WYOMING DEPARTMENT OF REVENUE
MINERAL TAX DIVISION

CAPITALIZATION RATE STUDY

MODIFIED NETBACK RATE OF RETURN

Production Year 2013

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CAPITALIZATION RATE STUDY

MODIFIED NETBACK RATE OF RETURN

INTRODUCTION

The capitalization rate applied to income is a means of estimating market value for properties. This capitalization rate reflects the relationship between one year's income or an annual average of several years' income and the corresponding capital value. This market value estimated by capitalizing an income is one indicator of what a willing buyer and a willing seller may consider a fair return on their investment in the open market.

The primary components of the capitalization rate are Debt, Preferred (if applicable), and Common Equity. The following data have been assembled to determine a rate of return for the Modified Netback valuation method.

The Mineral Tax Division develops its capitalization rates in accordance with WY Title 39-14-203(b)(6)(E) and WY Title 39-14-201. As such, the capitalization rate used for all producers utilizing the Modified Netback method of valuation is derived from a calculation consisting of the highest ten producers of natural gas in the State of Wyoming.

SOURCES OF INFORMATION AND DATA

Source data used to compute the capitalization rates for the largest ten natural gas producers (top ten producers) was acquired from various sources:

1) Moody's Investor Service (February 14, 2014) and Standard & Poor's Record (February 14, 2014) provided bond ratings for the companies. In addition, the 2012 annual Debt Rates and Preferred Rates by industry grouping came from the same source.

2) Value Line provided statistical information. The data from Value Line included Betas, 2014 projected Annual Rates of Change in Earnings, Dividends, Book Value and Annual Total Return. Value Line also provided data for the calculation of the risk free (RF) rates; the specific weekly rates are detailed in Exhibit C of this report.

3) The required return on market (RM) came from the Duff & Phelps 2014 Valuation Handbook, "Guide to Cost of Capitol" and is based on the arithmetic mean return realized on common stocks. This information source also supplied data used to develop the risk premium (RP) and firm size and adjustments.

4) The Wall Street Journal for January 2, 2014, was the source for stock prices for individual companies, as required in the Discounted Cash Flow Model and the Direct Capitalization Rates.

5) The Public Utility Financing Tracker provided the data for computing flotation costs.

CAPITAL STRUCTURE

For appraisal purposes, capital structure has three components: long-term debt, preferred stock and net worth (or common equity or, simply, equity). It differs from financial structure, which includes other, primarily, short-term sources of capital, such as payables and operating loans. There are two primary methods of computing capital structure for appraisals - book structure and market structure. Book structure uses the relationships of the book values (i.e., accounting values) of debt, preferred and equity. Market structure uses the market values of these components. The appropriate capital structure to use in a capitalization rate study for the modified netback rate of return is the market structure of the publicly traded companies (often the parent holding companies) because it reflects the structure which a typical purchaser would probably use to acquire the operating assets of a subject company. To compute market capital structure, we used the book value of debt and preferred securities (since there usually are no material differences between book and market value for these securities), as reported in Value Line. We computed the market value of common equity by multiplying the shares outstanding by the recent price, also as reported in Value Line. The average market capital structure for the companies in the study population is as follows:

	DEBT	PREFERRED	EQUITY
Top 10 Producers	24%	0%	76%

Table 1. Capital Structure

These percentages will later be used to compute the cost of capital for the industry.

COST OF EQUITY

The current cost of equity capital should be based on data taken from the capital markets for the top ten producers. Equity rates should reflect the representative cost of equity financing for a given industry type as of the appraisal date. There is no single commonly accepted method for making this estimate. However, there are three generally accepted methods which can be used in conjunction with each other. These include (1) the Discounted Cash Flow (DCF) model, (2) Capital Asset Pricing Model (CAPM), and (3) Risk Premium (RP) model.

The Discounted Cash Flow Model (DCF): This model measures the rate of return requirements of industrial stock (equity) as demonstrated by investors in the market. The basic theory of DCF is that the prices paid for a share of stock reflect the investors' discounted present values of future expected earnings/anticipated cash flows for both dividends and stock appreciation. The basic formula appears in the box to the right. The D_1 variable comes from the dividend declared per share Value Line has projected for 2014. P_0 is the average of the annual high and low prices of the stocks of the companies in our study. The growth factor in the model was computed using a weighted average of the growth indicators: Earnings, 1/6; Book Value, 2/6; and Dividends, 3/6. The Department looks at three computations of the DCF to determine the relative propriety of the indicator: 1) a DCF model that reduces the impact of any company for whom the projected dividend or any of the growth factors is "Nil" or "NMF" per Value Line; 2) a

$$K_E = \frac{D_1}{P_0} + G$$

where:

