

COST OF CAPITAL STUDY

YIELD CAPITALIZATION

2023 Assessment Year

APPENDIX C

Power Industry

EQUITY RATE						10.00%	
CAPITAL ASSET PRICING MODEL							PAGE
	CAPM Ex Ante		9.82%				4
DIVIDEND GROWTH MODELS Single Stage							
	Value Line, based on Dividends Growth		11.50%				5
	Value Line, based on Earnings Growth		11.00%				6
	Value Line, based on Return on Equity		8.00%				7
FCFE GROWTH MODEL Multi Stage							8
			9.00%				
				RANGE	8% - 11.5%		
DEBT RATE						6.00%	9
MARKET CAPITAL STRUCTURE							
	Equity	55%	x	10.00%	=	5.50%	3
	Debt	45%	x	6.00%	=	2.70%	3
	Marginal Tax Rate	24%	=	(1-.24)	x	2.70%	
						<u>2.05%</u>	
WEIGHTED AVERAGE COST OF CAPITAL						7.55%	

SUPPORT FOR GUIDELINE COMPANIES

Washington State Department of Revenue

2023 Assessment Year

Power 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
AES Corp	aes	1.10	B	NMF	2.2%	3,507,000,000	14.8%			20,200,000,000	85.2%	23,707,000,000
Exelon Corp	exc	0.95	B++	12.6	3.1%	23,859,000,000	40.0%			35,789,000,000	60.0%	59,648,000,000
NextEra Energy Inc	nee	0.90	A+	27.6	2.0%	39,006,000,000	41.6%			54,670,000,000	58.4%	93,676,000,000
NRG Energy Inc	nrg	1.10	B+	5.2	4.5%	nmf		230,000,000		7,974,000,000		nmf
Southern Co	so	0.95	A	17.3	3.8%	28,943,500,000	36.3%	291,000,000	0.4%	50,427,000,000	63.3%	79,661,500,000
Vistra Corp	vst	1.10	B+	NMF	nmf	5,738,000,000	32.4%			11,947,000,000	67.6%	17,685,000,000
Mean		1.02		15.7	3.1%	20,210,700,000	33.0%		0.4%	30,167,833,333	66.9%	
Harmonic Mean		1.01							0.4%		65.7%	
Weighted Mean						101,053,500,000	36.8%	521,000,000	0.2%	181,007,000,000	66.0%	274,377,500,000
Median		1.03			3.1%				0.4%		63.3%	

SUPPORT FOR CAPITAL STRUCTURE Market Value

Washington State Department of Revenue

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Power Industry

Company	Ticker	Stock Price	Common Shares	Common Stock	%	Preferred Stock	%	Long Term Debt	%	Total Debt & Equity
AES Corp	aes	28.58	668,000,000	19,091,440,000	46.4%	-		22,032,000,000	53.6%	41,123,440,000
Exelon Corp	exc	42.86	990,000,000	42,431,400,000	56.8%	-		32,229,000,000	43.2%	74,660,400,000
NextEra Energy Inc	nee	83.06	1,980,000,000	164,458,800,000	74.0%	-		57,892,000,000	26.0%	222,350,800,000
NRG Energy Inc	nrg	31.46	230,000,000	7,235,800,000	50.0%	230,000,000	1.6%	7,008,000,000	48.4%	14,473,800,000
Southern Co	so	70.67	1,070,000,000	75,616,900,000	60.7%	291,000,000	0.2%	48,600,000,000	39.0%	124,507,900,000
Vistra Corp	vst	23.20	380,000,000	8,816,000,000	43.6%	-		11,388,000,000	56.4%	20,204,000,000
Mean					55.3%				0.9%	44.4%
Harmonic Mean					53.6%				0.4%	41.6%
Weighted Mean				317,650,340,000	63.9%	521,000,000	0.1%	179,149,000,000	36.0%	497,320,340,000
Median					53.4%				0.9%	45.8%
Std Dev					11.2%				1.0%	11.1%
Coefficient of Variation					20.2%				105.2%	24.9%
Target					55%				45%	100%

**SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT
CAPITAL ASSET PRICING MODEL**

2023 Assessment Year

Ex Ante

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

Ke = Cost of Equity		9.82%
		to page 1
Rm =	rate of return	9.82%
Rf =	risk free rate	3.97%
Rp =	risk premium	5.85%
B =	Beta	1.00
		page 7
Rp = Risk Premium		5.85%
		to above
Shannon Pratt and Roger Grabowski	3.50% - 6.00%	
Cost of Capital, App & Exam, 5th Ed, 2014		
Dr. Aswath Damodaran	5.94%	chart page 15
http://pages.stern.nyu.edu/~adamodar/	5.85%	adjusted for Rf
2022 Implied Premium		
Rf = Risk Free Rate		3.97%
		to above
Value Line Investment Survey, Selected Yields January 6, 2023, page 1465		
as of 12-27-22		
US Treasury Securities year end data		
5 year	3.94%	
10 year	3.84%	
30 year	3.93%	
30 year Zero	3.81%	
Federal Reserve Statistical Release (http://www.federalreserve.gov/Releases/H15/Current/)		
As of 12-30-22		
Treasury Constant Maturities		
5 year	3.99%	
10 year	3.88%	
20 year	4.14%	
30 year	3.97%	
20 year TIPS	1.62%	
30 year TIPS	1.67%	
Inflation		2.30%
		to appraisal template
Federal Reserve Statistical Release (http://www.federalreserve.gov/Releases/H15/Current/)		
As of 12-30-22		
Inflation Indication from Treasury Inflation-Protected Securities		
20 year	2.52%	
30 year	2.30%	
Federal Reserve Bank of Philadelphia		
The Livingston Survey December 16, 2022, page 8		
Inflation median (measured by the CPI) over next 10 years	2.50%	
https://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey		
Gross Domestic Product (GDP) Nominal		4.10%
		real GDP + inflation est
Federal Reserve Projected Long Run Real GDP Growth		
Median Projection Value From Dec 14, 2022 Report	1.80%	
https://www.federalreserve.gov/monetarypolicy/files/fomcprojt20221214.pdf		
Congressional Budget Office Real GDP Economic Projections		
The Budget and Economic Outlook 2023-2033		Table 2.3, pg 49
Average Percentage Change Year To Year	2023-2027	1.80%
https://www.cbo.gov/system/files/2023-02/58848-Outlook.pdf	2028-2033	1.80%
Federal Reserve Bank of Philadelphia		
The Livingston Survey, December 16, 2022, page 8	1.97%	

SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

Washington State Department of Revenue
2023 Assessment Year
Power 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

Company	Ticker	Stock Price (P ₀)	Expected Dividend (D ₁)	Dividend Yield (D ₁ /P ₀)	Dividend Growth (G)	Ke with Short Term Growth
AES Corp	aes	28.580	0.68	2.38%	6.50%	8.88%
Exelon Corp	exc	42.860	1.45	3.38%	NMF	NMF
NextEra Energy Inc	nee	83.060	1.87	2.25%	10.00%	12.25%
NRG Energy Inc	nrg	31.460	1.48	4.70%	11.50%	16.20%
Southern Co	so	70.670	2.78	3.93%	3.50%	7.43%
Vistra Corp	vst	23.200	0.82	3.53%	10.00%	13.53%
Mean						11.66%
Harmonic Mean						10.77%
Median						12.25%
Max						16.20%
Min						7.43%
Std Dev						3.54%
Coefficient of Variation						30.35%
Say						11.50%

SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

Washington State Department of Revenue

2023 Assessment Year

Power 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
AES Corp	aes	28.580	0.68	2.38%	0.00%	2.38%
Exelon Corp	exc	42.860	1.45	3.38%	NMF	NMF
NextEra Energy Inc	nee	83.060	1.87	2.25%	10.50%	12.75%
NRG Energy Inc	nrg	31.460	1.48	4.70%	-10.50%	NMF
Southern Co	so	70.670	2.78	3.93%	6.50%	10.43%
Vistra Corp	vst	23.200	0.82	3.53%	NMF	NMF
Mean						8.52%
Harmonic Mean						5.05%
Median						10.43%
Max						12.75%
Min						2.38%
Std Dev						5.44%
Coefficient of Variation						63.89%
Say						11.00%

SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

Washington State Department of Revenue

2023 Assessment Year

Power 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
AES Corp	aes	28.580	0.68	1.05	2.38%	10.0%	3.67%	0.37%		4.04%
Exelon Corp	exc	42.860	1.45	2.40	3.38%	40.0%	5.60%	2.24%	5.62%	7.84%
NextEra Energy Inc	nee	83.060	1.87	3.15	2.25%	42.0%	3.79%	1.59%		5.39%
NRG Energy Inc	nrg	31.460	1.48	10.50	4.70%	88.0%	33.38%	29.37%	34.08%	62.75%
Southern Co	so	70.670	2.78	3.70	3.93%	22.0%	5.24%	1.15%	5.09%	6.39%
Vistra Corp	vst	23.200	0.82	3.80	3.53%	58.0%	16.38%	9.50%	13.03%	25.88%
Mean									14.45%	18.71%
Harmonic Mean									8.32%	7.77%
Median									9.33%	7.11%
Std Dev									13.57%	23.04%
Coefficient of Variation									93.91%	123.10%

