,654,200,000
The Williams Cos Inc	wmb	22.050	1,210,542,031	26,692,451,784	53.4%	-		23,330,000,000	46.6%	50,022,451,784
<b>Mean</b>					<b>56.2%</b>			<b>6.0%</b>		<b>41.6%</b>
<b>Harmonic Mean</b>					<b>53.2%</b>			<b>5.5%</b>		<b>36.6%</b>
<b>Weighted Mean</b>				<b>243,292,253,795</b>	<b>54.4%</b>	<b>13,035,600,000</b>	<b>2.9%</b>	<b>190,711,000,000</b>	<b>42.7%</b>	<b>447,038,853,795</b>
<b>Median</b>					<b>57.1%</b>			<b>5.5%</b>		<b>41.0%</b>
<b>Std Dev</b>					<b>13.0%</b>			<b>2.3%</b>		<b>14.6%</b>
<b>Coefficient of Variation</b>					<b>23.2%</b>			<b>38.0%</b>		<b>35.2%</b>
<b>Target</b>					<b>55%</b>				<b>45%</b>	<b>100%</b>

# SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT CAPITAL ASSET PRICING MODEL

2019 Assessment Year

## Ex Ante

$$K_e = R_f + B (R_p)$$

<b>Ke = Cost of Equity</b>				<b>10.35%</b>
				to page 1
	Rm =	rate of return	8.65%	
	Rf =	risk free rate	3.00%	
	Rp =	risk premium	5.65%	
	B =	Beta	1.30	page 7
<b>Rp = Risk Premium</b>				<b>5.65%</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>			5.96%	chart page 15
	<a href="http://pages.stern.nyu.edu/~adamodar/">http://pages.stern.nyu.edu/~adamodar/</a>			
		2018 Implied Premium	5.65%	adjusted for Rf
<b>John Graham &amp; Campbell Harvey</b>			6.21%	10 year expected real ret.
	Duke CFO magazine Global Business Outlook			95% Interval 10 year expe
		4th Qtr 2018	5.89%-6.54%	adjusted for Rf
			6.27%	Rf rate used in survey
			3.06%	
<b>Rf = Risk Free Rate</b>				<b>3.00%</b>
				to above
<b>Value Line Investment Survey, Selected Yields January 4, 2019, page 1949</b>				
	as of 12-26-18	US Treasury Securities year end data		
		5 year	2.65%	
		10 year	2.81%	
		30 year	3.06%	
		30 year Zero	3.10%	
<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 12-31-18	Treasury Constant Maturities		
		5 year	2.51%	
		10 year	2.69%	
		20 year	2.87%	
		30 year	3.02%	
		20 year TIPS	1.09%	1.78%
		30 year TIPS	1.21%	1.81%
				TIPS inflation indication
<b>Inflation</b>				<b>2.00%</b>
				to appraisal template
<b>Value Line Investment Survey, Economic Series January 4, 2019, page 1500</b>				
		Consumer Price Index Annual Rate of Change 2021-2023	2.30%	
<b>The Livingston Survey December 21, 2018, page 4, 10</b>				
		Inflation median (measured by the CPI) over next 10 years	2.23%	
<b>Gross Domestic Product (GDP) Nominal</b>				<b>3.90%</b>
				real GDP + inflation est
<b>Federal Reserve Projected Long Run Real GDP Growth</b>				
		Median Projection Value From Dec 19, 2018 Report		1.90%
		<a href="https://www.federalreserve.gov/monetarypolicy/files/fomcproptabl20181219.pdf">https://www.federalreserve.gov/monetarypolicy/files/fomcproptabl20181219.pdf</a>		
<b>Congressional Budget Office Real GDP Economic Projections</b>				Table D-1 pg 140
		The Budget and Economic Outlook 2019-2029	2019-2023	2.18%
		Average Percentage Change Year to Year	2024-2029	1.73%
		<a href="http://www.cbo.gov/publication/54918">http://www.cbo.gov/publication/54918</a>		
<b>Federal Reserve Bank of Philadelphia</b>				
		The Livingston Survey, December 21, 2018, page 4, 10		
		Average Annual Real GDP Growth Rate for Next Ten Years		2.07%
		<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