K_E = Cost of Capital

D_1 = Projected Dividend

P_0 = Current Stock Price

G = Growth

DCF model which adjusts for the "Nil" and "NMF" items; and 3) a DCF model calculated on the average dividends, growth factors, and stock prices of the companies in the study group. Application of this model resulted in the equity rate shown in Table 3.

$$K_E = R_F + B(R_M - R_F)$$

where:

K_E = Cost of Capital

R_F = Risk Free Rate

B = Beta

R_M = Return on the Market

Capital Asset Pricing Model (CAPM): CAPM uses the concept that value is composed of a "safe rate" plus an add-on for equity risk. The market risk premium is defined as the difference between the expected rate of return in a given investment and the "risk-free rate" on government Treasury Bonds. This definition is based upon the premise that an informed investor expects to earn a greater return on his equity capital investment than he would receive from an alternative investment in risk free government bonds. Theoretically, the greater the investor's perceived risk in investment, the greater the risk premium. However, in the CAPM, the risk premium for the overall market must be adjusted by a market risk measure, "Beta", for the companies under review. The basic formula appears in the box at the right. Various versions of the CAPM take into account the different equity perceptions that prevail in the oil and gas industry, i.e. Long-Term, Intermediate, Short-Term and Corporate. Application of this formula to the various risk groups resulted in the use of the rate presented in Table 3.

$$K_E = R_F + R_P$$

where:

K_E = Cost of Capital

R_F = Risk Free Rate

R_P = Risk Premium

Risk Premium Model (RP): This model assumes that the rate of return required by equity investors depends upon: (1) the risk-free rate of return or what investors could obtain by investing in Treasury Bonds, which have an assured rate of return guaranteed by the U.S. Government, and (2) some risk premium, or an amount of compensation above the risk-free rate required to induce investors to invest their money in a risky stock. The formula appears in the box on the right. Various versions of the Risk Premium consider the different equity per-captions that prevail in the oil and gas industry, i.e. Long-Term, Intermediate, Short-Term and Corporate.

As a matter of form, the Department calculates Long-Term, Intermediate, Short-Term and Corporate rates for both the CAPM and RP models. We then determine which rate is most appropriate for the top ten producers. The two primary considerations are the nature the operating assets and the term of debt instruments for companies within the industry. Generally speaking, the major assets of oil and gas companies have useful lives in excess of twenty years. Further, these oil and gas companies often issue debt with maturities in excess of twenty years. For these reasons, we consider the long-term rate, as shown in the table below, to be the most appropriate for the ten oil and gas companies used as a basis for the rate of return calculation.

	DCF	CAPM	RP
Top 10 Producers	7.75%	11.49%	10.37%

Table 3: Equity Rates

CONCLUSION REGARDING THE EQUITY RATE

For the cost of equity, rates from the CAPM, RP model and the traditional DCF models were given consideration for the ten oil and gas companies. The resulting equity capitalization rate, adjusted for flotation cost for the top ten producers is **9.0879%**.

FLOTATION COST ADJUSTMENTS

The costs of the various types of capital determined in the previous sections of this report consider only secondary market rates, the rates of return to be earned by the holders of the securities. These rates do not reflect any adjustment for primary costs, those costs a company incurs to raise capital initially. When a company issues new securities, it incurs legal, underwriting and accounting expenses. These expenses are known as "flotation" costs. They reduce the amount of actual proceeds the company receives from the issuance of the securities. As a result the effective required rates of return for the different types of securities are somewhat higher than the secondary rates indicate. Flotation costs are expressed as a percentage of the proceeds of the issue. To determine the true cost of capital the secondary rates must be adjusted for the flotation costs.

The objective of the flotation cost adjustment is to determine the effective rate of return for a security based on the net proceeds from the security issue. To calculate the real required rate of return for the two basic types of securities (debt and equity), we use the formulas in the box to the right. (Note: the term "equity" applies to both common and preferred stock issues.)

For Debt:

$$K_A = \frac{K_B}{1-(FC \times (1-TR))}$$

For Equity (Common and Preferred):

$$K_A = \frac{K_B}{1-FC}$$

where:

K_A = Adjusted Cost of Capital

K_B = Unadjusted (Base) Cost of Capital

FC = Flotation Cost as a Percentage

TR = Income Tax Rate (38%)

The formula for the debt rate requires some explanation. The reason for the income tax rate adjustment lies in the nature of flotation costs for debt issues. Under income tax law such costs are amortized and deducted to determine taxable income; however, they are not deductible to determine net operating income. Thus, the flotation cost has to be adjusted to recognize the difference between the tax treatment and the appraisal treatment of the flotation costs. There is no similar adjustment to the flotation costs for equity issues because they are not deductible for income tax purposes; the financial statements of the issuer simply reflect the net proceeds of the issue. The Department uses an income tax rate of 38% to incorporate the maximum federal corporate income tax rate of 35% plus an allowance of three percentage points for an average effective state corporate income tax rate.

