

**CAPITAL ASSET PRICING MODEL (CAPM) COST OF COMMON EQUITY ESTIMATES
FOR LDC PEER GROUP, INCLUDING SPIRE INC., BASED ON 20-YEAR US TREASURY**

	(1)	(2)	(3)	(4)	(5)	(6)
Company Name	20-Year Risk Free Rate	Beta	Geometric Equity Risk Premium	Arithmetic Equity Risk Premium	Geometric CAPM Cost of Common Equity	Arithmetic CAPM Cost of Common Equity
Atmos Energy Corporation	3.36%	0.74	4.92%	6.37%	6.99%	8.05%
New Jersey Resources Corporation	3.36%	0.79	4.92%	6.37%	7.24%	8.38%
NiSource Inc.	3.36%	0.77	4.92%	6.37%	7.16%	8.27%
Northwest Natural Holding Company	3.36%	0.66	4.92%	6.37%	6.59%	7.54%
ONE Gas, Inc.	3.36%	0.75	4.92%	6.37%	7.08%	8.17%
Southwest Gas Holdings, Inc.	3.36%	0.85	4.92%	6.37%	7.56%	8.79%
Spire Inc.	3.36%	0.76	4.92%	6.37%	7.11%	8.21%
Average		<u>0.760</u>			<u>7.10%</u>	<u>8.20%</u>
Average Without Southwest	3.36%	0.74	4.92%	6.37%	7.03%	8.10%
Average of Pure-Play Regulateds	3.36%	0.74	4.92%	6.37%	6.99%	8.05%

Column 1 = Average of last 3 Months of 20-Year Treasuries obtained from the St. Louis Federal Reserve website at <https://fred.stlouisfed.org/series/GS20>

Column 2 = Beta is a measure of the movement and relative risk of an individual stock to the market as a whole. I used a template provided by S&P Market Intelligence that calculates raw betas based on the Value Linen approach. This approach measures the covariance of the company's weekly returns with that of the S&P 500 divided by the variance of the S&P 500 returns over an historical 5 year period. This raw beta is then adjusted by the Blume formula, which is the following:
Adjusted Beta = 0.35 + 0.67 * Unadjusted Beta

Column 3 = Geometric realized equity risk premiums (1926-2021) based on Stocks, Bonds, Bills and Inflation Data Provided by Ibbotson.

Column 4 = Arithmetic realized equity risk premiums (1926-2021) based on Stocks, Bonds, Bills and Inflation Data Provided by Ibbotson.

Column 5 = (Column 1 + (Column 2 * Column 3)).

Column 6 = (Column 1 + (Column 2 * Column 4)).

**CAPITAL ASSET PRICING MODEL (CAPM) COST OF COMMON EQUITY ESTIMATES
FOR LDC PEER GROUP, INCLUDING SPIRE INC., BASED ON 30-YEAR US TREASURY**

	(1)	(2)	(3)	(4)	(5)	(6)
Company Name	30-Year Risk Free Rate	Beta	Geometric Equity Risk Premium	Arithmetic Equity Risk Premium	Geometric CAPM Cost of Common Equity	Arithmetic CAPM Cost of Common Equity
Atmos Energy Corporation	3.14%	0.74	4.92%	6.37%	6.77%	7.83%
New Jersey Resources Corporation	3.14%	0.79	4.92%	6.37%	7.02%	8.16%
NiSource Inc.	3.14%	0.77	4.92%	6.37%	6.93%	8.05%
Northwest Natural Holding Company	3.14%	0.66	4.92%	6.37%	6.37%	7.32%
ONE Gas, Inc.	3.14%	0.75	4.92%	6.37%	6.85%	7.94%
Southwest Gas Holdings, Inc.	3.14%	0.85	4.92%	6.37%	7.33%	8.56%
Spire Inc.	3.14%	0.76	4.92%	6.37%	6.89%	7.99%
Average		0.76			6.88%	7.98%
Average Without Southwest	3.14%	0.74	4.92%	6.37%	6.81%	7.88%
Average of Pure-Play Regulateds	3.14%	0.73	4.92%	6.37%	6.73%	7.79%

Column 1 = Average of last 3 Months of 30-Year Treasuries obtained from the St. Louis Federal Reserve website at <https://fred.stlouisfed.org/series/GS20>

Column 2 = Beta is a measure of the movement and relative risk of an individual stock to the market as a whole. I used a template provided by S&P Market Intelligence that calculates raw betas based on the Value Linen approach. This approach measures the covariance of the company's weekly returns with that of the S&P 500 divided by the variance of the S&P 500 returns over an historical 5 year period. This raw beta is then adjusted by the Blume formula, which is the following:
Adjusted Beta = 0.35 + 0.67 * Unadjusted Beta

Column 3 = Geometric realized equity risk premiums (1926-2021) based on Stocks, Bonds, Bills and Inflation Data Provided by Ibbotson.

Column 4 = Arithmetic realized equity risk premiums (1926-2021) based on Stocks, Bonds, Bills and Inflation Data Provided by Ibbotson.

Column 5 = (Column 1 + (Column 2 * Column 3)).

Column 6 = (Column 1 + (Column 2 * Column 4)).

**CAPITAL ASSET PRICING MODEL (CAPM) COST OF COMMON EQUITY ESTIMATES FOR LDC
PEER GROUP, INCLUDING SPIRE INC., BASED ON DUFF & PHELPS NORMALIZED RISK-FREE RATE**

	(1)	(2)	(3)	(4)
Company Name	D&P Normalized Risk-free Rate	Beta	D&P Equity Risk Premium	CAPM Cost of Common Equity
Atmos Energy Corporation	3.50%	0.737	5.50%	7.55%
New Jersey Resources Corporation	3.50%	0.788	5.50%	7.84%
NiSource Inc.	3.50%	0.771	5.50%	7.74%
Northwest Natural Holding Company	3.50%	0.656	5.50%	7.11%
ONE Gas, Inc.	3.50%	0.755	5.50%	7.65%
Southwest Gas Holdings, Inc.	3.50%	0.852	5.50%	8.18%
Spire Inc.	3.50%	0.761	5.50%	7.69%
Average		<u>0.76</u>		<u>7.68%</u>
Average Without Southwest	3.50%	0.74	5.50%	7.60%
Average of Pure-Play Regulateds	3.50%	0.73	5.50%	7.51%

Column 1 = Kroll (previously D&P) Most Recent Guidance on Normalized Risk-free Rate as of June 16, 2022

[Recommended U.S. Equity Risk Premium and Corresponding Risk-Free Rates \(kroll.com\)](https://www.kroll.com/insights/industry/energy-and-chemicals/normalizing-risk-free-rates)

Column 2 = Beta is a measure of the movement and relative risk of an individual stock to the market as a whole. I used a template provided by S&P Market Intelligence that calculates raw betas based on the Value Linen approach. This approach measures the covariance of the company's weekly returns with that of the S&P 500 divided by the variance of the S&P 500 returns over an historical 5 year period. This raw beta is then adjusted by the Blume formula, which is the following:

Adjusted Beta = 0.35 + 0.67 * Unadjusted Beta

Column 3 = Kroll (previously D&P) guidance as of June 16, 2022 on equity risk premium to be used in conjunction with normalized risk-free rate.

[Recommended U.S. Equity Risk Premium and Corresponding Risk-Free Rates \(kroll.com\)](https://www.kroll.com/insights/industry/energy-and-chemicals/normalizing-risk-free-rates)

Column 4 = (Column 1 + (Column 2 * Column 3)).