2019 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
Cheniere Energy Inc	lng	59.190	NIL	NMF	NIL	NMF
Enbridge Inc	enb.to	42.410	2.95	6.96%	4.50%	11.46%
Kinder Morgan Inc	kmi	15.380	0.95	6.18%	17.50%	23.68%
ONEOK Inc	oke	53.950	3.60	6.67%	10.00%	16.67%
Pembina Pipeline Corp	ppl.to	40.510	2.40	5.92%	6.50%	12.42%
Phillips 66 Ptnrs LP	psxp	42.110	3.50	8.31%	18.50%	26.81%
TransCanada Corp	trp	35.700	2.16	6.05%	10.00%	16.05%
The Williams Cos Inc	wmb	22.050	1.52	6.89%	1.50%	8.39%
<b>Mean Range</b>						<b>16.50%</b>
<b>Harmonic Mean Range</b>						<b>14.32%</b>
<b>Median Range</b>						<b>16.05%</b>
<b>Max</b>						<b>26.81%</b>
<b>Min</b>						<b>8.39%</b>
<b>Std Dev Range</b>						<b>6.66%</b>
<b>Coefficient of Variation</b>						<b>40.35%</b>
<b>Say</b>						<b>14.00%</b>

# SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

Washington State Department of Revenue  
2019 Assessment Year  
Pipeline Industry

## Based on Dividend Growth

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

$K_e$  = Cost of Equity  
 $D_1$  = Expected Dividends  
 $P_0$  = Current Price  
 $G$  = Sustainable Growth      Max % Above Economic Growth      **2%**

Company	Ticker	Stock Price (Po)	Expected Dividend (D1)	Dividend Yield (D1/Po)	Dividend Growth (G)	Dividend Growth LT	Ke Sustainable
Cheniere Energy Inc	lng	59.19	NIL	NMF	NIL	5.90%	NMF
Enbridge Inc	enb.to	42.41	2.95	6.96%	4.50%	4.50%	11.46%
Kinder Morgan Inc	kmi	15.38	0.95	6.18%	17.50%	5.90%	12.08%
ONEOK Inc	oke	53.95	3.60	6.67%	10.00%	5.90%	12.57%
Pembina Pipeline Corp	ppl.to	40.51	2.40	5.92%	6.50%	5.90%	11.82%
Phillips 66 Ptrns LP	psxp	42.11	3.50	8.31%	18.50%	5.90%	14.21%
TransCanada Corp	trp	35.70	2.16	6.05%	10.00%	5.90%	11.95%
The Williams Cos Inc	wmb	22.05	1.52	6.89%	1.50%	1.50%	8.39%
<b>Mean Range</b>							<b>11.78%</b>
<b>Harmonic Mean Range</b>							<b>11.52%</b>
<b>Median Range</b>							<b>11.95%</b>
<b>Max</b>							<b>14.21%</b>
<b>Min</b>							<b>8.39%</b>
<b>Std Dev Range</b>							<b>1.74%</b>
<b>Coefficient of Variation</b>							<b>14.79%</b>
<b>Say</b>							<b>12.00%</b>

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

Washington State Department of Revenue  
2019 Assessment Year  
Pipeline Industry

**Based on Earnings 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)	Ke with Short Term Growth
Cheniere Energy Inc	lng	59.190	NIL	#VALUE!	NMF	NMF
Enbridge Inc	enb.to	42.410	2.95	6.96%	6.50%	13.46%
Kinder Morgan Inc	kmi	15.380	0.95	6.18%	34.50%	NMF
ONEOK Inc	oke	53.950	3.60	6.67%	18.50%	25.17%
Pembina Pipeline Corp	ppl.to	40.510	2.40	5.92%	15.00%	20.92%
Phillips 66 Ptnrs LP	psxp	42.110	3.50	8.31%	17.50%	25.81%
TransCanada Corp	trp	35.700	2.16	6.05%	47.50%	NMF
The Williams Cos Inc	wmb	22.050	1.52	6.89%	19.00%	25.89%
<b>Mean Range</b>						<b>22.25%</b>
<b>Harmonic Mean Range</b>						<b>20.90%</b>
<b>Median Range</b>						<b>25.17%</b>
<b>Max</b>						<b>25.89%</b>
<b>Min</b>						<b>13.46%</b>
<b>Std Dev</b>						<b>5.33%</b>
<b>Coefficient of Variation</b>						<b>23.95%</b>
<b>Say</b>						<b>NMF</b>

## SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

Washington State Department of Revenue

2019 Assessment Year

Pipeline Industry

### Based on Dividend Growth

$$K_e = (D1 / P_o) + G$$

$K_e$  = Cost of Equity

$D1$  = Expected Dividends

$P_o$  = Current Price

$G$  = Sustainable Growth

Max % Above Economic Growth

2%

Company	Ticker	Stock Price (Po)	Expected Dividend (D1)	Dividend Yield (D1/Po)	Earnings Growth (G)	Dividend Growth LT	Ke Sustainable
Cheniere Energy Inc	lng	59.19	NIL	#VALUE!	NMF	5.90%	NMF
Enbridge Inc	enb.to	42.41	2.95	6.96%	6.50%	5.90%	12.86%
Kinder Morgan Inc	kmi	15.38	0.95	6.18%	34.50%	5.90%	12.08%
ONEOK Inc	oke	53.95	3.60	6.67%	18.50%	5.90%	12.57%
Pembina Pipeline Corp	ppl.to	40.51	2.40	5.92%	15.00%	5.90%	11.82%
Phillips 66 Ptnrs LP	psxp	42.11	3.50	8.31%	17.50%	5.90%	14.21%
TransCanada Corp	trp	35.70	2.16	6.05%	47.50%	5.90%	11.95%
The Williams Cos Inc	wmb	22.05	1.52	6.89%	19.00%	5.90%	12.79%
<b>Mean Range</b>							<b>12.61%</b>
<b>Harmonic Mean Range</b>							<b>12.57%</b>
<b>Median Range</b>							<b>12.57%</b>
<b>Max</b>							<b>14.21%</b>
<b>Min</b>							<b>11.82%</b>
<b>Std Dev Range</b>							<b>0.82%</b>
<b>Coefficient of Variation</b>							<b>6.47%</b>
<b>Say</b>							<b>12.50%</b>



# SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

Washington State Department of Revenue

2019 Assessment Year

Pipeline Industry

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

**K<sub>e</sub>** = Cost of Equity

**D1** = Expected Dividends

**E1** = Expected Earnings

**P<sub>o</sub>** = Current Price

**G** = Sustainable Growth

**b** = Retained Earnings % = (1 - Payout Ratio)

**ROE** = Return on Equity = (E1 / P<sub>o</sub>)

Company	Ticker	Stock Price (P <sub>o</sub> )	Expected Dividend (D1)	Expected Earnings (E1)	Dividend Yield (D1/P <sub>o</sub> )	Retained Earnings (b)	ROE (E1/P <sub>o</sub> )	Growth (b*ROE)	K <sub>e</sub> Dividends	K <sub>e</sub> Earnings
Cheniere Energy Inc	lng	59.190	NIL	2.50	NMF		4.22%			
Enbridge Inc	enb.to	42.410	2.95	2.75	6.96%	-26.0%	6.48%	-1.69%	5.27%	4.80%
Kinder Morgan Inc	kmi	15.380	0.95	0.90	6.18%	-10.0%	5.85%	-0.59%	5.59%	5.27%
ONEOK Inc	oke	53.950	3.60	3.05	6.67%	NMF	5.65%	NMF	NMF	NMF
Pembina Pipeline Corp	ppl.to	40.510	2.40	2.60	5.92%	2.0%	6.42%	0.13%	6.05%	6.55%
Phillips 66 Ptnrs LP	psxp	42.110	3.50	4.35	8.31%	55.0%	10.33%	5.68%	13.99%	16.01%
TransCanada Corp	trp	35.700	2.16	3.05	6.05%	25.0%	8.54%	2.14%	8.19%	10.68%
The Williams Cos Inc	wmb	22.050	1.52	0.90	6.89%	NMF	4.08%	NMF	NMF	NMF
<b>Mean</b>									<b>7.82%</b>	<b>8.66%</b>
<b>Harmonic Mean</b>									<b>6.87%</b>	<b>7.07%</b>
<b>Median</b>									<b>6.05%</b>	<b>6.55%</b>
<b>Std Dev</b>									<b>3.63%</b>	<b>4.72%</b>
<b>Coefficient of Variation</b>									<b>46.48%</b>	<b>54.47%</b>

say

NMF

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

Washington State Department of Revenue  
2019 Assessment Year  
Pipeline Industry