OVERALL WEIGHTED AVERAGE COST OF CAPITAL

The Mineral Tax Division computed an overall weighted average cost of capital using the band of investment method. The basic formula appears in the box at the right. The resulting capitalization rate (also known as the discount rate) will be applied to the appropriate income stream to determine indicators of the current market value for the top ten producers. The results of this band of investment analysis for the cost of capital appear in Exhibit A.

$$K = (D \times D_R) + (P \times P_R) + (E \times E_R)$$

where:

K = Weighted Average Cost of Capital

D = Percent of Debt in Capital Structure

D_R = Cost of Debt (Debt Rate)

P = Percent of Preferred in Capital Structure

P_R = Cost of Preferred (Preferred Rate)

E = Percent of Equity in Capital Structure

E_R = Cost of Equity (Equity Rate)

DIRECT CAPITALIZATION

Direct capitalization is a valuation technique which takes a single year's income (or some other common unit of comparison) divided by a rate (or multiplied by a factor) to derive an estimate of value. This technique is often used in real estate appraisal to determine an overall or total valuation of the property. Income, whether potential gross income, effective gross income, or net operating income, is divided by the sales prices for comparable properties and the resulting ratio is then divided into the same level of income for the subject property to determine an overall valuation estimate.

This approach is not limited to various levels of income. The same concepts are used in the sales comparison approach, where various units of comparison are divided into the sales prices of comparable properties. The resulting rates (ratios) are then divided into the comparable units for the subject property to calculate an overall value.

The same procedures can be applied to ten producers. However, because direct capitalization is a comparable sales technique, it requires a higher level of comparability between the subject property (company) and the comparables than is required for yield capitalization. The process is one of identifying units of comparison, dividing such units by the sales price and applying the resulting average factor to the subject property (company). In the Direct Capitalization Study the goal is to develop value estimates for three distinct components system value: equity, preferred, and debt. This is a similar concept to the use of the Band of Investment method of rate development.

The Capitalization Rate Study lists six units of comparison for equity value from the December 2013, issue of The Value Line Investment Survey for the ten producers. All six units are shown on a per share basis for each individual company within the industry. The price per share used to compute the ratios is the same average of the 52-week highs and lows of the publicly traded prices for the preceding calendar year use in the DCF model. The resulting ratios appear in the table below. They are then divided into the appropriate figures for the subject company to obtain the estimate of value for the equity portion of the company.

	RATE
Revenue (Sales) per Share	95.04%
"Cash Flow" per Share	18.82%
Earnings per Share	8.00%
Dividends Declared per Share	2.29%
Capital Spending/Gross Equipment per Share	20.14%
Book Value per Share	68.43%

Table 4. Direct Capitalization Rates

It is important to emphasize that the developed value represents the value of the equity portion of the company, not the value of the item capitalized. This is because the basis for all the ratios is price per share of the common stock (or equity) of the company. After developing the equity value, the value of the preferred stock and the long-term debt must be derived directly from the market.

The market value of the preferred stock (if applicable) is obtained by dividing the preferred dividends paid by the subject company by the market preferred yield rate. This rate is found within the Capitalization Rate Study on page 2. The market value of the long-term debt is likewise found by dividing the long-term interest expense by the debt yield rate. Finally, the three portions (equity, preferred stock, and long-term debt) are added together to develop an estimate of the total value for the company.

The final step in calculating the Direct Capitalization indicator of value is to determine the market value for the operating property. It uses a factor developed in the stock and debt approach to remove non-operating property from the value of the company. Ratios that are generally utilized are the asset influence (operating assets divided by total assets), the income influence (operating income divided by total income), or an average of the two. The value of the non-operating property is thus excluded from the total valuation to determine the final value for the operating property by the Direct Capitalization approach.

EXHIBIT A

WEIGHTED AVERAGE COST OF CAPITAL

Production Year 2013

Rate of Return on Investment

Type of Capital	Cost of Capital	Flotation Cost	Adjusted Cost of Capital	x	Percent of Structure	=	Weighted Average Cost of Capital
Debt	5.48%	1.05%	5.53%		24%		1.3438%
Preferred		*Not Applicable*					0.0000%
Equity	9.87%	3.49%	10.23%		76%		7.7441%
		Modified Netback Rate of Return					9.0879%

EXHIBIT B

DEBT & EQUITY INFORMATION

Wyoming Department of Revenue
Netback Return on Investment Calculation
2013 Debt to Equity Ratio's
Production Year: 2013

