



# OKLAHOMA Tax Commission

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**AD VALOREM**  
April 26, 2024

The Public Service Section acknowledges the contribution of those individuals taking part in the development of our capitalization rates for 2024.

This is an ongoing process. It is our intent to be as transparent as possible while being receptive to any input given.

We look forward to your continued participation in this process.

Sincerely,

Ryan Snyder  
Public Service Manager  
Oklahoma Tax Commission  
Ad Valorem





**OKLAHOMA**  
Tax Commission

# **CAPITALIZATION RATE STUDY**

26-Apr-2024

AD VALOREM

PUBLIC SERVICE SECTION

# EXECUTIVE SUMMARY

## **Executive Summary**

The income approach to value converts projected future income or cash flow into an estimate of present value. The accuracy of this approach is no greater than the validity of the assumptions used to estimate the key variables, particularly the capitalization rate variable. The mathematical techniques used in the approach convert those assumptions into an estimate of current market value.

This booklet contains a study of each of the eight state assessed industry groups in Oklahoma. Industry data was gathered by group as identified by Value Line Investment Survey published from the period of November 2023 through January 2024. Additional Value Line Industry segments including Oil/Gas Distribution and Pipeline MLPs were reviewed.

Generally accepted appraisal procedures were used to estimate the cost of capital for debt and equity. The long term debt cost is the cost for a particular risk class of debt on the lien date. The equity rate reflects the rate of return or compensation that will satisfy the risk that a prospective purchaser would assume by investing in the property.

### **Authority for Valuation**

Oklahoma Tax Commission Ad Valorem is charged with the responsibility for the valuation of Railroad, Air Carrier, and Public Service Corporation property in accordance with Title 68, Oklahoma Statutes, Section 2808. The term "public service" includes electric companies, fluid or product pipeline companies, gas distribution and transmission companies, telecommunication companies, and water companies.

### **Nominal Growth Rate**

For the typical income projection of the valuation of Railroad, Air Carrier, and Public Service Corporation property, a nominal growth rate of 5.47 % will be applied.

### **Band of Investment, Capital Structure**

A representative capital structure is developed for each industry using the market value of equity and the book value of long term debt. Using Value Line Investment Survey, the market value of equity can be calculated by multiplying the number of shares outstanding by the listed stock price, or by utilizing the given market capitalization number already calculated. The debt components are book amounts unless market amounts are readily available and predetermined to be significantly different. Preferred stock was excluded in the calculations for all industry types.

The rates of debt and equity capital are weighted by the respective amounts of such capital deemed mostly likely to be employed by a prospective buyer. The result is a representative or typical capital structure of an industry group of companies, not that of the present owner.

### **Cost of Debt**

Cost of Debt was calculated as the twelve-month bond yield average from Mergent Bond Record for public utility and industrial bonds utilizing the bond rating perceived as typical for each industry.

## **Executive Summary**

### **Cost of Capital**

Equity rate calculations were derived upon review of Discounted Cash flow, Capital Asset Pricing Model (CAPM), and Earnings Price Ratio.

Discounted Cash Flow (Gordon Growth Model) allows for the calculation of two rates within its model utilizing the dividend yield, dividend growth rate estimates, and earnings growth rate estimates as listed in Value Line Investment Survey. Cost of capital is being calculated for dividends by adding the dividend yield and the dividend estimate. Similarly, the cost of capital for earnings is calculated by adding the dividend yield and the earnings estimate. No calculation is utilized where the resulting yield of growth estimated equity rate is below the chosen cost of debt for each respective industry.

Capital Asset Pricing Model (CAPM) in the application of the CAPM, the most sensitive component affecting the outcome is the estimate of the beta statistic. A choice of time frames and frequencies of measurement in the calculation of the beta can produce significantly different results. Another factor in the use of beta is the choice of whether to use an unadjusted beta of a beta adjusted to reflect the fact that betas revert to the mean over time. For this study the company levered betas as developed and presented in The Value Line Investment Survey for the selected industry groups are used.

Earnings Price Ratios (E/P Ratio) utilizing Value Line Investment Survey for the selected industry groups, the E/P Ratio was calculated with the projects earnings divided by the recent price.

### **Flotation Costs**

Flotation costs are those costs associated with the issuance of new securities and include both the underwriting spread and the costs incurred by the issuing company from the offering. Financial theory suggests and evidence supports that firms do not typically issue new common equity as a matter of common practice. Therefore, in determining a capitalization rate, no adjustment will be made in the capitalization rate of the income stream for hypothetical flotation costs. Flotation costs actually incurred may be accounted for in the income stream.

### **Utilization of Other Studies and Data**

Valuation staff has considered and where appropriate utilized data and capitalization studies submitted by assessed and interested parties in the development of the derived rates.

The capitalization rates published in this study are intended to be applied to the unitary operations of those companies subject to central valuation and assessment by the Oklahoma State Board of Equalization.

# **Airline - Cargo Industry**

# Industry Capitalization Rate Summary

Industry	Equity Rate	Debt Rate	Market Capitalization	Long-Term Debt	Capitalization Rate
<i>Airline - Cargo</i>	13.30%	5.87%	83.94%	16.06%	12.11%

Mergents 2023 Twelve Month Bond Yield Averages

## **2024 Capitalization Rate Study**

### **Airline - Cargo Industry Notes**

- Recognizing the different operational services as provided by this industry group, it was broken out into two segments, cargo and passenger service.
- Staff considered capitalization studies submitted by:  
    No Submissions
- Staff relied upon the results of the following models and appraisal judgment in the development of equity rates:
  1. Discounted Cash Flow
  2. Capital Asset Pricing Model, Ex-Post and Ex Ante
  3. Earnings/Price Ratio



# Industry Capitalization Rate

Industry	Equity Rate	Market Capitalization	Long Term Debt	Capitalization Rate
Airline - Cargo	13.30%	83.94%	16.06%	12.11%

Mergents 2023 Twelve Month Bond Yield Averages

# Industry Equity Rate Summary

## Airline - Cargo

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CapM Ex Post Equity Rate	10.65%
CapM Ex Ante Equity Rate	18.02%
DCF (Dividend) Equity Rate	14.35%
DCF (Earnings) Equity Rate	8.10%
Earnings Price Ratio	11.31%

# CapM Equity Rates

Industry	Ex Post Risk Premium b*	Ex Ante Risk Premium c*	Value Line Beta d	Ex Post CapM Equity Rate (((b-4.20%)*d)+4.20%)	Ex Ante CapM Equity Rate (((c-4.20%)*d)+4.20%)
Airline - Cargo	11.37%	19.55%	0.90	10.65%	18.02%

b\* Risk Free Rate (4.20%) plus Risk Premium Rate (7.17%)

c\* Risk Free Rate (4.20%) plus Risk Premium Rate (15.35%)

Value Line Investment Survey, November 2023 through January 2024, Kroll Cost of Capital Navigator

# Discounted Cash Flow (Gordon Growth)

Industry	Company	Value Line Strength	Market Capitalization	Dividend Yield	Growth Estimate		Equity Rate Dividend (e+f)	Equity Rate Earnings (e+g)
					Dividends f	Earnings g		
<b>Airline - Cargo</b>								
	Air Transport Services Group	B+	1,100,000,000			3.50 %		
	FedEx Corp.	A+	61,700,000,000	2.10 %	14.00 %	7.00 %	16.10 %	9.10 %
	United Parcel Service, Inc.	A+	121,000,000,000	4.60 %	8.00 %	2.50 %	12.60 %	7.10 %
<b>Median</b>			61,700,000,000				14.35%	8.10%
<b>Arithmetic Mean</b>			61,266,666,667				14.35%	8.10%

Value Line Investment Survey, November 2023 through January 2024

# E/P Ratio

Industry	Company	Value Line Strength	Market Capitalization c	Recent Price d	Projected Earnings e	E/P Ratio (e/d)
<b>Airline - Cargo</b>						
	Air Transport Services Group	B+	1,100,000,000	14.98	2.25	15.02%
	FedEx Corp.	A+	61,700,000,000	245.33	24.00	9.78%
	United Parcel Service, Inc.	A+	121,000,000,000	142.27	13.00	9.14%
<b>Median</b>			61,700,000,000			9.78%
<b>Arithmetic Mean</b>			61,266,666,667			11.31%

Value Line Investment Survey, November 2023 through January 2024

# Capital Structure

Industry	Company	Value Line Strength	Market Capitalization	Long Term Debt	Debt/Equity Ratio (d/c)	Percentage Equity (c/(c+d))	Percentage Debt (d/(c+d))
<b>Airline - Cargo</b>							
	Air Transport Services Group	B+	1,100,000,000	1,691,100,000	1.54	39.41%	60.59%
	FedEx Corp.	A+	61,700,000,000	20,145,000,000	0.33	75.39%	24.61%
	United Parcel Service, Inc.	A+	121,000,000,000	18,882,000,000	0.16	86.50%	13.50%
<b>Median</b>			61,700,000,000	18,882,000,000	0.33	75.39%	24.61%
<b>Arithmetic Mean</b>			61,266,666,667	13,572,700,000	0.67	67.10%	32.90%
<b>Weighted Average</b>			100,375,952,122	19,203,094,178		83.94%	16.06%

Value Line Investment Survey, November 2023 through January 2024

# Beta

<u>Industry</u>	<u>Company</u>	<u>Value Line Levered Beta</u>
<b>Airline - Cargo, Selected Comparables</b>		
	Air Transport Services Group	0.80
	FedEx Corp.	1.05
	United Parcel Service, Inc.	0.85
<b>Median</b>		0.85
<b>Arithmetic Mean</b>		0.90

