

Oil and Gas Industry Day

March 1, 2011

Utah State Tax Commission

Oil & Gas Discount Rate

Sample Companies

- ▶ Search process
 - Rocky Mountain Region
 - No Significant Offshore or International Operations
 - No Integrated Companies

Companies Used

- ▶ Abraxas Petrol
- ▶ Berry Petroleum 'A'
- ▶ Bill Barrett Corp
- ▶ Brigham Exploration Co
- ▶ Delta Petroleum
- ▶ Double Eagle Petroleum Co.
- ▶ Encore Acquisition
- ▶ Forest Oil
- ▶ Gasco Energy Inc
- ▶ Pioneer Natural Res.
- ▶ QEP Resources
- ▶ Quicksilver Res.
- ▶ Ultra Petroleum Corp.
- ▶ Warren Resources Inc
- ▶ Whiting Petroleum Corp

Companies Used

Added

QEP Resources

Dropped

XTO Energy

Parallel Petroleum

Discount Rate

- ▶ WACC (Weighted Average Cost of Capital)
 - Equity Rate
 - Debt Rate

Equity Rate Models

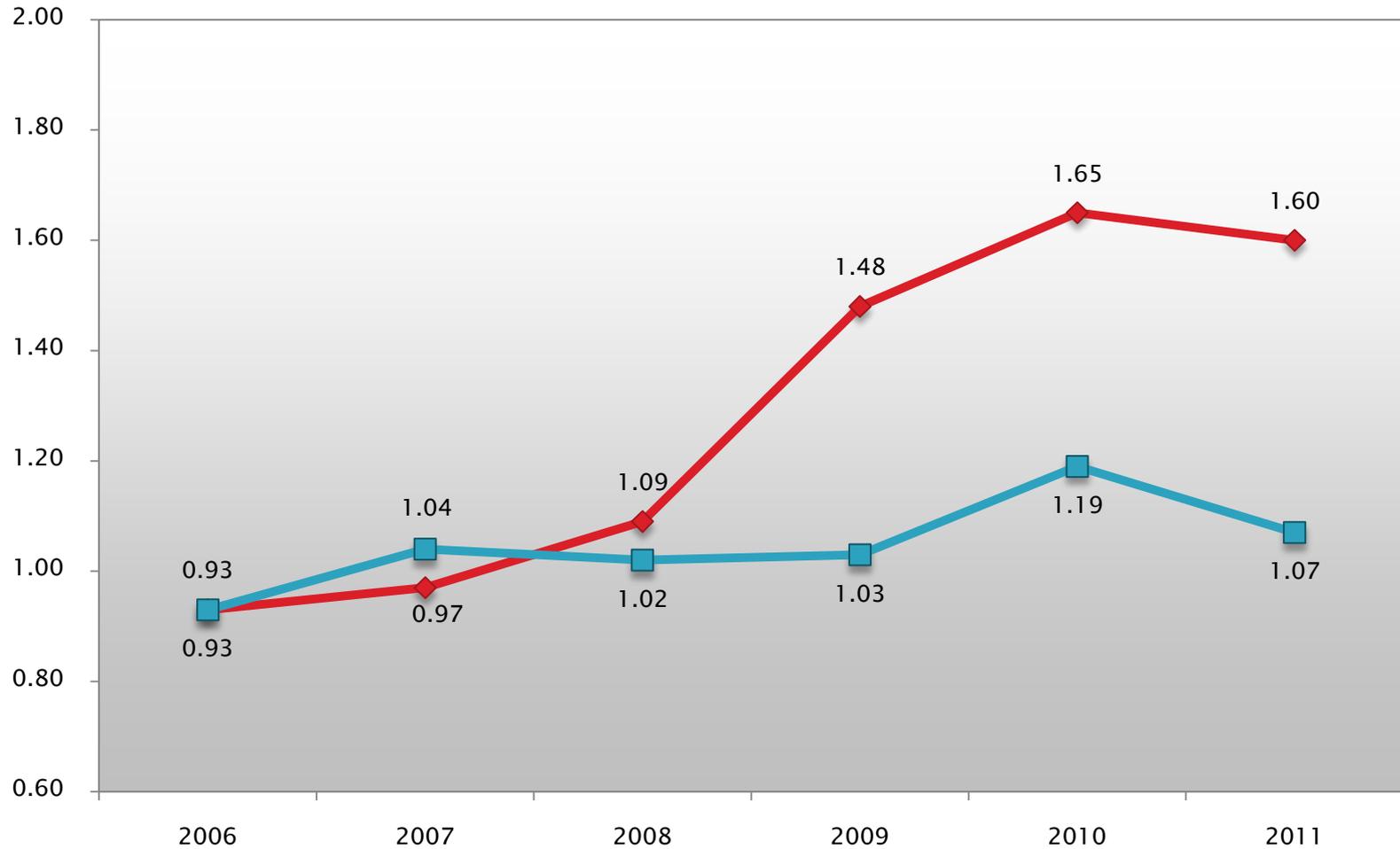
- ▶ Dividend Growth Model
 - Projected Dividend Growth
- ▶ Risk Premium Model
 - Financial Strength
- ▶ Capital Asset Pricing Model
 - Beta

Financial Strength

- ▶ Financial Strength is a measure of a company's financial condition. Generally speaking, the largest companies with the strongest balance sheets, the least amount of debt, the lowest interest charges and the best financial ratios get the highest scores. In many ways the Financial Strength rank is similar to a bond rating. Value Line's Financial Strength ranks go from a high of A++ to a low of C. B+ is Average.

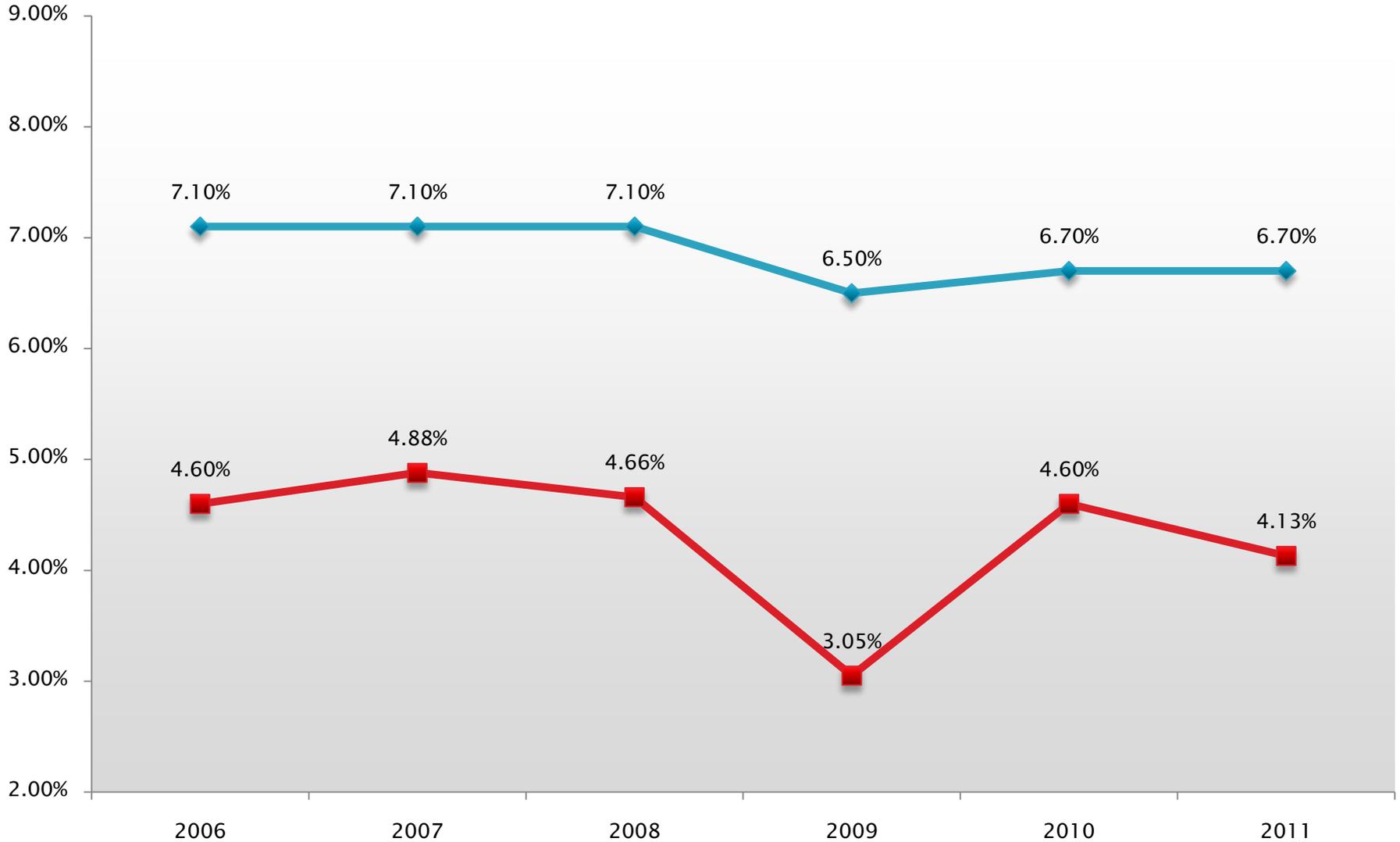
Equity Risk Factors

◆ Industry Beta ■ Financial Strength



Other Key Rates

◆ MARKET RISK PREMIUM ■ RISK FREE RATE



RPM, CAPM, DGM

Company Name	RPM		CAPM			DGM	
	Relative Financial		Bond Rate	Beta	Stock Price	Projected Earnings Growth	Projected Dividend Growth
Abraxas Petrol	C++	1.22		1.55	4.14		
Berry Petroleum `A'	B+	1	B / B1	1.75	43.59	0.09	7.69%
Bill Barrett Corp	B+	1	BB- / Ba3	1.4	41.01	0.058	
Brigham Exploration Co	B+	1	B+ / Caa2	1.95	27.07	0.47	
Delta Petroleum	C+	1.33	CCC / Caa3	1.95	0.78	0.04	
Double Eagle Petroleum Co.	C++	1.22		1.5	4.89		
Encore Energy Partners LP	B+	1	B1	1	22.31		
Forest Oil	B+	1	B+ / Ba3	1.55	38.06	0.05	
Gasco Energy Inc	C+	1.33		1.75	0.35		
Pioneer Natural Res.	B+	1	BB+ / Ba1	1.45	86.94	0.245	13.64%
QEP Resources	B++	0.89	BB+ / Ba1		36.01		
Quicksilver Res.	B	1.11	B+ / B1	1.7	14.75	0.115	
Ultra Petroleum	B++	0.89		1.15	47.77	0.235	
Warren Resources Inc	C++	1.22		2.05	4.41	0.205	
Whiting Petroleum Corp	B++	0.89	BB / Ba3	1.7	116.19	0.128	
Mean		1.07		1.60		16.36%	10.67%