	Production Year 2013			Calculated from Source			
	a	b	c	d	e	f	g
Company Name	Long Term Debt	Shares of Common Stock*	Value Line Recent Price	Value of Equity	Debt & Equity	Debt %	Equity %
				d=b*c	e=a+d	a/e	100%-f
Anadarko Petroleum	$13,538,000,000	500,845,026	$97.76	$48,962,609,742	$62,500,609,742	22%	78%
BP p.l.c.	$41,700,000,000	3,136,869,000	$47.47	$148,907,171,430	$190,607,171,430	22%	78%
Conoco Philips	$21,200,000,000	1,223,007,256	$74.34	$90,918,359,411	$112,118,359,411	19%	81%
Devon Energy	$7,960,000,000	406,000,000	$61.60	$25,009,600,000	$32,969,600,000	24%	76%
Encana Corp.	$6,149,000,000	736,600,000	$19.14	$14,098,524,000	$20,247,524,000	30%	70%
ExxonMobil	$7,404,000,000	4,368,513,787	$95.09	$415,401,976,006	$422,805,976,006	2%	98%
QEP Resources Inc.	$2,882,300,000	179,281,102	$32.83	$5,885,798,579	$8,768,098,579	33%	67%
Royal Dutch Shell	$31,972,000,000	1,930,333,502	$67.51	$130,316,814,720	$162,288,814,720	20%	80%
Ultra Petroleum Corp.	$1,880,000,000	152,972,162	$18.98	$2,903,411,635	$4,783,411,635	39%	61%
WPX Energy Inc.	$1,776,000,000	200,808,558	$18.91	$3,797,289,832	$5,573,289,832	32%	68%

* *BP p.l.c and Royal Dutch Shell are traded using American Depository Receipt's (ADR's). An ADR represents the ownership in the shares of a foreign company trading on US financial markets. The stock of many non-US companies trades on US exchanges through the use of ADRs. ADRs enable US investors to buy shares in foreign companies without undertaking cross-border transactions. ADRs carry prices in US dollars, pay dividends in US dollars, and can be traded like the shares of US-based companies*

EXHIBIT C

RISK FREE RATES

Risk Free Rate for 2014 Capitalization Rates

Long Term Risk Free Rate: 3.41%	Source: 2013 Federal Reserve Bulletin monthly 30 year Treasury Bond yields with constant maturity
Intermediate Risk Free Rate: 2.34%	Source: 2013 weekly Value Line Investment Survey Selection & Opinion reports, "Selected Yields" Section, average of the annual high and low for the weekly 10 year US Treasury Securities yield rates
Short Term Risk Free Rate: 1.23%	Source: 2013 weekly Value Line Investment Survey Selection & Opinion reports, "Selected Yields" Section, average of the annual high and low for the weekly 5 year US Treasury Securities yield rates
Corporate Risk Free Rate: 4.20%	Source: 2013 weekly Value Line Investment Survey Selection & Opinion reports, "Market Monitor" Section, average of the annual high and low for the weekly Mergent Aaa Corporate bond yield
Prime Lending Rate: 3.25%	Source: Wall Street Journal, January 2, 2014 edition, "Bonds, Rates & Yields" section

EXHIBIT D

DUFF & PHELPS DATA

Preview Rec. 3/4/14

Market Results
Through 2013

Preview Version

2014
Valuation Handbook
Guide to Cost of Capital (Preview Version)

This document is an abbreviated "Preview Version" of the key year-end (December 31, 2013) valuation data available in the new *2014 Valuation Handbook – Guide to Cost of Capital*

This document is made available to purchasers who have pre-ordered the *2014 Valuation Handbook*, to provide key year-end 2013 data in their hands while the *2014 Valuation Handbook* is being printed.

The *2014 Valuation Handbook* will ship in the third week of March 2014, and will include two sets of valuation data:

- The data previously available in the Morningstar/Ibbotson *SBBI Valuation Yearbook*; and
- The data available in *Risk Premium Report*.

DUFF & PHELPS

CRSP Deciles Size Premia Study: Key Variables

Yield (Risk-free Rate)[1]

Long-term (20-year) U.S. Treasury Coupon Bond Yield	3.67%

Equity Risk Premium

Long-horizon expected equity risk premium (historical): large company stock total returns minus long-term government bond income returns	6.96
Long-horizon expected equity risk premium (supply-side): historical equity risk premium minus price-to-earnings ratio calculated using three-year average earnings	6.18
Duff & Phelps recommended equity risk premium (conditional): The Duff & Phelps recommended ERP was developed in relation to (and should be used in conjunction with) a 4.0% "normalized" risk-free rate	5.00