Value Line Investment Survey, November 2023 through January 2024

# Beta

<b>Industry</b>	<b>Company</b>	<b>Value Line Levered Beta</b>
<b>Airline - Cargo, Value Line</b>		
	Air Transport Services Group	0.80
	FedEx Corp.	1.05
	United Parcel Service, Inc.	0.85
<b>Median</b>		0.85
<b>Arithmetic Mean</b>		0.90

Value Line Investment Survey, November 2023 through January 2024



# **Airline - Passenger Industry**

# Industry Capitalization Rate Summary

Industry	Equity Rate	Debt Rate	Market Capitalization	Long-Term Debt	Capitalization Rate
<i>Airline - Passenger</i>	18.85%	5.87%	45.72%	54.28%	11.81%

Mergents 2023 Twelve Month Bond Yield Averages

## **2024 Capitalization Rate Study**

### **Airline - Passenger Industry Notes**

- Recognizing the different operational services as provided by this industry group, it was broken out into two segments, cargo and passenger service.
- Staff considered capitalization studies submitted by:  
    No Submissions
- Staff relied upon the results of the following models and appraisal judgment in the development of equity rates:
  1. Discounted Cash Flow
  2. Capital Asset Pricing Model, Ex-Post and Ex Ante
  3. Earnings/Price Ratio

# Industry Capitalization Rate

Industry	Equity Rate	Market Capitalization	Long Term Debt	Capitalization Rate
Airline - Passenger	18.85%	45.72%	54.28%	11.81%

Mergents 2023 Twelve Month Bond Yield Averages

# Industry Equity Rate Summary

## Airline - Passenger

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CapM Ex Post Equity Rate	15.24%
CapM Ex Ante Equity Rate	27.84%
DCF (Dividend) Equity Rate	38.53%
DCF (Earnings) Equity Rate	26.00%
Earnings Price Ratio	25.90%

# CapM Equity Rates

Industry	Ex Post Risk Premium b*	Ex Ante Risk Premium c*	Value Line Beta d	Ex Post CapM Equity Rate (((b-4.20%)*d)+4.20%)	Ex Ante CapM Equity Rate (((c-4.20%)*d)+4.20%)
Airline - Passenger	11.37%	19.55%	1.54	15.24%	27.84%

b\* Risk Free Rate (4.20%) plus Risk Premium Rate (7.17%)

c\* Risk Free Rate (4.20%) plus Risk Premium Rate (15.35%)

Value Line Investment Survey, November 2023 through January 2024, Kroll Cost of Capital Navigator

# Discounted Cash Flow (Gordon Growth)

Industry	Company	Value Line Strength	Market Capitalization	Dividend Yield	Growth Estimate		Equity Rate Dividend (e+f)	Equity Rate Earnings (e+g)
					Dividends f	Earnings g		
<b>Airline - Passenger</b>								
	Alaska Air Group, Inc.	B	4,200,000,000		45.00 %		45.00 %	
	Allegiant Travel Company	B+	1,100,000,000	3.90 %				
	American Airlines Group	C+	7,600,000,000					
	Copa Holdings, S.A.	B	3,400,000,000	3.80 %				
	Delta Air Lines, Inc.	B+	21,200,000,000	1.20 %				
	JetBlue Airways Corp.	C+	1,300,000,000					
	SkyWest, Inc.	B+	1,800,000,000		38.00 %	26.00 %	38.00 %	26.00 %
	Southwest Airlines	B+	14,000,000,000	3.10 %	29.50 %		32.60 %	
	Spirit Airlines, Inc.	C+	1,300,000,000					
	United Airlines Holdings, Inc.	C++	12,100,000,000					
<b>Median</b>			3,800,000,000				38.00%	26.00%
<b>Arithmetic Mean</b>			6,800,000,000				38.53%	26.00%

Value Line Investment Survey, November 2023 through January 2024

# E/P Ratio

Industry	Company	Value Line Strength	Market Capitalization c	Recent Price d	Projected Earnings e	E/P Ratio (e/d)
<b>Airline - Passenger</b>						
	Alaska Air Group, Inc.	B	4,200,000,000	32.84	13.05	39.74%
	Allegiant Travel Company	B+	1,100,000,000	61.45	29.85	48.58%
	American Airlines Group	C+	7,600,000,000	11.66	2.30	19.73%
	Copa Holdings, S.A.	B	3,400,000,000	86.38	14.00	16.21%
	Delta Air Lines, Inc.	B+	21,200,000,000	32.92	8.50	25.82%
	JetBlue Airways Corp.	C+	1,300,000,000	4.30	1.25	29.07%
	SkyWest, Inc.	B+	1,800,000,000	44.03	6.30	14.31%
	Southwest Airlines	B+	14,000,000,000	23.53	3.60	15.30%
	Spirit Airlines, Inc.	C+	1,300,000,000	11.35	2.00	17.62%
	United Airlines Holdings, Inc.	C++	12,100,000,000	36.76	12.00	32.64%
<b>Median</b>			3,800,000,000			22.77%
<b>Arithmetic Mean</b>			6,800,000,000			25.90%

Value Line Investment Survey, November 2023 through January 2024



# Capital Structure

Industry	Company	Value Line Strength	Market Capitalization c	Long Term Debt d	Debt/Equity Ratio (d/c)	Percentage Equity (c/(c+d))	Percentage Debt (d/(c+d))
<b>Airline - Passenger</b>							
	Alaska Air Group, Inc.	B	4,200,000,000	2,128,000,000	0.51	66.37%	33.63%
	Allegiant Travel Company	B+	1,100,000,000	2,020,000,000	1.84	35.26%	64.74%
	American Airlines Group	C+	7,600,000,000	29,722,000,000	3.91	20.36%	79.64%
	Copa Holdings, S.A.	B	3,400,000,000	1,107,000,000	0.33	75.44%	24.56%
	Delta Air Lines, Inc.	B+	21,200,000,000	17,532,000,000	0.83	54.74%	45.26%
	JetBlue Airways Corp.	C+	1,300,000,000	3,729,000,000	2.87	25.85%	74.15%
	SkyWest, Inc.	B+	1,800,000,000	2,633,700,000	1.46	40.60%	59.40%
	Southwest Airlines	B+	14,000,000,000	7,984,000,000	0.57	63.68%	36.32%
	Spirit Airlines, Inc.	C+	1,300,000,000	3,043,000,000	2.34	29.93%	70.07%
	United Airlines Holdings, Inc.	C++	12,100,000,000	26,003,000,000	2.15	31.76%	68.24%
<b>Median</b>			3,800,000,000	3,386,000,000	1.65	37.93%	62.07%
<b>Arithmetic Mean</b>			6,800,000,000	9,590,170,000	1.68	44.40%	55.60%
<b>Weighted Average</b>			13,038,823,529	15,477,140,588		45.72%	54.28%

Value Line Investment Survey, November 2023 through January 2024

# Beta

<u>Industry</u>	<u>Company</u>	<u>Value Line Levered Beta</u>
<b>Airline - Passenger, Selected Comparables</b>		
	Alaska Air Group, Inc.	1.50
	Allegiant Travel Company	1.45
	American Airlines Group	1.60
	Copa Holdings, S.A.	1.45
	Delta Air Lines, Inc.	1.55
	JetBlue Airways Corp.	1.75
	SkyWest, Inc.	1.65
	Southwest Airlines	1.10
	Spirit Airlines, Inc.	1.70
	United Airlines Holdings, Inc.	1.65
<b>Median</b>		1.58
<b>Arithmetic Mean</b>		1.54

Value Line Investment Survey, November 2023 through January 2024

# Beta

<b>Industry</b>	<b>Company</b>	<b>Value Line Levered Beta</b>
<b>Airline - Passenger, Value Line</b>		
	Alaska Air Group, Inc.	1.50
	Allegiant Travel Company	1.45
	American Airlines Group	1.60
	Copa Holdings, S.A.	1.45
	Delta Air Lines, Inc.	1.55
	JetBlue Airways Corp.	1.75
	SkyWest, Inc.	1.65
	Southwest Airlines	1.10
	Spirit Airlines, Inc.	1.70
	United Airlines Holdings, Inc.	1.65
<b>Median</b>		1.58
<b>Arithmetic Mean</b>		1.54

Value Line Investment Survey, November 2023 through January 2024

# **Electric Industry**

# Industry Capitalization Rate Summary

Industry	Equity Rate	Debt Rate	Market Capitalization	Long-Term Debt	Capitalization Rate
<i>Electric</i>	11.65%	5.84%	54.36%	45.64%	9.00%

Mergents 2023 Twelve Month Bond Yield Averages

## **2024 Capitalization Rate Study**

### **Electric Industry Notes**

- From the Electric Industry segment, Fortis, Inc. was excluded due to Value Line information listed in Canadian dollars.
- Staff considered capitalization information submitted by:
  - No Submissions
- Staff relied upon the results of the following models and appraisal judgment in the development of equity rates:
  1. Discounted Cash Flows
  2. Capital Asset Pricing Model, Ex-Post and Ex-Ante
  3. Earnings/Price Ratio

# Industry Capitalization Rate

Industry	Equity Rate	Market Capitalization	Long Term Debt	Capitalization Rate
Electric	11.65%	54.36%	45.64%	9.00%

Mergents 2023 Twelve Month Bond Yield Averages

# Industry Equity Rate Summary

## Electric

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CapM Ex Post Equity Rate	10.82%
CapM Ex Ante Equity Rate	18.37%
DCF (Dividend) Equity Rate	8.84%
DCF (Earnings) Equity Rate	9.88%
Earnings Price Ratio	7.51%