CAPITAL ASSET PRICING MODEL

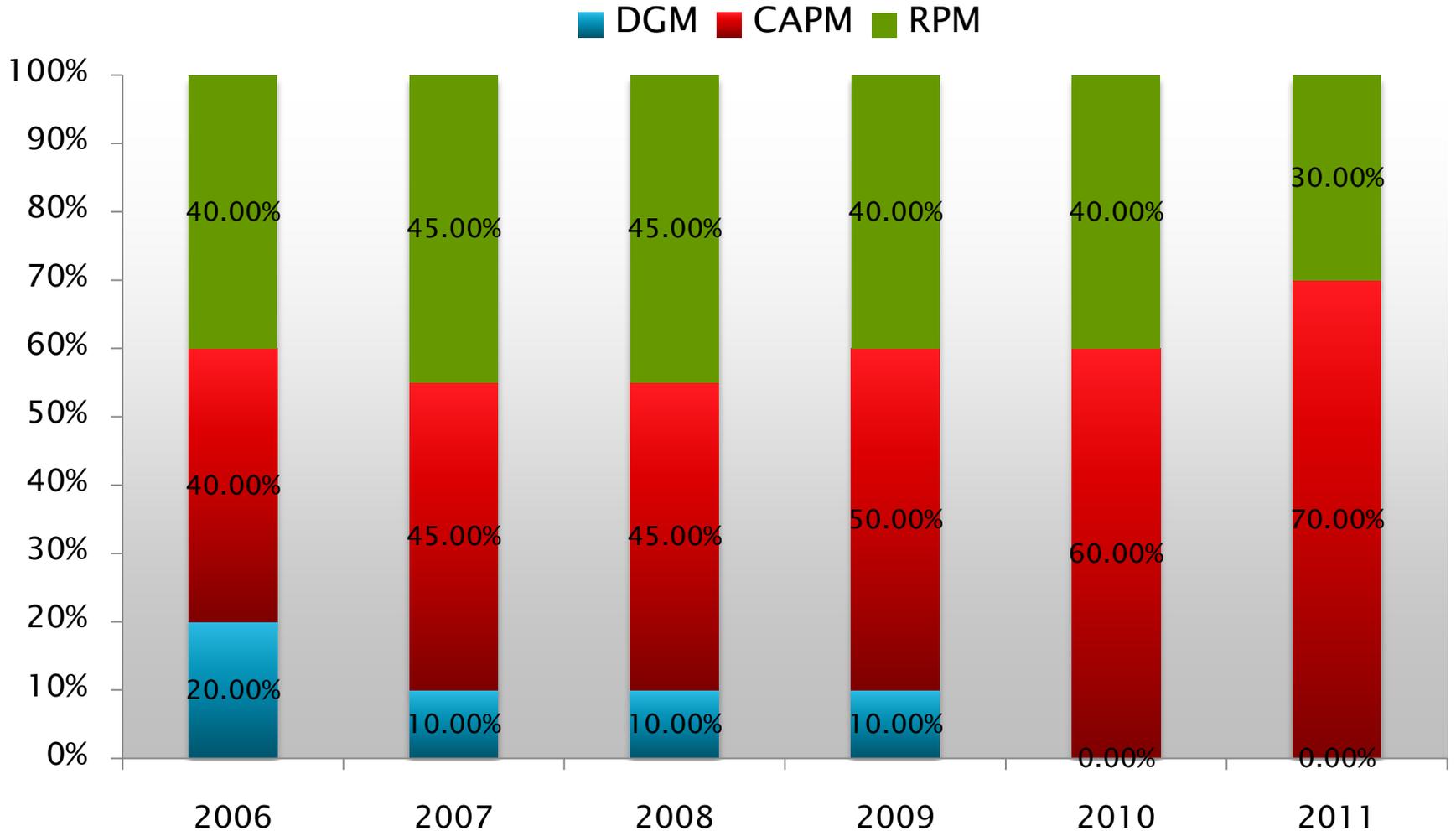
(Realized Returns)

Market Risk Premium	6.70%
Industry Beta (Risk Factor)	<u>1.6</u>
Industry Risk Premium	10.74%
Add: Risk-Free Rate	<u>4.13%</u>
Cost of Equity Rate - CAPM	<u><u>14.87%</u></u>

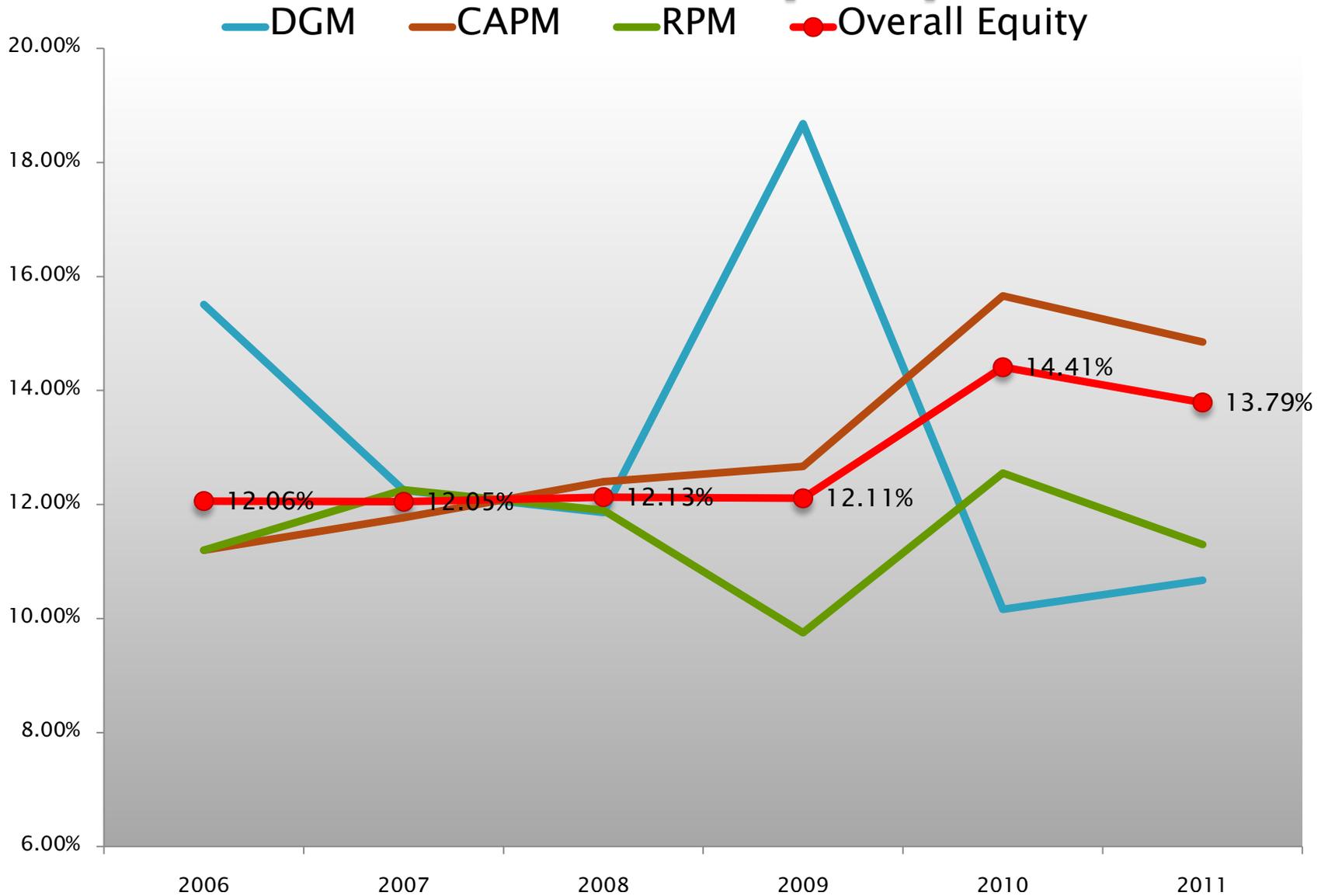
RISK PREMIUM MODEL (Valueline's Financial Strength Rating)

Market Risk Premium	6.70%
Industry Relative Financial Strength (Risk Factor)	<u>1.07</u>
Industry Risk Premium	7.17%
Add: Risk-Free Rate	<u>4.13%</u>
Cost of Equity Rate - Risk Premium	11.30%

