A Weekly Analysis of Energy Stocks Using the McDep Ratio February 10, 2004

Standard Oil

Summary and Recommendation

ExxonMobil (XOM) at a McDep Ratio of 0.95 is an attractive stock to own in our opinion helping make the case for all of our buy recommendations at lower McDep Ratios. Cash flow multiples implied by the value of energy resources in the denominator of the McDep Ratio are on the same standard for ExxonMobil and its four mega cap peers. Our valuation of producer/refiners and independent producers implies a discount to the ExxonMobil standard that appears increasingly inappropriate in the rising commodity price environment we now seem to be facing. That suggests our valuation may be understated for buy recommendations including large cap independents **Burlington Resources (BR)**, **Anadarko (APC)** and **Encana (ECA)** and small cap **Encore Acquisition (EAC)**.

Cash Flow Multiple Correlates with Reserve Life

Variations in cash flow multiple correlate with adjusted reserve life for natural gas and oil producers. The degree of variation explained is 80% or more for large independent producers. The correlation coefficient is about 50% for the six mega cap producers even before taking account of non-producing, or downstream operations. The correlation is lower for producer/refiners suggesting extra potential in non-North American companies in that group.

Assessed Multiples Higher than Market Multiples

Those relationships apply to the cash flow multiple determined by the market (EV/Ebitda). We draw on adjusted reserve life in assessing cash flow multiples (PV/Ebitda). Applying an assessed multiple to next twelve months cash flow is our main technique for estimating present value when we don't have a more detailed discounted cash flow analysis. Estimates of one-year cash flow incorporate latest one-year futures prices. Dividing market cap and debt by unlevered present value yields the McDep Ratio.

While both assessed multiples and market multiples depend on adjusted reserves/production, assessed multiples are higher than market multiples. We justify the difference on the belief that we are in a rising commodity price environment for the next several years.

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Mega Cap Premium in Valuation Multiples

Mega caps are valued more than one multiple higher than producer/refiners or independent producers. The current median EV/Ebitda and PV/Ebitda multiples are 7.0, 5.7, 5.2 and 8.3, 6.6, 6.5 respectively (see Table 1-2). The assessments of producer/refiners and independent producers are internally consistent, but could be at higher multiples leading to lower McDep Ratios if we further applied the Exxon standard.

Essentially we are applying an Exxon standard at the mega cap high end. Our currently assessed multiple applied to cash flow estimates taking account of latest results gets us to a McDep Ratio less than 1.0 for ExxonMobil. The four other mega caps are assessed consistent with the Exxon standard.

Perhaps a mega cap premium is justified by lower risk. That might also mean that an energy portfolio concentrated entirely on mega caps would earn a lower return. We advocate an energy portfolio with a mega cap anchor, but disproportionately weighted to non-mega caps.

Kurt H. Wulff, CFA

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Table 1-1 Energy Producers Rank by McDep Ratio: Market Cap and Debt to Present Value