Company	Ticker	Stock Price	Expected Earnings	P/E	Payout Ratio	ROE	Ke
Cheniere Energy Inc	lng	59.19	2.50	23.68	NIL	36.00%	NMF
Enbridge Inc	enb.to	42.41	2.75	15.42	133.00%	7.00%	8.23%
Kinder Morgan Inc	kmi	15.38	0.90	17.09	106.00%	5.50%	10.17%
ONEOK Inc	oke	53.95	3.05	17.69	NMF	18.00%	8.57%
Pembina Pipeline Corp	ppl.to	40.51	2.60	15.58	92.00%	8.50%	8.75%
Phillips 66 Ptnrs LP	psxp	42.11	4.35	9.68	80.00%	34.50%	15.24%
TransCanada Corp	trp	35.70	3.05	11.70	71.00%	13.50%	12.55%
The Williams Cos Inc	wmb	22.05	0.90	24.50	NMF	7.50%	7.35%
<b>Mean</b>				<b>16.92</b>	<b>96.40%</b>	<b>16.31%</b>	<b>10.12%</b>
<b>Harmonic Mean</b>				<b>15.51</b>	<b>91.90%</b>	<b>10.50%</b>	<b>9.56%</b>
<b>Median</b>				<b>16.33</b>	<b>92.00%</b>	<b>11.00%</b>	<b>8.75%</b>
<b>Industry Summary</b>				<b>16.00</b>	<b>92.00%</b>	<b>11.00%</b>	

Say 10.00%

## SUPPORT FOR DEBT RATING AND DEBT YIEL

Washington State Department of Revenue

2019 Assessment Year

Pipeline Industry

Company	Ticker	Mergent's Ratings	S&P Ratings
Cheniere Energy Inc	lng		BBB-
Enbridge Inc	enb.to	Baa2	BBB+
Kinder Morgan Inc	kmi	Baa2	BBB
ONEOK Inc	oke	Baa3	BBB
Pembina Pipeline Corp	ppl.to		BBB
Phillips 66 Ptnrs LP	psxp	Baa3	BBB
TransCanada Corp	trp	Baa2	BBB+
The Williams Cos Inc	wmb	Baa3	BBB
<b>Overall Average Debt Rating</b>		<b>Baa2</b>	<b>BBB</b>

Mergent's Bond Record January 2018, page 249				
Corporate	Aaa	Aa	A	Baa
October	4.14%	4.28%	4.46%	5.07%
November	4.22%	4.37%	4.53%	5.22%
December	4.02%	4.20%	4.37%	5.13%
<b>4th Qtr Average</b>	<b>4.13%</b>	<b>4.28%</b>	<b>4.45%</b>	<b>5.14%</b>

Public Utilities	Aaa	Aa	A	Baa
October		4.31%	4.45%	4.91%
November		4.40%	4.52%	5.03%
December		4.24%	4.37%	4.92%
<b>4th Qtr Average</b>		<b>4.32%</b>	<b>4.45%</b>	<b>4.95%</b>

Industrials	Aaa	Aa	A	Baa
October	4.14%	4.24%	4.45%	5.22%
November	4.22%	4.34%	4.53%	5.42%
December	4.02%	4.16%	4.36%	5.34%
<b>4th Qtr Average</b>	<b>4.13%</b>	<b>4.25%</b>	<b>4.45%</b>	<b>5.33%</b>

		Avg YTM	Med YTM
<b>Moody's Long Term Bond Yield</b>	<b>Baa2</b>	5.40%	5.38%
<b>S&amp;P's Long Term Bond Yield</b>	<b>BBB</b>	5.60%	5.57%

<b>Bloomberg Dec 2018</b>	<b>20y</b>	<b>25Y</b>	<b>30Y</b>
<b>BBB</b>	5.00%	5.53%	5.65%