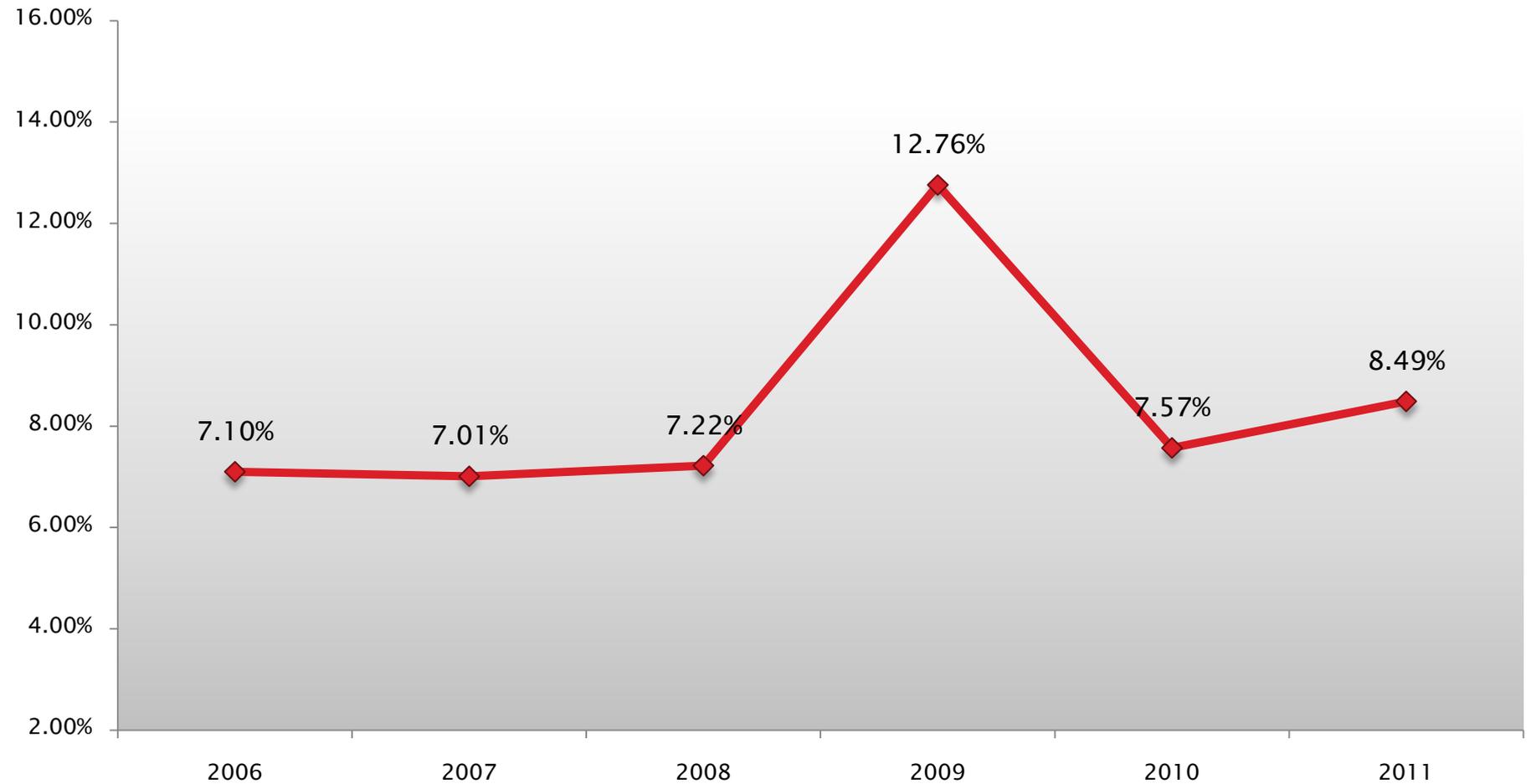
Equity Rate Model Weighting



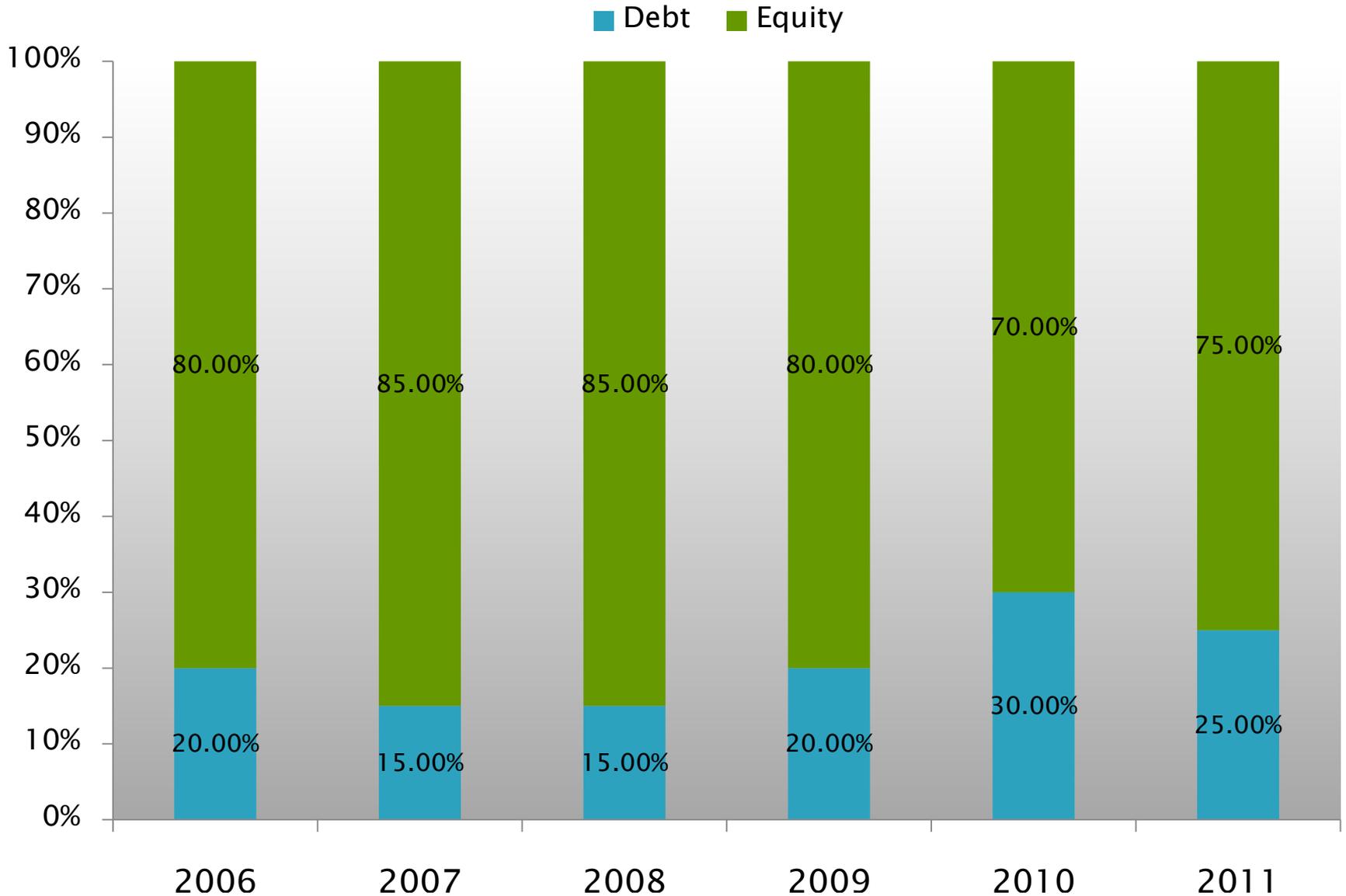
Cost of Equity



Debt Rate



Capital Structure



Overall Discount Rate (WACC)

▶ WACC

- Rate has not been adjusted for income taxes.
- Taxes have been deducted from the cash flow

▶ Property Tax Rate

- Weighted average property tax rate by county is added to the discount rate in place of a property tax expense.

