

2017

CAPITALIZATION RATE STUDY FOR CENTRALLY ASSESSED PROPERTIES

FOR: JANUARY 1, 2017



UTAH STATE TAX COMMISSION

**PROPERTY TAX DIVISION
NATURAL RESOURCES SECTION
210 NORTH 1950 WEST, THIRD FLOOR
SALT LAKE CITY, UTAH 84134**

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UTAH STATE TAX COMMISSION
PROPERTY TAX DIVISION
SUMMARY OF EQUITY RATES AND CAPITAL STRUCTURE

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Industry	Page	Debt Rate	Debt/Equity	Equity Yield Rate	WACC
COAL MINING	3	8.18%	45% / 55%	12.23%	10.41%
PRECIOUS METALS	5	6.94%	25% / 75%	9.53%	8.89%
NON-PRECIOUS METALS	7	6.94%	40% / 60%	12.49%	10.27%
NON-METALS	9	6.94%	20% / 80%	11.85%	10.87%
OIL & GAS PRODUCTION/WD	11	8.18%	40% / 60%	15.07%	12.31%
OIL & GAS GATHERING	13	6.94%	40% / 60%	12.82%	10.47%
SAND AND GRAVEL	15	7.00%	15% / 85%	11.53%	10.85%
URANIUM MINING	17	8.99%	5% / 95%	13.29%	13.08%



**UTAH STATE TAX COMMISSION
PROPERTY TAX DIVISION
KEY RATES AND FIGURES**

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CORPORATE BONDS

Aaa	4.06%
Aa	4.12%
A	4.28%
Baa	4.83%
Ba1	6.94%
Ba2	7.00%
Ba3	7.00%
B1	7.57%
B2	7.57%
B3	7.57%
Caa1	8.18%
Caa2	8.18%
Caa3	8.99%
Ca	12.55%
C	15.87%

PUBLIC UTILITY BONDS

Aaa	N/A
Aa	4.11%
A	4.27%
Baa	4.79%

PREFERRED STOCKS

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

MISCELLANEOUS RATES

Risk-Free Rate	2.79%
Market Risk Premium	6.94%
Default Income Tax Rate	38.50%
ValueLine GDP Price Deflator Forecast	2.40%

INFLATION FACTORS

Year	4th Quarter GDP Implicit Price Deflator	Annual Percent Change	Conversion Factor
2006	95.591	N/A	1.174
2007	97.945	2.46%	1.146
2008	99.805	1.90%	1.125
2009	100.183	0.38%	1.120
2010	101.963	1.78%	1.101
2011	103.913	1.91%	1.080
2012	105.937	1.95%	1.060
2013	107.674	1.64%	1.042
2014	109.321	1.53%	1.027
2015	110.498	1.08%	1.016
2016	112.243	1.58%	1.000

2017 - 2007 Average Change: 1.62%

Source:

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

Website:

<http://alfred.stlouisfed.org/series?seid=GDPDEF>

MISCELLANEOUS INFORMATION

NOMINAL RATE (NR) = Includes both the real rate and the impact of inflation (IR).

REAL RATE = $[(1+NR)/(1+IR)] - 1$

Coal Example = $[(1+0.1041)/(1+0.0162)] - 1 = 0.0865$

INDUSTRY	NOMINAL	REAL
Coal	10.41%	8.65%
Precious Metals	8.89%	7.15%
Non-Precious Metals	10.27%	8.51%
Non-Metals	10.87%	9.10%
Oil & Gas Production/WD	12.31%	10.52%
Oil & Gas Gathering	10.47%	8.71%
Sand & Gravel	10.85%	9.08%
Uranium	13.08%	11.28%

(tax-adjusted)	NOMINAL	REAL
Coal	14.58%	12.75%
Precious Metals	13.31%	11.50%
Non-Precious Metals	14.92%	13.09%
Non-Metals	16.74%	14.88%
Oil & Gas Production/WD	17.91%	16.03%
Oil & Gas Gathering	15.24%	13.40%
Sand & Gravel	16.92%	15.05%
Uranium	20.90%	18.97%



**UTAH STATE TAX COMMISSION
PROPERTY TAX DIVISION
COAL MINING -- EQUITY RATE MODELS**

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RECONCILIATION

Equity Models				Equity Rate
CAPM: Rule 62 Compliant				12.23%
CAPM: Supply Side				10.91%
CAPM: Implied ERP				0.00%
CAPM: Total NYSE				N/A
CAPM: Deciles 1 & 2				N/A
Division's Risk Premium				11.53%
DGM: Earnings & Dividend				9.05%
DGM: Plowback Ratio				N/A
Reconciled Equity Rate				12.23%
Reconciled Equity Rate	12.23%	55.00%	6.73%	
Debt Rate (Corporate Caa2)	8.18%	45.00%	3.68%	
Weighted Average Cost of Capital				10.41%
Reconciled Equity Rate	12.23%			
Tax-Adjusted (38.25%)	19.81%	55.00%	10.90%	
Industry Debt Rate	8.18%	45.00%	3.68%	
Tax-Adjusted Weighted Average Cost of Capital				14.58%

CAPM: RULE 62 COMPLIANT

Market Risk Premium	6.94%
x Industry Beta	1.36
Industry Risk Premium	9.44%
Add: Risk-Free Rate	2.79%
Indicated Rate	12.23%

DIVISION'S RISK PREMIUM

Market Risk Premium	6.94%
x Industry Financial Strength	1.26
Industry Risk Premium	8.74%
Add: Risk-Free Rate	2.79%
Indicated Rate	11.53%

CAPM: IMPLIED ERP

Market Risk Premium	5.62%
x Industry Beta	1.36
Industry Risk Premium	7.64%
Add: Risk-Free Rate	2.79%
Indicated Rate	10.43%

DIVIDEND GROWTH MODELS

Company Name	Recent Stock Price	Next Year's Dividend	EPS & DIV. GROWTH		PLOWBACK RATIO	
			Market Growth Rate	D.G.M. Rate	Market Growth Rate	D.G.M. Rate
Alliance Resource	\$22.45	\$1.75	1.25%	9.05%	-	-
Cloud Peak Energy Inc	\$5.61	-	-	-	-	-
CONSOL Energy	\$18.23	-	40.00%	-	-	-
SunCoke Energy Partners L.P.	\$19.25	-	-	-	-	-
Westmoreland Coal Co.	\$17.67	-	-	-	-	-
Indicated Rate			9.05%		N/A	