# CapM Equity Rates

Industry	Ex Post Risk Premium b*	Ex Ante Risk Premium c*	Value Line Beta d	Ex Post CapM Equity Rate (((b-4.20%)*d)+4.20%)	Ex Ante CapM Equity Rate (((c-4.20%)*d)+4.20%)
Electric	11.37%	19.55%	0.92	10.82%	18.37%

b\* Risk Free Rate (4.20%) plus Risk Premium Rate (7.17%)

c\* Risk Free Rate (4.20%) plus Risk Premium Rate (15.35%)

Value Line Investment Survey, November 2023 through January 2024, Kroll Cost of Capital Navigator

# Discounted Cash Flow (Gordon Growth)

Industry	Company	Value Line Strength	Market Capitalization	Dividend Yield	Growth Estimate		Equity Rate Dividend (e+f)	Equity Rate Earnings (e+g)
					Dividends f	Earnings g		
<b>Electric</b>								
	Allete, Inc.	A	3,200,000,000	4.90 %	3.50 %	6.00 %	8.40 %	10.90 %
	Alliant Energy Corporation	A	12,600,000,000	3.60 %	6.00 %	6.50 %	9.60 %	10.10 %
	Ameren Corporation	A	20,400,000,000	3.30 %	6.50 %	6.50 %	9.80 %	9.80 %
	American Electric Power Company, Inc.	A+	41,300,000,000	4.50 %	5.50 %	6.50 %	10.00 %	11.00 %
	CenterPoint Energy, Inc.	B++	17,600,000,000	2.90 %	4.00 %	8.50 %	6.90 %	11.40 %
	CMS Energy Corporation	B++	16,700,000,000	3.40 %	5.00 %	5.50 %	8.40 %	8.90 %
	DTE Energy Company	A	21,600,000,000	3.60 %	3.00 %	4.50 %	6.60 %	8.10 %
	Entergy Corporation	B++	21,500,000,000	4.40 %	4.00 %	0.50 %	8.40 %	
	Evergy, Inc.	B++	11,700,000,000	5.10 %	7.00 %	7.50 %	12.10 %	12.60 %
	MGE Energy, Inc.	B++	2,700,000,000	2.30 %	4.50 %	5.50 %	6.80 %	7.80 %
	OGE Energy Corp.	A	7,000,000,000	4.80 %	3.00 %	6.50 %	7.80 %	11.30 %
	Otter Tail Corporation	A	3,100,000,000	2.30 %	7.00 %	4.50 %	9.30 %	6.80 %
	WEC Energy Group, Inc.	A+	25,900,000,000	3.80 %	7.00 %	6.00 %	10.80 %	9.80 %
<b>Median</b>			16,700,000,000				8.40%	9.95%
<b>Arithmetic Mean</b>			15,792,307,692				8.84%	9.88%

Value Line Investment Survey, November 2023 through January 2024

# E/P Ratio

Industry	Company	Value Line Strength	Market Capitalization c	Recent Price d	Projected Earnings e	E/P Ratio (e/d)
<b>Electric</b>						
	Allete, Inc.	A	3,200,000,000	55.43	5.00	9.02%
	Alliant Energy Corporation	A	12,600,000,000	49.96	3.80	7.61%
	Ameren Corporation	A	20,400,000,000	77.46	5.50	7.10%
	American Electric Power Company, Inc.	A+	41,300,000,000	78.54	6.80	8.66%
	CenterPoint Energy, Inc.	B++	17,600,000,000	27.95	2.10	7.51%
	CMS Energy Corporation	B++	16,700,000,000	57.33	3.75	6.54%
	DTE Energy Company	A	21,600,000,000	104.86	8.30	7.92%
	Entergy Corporation	B++	21,500,000,000	101.63	7.50	7.38%
	Evergy, Inc.	B++	11,700,000,000	50.72	4.85	9.56%
	MGE Energy, Inc.	B++	2,700,000,000	74.95	4.00	5.34%
	OGE Energy Corp.	A	7,000,000,000	34.93	3.15	9.02%
	Otter Tail Corporation	A	3,100,000,000	75.42	3.65	4.84%
	WEC Energy Group, Inc.	A+	25,900,000,000	82.22	5.90	7.18%
<b>Median</b>			16,700,000,000			7.51%
<b>Arithmetic Mean</b>			15,792,307,692			7.51%

Value Line Investment Survey, November 2023 through January 2024

# Capital Structure

Industry	Company	Value Line Strength	Market Capitalization c	Long Term Debt d	Debt/Equity Ratio (d/c)	Percentage Equity (c/(c+d))	Percentage Debt (d/(c+d))
Electric							
	Allete, Inc.	A	3,200,000,000	1,686,100,000	0.53	65.49%	34.51%
	Alliant Energy Corporation	A	12,600,000,000	8,429,000,000	0.67	59.92%	40.08%
	Ameren Corporation	A	20,400,000,000	13,829,000,000	0.68	59.60%	40.40%
	American Electric Power Company, Inc.	A+	41,300,000,000	36,716,000,000	0.89	52.94%	47.06%
	CenterPoint Energy, Inc.	B++	17,600,000,000	16,838,000,000	0.96	51.11%	48.89%
	CMS Energy Corporation	B++	16,700,000,000	14,177,000,000	0.85	54.09%	45.91%
	DTE Energy Company	A	21,600,000,000	18,542,000,000	0.86	53.81%	46.19%
	Entergy Corporation	B++	21,500,000,000	24,659,000,000	1.15	46.58%	53.42%
	Evergy, Inc.	B++	11,700,000,000	9,298,000,000	0.79	55.72%	44.28%
	MGE Energy, Inc.	B++	2,700,000,000	707,900,000	0.26	79.23%	20.77%
	OGE Energy Corp.	A	7,000,000,000	4,339,700,000	0.62	61.73%	38.27%
	Otter Tail Corporation	A	3,100,000,000	824,000,000	0.27	79.00%	21.00%
	WEC Energy Group, Inc.	A+	25,900,000,000	15,956,500,000	0.62	61.88%	38.12%
<b>Median</b>			16,700,000,000	13,829,000,000	0.68	59.60%	40.40%
<b>Arithmetic Mean</b>			15,792,307,692	12,769,400,000	0.70	60.08%	39.92%
<b>Weighted Average</b>			22,805,211,885	19,146,455,431		54.36%	45.64%

Value Line Investment Survey, November 2023 through January 2024

# Beta

<u>Industry</u>	<u>Company</u>	<u>Value Line Levered Beta</u>
<b>Electric, Selected Comparables</b>		
	Allete, Inc.	0.95
	Alliant Energy Corporation	0.90
	Ameren Corporation	0.90
	American Electric Power Company, Inc.	0.80
	CenterPoint Energy, Inc.	1.15
	CMS Energy Corporation	0.85
	DTE Energy Company	1.00
	Entergy Corporation	0.95
	Evergy, Inc.	0.95
	MGE Energy, Inc.	0.75
	OGE Energy Corp.	1.05
	Otter Tail Corporation	0.90
	WEC Energy Group, Inc.	0.85
<b>Median</b>		0.90
<b>Arithmetic Mean</b>		0.92

Value Line Investment Survey, November 2023 through January 2024

# Beta

<b>Industry</b>	<b>Company</b>	<b>Value Line Levered Beta</b>
<b>Electric, Value Line</b>		
	Allete, Inc.	0.95
	Alliant Energy Corporation	0.90
	Ameren Corporation	0.90
	American Electric Power Company, Inc.	0.80
	CenterPoint Energy, Inc.	1.15
	CMS Energy Corporation	0.85
	DTE Energy Company	1.00
	Entergy Corporation	0.95
	Evergy, Inc.	0.95
	Fortis Inc.	0.70
	MGE Energy, Inc.	0.75
	OGE Energy Corp.	1.05
	Otter Tail Corporation	0.90
	WEC Energy Group, Inc.	0.85
<b>Median</b>		0.90
<b>Arithmetic Mean</b>		0.91

Value Line Investment Survey, November 2023 through January 2024

# **Fluid Pipeline Industry**

# Industry Capitalization Rate Summary

Industry	Equity Rate	Debt Rate	Market Capitalization	Long-Term Debt	Capitalization Rate
<i>Fluid Pipeline</i>	15.75%	5.87%	86.86%	13.14%	14.45%

Mergents 2023 Twelve Month Bond Yield Averages



## **2024 Capitalization Rate Study**

### **Fluid Pipeline Industry Notes**

- From the Fluid Pipeline (Petroleum Integrated) Industry segment, Petroleo Brasileiro S.A. was excluded. While publicly traded, the Brazilian Government is a majority holder of the common stock. Cenovus Energy Inc. and Suncor Energy, Inc. were excluded due to Value Line information listed in Canadian dollars.
- Staff considered capitalization studies submitted by:
  - No Submissions
- Staff relied upon the results of the following models and appraisal judgment in the development of equity rates:
  1. Discounted Cash Flows
  2. Capital Asset Pricing Model, Ex-Post and Ex-Ante
  3. Earnings/Price Ratio

# Industry Capitalization Rate

Industry	Equity Rate	Market Capitalization	Long Term Debt	Capitalization Rate
Fluid Pipeline	15.75%	86.86%	13.14%	14.45%

Mergents 2023 Twelve Month Bond Yield Averages

# Industry Equity Rate Summary

## Fluid Pipeline

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CapM Ex Post Equity Rate	13.73%
CapM Ex Ante Equity Rate	24.61%
DCF (Dividend) Equity Rate	16.69%
DCF (Earnings) Equity Rate	19.88%
Earnings Price Ratio	12.81%