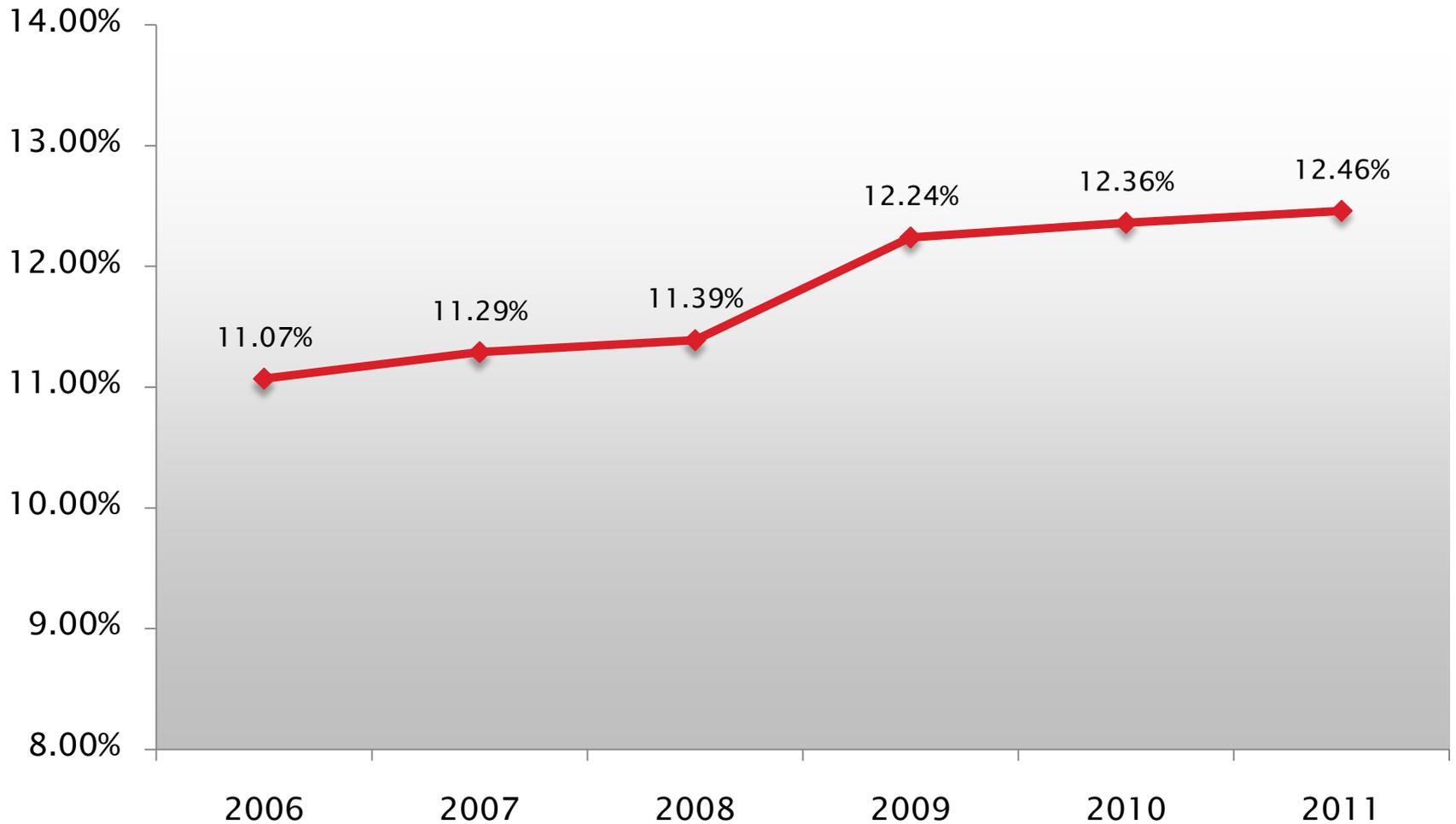
WACC

WEIGHTED AVERAGE COST OF CAPITAL - DISCOUNT RATE CALCULATION

	RATE	CAPITAL STRUCTURE	WEIGHTED RATE
EQUITY RATE	13.79%	75%	10.34%
DEBT RATE (B1)	8.49%	25%	2.12%
WEIGHTED AVERAGE COST OF CAPITAL			12.46%

**Applied to an After Tax
CashFlow**

WACC Rate History



Oil Price Forecast

OIL PRICES



Are you feeling the pinch?



R884-24P-10

7. "Product price" means:

a) Oil: The weighted average posted price for the calendar year preceding January 1, specific for the field in which the well is operating as designated by the Division of Oil, Gas, and Mining. The weighted average posted price is determined by weighing each individual posted price based on the number of days it was posted during the year, adjusting for gravity, transportation, escalation, or deescalation.

Oil Price Differentials

Averages	Western Refining Paradox Posted Oil Prices	Chevron (East of Rockies) WTI Posted Oil Prices	2011 Indicated Differential	2010 Indicated Differential
10 year	49.52	55.68	5.96	5.25
5 year	67.13	75.14	7.70	6.84
3 year	68.83	79.11	9.97	8.61
2 year	58.75	68.89	9.63	10.78
1 year	67.57	76.13	8.56	11.05

Note: Benchmark used is Chevron WTI (East of Rockies)

Used 11.00 for 2010

Averages	Chevron Uinta Basin Black Wax Posted Oil Prices	Chevron (East of Rockies) WTI Posted Oil Prices	2011 Indicated Differential	2010 Indicated Differential
10 year	48.37	55.68	7.14	6.28
5 year	63.68	75.14	11.30	10.19
3 year	67.50	79.11	11.38	12.80
2 year	58.51	68.89	9.82	12.85
1 year	67.33	76.13	8.80	11.18

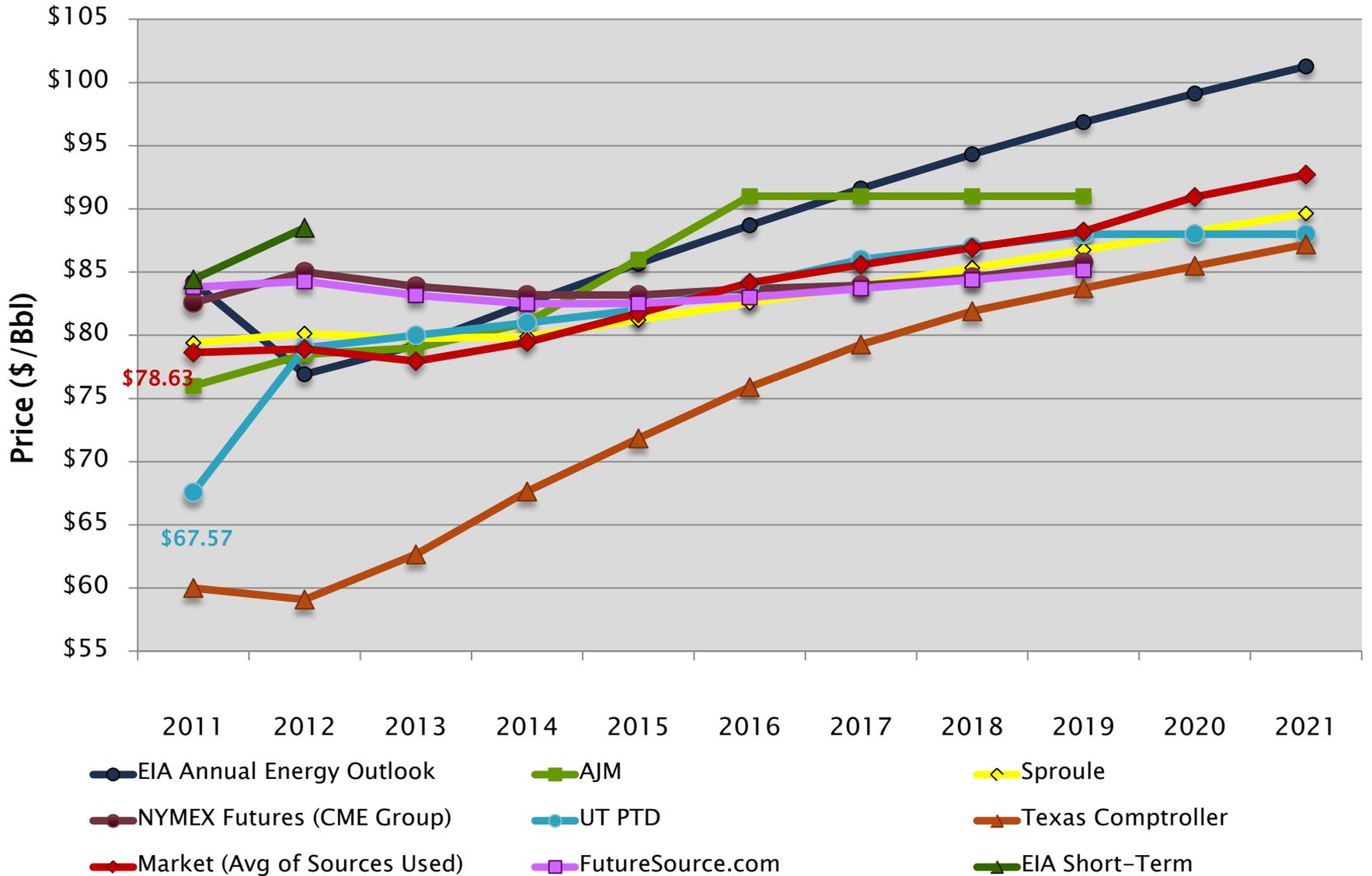
Note: Benchmark used is Chevron WTI (East of Rockies)

Used 11.00 for 2010

Sources For Oil Prices Used

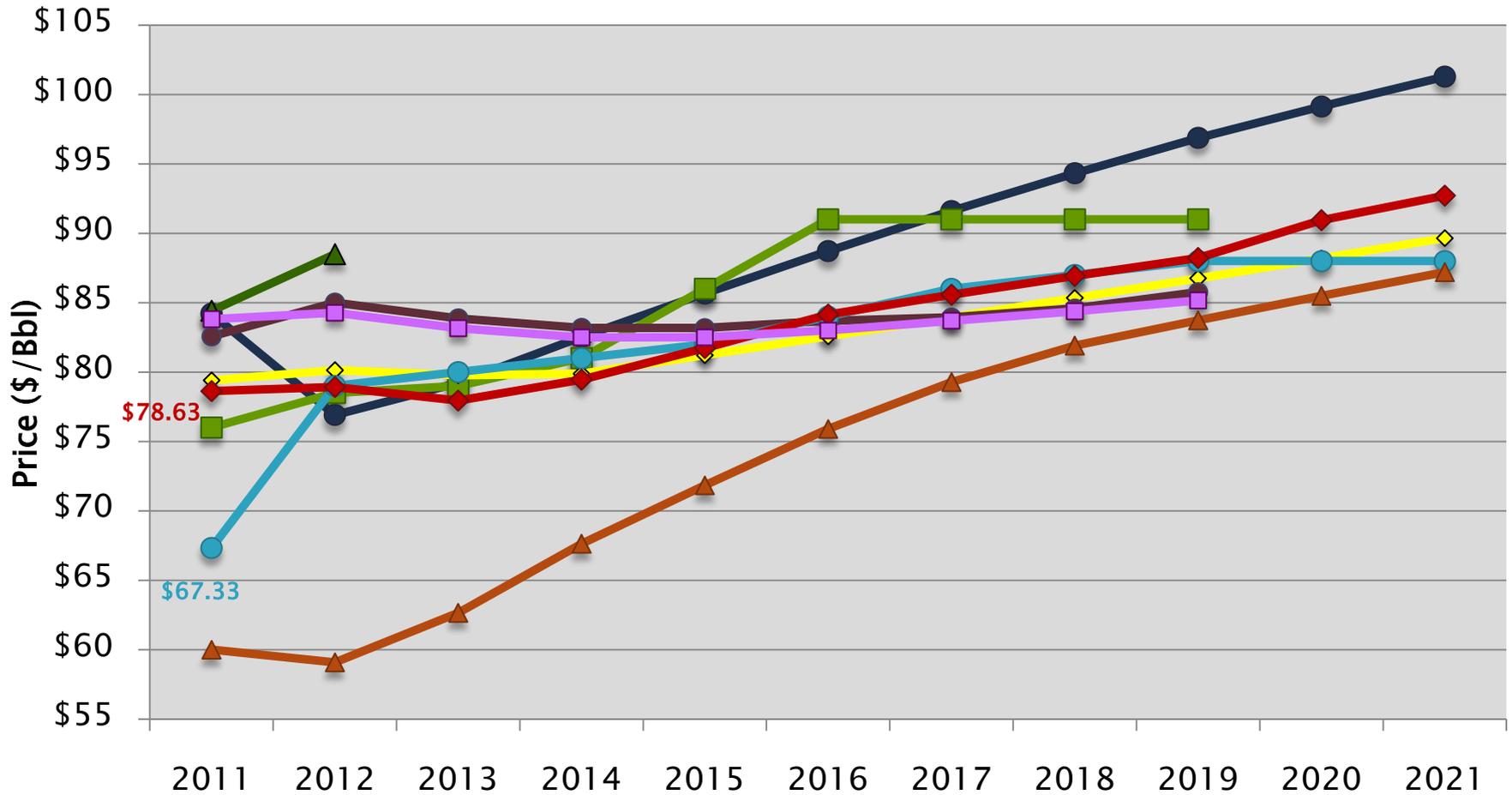
- ▶ US EIA Annual Energy Outlook – Energy Information Administration annual energy forecast
- ▶ US EIA Short Term Outlook– Energy Information Administration (section of the U.S. Dept. of Energy Annual Forecast)
- ▶ NYMEX (CME Group) – New York Mercantile Exchange for futures prices
- ▶ Sproule Associates – Petroleum consultant company annual forecast
- ▶ AJM Petroleum Consultants – Petroleum consultant company annual forecast
- ▶ Texas Comptroller – Sets oil prices for the oil industry assessment for the State of Texas
- ▶ FutureSource.com – Independent futures prices site