**UTAH STATE TAX COMMISSION
PROPERTY TAX DIVISION
COAL MINING -- CAPITAL STRUCTURE**

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CAPM: SUPPLY SIDE	
Market Risk Premium	5.97%
x Industry Beta	1.36
Industry Risk Premium	8.12%
Add: Risk-Free Rate	2.79%
Indicated Rate	10.91%

CAPM: DECILES 1 & 2	
Market Risk Premium	0.00%
x Industry Beta	1.36
Industry Risk Premium	0.00%
Add: Risk-Free Rate	2.79%
Indicated Rate	N/A

CALCULATION OF CAPITAL STRUCTURE										
Company Name	Total Debt	Long-Term Interest	Implied Coupon Rate*	Market Value of Debt**	Fair Value of Debt***	Pref'd Divs	MV of Pref Eqty+	Recent Stock Price	Shares Outstd	Market Value of Equity
Alliance Resource	773.5	30.0	1.94%	448.6	-	-	-	22.45	74.2	1,665.8
Cloud Peak Energy Inc	492.3	-	-	492.3	-	-	-	5.61	61.2	343.3
CONSOL Energy	3,122.3	150.0	2.40%	2,093.0	-	-	-	18.23	229.1	4,176.5
SunCoke Energy Partners L.P.	821.2	-	-	821.2	-	-	-	19.25	46.2	889.4
Westmoreland Coal Co.	1,125.7	-	-	1,125.7	-	-	-	17.67	18.2	321.6
Total				4,980.8			-			7,396.6

GUIDELINE COMPANY INFORMATION SUMMARY						
Company Name	Tax Rate	Relative Financial Strength	Beta	Percent Debt & Preferred Equity	Percent Common Equity	
Alliance Resource	NMF	1.00 (B+)	1.15	21.22%	78.78%	
Cloud Peak Energy Inc	NMF	1.44 (C)	1.25	58.92%	41.08%	
CONSOL Energy	NMF	1.11 (B)	1.50	33.38%	66.62%	
SunCoke Energy Partners L.P.	NMF	1.33 (C+)	1.25	48.01%	51.99%	
Westmoreland Coal Co.	NMF	1.44 (C)	1.65	77.78%	22.22%	
Selected	38.25%	1.26	1.36	47.86%	52.14%	
Weighted Mean				40.24%	59.76%	



UTAH STATE TAX COMMISSION
PROPERTY TAX DIVISION
PRECIOUS METALS -- EQUITY RATE MODELS

RECONCILIATION

Equity Models				Equity Rate
CAPM: Rule 62 Compliant				9.45%
CAPM: Supply Side				8.52%
CAPM: Implied ERP				0.00%
CAPM: Total NYSE				N/A
CAPM: Deciles 1 & 2				N/A
Division's Risk Premium				10.15%
DGM: Earnings & Dividend				9.29%
DGM: Plowback Ratio				N/A
Reconciled Equity Rate				9.53%
Reconciled Equity Rate	9.53%	75.00%	7.15%	
Debt Rate (Corporate Ba1)	6.94%	25.00%	1.74%	
Weighted Average Cost of Capital				8.89%
Reconciled Equity Rate	9.53%			
Tax-Adjusted (38.25%)	15.43%	75.00%	11.57%	
Industry Debt Rate	6.94%	25.00%	1.74%	
Tax-Adjusted Weighted Average Cost of Capital				13.31%

CAPM: RULE 62 COMPLIANT

Market Risk Premium	6.94%	
x Industry Beta	0.96	
Industry Risk Premium	6.66%	
Add: Risk-Free Rate	2.79%	
Indicated Rate		9.45%

DIVISION'S RISK PREMIUM

Market Risk Premium	6.94%	
x Industry Financial Strength	1.06	
Industry Risk Premium	7.36%	
Add: Risk-Free Rate	2.79%	
Indicated Rate		10.15%

CAPM: IMPLIED ERP

Market Risk Premium	5.62%	
x Industry Beta	0.96	
Industry Risk Premium	5.40%	
Add: Risk-Free Rate	2.79%	
Indicated Rate		8.19%

DIVIDEND GROWTH MODELS

Company Name	Recent Stock Price	Next Year's Dividend	EPS & DIV. GROWTH		PLOWBACK RATIO	
			Market Growth Rate	D.G.M. Rate	Market Growth Rate	D.G.M. Rate
Agnico Eagle Mines	\$42.00	\$0.40	11.75%	12.70%	-	-
Barrick Gold	\$15.98	\$0.08	-11.75%	-	-	-
Coeur Mining Inc.	\$9.09	-	-	-	-	-
Goldcorp Inc.	\$13.60	\$0.08	11.25%	11.84%	-	-
Hecla Mining	\$5.24	-	1.00%	-	-	-
Kinross Gold	\$3.11	-	16.00%	-	-	-
Kirkland Lake Gold Inc	\$5.81	-	-	-	-	-
New Gold Inc	\$3.50	-	5.00%	-	-	-
Newmont Mining	\$34.07	\$0.20	2.75%	3.34%	-	-
Richmont Mines	\$8.72	-	-	-	-	-
Indicated Rate			9.29%		N/A	



**UTAH STATE TAX COMMISSION
PROPERTY TAX DIVISION
PRECIOUS METALS -- CAPITAL STRUCTURE**

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CAPM: SUPPLY SIDE	
Market Risk Premium	5.97%
x Industry Beta	0.96
Industry Risk Premium	5.73%
Add: Risk-Free Rate	2.79%
Indicated Rate	8.52%

CAPM: DECILES 1 & 2	
Market Risk Premium	0.00%
x Industry Beta	0.96
Industry Risk Premium	0.00%
Add: Risk-Free Rate	2.79%
Indicated Rate	N/A

