

**CAPITALIZATION RATE STUDY  
FOR NATURAL RESOURCE PROPERTIES**

**FOR: JANUARY 1, 2022**



**UTAH STATE TAX COMMISSION**

**PROPERTY TAX DIVISION  
UTILITIES & TRANSPORTATION SECTION  
210 NORTH 1950 WEST, THIRD FLOOR  
SALT LAKE CITY, UTAH 84134**

**(801) 291-3600**

**[www.propertytax.utah.gov](http://www.propertytax.utah.gov)**





**UTAH STATE TAX COMMISSION  
PROPERTY TAX DIVISION  
SUMMARY OF WACC CALCULATIONS CONTINUED**

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Industry	Nominal Rate	Real Rate	Tax Rate Loaded	
			Nominal Rate	Real Rate
<b>COAL MINING</b>	9.42%	6.68%	11.55%	8.76%
<b>PRECIOUS METALS</b>	6.55%	3.88%	8.44%	5.72%
<b>NON-PRECIOUS METALS</b>	9.89%	7.14%	13.02%	10.19%
<b>NON-METALS</b>	9.51%	6.76%	12.45%	9.63%
<b>OIL &amp; GAS PRODUCTION/WD</b>	9.58%	6.84%	12.17%	9.36%
<b>OIL &amp; GAS GATHERING</b>	8.03%	5.32%	9.59%	6.85%
<b>SAND AND GRAVEL</b>	9.87%	7.11%	12.93%	10.10%
<b>URANIUM MINING</b>	7.45%	4.76%	9.83%	7.07%

\*Nominal Rate (NR) includes both the real rate and the impact of inflation (IR)

$$\text{Real Rate} = [(1+NR)/(1+IR)]-1$$

$$\text{Coal Example} = [(1+0.0942)/(1+0.0257)]-1 = 0.0668$$



**UTAH STATE TAX COMMISSION**  
**PROPERTY TAX DIVISION**  
**DESCRIPTION OF EQUITY MODELS**

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The Property Tax Division of the Utah State Tax Commission (“Division”) estimates the market cost of equity for the industries it is required to assess for property tax purposes according to Utah Law. The Division estimates the market cost of equity using recognized equity models based on financial literature, research, and guidance from Utah Tax Commission Administrative Rule R884-24P-62 (“Rule 62”). The Division develops several market-based equity models including various Capital Asset Pricing Models (“CAPM”) and Dividend Growth Models (“DGM”). The following is a summary of each of these models.

### **CAPM**

The Division uses three CAPM cost of equity models: CAPM: Rule 62, CAPM: Supply Side, and CAPM: Implied Equity Risk Premium. Each of these CAPMs are based on the formula:

$$K(e) = R(f) + (\text{Beta} \times \text{Equity Risk Premium})$$

Where:

$K(e)$  = the estimated market cost of equity

$R(f)$  = the current risk free rate

Beta = a measure of the volatility of an individual stock compared to the volatility of the market as a whole.

Equity Risk Premium = the premium investors require above the return on a risk free investment. In other words, the additional return investors require for investing in risky securities vs. risk free securities. The Equity Risk Premium is also commonly referred to as the Market Risk Premium.

The difference between the three CAPMs that the Division calculates is how the Equity Risk Premium is estimated.

### **CAPM: RULE 62**

Utah Tax Commission Administrative Code R884-24P-62 (“Rule 62”) states that the CAPM is the “preferred method for estimating the cost of equity” (Utah Tax Code R884-24P-62 (5)(b)(i)(B)(II)(Aa)). Rule 62 also states that “more than one method may be used to correlate a cost of equity, but only if the CAPM method is weighted at least 50% in the correlation” (Utah Tax Code R884-24P-64

Rule 62 requires the Division to use or estimate the inputs for this CAPM as follows:

- The risk free rate shall be the current market rate on 20-year Treasury bonds.
- The beta should reflect an average or value-weighted average of comparable companies and should be drawn from Value Line or an equivalent source.
- The Risk Premium shall be the arithmetic average of the spread between the return on stocks and the income return on long-term bonds for the entire historical period contained in the Ibbotson Yearbook published immediately following the lien date.<sup>1</sup>

<sup>1</sup> This information is now provided by Kroll



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**CAPM: Supply Side**

The CAPM: Supply Side uses the same inputs as the CAPM: Rule 62 except that the Supply Side uses an Equity Risk Premium that is based on the historical returns of companies in the form of earnings, dividends, and capital gains. Ibbotson states that “investors should not expect a much higher or lower return than that produced by the companies in the real economy.”<sup>2</sup> This earnings model separates the Equity Risk Premium into four sections: inflation, income growth, growth in real earnings, and growth of the Price Earnings Ratio (“P/E Ratio”). In other words, CAPM: Supply Side ignores the historical returns that have resulted in the change in the P/E ratio. The Division uses the Supply Side Equity Risk Premium published by Kroll.

**CAPM: Implied Equity Risk Premium**

Professor Damodaran from the Stern School of Business at New York University estimates the Equity Risk Premium by using current market data to extract the premium currently required by investors. Dr. Damodaran relies on the price of the S&P 500 index and the expected future cash flows of the index (including dividends and share repurchases) to estimate the current implied expected return on the market.<sup>3</sup> This expected return is then compared to the current return on the risk free rate to derive an implied equity risk premium. The Division adjusts Dr. Damodaran’s model, which is compared to a 10-year Treasury bond, to compare it to the 20-year Treasury bond that the Division uses in its other CAPM models.