			Price			Net		
			(\$/sh)		Market	Present	Debt/	
	Symbol/		9-Feb	Shares	Cap	Value	Present	McDep
	Rat	ing	2004	(mm)	(\$mm)	(\$/sh)	Value	Ratio
Mega Cap		_						
Exxon Mobil Corporation	XOM		40.73	6,612	269,000	43.00	0.08	0.95
Total S.A.	TOT		91.70	1,261	115,600	105.00	0.17	0.89
BP plc	BP		48.40	3,682	178,000	60.00	0.13	0.83
Royal Dutch/Shell	RD	В	47.53	3,389	161,000	60.00	0.18	0.83
ChevronTexaco Corporation	CVX	В	85.78	1,064	91,300	110.00	0.17	0.82
Total or Median					815,000		0.17	0.83
Producer/Refiners - Large Cap and	l Mid Cap							
Kinder Morgan, Inc.	KMI	S	59.90	124	7,430	14.00	0.80	1.64
Imperial Oil Limited (30%)	IMO		45.12	111	5,010	43.00	0.12	1.04
Murphy Oil Corporation	MUR		61.56	93	5,710	62.00	0.20	0.99
Valero Energy Corporation	VLO		53.60	120	6,430	55.00	0.42	0.99
ENI S.p.A.	E		96.22	755	72,700	108.00	0.17	0.91
Suncor Energy	SU		25.42	475	12,070	30.00	0.12	0.87
Petro-Canada	PCZ		45.55	265	12,070	54.00	0.12	0.86
ConocoPhillips	COP	В	66.17	680	45,000	88.00	0.33	0.83
Petroleo Brasileiro S. A.	PBR		30.63	1,096	33,600	40.00	0.28	0.83
PetroChina Company Ltd (10%)	PTR	В	51.66	176	9,080	65.00	0.09	0.81
Marathon Oil Corporation	MRO	В	32.54	311	10,110	47.00	0.27	0.78
Lukoil Oil Company	LUKOY	В	101.30	211	21,000	140.00	0.07	0.74
Norsk Hydro ASA	NHY	В	64.58	257	16,600	95.00	0.19	0.74
Total or Median					257,000		0.19	0.86
Independent Natural Gas and Oil								
Occidental Petroleum Corp.	OXY		44.11	391	17,300	50.00	0.26	0.91
Pogo Producing Company	PPP		42.30	64	2,710	50.00	0.10	0.86
Apache Corporation	APA		38.39	324	12,400	47.00	0.19	0.85
CNOOC Limited (19%)	CEO	В	40.78	78	3,180	48.00	-	0.85
XTO Energy Inc.	XTO	В	26.61	186	4,960	33.00	0.19	0.84
Canadian Natural Resources Limited	CNQ		50.93	137	6,980	72.00	0.33	0.80
Unocal Corporation	UCL		36.84	273	10,100	52.00	0.28	0.79
Pioneer Natural Resources Company	PXD		30.50	119	3,630	45.00	0.26	0.76
Encana Corporation	ECA	В	39.57	470	18,600	56.00	0.18	0.76
Anadarko Petroleum Corp.	APC	В	50.47	252	12,700	76.00	0.25	0.75
Burlington Resources	BR	В	54.50	198	10,800	80.00	0.21	0.75
Devon Energy	DVN		53.70	242	13,000	90.00	0.30	0.72
Total or Median					116,000		0.23	0.80
Service								
Baker Hughes Inc.	BHI		34.70	336	11,700	30.00	0.07	1.15
Halliburton Company	HAL		30.03	435	13,100	28.00	0.28	1.05
Schlumberger Ltd.	SLB		62.13	585	36,300	60.00	0.17	1.03
Total or Median					61,000		0.17	1.05

Buy/Sell rating after symbol: B - Buy, S - Sell

McDep Ratio = Market cap and Debt to present value of oil and gas and other businesses

A Weekly Analysis of Energy Stocks Using the McDep Ratio February 10, 2004

Table 1-2

Energy Producers

Rank by EV/Ebitda: Enterprise Value to Earnings Before Interest, Tax, Deprec.