CALCULATION OF CAPITAL STRUCTURE										
Company Name	Total Debt	Long-Term Interest	Implied Coupon Rate*	Market Value of Debt**	Fair Value of Debt***	Pref'd Divs	MV of Pref Eqty+	Recent Stock Price	Shares Outstd	Market Value of Equity
Agnico Eagle Mines	1,203.3	58.8	2.44%	938.2	-	-	-	42.00	217.7	9,143.4
Barrick Gold	8,539.0	730.0	4.27%	10,012.9	-	-	-	15.98	1,165.1	18,618.3
Coeur Mining Inc.	401.7	-	-	401.7	-	-	-	9.09	151.3	1,375.3
Goldcorp Inc.	2,681.0	100.0	1.86%	1,757.8	-	-	-	13.60	830.3	11,292.1
Hecla Mining	515.8	-	-	515.8	-	-	-	5.24	378.1	1,981.2
Kinross Gold	1,732.5	79.0	2.28%	1,290.2	-	-	-	3.11	1,146.5	3,565.6
Kirkland Lake Gold Inc	249.8	-	-	249.8	-	-	-	5.81	80.3	466.5
New Gold Inc	1,865.1	-	-	1,865.1	-	-	-	3.50	509.5	1,783.3
Newmont Mining	5,116.0	260.0	2.54%	4,096.4	-	-	-	34.07	529.7	18,046.9
Richmont Mines	50.0	-	-	50.0	-	-	-	8.72	58.3	508.4
Total				21,178.0			-			66,781.0

GUIDELINE COMPANY INFORMATION SUMMARY						
Company Name	Tax Rate	Relative Financial Strength	Beta	Percent Debt & Preferred Equity	Percent Common Equity	
Agnico Eagle Mines	29.69%	1.00 (B+)	0.75	9.31%	90.69%	
Barrick Gold	53.06%	1.11 (B)	0.85	34.97%	65.03%	
Coeur Mining Inc.	NMF	1.11 (B)	1.40	22.61%	77.39%	
Goldcorp Inc.	NMF	0.89 (B++)	0.80	13.47%	86.53%	
Hecla Mining	NMF	1.11 (B)	1.30	20.66%	79.34%	
Kinross Gold	NMF	1.22 (C++)	1.00	26.57%	73.43%	
Kirkland Lake Gold Inc	22.42%		0.75	34.88%	65.12%	
New Gold Inc	NMF		1.10	51.12%	48.88%	
Newmont Mining	50.09%	1.00 (B+)	0.85	18.50%	81.50%	
Richmont Mines	20.94%		0.80	8.96%	91.04%	
Selected	38.25%	1.06	0.96	24.10%	75.90%	
Weighted Mean				24.08%	75.92%	



UTAH STATE TAX COMMISSION
PROPERTY TAX DIVISION
NON-PRECIOUS METALS -- EQUITY RATE MODELS

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RECONCILIATION

Equity Models	Equity Rate
CAPM: Rule 62 Compliant	13.34%
CAPM: Supply Side	11.86%
CAPM: Implied ERP	0.00%
CAPM: Total NYSE	N/A
CAPM: Deciles 1 & 2	N/A
Division's Risk Premium	10.15%
DGM: Earnings & Dividend	7.69%
DGM: Plowback Ratio	N/A
Reconciled Equity Rate	12.49%
Reconciled Equity Rate	12.49%
Debt Rate (Corporate Ba1)	6.94%
Weighted Average Cost of Capital	10.27%
Reconciled Equity Rate	12.49%
Tax-Adjusted (38.25%)	20.23%
Industry Debt Rate	6.94%
Tax-Adjusted Weighted Average Cost of Capital	14.92%

CAPM: RULE 62 COMPLIANT

Market Risk Premium	6.94%
x Industry Beta	1.52
Industry Risk Premium	10.55%
Add: Risk-Free Rate	2.79%
Indicated Rate	13.34%

DIVISION'S RISK PREMIUM

Market Risk Premium	6.94%
x Industry Financial Strength	1.06
Industry Risk Premium	7.36%
Add: Risk-Free Rate	2.79%
Indicated Rate	10.15%

CAPM: IMPLIED ERP

Market Risk Premium	5.62%
x Industry Beta	1.52
Industry Risk Premium	8.54%
Add: Risk-Free Rate	2.79%
Indicated Rate	11.33%

DIVIDEND GROWTH MODELS

Company Name	Recent Stock Price	Next Year's Dividend	EPS & DIV. GROWTH		PLOWBACK RATIO	
			Market Growth Rate	D.G.M. Rate	Market Growth Rate	D.G.M. Rate
BHP Billiton Ltd. ADR	\$35.78	\$1.04	-0.75%	-	-	-
Freep't-McMoRan Inc.	\$13.19	-	17.50%	-	-	-
Materion Corp.	\$39.60	\$0.38	5.00%	5.96%	-	-
Rio Tinto plc	\$38.46	\$1.70	0.25%	4.67%	-	-
Southern Copper	\$31.94	\$0.20	11.25%	11.88%	-	-
Teck Resources Ltd. 'B'	\$26.87	\$0.10	3.75%	4.12%	-	-
Vale S.A. ADR	\$7.62	\$0.10	10.50%	11.81%	-	-
Indicated Rate			7.69%		N/A	



UTAH STATE TAX COMMISSION
PROPERTY TAX DIVISION
NON-PRECIOUS METALS -- CAPITAL STRUCTURE

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CAPM: SUPPLY SIDE	
Market Risk Premium	5.97%
x Industry Beta	1.52
Industry Risk Premium	9.07%
Add: Risk-Free Rate	2.79%
Indicated Rate	11.86%

CAPM: DECILES 1 & 2	
Market Risk Premium	0.00%
x Industry Beta	1.52
Industry Risk Premium	0.00%
Add: Risk-Free Rate	2.79%
Indicated Rate	N/A