<sup>2</sup>Ibbotson SBBI 2015 Classic Yearbook pg. 155

<sup>3</sup><http://pages.stern.nyu.edu/~adamodar/>



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## DGM

The Division uses four multi-stage DGM cost of equity models: two models based on the methodology of Dr. Aswath Damodaran and two based on the methodology of Dr. Bradford Cornell. All of these models start with a short-term growth rate that is then adjusted, over a period of years, to a more sustainable long-term growth rate. The basic formula for a DGM is:

$$K(e) = (D1/P0) + g$$

Where:

K(e) = the estimated cost of equity

D1 = next years expected dividend (including stock buybacks)

P0 = current stock price

g = the expected growth in dividends (including stock buybacks)

### Damodaran DGM

This DGM model is based on the same mathematic structure that Dr. Damodaran uses to calculate the Implied Equity Risk Premium, but does so for each company with a positive payout ratio. The first stage of the model grows the earnings per share linearly for five years from Valueline's next year EPS estimate to the 3-5 year EPS estimate. The company's specific payout ratio is used to determine the total expected payout to shareholders. In year 5 a terminal value is calculated using a perpetual growth rate equal to the latest Congressional Budget Office's estimation of long-term economic growth. An internal rate of return calculation is then applied to the estimate of cash flows available to equity holders (including the terminal value) to determine the implied cost of equity.

### Damodaran DGM (AP) Adjusted Payout

This DGM model is the same as the DGM Damodaran model but it adjusts the payout ratio to a sustainable level developed by Dr. Damodaran. This sustainable payout ratio is calculated as  $1-(g/ROE)$  where g is the Congressional Budget Office's estimation of long term economic growth and the ROE is the industry average, weighted average, or median long term ROE from Valueline. The payout ratio is adjusted linearly over five years from the company specific payout ratio to the industry specific sustainable payout ratio.

### Cornell 3-Stage DGM and Cornell (AP) Adjusted Payout

This 3-stage DGM follows the model put forth in "The Equity Risk Premium" by Bradford Cornell. This model uses the 5 year growth estimate provided by Value Line, then that growth rate converges linearly to the long-term growth rate over a 15 year period. In year 20, a terminal value is calculated iteratively using the  $V = (CF_{n+1}) / (k-g)$  formula. An internal rate of return calculation is then applied to the estimate of cash flows available to equity holders (including the terminal value) to determine the implied cost of equity that will equal the current stock price. In the adjusted payout model the payout ratio is adjusted linearly over fifteen years from the company specific payout ratio to the industry specific sustainable payout ratio.



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KEY RATES AND FIGURES**

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**CORPORATE BONDS**

Aaa	2.71%
Aa	2.82%
A	3.04%
Baa	3.37%
Ba1	6.07%
Ba2	6.83%
Ba3	7.98%
B1	8.33%
B2	8.62%
B3	9.05%
Caa1	9.78%
Caa2	10.53%
Caa3	11.18%
Ca	14.02%
C	14.02%

**PUBLIC UTILITY BONDS**

Aaa	N/A
Aa	3.01%
A	3.13%
Baa	3.36%

**PREFERRED STOCKS**

Aaa	N/A
Aa	N/A
A	N/A
Baa	N/A

**MISCELLANEOUS RATES**

Airline 'TEFRA' Relief Factor	7.18%
4-R Act Relief for Railroads	23.20%
4-R Act Relief (BNSF only)	7.17%
TIPS Inflationary Estimate	2.57%
Marginal Income Tax Rate	25.00%
GDP Price Deflator Forecast	N/A
Long Term Growth Rate	3.70%

**INFLATION FACTORS**

Year	4th Qtr. GDP Implicit Price Deflator	Annual Percent Change	Conversion Factor
2011	98.69	1.88%	1.229
2012	100.73	2.07%	1.204
2013	102.55	1.81%	1.183
2014	104.10	1.51%	1.165
2015	104.93	0.80%	1.156
2016	106.47	1.47%	1.139
2017	108.66	2.06%	1.116
2018	111.19	2.33%	1.091
2019	112.95	1.58%	1.074
2020	114.61	1.47%	1.058
2021	121.28	5.82%	1.000

2022 - 2012 Average Change: 2.09%

**Source:**

U.S. Department of Commerce: Bureau of Economic Analysis  
Gross Domestic Product: Implicit Price Deflator

**MARKET RISK PREMIUMS**

Full Term Historical Risk Premium	7.46%
Supply Side Risk Premium	6.22%
Damodaran Implied ERP	5.00%
Risk Free Rate	1.94%

**MISCELLANEOUS INFORMATION**

Stock prices are from the last trading day of 2021. Retrieved from <http://finance.yahoo.com/>

Bond yield information derived from the January 2022 Mergent bond record.

Company and industry data was taken from the last Value Line tear sheet of 2021.

Damodaran Implied Risk Premium Model Calculated Based on Model Found at: <http://pages.stern.nyu.edu/~adamodar/>

Full term historical and supply side RP are taken from: Kroll



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**COAL MINING -- EQUITY RATE SUMMARY**

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**RECONCILIATION**

Equity Models	Weight	Equity Rate
CAPM: RULE 62 . . . . .	<b>100%</b>	<b>9.85%</b>
CAPM: SUPPLY SIDE . . . . .	<b>0%</b>	<b>8.53%</b>
CAPM: IMPLIED ERP . . . . .	<b>0%</b>	<b>7.24%</b>
DGM: DAMODARAN . . . . .	<b>0%</b>	<b>NMF</b>
DGM: DAMODARAN (AP) . . . . .	<b>0%</b>	<b>NMF</b>
DGM: CORNELL . . . . .	<b>0%</b>	<b>NMF</b>
DGM: CORNELL (AP) . . . . .	<b>0%</b>	<b>NMF</b>
<b>Reconciled Equity Rate</b>		<b>9.85%</b>
<b>Reconciled Debt Rate</b>		<b>8.62%</b>
<b>Debt/Equity Structure</b>		<b>35% / 65%</b>
<b>WACC Conclusion</b>		<b>9.42%</b>





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**COAL MINING -- COMPANY INFORMATION**

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**CALCULATION OF CAPITAL STRUCTURE**

