

Book Review:

The Moral Case for Fossil Fuels

Alex Epstein

Summary and Recommendation

Use more fossil fuels on the philosophical basis that “Mankind’s use of fossil fuels is supremely virtuous— because human life is the standard of value, and because using fossil fuels transforms our environment to make it wonderful for human life.” Pointing to the downside of the anti-fossil fuel view, author Alex Epstein writes, “Imagine if we had followed the advice of some of our leading advisers [thirty years ago], many of whom are some of our leading advisers now, to severely restrict the energy source that billions of people used to lift themselves out of poverty in the last thirty years? We would have caused billions of premature deaths— deaths that were prevented by our increasing use of fossil fuels.” Mr. Epstein agrees that coal, oil and natural gas caused global warming, which amounted to an almost immeasurable 0.8 degree Celsius in the past 150 years. The “science” that predicts future catastrophe is based on models that have been wrong for the past three decades. Yes, fossil fuels cause pollution, but that risk has been drastically reduced. “The data clearly show that we have never had higher environmental quality and we have never been safer from climate, despite— no, because of— record fossil fuel use.” Meanwhile, the culturally popular alternatives to coal, oil and natural gas – solar and wind – require backup power to smooth out intermittency. The author writes “It’s more accurate to say that solar and wind are parasites that require a host.” We think there is much sensible discussion in “The Moral Case for Fossil Fuels” that deserves more respect from our political, educational and media leaders who seem all too ready to spread false narratives.

Carbon Dioxide in Perspective

The most overblown misrepresentation of the anti-fossil fuel movement, as we see it, is the negative characterization of carbon dioxide, CO₂ for short. In contrast, particulates (smoke), sulfur dioxide and smog inducing byproducts of combustion are obviously undesirable and have been dramatically curtailed. Epstein frames his discussion of CO₂ around the greenhouse effect, the fertilizer effect and the energy effect.

The greenhouse effect where CO₂ in the atmosphere traps heat from the sun to warm the earth has been well-publicized in a negative context. The modest degree of warming since the pickup in CO₂ concentration with the industrial revolution supposedly portends much more serious warming in the future that must be prevented. Epstein points out that

the computer models to support future warming apocalypse have been wrong for the past thirty years. The book cites an analysis of 102 models that overestimated actual temperature rise at four times actual. Moreover in the last fifteen years there has been no increase in global temperatures. Similarly, there has been no increase in storm activity the past 45 years as measured by global accumulated cyclone activity. Though we don't know all the assumptions that compound in the models, Epstein highlights the logarithmic, rather than linear response of temperature change to CO₂ concentration. In other words, it may take twice as much of an increase in CO₂ to get the same temperature increase in the next 150 years as in the past 150 years. Then there is the observation that seems obvious to investors, the failure of seemingly sophisticated financial models that contributed to the financial crises of 1998 and 2008. How much more difficult must it be to model the atmospheric climate in 2050 than the investment climate today? Through it all, we might forget that the concentration of CO₂ in air is a minute 0.04%.

The fertilizer effect gets little attention for its positive impact. Plants eat CO₂ as a vital ingredient for growth. Epstein cites work showing how plants grow larger in higher concentrations of CO₂.

Epstein's energy effect accompanying rising CO₂ includes climate mastery. Climate related deaths from floods, storms and droughts are down to a fraction of their incidence when fossil fuel use and CO₂ emissions were lower. What if there were more serious climate implications of rising CO₂ than we think likely? The author believes there is time for ingenuity and technology to mitigate unexpected results. Finally, in our words, let us celebrate, not denigrate natural gas, oil and cleaner coal.

Kurt H. Wulff, CFA

As 2014 draws to a close, this is the last edition of Meter Reader in its weekly format. We have written and compiled about 750 issues since creating the weekly in 2000. The next edition will be in the new monthly format beginning about January 13 or 20, 2015.