CALCULATION OF CAPITAL STRUCTURE										
Company Name	Total Debt	Long-Term Interest	Implied Coupon Rate*	Market Value of Debt**	Fair Value of Debt***	Pref'd Divs	MV of Pref Eqty+	Recent Stock Price	Shares Outstd	Market Value of Equity
BHP Billiton Ltd. ADR	36,421.0	1,500.0	2.06%	25,397.3	-	-	-	35.78	2,661.2	95,217.7
Freep't-McMoRan Inc.	18,982.0	1,090.0	2.87%	16,543.1	-	-	-	13.19	1,246.0	16,434.7
Materion Corp.	16,600.0	200.0	0.60%	6,387.1	-	-	-	39.60	20.0	792.0
Rio Tinto plc	21,867.0	1,200.0	2.74%	18,460.3	-	-	-	38.46	1,798.2	69,158.8
Southern Copper	5,953.5	385.0	3.23%	5,651.3	-	-	-	31.94	775.9	24,782.2
Teck Resources Ltd. 'B'	8,704.0	535.0	3.07%	7,963.2	-	-	-	26.87	576.3	15,485.2
Vale S.A. ADR	31,449.0	1,652.0	2.63%	25,757.5	-	-	-	7.62	5,244.3	39,961.6
Total				106,159.8			-			261,832.2

GUIDELINE COMPANY INFORMATION SUMMARY						
Company Name	Tax Rate	Relative Financial Strength	Beta	Percent Debt & Preferred Equity	Percent Common Equity	
BHP Billiton Ltd. ADR	NMF	1.00 (B+)	1.40	21.06%	78.94%	
Freep't-McMoRan Inc.	NMF	1.22 (C++)	1.85	50.16%	49.84%	
Materion Corp.	24.90%	1.00 (B+)	1.50	88.97%	11.03%	
Rio Tinto plc	25.02%	0.78 (A)	1.40	21.07%	78.93%	
Southern Copper	39.09%	0.89 (B++)	1.25	18.57%	81.43%	
Teck Resources Ltd. 'B'	40.00%	1.22 (C++)	1.65	33.96%	66.04%	
Vale S.A. ADR	NMF	1.33 (C+)	1.60	39.19%	60.81%	
Selected	38.25%	1.06	1.52	39.00%	61.00%	
Weighted Mean				28.85%	71.15%	



**UTAH STATE TAX COMMISSION
PROPERTY TAX DIVISION
NON-METALS -- EQUITY RATE MODELS**

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RECONCILIATION

Equity Models	Equity Rate
CAPM: Rule 62 Compliant	11.05%
CAPM: Supply Side	9.89%
CAPM: Implied ERP	0.00%
CAPM: Total NYSE	N/A
CAPM: Deciles 1 & 2	N/A
Division's Risk Premium	9.80%
DGM: Earnings & Dividend	16.42%
DGM: Plowback Ratio	N/A
Reconciled Equity Rate	11.85%
Reconciled Equity Rate	11.85%
Debt Rate (Corporate Ba1)	6.94%
Weighted Average Cost of Capital	10.87%
Reconciled Equity Rate	11.85%
Tax-Adjusted (38.25%)	19.19%
Industry Debt Rate	6.94%
Tax-Adjusted Weighted Average Cost of Capital	16.74%

CAPM: RULE 62 COMPLIANT

Market Risk Premium	6.94%
x Industry Beta	1.19
Industry Risk Premium	8.26%
Add: Risk-Free Rate	2.79%
Indicated Rate	11.05%

DIVISION'S RISK PREMIUM

Market Risk Premium	6.94%
x Industry Financial Strength	1.01
Industry Risk Premium	7.01%
Add: Risk-Free Rate	2.79%
Indicated Rate	9.80%

CAPM: IMPLIED ERP

Market Risk Premium	5.62%
x Industry Beta	1.19
Industry Risk Premium	6.69%
Add: Risk-Free Rate	2.79%
Indicated Rate	9.48%

DIVIDEND GROWTH MODELS

Company Name	Recent Stock Price	Next Year's Dividend	EPS & DIV. GROWTH		PLOWBACK RATIO	
			Market Growth Rate	D.G.M. Rate	Market Growth Rate	D.G.M. Rate
Compass Minerals Int'l	\$81.00	\$2.78	6.25%	9.68%	-	-
Eagle Materials	\$98.35	\$0.40	10.00%	10.41%	-	-
Intrepid Potash Inc	\$2.60	-	-	-	-	-
Martin Marietta	\$222.20	\$1.62	13.25%	13.98%	-	-
Mosaic Company	\$30.04	\$1.10	7.50%	11.16%	-	-
Potash Corp.	\$18.63	\$0.98	-8.50%	-	-	-
U S Lime & Minerals	\$77.50	\$0.50	-	-	-	-
USG Corp.	\$29.94	-	-	-	-	-
Vulcan Materials	\$125.43	\$0.80	36.25%	36.89%	-	-
Indicated Rate			16.42%		N/A	



**UTAH STATE TAX COMMISSION
PROPERTY TAX DIVISION
NON-METALS -- CAPITAL STRUCTURE**

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CAPM: SUPPLY SIDE	
Market Risk Premium	5.97%
x Industry Beta	1.19
Industry Risk Premium	7.10%
Add: Risk-Free Rate	2.79%
Indicated Rate	9.89%

CAPM: DECILES 1 & 2	
Market Risk Premium	0.00%
x Industry Beta	1.19
Industry Risk Premium	0.00%
Add: Risk-Free Rate	2.79%
Indicated Rate	N/A

CALCULATION OF CAPITAL STRUCTURE										
Company Name	Total Debt	Long-Term Interest	Implied Coupon Rate*	Market Value of Debt**	Fair Value of Debt***	Pref'd Divs	MV of Pref Eqty+	Recent Stock Price	Shares Outstd	Market Value of Equity
Compass Minerals Int'l	1,212.6	35.0	1.44%	685.3	-	-	-	81.00	33.8	2,736.7
Eagle Materials	469.2	22.6	2.41%	362.3	-	-	-	98.35	48.2	4,742.4
Intrepid Potash Inc	132.0	-	-	132.0	-	-	-	2.60	75.8	197.2
Martin Marietta	1,764.8	76.3	2.16%	1,269.4	-	-	-	222.20	63.5	14,103.0
Mosaic Company	3,876.7	125.0	1.61%	2,331.5	-	-	-	30.04	350.2	10,521.2
Potash Corp.	4,750.0	175.0	1.84%	3,091.0	-	-	-	18.63	839.6	15,642.5
U S Lime & Minerals	-	-	-	-	-	-	-	77.50	5.6	431.7
USG Corp.	1,977.0	148.0	3.74%	2,092.8	-	-	-	29.94	146.1	4,373.6
Vulcan Materials	1,983.7	220.9	5.57%	2,876.6	-	-	-	125.43	132.3	16,595.6
Total				12,840.9			-			69,343.9