CRSP Deciles Size Premium

Decile	Market Capitalization of Smallest Company (in millions)	Market Capitalization of Largest Company (in millions)	Size Premium (Return in Excess of CAPM)
Mid-Cap 3-5	$2,432.888	$9,196.480	1.11%
Low-Cap 6-8	636.747	2,431.229	1.98
Micro-Cap 9-10	2.395	632.770	3.87
Breakdown of CRSP Deciles 1-10			
1-Largest	$21,753.411	$428,699.798	-0.37%
2	9,196.656	21,739.006	0.75
3	5,572.648	9,196.480	0.86
4	3,581.547	5,569.840	1.16
5	2,432.888	3,573.079	1.75
6	1,626.386	2,431.229	1.86
7	1,056.204	1,621.792	1.94
8	636.747	1,055.320	2.36
9	339.987	632.770	2.81
10-Smallest	2.395	338.829	5.99
Breakdown of CRSP 10th Decile			
10a	$184.928	$338.829	4.40%
10w	250.656	338.829	3.52
10x	184.928	250.532	5.67
10b	$2.395	$184.865	8.99%
10y	100.933	184.865	7.55
10z	2.395	100.821	12.12

[1] As of December 31, 2013.

Sources of underlying data: 1.) CRSP U.S. Stock Database and CRSP U.S. Indices Database 2.) Morningstar EnCorr database. Calculations performed by Duff & Phelps LLC.

EXHIBIT E

<u>LIBRARY OF RATINGS</u>

State of Wyoming - Department of Revenue

Capitalization Rate Study

Production Year 2013

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
	COMPANY DATA												
12/31/2013			Capital Structure					Value Line Data					
Company Name	Standard & Poors Credit Rating	Moody's Credit Rating	Value Line Source	% of Debt	% of Preferred Stock	% of Common Equity	Type of Operations *(pure or diversified)*	Projected Dividend Per Share (2011)	Earnings Growth Rate	Dividends Growth Rate	Book Value Growth Rate	Beta	Wall Street Journal Common Stock Price
Anadarko Petroleum	BBB-	Baa3	Issue 12; 11/8/2013	22%	0%	78%	Diversified	$0.72	NMF	2.5%	6.0%	1.35	$86.04
BP p.l.c.	A	A2	Issue 3; 12/6/2013	22%	0%	78%	Diversified	$2.30	10.5%	10.5%	8.5%	1.10	$44.32
Conoco Philips	A	A1	Issue 12; 11/8/2013	19%	0%	81%	Diversified	$2.76	NMF	NMF	NMF	NMF	$65.49
Devon Energy	BBB+	Baa1	Issue 3; 12/6/2013	24%	0%	76%	Diversified	$0.88	7.5%	5.5%	7.0%	1.25	$58.87
Encana Corp.	BBB	Baa2	Issue 3; 12/6/2013	30%	0%	70%	Diversified	$0.28	19.0%	-12.5%	-4.0%	1.15	$18.52
ExxonMobil	AAA	Aaa	Issue 3; 12/6/2013	2%	0%	98%	Diversified	$2.64	6.5%	8.5%	10.5%	0.85	$93.27
QEP Resources Inc.	BB+	Ba1	Issue 3; 12/6/2013	33%	0%	67%	Diversified	$0.12	12.0%	20.0%	6.5%	1.30	$30.24
Royal Dutch Shell	AAA	Aa1	Issue 3; 12/6/2013	20%	0%	80%	Diversified	$3.63	5.0%	3.0%	6.0%	1.05	$67.83
Ultra Petroleum Corp.	BB	Ba3	Issue 12; 11/8/2013	39%	0%	61%	Diversified	Nil	2.5%	Nil	5.0%	1.10	$19.73
WPX Energy Inc.	BB+	Ba1	Issue 3; 12/6/2013	32%	0%	68%	Diversified	Nil	NMF	Nil	NMF	1.30	$18.86
Mean				24%	0%	76%		$1.33	9.0%	4.2%	5.7%	1.16	$50.31
Median				23%	0%	77%		$1.59	7.5%	5.5%	6.3%	1.15	$51.59
Minimum				2%	0%	61%		$0.12	2.5%	-12.5%	-4.0%	0.85	$18.52
Maximum				39%	0%	98%		$3.63	19.0%	20.0%	10.5%	1.35	$93.27

@ - *Calculation for Discounted Cash Flow (Traditional Model) is ((i)/(n))+(((l)*2)+((j)*3)+(k))/6)*

~ - *The Weighted Cap Rate is calculated using the total of all growth rates divided by the total of all wieghting factors*

- *Long Term Equity Risk Premium from 2014 Duff & Phelps Valuation Handbook Guide to Cost of Capitol*

State of Wyoming - Department of Revenue
Capitalization Rate Study
Production Year 2013