			Price				Divd or	
			(\$/sh)	EV/	EV/		Distrib	PV/
	Symbol/		9-Feb	Sales	Ebitda	P/E	NTM	Ebitda
	Ra	ting	2004	NTM	NTM	NTM	(%)	NTM
Mega Cap								
Exxon Mobil Corporation	XOM		40.73	1.1	7.9	15	2.5	8.3
Total S.A.	TOT		91.70	1.2	7.5	15	4.1	8.4
BP plc	BP		48.40	0.9	7.0	14	3.2	8.4
ChevronTexaco Corporation	CVX	В	85.78	0.9	6.4	12	3.4	7.9
Royal Dutch/Shell	RD	В	47.53	1.0	6.3	16	4.6	7.6
Median				1.0	7.0	15	3.4	8.3
Producer/Refiners - Large Cap and	-							
Kinder Morgan, Inc.	KMI	S	59.90	2.9	12.9	18	2.7	7.8
Imperial Oil Limited (30%)	IMO		45.12	1.4	7.9	16	1.5	7.5
Murphy Oil Corporation	MUR		61.56	1.6	7.6	19	1.3	7.7
Suncor Energy	SU		25.42	2.8	7.5	14	0.6	8.7
Valero Energy Corporation	VLO		53.60	0.3	6.5	10	0.9	6.6
ConocoPhillips	COP	В	66.17	0.7	6.2	10	2.6	7.4
ENI S.p.A.	Е		96.22	1.5	5.7	12	4.9	6.3
Marathon Oil Corporation	MRO	В	32.54	0.4	5.3	10	3.1	6.8
PetroChina Company Ltd (10%)	PTR	В	51.66	2.6	4.8	10	4.0	5.9
Petro-Canada	PCZ		45.55	1.6	4.6	13	1.0	5.4
Norsk Hydro ASA	NHY	В	64.58	0.8	4.4	12	2.4	5.9
Petroleo Brasileiro S. A.	PBR		30.63	1.7	4.1	5	3.3	5.0
Lukoil Oil Company	LUKOY	В	101.30	1.0	4.1	6	2.5	5.5
Median				1.5	5.7	12	2.5	6.6
Independent Natural Gas and Oil								
CNOOC Limited (19%)	CEO	В	40.78	4.8	6.1	12	3.9	7.1
XTO Energy Inc.	XTO	В	26.61	4.3	5.7	10	0.2	6.7
Anadarko Petroleum Corp.	APC	В	50.47	3.7	5.5	11	1.1	7.4
Occidental Petroleum Corp.	OXY		44.11	2.5	5.4	9	2.4	5.9
Pioneer Natural Resources Company	PXD		30.50	3.8	5.3	14	-	6.9
Unocal Corporation	UCL		36.84	2.5	5.2	11	2.2	6.5
Encana Corporation	ECA	В	39.57	2.5	5.2	13	0.8	6.8
Apache Corporation	APA		38.39	3.4	4.9	10	0.6	5.7
Burlington Resources	BR	В	54.50	3.4	4.8	11	1.1	6.4
Canadian Natural Resources Limited	-		50.93	3.3	4.6	10	0.9	5.8
Pogo Producing Company	PPP		42.30	2.6	3.7	9	0.5	4.3
Devon Energy	DVN		53.70	3.1	3.7	8	0.4	5.2
Median				3.3	5.2	10	0.8	6.5
Service								
Halliburton Company	HAL		30.03	1.1	12.8	27	1.7	12.1
Baker Hughes Inc.	BHI		34.70	2.3	12.6	32	1.3	11.0
Schlumberger Ltd.	SLB		62.13	3.1	11.0	38	1.2	10.7
Median				2.3	12.6	32	1.3	11.0

EV = Enterprise Value = Market Cap and Debt; Ebitda = Earnings before interest, tax, depreciationand amortization; NTM = Next Twelve Months Ended December 31, 2004; P/E = Stock Price toEarnings; PV = Present Value of oil and gas and other businesses