GUIDELINE COMPANY INFORMATION SUMMARY						
Company Name	Tax Rate	Relative Financial Strength	Beta	Percent Debt & Preferred Equity	Percent Common Equity	
Compass Minerals Int'l	30.00%	1.00 (B+)	0.85	20.03%	79.97%	
Eagle Materials	33.00%	1.00 (B+)	1.50	7.10%	92.90%	
Intrepid Potash Inc	NMF	1.44 (C)	1.30	40.10%	59.90%	
Martin Marietta	40.00%	0.89 (B++)	1.15	8.26%	91.74%	
Mosaic Company	30.00%	0.78 (A)	1.25	18.14%	81.86%	
Potash Corp.	26.00%	0.89 (B++)	1.10	16.50%	83.50%	
U S Lime & Minerals	26.30%	1.00 (B+)	0.90	-	100.00%	
USG Corp.	32.00%	1.11 (B)	1.50	32.36%	67.64%	
Vulcan Materials	28.50%	1.00 (B+)	1.20	14.77%	85.23%	
Selected	38.25%	1.01	1.19	17.47%	82.53%	
Weighted Mean				15.62%	84.38%	



UTAH STATE TAX COMMISSION
PROPERTY TAX DIVISION
OIL & GAS PRODUCTION/WD -- EQUITY RATE MODELS

RECONCILIATION

Equity Models	Equity Rate
CAPM: Rule 62 Compliant	15.07%
CAPM: Supply Side	13.36%
CAPM: Implied ERP	0.00%
CAPM: Total NYSE	N/A
CAPM: Deciles 1 & 2	N/A
Division's Risk Premium	11.19%
DGM: Earnings & Dividend	20.54%
DGM: Plowback Ratio	N/A
Reconciled Equity Rate	15.07%
Reconciled Equity Rate	15.07%
Debt Rate (Corporate Caa1)	8.18%
Weighted Average Cost of Capital	12.31%
Reconciled Equity Rate	15.07%
Tax-Adjusted (38.25%)	24.40%
Industry Debt Rate	8.18%
Tax-Adjusted Weighted Average Cost of Capital	17.91%

CAPM: RULE 62 COMPLIANT

Market Risk Premium	6.94%
x Industry Beta	1.77
Industry Risk Premium	12.28%
Add: Risk-Free Rate	2.79%
Indicated Rate	15.07%

DIVISION'S RISK PREMIUM

Market Risk Premium	6.94%
x Industry Financial Strength	1.21
Industry Risk Premium	8.40%
Add: Risk-Free Rate	2.79%
Indicated Rate	11.19%

CAPM: IMPLIED ERP

Market Risk Premium	5.62%
x Industry Beta	1.77
Industry Risk Premium	9.95%
Add: Risk-Free Rate	2.79%
Indicated Rate	12.74%

DIVIDEND GROWTH MODELS

Company Name	Recent Stock Price	Next Year's Dividend	EPS & DIV. GROWTH		PLOWBACK RATIO	
			Market Growth Rate	D.G.M. Rate	Market Growth Rate	D.G.M. Rate
Abraxas Petrol	\$2.57	-	-	-	-	-
Bill Barrett Corp	\$6.99	-	15.00%	-	-	-
Bonanza Creek Energy Inc.	\$1.02	-	-	-	-	-
Continental Resources	\$51.54	-	14.50%	-	-	-
Earthstone Energy Inc	\$13.74	-	-	-	-	-
Encana Corp.	\$11.74	\$0.06	-7.25%	-	-	-
Legacy Reserves	\$2.12	-	-	-	-	-
Matador Resources Company	\$25.76	-	30.00%	-	-	-
Newfield Exploration	\$40.50	-	12.00%	-	-	-
Pioneer Natural Res.	\$180.07	\$0.08	20.50%	20.54%	-	-
QEP Resources	\$18.41	-	10.00%	-	-	-
Resolute Energy Corp	\$41.19	-	15.00%	-	-	-
SM Energy Co.	\$34.48	-	-	-	-	-
Southwestern Energy	\$10.82	-	-6.50%	-	-	-
Whiting Petroleum	\$12.02	-	18.50%	-	-	-
WPX Energy	\$14.57	-	-	-	-	-
Indicated Rate			20.54%		N/A	



UTAH STATE TAX COMMISSION
PROPERTY TAX DIVISION
OIL & GAS PRODUCTION/WD -- CAPITAL STRUCTURE

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CAPM: SUPPLY SIDE	
Market Risk Premium	5.97%
x Industry Beta	1.77
Industry Risk Premium	10.57%
Add: Risk-Free Rate	2.79%
Indicated Rate	13.36%

CAPM: DECILES 1 & 2	
Market Risk Premium	0.00%
x Industry Beta	1.77
Industry Risk Premium	0.00%
Add: Risk-Free Rate	2.79%
Indicated Rate	N/A