(a)	(o)	(p)	(q)	(r)	(s)	(t)	(u)	(v)	(w)	(x)	(y)	(z)
	INDUSTRY DATA								RISK PREMIUM MODEL			
12/31/2013												
Company Name	Long-Term Risk Free Rate	Long-Term Equity Risk Premium	Intermediate Risk Free Rate	Intermediate Equity Risk Premium	Short-Term Risk Free Rate	Short-Term Equity Risk Premium	Corp. Risk Free Rate	Corp. Equity Risk Premium	Long-Term Risk Premium	Intermediate Risk Premium	Short-Term Risk Premium	Corporate Risk Premium
		#							(o)+(p)	(q)+(r)	(s)+(t)	(u)+(v)
Anadarko Petroleum	3.41%	6.96%	2.34%	7.20%	1.23%	8.20%	4.20%	5.40%	10.37%	9.54%	9.43%	9.60%
BP p.l.c.	3.41%	6.96%	2.34%	7.20%	1.23%	8.20%	4.20%	5.40%	10.37%	9.54%	9.43%	9.60%
Conoco Philips	3.41%	6.96%	2.34%	7.20%	1.23%	8.20%	4.20%	5.40%	10.37%	9.54%	9.43%	9.60%
Devon Energy	3.41%	6.96%	2.34%	7.20%	1.23%	8.20%	4.20%	5.40%	10.37%	9.54%	9.43%	9.60%
Encana Corp.	3.41%	6.96%	2.34%	7.20%	1.23%	8.20%	4.20%	5.40%	10.37%	9.54%	9.43%	9.60%
ExxonMobil	3.41%	6.96%	2.34%	7.20%	1.23%	8.20%	4.20%	5.40%	10.37%	9.54%	9.43%	9.60%
QEP Resources Inc.	3.41%	6.96%	2.34%	7.20%	1.23%	8.20%	4.20%	5.40%	10.37%	9.54%	9.43%	9.60%
Royal Dutch Shell	3.41%	6.96%	2.34%	7.20%	1.23%	8.20%	4.20%	5.40%	10.37%	9.54%	9.43%	9.60%
Ultra Petroleum Corp.	3.41%	6.96%	2.34%	7.20%	1.23%	8.20%	4.20%	5.40%	10.37%	9.54%	9.43%	9.60%
WPX Energy Inc.	3.41%	6.96%	2.34%	7.20%	1.23%	8.20%	4.20%	5.40%	10.37%	9.54%	9.43%	9.60%
Mean												
Median												
Minimum												
Maximum												

State of Wyoming - Department of Revenue
Capitalization Rate Study
Production Year 2013

(a)	(aa)	(ab)	(ac)	(ad)	(ae)	(af)	(ag)	(ah)	(ai)
	COMPANY FINANCIAL CALCULATIONS								
12/31/2013	Capital Asset Pricing Model				Discounted Cash Flow				
Company Name	Long-Term CAPM	Intermediate CAPM	Short-Term CAPM	Corporate CAPM	Traditional Model	Treating "Nil" as Zero	Based on Library Averages	Value Line Page Number	NYSE Ticker
	(o)+((p)*(n))	(q)+((r)*(n))	(s)+((t)*(n))	(u)+((v)*(n))	@	(i)/(n)+(bb)	(bb)		
Anadarko Petroleum	12.81%	12.06%	12.30%	11.49%	NMF	4.09%	3.25%	2393	APC
BP p.l.c.	11.07%	10.26%	10.25%	10.14%	15.02%	15.02%	9.83%	502	BP
Conoco Philips	NMF	NMF	NMF	NMF	NMF	NMF	NMF	2397	COP
Devon Energy	12.11%	11.34%	11.48%	10.95%	8.49%	7.83%	6.33%	523	DVN
Encana Corp.	11.41%	10.62%	10.66%	10.41%	7.60%	-2.90%	-4.42%	526	ECA
ExxonMobil	9.33%	8.46%	8.20%	8.79%	11.00%	11.66%	8.83%	504	XOM
QEP Resources Inc.	12.46%	11.70%	11.89%	11.22%	11.90%	14.56%	14.17%	533	QEP
Royal Dutch Shell	10.72%	9.90%	9.84%	9.87%	10.35%	9.69%	4.33%	513	RDSA
Ultra Petroleum Corp.	11.07%	10.26%	10.25%	10.14%	NMF	2.08%	2.08%	2405	UPL
WPX Energy Inc.	12.46%	11.70%	11.89%	11.22%	NMF	NMF	NMF	538	WMB
Mean	11.49%	10.70%	10.75%	10.47%	10.73%	7.75%	5.55%		
Median	11.41%	10.62%	10.66%	10.41%	10.67%	8.76%	5.33%		
Minimum	9.33%	8.46%	8.20%	8.79%	7.60%	-2.90%	-4.42%		
Maximum	12.81%	12.06%	12.30%	11.49%	15.02%	15.02%	14.17%		

State of Wyoming - Department of Revenue
Capitalization Rate Study
Production Year 2013