Meter Reader

A Weekly Analysis of Oil and Gas Stocks

December 30, 2014

						Present Value by Segment (%)							
		Price		EV/	Enterprise	North	Rest of			Dist.			
		(US\$/sh)		Market	Value	Amer.	World			Yield			
Symbol/Rating		29-Dec	2014	Cap	(\$mm)	Natural	Natural	Oil	Down-	NTM	McDep		
	B = Buy					Gas	Gas	Prod'n	stream	(%)	Ratio		
Global Integrated													
Exxon Mobil Corporation	XOM	B	93.07	1.19	471,000	7	16	61	17	3.0	0.93		
Chevron Corporation	CVX		113.32	1.22	263,000	3	11	73	13	3.8	0.79		
Royal Dutch Shell plc	RDS-A		68.31	1.37	295,000	4	22	57	17	5.5	0.78		
Total S.A.	TOT		52.74	1.48	178,000		22	60	18	5.6	0.74		
Lukoil Oil Company	LUKOY	B	38.75	1.27	38,100			76	24	5.4	0.34		
<i>Total or Median</i>				1.27	1,245,000			61	17	5.4	0.78		
U.S. Independent													
EOG Resources, Inc.	EOG		94.33	1.12	58,100	16	4	80		0.7	0.87		
Occidental Petroleum Corp.	OXY		81.71	1.08	68,700	5	1	83	11	3.5	0.83		
ConocoPhillips	COP		70.11	1.38	120,000	13	15	72		4.2	0.76		
Devon Energy Corporation	DVN	B	61.15	1.69	42,500	27		65	8	1.6	0.73		
Marathon Oil Corporation	MRO	B	28.58	1.52	29,400	9	3	89		2.9	0.67		
<i>Total or Median</i>				1.38	319,000	13		80		2.9	0.76		
Canada													
Imperial Oil Limited (30%)	IMO		43.49	1.24	13,700	2		79	19	1.0	0.86		
EnCana Corporation	ECA	B	13.94	2.12	21,800	52		48		2.0	0.65		
Cenovus Energy Inc.	CVE		20.95	1.40	22,200	9		80	10	4.4	0.58		
Canadian Oil Sands Limited	COSWF	B	9.20	1.61	7,200			100		7.5	0.58		
<i>Total or Median</i>				1.50	65,000			79		3.2	0.62		
Small Cap Independent Producers													
Cimarex Energy Company	XEC	B	110.27	1.16	11,200	41		59		0.6	0.81		
Range Resources	RRC	B	56.00	1.38	12,900	64		36		0.3	0.64		
Whiting Petroleum Corporation	WLL	B	34.09	1.98	11,500	7		93		-	0.55		
Continental Resources (32%)	CLR	B	38.26	1.43	6,500	21		79		-	0.54		
Birchcliff Energy Ltd.	BIREF	B	6.75	1.50	1,600	75		25		-	0.52		
California Resources	CRC		5.77	3.83	8,500	13		87		0.7	0.39		
<i>Total or Median</i>				1.46	52,000	31		69		0.1	0.54		
RTF Cash Payers													
Dorchester Minerals, L.P.	DMLP	B	25.16	1.00	770	35		65		4.5	0.79		
San Juan Basin Royalty Trust	SJT	B	13.97	1.00	650	100		-		6.2	0.67		
Hugoton Royalty Trust	HGT		7.63	1.00	310	87		13		7.9	0.59		
Sabine Royalty Trust	SBR		36.68	1.00	540	44		56		7.9	0.57		
Permian Basin RT	PBT		9.12	1.00	430	20		80		8.1	0.51		
Cross Timbers Royalty Trust	CRT		18.07	1.00	110	64		36		8.9	0.43		
Enduro Royalty Trust	NDRO		4.58	1.00	150	28		72		3.8	0.33		
<i>Total or Median</i>				1.00	3,000	44		56		7.9	0.57		

Estimated present value presumes a long-term price for oil of US\$90 a barrel and natural gas, \$6 a million btu.
 McDep Ratio = Market cap and Debt to present value of oil and gas and other businesses