CALCULATION OF CAPITAL STRUCTURE

Company Name	Total Debt	Long-Term Interest	Implied Coupon Rate*	Market Value of Debt**	Fair Value of Debt***	Pref'd Divs	MV of Pref Eqty+	Recent Stock Price	Shares Outstd	Market Value of Equity
Abraxas Petrol	95.0	-	-	95.0	-	-	-	2.57	106.3	273.2
Bill Barrett Corp	712.0	-	-	712.0	-	-	-	6.99	49.9	348.8
Bonanza Creek Energy Inc.	1,022.7	-	-	1,022.7	-	-	-	1.02	49.8	50.8
Continental Resources	7,151.5	310.0	2.17%	4,466.1	-	-	-	51.54	373.0	19,224.4
Earthstone Energy Inc	14.7	-	-	14.7	-	-	-	13.74	13.8	189.6
Encana Corp.	4,198.0	260.0	3.10%	3,383.6	-	-	-	11.74	849.8	9,976.7
Legacy Reserves	1,157.5	-	-	1,157.5	-	-	-	2.12	68.9	146.1
Matador Resources Company	457.2	-	-	457.2	-	-	-	25.76	85.6	2,205.1
Newfield Exploration	2,430.0	135.0	2.78%	1,807.2	-	-	-	40.50	163.5	6,621.8
Pioneer Natural Res.	3,664.0	155.0	2.12%	2,250.8	-	-	-	180.07	149.4	26,902.5
QEP Resources	2,019.3	145.0	3.59%	1,822.3	-	-	-	18.41	176.8	3,254.9
Resolute Energy Corp	518.2	-	-	518.2	-	-	-	41.19	15.4	634.3
SM Energy Co.	2,894.3	-	-	2,894.3	-	-	-	34.48	68.1	2,348.1
Southwestern Energy	4,652.0	235.0	2.53%	3,230.8	-	-	-	10.82	390.1	4,220.9
Whiting Petroleum	4,085.6	275.0	3.37%	3,507.5	-	-	-	12.02	204.1	2,453.3
WPX Energy	2,699.0	189.0	3.50%	2,388.7	-	-	-	14.57	275.4	4,012.6
Total				29,728.6		-				82,863.1

GUIDELINE COMPANY INFORMATION SUMMARY

Company Name	Tax Rate	Relative Financial Strength	Beta	Percent Debt & Preferred Equity	Percent Common Equity
Abraxas Petrol	NMF	1.33 (C+)	2.05	25.80%	74.20%
Bill Barrett Corp	NMF	1.33 (C+)	2.10	67.12%	32.88%
Bonanza Creek Energy Inc.	NMF	1.44 (C)	2.45	95.27%	4.73%
Continental Resources	38.00%	1.00 (B+)	1.75	18.85%	81.15%
Earthstone Energy Inc	NMF	1.11 (B)	0.95	7.20%	92.80%
Encana Corp.	29.00%	1.33 (C+)	1.55	25.33%	74.67%
Legacy Reserves	NMF	1.44 (C)	1.55	88.79%	11.21%
Matador Resources Company	NMF	1.11 (B)	1.70	17.17%	82.83%
Newfield Exploration	35.00%	1.00 (B+)	1.70	21.44%	78.56%
Pioneer Natural Res.	35.00%	0.89 (B++)	1.45	7.72%	92.28%
QEP Resources	30.00%	1.11 (B)	1.60	35.89%	64.11%
Resolute Energy Corp	NMF	1.44 (C)	2.05	44.96%	55.04%
SM Energy Co.	NMF	1.22 (C++)	2.00	55.21%	44.79%
Southwestern Energy	40.00%	1.11 (B)	1.30	43.36%	56.64%
Whiting Petroleum	35.00%	1.22 (C++)	2.15	58.84%	41.16%
WPX Energy	NMF	1.33 (C+)	1.90	37.32%	62.68%
Selected	38.25%	1.21	1.77	40.64%	59.36%
Weighted Mean				26.40%	73.60%



UTAH STATE TAX COMMISSION
PROPERTY TAX DIVISION
OIL & GAS GATHERING -- EQUITY RATE MODELS

RECONCILIATION

Equity Models	Equity Rate
CAPM: Rule 62 Compliant	12.37%
CAPM: Supply Side	11.03%
CAPM: Implied ERP	0.00%
CAPM: Total NYSE	N/A
CAPM: Deciles 1 & 2	N/A
Division's Risk Premium	10.08%
DGM: Earnings & Dividend	13.25%
DGM: Plowback Ratio	N/A
Reconciled Equity Rate	12.82%
Reconciled Equity Rate	12.82%
Debt Rate (Corporate Ba1)	6.94%
Weighted Average Cost of Capital	10.47%
Reconciled Equity Rate	12.82%
Tax-Adjusted (38.25%)	20.76%
Industry Debt Rate	6.94%
Tax-Adjusted Weighted Average Cost of Capital	15.24%

CAPM: RULE 62 COMPLIANT

Market Risk Premium	6.94%
x Industry Beta	1.38
Industry Risk Premium	9.58%
Add: Risk-Free Rate	2.79%
Indicated Rate	12.37%

DIVISION'S RISK PREMIUM

Market Risk Premium	6.94%
x Industry Financial Strength	1.05
Industry Risk Premium	7.29%
Add: Risk-Free Rate	2.79%
Indicated Rate	10.08%

CAPM: IMPLIED ERP

Market Risk Premium	5.62%
x Industry Beta	1.38
Industry Risk Premium	7.76%
Add: Risk-Free Rate	2.79%
Indicated Rate	10.55%

DIVIDEND GROWTH MODELS

Company Name	Recent Stock Price	Next Year's Dividend	EPS & DIV. GROWTH		PLOWBACK RATIO	
			Market Growth Rate	D.G.M. Rate	Market Growth Rate	D.G.M. Rate
Crestwood Equity Partners LP	\$25.55	-	-	-	-	-
Energy Transfer Part.	\$35.81	\$4.22	7.25%	19.03%	-	-
ONEOK Partners L.P.	\$43.01	\$3.16	4.50%	11.85%	-	-
Plains All Amer. Pipe.	\$32.29	\$2.20	5.00%	11.81%	-	-
Summit Midstream Partners LP	\$25.15	-	-	-	-	-
Tallgrass Energy GP LP	\$26.80	-	-	-	-	-
Western Gas Part.	\$58.76	\$3.53	10.75%	16.76%	-	-
Williams Cos.	\$31.14	\$0.80	4.25%	6.82%	-	-
Indicated Rate			13.25%		N/A	



UTAH STATE TAX COMMISSION
PROPERTY TAX DIVISION
OIL & GAS GATHERING -- CAPITAL STRUCTURE

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CAPM: SUPPLY SIDE	
Market Risk Premium	5.97%
x Industry Beta	1.38
Industry Risk Premium	8.24%
Add: Risk-Free Rate	2.79%
Indicated Rate	11.03%