**Debt Yield Rate** **5.50%**

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## SUPPORT FOR DIRECT CAPITALIZATION EQUITY COMPONENT

2019 Assessment Year

Pipeline Industry

Company	Ticker	Stock Price	2018		2019		2018		2019	
			Actual Earnings Ratio (EPS/P)		Projected Earnings Ratio (PEPS/P)		Cash Flow Ratio (CF/P)		Projected Cash Flow Ratio	
Cheniere Energy Inc	lng	59.190	2.00	3.4%	2.50	4.2%	3.80	6.4%	4.95	8.4%
Enbridge Inc	enb.to	42.410	2.65	6.2%	2.75	6.5%	3.70	8.7%	4.05	9.5%
Kinder Morgan Inc	kmi	15.380	0.66	4.3%	0.90	5.9%	1.66	10.8%	2.05	13.3%
ONEOK Inc	oke	53.950	2.80	5.2%	3.05	5.7%	3.80	7.0%	4.15	7.7%
Pembina Pipeline Corp	ppl.to	40.510	2.28	5.6%	2.60	6.4%	3.10	7.7%	3.45	8.5%
Phillips 66 Ptnrs LP	psxp	42.110	4.00	9.5%	4.35	10.3%	7.30	17.3%	4.95	11.8%
TransCanada Corp	trp	35.700	2.81	7.9%	3.05	8.5%	4.60	12.9%	4.85	13.6%
The Williams Cos Inc	wmb	22.050	0.79	3.6%	0.90	4.1%	2.00	9.1%	2.55	11.6%
		<b>Mean</b>		<b>5.7%</b>		<b>6.4%</b>		<b>10.0%</b>		<b>10.5%</b>
		<b>Harmonic Mean</b>		<b>5.1%</b>		<b>5.9%</b>		<b>9.1%</b>		<b>10.1%</b>
		<b>Median</b>		<b>5.4%</b>		<b>6.1%</b>		<b>8.9%</b>		<b>10.6%</b>
		<b>Max</b>		<b>9.5%</b>		<b>10.3%</b>		<b>17.3%</b>		<b>13.6%</b>
		<b>Min</b>		<b>3.4%</b>		<b>4.1%</b>		<b>6.4%</b>		<b>7.7%</b>
		<b>Std Dev</b>		<b>2.1%</b>		<b>2.1%</b>		<b>3.6%</b>		<b>2.3%</b>
		<b>Coefficient of Variation</b>		<b>37.2%</b>		<b>32.6%</b>		<b>36.4%</b>		<b>22.0%</b>
		<b>Say</b>		<b>5.5%</b>		<b>6.0%</b>		<b>9.0%</b>		<b>10.5%</b>

Source: VL/Year End Stock Price

# SUPPORT FOR DIRECT CAPITALIZATION EQUITY COMPONENT

2019 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
Cheniere Energy Inc	lng	59.190	42,004,027,175	2,473,000,000	30.26%	3,221,407,895	13.04	10,378,156,747	4.05	1,271,581,087	1,611,005,000	14.57
Enbridge Inc	enb.to	42.410	140,911,907,544	5,932,000,000	9.46%	6,493,135,135	21.70	49,453,977,587	2.85	8,191,763,159	2,606,120,000	13.05
Kinder Morgan Inc	kmi	15.380	71,462,035,724	6,091,000,000	23.49%	7,522,018,072	9.50	16,071,960,575	4.45	4,640,495,659	2,015,585,000	10.74
ONEOK Inc	oke	53.950	31,792,951,684	2,264,021,000	9.21%	2,472,549,250	12.86	13,965,722,144	2.28	1,707,150,130	528,000,000	14.22
Pembina Pipeline Corp	ppl.to	40.510	28,625,590,000	1,794,000,000	11.29%	1,996,548,387	14.34	8,627,550,000	3.32	1,756,050,000	307,065,000	13.87
Phillips 66 Ptnrs LP	psxp	42.110	8,073,689,885	917,000,000	-32.19%	621,801,370	12.98	1,436,209,990	5.62	612,865,470	157,300,000	10.48
TransCanada Corp	trp	35.700	71,654,200,000	6,296,000,000	5.43%	6,638,173,913	10.79	10,694,700,000	6.70	4,452,300,000	1,980,880,000	11.14
The Williams Cos Inc	wmb	22.050	50,022,451,784	2,493,000,000	27.50%	3,178,575,000	15.74	9,442,227,842	5.30	3,086,882,179	1,283,150,000	11.45
<b>Mean</b>							<b>13.87</b>	<b>4.32</b>		<b>12.44</b>		
<b>Harmonic Mean</b>							<b>13.14</b>	<b>3.85</b>		<b>12.25</b>		
<b>Median</b>							<b>13.01</b>	<b>4.25</b>		<b>12.25</b>		
<b>Std Dev</b>							<b>3.71</b>	<b>1.50</b>		<b>1.67</b>		