# CapM Equity Rates

Industry	Ex Post Risk Premium b*	Ex Ante Risk Premium c*	Value Line Beta d	Ex Post CapM Equity Rate (((b-4.20%)*d)+4.20%)	Ex Ante CapM Equity Rate (((c-4.20%)*d)+4.20%)
Fluid Pipeline	11.37%	19.55%	1.33	13.73%	24.61%

b\* Risk Free Rate (4.20%) plus Risk Premium Rate (7.17%)

c\* Risk Free Rate (4.20%) plus Risk Premium Rate (15.35%)

Value Line Investment Survey, November 2023 through January 2024, Kroll Cost of Capital Navigator

# Discounted Cash Flow (Gordon Growth)

Industry	Company	Value Line Strength	Market Capitalization	Dividend Yield	Growth Estimate		Equity Rate Dividend (e+f)	Equity Rate Earnings (e+g)
					Dividends f	Earnings g		
<b>Fluid Pipeline</b>								
	BP p.l.c.	B++	101,000,000,000	4.90 %	4.00 %		8.90 %	
	Chevron Corp.	A	272,000,000,000	4.40 %	7.00 %	19.50 %	11.40 %	23.90 %
	CVR Energy, Inc.	B	3,100,000,000	6.50 %	16.50 %	29.50 %	23.00 %	36.00 %
	Delek US Holdings, Inc.	B	1,700,000,000	3.70 %	14.50 %		18.20 %	
	Exxon Mobil Corp.	A	415,000,000,000	3.60 %	2.00 %	8.00 %		11.60 %
	Hess Corporation	A	43,800,000,000	1.30 %	15.00 %	23.50 %	16.30 %	24.80 %
	HF Sinclair Corporation	B+	9,700,000,000	3.60 %	17.50 %	16.00 %	21.10 %	19.60 %
	Imperial Oil Ltd.	B+	32,100,000,000	2.60 %	15.50 %	18.00 %	18.10 %	20.60 %
	Marathon Petroleum	B+	55,700,000,000	2.20 %	7.50 %	15.50 %	9.70 %	17.70 %
	Murphy Oil Corp.	B	6,700,000,000	2.50 %	11.50 %		14.00 %	
	Occidental Petroleum	B++	54,200,000,000	1.40 %	24.00 %	17.00 %	25.40 %	18.40 %
	Par Pacific Holdings, Inc.	B	2,000,000,000					
	PBF Energy, Inc.	C++	5,400,000,000	2.30 %	35.00 %	1.00 %	37.30 %	
	Phillips 66	A	50,200,000,000	3.90 %	6.00 %	15.50 %	9.90 %	19.40 %
	Shell plc	B++	230,000,000,000	4.00 %	7.50 %	12.50 %	11.50 %	16.50 %
	TotalEnergies SE	B++	164,000,000,000	4.80 %	4.00 %	12.50 %	8.80 %	17.30 %
	Valero Energy Corp.	B+	42,300,000,000	3.30 %	2.00 %	9.50 %		12.80 %
<b>Median</b>			43,800,000,000				15.15%	18.90%
<b>Arithmetic Mean</b>			87,582,352,941				16.69%	19.88%

Value Line Investment Survey, November 2023 through January 2024

# E/P Ratio

Industry	Company	Value Line Strength	Market Capitalization	Recent Price	Projected Earnings	E/P Ratio (e/d)
<b>Fluid Pipeline</b>						
	BP p.l.c.	B++	101,000,000,000	35.70	5.95	16.67%
	Chevron Corp.	A	272,000,000,000	144.00	20.00	13.89%
	CVR Energy, Inc.	B	3,100,000,000	30.54	3.65	11.95%
	Delek US Holdings, Inc.	B	1,700,000,000	26.16	2.95	11.28%
	Exxon Mobil Corp.	A	415,000,000,000	104.84	7.00	6.68%
	Hess Corporation	A	43,800,000,000	142.68	7.50	5.26%
	HF Sinclair Corporation	B+	9,700,000,000	54.21	12.50	23.06%
	Imperial Oil Ltd.	B+	32,100,000,000	56.70	9.70	17.11%
	Marathon Petroleum	B+	55,700,000,000	146.76	10.25	6.98%
	Murphy Oil Corp.	B	6,700,000,000	43.16	7.00	16.22%
	Occidental Petroleum	B++	54,200,000,000	61.61	6.75	10.96%
	Par Pacific Holdings, Inc.	B	2,000,000,000	33.09	7.80	23.57%
	PBF Energy, Inc.	C++	5,400,000,000	44.42	4.65	10.47%
	Phillips 66	A	50,200,000,000	114.15	9.60	8.41%
	Shell plc	B++	230,000,000,000	66.04	7.50	11.36%
	TotalEnergies SE	B++	164,000,000,000	67.13	7.25	10.80%
	Valero Energy Corp.	B+	42,300,000,000	124.27	16.20	13.04%
<b>Median</b>			43,800,000,000			11.36%
<b>Arithmetic Mean</b>			87,582,352,941			12.81%

Value Line Investment Survey, November 2023 through January 2024

# Capital Structure

Industry	Company	Value Line Strength	Market Capitalization c	Long Term Debt d	Debt/Equity Ratio (d/c)	Percentage Equity (c/(c+d))	Percentage Debt (d/(c+d))
<b>Fluid Pipeline</b>							
	BP p.l.c.	B++	101,000,000,000	45,900,000,000	0.45	68.75%	31.25%
	Chevron Corp.	A	272,000,000,000	20,119,000,000	0.07	93.11%	6.89%
	CVR Energy, Inc.	B	3,100,000,000	1,583,000,000	0.51	66.20%	33.80%
	Delek US Holdings, Inc.	B	1,700,000,000	2,609,000,000	1.53	39.45%	60.55%
	Exxon Mobil Corp.	A	415,000,000,000	36,510,000,000	0.09	91.91%	8.09%
	Hess Corporation	A	43,800,000,000	8,796,000,000	0.20	83.28%	16.72%
	HF Sinclair Corporation	B+	9,700,000,000	2,862,000,000	0.30	77.22%	22.78%
	Imperial Oil Ltd.	B+	32,100,000,000	3,013,000,000	0.09	91.42%	8.58%
	Marathon Petroleum	B+	55,700,000,000	26,463,000,000	0.48	67.79%	32.21%
	Murphy Oil Corp.	B	6,700,000,000	1,576,300,000	0.24	80.95%	19.05%
	Occidental Petroleum	B++	54,200,000,000	18,597,000,000	0.34	74.45%	25.55%
	Par Pacific Holdings, Inc.	B	2,000,000,000	532,700,000	0.27	78.97%	21.03%
	PBF Energy, Inc.	C++	5,400,000,000	1,243,000,000	0.23	81.29%	18.71%
	Phillips 66	A	50,200,000,000	18,531,000,000	0.37	73.04%	26.96%
	Shell plc	B++	230,000,000,000	72,000,000,000	0.31	76.16%	23.84%
	TotalEnergies SE	B++	164,000,000,000	41,000,000,000	0.25	80.00%	20.00%
	Valero Energy Corp.	B+	42,300,000,000	10,107,000,000	0.24	80.71%	19.29%
<b>Median</b>			43,800,000,000	10,107,000,000	0.27	78.97%	21.03%
<b>Arithmetic Mean</b>			87,582,352,941	18,320,117,647	0.35	76.75%	23.25%
<b>Weighted Average</b>			234,863,959,970	35,543,738,136		86.86%	13.14%

Value Line Investment Survey, November 2023 through January 2024

# Beta

<u>Industry</u>	<u>Company</u>	<u>Value Line Levered Beta</u>
<b>Fluid Pipeline, Selected Comparables</b>		
	BP p.l.c.	1.20
	Chevron Corp.	1.15
	CVR Energy, Inc.	1.20
	Delek US Holdings, Inc.	1.25
	Exxon Mobil Corp.	1.10
	Hess Corporation	1.35
	HF Sinclair Corporation	1.25
	Imperial Oil Ltd.	1.35
	Marathon Petroleum	1.50
	Murphy Oil Corp.	1.65
	Occidental Petroleum	1.50
	Par Pacific Holdings, Inc.	1.35
	PBF Energy, Inc.	1.75
	Phillips 66	1.25
	Shell plc	1.20
	TotalEnergies SE	1.10
	Valero Energy Corp.	1.45
<b>Median</b>		1.25
<b>Arithmetic Mean</b>		1.33

Value Line Investment Survey, November 2023 through January 2024



# Beta

Industry	Company	Value Line Levered Beta
<b>Fluid Pipeline, Value Line</b>		
	BP p.l.c.	1.20
	Cenovus Energy Inc.	1.40
	Chevron Corp.	1.15
	CVR Energy, Inc.	1.20
	Delek US Holdings, Inc.	1.25
	Exxon Mobil Corp.	1.10
	Hess Corporation	1.35
	HF Sinclair Corporation	1.25
	Imperial Oil Ltd.	1.35
	Marathon Petroleum	1.50
	Murphy Oil Corp.	1.65
	Occidental Petroleum	1.50
	Par Pacific Holdings, Inc.	1.35
	PBF Energy, Inc.	1.75
	Petroleo Brasileiro S.A. (Petrobras)	1.35
	Phillips 66	1.25
	Shell plc	1.20
	Suncor Energy Inc.	1.25
	TotalEnergies SE	1.10
	Valero Energy Corp.	1.45
<b>Median</b>		1.30
<b>Arithmetic Mean</b>		1.33

Value Line Investment Survey, November 2023 through January 2024

# **Gas Distribution Industry**

# Industry Capitalization Rate Summary

Industry	Equity Rate	Debt Rate	Market Capitalization	Long-Term Debt	Capitalization Rate
<i>Gas Distribution</i>	11.95%	5.84%	61.28%	38.72%	9.58%