Say 8.00%

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

Washington State Department of Revenue

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Power Industry

Company	Ticker	Stock Price	Expected Earnings	P/E	Payout Ratio	ROE	Ke
AES Corp	aes	28.58	1.05	27.22	48.00%	19.00%	6.98%
Exelon Corp	exc	42.86	2.40	17.86	60.00%	9.50%	9.32%
NextEra Energy Inc	nee	83.06	3.15	26.37	59.00%	13.50%	5.37%
NRG Energy Inc	nrg	31.46	10.50	3.00	14.00%	NMF	NMF
Southern Co	so	70.67	3.70	19.10	77.00%	13.00%	9.08%
Vistra Corp	vst	23.20	3.80	6.11	22.00%	21.50%	24.81%
Mean				16.61	46.67%	15.30%	11.11%
Harmonic Mean				8.82	32.55%	14.07%	8.51%
Median				18.48	53.50%	13.50%	9.08%
Industry Summary				20.00	50.00%	14.00%	
						Say	9.00%

SUPPORT FOR DEBT RATING AND DEBT YIELD RATE

Washington State Department of Revenue

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Power Industry

Company	Ticker	Mergent's Ratings	S&P Ratings
AES Corp	aes	Baa3	BBB-
Exelon Corp	exc	Baa2	BBB
NextEra Energy Inc	nee	Baa1	A-
NRG Energy Inc	nrg	Ba2	BB+
Southern Co	so	Baa2	BBB+
Vistra Corp	vst	Ba1	BB
Overall Average Debt Rating		Baa3	BBB

Mergent's Bond Record January 2023 page 81

Corporate	Aaa	Aa	A	Baa
October	5.10%	5.40%	5.74%	6.26%
November	4.90%	5.23%	5.58%	6.07%
December	4.43%	4.77%	5.12%	5.59%
4th Qtr Average	4.81%	5.13%	5.48%	5.97%
Public Utilities		Aa	A	Baa
October		5.68%	5.88%	6.18%
November		5.54%	5.75%	6.05%
December		5.06%	5.28%	5.57%
4th Qtr Average		5.43%	5.64%	5.93%
Industrials	Aaa	Aa	A	Baa
October	5.10%	5.11%	5.59%	6.33%
November	4.90%	4.92%	5.40%	6.08%
December	4.43%	4.48%	4.94%	5.61%
4th Qtr Average	4.81%	4.84%	5.31%	6.01%

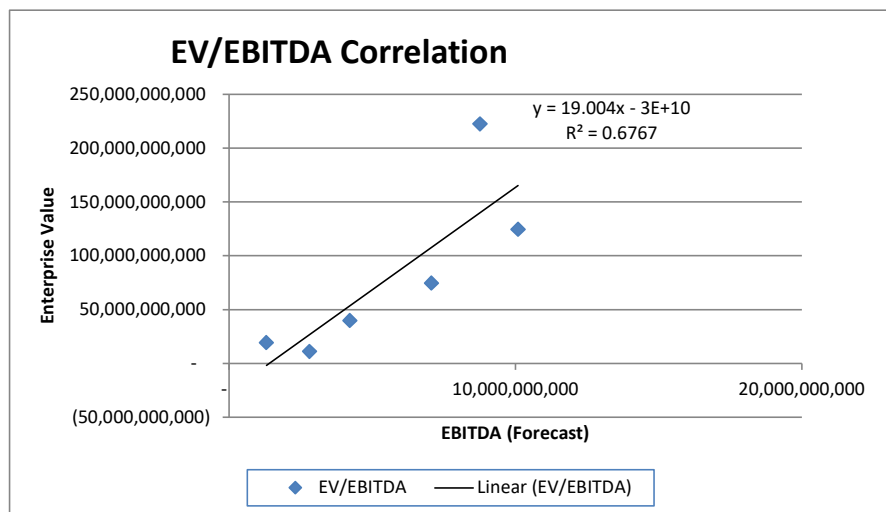
Bloomberg S&P Bond Yields	20Y	25Y	30Y
December 2022: BBB	6.19%	6.10%	6.11%

Debt Yield Rate **6.00%**
to page 1

SUPPORT FOR DIRECT CAPITALIZATION EQUITY COMPONENT

2023 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
AES Corp	aes	28.58	39,971,440,000	3,394,000,000	24.00%	4,208,560,000	9.50	12,792,200,000	3.12	1,837,000,000	1,321,920,000	12.65
Exelon Corp	exc	42.86	74,660,400,000	6,850,000,000	3.05%	7,059,160,305	10.58	18,909,000,000	3.95	6,682,500,000	1,933,740,000	8.67
NextEra Energy Inc	nee	83.06	222,350,800,000	8,349,000,000	4.85%	8,754,291,262	25.40	24,948,000,000	8.91	10,692,000,000	3,473,520,000	15.70
NRG Energy Inc	nrg	31.46	11,224,800,000	3,070,000,000	-8.74%	2,801,643,357	4.01	30,314,000,000	0.37	3,001,500,000	420,480,000	3.28
Southern Co	so	70.67	124,507,900,000	9,628,000,000	4.79%	10,089,616,438	12.34	26,589,500,000	4.68	8,185,500,000	2,916,000,000	11.22
Vistra Corp	vst	23.20	19,425,000,000	944,000,000	37.67%	1,299,616,438	14.95	17,252,000,000	1.13	3,819,000,000	683,280,000	4.31
6		Mean					12.79		3.69			9.30
		Harmonic Mean					9.42		1.34			6.79
		Median					11.46		3.54			9.94
		Std Dev					7.17		3.04			4.84
Source:		Say					10.00		3.50			11.50
Value Line & Morning Star												