(a)	(aj)	(ak)	(al)	(am)	(an)	(ao)	(ap)	(aq)	(ar)	(as)	(at)	(au)
	DIRECT CAPITALIZATION ANALYSIS											
12/31/2013	Computed Equity Ratios						Value Line Direct Capitalization Data					
Company Name	Revenue (Sales) Per Share	Cash Flow Per Share	Earnings Per Share	Dividends Declared Per Share	Capital Spending Per Share	Book Value Per Share	Revenue (Sales) Per Share	Cash Flow Per Share	Earnings Per Share	Dividends Declared Per Share	Capital Spending Per Share	Book Value Per Share
	(ap)/(n)	(aq)/(n)	(ar)/(n)	(as)/(n)	(at)/(n)	(au)/(n)						
Anadarko Petroleum	36.38%	15.92%	6.33%	0.52%	16.50%	53.58%	$31.30	$13.70	$5.45	$0.45	$14.20	$46.10
BP p.l.c.	272.90%	19.63%	10.04%	4.94%	17.37%	94.65%	$120.95	$8.70	$4.45	$2.19	$7.70	$41.95
Conoco Philips	76.05%	21.46%	12.06%	4.17%	19.47%	67.50%	$49.80	$14.05	$7.90	$2.73	$12.75	$44.20
Devon Energy	44.34%	19.11%	7.39%	1.46%	28.71%	88.68%	$26.10	$11.25	$4.35	$0.86	$16.90	$52.20
Encana Corp.	44.02%	17.28%	5.40%	3.62%	20.52%	40.24%	$8.15	$3.20	$1.00	$0.67	$3.80	$7.45
ExxonMobil	96.71%	12.38%	7.99%	2.64%	8.31%	42.51%	$90.20	$11.55	$7.45	$2.46	$7.75	$39.65
QEP Resources Inc.	56.05%	22.98%	4.63%	0.26%	27.61%	64.32%	$16.95	$6.95	$1.40	$0.08	$8.35	$19.45
Royal Dutch Shell	214.08%	19.24%	9.80%	5.25%	15.85%	86.18%	$145.20	$13.05	$6.65	$3.56	$10.75	$58.45
Ultra Petroleum Corp.	31.69%	19.77%	8.11%	0.00%	13.94%	10.90%	$6.25	$3.90	$1.60	Nil	$2.75	$2.15
WPX Energy Inc.	78.21%	20.41%	8.22%	0.00%	33.14%	135.74%	$14.75	$3.85	$1.55	Nil	$6.25	$25.60
Mean	95.04%	18.82%	8.00%	2.29%	20.14%	68.43%	$50.97	$9.02	$4.18	$1.30	$9.12	$33.72
Median	66.05%	19.44%	8.05%	2.05%	18.42%	65.91%	$28.70	$9.98	$4.40	$1.53	$8.05	$40.80
Minimum	31.69%	12.38%	4.63%	0.00%	8.31%	10.90%	$6.25	$3.20	$1.00	$0.08	$2.75	$2.15
Maximum	272.90%	22.98%	12.06%	5.25%	33.14%	135.74%	$145.20	$14.05	$7.90	$3.56	$16.90	$58.45

State of Wyoming - Department of Revenue
Capitalization Rate Study
Production Year 2013

(a)	(av)	(aw)	(ax)	(ay)	(az)	(ba)	(bb)	(bc)	(bd)	(be)	(bf)	(bg)	(bh)	(bi)	(bj)
12/31/2013	Capitalization Weighting							Capitalization							
Company Name	Factor	Weighted Earning Growth Rate	Factor	Weighted Dividend Growth Rate	Factor	Weighted Book Value Growth Rate	Weighted Cap. Rate	Disc. Cash Flow	Long Term Debt	Risk Premium	Total	Weighted Disc. Cash Flow	Weighted Long Term Debt	Weighted Risk Premium	Total
		(j)*(av)		(k)*(ax)		(l)*(az)	-								
Anadarko Petroleum	1	0.0%	3	7.5%	2	12.0%	3.3%	33.00%	33.00%	34.00%	100%	2.56%	3.79%	3.53%	9.88%
BP p.l.c.	1	10.5%	3	31.5%	2	17.0%	9.8%	66.00%	34.00%	0.00%	100%	5.12%	3.91%	0.00%	9.02%
Conoco Philips	1	0.0%	3	0.0%	2	0.0%	NMF	34.00%	66.00%	0.00%	100%	2.64%	7.58%	0.00%	10.22%
Devon Energy	1	7.5%	3	16.5%	2	14.0%	6.3%	0.00%	33.00%	67.00%	100%	0.00%	3.79%	6.95%	10.74%
Encana Corp.	1	19.0%	3	-37.5%	2	-8.0%	-4.4%	33.00%	0.00%	67.00%	100%	2.56%	0.00%	6.95%	9.51%
ExxonMobil	1	6.5%	3	25.5%	2	21.0%	8.8%	66.00%	0.00%	34.00%	100%	5.12%	0.00%	3.53%	8.64%
QEP Resources Inc.	1	12.0%	3	60.0%	2	13.0%	14.2%	0.00%	66.00%	34.00%	100%	0.00%	7.58%	3.53%	11.11%
Royal Dutch Shell	1	5.0%	3	9.0%	2	12.0%	4.3%								
Ultra Petroleum Corp.	1	2.5%	3	0.0%	2	10.0%	2.1%								
WPX Energy Inc.	1	0.0%	3	0.0%	2	0.0%	NMF								
Mean														**AVERAGE**	9.87%
Median															
Minimum															
Maximum															