Mergents 2023 Twelve Month Bond Yield Averages

## **2024 Capitalization Rate Study**

### **Gas Distribution Industry Notes**

- From the Natural Gas Utility Industry segment, UGI Corp. was excluded as they presented to primarily market propane gas.
- Staff considered capitalization studies submitted by:  
    No Submissions
- Staff relied upon the results of the following models and appraisal judgment in the development of equity rates:
  1. Discounted Cash Flow
  2. Capital Asset Pricing Model, Ex-Post and Ex Ante
  3. Earnings/Price Ratio

# Industry Capitalization Rate

Industry	Equity Rate	Market Capitalization	Long Term Debt	Capitalization Rate
Gas Distribution	11.95%	61.28%	38.72%	9.58%

Mergents 2023 Twelve Month Bond Yield Averages

# Industry Equity Rate Summary

## Gas Distribution

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CapM Ex Post Equity Rate	10.43%
CapM Ex Ante Equity Rate	17.54%
DCF (Dividend) Equity Rate	9.43%
DCF (Earnings) Equity Rate	11.49%
Earnings Price Ratio	8.22%

# CapM Equity Rates

Industry	Ex Post Risk Premium b*	Ex Ante Risk Premium c*	Value Line Beta d	Ex Post CapM Equity Rate (((b-4.20%)*d)+4.20%)	Ex Ante CapM Equity Rate (((c-4.20%)*d)+4.20%)
Gas Distribution	11.37%	19.55%	0.87	10.43%	17.54%

b\* Risk Free Rate (4.20%) plus Risk Premium Rate (7.17%)

c\* Risk Free Rate (4.20%) plus Risk Premium Rate (15.35%)

Value Line Investment Survey, November 2023 through January 2024, Kroll Cost of Capital Navigator

# Discounted Cash Flow (Gordon Growth)

Industry	Company	Value Line Strength	Market Capitalization d	Dividend Yield e	Growth Estimate		Equity Rate Dividend (e+f)	Equity Rate Earnings (e+g)
					Dividends f	Earnings g		
<b>Gas Distribution</b>								
	Atmos Energy Corporation	A+	16,500,000,000	3.00 %	7.50 %	7.00 %	10.50 %	10.00 %
	Chesapeake Utilities Corporation	A	1,600,000,000	2.70 %	8.50 %	6.00 %	11.20 %	8.70 %
	New Jersey Resources Corp.	A+	4,000,000,000	4.00 %	5.00 %	5.00 %	9.00 %	9.00 %
	NiSource Inc.	B+	10,300,000,000	4.20 %	4.50 %	9.50 %	8.70 %	13.70 %
	Northwest Natural Holding Co.	A	1,300,000,000	5.50 %	0.50 %	6.50 %	6.00 %	12.00 %
	ONE Gas, Inc.	B++	3,300,000,000	4.60 %	5.50 %	6.50 %	10.10 %	11.10 %
	Southwest Gas Holdings, Inc.	A	4,200,000,000	4.20 %	5.50 %	10.00 %	9.70 %	14.20 %
	Spire Inc.	B++	3,000,000,000	5.20 %	5.00 %	8.00 %	10.20 %	13.20 %
<b>Median</b>			3,650,000,000				9.90%	11.55%
<b>Arithmetic Mean</b>			5,525,000,000				9.43%	11.49%

Value Line Investment Survey, November 2023 through January 2024



# E/P Ratio

Industry	Company	Value Line Strength	Market Capitalization c	Recent Price d	Projected Earnings e	E/P Ratio (e/d)
<b>Gas Distribution</b>						
	Atmos Energy Corporation	A+	16,500,000,000	111.12	7.85	7.06%
	Chesapeake Utilities Corporation	A	1,600,000,000	90.96	6.50	7.15%
	New Jersey Resources Corp.	A+	4,000,000,000	41.18	3.50	8.50%
	NiSource Inc.	B+	10,300,000,000	24.81	2.10	8.46%
	Northwest Natural Holding Co.	A	1,300,000,000	35.75	3.00	8.39%
	ONE Gas, Inc.	B++	3,300,000,000	59.67	5.60	9.38%
	Southwest Gas Holdings, Inc.	A	4,200,000,000	58.75	4.25	7.23%
	Spire Inc.	B++	3,000,000,000	57.23	5.50	9.61%
<b>Median</b>			3,650,000,000			8.43%
<b>Arithmetic Mean</b>			5,525,000,000			8.22%

Value Line Investment Survey, November 2023 through January 2024

# Capital Structure

Industry	Company	Value Line Strength	Market Capitalization c	Long Term Debt d	Debt/Equity Ratio (d/c)	Percentage Equity (c/(c+d))	Percentage Debt (d/(c+d))
<b>Gas Distribution</b>							
	Atmos Energy Corporation	A+	16,500,000,000	6,642,600,000	0.40	71.30%	28.70%
	Chesapeake Utilities Corporation	A	1,600,000,000	643,800,000	0.40	71.31%	28.69%
	New Jersey Resources Corp.	A+	4,000,000,000	2,728,700,000	0.68	59.45%	40.55%
	NiSource Inc.	B+	10,300,000,000	11,011,300,000	1.07	48.33%	51.67%
	Northwest Natural Holding Co.	A	1,300,000,000	1,424,600,000	1.10	47.71%	52.29%
	ONE Gas, Inc.	B++	3,300,000,000	1,862,600,000	0.56	63.92%	36.08%
	Southwest Gas Holdings, Inc.	A	4,200,000,000	5,235,500,000	1.25	44.51%	55.49%
	Spire Inc.	B++	3,000,000,000	3,553,300,000	1.18	45.78%	54.22%
<b>Median</b>			3,650,000,000	3,141,000,000	0.88	53.89%	46.11%
<b>Arithmetic Mean</b>			5,525,000,000	4,137,800,000	0.83	56.54%	43.46%
<b>Weighted Average</b>			9,866,968,326	6,235,559,502		61.28%	38.72%

Value Line Investment Survey, November 2023 through January 2024

# Beta

<u>Industry</u>	<u>Company</u>	<u>Value Line Levered Beta</u>
<b>Gas Distribution, Selected Comparables</b>		
	Atmos Energy Corporation	0.85
	Chesapeake Utilities Corporation	0.80
	New Jersey Resources Corp.	0.95
	NiSource Inc.	0.90
	Northwest Natural Holding Co.	0.85
	ONE Gas, Inc.	0.85
	Southwest Gas Holdings, Inc.	0.90
	Spire Inc.	0.85
<b>Median</b>		0.85
<b>Arithmetic Mean</b>		0.87

Value Line Investment Survey, November 2023 through January 2024

# Beta

<b>Industry</b>	<b>Company</b>	<b>Value Line Levered Beta</b>
<b>Gas Distribution, Value Line</b>		
	Atmos Energy Corporation	0.85
	Chesapeake Utilities Corporation	0.80
	New Jersey Resources Corp.	0.95
	NiSource Inc.	0.90
	Northwest Natural Holding Co.	0.85
	ONE Gas, Inc.	0.85
	Southwest Gas Holdings, Inc.	0.90
	Spire Inc.	0.85
	UGI Corp.	1.10
<b>Median</b>		0.85
<b>Arithmetic Mean</b>		0.89

Value Line Investment Survey, November 2023 through January 2024

# **Gas Transmission Industry**

# Industry Capitalization Rate Summary

Industry	Equity Rate	Debt Rate	Market Capitalization	Long-Term Debt	Capitalization Rate
<i>Gas Transmission</i>	16.35%	5.87%	56.94%	43.06%	11.84%

Mergents 2023 Twelve Month Bond Yield Averages

## **2024 Capitalization Rate Study**

### **Gas Transmission Industry Notes**

- From the Natural Gas Diversified Industry segment, National Fuel Gas Company and Targa Resources were included as they presented to be primarily engaged in the transportation of natural gas.
- From the Oil/Gas Distribution Industry segment, EnLink Midstream, LLC, Kinder Morgan, Inc., ONEOK, Inc., TC Energy Corp., and The Williams Companies, Inc. were included as they presented to be primarily engaged in the transportation of natural gas.
- Staff considered capitalization studies submitted by:
  - Southern Star Central Gas Pipeline, Inc. – K.E. Andrews & Co.
  - Nielsen Management Services, LLC
- Staff relied upon the results of the following models and appraisal judgment in the development of equity rates:
  1. Discounted Cash Flow
  2. Capital Asset Pricing Model
  3. Earnings/Price Ratio

# Industry Capitalization Rate

Industry	Equity Rate	Market Capitalization	Long Term Debt	Capitalization Rate
Gas Transmission	16.35%	56.94%	43.06%	11.84%

Mergents 2023 Twelve Month Bond Yield Averages



# Industry Equity Rate Summary

## Gas Transmission

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CapM Ex Post Equity Rate	13.16%
CapM Ex Ante Equity Rate	23.39%
DCF (Dividend) Equity Rate	13.65%
DCF (Earnings) Equity Rate	20.58%
Earnings Price Ratio	10.67%

# CapM Equity Rates

Industry	Ex Post Risk Premium b*	Ex Ante Risk Premium c*	Value Line Beta d	Ex Post CapM Equity Rate (((b-4.20%)*d)+4.20%)	Ex Ante CapM Equity Rate (((c-4.20%)*d)+4.20%)
Gas Transmission	11.37%	19.55%	1.25	13.16%	23.39%

b\* Risk Free Rate (4.20%) plus Risk Premium Rate (7.17%)

c\* Risk Free Rate (4.20%) plus Risk Premium Rate (15.35%)

Value Line Investment Survey, November 2023 through January 2024, Kroll Cost of Capital Navigator