Meter Reader

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December 30, 2014

			<i>Price</i> <i>(US\$/sh)</i>	<i>Shares</i>	<i>Market</i> <i>Cap</i> <i>(US\$mm)</i>	<i>Net</i> <i>Present</i> <i>Value</i> <i>(US\$/sh)</i>	<i>Debt/</i> <i>Present</i> <i>Value</i>	<i>McDep</i> <i>Ratio</i>
	<i>Symbol/Rating</i>		<i>29-Dec</i> <i>2014</i>	<i>(mm)</i>				
	<i>B = Buy</i>							
Global Integrated								
Exxon Mobil Corporation	XOM	B	93.07	4,267	397,000	102.00	0.15	0.93
Chevron Corporation	CVX		113.32	1,896	215,000	150.00	0.14	0.79
Royal Dutch Shell plc	RDS-A		68.31	3,167	216,000	95.00	0.21	0.78
Total S.A.	TOT		52.74	2,285	121,000	80.00	0.24	0.74
Lukoil Oil Company	LUKOY	B	38.75	776	30,100	135.00	0.07	0.34
	<i>Total or Median</i>				<i>979,000</i>		<i>0.15</i>	<i>0.78</i>
U.S. Independent								
EOG Resources, Inc.	EOG		94.33	550	51,900	110.00	0.09	0.87
Occidental Petroleum Corp.	OXY		81.71	778	63,600	100.00	0.06	0.83
ConocoPhillips	COP		70.11	1,247	87,000	100.00	0.21	0.76
Devon Energy Corporation	DVN	B	61.15	411	25,100	100.00	0.30	0.73
Marathon Oil Corporation	MRO	B	28.58	678	19,380	50.00	0.23	0.67
	<i>Total or Median</i>				<i>247,000</i>		<i>0.21</i>	<i>0.76</i>
Canada								
Imperial Oil Limited (30%)	IMO		43.49	255	11,100	52.00	0.17	0.86
EnCana Corporation	ECA	B	13.94	736	10,300	30.00	0.34	0.65
Cenovus Energy Inc.	CVE		20.95	759	15,900	42.00	0.17	0.58
Canadian Oil Sands Limited	COSWF	B	9.20	485	4,500	20.00	0.22	0.58
	<i>Total or Median</i>				<i>42,000</i>		<i>0.19</i>	<i>0.62</i>
Small Cap Independent Producers								
Cimarex Energy Company	XEC	B	110.27	87	9,600	140.00	0.11	0.81
Range Resources	RRC	B	56.00	166	9,300	100.00	0.18	0.64
Whiting Petroleum Corporation	WLL	B	34.09	170	5,800	90.00	0.27	0.55
Continental Resources (32%)	CLR	B	38.26	119	4,500	85.00	0.16	0.54
Birchcliff Energy Ltd.	BIREF	B	6.75	155	1,000	16.00	0.17	0.52
California Resources	CRC		5.77	387	2,200	40.00	0.29	0.39
	<i>Total or Median</i>				<i>32,000</i>		<i>0.17</i>	<i>0.54</i>
RTF Cash Payers								
Dorchester Minerals, L.P.	DMLP	B	25.16	31	770	32.00	-	0.79
San Juan Basin Royalty Trust	SJT	B	13.97	47	650	21.00	-	0.67
Hugoton Royalty Trust	HGT		7.63	40	310	13.00	-	0.59
Sabine Royalty Trust	SBR		36.68	15	540	64.00	-	0.57
Permian Basin RT	PBT		9.12	47	430	18.00	-	0.51
Cross Timbers Royalty Trust	CRT		18.07	6	110	42.00	-	0.43
Enduro Royalty Trust	NDRO		4.58	33	150	14.00	-	0.33
	<i>Total or Median</i>				<i>3,000</i>		<i>-</i>	<i>0.57</i>

Estimated present value presumes a long-term price for oil of US\$90 a barrel and natural gas, \$6 a million btu.
McDep Ratio = Market cap and Debt to present value of oil and gas and other businesses