A Weekly Analysis of Energy Stocks Using the McDep Ratio February 10, 2004

Table 1-3Energy ProducersDeterminants of Present Value

			NG & 0	N. Am.	Adjusted			McDep
			Prod/	Gas/	Reserves/	PV/	NG&O	Ratio
	Symbol/		Ebitda	Ebitda	Prod	Ebitda	Ebitda/	9-Feb
	Ra	ting	(%)	(%)	NTM	NTM	mcfe	2004
Mega Cap								
Royal Dutch/Shell	RD	В	75	5	8.5	7.6	2.95	0.83
Total S.A.	TOT		76	1	9.3	8.4	2.67	0.89
BP plc	BP		78	12	10.3	8.4	2.99	0.83
ChevronTexaco Corporation	CVX	В	81	12	10.4	7.9	2.55	0.82
Exxon Mobil Corporation	XOM		70	10	10.9	8.3	2.78	0.95
Mediar			76	10	10.3	<i>8.3</i>	2.78	0.83
Producer/Refiners - Large Cap and M								
Valero Energy Corporation	VLO		-	-		6.6		0.99
Petro-Canada	PCZ		82	23	7.2	5.4	2.11	0.86
Murphy Oil Corporation	MUR		92	29	7.3	7.7	3.33	0.99
Marathon Oil Corporation	MRO	В	69	23	8.7	6.8	2.58	0.78
Norsk Hydro ASA	NHY	В	66	-	8.9	5.9	1.03	0.74
Petroleo Brasileiro S. A.	PBR		93	-	9.9	5.0	2.43	0.83
ENI S.p.A.	Е		53	-	9.9	6.3	2.41	0.91
Imperial Oil Limited (30%)	IMO		71	18	10.2	7.5	2.23	1.04
ConocoPhillips	COP	В	67	13	11.2	7.4	2.27	0.83
PetroChina Company Ltd (10%)	PTR	В	78	-	16.0	5.9	3.96	0.81
Suncor Energy	SU		93	9	19.0	8.7	2.95	0.87
Lukoil Oil Company	LUKOY	В	46	-	20.0	5.5	0.74	0.74
Kinder Morgan, Inc.	KMI	S	6	-		7.8		1.64
Mediar	1		69	-	9.9	6.6	2.41	0.86
Independent Natural Gas and Oil								
Pogo Producing Company	PPP		100	35	5.8	4.3	3.32	0.86
Canadian Natural Resources Limited	CNQ		100	50	7.2	5.8	2.47	0.80
Devon Energy	DVN		100	61	7.4	5.2	3.96	0.72
Apache Corporation	APA		100	45	8.1	5.7	3.42	0.85
Unocal Corporation	UCL		100	34	8.4	6.5	3.12	0.79
Encana Corporation	ECA	В	98	71	9.0	6.8	2.62	0.76
XTO Energy Inc.	XTO	В	100	88	9.5	6.7	3.73	0.84
Burlington Resources	BR	В	100	71	10.3	6.4	3.14	0.75
Pioneer Natural Resources Company	PXD		100	65	10.3	6.9	2.93	0.76
CNOOC Limited (19%)	CEO	В	100	-	10.7	7.1	3.57	0.85
Anadarko Petroleum Corp.	APC	В	100	56	10.9	7.4	2.98	0.75
Occidental Petroleum Corp.	OXY		90	18	10.9	5.9	3.55	0.91
Mediar	1		100	53	9.3	6.5	3.23	0.80

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Table 2-1

Independent Natural Gas and Oil Producers - Small Cap Rank by McDep Ratio: Market Cap and Debt to Present Value

	Symbol/ Rating	Price (\$/sh) 9-Feb 2004	Shares (mm)	Market Cap (\$mm)	Net Present Value (\$/sh)	Debt/ Present Value	McDep Ratio
Short Life							
Spinnaker Exploration Company	SKE	35.60	33.9	1,210	28.00	0.08	1.25
Southwestern Energy Company	SWN	20.51	36.0	740	21.00	0.28	0.98
Newfield Exploration Company	NFX	48.52	56.0	2,720	52.00	0.24	0.95
Western Gas Resources	WGR	46.35	37.0	1,720	50.00	0.17	0.94
Energy Partners Ltd.	EPL	13.86	36.9	511	15.00	0.19	0.94
Stone Energy Company	SGY	43.10	26.6	1,150	58.00	0.23	0.80
Chesapeake Energy Corporation	CHK	12.34	220	2,710	18.00	0.35	0.79
Denbury Resources Inc.	DNR	14.45	55.7	810	20.00	0.25	0.79
Westport Resources Corporation	WRC	30.20	68.0	2,050	42.00	0.22	0.78
Range Resources Corporation	RRC	10.15	57.0	580	15.00	0.32	0.78
Cimarex Energy Company	XEC B	26.05	42.0	1,090	35.00	0.00	0.74
St. Mary Land and Exploration Compar	n <u>'</u> SM	28.68	29.0	830	43.00	0.12	0.71
The Houston Exploraton Company	THX	36.36	31.0	1,130	55.00	0.13	0.70
Forest Oil Corporation	FST	25.96	49.0	1,270	45.00	0.30	0.70
Total or Median	1			18,500		0.23	0.79
Long Life							
Ultra Petroleum Corp.	UPL	22.95	78.0	1,790	16.00	0.08	1.40
Unit Corporation	UNT	25.80	43.7	1,130	22.00	0.02	1.17
Penn Virginia Corporation	PVA	54.78	9.1	500	56.00	0.17	0.98
Quicksilver Resources Inc.	KWK	34.98	23.0	810	37.00	0.25	0.96
Berry Petroleum Company	BRY	19.07	22.1	421	22.00	0.12	0.88
Swift Energy Company	SFY	16.94	27.4	460	22.00	0.37	0.86
Whiting Petroleum Corporation	WLL	19.42	18.7	360	25.00	0.27	0.84
Encore Acquisition Corp.	EAC B	25.50	30.3	773	33.00	0.13	0.80
Evergreen Resources, Inc.	EVG	32.50	44.0	1,430	42.00	0.12	0.80
Magnum Hunter Resources, Inc.	MHR	8.77	68.0	600	15.00	0.38	0.74
Vintage Petroleum, Inc.	VPI	12.68	63.0	800	27.00	0.32	0.64
Total or Mediar	1			9,100		0.17	0.86
Micro Cap							
Abraxas Petroleum Corporation	ABP	2.67	35.8	96	1.00	0.84	1.28
Purcell Energy, Ltd. (US\$)	PEL.TO	2.07	48.0	99	2.80	0.27	0.81