# Discounted Cash Flow (Gordon Growth)

Industry	Company	Value Line Strength	Market Capitalization d	Dividend Yield e	Growth Estimate		Equity Rate Dividend (e+f)	Equity Rate Earnings (e+g)
					Dividends f	Earnings g		
<b>Gas Transmission</b>								
	EnLink Midstream, LLC	C+	5,700,000,000	4.00 %	-6.00 %			
	Kinder Morgan, Inc.	B	36,700,000,000	6.80 %	6.50 %	17.50 %	13.30 %	24.30 %
	Natural Fuel Gas Company	B+	4,700,000,000	3.90 %	3.50 %	18.00 %	7.40 %	21.90 %
	ONEOK, Inc.	B+	37,700,000,000	6.00 %	3.50 %	15.00 %	9.50 %	21.00 %
	Targa Resources	C++	18,900,000,000	3.50 %	26.00 %		29.50 %	
	TC Energy Corp.	B++	37,200,000,000	8.10 %	5.00 %	12.00 %	13.10 %	20.10 %
	The Williams Companies, Inc.	B	42,500,000,000	5.10 %	4.00 %	10.50 %	9.10 %	15.60 %
<b>Median</b>			36,700,000,000				11.30%	21.00%
<b>Arithmetic Mean</b>			26,200,000,000				13.65%	20.58%

Value Line Investment Survey, November 2023 through January 2024

# E/P Ratio

Industry	Company	Value Line Strength	Market Capitalization c	Recent Price d	Projected Earnings e	E/P Ratio (e/d)
<b>Gas Transmission</b>						
	EnLink Midstream, LLC	C+	5,700,000,000	12.48	0.90	7.21%
	Kinder Morgan, Inc.	B	36,700,000,000	16.52	1.70	10.29%
	Natural Fuel Gas Company	B+	4,700,000,000	50.76	7.80	15.37%
	ONEOK, Inc.	B+	37,700,000,000	64.66	7.50	11.60%
	Targa Resources	C++	18,900,000,000	84.91	7.50	8.83%
	TC Energy Corp.	B++	37,200,000,000	35.88	5.00	13.94%
	The Williams Companies, Inc.	B	42,500,000,000	34.93	2.60	7.44%
<b>Median</b>			36,700,000,000			10.29%
<b>Arithmetic Mean</b>			26,200,000,000			10.67%

Value Line Investment Survey, November 2023 through January 2024

# Capital Structure

Industry	Company	Value Line Strength	Market Capitalization c	Long Term Debt d	Debt/Equity Ratio (d/c)	Percentage Equity (c/(c+d))	Percentage Debt (d/(c+d))
<b>Gas Transmission</b>							
	EnLink Midstream, LLC	C+	5,700,000,000	4,621,000,000	0.81	55.23%	44.77%
	Kinder Morgan, Inc.	B	36,700,000,000	27,900,000,000	0.76	56.81%	43.19%
	Natural Fuel Gas Company	B+	4,700,000,000	2,384,500,000	0.51	66.34%	33.66%
	ONEOK, Inc.	B+	37,700,000,000	21,450,000,000	0.57	63.74%	36.26%
	Targa Resources	C++	18,900,000,000	12,318,400,000	0.65	60.54%	39.46%
	TC Energy Corp.	B++	37,200,000,000	46,934,100,000	1.26	44.22%	55.78%
	The Williams Companies, Inc.	B	42,500,000,000	22,772,000,000	0.54	65.11%	34.89%
<b>Median</b>			36,700,000,000	21,450,000,000	0.65	60.54%	39.46%
<b>Arithmetic Mean</b>			26,200,000,000	19,768,571,429	0.73	58.86%	41.14%
<b>Weighted Average</b>			34,733,151,581	26,263,457,634		56.94%	43.06%

Value Line Investment Survey, November 2023 through January 2024

# Beta

<u>Industry</u>	<u>Company</u>	<u>Value Line Levered Beta</u>
<b>Gas Transmission, Selected Comparables</b>		
	EnLink Midstream, LLC	1.55
	Kinder Morgan, Inc.	1.10
	Natural Fuel Gas Company	0.85
	ONEOK, Inc.	1.50
	Targa Resources	1.55
	TC Energy Corp.	1.05
	The Williams Companies, Inc.	1.15
<b>Median</b>		1.15
<b>Arithmetic Mean</b>		1.25

Value Line Investment Survey, November 2023 through January 2024

# Beta

Industry	Company	Value Line Levered Beta
<b>Gas Transmission, Value Line</b>		
	Antero Midstream Corporation	1.10
	Antero Resources Corporation	1.25
	Callon Petroleum	1.90
	Cheniere Energy, Inc.	1.00
	Clean Energy Fuels Corp.	1.55
	CNX Resources Corp.	0.80
	Coterra Energy Inc.	1.00
	Devon Energy Corp.	1.50
	DT Midstream Inc.	0.95
	Enbridge Inc.	0.85
	Enerplus Corp.	1.45
	EnLink Midstream, LLC	1.55
	EOG Resources, Inc.	1.20
	EQT Corporation	1.00
	Kinder Morgan, Inc.	1.10
	Kinetik Holdings Inc.	
	MDU Resources Group, Inc.	
	Natural Fuel Gas Company	0.85
	New Fortress Energy, Inc.	1.25
	ONEOK, Inc.	1.50
	Pembina Pipeline Corp.	1.05
	Qvintiv Inc.	1.60
	Southwestern Energy Company	0.80
	Targa Resources	1.55
	TC Energy Corp.	1.05
	The Williams Companies, Inc.	1.15
	World Kinect Corp.	1.10
<b>Median</b>		1.10
<b>Arithmetic Mean</b>		1.20

Value Line Investment Survey, November 2023 through January 2024



# **Railroad Industry**

# Industry Capitalization Rate Summary

Industry	Equity Rate	Debt Rate	Market Capitalization	Long-Term Debt	Capitalization Rate
<i>Railroad</i>	13.60%	5.87%	81.22%	18.78%	12.15%

Mergents 2023 Twelve Month Bond Yield Averages

## **2024 Capitalization Rate Study**

### **Railroad Industry Notes**

- For the Railroad Industry segment, Wabtec was excluded as it provides equipment and services to the rail industry. Trinity Industries, Inc. was excluded as they design and manufacture railcars and component parts. GATX Corp. was excluded as they specialize in tank, freight car, and locomotive leasing. The Greenbrier Companies, Inc. was excluded as they design, manufacture, repair, and market railroad freight cars and related equipment.
- Staff considered capitalization studies submitted by:
  - Union Pacific Railroad Company
- Staff relied upon the results of the following models and appraisal judgment in the development of equity rates:
  1. Discounted Cash Flow
  2. Capital Asset Pricing Model, Ex-Post and Ex Ante
  3. Earnings/Price Ratio

# Industry Capitalization Rate

Industry	Equity Rate	Market Capitalization	Long Term Debt	Capitalization Rate
Railroad	13.60%	81.22%	18.78%	12.15%

Mergents 2023 Twelve Month Bond Yield Averages

# Industry Equity Rate Summary

## Railroad

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CapM Ex Post Equity Rate	11.44%
CapM Ex Ante Equity Rate	19.70%
DCF (Dividend) Equity Rate	10.14%
DCF (Earnings) Equity Rate	10.14%
Earnings Price Ratio	7.75%

# CapM Equity Rates

Industry	Ex Post Risk Premium b*	Ex Ante Risk Premium c*	Value Line Beta d	Ex Post CapM Equity Rate (((b-4.20%)*d)+4.20%)	Ex Ante CapM Equity Rate (((c-4.20%)*d)+4.20%)
Railroad	11.37%	19.55%	1.01	11.44%	19.70%

b\* Risk Free Rate (4.20%) plus Risk Premium Rate (7.17%)

c\* Risk Free Rate (4.20%) plus Risk Premium Rate (15.35%)

Value Line Investment Survey, November 2023 through January 2024, Kroll Cost of Capital Navigator

# Discounted Cash Flow (Gordon Growth)

Industry	Company	Value Line Strength	Market Capitalization d	Dividend Yield e	Growth Estimate		Equity Rate Dividend (e+f)	Equity Rate Earnings (e+g)
					Dividends f	Earnings g		
<b>Railroad</b>								
	Canadian National Railway	A	72,500,000,000	2.30 %	9.00 %	10.50 %	11.30 %	12.80 %
	Canadian Pacific Kansas City Railway Limited	A	69,300,000,000	1.00 %	7.00 %	6.00 %	8.00 %	7.00 %
	CSX Corporation	B++	60,000,000,000	1.50 %	9.50 %	8.00 %	11.00 %	9.50 %
	Norfolk Southern Corp.	A+	44,200,000,000	2.80 %	7.00 %	8.50 %	9.80 %	11.30 %
	Union Pacific Corporation	A+	140,000,000,000	2.60 %	8.00 %	7.50 %	10.60 %	10.10 %
<b>Median</b>			69,300,000,000				10.60%	10.10%
<b>Arithmetic Mean</b>			77,200,000,000				10.14%	10.14%

Value Line Investment Survey, November 2023 through January 2024

# E/P Ratio

Industry	Company	Value Line Strength	Market Capitalization c	Recent Price d	Projected Earnings e	E/P Ratio (e/d)
<b>Railroad</b>						
	Canadian National Railway	A	72,500,000,000	110.58	8.75	7.91%
	Canadian Pacific Kansas City Railway Limited	A	69,300,000,000	74.32	4.35	5.85%
	CSX Corporation	B++	60,000,000,000	30.38	2.50	8.23%
	Norfolk Southern Corp.	A+	44,200,000,000	195.28	19.00	9.73%
	Union Pacific Corporation	A+	140,000,000,000	213.10	15.00	7.04%
<b>Median</b>			69,300,000,000			7.91%
<b>Arithmetic Mean</b>			77,200,000,000			7.75%