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December 30, 2014

			<i>Price</i> <i>(US\$/sh)</i>	<i>Adjustd</i> <i>Resrvs/</i>	<i>PV/</i>	<i>EV/</i>		<i>Dividend</i>
	<i>Symbol/Rating</i>		<i>29-Dec</i>	<i>Prod</i>	<i>Ebitda</i>	<i>Ebitda</i>	<i>P/E</i>	<i>NTM</i>
	<i>B = Buy</i>		<i>2014</i>	<i>NTM</i>	<i>NTM</i>	<i>NTM</i>	<i>NTM</i>	<i>(\$/sh)</i>
Global Integrated								
Exxon Mobil Corporation	XOM	B	93.07	14.5	9.7	9.0	19	2.76
Chevron Corporation	CVX		113.32	9.2	10.2	8.1	22	4.28
Royal Dutch Shell plc	RDS-A		68.31	10.5	9.0	7.0	18	3.76
Total S.A.	TOT		52.74	10.5	9.2	6.8	16	2.97
Lukoil Oil Company	LUKOY	B	38.75	14.4	7.8	2.6	18	2.08
	<i>Median</i>			<i>10.5</i>	<i>9.2</i>	<i>7.0</i>	<i>18</i>	
U.S. Independent								
EOG Resources, Inc.	EOG		94.33	7.1	10.8	9.4	28	0.67
Occidental Petroleum Corp.	OXY		81.71	10.6	10.8	9.0	27	2.88
Devon Energy Corporation	DVN	B	61.15	9.4	11.6	8.4	19	0.96
ConocoPhillips	COP		70.11	11.1	10.7	8.2	30	2.92
Marathon Oil Corporation	MRO	B	28.58	10.7	10.2	6.8	47	0.84
	<i>Median</i>			<i>10.6</i>	<i>10.8</i>	<i>8.4</i>	<i>28</i>	
Canada								
Canadian Oil Sands Limited	COSWF	B	9.20	19.4	24.5	14.2		0.69
Imperial Oil Limited (30%)	IMO		43.49	25.7	13.9	12.0	17	0.45
EnCana Corporation	ECA	B	13.94	7.8	13.5	8.8	13	0.28
Cenovus Energy Inc.	CVE		20.95	14.6	14.5	8.4	41	0.92
	<i>Median</i>			<i>17.0</i>	<i>14.2</i>	<i>10.4</i>	<i>17</i>	
Small Cap Independent Producers								
Range Resources	RRC	B	56.00	11.1	19.7	12.6	89	0.16
Cimarex Energy Company	XEC	B	110.27	6.0	11.2	9.1	73	0.64
Continental Resources (32%)	CLR	B	38.26	11.4	13.7	7.4	16	-
Whiting Petroleum Corporation	WLL	B	34.09	7.3	13.5	7.4		-
Birchcliff Energy Ltd.	BIREF	B	6.75	12.7	12.4	6.5	25	-
California Resources	CRC		5.77	10.1	12.9	5.1	9	0.04
	<i>Median</i>			<i>10.6</i>	<i>13.2</i>	<i>7.4</i>	<i>25</i>	
RTF Cash Payers								
Dorchester Minerals, L.P.	DMLP	B	25.16	7.8	21.9	17.2	34	1.14
San Juan Basin Royalty Trust	SJT	B	13.97	11.0	21.2	14.1	16	0.87
Sabine Royalty Trust	SBR		36.68	8.9	22.2	12.7	13	2.88
Hugoton Royalty Trust	HGT		7.63	13.7	17.8	10.5	13	0.60
Cross Timbers Royalty Trust	CRT		18.07	12.2	20.3	8.7	11	1.61
Permian Basin RT	PBT		9.12	9.6	16.9	8.6	12	0.74
Enduro Royalty Trust	NDRO		4.58	8.3	13.1	4.3	26	0.18
	<i>Median</i>			<i>9.6</i>	<i>20.3</i>	<i>10.5</i>	<i>13</i>	
EV = Enterprise Value = Market Cap and Debt; Ebitda = Earnings before interest, tax, depreciation and amortization; NTM = Next Twelve Months Ended December 31, 2015; P/E = Stock Price to Earnings; PV = Present Value of oil and gas and other businesses								