Company	Market Value Of Equity*	Market Value Of Debt*	Percent Equity	Percent Debt
Alliance Resource Partners LP (ARLP)	1,607.75	465.34	78%	22%
Hallador Energy Company (HNRG)	90.61	110.77	45%	55%
Peabody Energy (BTU)	1,342.33	1,163.70	54%	46%
SunCoke Energy Inc (SXC)	649.09	625.10	51%	49%
Alpha Metallurgical Resources (AMR)	1,123.32	457.87	71%	29%
Ramaco Resources Inc (METC)	542.99	48.78	92%	8%
<b>Selected Equity and Debt Structure</b>			<b>65%</b>	<b>35%</b>

**GUIDELINE COMPANY INFORMATION SUMMARY**

Company	Return On Equity	Beta	Credit Rating	Debt Rate
Alliance Resource Partners LP (ARLP)	N/A	1.15	Ba3	7.98%
Hallador Energy Company (HNRG)	N/A	1.00	N/A	N/A
Peabody Energy (BTU)	N/A	0.95	B3	9.05%
SunCoke Energy Inc (SXC)	N/A	1.15	B1	8.33%
Alpha Metallurgical Resources (AMR)	N/A	1.20	B3	9.05%
Ramaco Resources Inc (METC)	N/A	0.90	N/A	N/A
<b>Selected for Industry</b>		<b>1.06</b>	<b>B2</b>	<b>8.62%</b>

\* Amounts in Millions





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**DIVIDEND GROWTH MODEL INPUTS**

Company Name	Stock Price	Next Year's Payout	Next Year's EPS	3-5 Year EPS	Projected Growth
Alliance Resource Partners LP (ARLP)	12.64	0.48	N/A	N/A	N/A
Hallador Energy Company (HNRG)	2.96	0.71	0.10	N/A	N/A
Peabody Energy (BTU)	10.07	3.20	4.01	N/A	N/A
SunCoke Energy Inc (SXC)	6.59	0.65	0.55	N/A	N/A
Alpha Metallurgical Resources (AMR)	61.05	N/A	43.69	N/A	N/A
Ramaco Resources Inc (METC)	12.31	N/A	1.93	N/A	N/A



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**PRECIOUS METALS -- EQUITY RATE SUMMARY**

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**RECONCILIATION**

Equity Models	Weight	Equity Rate
CAPM: RULE 62 . . . . .	<b>100%</b>	<b>6.64%</b>
CAPM: SUPPLY SIDE . . . . .	<b>0%</b>	<b>5.86%</b>
CAPM: IMPLIED ERP . . . . .	<b>0%</b>	<b>5.09%</b>
DGM: DAMODARAN . . . . .	<b>0%</b>	<b>7.93%</b>
DGM: DAMODARAN (AP) . . . . .	<b>0%</b>	<b>10.25%</b>
DGM: CORNELL . . . . .	<b>0%</b>	<b>14.39%</b>
DGM: CORNELL (AP) . . . . .	<b>0%</b>	<b>12.14%</b>
<b>Reconciled Equity Rate</b>		<b>6.64%</b>
<b>Reconciled Debt Rate</b>		<b>6.07%</b>
<b>Debt/Equity Structure</b>		<b>15% / 85%</b>
<b>WACC Conclusion</b>		<b>6.55%</b>



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**CALCULATION OF CAPITAL STRUCTURE**

<b>Company</b>	<b>Market Value Of Equity*</b>	<b>Market Value Of Debt*</b>	<b>Percent Equity</b>	<b>Percent Debt</b>
Agnico Eagle Mines Ltd (AEM)	12,696.30	1,876.97	87%	13%
Barrick Gold Corporation (GOLD)	33,807.29	6,928.00	83%	17%
Coeur Mining (CDE)	1,294.88	486.57	73%	27%
Hecla Mining Company (HL)	2,847.69	577.02	83%	17%
Kinross Gold Corporation (KGC)	7,229.57	1,907.20	79%	21%
Newmont Corp (NEM)	49,119.84	7,362.00	87%	13%
Pretium Resources (PVG)	1,811.32	197.70	90%	10%
SSR Mining Inc (SSRM)	3,750.26	558.70	87%	13%
<b>Selected Equity and Debt Structure</b>			<b>85%</b>	<b>15%</b>

**GUIDELINE COMPANY INFORMATION SUMMARY**

<b>Company</b>	<b>Return On Equity</b>	<b>Beta</b>	<b>Credit Rating</b>	<b>Debt Rate</b>
Agnico Eagle Mines Ltd (AEM)	13.00%	0.55	Baa2	3.37%
Barrick Gold Corporation (GOLD)	8.00%	0.55	Baa1	3.37%
Coeur Mining (CDE)	22.00%	0.75	B2	8.62%
Hecla Mining Company (HL)	14.50%	0.85	B2	8.62%
Kinross Gold Corporation (KGC)	10.50%	0.55	Baa3	3.37%
Newmont Corp (NEM)	10.50%	0.60	Baa1	3.37%
Pretium Resources (PVG)	26.00%	0.55	N/A	N/A
SSR Mining Inc (SSRM)	11.00%	0.65	N/A	N/A
<b>Selected for Industry</b>	<b>14.44%</b>	<b>0.63</b>	<b>Ba1</b>	<b>6.07%</b>

\* Amounts in Millions





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**DIVIDEND GROWTH MODEL INPUTS**

Company Name	Stock Price	Next Year's Payout	Next Year's EPS	3-5 Year EPS	Projected Growth
Agnico Eagle Mines Ltd (AEM)	51.85	1.60	3.70	4.60	27.50%
Barrick Gold Corporation (GOLD)	19.00	0.86	1.15	1.30	11.50%
Coeur Mining (CDE)	5.04	N/A	0.15	1.00	N/A
Hecla Mining Company (HL)	5.22	0.02	0.25	0.60	N/A
Kinross Gold Corporation (KGC)	5.81	0.19	0.80	1.00	16.50%
Newmont Corp (NEM)	62.02	3.32	3.15	3.50	12.00%
Pretium Resources (PVG)	9.64	0.23	0.80	1.60	20.00%
SSR Mining Inc (SSRM)	17.70	0.44	1.80	2.50	29.50%