Buy/Sell rating after symbol: B - Buy, S - Sell

McDep Ratio = Market cap and Debt to present value of oil and gas and other businesses

A Weekly Analysis of Energy Stocks Using the McDep Ratio February 10, 2004

Table 2-2

Independent Natural Gas and Oil Producers - Small Cap Rank by EV/Ebitda: Enterprise Value to Earnings Before Interest, Tax, Deprec.

			Price		Divd or				
			(\$/sh)	EV/	EV/		Distrib	PV/	
	Symbol/		9-Feb	Sales	Ebitda	P/E	NTM	Ebitda	
	Rai	ting	2004	NTM	NTM	NTM	(%)	NTM	
Short Life									
Western Gas Resources	WGR		46.35	0.8	9.1	19	-	9.7	
Spinnaker Exploration Company	SKE		35.60	5.3	6.0	18	-	4.8	
Southwestern Energy Company	SWN		20.51	3.2	5.8	11	-	5.9	
Energy Partners Ltd.	EPL		13.86	2.9	4.7	22	-	5.0	
Denbury Resources Inc.	DNR		14.45	3.2	4.6	8	-	5.9	
Stone Energy Company	SGY		43.10	3.2	4.5	10	-	5.6	
Newfield Exploration Company	NFX		48.52	3.1	4.4	11	-	4.7	
Chesapeake Energy Corporation	CHK		12.34	3.4	4.4	8	1.0	5.5	
Westport Resources Corporation	WRC		30.20	3.3	4.3	11	-	5.5	
Range Resources Corporation	RRC		10.15	3.3	4.2	8	0.4	5.4	
Cimarex Energy Company	XEC	В	26.05	3.2	4.1	10	-	5.5	
Forest Oil Corporation	FST		25.96	3.0	4.1	7	-	5.9	
St. Mary Land and Exploration Company	/ SM		28.68	2.7	4.1	11	0.3	5.7	
The Houston Exploraton Company	THX		36.36	2.5	3.0	7	-	4.2	
Median				3.2	4.4	11	-	5.5	
Long Life									
Ultra Petroleum Corp.	UPL		22.95	12.7	16.6	29	-	11.9	
Quicksilver Resources Inc.	KWK		34.98	6.0	9.2	18	-	9.6	
Unit Corporation	UNT		25.80	3.5	8.0	19	-	6.9	
Berry Petroleum Company	BRY		19.07	3.6	7.8	16	2.3	8.8	
Evergreen Resources, Inc.	EVG		32.50	5.5	7.5	12	-	9.3	
Penn Virginia Corporation	PVA		54.78	3.5	6.3	14	1.6	6.4	
Swift Energy Company	SFY		16.94	3.9	6.0	16	-	7.0	
Encore Acquisition Corp.	EAC	В	25.50	3.8	5.3	11	-	6.6	
Magnum Hunter Resources, Inc.	MHR		8.77	3.2	5.1	11	-	6.9	
Whiting Petroleum Corporation	WLL		19.42	3.1	5.1	11	-	6.1	
Vintage Petroleum, Inc.	VPI		12.68	2.3	4.1	10	1.4	6.4	
Median				3.6	6.3	14	-	6.9	
Micro Cap									
Abraxas Petroleum Corporation	ABP		2.67	9.2	15.2		-	11.9	
Purcell Energy, Ltd. (US\$)	PEL.TO		2.07	3.9	5.4	11	-	6.6	