Meter Reader

A Weekly Analysis of Oil and Gas Stocks

December 30, 2014

Table 4										
McDep Energy Stocks										
Total Return since Halloween 2014										
Ranked by Unlevered Total Return										
		Price	Price			Equity	Unlevered			
		(\$/sh)	(\$/sh)	Price	Cash	Total	Debt	Total		
	Symbol	29-Dec	27-Oct	Change	Distrib.	Return	(\$/sh)	(%)	McDep	
		2014	2014	(%)	(%)	(%)			Ratio	
Global Integrated										
	Exxon Mobil Corporation	XOM	93.07	93.71	(1)	1	0	17	0	0.93
	Chevron Corporation	CVX	113.32	115.02	(1)	1	(1)	25	(0)	0.79
	Royal Dutch Shell plc	RDS-A	68.31	70.45	(3)	1	(2)	25	(1)	0.78
	Total S.A.	TOT	52.74	56.61	(7)	1	(5)	25	(5)	0.74
	Lukoil Oil Company	LUKOY	38.75	47.35	(18)	3	(15)	10	(15)	0.34
	<i>Median</i>				(3)		(2)		(1)	0.78
U.S. Independent										
	EOG Resources, Inc.	EOG	94.33	88.43	7	-	7	11	6	0.87
	Devon Energy Corporation	DVN	61.15	57.33	7	0	7	42	4	0.73
	ConocoPhillips	COP	70.11	68.83	2	-	2	27	1	0.76
	Occidental Petroleum Corp.	OXY	81.71	86.47	(6)	5	(1)	7	(1)	0.83
	Marathon Oil Corporation	MRO	28.58	33.00	(13)	1	(13)	15	(9)	0.67
	<i>Median</i>				2		2		1	0.76
Canada										
	Imperial Oil Limited (30%)	IMO	43.49	45.40	(4)	0	(4)	10	(3)	0.86
	Cenovus Energy Inc.	CVE	20.95	24.14	(13)	1	(12)	8	(10)	0.58
	EnCana Corporation	ECA	13.94	17.80	(22)	0	(21)	16	(12)	0.65
	Canadian Oil Sands Limited	COSWF	9.20	15.16	(39)	2	(37)	6	(27)	0.58
	<i>Median</i>				(17)		(17)		(11)	0.62
Small Cap Independent Producers										
	Cimarex Energy Company	XEC	110.27	105.68	4	0	4	18	4	0.81
	Birchcliff Energy Ltd.	BIREF	6.75	7.72	(13)	-	(13)	3	(9)	0.52
	Range Resources	RRC	56.00	65.15	(14)	0	(14)	22	(11)	0.64
	California Resources (from 17-Nov)	CRC	5.77	8.50	(32)	-	(32)	16	(11)	0.39
	Continental Resources (32%)	CLR	38.26	54.12	(29)	-	(29)	17	(22)	0.54
	Whiting Petroleum Corporation	WLL	34.09	57.10	(40)	-	(40)	34	(25)	0.55
	<i>Median</i>				(22)		(22)		(11)	0.54
RTF Cash Payers										
	Dorchester Minerals, L.P.	DMLP	25.16	28.13	(11)	-	(11)	-	(11)	0.79
	Hugoton Royalty Trust	HGT	7.63	8.88	(14)	1	(13)	-	(13)	0.59
	San Juan Basin Royalty Trust	SJT	13.97	17.00	(18)	1	(17)	-	(17)	0.67
	Permian Basin RT	PBT	9.12	12.00	(24)	1	(23)	-	(24)	0.51
	Sabine Royalty Trust	SBR	36.68	49.62	(26)	1	(25)	-	(25)	0.57
	Cross Timbers Royalty Trust	CRT	18.07	26.91	(33)	1	(31)	-	(32)	0.43
	Enduro Royalty Trust	NDRO	4.58	8.74	(48)	1	(46)	-	(47)	0.33
	<i>Median</i>				(24)		(23)		(24)	0.57
	<i>Grand Median</i>				(13)		(13)	11	(11)	0.65
	Natural Gas (\$/mmbtu)		3.19	3.56	(10)					
	Oil -West Texas Intermediate (\$/bbl)		53.60	81.00	(34)					