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**NON-PRECIOUS METALS -- EQUITY RATE SUMMARY**

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**RECONCILIATION**

Equity Models	Weight	Equity Rate
CAPM: RULE 62 . . . . .	<b>100%</b>	<b>11.04%</b>
CAPM: SUPPLY SIDE . . . . .	<b>0%</b>	<b>9.53%</b>
CAPM: IMPLIED ERP . . . . .	<b>0%</b>	<b>8.04%</b>
DGM: DAMODARAN . . . . .	<b>0%</b>	<b>12.03%</b>
DGM: DAMODARAN (AP) . . . . .	<b>0%</b>	<b>14.03%</b>
DGM: CORNELL . . . . .	<b>0%</b>	<b>22.66%</b>
DGM: CORNELL (AP) . . . . .	<b>0%</b>	<b>17.78%</b>
<b>Reconciled Equity Rate</b>		<b>11.04%</b>
<b>Reconciled Debt Rate</b>		<b>3.37%</b>
<b>Debt/Equity Structure</b>		<b>15% / 85%</b>
<b>WACC Conclusion</b>		<b>9.89%</b>





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**CALCULATION OF CAPITAL STRUCTURE**

<b>Company</b>	<b>Market Value Of Equity*</b>	<b>Market Value Of Debt*</b>	<b>Percent Equity</b>	<b>Percent Debt</b>
BHP Group Ltd ADR (BHP)	305,491.70	19,878.00	94%	6%
Freep't-McMoRan Inc (FCX)	66,893.19	10,949.00	86%	14%
Materion Corporation (MTRN)	2,495.99	523.17	83%	17%
Rio Tinto Plc (RIO)	108,399.36	15,265.00	88%	12%
Southern Copper Corp (SCCO)	54,588.67	9,489.50	85%	15%
Teck Resources 'B' (TECKB.TO)	15,271.34	8,280.15	65%	35%
Hudbay Minerals (HBM)	1,896.59	1,311.49	59%	41%
Lundin Mining (LUN.TO)	5,689.47	31.00	99%	1%
<b>Selected Equity and Debt Structure</b>			<b>85%</b>	<b>15%</b>

**GUIDELINE COMPANY INFORMATION SUMMARY**

<b>Company</b>	<b>Return On Equity</b>	<b>Beta</b>	<b>Credit Rating</b>	<b>Debt Rate</b>
BHP Group Ltd ADR (BHP)	22.50%	1.05	A2	3.04%
Freep't-McMoRan Inc (FCX)	41.00%	1.55	Baa3	3.37%
Materion Corporation (MTRN)	11.00%	1.10	N/A	N/A
Rio Tinto Plc (RIO)	27.50%	1.05	A2	3.04%
Southern Copper Corp (SCCO)	26.00%	1.15	Baa2	3.37%
Teck Resources 'B' (TECKB.TO)	12.00%	1.05	Baa3	3.37%
Hudbay Minerals (HBM)	13.00%	1.60	B2	8.62%
Lundin Mining (LUN.TO)	25.50%	1.20	N/A	N/A
<b>Selected for Industry</b>	<b>22.31%</b>	<b>1.22</b>	<b>Baa2</b>	<b>3.37%</b>

\*Amount in Millions



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CAPM: RULE 62 COMPLIANT	
Market Risk Premium	7.46%
X Industry Beta	1.22
Industry Risk Premium	9.10%
Add: Risk Free Rate	1.94%
<b>Indicated Rate</b>	<b>11.04%</b>

CAPM: IMPLIED ERP	
Market Risk Premium	5.00%
X Industry Beta	1.22
Industry Risk Premium	6.10%
Add: Risk Free Rate	1.94%
<b>Indicated Rate</b>	<b>8.04%</b>

CAPM: SUPPLY SIDE	
Market Risk Premium	6.22%
X Industry Beta	1.22
Industry Risk Premium	7.59%
Add: Risk Free Rate	1.94%
<b>Indicated Rate</b>	<b>9.53%</b>

CAPM: SUPPLY SIDE	

MULTISTAGE DIVIDEND GROWTH MODEL				
Company Name	Indicated Rates			
	Damodaran's	Damodaran's AP	Cornell's	Cornell's AP
BHP Group Ltd ADR (BHP)	10.75%	10.91%	19.95%	14.98%
Freeport-McMoRan Inc (FCX)	10.19%	11.36%	24.16%	31.33%
Materion Corporation (MTRN)	5.13%	8.12%	5.34%	10.74%
Rio Tinto Plc (RIO)	20.12%	19.09%	20.97%	26.48%
Southern Copper Corp (SCCO)	8.00%	8.55%	12.77%	13.81%
Teck Resources 'B' (TECKB.TO)	7.74%	16.86%	14.02%	29.63%
Hudbay Minerals (HBM)	N/A	14.25%	3.89%	8.34%
Lundin Mining (LUN.TO)	22.25%	23.05%	41.14%	45.96%
<b>Selected Rate</b>	<b>12.03%</b>	<b>14.03%</b>	<b>22.66%</b>	<b>17.78%</b>



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**DIVIDEND GROWTH MODEL INPUTS**

Company Name	Stock Price	Next Year's Payout	Next Year's EPS	3-5 Year EPS	Projected Growth
BHP Group Ltd ADR (BHP)	60.35	7.01	5.50	6.00	10.50%
Freeport-McMoRan Inc (FCX)	41.73	1.52	3.80	4.55	37.50%
Materion Corporation (MTRN)	91.94	0.52	4.60	6.00	15.00%
Rio Tinto Plc (RIO)	66.94	6.80	11.00	14.50	14.50%
Southern Copper Corp (SCCO)	61.71	3.00	4.40	4.10	13.00%
Teck Resources 'B' (TECKB.TO)	28.59	0.32	4.25	6.35	36.00%
Hudbay Minerals (HBM)	7.25	0.02	1.00	1.30	N/A
Lundin Mining (LUN.TO)	7.72	0.90	1.45	2.30	39.00%