Value Line Data

		COMPANY DATA					DIRECT CAPITALIZATION DATA					
12/31/2013												
Company Name	Value Line Page Number	Projected Dividend Per Share (2014)	Earnings Growth Rate	Dividends Growth Rate	Book Value Growth Rate	Beta	Revenue (Sales) Per Share	Cash Flow Per Share	Earnings Per Share	Dividends Declared Per Share	Capital Spending Per Share	Book Value Per Share
Anadarko Petroleum	2393	$0.72	NMF	2.5%	6.0%	1.35	$31.30	$13.70	$5.45	$0.45	$14.20	$46.10
BP p.l.c.	502	$2.30	10.5%	10.5%	8.5%	1.10	$120.95	$8.70	$4.45	$2.19	$7.70	$41.95
Conoco Philips	2397	$2.76	NMF	NMF	NMF	NMF	$49.80	$14.05	$7.90	$2.73	$12.75	$44.20
Devon Energy	523	$0.88	7.5%	5.5%	7.0%	1.25	$26.10	$11.25	$4.35	$0.86	$16.90	$52.20
Encana Corp.	526	$0.28	19.0%	-12.5%	-4.0%	1.15	$8.15	$3.20	$1.00	$0.67	$3.80	$7.45
ExxonMobil	504	$2.64	6.5%	8.5%	10.5%	0.85	$90.20	$11.55	$7.45	$2.46	$7.75	$39.65
QEP Resources Inc.	533	$0.12	12.0%	20.0%	6.5%	1.30	$16.95	$6.95	$1.40	$0.08	$8.35	$19.45
Royal Dutch Shell	513	$3.63	5.0%	3.0%	6.0%	1.05	$145.20	$13.05	$6.65	$3.56	$10.75	$58.45
Ultra Petroleum Corp.	2405	Nil	2.5%	Nil	5.0%	1.10	$6.25	$3.90	$1.60	Nil	$2.75	$2.15
WPX Energy Inc.	538	Nil	NMF	Nil	NMF	1.30	$14.75	$3.85	$1.55	Nil	$6.25	$25.60
Mean		$1.33	9.0%	4.2%	5.7%	1.16	$50.97	$9.02	$4.18	$1.30	$9.12	$33.72
Median		$1.59	7.5%	5.5%	6.3%	1.15	$28.70	$9.98	$4.40	$1.53	$8.05	$40.80
Minimum		$0.12	2.5%	-12.5%	-4.0%	0.85	$6.25	$3.20	$1.00	$0.08	$2.75	$2.15
Maximum		$3.63	19.0%	20.0%	10.5%	1.35	$145.20	$14.05	$7.90	$3.56	$16.90	$58.45

EXHIBIT F

<u>FLOTATION COST DATA</u>

2014 Summary of Flotation Cost Analyses
Public Utilities Financing Tracker 2009 - 2013

2/13/2014

	Number of	Rate (Wtd. Avg.)
DEBT:		
Public Utilities Financing Tracker 2009 - 2013	376	1.05%
COMMON:		
Public Utilities Financing Tracker 2009 - 2013	18	3.49%

EXHIBIT G

<u>Bond Ratings</u>

Wyoming Department of Revenue
Netback Return on Investment Calculation
2013 Bond Ratings
Production Year: 2013

Company Name	Standard & Poors	Moody's
Anadarko Petroleum	BBB-	Baa3
BP p.l.c.	A	A2
Conoco Philips	A	A1
Devon Energy	BBB+	Baa1
Encana Corp.	BBB	Baa2
ExxonMobil	AAA	Aaa
QEP Resources Inc.	BB+	Ba1
Royal Dutch Shell	AAA	Aa1
Ultra Petroleum Corp.	BB	Ba3
WPX Energy Inc.	BB+	Ba1

Note: The source of Moody's credit rating the Moody's website www.moodys.com. The source of the Standard and Poor's credit rating from the Standard and Poor's website www.standardandpoors.com. All information current as of February 4, 2014.

LONG TERM DEBT *(30 Year Industrial Bond Yields)*

AAA	A	BBB+	BBB	BBB-	BB+	BB	Weighted Avg.Hi&Lo
4.06%	4.56%	5.22%	5.48%	5.92%	6.70%	7.50%	5.4760%