Source: McDep LLC, Yahoo, CME Group, Bloomberg



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December 30, 2014

Index of Recent Research			
Date	Symbol	Subject	Theme
23-Dec	RRC	Range Resources	Record Appalachian Well (Meter Reader)
9-Dec	WLL	Whiting Petroleum	Kodiak Acquisition Completed (Meter Reader)
4-Dec	COSWF	Canadian Oil Sands Ltd.	Reduce NPV to US\$20, Dividend to 6%
25-Nov	COP	ConocoPhillips	Strong 4% Dividend Independent Producer
13-Nov	BIREF	Birchcliff Energy	Raise NPV to US\$16 on Alberta Natural Gas
4-Nov	CRC	California Resources Corporation	Pure Play Largest California Producer (Meter Reader)
28-Oct	CVE	Cenovus Energy	Same Stock Price, Twice the Production (Meter Reader)
21-Oct	TOT	Total	Chief Executive Dies
21-Oct	XEC	Cimarex Energy	Strong Independent Producer (Meter Reader)
14-Oct	DVN	Devon Energy	Rebalance Candidate (Meter Reader)
7-Oct	ECA	Encana Corporation	Suttles' Stamp (Meter Reader)
23-Sep	CLR	Continental Resources	Raise NPV to \$85 on 29% Growth (Meter Reader)
16-Sep	RDSA	Royal Dutch Shell plc	Ben's Growth Strategy (Meter Reader)
9-Sep	EOG	EOG Resources	Mr. Shale (Meter Reader)
2-Sep	LUKOY	Lukoil	Oil under Uncertainty (Meter Reader)
26-Aug	SJT	San Juan Basin Royalty Trust	Income and Shale (Meter Reader)
8-Aug	DMLP	Dorchester Minerals, L.P.	Robust Bakken and Permian Oil Growth
5-Aug	XOM	Exxon Mobil	Shale Oil Minerals (Meter Reader)
22-Jul	MRO	Marathon Oil	Frac Shale Oil, Sell Norway (Meter Reader)
24-Jun	FRHLF	Freehold Royalties Ltd	Raise NPV to \$26 on Minerals (Meter Reader)
17-Jun	PEYUF	Peyto Exploration	Raise NPV to \$42 on More Energy Growth (Meter Reader)
10-Jun	OXY	Occidental Petroleum	Raise NPV to \$120, Spinoff Filed (Meter Reader)
27-May	CVX	Chevron	Oil Price Turns Up (Meter Reader)
23-Apr	HGT	Hugoton Royalty Trust	Positive Arbitration Ruling
21-Apr	MTR	Mesa Royalty Trust	Underpayment Uncovered, Upside Commodity Leverage
18-Mar	PBT	Permian Basin Royalty Trust	Rising Oil Production, Understated Income (Meter Reader)
For historical research by stock, go to mcdep.com , click on Stock Ideas , click on stock by name.			
Meter Reader			
23-Dec	RRC	Range Resources	Record Appalachian Well
16-Dec			Oil and Gas Stocks for 2015 - For Contrarians and Rebalancers
9-Dec	WLL	Whiting Petroleum	Kodiak Acquisition Completed (Meter Reader)
2-Dec			Rebuild Oil and Gas Positions
25-Nov	COP	ConocoPhillips	Strong 4% Dividend Independent Producer
18-Nov	DMLP, SJT	RTF (Royalty Trust Fund)	DMLP, SJT and the RTF - High Income without Debt
11-Nov	COSWF	Canadian Oil Sands Ltd.	Record Monthly Production
4-Nov	CRC	California Resources Corporation	Pure Play Largest California Producer
28-Oct	CVE	Cenovus Energy	Same Stock Price, Twice the Production
21-Oct	XEC	Cimarex Energy	Strong Independent Producer
14-Oct	DVN	Devon Energy	Rebalance Candidate
7-Oct	ECA	Encana Corporation	Suttles' Stamp
30-Sep		RTF (Royalty Trust Fund)	Current Income and Future Fraccing
23-Sep	CLR	Continental Resources	Raise NPV to \$85 on 29% Growth
16-Sep	RDSA	Royal Dutch Shell plc	Ben's Growth Strategy
9-Sep	EOG	EOG Resources	Mr. Shale
For earlier editions, go to mcdep.com , click on Meter Reader .			
Industry Ideas			
18-Nov	DMLP, SJT	RTF (Royalty Trust Fund)	DMLP, SJT and the RTF - High Income without Debt (Meter Reader)
30-Sep		RTF (Royalty Trust Fund)	Current Income and Future Fraccing



A Weekly Analysis of Oil and Gas Stocks

December 30, 2014

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