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**RECONCILIATION**

Equity Models	Weight	Equity Rate
CAPM: RULE 62 . . . . .	<b>100%</b>	<b>11.04%</b>
CAPM: SUPPLY SIDE . . . . .	<b>0%</b>	<b>9.53%</b>
CAPM: IMPLIED ERP . . . . .	<b>0%</b>	<b>8.04%</b>
DGM: DAMODARAN . . . . .	<b>0%</b>	<b>9.04%</b>
DGM: DAMODARAN (AP) . . . . .	<b>0%</b>	<b>9.81%</b>
DGM: CORNELL . . . . .	<b>0%</b>	<b>8.57%</b>
DGM: CORNELL (AP) . . . . .	<b>0%</b>	<b>9.54%</b>
<b>Reconciled Equity Rate</b>		<b>11.04%</b>
<b>Reconciled Debt Rate</b>		<b>3.37%</b>
<b>Debt/Equity Structure</b>		<b>20% / 80%</b>
<b>WACC Conclusion</b>		<b>9.51%</b>



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**CALCULATION OF CAPITAL STRUCTURE**

Company	Market Value Of Equity*	Market Value Of Debt*	Percent Equity	Percent Debt
Cenovus Energy (CVE.TO)	24,574.87	13,120.97	65%	35%
Compass Minerals International Inc (CMP)	1,806.56	1,092.10	62%	38%
Eagle Materials Inc (EXP)	6,619.46	864.39	88%	12%
Intrepid Potash Inc (IPI)	561.87	3.53	99%	1%
Martin Marietta Materials Inc (MLM)	27,488.45	6,088.60	82%	18%
Mosaic Company New (MOS)	14,487.49	4,942.90	75%	25%
Vulcan Materials (VMC)	27,545.87	5,211.30	84%	16%
<b>Selected Equity and Debt Structure</b>			<b>80%</b>	<b>20%</b>

**GUIDELINE COMPANY INFORMATION SUMMARY**

Company	Return On Equity	Beta	Credit Rating	Debt Rate
Cenovus Energy (CVE.TO)	8.50%	1.60	Baa3	3.37%
Compass Minerals International Inc (CMP)	20.00%	1.00	Ba3	7.98%
Eagle Materials Inc (EXP)	17.50%	1.30	Baa2	3.37%
Intrepid Potash Inc (IPI)	N/A	1.15	N/A	N/A
Martin Marietta Materials Inc (MLM)	12.00%	1.15	Baa2	3.37%
Mosaic Company New (MOS)	16.00%	1.25	Baa3	3.37%
Vulcan Materials (VMC)	15.00%	1.10	Baa2	3.37%
<b>Selected for Industry</b>	<b>14.83%</b>	<b>1.22</b>	<b>Baa3</b>	<b>3.37%</b>

\*Amount in Millions



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<b>CAPM: RULE 62 COMPLIANT</b>	
Market Risk Premium	7.46%
X Industry Beta	1.22
Industry Risk Premium	9.10%
Add: Risk Free Rate	1.94%
<b>Indicated Rate</b>	<b>11.04%</b>

<b>CAPM: IMPLIED ERP</b>	
Market Risk Premium	5.00%
X Industry Beta	1.22
Industry Risk Premium	6.10%
Add: Risk Free Rate	1.94%
<b>Indicated Rate</b>	<b>8.04%</b>

<b>CAPM: SUPPLY SIDE</b>	
Market Risk Premium	6.22%
X Industry Beta	1.22
Industry Risk Premium	7.59%
Add: Risk Free Rate	1.94%
<b>Indicated Rate</b>	<b>9.53%</b>

<b>CAPM: SUPPLY SIDE</b>	
Market Risk Premium	
X Industry Beta	
Industry Risk Premium	
Add: Risk Free Rate	
<b>Indicated Rate</b>	

<b>MULTISTAGE DIVIDEND GROWTH MODEL</b>				
Company Name	Indicated Rates			
	Damodaran's	Damodaran's AP	Cornell's	Cornell's AP
Cenovus Energy (CVE.TO)	11.90%	11.80%	4.48%	10.62%
Compass Minerals International Inc (CM)	0.00%	0.00%	6.63%	N/A
Eagle Materials Inc (EXP)	5.41%	7.80%	5.87%	9.59%
Intrepid Potash Inc (IPI)	N/A	N/A	N/A	N/A
Martin Marietta Materials Inc (MLM)	4.40%	6.25%	4.78%	7.25%
Mosaic Company New (MOS)	18.93%	17.12%	30.39%	N/A
Vulcan Materials (VMC)	4.58%	6.05%	5.11%	6.84%
<b>Selected Rate</b>	<b>9.04%</b>	<b>9.81%</b>	<b>8.57%</b>	<b>9.54%</b>



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**NON-METALS -- DGM INPUTS**

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**DIVIDEND GROWTH MODEL INPUTS**

Company Name	Stock Price	Next Year's Payout	Next Year's EPS	3-5 Year EPS	Projected Growth
Cenovus Energy (CVE.TO)	12.28	0.14	1.45	1.50	N/A
Compass Minerals International Inc (CI)	51.08	0.60	2.00	4.00	14.00%
Eagle Materials Inc (EXP)	166.46	1.84	9.65	11.00	11.00%
Intrepid Potash Inc (IPI)	42.73	N/A	5.23	N/A	N/A
Martin Marietta Materials Inc (MLM)	440.52	2.44	14.25	18.00	10.50%
Mosaic Company New (MOS)	39.29	0.88	6.40	8.00	56.50%
Vulcan Materials (VMC)	207.58	1.60	5.85	7.75	10.00%



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**OIL & GAS PRODUCTION -- EQUITY RATE SUMMARY**