CAPM: DECILES 1 & 2	
Market Risk Premium	0.00%
x Industry Beta	1.38
Industry Risk Premium	0.00%
Add: Risk-Free Rate	2.79%
Indicated Rate	N/A

CALCULATION OF CAPITAL STRUCTURE										
Company Name	Total Debt	Long-Term Interest	Implied Coupon Rate*	Market Value of Debt**	Fair Value of Debt***	Pref'd Divs	MV of Pref Eqty+	Recent Stock Price	Shares Outstd	Market Value of Equity
Crestwood Equity Partners LP	1,579.1	-	-	1,579.1	-	-	-	25.55	68.6	1,752.7
Energy Transfer Part.	30,481.0	860.0	1.41%	17,014.0	-	-	-	35.81	432.8	15,498.6
ONEOK Partners L.P.	9,474.3	415.0	2.19%	6,872.7	-	-	-	43.01	285.8	12,292.3
Plains All Amer. Pipe.	11,018.0	460.0	2.09%	7,749.9	-	-	-	32.29	397.7	12,841.7
Summit Midstream Partners LP	1,224.9	-	-	1,224.9	-	-	-	25.15	67.8	1,705.2
Tallgrass Energy GP LP	1,546.0	-	-	1,546.0	-	-	-	26.80	47.7	1,278.4
Western Gas Part.	2,907.4	105.0	1.81%	1,869.3	-	-	-	58.76	142.6	8,379.2
Williams Cos.	24,993.0	1,300.0	2.60%	20,331.8	-	-	-	31.14	749.0	23,323.9
Total				58,187.7			-			77,072.0

GUIDELINE COMPANY INFORMATION SUMMARY						
Company Name	Tax Rate	Relative Financial Strength	Beta	Percent Debt & Preferred Equity	Percent Common Equity	
Crestwood Equity Partners LP	NMF	1.22 (C++)	1.75	47.39%	52.61%	
Energy Transfer Part.	NMF	0.89 (B++)	1.15	52.33%	47.67%	
ONEOK Partners L.P.	30.00%	1.00 (B+)	1.05	35.86%	64.14%	
Plains All Amer. Pipe.	NMF	1.00 (B+)	1.25	37.64%	62.36%	
Summit Midstream Partners LP	NMF	1.22 (C++)	1.55	41.80%	58.20%	
Tallgrass Energy GP LP	NMF			54.74%	45.26%	
Western Gas Part.	NMF	1.00 (B+)	1.20	18.24%	81.76%	
Williams Cos.	36.00%	1.00 (B+)	1.70	46.57%	53.43%	
Selected	38.25%	1.05	1.38	41.82%	58.18%	
Weighted Mean				43.02%	56.98%	



UTAH STATE TAX COMMISSION
PROPERTY TAX DIVISION
SAND AND GRAVEL -- EQUITY RATE MODELS

RECONCILIATION

Equity Models				Equity Rate
CAPM: Rule 62 Compliant				11.53%
CAPM: Supply Side				10.31%
CAPM: Implied ERP				0.00%
CAPM: Total NYSE				N/A
CAPM: Deciles 1 & 2				N/A
Division's Risk Premium				9.59%
DGM: Earnings & Dividend				20.25%
DGM: Plowback Ratio				12.21%
Reconciled Equity Rate				11.53%
Reconciled Equity Rate	11.53%	85.00%	9.80%	
Debt Rate (Corporate Ba2)	7.00%	15.00%	1.05%	
Weighted Average Cost of Capital				10.85%
Reconciled Equity Rate	11.53%			
Tax-Adjusted (38.25%)	18.67%	85.00%	15.87%	
Industry Debt Rate	7.00%	15.00%	1.05%	
Tax-Adjusted Weighted Average Cost of Capital				16.92%

CAPM: RULE 62 COMPLIANT

Market Risk Premium	6.94%	
x Industry Beta	1.26	
Industry Risk Premium	8.74%	
Add: Risk-Free Rate	2.79%	
Indicated Rate		11.53%

DIVISION'S RISK PREMIUM

Market Risk Premium	6.94%	
x Industry Financial Strength	0.98	
Industry Risk Premium	6.80%	
Add: Risk-Free Rate	2.79%	
Indicated Rate		9.59%

CAPM: IMPLIED ERP

Market Risk Premium	5.62%	
x Industry Beta	1.26	
Industry Risk Premium	7.08%	
Add: Risk-Free Rate	2.79%	
Indicated Rate		9.87%

DIVIDEND GROWTH MODELS

Company Name	Recent Stock Price	Next Year's Dividend	EPS & DIV. GROWTH		PLOWBACK RATIO	
			Market Growth Rate	D.G.M. Rate	Market Growth Rate	D.G.M. Rate
Eagle Materials	\$98.53	\$0.40	8.25%	8.66%	13.67%	14.08%
Granite Construction	\$55.00	\$0.52	20.50%	21.45%	9.81%	10.75%
Martin Marietta	\$221.53	\$1.68	13.25%	14.01%	10.17%	10.93%
Summit Materials	\$23.79	-	-	-	-	-
Vulcan Materials	\$125.15	\$0.80	36.25%	36.89%	12.44%	13.08%
Indicated Rate			20.25%		12.21%	



**UTAH STATE TAX COMMISSION
PROPERTY TAX DIVISION
SAND AND GRAVEL -- CAPITAL STRUCTURE**

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CAPM: SUPPLY SIDE	
Market Risk Premium	5.97%
x Industry Beta	1.26
Industry Risk Premium	7.52%
Add: Risk-Free Rate	2.79%
Indicated Rate	10.31%

CAPM: DECILES 1 & 2	
Market Risk Premium	0.00%
x Industry Beta	1.26
Industry Risk Premium	0.00%
Add: Risk-Free Rate	2.79%
Indicated Rate	N/A