2011 Oil Price Paradox Basin Sources



January 1, 2011 Lien Date

2011 Oil Price Black Wax Sources



● EIA Annual Energy Outlook

■ AJM

◇ Sproule

● NYMEX Futures (CME Group)

● UT PTD

▲ EIA Short-Term

▲ Texas Comptroller

◆ Market (Avg of Sources Used)

□ FutureSource.com

2011 Oil Prices Paradox Basin Sources

	UT PTD	EIA Short-Term	EIA Annual Energy Outlook	NYMEX Futures (CME Group)	Texas Comptroller
	Paradox	Paradox	Paradox	Paradox	Paradox
2011	67.57	84.42	84.21	82.57	60.00
2012	79.00	88.50	76.91	85.01	59.09
2013	80.00		79.22	83.87	62.66
2014	81.00		82.54	83.19	67.64
2015	82.00		85.67	83.18	71.84
2016	84.00		88.71	83.69	75.90
2017	86.00		91.61	83.94	79.28
2018	87.00		94.32	84.59	81.91
2019	88.00		96.87	85.76	83.73
2020	88.00		99.13		85.49
2021	88.00		101.28		87.20

	Sproule	AJM	FutureSource.com	Market (Avg of Sources Used)
	Paradox	Paradox	Paradox	Paradox
2011	79.40	76.00	83.81	78.63
2012	80.14	78.50	84.27	78.92
2013	79.77	79.00	83.16	77.95
2014	79.88	81.00	82.50	79.46
2015	81.22	86.00	82.51	81.74
2016	82.57	91.00	83.00	84.15
2017	83.94	91.00	83.70	85.58
2018	85.34	91.00	84.38	86.92
2019	86.75	91.00	85.16	88.21
2020	88.19			90.94
2021	89.65			92.71

Note: The above prices include the differential deduction.

2011 Oil Prices Black Wax Sources

	UT PTD	EIA Short-Term	EIA Annual Energy Outlook	NYMEX Futures (CME Group)	Texas Comptroller
	Black Wax	Black Wax	Black Wax	Black Wax	Black Wax
2011	67.33	84.42	84.21	82.57	60.00
2012	79.00	88.50	76.91	85.01	59.09
2013	80.00		79.22	83.87	62.66
2014	81.00		82.54	83.19	67.64
2015	82.00		85.67	83.18	71.84
2016	84.00		88.71	83.69	75.90
2017	86.00		91.61	83.94	79.28
2018	87.00		94.32	84.59	81.91
2019	88.00		96.87	85.76	83.73
2020	88.00		99.13		85.49
2021	88.00		101.28		87.20

	Sproule	AJM	FutureSource.com	Market (Avg of Sources Used)
	Black Wax	Black Wax	Black Wax	Black Wax
2011	79.40	76.00	83.81	78.63
2012	80.14	78.50	84.27	78.92
2013	79.77	79.00	83.16	77.95
2014	79.88	81.00	82.50	79.46
2015	81.22	86.00	82.51	81.74
2016	82.57	91.00	83.00	84.15
2017	83.94	91.00	83.70	85.58
2018	85.34	91.00	84.38	86.92
2019	86.75	91.00	85.16	88.21
2020	88.19			90.94
2021	89.65			92.71

Note: The above prices include the differential deduction.

2011 Oil Price Forecast Paradox Basin/Sweet Summary

Latest **10 Year's** of Monthly Posted Prices

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Average of 2009 Monthly Prices	49.93											
Forecast with High & Low to 2 std dev		67.57	79.00	80.00	81.00	82.00	84.00	86.00	87.00	88.00	88.00	88.00
% Increase / Decrease			16.9%	1.3%	1.3%	1.2%	2.4%	2.4%	1.2%	1.2%	0.0%	0.0%

2011 Oil Price Forecast

Black Wax

Summary

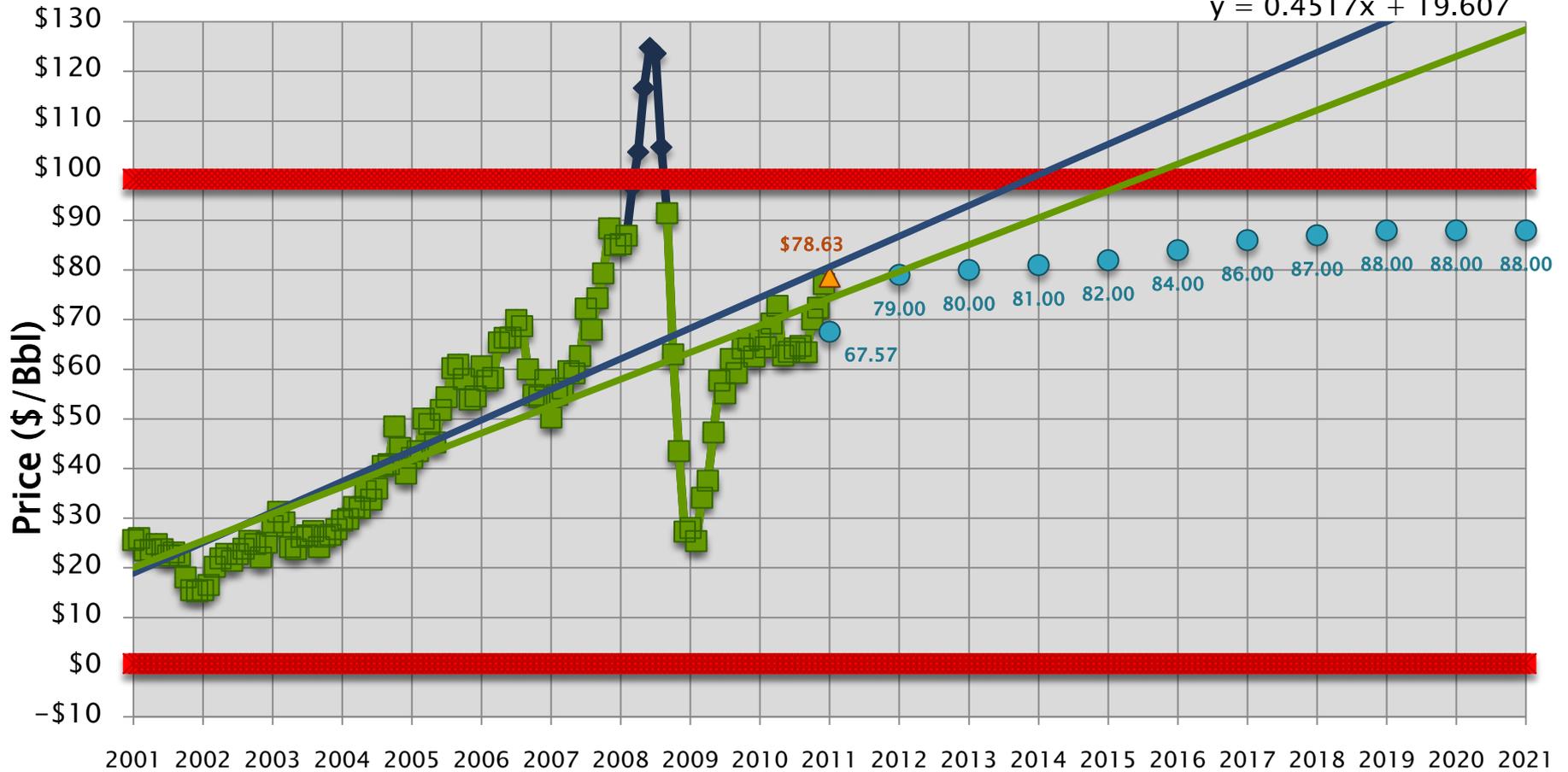
Latest **10 Year's** of Monthly Posted Prices

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Average of 2009 Monthly Prices	49.70											
Forecast with High & Low to 2 std dev		67.33	79.00	80.00	81.00	82.00	84.00	86.00	87.00	88.00	88.00	88.00
% Increase / Decrease			17.3%	1.3%	1.3%	1.2%	2.4%	2.4%	1.2%	1.2%	0.0%	0.0%

2011 Oil Price Forecast Paradox

2 Std deviation

High & Low Out



◆ Paradox Posted Prices

■ 2 std dev

■ 2 std dev high

■ 2 std dev low

● Paradox Oil Forecasts

▲ 2010 Mkt Avg (All Sources Used)

— Linear (Paradox Posted Prices)