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**RECONCILIATION**

Equity Models	Weight	Equity Rate
CAPM: RULE 62 . . . . .	50%	12.38%
CAPM: SUPPLY SIDE . . . . .	25%	10.65%
CAPM: IMPLIED ERP . . . . .	25%	8.94%
DGM: DAMODARAN . . . . .	0%	8.08%
DGM: DAMODARAN (AP) . . . . .	0%	13.21%
DGM: CORNELL . . . . .	0%	14.30%
DGM: CORNELL (AP) . . . . .	0%	13.44%
<b>Reconciled Equity Rate</b>		<b>11.09%</b>
<b>Reconciled Debt Rate</b>		<b>6.07%</b>
<b>Debt/Equity Structure</b>		<b>30% / 70%</b>
<b>WACC Conclusion</b>		<b>9.58%</b>





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**CALCULATION OF CAPITAL STRUCTURE**

<b>Company</b>	<b>Market Value Of Equity*</b>	<b>Market Value Of Debt*</b>	<b>Percent Equity</b>	<b>Percent Debt</b>
BLACK STONE MINERALS	2,155.52	91.89	96%	4%
CALLON PETROLEUM	2,899.76	2,753.60	51%	49%
CONTINENTAL RESOURCES	16,305.96	7,366.57	69%	31%
DEVON ENERGY	29,205.15	7,922.00	79%	21%
DIAMONDBACK ENERGY	19,148.91	7,148.00	73%	27%
PIONEER NATURAL RES	44,156.43	8,899.00	83%	17%
SM ENERGY CO	3,592.50	2,257.11	61%	39%
SOUTHWESTERN ENERGY	5,192.73	5,939.00	47%	53%
<b>Selected Equity and Debt Structure</b>			<b>70%</b>	<b>30%</b>

**GUIDELINE COMPANY INFORMATION SUMMARY**

<b>Company</b>	<b>Return On Equity</b>	<b>Beta</b>	<b>Credit Rating</b>	<b>Debt Rate</b>
BLACK STONE MINERALS	18.50%	1.15	N/A	N/A
CALLON PETROLEUM	20.00%	2.00	B3	9.05%
CONTINENTAL RESOURCES	33.00%	1.25	Baa3	3.37%
DEVON ENERGY	17.50%	1.60	Baa3	3.37%
DIAMONDBACK ENERGY	9.50%	1.60	Baa3	3.37%
PIONEER NATURAL RES	18.50%	1.30	Baa2	3.37%
SM ENERGY CO	N/A	1.80	B2	8.62%
SOUTHWESTERN ENERGY	39.00%	0.65	Ba2	6.83%
<b>Selected for Industry</b>	<b>22.29%</b>	<b>1.40</b>	<b>Ba1</b>	<b>6.07%</b>

\*Amount in Millions



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CAPM: RULE 62 COMPLIANT	
Market Risk Premium	7.46%
X Industry Beta	1.40
Industry Risk Premium	10.44%
Add: Risk Free Rate	1.94%
<b>Indicated Rate</b>	<b>12.38%</b>

CAPM: IMPLIED ERP	
Market Risk Premium	5.00%
X Industry Beta	1.40
Industry Risk Premium	7.00%
Add: Risk Free Rate	1.94%
<b>Indicated Rate</b>	<b>8.94%</b>

CAPM: SUPPLY SIDE	
Market Risk Premium	6.22%
X Industry Beta	1.40
Industry Risk Premium	8.71%
Add: Risk Free Rate	1.94%
<b>Indicated Rate</b>	<b>10.65%</b>

DIVISION'S RISK PREMIUM	

MULTISTAGE DIVIDEND GROWTH MODEL				
Company Name	Indicated Rates			
	Damodaran's	Damodaran's AP	Cornell's	Cornell's AP
BLACK STONE MINERALS	11.15%	10.57%	11.11%	8.28%
CALLON PETROLEUM	N/A	N/A	N/A	N/A
CONTINENTAL RESOURCES	4.41%	14.38%	17.64%	N/A
DEVON ENERGY	N/A	N/A	0.00%	0.00%
DIAMONDBACK ENERGY	4.70%	9.47%	4.90%	7.21%
PIONEER NATURAL RES	12.06%	N/A	N/A	26.77%
SM ENERGY CO	N/A	N/A	6.67%	N/A
SOUTHWESTERN ENERGY	N/A	18.41%	26.89%	14.94%
<b>Selected Rate</b>	<b>8.08%</b>	<b>13.21%</b>	<b>14.30%</b>	<b>13.44%</b>



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**DIVIDEND GROWTH MODEL INPUTS**

Company Name	Stock Price	Next Year's Payout	Next Year's EPS	3-5 Year EPS	Projected Growth
BLACK STONE MINERALS	10.33	0.95	0.70	1.00	0.50%
CALLON PETROLEUM	47.25	N/A	11.70	11.65	11.50%
CONTINENTAL RESOURCES	44.76	0.80	6.80	7.90	37.00%
DEVON ENERGY	44.05	3.94	5.00	4.05	N/A
DIAMONDBACK ENERGY	107.85	1.86	9.00	9.35	N/A
PIONEER NATURAL RES	181.88	20.85	20.75	18.75	23.00%
SM ENERGY CO	29.48	1.21	5.59	N/A	N/A
SOUTHWESTERN ENERGY	4.66	0.74	1.20	1.55	15.00%



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**OIL & GAS GATHERING -- EQUITY RATE SUMMARY**