Forecast EV/EBITDA By Rank

Guideline Companies	EV/EBITDA forecast	6.68	Low Harmonic Mean
NRG Energy Inc	4.01	8.03	Low Average
AES Corp	9.50	9.50	Low Median
Exelon Corp	10.58	8.00	Say
Southern Co	12.34	16.02	High Harmonic Mean
Vistra Corp	14.95	17.56	High Average
NextEra Energy Inc	25.40	14.95	High Median
		15.00	Say

SUPPORT FOR DIRECT CAPITALIZATION EQUITY COMPONENT

2023 Assessment Year

Power Industry

Company	Ticker	Stock Price	2022		2023		2022		2023	
			Actual Earnings Ratio (EPS/P)		Projected Earnings Ratio (PEPS/P)		Cash Flow Ratio (CF/P)		Projected Cash Flow Ratio	
AES Corp	aes	28.58	0.70	2.4%	1.05	3.7%	2.40	8.4%	2.75	9.6%
Exelon Corp	exc	42.86	2.25	5.2%	2.40	5.6%	6.55	15.3%	6.75	15.7%
NextEra Energy Inc	nee	83.06	2.90	3.5%	3.15	3.8%	5.15	6.2%	5.40	6.5%
NRG Energy Inc	nrg	31.46	12.00	38.1%	10.50	33.4%	14.30	45.5%	13.05	41.5%
Southern Co	so	70.67	3.55	5.0%	3.70	5.2%	7.30	10.3%	7.65	10.8%
Vistra Corp	vst	23.20	1.70	7.3%	3.80	16.4%	7.30	31.5%	10.05	43.3%
Mean			10.3%		11.3%		19.5%		21.2%	
Harmonic Mean			4.8%		6.0%		12.1%		13.0%	
Median			5.1%		5.4%		12.8%		13.3%	
Max			38.1%		33.4%		45.5%		43.3%	
Min			2.4%		3.7%		6.2%		6.5%	
Std Dev			13.8%		11.8%		15.6%		16.7%	
Coefficient of Variation			133.8%		104.1%		80.0%		78.4%	
Say			5.0%		5.5%		12.0%		14.0%	

Source: Value Line / yr end stock price

SUPPORT FOR DIRECT CAPITALIZATION EQUITY COMPONENT

2023 Assessment Year

Power Industry

Company	Ticker	Stock Price	Revenues	Multiple	Cash Flow	Multiple	Earnings	Multiple	Book Value	Multiple
AES Corp	aes	28.58	18.65	1.53	2.40	11.91	0.70	NMF	5.25	5.44
Exelon Corp	exc	42.86	18.70	2.29	6.55	6.54	2.25	19.05	24.10	1.78
NextEra Energy I	nee	83.06	10.85	7.66	5.15	16.13	2.90	28.64	19.70	4.22
NRG Energy Inc	nrg	31.46	133.45	0.24	14.30	2.20	12.00	2.62	18.05	1.74
Southern Co	so	70.67	24.30	2.91	7.30	9.68	3.55	19.91	27.05	2.61
Vistra Corp	vst	23.20	41.75	0.56	7.30	3.18	1.70	13.65	15.10	1.54
Mean				2.53	8.27		16.77		2.89	
Harmonic Mean				0.79	5.12		8.44		2.32	
Median				1.91	8.11		19.05		2.20	
Max				7.66	16.13		28.64		5.44	
Min				0.24	2.20		2.62		1.54	
Say				2.00	8.00		19.00		2.50	

DATA INPUT

Washington State Department of Revenue

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Power Industry

Guideline Companies		Historic Figures (2022)													
Name	Ticker	Stock Price 12/31/22	Beta Levered	Fin'l 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
		Yahoo	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL
AES Corp	aes	28.58	1.10	B	18.65	2.40	0.70	0.63	5.25	668,000,000	20,200,000,000	NMF	2.3%	28.0%	94.46%
Exelon Corp	exc	42.86	0.95	B++	18.70	6.55	2.25	1.35	24.10	990,000,000	35,789,000,000	12.6	3.6%	-	86.93%
NextEra Energy Inc	nee	83.06	0.90	A+	10.85	5.15	2.90	1.70	19.70	1,980,000,000	54,670,000,000	27.6	2.4%	-	93.54%
NRG Energy Inc	nrg	31.46	1.10	B+	133.45	14.30	12.00	1.40	18.05	230,000,000	7,974,000,000	5.2	3.4%	20.0%	86.54%
Southern Co	so	70.67	0.95	A	24.30	7.30	3.55	2.70	27.05	1,070,000,000	50,427,000,000	17.3	4.2%	-	89.01%
Vistra Corp	vst	23.20	1.10	B+	41.75	7.30	1.70	0.72	15.10	380,000,000	11,947,000,000	NMF	3.3%	21.0%	95.13%
Average												15.7	average		
Harmonic Mean												10.9	harmonic mean		hai
Median												15.0	median		