Source: **Say** **11.50** **4.00** **12.25**

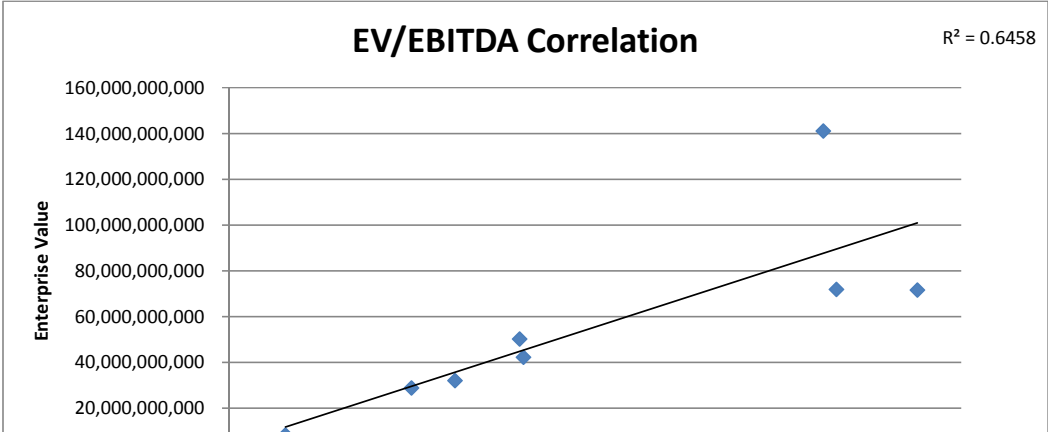
Value Line & Morning Star

### Forecast EV/EBITDA By Rank

Guideline Companies	EV/EBITDA forecast	
Kinder Morgan Inc	9.50	<b>11.34 Low Harmonic mean</b>
TransCanada Corp	10.79	<b>11.53 Low Average</b>
ONEOK Inc	12.86	<b>11.83 Low Median</b>
Phillips 66 Ptnrs LP	12.98	<b>11.50 Say</b>
Cheniere Energy Inc	13.04	<b>16.20 High Average</b>
Pembina Pipeline Corp	14.34	<b>15.04 High Median</b>
The Williams Cos Inc	15.74	<b>15.62 High Harmonic mean</b>
Enbridge Inc	21.70	<b>15.50 Say</b>

### EV/EBITDA Correlation

R<sup>2</sup> = 0.6458



## SUPPORT FOR DIRECT CAPITALIZATION EQUITY COMPONENT

2019 Assessment Year

Pipeline Industry

Company	Ticker	Stock Price	Revenues		Cash Flow		Earnings		Book Value	
				Multiple		Multiple		Multiple		Multiple
Cheniere Energy Inc	lng	59.190	29.55	2.00	3.80	15.58	2.00	NMF	3.80	15.58
Enbridge Inc	enb.to	42.410	22.94	1.85	3.70	11.46	2.65	16.00	30.53	1.39
Kinder Morgan Inc	kmi	15.380	6.25	2.46	1.66	9.27	0.66	23.30	14.89	1.03
ONEOK Inc	oke	53.950	31.35	1.72	3.80	14.20	2.80	19.27	16.50	3.27
Pembina Pipeline Corp	ppl.to	40.510	14.45	2.80	3.10	13.07	2.28	17.77	23.50	1.72
Phillips 66 Ptnrs LP	psxp	42.110	11.90	3.54	7.30	5.77	4.00	10.53	16.85	2.50
TransCanada Corp	trp	35.700	10.73	3.33	4.60	7.76	2.81	12.70	24.30	1.47
The Williams Cos Inc	wmb	22.050	7.15	3.08	2.00	11.03	0.79	27.91	12.10	1.82
<b>Mean</b>				<b>2.60</b>		<b>11.02</b>		<b>18.21</b>		<b>3.60</b>
<b>Harmonic Mean</b>				<b>2.43</b>		<b>10.01</b>		<b>16.54</b>		<b>1.87</b>
<b>Median</b>				<b>2.63</b>		<b>11.24</b>		<b>17.77</b>		<b>1.77</b>
<b>Max</b>				<b>3.54</b>		<b>15.58</b>		<b>27.91</b>		<b>15.58</b>
<b>Min</b>				<b>1.72</b>		<b>5.77</b>		<b>10.53</b>		<b>1.03</b>
<b>Say</b>				<b>2.50</b>		<b>10.50</b>		<b>17.00</b>		<b>1.80</b>

Source: VL/Year End Stock Price