CALCULATION OF CAPITAL STRUCTURE										
Company Name	Total Debt	Long-Term Interest	Implied Coupon Rate*	Market Value of Debt**	Fair Value of Debt***	Pref'd Divs	MV of Pref Eqty+	Recent Stock Price	Shares Outstd	Market Value of Equity
Eagle Materials	469.2	22.6	2.41%	359.8	-	-	-	98.53	48.5	4,778.7
Granite Construction	255.5	20.0	3.91%	278.1	-	-	-	55.00	39.4	2,167.0
Martin Marietta	1,764.8	76.3	2.16%	1,260.4	-	-	-	221.53	64.5	14,288.7
Summit Materials	1,521.9	95.0	3.12%	1,398.8	-	-	-	23.79	50.3	1,196.6
Vulcan Materials	1,983.7	220.9	5.57%	2,859.7	-	-	-	125.15	133.2	16,670.0
Total				6,156.8			-			39,101.0

GUIDELINE COMPANY INFORMATION SUMMARY						
Company Name	Tax Rate	Relative Financial Strength	Beta	Percent Debt & Preferred Equity	Percent Common Equity	
Eagle Materials	30.27%	1.00 (B+)	1.50	7.00%	93.00%	
Granite Construction	34.01%	1.00 (B+)	1.20	11.37%	88.63%	
Martin Marietta	30.18%	0.89 (B++)	1.15	8.11%	91.89%	
Summit Materials	NMF	1.00 (B+)		53.90%	46.10%	
Vulcan Materials	28.96%	1.00 (B+)	1.20	14.64%	85.36%	
Selected	38.25%	0.98	1.26	19.00%	81.00%	
Weighted Mean				13.60%	86.40%	



UTAH STATE TAX COMMISSION
PROPERTY TAX DIVISION
URANIUM MINING -- EQUITY RATE MODELS

RECONCILIATION			
Equity Models	Equity Rate		
CAPM: Rule 62 Compliant	13.41%		
CAPM: Supply Side	11.92%		
CAPM: Implied ERP	0.00%		
CAPM: Total NYSE	N/A		
CAPM: Deciles 1 & 2	N/A		
Division's Risk Premium	11.05%		
DGM: Earnings & Dividend	8.35%		
DGM: Plowback Ratio	N/A		
Reconciled Equity Rate	13.29%		
Reconciled Equity Rate	13.29%	95.00%	12.63%
Debt Rate (Corporate Caa3)	8.99%	5.00%	0.45%
Weighted Average Cost of Capital	13.08%		
Reconciled Equity Rate	13.29%		
Tax-Adjusted (38.25%)	21.52%	95.00%	20.44%
Industry Debt Rate	8.99%	5.00%	0.45%
Tax-Adjusted Weighted Average Cost of Capital	20.89%		

CAPM: RULE 62 COMPLIANT	
Market Risk Premium	6.94%
x Industry Beta	1.53
Industry Risk Premium	10.62%
Add: Risk-Free Rate	2.79%
Indicated Rate	13.41%

DIVISION'S RISK PREMIUM	
Market Risk Premium	6.94%
x Industry Financial Strength	1.19
Industry Risk Premium	8.26%
Add: Risk-Free Rate	2.79%
Indicated Rate	11.05%

CAPM: IMPLIED ERP	
Market Risk Premium	5.62%
x Industry Beta	1.53
Industry Risk Premium	8.60%
Add: Risk-Free Rate	2.79%
Indicated Rate	11.39%

DIVIDEND GROWTH MODELS						
Company Name	Recent Stock Price	Next Year's Dividend	EPS & DIV. GROWTH		PLOWBACK RATIO	
			Market Growth Rate	D.G.M. Rate	Market Growth Rate	D.G.M. Rate
Cameco Corp.	\$14.04	\$0.40	5.50%	8.35%	-	-
Denison Mines Corp	\$0.70	-	-	-	-	-
Quaterra Resources Inc	\$0.05	-	-	-	-	-
Uranium Energy Corp	\$1.12	-	-	-	-	-
Uranium Resources Inc	\$1.37	-	-	-	-	-
Ur-Energy Inc	\$0.53	-	-	-	-	-
Indicated Rate				8.35%	N/A	



**UTAH STATE TAX COMMISSION
PROPERTY TAX DIVISION
URANIUM MINING -- CAPITAL STRUCTURE**

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CAPM: SUPPLY SIDE	
Market Risk Premium	5.97%
x Industry Beta	1.53
Industry Risk Premium	9.13%
Add: Risk-Free Rate	2.79%
Indicated Rate	11.92%

CAPM: DECILES 1 & 2	
Market Risk Premium	0.00%
x Industry Beta	1.53
Industry Risk Premium	0.00%
Add: Risk-Free Rate	2.79%
Indicated Rate	N/A

CALCULATION OF CAPITAL STRUCTURE										
Company Name	Total Debt	Long-Term Interest	Implied Coupon Rate*	Market Value of Debt**	Fair Value of Debt***	Pref'd Divs	MV of Pref Eqty+	Recent Stock Price	Shares Outstd	Market Value of Equity
Cameco Corp.	1,620.7	67.0	2.07%	896.1	-	-	-	14.04	395.8	5,557.0
Denison Mines Corp	-	-	-	-	-	-	-	0.70	518.4	362.9
Quaterra Resources Inc	-	-	-	-	-	-	-	0.05	193.5	9.7
Uranium Energy Corp	-	-	-	-	-	-	-	1.12	116.7	130.7
Uranium Resources Inc	-	-	-	-	-	-	-	1.37	4.5	6.2
Ur-Energy Inc	-	-	-	-	-	-	-	0.53	130.2	69.0
Total				896.1			-			6,135.5

GUIDELINE COMPANY INFORMATION SUMMARY						
Company Name	Tax Rate	Relative Financial Strength	Beta	Percent Debt & Preferred Equity	Percent Common Equity	
Cameco Corp.	NMF	1.00 (B+)	1.25	13.89%	86.11%	
Denison Mines Corp	NMF		1.45	-	100.00%	
Quaterra Resources Inc	NMF		1.45	-	100.00%	
Uranium Energy Corp	NMF	1.11 (B)	1.75	-	100.00%	
Uranium Resources Inc	NMF	1.33 (C+)	1.95	-	100.00%	
Ur-Energy Inc	NMF	1.33 (C+)	1.35	-	100.00%	
Selected	38.25%	1.19	1.53	2.31%	97.69%	
Weighted Mean				12.74%	87.26%	