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**RECONCILIATION**

Equity Models	Weight	Equity Rate
CAPM: RULE 62 . . . . .	<b>50%</b>	<b>11.62%</b>
CAPM: SUPPLY SIDE . . . . .	<b>25%</b>	<b>10.01%</b>
CAPM: IMPLIED ERP . . . . .	<b>25%</b>	<b>8.43%</b>
DGM: DAMODARAN . . . . .	<b>0%</b>	<b>12.42%</b>
DGM: DAMODARAN (AP) . . . . .	<b>0%</b>	<b>14.05%</b>
DGM: CORNELL . . . . .	<b>0%</b>	<b>16.50%</b>
DGM: CORNELL (AP) . . . . .	<b>0%</b>	<b>17.01%</b>
<b>Reconciled Equity Rate</b>		<b>10.42%</b>
<b>Reconciled Debt Rate</b>		<b>6.07%</b>
<b>Debt/Equity Structure</b>		<b>55% / 45%</b>
<b>WACC Conclusion</b>		<b>8.03%</b>



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**CALCULATION OF CAPITAL STRUCTURE**

<b>Company</b>	<b>Market Value Of Equity*</b>	<b>Market Value Of Debt*</b>	<b>Percent Equity</b>	<b>Percent Debt</b>
CRESTWOOD EQUITY PARTNERS LP	1,737.94	2,136.20	45%	55%
ENERGY TRANSFER LP	25,369.12	55,833.00	31%	69%
HOLLY ENERGY PTRS.	1,738.71	1,413.79	55%	45%
ONEOK, INC	26,215.08	15,689.42	63%	37%
PLAINS ALL AMER. PIPE	6,585.11	10,436.00	39%	61%
SUMMIT MIDSTREAM PARTNERS LP	159.17	1,383.38	10%	90%
WESTERN MIDSTREAM PART.	8,974.67	7,839.61	53%	47%
WILLIAMS COS.	32,550.00	27,932.00	54%	46%
<b>Selected Equity and Debt Structure</b>			<b>45%</b>	<b>55%</b>

**GUIDELINE COMPANY INFORMATION SUMMARY**

<b>Company</b>	<b>Return On Equity</b>	<b>Beta</b>	<b>Credit Rating</b>	<b>Debt Rate</b>	
CRESTWOOD EQUITY PARTNERS LP	14.00%	1.50	Ba2	6.83%	
ENERGY TRANSFER LP	13.50%	1.20	Baa3	3.37%	
HOLLY ENERGY PTRS.	35.50%	0.90	Ba2	6.83%	
ONEOK, INC	33.00%	1.50	Baa3	3.37%	
PLAINS ALL AMER. PIPE	15.00%	1.50	Baa3	3.37%	
SUMMIT MIDSTREAM PARTNERS LP	N/A	1.80	B3	9.05%	
WESTERN MIDSTREAM PART.	29.00%	1.40	Ba2	6.83%	
WILLIAMS COS.	16.50%	1.20	Baa2	3.37%	
<b>Selected for Industry</b>		<b>19.54%</b>	<b>1.30</b>	<b>Ba1</b>	<b>6.07%</b>

\*Amounts in Millions





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**OIL & GAS GATHERING -- DGM INPUTS**

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**DIVIDEND GROWTH MODEL INPUTS**

Company Name	Stock Price	Next Year's Payout	Next Year's EPS	3-5 Year EPS	Projected Growth
CRESTWOOD EQUITY PARTNERS LP	27.59	2.75	0.75	3.70	37.00%
ENERGY TRANSFER LP	8.23	0.75	1.50	2.00	9.00%
HOLLY ENERGY PTRS.	16.49	1.60	2.10	2.90	8.00%
ONEOK, INC	58.76	4.05	3.80	5.75	11.00%
PLAINS ALL AMER. PIPE	9.34	1.15	1.30	2.65	26.50%
SUMMIT MIDSTREAM PARTNERS LP	22.20	0.06	N/A	N/A	N/A
WESTERN MIDSTREAM PART.	22.27	1.96	2.70	3.70	15.00%
WILLIAMS COS.	26.04	1.76	1.45	1.90	10.00%



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**SAND AND GRAVEL -- EQUITY RATE SUMMARY**

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**RECONCILIATION**

Equity Models	Weight	Equity Rate
CAPM: RULE 62 . . . . .	<b>100%</b>	<b>11.49%</b>
CAPM: SUPPLY SIDE . . . . .	<b>0%</b>	<b>9.90%</b>
CAPM: IMPLIED ERP . . . . .	<b>0%</b>	<b>8.34%</b>
DGM: DAMODARAN . . . . .	<b>0%</b>	<b>5.30%</b>
DGM: DAMODARAN (AP) . . . . .	<b>0%</b>	<b>7.46%</b>
DGM: CORNELL . . . . .	<b>0%</b>	<b>8.84%</b>
DGM: CORNELL (AP) . . . . .	<b>0%</b>	<b>6.27%</b>
<b>Reconciled Equity Rate</b>		<b>11.49%</b>
<b>Reconciled Debt Rate</b>		<b>3.37%</b>
<b>Debt/Equity Structure</b>		<b>20% / 80%</b>
<b>WACC Conclusion</b>		<b>9.87%</b>





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**CALCULATION OF CAPITAL STRUCTURE**

<b>Company</b>	<b>Market Value Of Equity*</b>	<b>Market Value Of Debt*</b>	<b>Percent Equity</b>	<b>Percent Debt</b>
Eagle Materials Inc (EXP)	6,619.46	864.39	88%	12%
Granite Construction Inc (GVA)	1,774.02	498.93	78%	22%
Martin Marietta Materials Inc (MLM)	27,488.45	6,088.50	82%	18%
Summit Materials (SUM)	4,764.83	1,709.14	74%	26%
Vulcan Materials (VMC)	27,545.87	5,211.30	84%	16%
<b>Selected Equity and Debt Structure</b>			<b>80%</b>	<b>20%</b>

**GUIDELINE COMPANY INFORMATION SUMMARY**

<b>Company</b>	<b>Return On Equity</b>	<b>Beta</b>	<b>Credit Rating</b>	<b>Debt Rate</b>
Eagle Materials Inc (EXP)	17.50%	1.30	Baa2	3.37%
Granite Construction Inc (GVA)	11.50%	1.25	N/A	N/A
Martin Marietta Materials Inc (MLM)	12.00%	1.15	Baa2	3.37%
Summit Materials (SUM)	14.50%	1.60	Ba2	6.83%
Vulcan Materials (VMC)	15.00%	1.10	Baa2	3.37%
<b>Selected for Industry</b>	<b>14.10%</b>	<b>1.28</b>	<b>Baa3</b>	<b>3.37%</b>