Value Line Investment Survey, November 2023 through January 2024



# Capital Structure

Industry	Company	Value Line Strength	Market Capitalization c	Long Term Debt d	Debt/Equity Ratio (d/c)	Percentage Equity (c/(c+d))	Percentage Debt (d/(c+d))
<b>Railroad</b>							
	Canadian National Railway	A	72,500,000,000	11,845,000,000	0.16	85.96%	14.04%
	Canadian Pacific Kansas City Railway Limited	A	69,300,000,000	16,322,000,000	0.24	80.94%	19.06%
	CSX Corporation	B++	60,000,000,000	17,903,000,000	0.30	77.02%	22.98%
	Norfolk Southern Corp.	A+	44,200,000,000	16,179,000,000	0.37	73.20%	26.80%
	Union Pacific Corporation	A+	140,000,000,000	31,153,000,000	0.22	81.80%	18.20%
<b>Median</b>			69,300,000,000	16,322,000,000	0.24	80.94%	19.06%
<b>Arithmetic Mean</b>			77,200,000,000	18,680,400,000	0.26	79.78%	20.22%
<b>Weighted Average</b>			91,223,782,383	21,089,608,549		81.22%	18.78%

Value Line Investment Survey, November 2023 through January 2024

# Beta

<u>Industry</u>	<u>Company</u>	<u>Value Line Levered Beta</u>
<b>Railroad, Selected Comparables</b>		
	Canadian National Railway	0.90
	Canadian Pacific Kansas City Railway Limited	1.00
	CSX Corporation	1.05
	Norfolk Southern Corp.	1.05
	Union Pacific Corporation	1.05
<b>Median</b>		1.05
<b>Arithmetic Mean</b>		1.01

Value Line Investment Survey, November 2023 through January 2024

# Beta

<b>Industry</b>	<b>Company</b>	<b>Value Line Levered Beta</b>
<b>Railroad, Value Line</b>		
	Canadian National Railway	0.90
	Canadian Pacific Kansas City Railway Limited	1.00
	CSX Corporation	1.05
	GATX Corp.	0.95
	Norfolk Southern Corp.	1.05
	The Greenbriar Companies, Inc.	1.30
	Trinity Industries, Inc.	1.05
	Union Pacific Corporation	1.05
	Wabtec	1.25
<b>Median</b>		1.05
<b>Arithmetic Mean</b>		1.07

Value Line Investment Survey, November 2023 through January 2024

# **Telecommunication Industry**

# Industry Capitalization Rate Summary

Industry	Equity Rate	Debt Rate	Market Capitalization	Long-Term Debt	Capitalization Rate
<i>Telecommunication</i>	13.10%	5.87%	57.98%	42.02%	10.06%

Mergents 2023 Twelve Month Bond Yield Averages

## 2024 Capitalization Rate Study

### Telecommunication Industry Notes

- From the Telecommunication Services segment, America Movil S.A.B. de CV, Deutsche Telecom AG, Telefonica SA, TELUS Corporation, Vodafone Group PLC, Liberty Latin America Ltd., Millicom International Cellular S.A., and BCE Inc. were excluded as being heavily involved in non-domestic operations. Dycom industries, Inc. was excluded as the company is engaged in the telecom and electrical services business providing engineering, construction, and maintenance services to telecom providers. Ziff Davis Inc. was excluded as they offer value-added, tandem interconnection services. Zoom Video Communications, Inc. was excluded as the company is engaged in meetings, chat, and online webinars. Frontier Communications Parent, Inc. and IHS Holding Ltd. were excluded due to a lack of sufficient financial information and data. Gogo Inc. was excluded as being a global provider of broadband connectivity services for the aviation market.
- Staff considered capitalization studies and/or information submitted by:
  - Hal Heaton, PhD. – The Cost of Capital for AT&T ILEC Telephone Operating Property (2024)
- Staff relied upon the results of the following models and appraisal judgement in the development of equity rates:
  1. Discounted Cash Flow
  2. Capital Asset Pricing Model, Ex-Post and Ex-Ante
  3. Earnings/Price Ratio

# Industry Capitalization Rate

Industry	Equity Rate	Market Capitalization	Long Term Debt	Capitalization Rate
Telecommunication	13.10%	57.98%	42.02%	10.06%

Mergents 2023 Twelve Month Bond Yield Averages

# Industry Equity Rate Summary

## Telecommunication

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CapM Ex Post Equity Rate	10.53%
CapM Ex Ante Equity Rate	17.76%
DCF (Dividend) Equity Rate	8.30%
DCF (Earnings) Equity Rate	19.80%
Earnings Price Ratio	11.69%



# CapM Equity Rates

Industry	Ex Post Risk Premium b*	Ex Ante Risk Premium c*	Value Line Beta d	Ex Post CapM Equity Rate (((b-4.20%)*d)+4.20%)	Ex Ante CapM Equity Rate (((c-4.20%)*d)+4.20%)
Telecommunication	11.37%	19.55%	0.88	10.53%	17.76%

b\* Risk Free Rate (4.20%) plus Risk Premium Rate (7.17%)

c\* Risk Free Rate (4.20%) plus Risk Premium Rate (15.35%)

Value Line Investment Survey, November 2023 through January 2024, Kroll Cost of Capital Navigator

# Discounted Cash Flow (Gordon Growth)

Industry	Company	Value Line Strength	Market Capitalization d	Dividend Yield e	Growth Estimate		Equity Rate Dividend (e+f)	Equity Rate Earnings (e+g)
					Dividends f	Earnings g		
<b>Telecommunication</b>								
	AT&T Inc.	B++	116,000,000,000	6.80 %	-6.50 %	1.50 %		8.30 %
	IDT Corporation	B+	750,000,000			16.00 %		16.00 %
	Iridium Communications, Inc.	B	4,600,000,000	1.40 %				
	Lumen Technologies, Inc.	C+	1,200,000,000			-8.50 %		
	Shenandoah Telecommunications Company	B+	1,200,000,000	0.40 %	-1.50 %	44.00 %		44.40 %
	Telephone & Data Systems, Inc.	B+	2,100,000,000	4.00 %	3.00 %	1.00 %	7.00 %	
	T-Mobile US, Inc.	A	172,000,000,000	1.70 %		20.00 %		21.70 %
	U.S. Cellular	B+	3,700,000,000			4.00 %		
	Verizon Communications	A+	157,000,000,000	7.10 %	2.50 %	1.50 %	9.60 %	8.60 %
<b>Median</b>			3,700,000,000				8.30%	16.00%
<b>Arithmetic Mean</b>			50,950,000,000				8.30%	19.80%

Value Line Investment Survey, November 2023 through January 2024

# E/P Ratio

Industry	Company	Value Line Strength	Market Capitalization c	Recent Price d	Projected Earnings e	E/P Ratio (e/d)
<b>Telecommunication</b>						
	AT&T Inc.	B++	116,000,000,000	16.21	3.25	20.05%
	IDT Corporation	B+	750,000,000	29.69	3.25	10.95%
	Iridium Communications, Inc.	B	4,600,000,000	37.43	1.95	5.21%
	Lumen Technologies, Inc.	C+	1,200,000,000	1.23	0.40	32.52%
	Shenandoah Telecommunications Company	B+	1,200,000,000	23.13	0.60	2.59%
	Telephone & Data Systems, Inc.	B+	2,100,000,000	18.79	1.00	5.32%
	T-Mobile US, Inc.	A	172,000,000,000	148.80	13.10	8.80%
	U.S. Cellular	B+	3,700,000,000	43.48	2.00	4.60%
	Verizon Communications	A+	157,000,000,000	37.35	5.65	15.13%
<b>Median</b>			3,700,000,000			8.80%
<b>Arithmetic Mean</b>			50,950,000,000			11.69%

Value Line Investment Survey, November 2023 through January 2024

# Capital Structure

Industry	Company	Value Line Strength	Market Capitalization c	Long Term Debt d	Debt/Equity Ratio (d/c)	Percentage Equity (c/(c+d))	Percentage Debt (d/(c+d))
<b>Telecommunication</b>							
	AT&T Inc.	B++	116,000,000,000	126,701,000,000	1.09	47.80%	52.20%
	IDT Corporation	B+	750,000,000	0		0.00%	0.00%
	Iridium Communications, Inc.	B	4,600,000,000	1,470,700,000	0.32	75.77%	24.23%
	Lumen Technologies, Inc.	C+	1,200,000,000	19,740,000,000	16.45	5.73%	94.27%
	Shenandoah Telecommunications Company	B+	1,200,000,000	147,800,000	0.12	89.03%	10.97%
	Telephone & Data Systems, Inc.	B+	2,100,000,000	3,840,000,000	1.83	35.35%	64.65%
	T-Mobile US, Inc.	A	172,000,000,000	76,953,000,000	0.45	69.09%	30.91%
	U.S. Cellular	B+	3,700,000,000	2,903,000,000	0.78	56.04%	43.96%
	Verizon Communications	A+	157,000,000,000	134,441,000,000	0.86	53.87%	46.13%
<b>Median</b>			3,700,000,000	3,840,000,000	0.82	53.87%	43.96%
<b>Arithmetic Mean</b>			50,950,000,000	40,688,500,000	2.74	48.08%	40.81%
<b>Weighted Average</b>			147,708,434,195	107,054,638,927		57.98%	42.02%