— Linear (2 std dev)

2011 Oil Price Forecast Black Wax

2 standard deviation

High & low Out

$$y = 0.4759x + 19.574$$

$$y = 0.4074x + 20.933$$



◆ Black Wax Posted Prices

■ Posted Prices Adj to 2 std dev

■ 2 Std. Dev. High

■ 2 Std. Dev. Low

● Oil Price Forecasts

▲ 2010 Mkt Avg (All Sources Used)

— Linear (Black Wax Posted Prices)

— Linear (Posted Prices Adj to 2 std dev)

2011 Oil Price Forecast Paradox Comparison by Years

$$y = 0.5812x + 15.839$$

$$y = 0.4517x + 19.607$$



- Last Years Posted Price
- Last Years Forecast Prices
- ◆ Current Posted Price
- 2 Std Dev High
- 2 Std Dev Low
- Current Year Forecast Prices
- ◆ 2010 Mkt Avg (All Sources Used)
- Linear 2 std dev
- Linear (Last Years Posted Price)
- Linear (Linear 2 std dev)

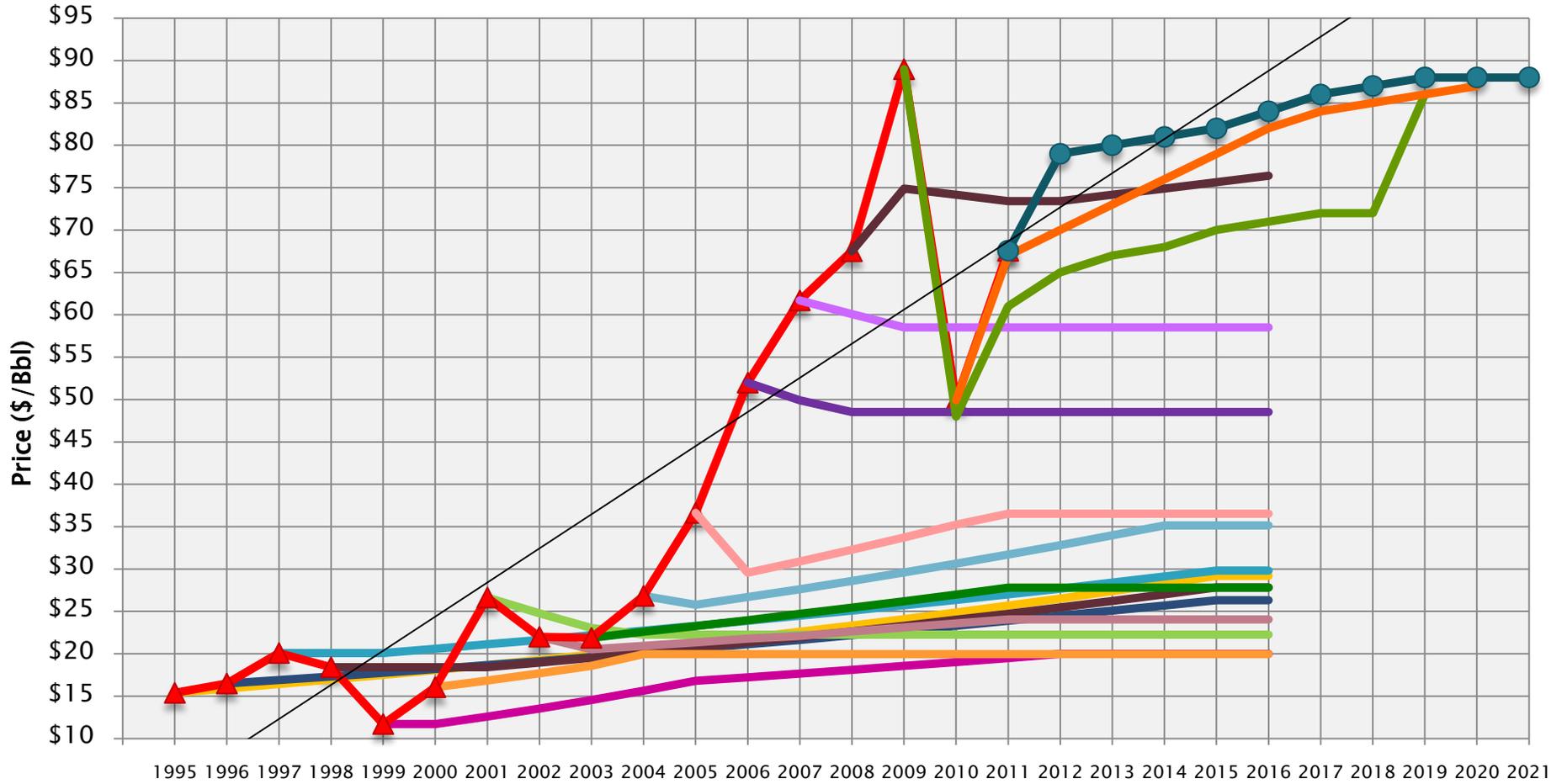
2011 Oil Price Forecast Black Wax Comparison by Years

$y = 0.5226x + 17.776$
 $y = 0.4074x + 20.933$



- Last Year Posted Price
- Last Years Forecast Price
- ▲ Curr Posted Prices
- ▲— 2 Std. Dev High
- 2 Std. Dev Low
- Current Year Forecast Price
- ◆ 2010 Mkt Avg (All Sources Used)
- Linear 2 std dev
- ▲— Linear (Last Year Posted Price)
- Linear (Linear 2 std dev)

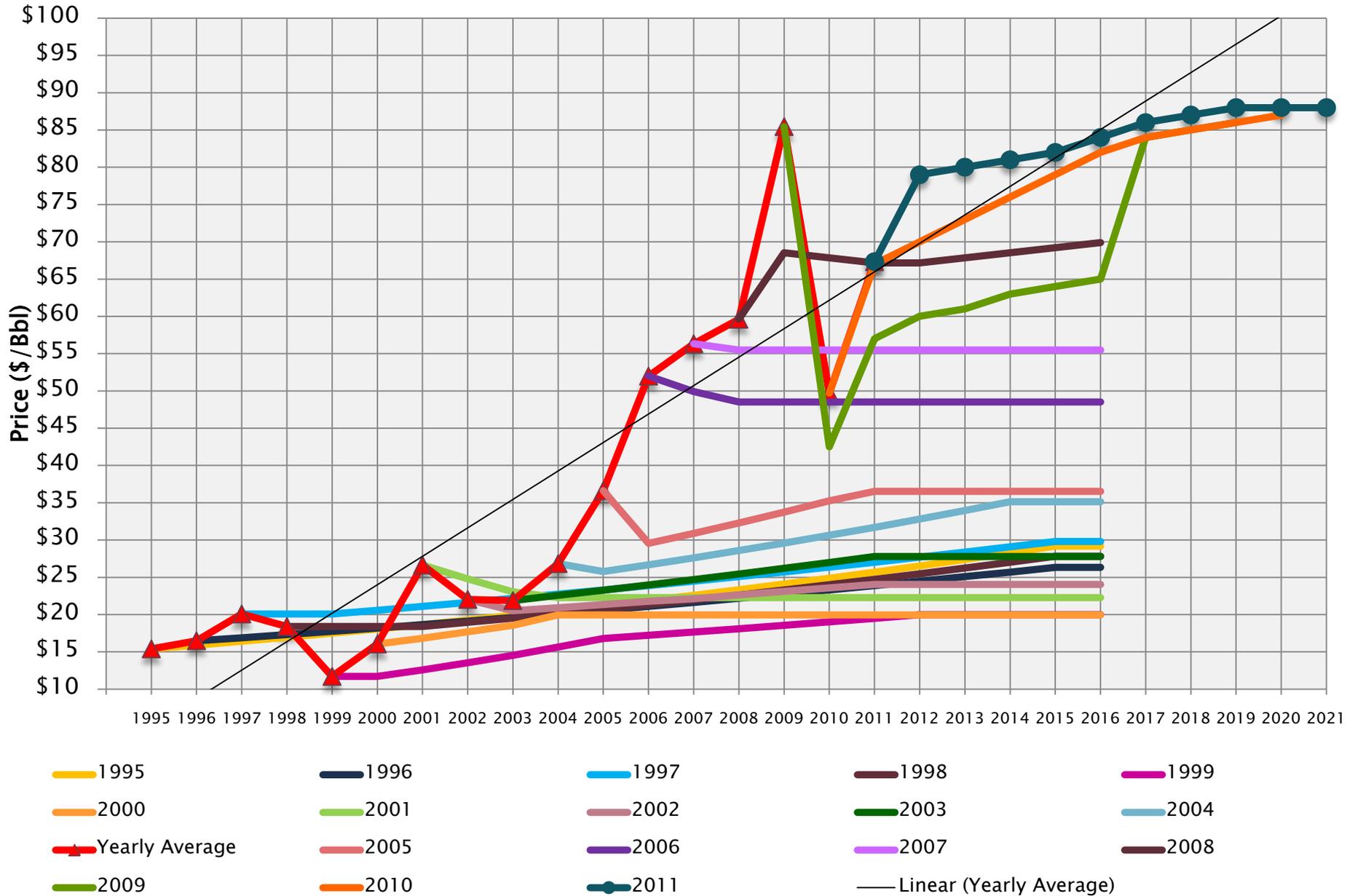
Paradox Basin Yearly Average vs Estimated Oil Prices



- 1995
- 1996
- 1997
- 1998
- 1999
- 2000
- 2001
- 2002
- 2003
- 2004
- Yearly Average
- 2005
- 2006
- 2007
- 2008
- 2009
- 2010
- 2011
- Linear (Yearly Average)

January 1, 2011 Lien Date

Black Wax Yearly Average vs Estimated Oil Prices



January 1, 2011 Lien Date

Other Considerations:

- ▶ Special Transportation Charges?
- ▶ Special Pricing & Production?
- ▶ Remarks: Place remarks on the Oil & Gas questionnaire with special circumstances for that particular well.