EV = Enterprise Value = Market Cap and Debt; Ebitda = Earnings before interest, tax, depreciationand amortization; NTM = Next Twelve Months Ended December 31, 2004; P/E = Stock Price toEarnings; PV = Present Value of oil and gas and other businesses

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Table 2-3 Independent Natural Gas and Oil Producers - Small Cap Determinants of Present Value

	Symbol/ Ra	ting	NG & O Prod/ Ebitda (%)	N. Am. Gas/ Ebitda (%)	Adjusted Reserves/ Prod NTM	PV/ Ebitda NTM	NG&O Ebitda/ mcfe	McDep Ratio 9-Feb 2004
Short Life	QUE		100	00	1.2	4.0	4 50	1.05
Spinnaker Exploration Company	SKE		100	82	4.3	4.8	4.72	1.25
Newfield Exploration Company	NFX		100	85	5.2	4.7	3.68	0.95
The Houston Exploraton Company	THX		100	94	5.2	4.2	4.41	0.70
Energy Partners Ltd.	EPL	-	100	64	5.5	5.0	3.13	0.94
Cimarex Energy Company	XEC	В	100	78	6.2	5.5	3.91	0.74
St. Mary Land and Exploration Company			100	67	6.8	5.7	3.21	0.71
Stone Energy Company	SGY		100	67	7.1	5.6	3.82	0.80
Chesapeake Energy Corporation	CHK		100	90	7.8	5.5	3.92	0.79
Westport Resources Corporation	WRC		100	73	7.8	5.5	4.00	0.78
Western Gas Resources	WGR		61	61	7.9	9.7	2.57	0.94
Forest Oil Corporation	FST		100	77	7.9	5.9	3.66	0.70
Southwestern Energy Company	SWN		89	74	8.4	5.9	3.63	0.98
Range Resources Corporation	RRC		100	79	8.6	5.4	3.96	0.78
Denbury Resources Inc.	DNR		100	51	8.9	5.9	3.52	0.79
Median				75	7.4	5.5	3.75	0.79
Long Life								
Penn Virginia Corporation	PVA		77	63	9.4	6.4	2.14	0.98
Unit Corporation	UNT		62	55	9.5	6.9	3.69	1.17
Magnum Hunter Resources, Inc.	MHR		100	70	10.0	6.9	3.22	0.74
Whiting Petroleum Corporation	WLL		100	59	10.2	6.1	2.87	0.84
Swift Energy Company	SFY		100	32	11.1	7.0	2.55	0.86
Encore Acquisition Corp.	EAC	В	100	21	12.0	6.6	3.51	0.80
Ultra Petroleum Corp.	UPL		100	96	14.5	11.9	3.54	1.40
Berry Petroleum Company	BRY		100	-	14.6	8.8	1.73	0.88
Vintage Petroleum, Inc.	VPI		100	31	15.9	6.4	2.41	0.64
Evergreen Resources, Inc.	EVG		100	100	17.2	9.3	3.78	0.80
Quicksilver Resources Inc.	KWK		100	87	18.5	9.6	3.02	0.96
Median				59	12.0	6.9	3.02	0.86
Micro Cap								
Purcell Energy, Ltd. (US\$)	PEL.TO		100	79	6.4	6.6	1.80	0.81
Abraxas Petroleum Corporation	ABP		100	78	11.7	11.9	2.55	1.28
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