\*Amount in Millions



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**SAND AND GRAVEL -- EQUITY MODELS**

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**CAPM: RULE 62 COMPLIANT**

Market Risk Premium	7.46%
X Industry Beta	1.28
Industry Risk Premium	9.55%
Add: Risk Free Rate	1.94%
<b>Indicated Rate</b>	<b>11.49%</b>

**CAPM: IMPLIED ERP**

Market Risk Premium	5.00%
X Industry Beta	1.28
Industry Risk Premium	6.40%
Add: Risk Free Rate	1.94%
<b>Indicated Rate</b>	<b>8.34%</b>

**CAPM: SUPPLY SIDE**

Market Risk Premium	6.22%
X Industry Beta	1.28
Industry Risk Premium	7.96%
Add: Risk Free Rate	1.94%
<b>Indicated Rate</b>	<b>9.90%</b>

**MULTISTAGE DIVIDEND GROWTH MODEL**

Company Name	Indicated Rates			
	Damodaran's	Damodaran's AP	Cornell's	Cornell's AP
Eagle Materials Inc (EXP)	5.41%	7.74%	6.06%	9.54%
Granite Construction Inc (GVA)	6.80%	9.87%	9.13%	11.80%
Martin Marietta Materials Inc (MLM)	4.40%	6.21%	4.78%	7.21%
Summit Materials (SUM)	N/A	N/A	N/A	N/A
Vulcan Materials (VMC)	4.58%	6.01%	5.11%	6.80%
<b>Selected Rate</b>	<b>5.30%</b>	<b>7.46%</b>	<b>8.84%</b>	<b>6.27%</b>



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**SAND AND GRAVEL -- DGM INPUTS**

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**DIVIDEND GROWTH MODEL INPUTS**

Company Name	Stock Price	Next Year's Payout	Next Year's EPS	3-5 Year EPS	Projected Growth
Eagle Materials Inc (EXP)	166.46	2.01	9.65	11.00	11.00%
Granite Construction Inc (GVA)	38.70	0.78	2.25	4.10	16.19%
Martin Marietta Materials Inc (MLM)	440.52	2.44	14.25	18.00	10.50%
Summit Materials (SUM)	40.14	N/A	1.50	2.35	23.00%
Vulcan Materials (VMC)	207.58	1.60	5.85	7.75	10.00%



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**URANIUM MINING -- EQUITY RATE SUMMARY**

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**RECONCILIATION**

Equity Models	Weight	Equity Rate
CAPM: RULE 62 . . . . .	<b>100%</b>	<b>7.91%</b>
CAPM: SUPPLY SIDE . . . . .	<b>0%</b>	<b>6.92%</b>
CAPM: IMPLIED ERP . . . . .	<b>0%</b>	<b>5.94%</b>
DGM: DAMODARAN . . . . .	<b>0%</b>	<b>7.53%</b>
DGM: DAMODARAN (AP) . . . . .	<b>0%</b>	<b>5.70%</b>
DGM: CORNELL . . . . .	<b>0%</b>	<b>10.56%</b>
DGM: CORNELL (AP) . . . . .	<b>0%</b>	<b>8.79%</b>
<b>Reconciled Equity Rate</b>		<b>7.91%</b>
<b>Reconciled Debt Rate</b>		<b>3.37%</b>
<b>Debt/Equity Structure</b>		<b>10% / 90%</b>
<b>WACC Conclusion</b>		<b>7.45%</b>



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**URANIUM MINING -- COMPANY INFORMATION**

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**CALCULATION OF CAPITAL STRUCTURE**

Company	Market Value Of Equity*	Market Value Of Debt*	Percent Equity	Percent Debt
Cameco Corp (CCO.TO)	8,580.51	782.45	92%	8%
<b>Selected Equity and Debt Structure</b>			<b>90%</b>	<b>10%</b>

**GUIDELINE COMPANY INFORMATION SUMMARY**

Company	Return On Equity	Beta	Credit Rating	Debt Rate
Cameco Corp (CCO.TO)	7.50%	0.8	Baa3	3.37%
<b>Selected for Industry</b>		<b>7.50%</b>	<b>0.80</b>	<b>3.37%</b>

\*Amounts in Millions



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<b>CAPM: RULE 62 COMPLIANT</b>		<b>CAPM: IMPLIED ERP</b>	
Market Risk Premium	7.46%	Market Risk Premium	5.00%
X Industry Beta	0.80	X Industry Beta	0.80
Industry Risk Premium	5.97%	Industry Risk Premium	4.00%
Add: Risk Free Rate	1.94%	Add: Risk Free Rate	1.94%
Indicated Rate	7.91%	Indicated Rate	5.94%

<b>CAPM: SUPPLY SIDE</b>			
Market Risk Premium	6.22%		
X Industry Beta	0.80		
Industry Risk Premium	4.98%		
Add: Risk Free Rate	1.94%		
Indicated Rate	6.92%		

<b>MULTISTAGE DIVIDEND GROWTH MODEL</b>				
Company Name	Indicated Rates			
	Damodaran's	Damodaran's AP	Cornell's	Cornell's AP
Cameco Corp (CCO.TO)	7.53%	5.70%	8.79%	10.56%
Selected Rate	7.53%	5.70%	10.56%	8.79%



**UTAH STATE TAX COMMISSION**  
**PROPERTY TAX DIVISION**  
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**DIVIDEND GROWTH MODEL INPUTS**

Company Name	Stock Price	Next Year's Payout	Next Year's EPS	3-5 Year EPS	Projected Growth
Cameco Corp (CCO.TO)	21.56	0.08	0.20	1.00	36.00%