Natural Gas Price Forecast

Sources of Henry Hub Futures Prices

AJM Petroleum Consultants–Petroleum consultant company annual forecast

Macquarie Tristone–Energy bank Survey

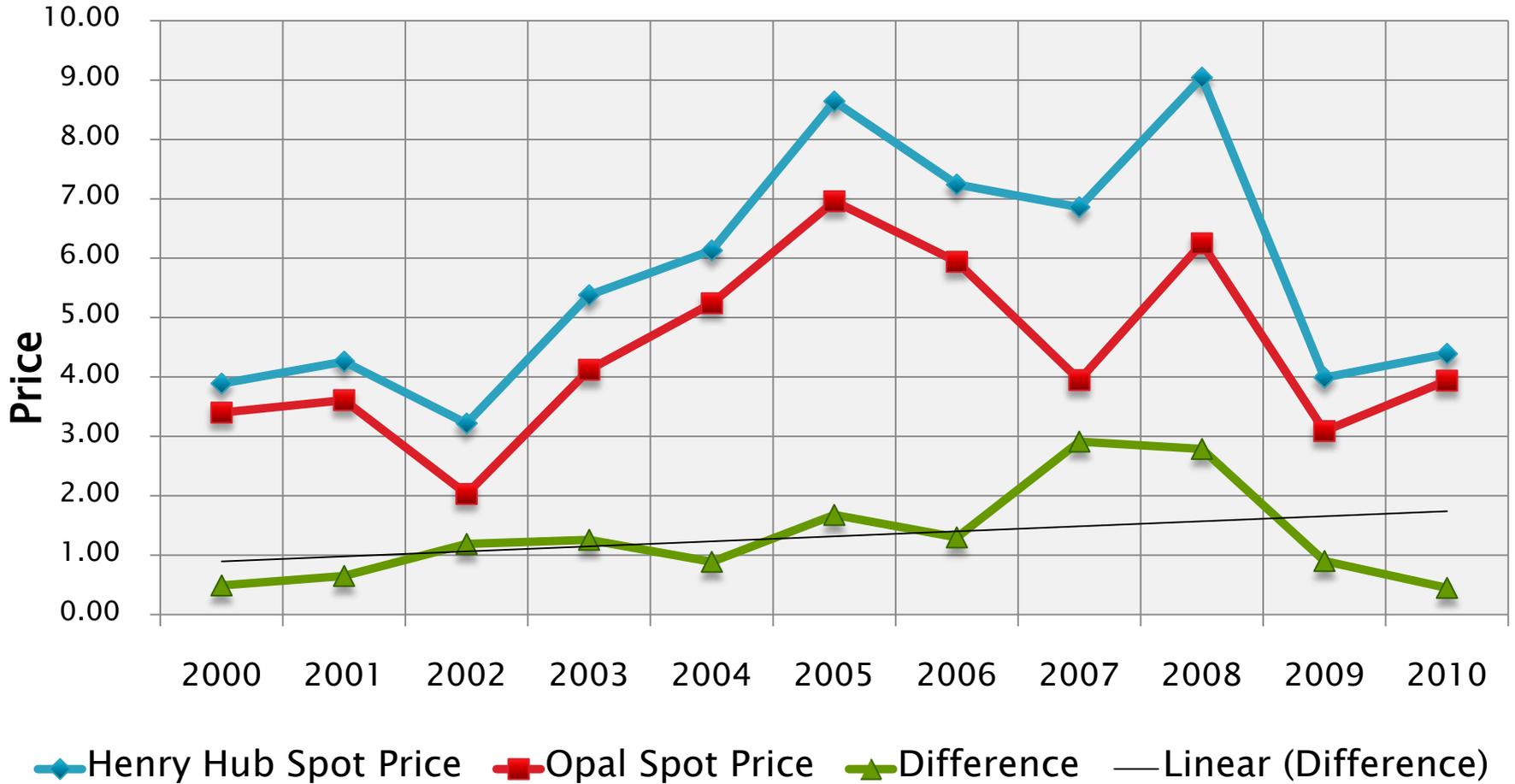
NYMEX– New York Mercantile Exchange natural gas future prices

Sproule Associates–Petroleum consultant company annual forecast

Texas Comptroller–Sets price for oil and natural gas industry assessment for the State of Texas

US EIA–Energy Information Administration annual forecast

Henry Hub vs. Opal Wyoming Spot Price Differential



Price Differential

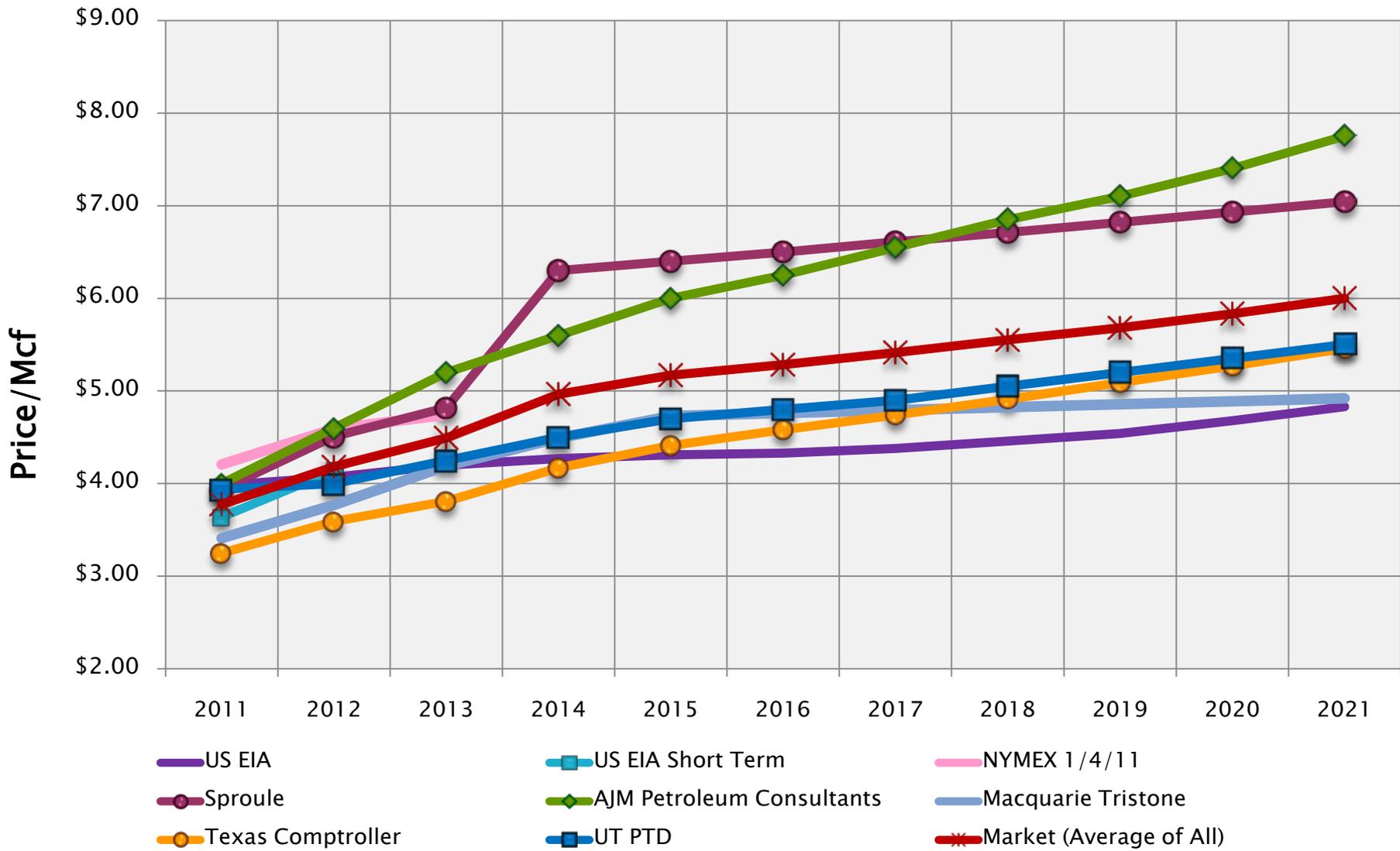
Year	2011 Opal Gas Prices	2011 Henry Hub Gas Prices	2011 Differential	2010 Differential
AVERAGE				
10 year	4.49	5.92	1.43	1.43
5 year	4.58	6.31	1.73	1.97
3 year	4.43	5.81	1.38	2.20
1 year	3.94	4.39	0.46	0.91

Market Forecasts

	US EIA		US EIA Short Term		NYMEX 1/4/11		Macquarie Tristone	
	H Hub	Opal	H Hub	Opal	H Hub	Opal	H Hub	Opal
2010	4.48	3.98	4.14	3.64	4.71	4.21	3.91	3.41
2011	4.57	4.07	4.64	4.14	5.09	4.59	4.27	3.77
2012	4.70	4.20			5.24	4.74	4.69	4.19
2013	4.77	4.27					4.99	4.49
2014	4.81	4.31					5.23	4.73
2015	4.83	4.33					5.26	4.76
2016	4.88	4.38					5.29	4.79
2017	4.96	4.46					5.32	4.82
2018	5.04	4.54					5.36	4.86
2019	5.18	4.68					5.39	4.89
2020	5.33	4.83					5.42	4.92

	Sproule		AJM Petroleum Consultants		Texas Comptroller		UT PTD		Market (Average of All)
	H Hub	Opal	H Hub	Opal	H Hub	Opal	Opal	Opal	
2010	4.44	3.94	4.50	4.00	3.75	3.25	3.94	3.94	3.78
2011	5.01	4.51	5.10	4.60	4.09	3.59	4.00	4.00	4.18
2012	5.32	4.82	5.70	5.20	4.31	3.81	4.25	4.25	4.49
2013	6.80	6.30	6.10	5.60	4.67	4.17	4.50	4.50	4.97
2014	6.90	6.40	6.50	6.00	4.91	4.41	4.70	4.70	5.17
2015	7.00	6.50	6.75	6.25	5.08	4.58	4.80	4.80	5.28
2016	7.11	6.61	7.05	6.55	5.24	4.74	4.90	4.90	5.41
2017	7.21	6.71	7.35	6.85	5.41	4.91	5.05	5.05	5.55
2018	7.32	6.82	7.60	7.10	5.59	5.09	5.20	5.20	5.68
2019	7.43	6.93	7.90	7.40	5.77	5.27	5.35	5.35	5.83
2020	7.54	7.04	8.25	7.75	5.96	5.46	5.50	5.50	6.00