VL: Updated 3/18/2022

			Projected (Next Year) 2023							
Payout Ratio	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 25-27
Formula	V L	V L	V L	V L	V L	V L	V L	V L	V L	V L
90%	90%	13.5%	19.15	2.75	1.05	0.68	5.50	48%	19.0%	3.45
60%	60%	9.5%	19.10	6.75	2.40	1.45	25.20	60%	9.5%	7.50
59%	58%	15.0%	12.60	5.40	3.15	1.87	22.75	59%	13.5%	6.75
12%	12%	65.5%	131.80	13.05	10.50	1.48	19.10	14%	55.0%	7.55
76%	78%	12.5%	24.85	7.65	3.70	2.78	28.00	77%	13.0%	9.25
42%	42%	11.5%	45.40	10.05	3.80	0.82	17.55	22%	21.5%	11.25
average	57%	21%								7.63
rmonic mean	36%	14%								6.66
median	59%	13.0%								7.53

STOCK PRICE

Washington State Department of Revenue

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Power Industry

51.33
2022 Year En

AES	aes								
Date	Open	High	Low	Close	Adj Close	Volume			
12/30/2022	28.71	28.83	28.37	28.76	28.58	2,233,000			28.58
Exelon	exc								
Date	Open	High	Low	Close	Adj Close	Volume			
12/30/2022	43.14	43.31	42.85	43.23	42.86	6,185,300			42.86
NextEra	nee								
Date	Open	High	Low	Close	Adj Close	Volume			
12/30/2022	83.95	84.02	82.48	83.6	83.06	4,266,900			83.06
NRG Energy	nrg								
Date	Open	High	Low	Close	Adj Close	Volume			
12/30/2022	32.31	32.39	31.59	31.82	31.46	2,329,200			31.46
Southern Co	so								
Date	Open	High	Low	Close	Adj Close	Volume			
12/30/2022	72.18	72.27	70.81	71.41	70.67	2,910,900			70.67
Vistra Energy	vst								
Date	Open	High	Low	Close	Adj Close	Volume			
12/30/2022	24	24.02	22.84	23.2	23.2	3,424,700			23.20

Source:

finance.yahoo.com

Historical Stock Quotes

IMPLIED PREMIUMS FOR US MARKET

Updated January 2023

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

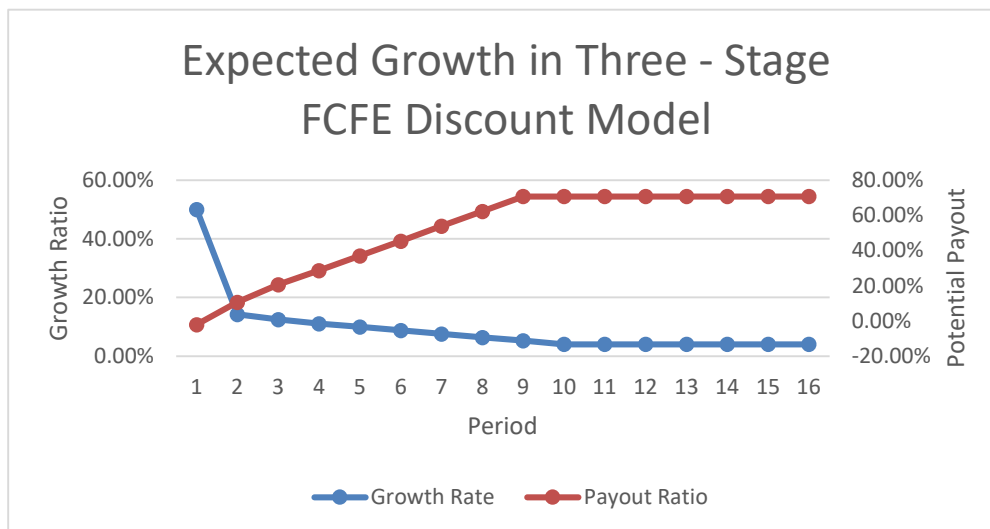
Year	Earnings Yield	Dividend Yield	S&P 500	Earnings*	Dividends*	Ends + Buy/In	Inge in Earn	Inge in Divid	T.Bill Rate	T.Bond Rate	Bond-Bill	Boothed Grod	Premium	t Growth	Esed Premium (
1960	5.34%	3.41%	58.11	3.10	1.98				2.66%	2.76%	0.10%	2.45%			
1961	4.71%	2.85%	71.55	3.37	2.04		8.60%	2.91%	2.13%	2.35%	0.22%	2.41%	2.92%		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%	2.74%	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	AES Corp	4.10%	GDP
Ticker	aes	20.0	Industry P/E
		50.0%	Target Dividend Payout Ratio
		14.0%	Target ROE

	Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		357.14%	-257.14%	0.70			(28.58)
Stage 1	1	50.00%	102.04%	-2.04%	1.05	####		-0.02
	2	14.29%	89.29%	10.71%	1.20	0.13		0.13
	3	12.50%	79.37%	20.63%	1.35	0.28		0.28
	4	11.11%	71.43%	28.57%	1.50	0.43		0.43
	5	10.00%	63.00%	37.00%	1.65	0.61		0.61
Stage 2	6	8.82%	54.57%	45.43%	1.80	0.82		0.82
	7	7.64%	46.14%	53.86%	1.93	1.04		1.04
	8	6.46%	37.71%	62.29%	2.06	1.28		1.28
	9	5.28%	29.29%	70.71%	2.17	1.53		1.53
	10	4.10%	29.29%	70.71%	2.26	1.59	46.95	48.54
Stage 3	11+	4.10%	29.29%	70.71%	2.35	1.66		

$K_e = 6.98\%$

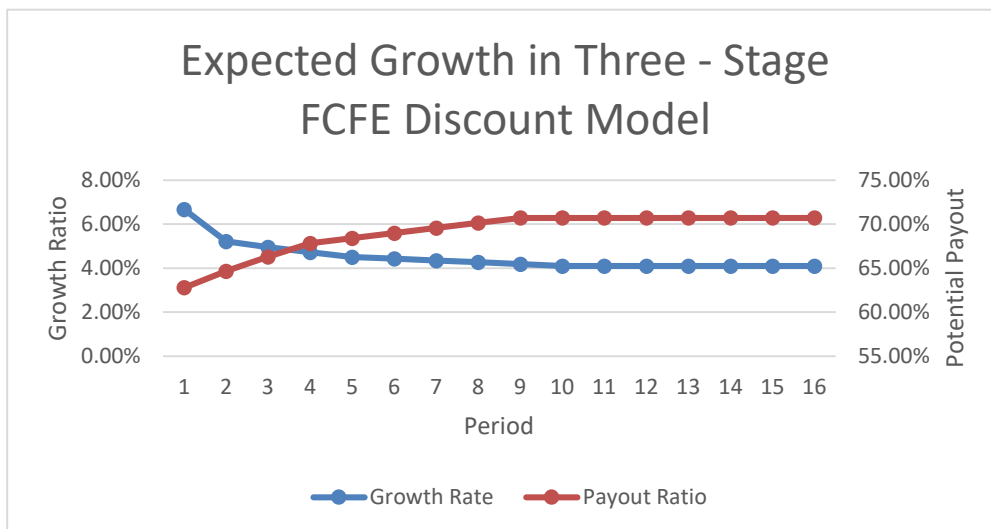


Three Stage Free Cash Flow to Equity Discount Model

Company	Exelon Corp	4.10%	GDP
Ticker	exc	20.0	Industry P/E
		50.0%	Target Dividend Payout Ratio
		14.0%	Target ROE

	Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		47.62%	52.38%	2.25			(42.86)
Stage 1	1	6.67%	37.20%	62.80%	2.40	1.51		1.51
	2	5.21%	35.36%	64.64%	2.53	1.63		1.63
	3	4.95%	33.69%	66.31%	2.65	1.76		1.76
	4	4.72%	32.18%	67.82%	2.78	1.88		1.88
	5	4.50%	31.60%	68.40%	2.90	1.98		1.98
Stage 2	6	4.42%	31.02%	68.98%	3.03	2.09		2.09
	7	4.34%	30.44%	69.56%	3.16	2.20		2.20
	8	4.26%	29.86%	70.14%	3.29	2.31		2.31
	9	4.18%	29.29%	70.71%	3.43	2.43		2.43
	10	4.10%	29.29%	70.71%	3.57	2.53	74.39	76.91
Stage 3	11+	4.10%	29.29%	70.71%	3.72	2.63		