Value Line Investment Survey, November 2023 through January 2024

# Beta

<b>Industry</b>	<b>Company</b>	<b>Value Line Levered Beta</b>
<b>Telecommunication, Selected Comparables</b>		
	AT&T Inc.	0.80
	IDT Corporation	1.00
	Iridium Communications, Inc.	1.10
	Lumen Technologies, Inc.	1.05
	Shenandoah Telecommunications Company	0.95
	Telephone & Data Systems, Inc.	0.95
	T-Mobile US, Inc.	0.75
	U.S. Cellular	0.70
	Verizon Communications	0.65
<b>Median</b>		0.95
<b>Arithmetic Mean</b>		0.88

Value Line Investment Survey, November 2023 through January 2024

# Beta

Industry	Company	Value Line Levered Beta
<b>Telecommunication, Value Line</b>		
	American Movil, S.A.B. de C.V.	0.85
	AT&T Inc.	0.80
	BCE Inc.	0.90
	Deutsche Telekom AG	0.80
	Dycom Industries Inc.	1.35
	Frontier Communications Parent, Inc.	1.40
	Gogo Inc.	0.90
	IDT Corporation	1.00
	IHS Holding Ltd.	1.50
	Iridium Communications, Inc.	1.10
	Liberty Latin America Ltd.	1.20
	Lumen Technologies, Inc.	1.05
	Millicom International Cellular SA	1.30
	Shenandoah Telecommunications Company	0.95
	Telefonica, S.A.	0.85
	Telephone & Data Systems, Inc.	0.95
	TELUS Corporation	0.70
	T-Mobile US, Inc.	0.75
	U.S. Cellular	0.70
	Verizon Communications	0.65
	Vodafone Group Plc	0.95
	Ziff Davis, Inc.	1.10
	Zoom Video Communications, Inc.	0.50
<b>Median</b>		0.95
<b>Arithmetic Mean</b>		0.97

# **Water Industry**

# Industry Capitalization Rate Summary

Industry	Equity Rate	Debt Rate	Market Capitalization	Long-Term Debt	Capitalization Rate
<i>Water</i>	11.00%	5.84%	67.67%	32.33%	9.33%

Mergents 2023 Twelve Month Bond Yield Averages



## **2024 Capitalization Rate Study**

### **Water Industry Notes**

- Recognizing the Water industry segment from Value Line
- Staff considered capitalization studies submitted by:  
    No Submissions
- Staff relied upon the results of the following models and appraisal judgment in the development of equity rates:
  1. Discounted Cash Flow
  2. Capital Asset Pricing Model, Ex-Post and Ex Ante
  3. Earnings/Price Ratio

# Industry Capitalization Rate

Industry	Equity Rate	Market Capitalization	Long Term Debt	Capitalization Rate
Water	11.00%	67.67%	32.33%	9.33%

Mergents 2023 Twelve Month Bond Yield Averages

# Industry Equity Rate Summary

## Water

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CapM Ex Post Equity Rate	10.17%
CapM Ex Ante Equity Rate	16.99%
DCF (Dividend) Equity Rate	9.52%
DCF (Earnings) Equity Rate	9.06%
Earnings Price Ratio	4.97%

# CapM Equity Rates

Industry	Ex Post Risk Premium b*	Ex Ante Risk Premium c*	Value Line Beta d	Ex Post CapM Equity Rate (((b-4.20%)*d)+4.20%)	Ex Ante CapM Equity Rate (((c-4.20%)*d)+4.20%)
Water	11.37%	19.55%	0.83	10.17%	16.99%

b\* Risk Free Rate (4.20%) plus Risk Premium Rate (7.17%)

c\* Risk Free Rate (4.20%) plus Risk Premium Rate (15.35%)

Value Line Investment Survey, November 2023 through January 2024, Kroll Cost of Capital Navigator

# Discounted Cash Flow (Gordon Growth)

Industry	Company	Value Line Strength	Market Capitalization d	Dividend Yield e	Growth Estimate		Equity Rate Dividend (e+f)	Equity Rate Earnings (e+g)
					Dividends f	Earnings g		
<b>Water</b>								
	American States Water Co.	A	3,000,000,000	2.20 %	8.50 %	6.50 %	10.70 %	8.70 %
	American Water Works Company, Inc.	B++	25,600,000,000	2.30 %	8.50 %	3.00 %	10.80 %	
	California Water Service Group	B++	3,000,000,000	2.00 %	6.50 %	6.50 %	8.50 %	8.50 %
	Essential Utilities, Inc.	B++	10,100,000,000	3.40 %	8.00 %	7.50 %	11.40 %	10.90 %
	MiddleSex Water Company	B++	1,200,000,000	1.90 %	6.50 %	5.00 %	8.40 %	6.90 %
	SJW Group	B+	2,100,000,000	2.30 %	5.00 %	8.00 %	7.30 %	10.30 %
<b>Median</b>			3,000,000,000				9.60%	8.70%
<b>Arithmetic Mean</b>			7,500,000,000				9.52%	9.06%

Value Line Investment Survey, November 2023 through January 2024

# E/P Ratio

Industry	Company	Value Line Strength	Market Capitalization c	Recent Price d	Projected Earnings e	E/P Ratio (e/d)
<b>Water</b>						
	American States Water Co.	A	3,000,000,000	81.67	3.40	4.16%
	American Water Works Company, Inc.	B++	25,600,000,000	131.56	5.10	3.88%
	California Water Service Group	B++	3,000,000,000	52.29	2.75	5.26%
	Essential Utilities, Inc.	B++	10,100,000,000	34.14	2.35	6.88%
	MiddleSex Water Company	B++	1,200,000,000	67.58	3.00	4.44%
	SJW Group	B+	2,100,000,000	66.51	3.45	5.19%
<b>Median</b>			3,000,000,000			4.81%
<b>Arithmetic Mean</b>			7,500,000,000			4.97%

Value Line Investment Survey, November 2023 through January 2024

# Capital Structure

Industry	Company	Value Line Strength	Market Capitalization c	Long Term Debt d	Debt/Equity Ratio (d/c)	Percentage Equity (c/(c+d))	Percentage Debt (d/(c+d))
<b>Water</b>							
	American States Water Co.	A	3,000,000,000	575,500,000	0.19	83.90%	16.10%
	American Water Works Company, Inc.	B++	25,600,000,000	11,698,000,000	0.46	68.64%	31.36%
	California Water Service Group	B++	3,000,000,000	1,052,800,000	0.35	74.02%	25.98%
	Essential Utilities, Inc.	B++	10,100,000,000	6,456,000,000	0.64	61.01%	38.99%
	MiddleSex Water Company	B++	1,200,000,000	354,300,000	0.30	77.21%	22.79%
	SJW Group	B+	2,100,000,000	1,533,800,000	0.73	57.79%	42.21%
<b>Median</b>			3,000,000,000	1,293,300,000	0.40	71.33%	28.67%
<b>Arithmetic Mean</b>			7,500,000,000	3,611,733,333	0.44	70.43%	29.57%
<b>Weighted Average</b>			17,360,444,444	8,293,454,222		67.67%	32.33%

Value Line Investment Survey, November 2023 through January 2024

# Beta

<u>Industry</u>	<u>Company</u>	<u>Value Line Levered Beta</u>
<b>Water, Selected Comparables</b>		
	American States Water Co.	0.70
	American Water Works Company, Inc.	0.95
	California Water Service Group	0.75
	Essential Utilities, Inc.	1.00
	MiddleSex Water Company	0.75
	SJW Group	0.85
<b>Median</b>		0.80
<b>Arithmetic Mean</b>		0.83

Value Line Investment Survey, November 2023 through January 2024



# Beta

<b>Industry</b>	<b>Company</b>	<b>Value Line Levered Beta</b>
<b>Water, Value Line</b>		
	American States Water Co.	0.70
	American Water Works Company, Inc.	0.95
	California Water Service Group	0.75
	Essential Utilities, Inc.	1.00
	MiddleSex Water Company	0.75
	SJW Group	0.85
<b>Median</b>		0.80
<b>Arithmetic Mean</b>		0.83

Value Line Investment Survey, November 2023 through January 2024

# Mergent 2023 Corporate Bond Yield Averages

Month	Corporate by Groups		Public Utility Bonds			Industrial Bonds			
	Public Utility	Industrial	Aa	A	Baa	Aaa	Aa	A	Baa
January	5.23%	4.81%	4.98%	5.20%	5.49%	4.40%	4.46%	4.88%	5.51%
February	5.32%	4.95%	5.12%	5.29%	5.54%	4.56%	4.56%	5.03%	5.64%
March	5.44%	5.02%	5.24%	5.39%	5.68%	4.60%	4.64%	5.10%	5.75%
April	5.20%	4.90%	5.00%	5.13%	5.47%	4.47%	4.63%	4.89%	5.60%
May	5.44%	5.10%	5.24%	5.36%	5.71%	4.67%	4.87%	5.12%	5.82%
June	5.46%	5.09%	5.26%	5.38%	5.73%	4.65%	4.85%	5.09%	5.77%
July	5.48%	5.08%	5.30%	5.41%	5.73%	4.66%	4.84%	5.08%	5.74%
August	5.77%	5.38%	5.58%	5.71%	6.08%	4.95%	5.15%	5.38%	6.02%
September	5.91%	5.53%	5.72%	5.86%	6.15%	5.13%	5.30%	5.52%	6.16%
October	6.38%	6.01%	6.19%	6.34%	6.61%	5.61%	5.76%	6.02%	6.64%
November	5.99%	5.57%	5.82%	5.96%	6.20%	5.20%	5.32%	5.59%	6.18%
December	5.46%	5.06%	5.27%	5.42%	5.68%	4.74%	4.82%	5.07%	5.60%
	<b>5.59%</b>	<b>5.21%</b>	<b>5.39%</b>	<b>5.54%</b>	<b>5.84%</b>	<b>4.80%</b>	<b>4.93%</b>	<b>5.23%</b>	<b>5.87%</b>