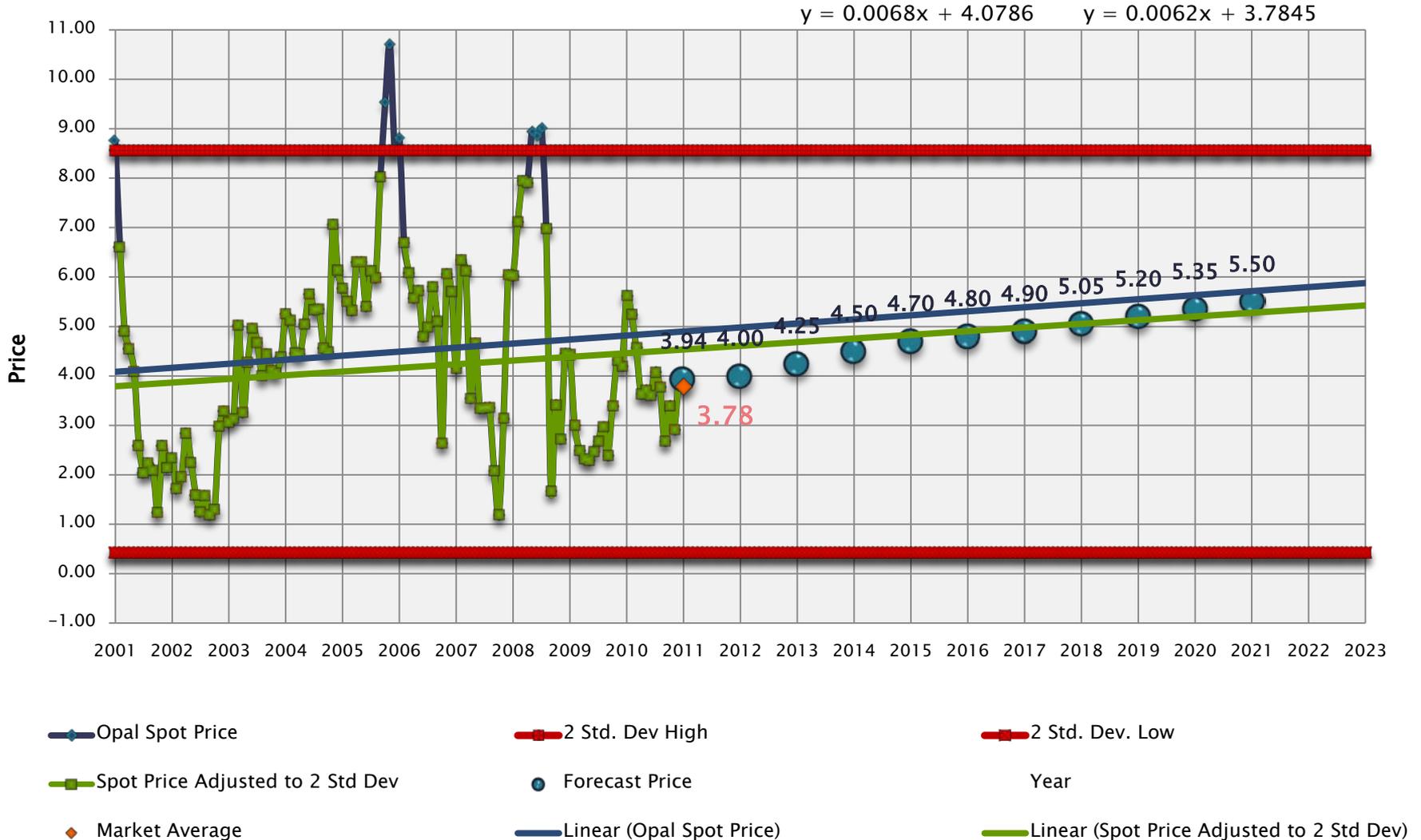
2011 Gas Price Estimate Comparison Adjusted to Opal, Wyoming



2011 – Gas Price Forecast

2 Standard Deviations

High and Low Out

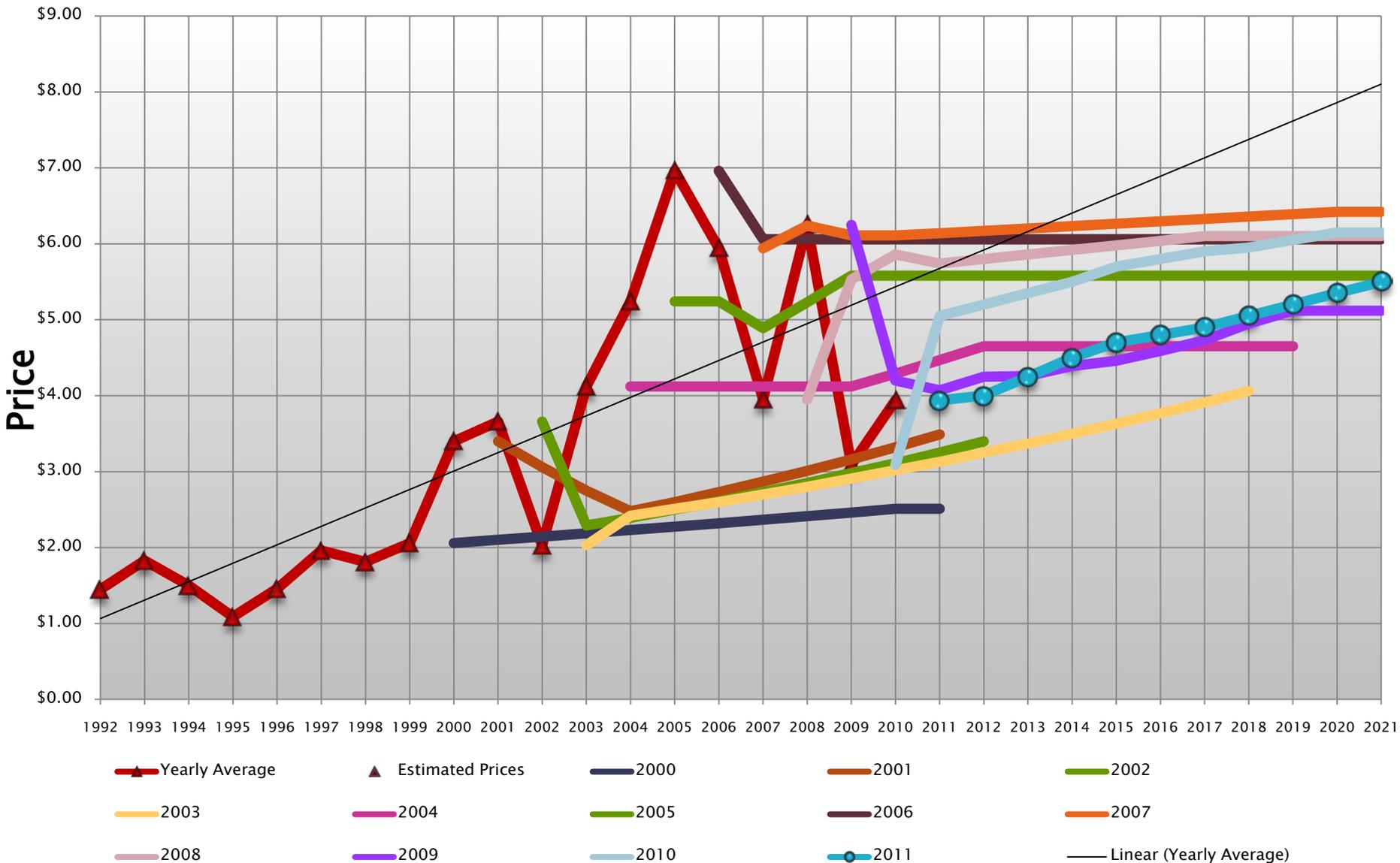


2011 Gas Price Forecast

2011 Gas Price Forecast Opal, Wyoming Summary

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Average 2009 Price	3.09											
Forecast with High & Low OUT		3.94	4.00	4.25	4.50	4.70	4.80	4.90	5.05	5.20	5.35	5.50
% Change			1.5%	6.3%	5.9%	4.4%	2.1%	2.1%	3.1%	3.0%	2.9%	2.8%

Yearly Average vs Estimated Gas Prices



Electronic Submission

- ▶ We will gladly accept electronic submission of your returns and supporting documents.
 - Forms are located at:
 - [Propertytax.utah.gov/Centrally Assessed/Natural Resource Returns](http://Propertytax.utah.gov/Centrally%20Assessed/Natural%20Resource%20Returns)
 - [Propertytax.utah.gov/Forms/Natural Resource Annual Reports](http://Propertytax.utah.gov/Forms/Natural%20Resource%20Annual%20Reports)

Other Important Information

- ▶ Power of Attorney
 - [www.propertytax.utah.gov/forms/centrallyassessedproperties/power of attorney form](http://www.propertytax.utah.gov/forms/centrallyassessedproperties/power%20of%20attorney%20form)
- ▶ E-Mail & Fax Authorization Form
 - [www.propertytax.utah.gov/forms/centrallyassessedproperties/E-mail & fax authorization form](http://www.propertytax.utah.gov/forms/centrallyassessedproperties/E-mail%20&%20fax%20authorization%20form)

Other Information

- ▶ Cap Rate Study will be posted
- ▶ 2011 Oil & Gas Industry Day presentation will be posted