$K_e = 9.32\%$

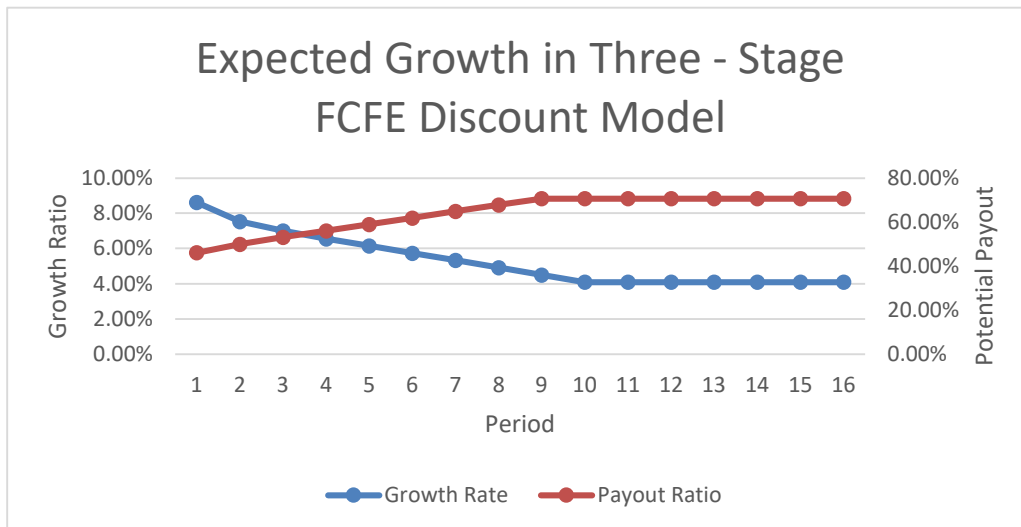


Three Stage Free Cash Flow to Equity Discount Model

Company **NextEra Energy** 4.10% GDP
 Ticker **nee** 20.0 Industry P/E
 50.0% Target Dividend Payout Ratio
 14.0% Target ROE

	Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		61.58%	38.42%	2.90			(83.06)
	1	8.62%	53.85%	46.15%	3.15	1.45		1.45
	2	7.54%	50.08%	49.92%	3.39	1.69		1.69
Stage 1	3	7.01%	46.80%	53.20%	3.63	1.93		1.93
	4	6.55%	43.92%	56.08%	3.86	2.17		2.17
	5	6.15%	40.99%	59.01%	4.10	2.42		2.42
	6	5.74%	38.07%	61.93%	4.34	2.69		2.69
	7	5.33%	35.14%	64.86%	4.57	2.96		2.96
Stage 2	8	4.92%	32.21%	67.79%	4.79	3.25		3.25
	9	4.51%	29.29%	70.71%	5.01	3.54		3.54
	10	4.10%	29.29%	70.71%	5.21	3.69	108.52	112.21
Stage 3	11+	4.10%	29.29%	70.71%	5.43	3.84		

$K_e = 5.37%$

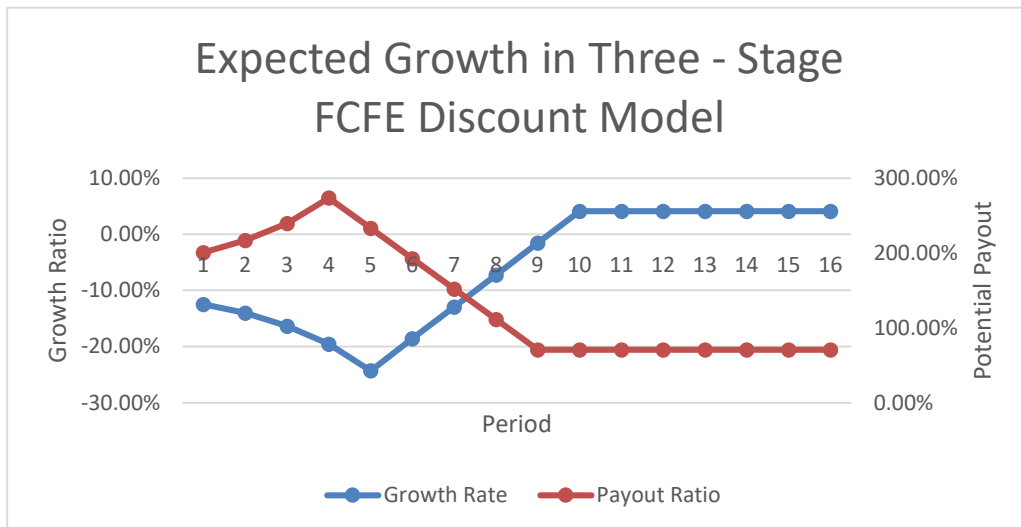


Three Stage Free Cash Flow to Equity Discount Model

Company **NRG Energy Inc** **4.10%** GDP
 Ticker **nrg** **20.0** Industry P/E
50.0% Target Dividend Payout Ratio
14.0% Target ROE

	Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		-89.29%	189.29%	12.00			(31.46)
Stage 1	1	-12.50%	-100.34%	200.34%	10.50	21.04		21.04
	2	-14.05%	-116.74%	216.74%	9.03	19.56		19.56
	3	-16.34%	-139.55%	239.55%	7.55	18.09		18.09
	4	-19.54%	-173.43%	273.43%	6.08	16.61		16.61
	5	-24.28%	-132.88%	232.88%	4.60	10.71		10.71
Stage 2	6	-18.60%	-92.34%	192.34%	3.74	7.20		7.20
	7	-12.93%	-51.80%	151.80%	3.26	4.95		4.95
	8	-7.25%	-11.26%	111.26%	3.02	3.36		3.36
	9	-1.58%	29.29%	70.71%	2.98	2.10		2.10
	10	4.10%	29.29%	70.71%	3.10	2.19	64.50	66.69
Stage 3	11+	4.10%	29.29%	70.71%	3.23	2.28		

K_e = 56.91%

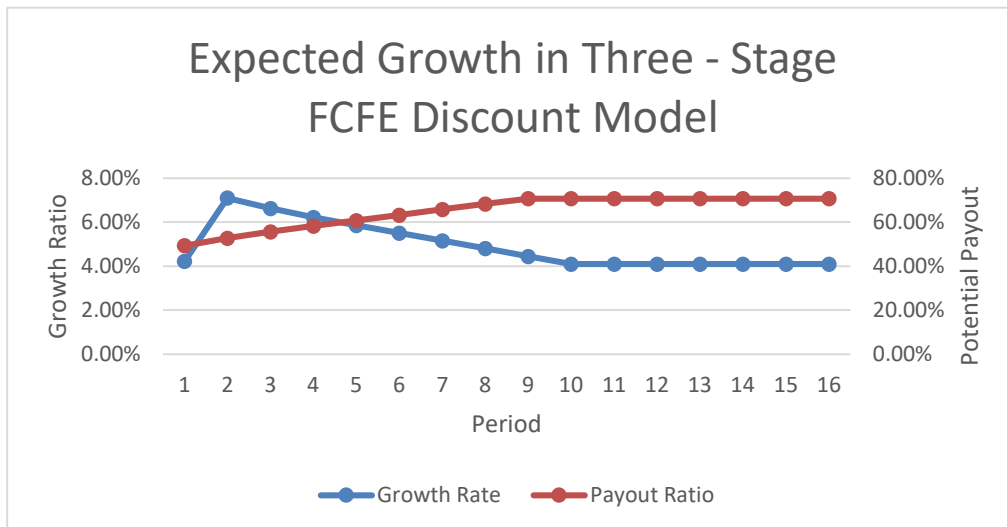


Three Stage Free Cash Flow to Equity Discount Model

Company **Southern Co** 4.10% GDP
 Ticker **so** 20.0 Industry P/E use median
 50.0% Target Dividend Payout Ratio
 14.0% Target ROE

	Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		30.18%	69.82%	3.55			(70.67)
	1	4.23%	50.68%	49.32%	3.70	1.83		1.83
	2	7.09%	47.32%	52.68%	3.96	2.09		2.09
Stage 1	3	6.62%	44.38%	55.62%	4.23	2.35		2.35
	4	6.21%	41.78%	58.22%	4.49	2.61		2.61
	5	5.85%	39.28%	60.72%	4.75	2.88		2.88
	6	5.50%	36.78%	63.22%	5.01	3.17		3.17
	7	5.15%	34.28%	65.72%	5.27	3.46		3.46
Stage 2	8	4.80%	31.79%	68.21%	5.52	3.77		3.77
	9	4.45%	29.29%	70.71%	5.77	4.08		4.08
	10	4.10%	29.29%	70.71%	6.00	4.25	125.01	129.26
Stage 3	11+	4.10%	29.29%	70.71%	6.25	4.42		

$K_e = 9.08\%$



Three Stage Free Cash Flow to Equity Discount Model

Company	Vistra Corp	4.10%	GDP
Ticker	vst	20.0	Industry P/E
		50.0%	Target Dividend Payout Ratio
		14.0%	Target ROE

	Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		882.35%	-782.35%	1.70			(23.20)
	1	123.53%	30.55%	69.45%	3.80	2.64		2.64
	2	4.28%	29.29%	70.71%	3.96	2.80		2.80
Stage 1	3	4.10%	28.14%	71.86%	4.13	2.96		2.96
	4	3.94%	27.07%	72.93%	4.29	3.13		3.13
	5	3.79%	27.51%	72.49%	4.45	3.23		3.23
	6	3.85%	27.96%	72.04%	4.62	3.33		3.33
	7	3.91%	28.40%	71.60%	4.80	3.44		3.44
Stage 2	8	3.98%	28.84%	71.16%	4.99	3.55		3.55
	9	4.04%	29.29%	70.71%	5.19	3.67		3.67
	10	4.10%	29.29%	70.71%	5.41	3.82	112.59	116.42
Stage 3	11+	4.10%	29.29%	70.71%	5.63	3.98		

K_e = 24.81%

