Beginning of Year Analysis of Oil and Gas Stocks January 2, 2018

New Look at Beginning of Year 2018

Summary and Recommendation

Opening the books on 2018, we see attractive value in oil and gas stocks at a median McDep Ratio of 0.86. We sharpen the focus of our coverage to 22 stocks in four groups, reduced from 25 stocks in 5 groups. We abandon, at least temporarily, differentiating Net Present Value (NPV) by adjusted reserve life. Median NPV per share is unchanged, but NPV has been reduced for some and increased for others. The new standard for approximating NPV is 12 times unlevered cash flow for North American natural gas production, 10 times for oil production and Rest of World natural gas, 8 times for downstream operations and a 50% uplift in multiples for Top Line royalties as opposed to Bottom Line net profits interests. Rankings by McDep Ratio have not changed much. We have dropped coverage on Total (TOT), Imperial Oil (IMO), Encana (ECA) and Cenovus (CVE) to free time to concentrate on a smaller number of stocks. We add Hess Corporation (HES) on preliminary estimates that point to a McDep Ratio of 0.92 in the Large Independent group. With three stocks dropped we no longer have a Canadian group. Suncor (SU) can now be found in the Integrated group and Birchcliff (BIREF) in the Small Independent group (see <u>Table 1</u> on page 2). More detail on the factors contributing to cash flow and ultimately to dividends or distributions are grouped in a new presentation (see Table 2 on page 3). More detail on the factors contributing to the present value of future cash flow are grouped in another presentation (see Table 3 on page 4). The format for tracking Total Return for the year-to-date remains the same (see Table 4 on page 5). Finally, we own most of the stocks as we expect positive contributions to the performance of a diversified portfolio. Though we do not designate specific buy ratings, we believe it remains generally true that low McDep Ratio stocks outperform high McDep Ratio stocks. With the McDep Ratio as a starting point and careful consideration of broader appeal, we hope to provide useful input to successful investment decisions in 2018.

Kurt H. Wulff, CFA



Symbol/Rating 2-Jan Cap Value Market Ebit	on Corporation	South al Marina	Rank)											
Price (US\$/sh) Market Enterprise EV/ E	on Corporation	Sumb al /D atin a															
Comparison Com	on Corporation	Comple al /D ating	Price														
Comparison Com	on Corporation	Comb al/Datina	Price						0.17								
Symbol/Rating 2-Jan Cap Value Market Ebit Ebit Cap Cap	on Corporation	Complete I/D stine						227	Oil	Dist.							
Chevron Corporation	on Corporation						EV/	PV/		Yield	McDe						
Chevron Corporation	on Corporation	Symbol/Kaling		- 1			Ebitda	Ebitda	PV	NTM	Rati						
Chevron Corporation CVX 127.58 242,000 306,000 1.27 8 Exxon Mobil Corporation XOM 85.03 363,000 455,000 1.25 8 Suncor Energy SU 37.44 62,000 80,000 1.29 7 Royal Dutch Shell RDS-B 69.44 289,000 414,000 1.43 6 Large Independent EOG Resources, Inc. EOG 109.30 63,300 70,500 1.11 10 Occidental Petroleum Corp. OXY 73.98 56,700 70,200 1.24 9 Hess Corporation HES 47.85 15,100 24,200 1.61 8 Pioneer Natural Resources PXD 172.92 29,400 31,400 1.07 8 ConcoPhillips COP 55.32 67,000 91,000 1.35 8 Marathon Oil Corporation MRO 17.38 14,770 21,800 1.48 7 Devon Energy Corporation DVN	on Corporation		2018	(US\$mm)	(\$mm)	Сар	NTM	NTM	(%)	(%)	(EV/PV						
Exxon Mobil Corporation XOM 85.03 363,000 455,000 1.25 8 Suncor Energy SU 37.44 62,000 80,000 1.29 7 Royal Dutch Shell RDS-B 69.44 289,000 414,000 1.43 6 Large Independent EOG Resources, Inc. EOG 109.30 63,300 70,500 1.11 10 Occidental Petroleum Corp. OXY 73.98 56,700 70,200 1.24 9 Hess Corporation HES 47.85 15,100 24,200 1.61 8 Pioneer Natural Resources PXD 172.92 29,400 31,400 1.07 8 ConcoPhillips COP 55.32 67,000 91,000 1.35 8 Marathon Oil Corporation MRO 17.38 14,770 21,800 1.48 7 Devon Energy Corporation DVN 42.23 22,300 30,000 1.35 8 Small Independent C CLR		CLIN	127.50	2.12.000	20 < 000	1.07	0.0	0.4		2.4	0.0						
Suncor Energy SU 37.44 62,000 80,000 1.29 77							8.3	9.4	65	3.4	0.8						
Royal Dutch Shell RDS-B 69.44 289,000 414,000 1.43 66 Total or Median 956,000 1,255,000 1.28 77 Large Independent EOG Resources, Inc. EOG 109.30 63,300 70,500 1.11 10 Cocidental Petroleum Corp. OXY 73.98 56,700 70,200 1.24 99 Hess Corporation HES 47.85 15,100 24,200 1.61 88 Pioneer Natural Resources PXD 172.92 29,400 31,400 1.07 88 ConocoPhillips COP 55.32 67,000 91,000 1.35 88 Marathon Oil Corporation MRO 17.38 14,770 21,800 1.48 77 Devon Energy Corporation DVN 42.23 22,300 30,000 1.35 78 Total or Median Z68,600 339,000 1.35 88 Small Independent Continental Resources (32%) CLR 54.26 6,500 8,600 1.33 88 Cimarex Energy Company XEC 125.51 11,700 13,200 1.13 99 California Resources CRC 19.99 900 7,000 8.2 77 Range Resources RRC 17.92 4,400 9,000 2.04 78 Whiting Petroleum Corporation WLL 27.37 2,500 5,700 2.31 55 Birchcliff Energy Ltd. BIREF 3.64 1,000 1,600 1.62 1.62 Lorome San Juan Basin Royalty Trust SJT 8.50 400 400 1.00 130 San Juan Basin Royalty Trust SJT 8.50 400 400 1.00 1.00 1.00 California Resources Ran Juan Basin Royalty Trust SJT 8.50 400 400 1.00 1.00 1.00 California Resources Ran Juan Basin Royalty Trust SJT 8.50 400 400 1.00 1.00 California Royalty Trust SJT 8.50 400 400 1.00 1.00 California Royalty Trust SJT 8.50 400 400 1.00 1.00 California Royalty Trust SJT 8.50 400 400 Cal							8.6	9.8	53	3.6	0.8						
Total or Median Section Sectio							7.2	9.1	83	2.7	0.7						
Large Independent EOG Resources, Inc. EOG 109.30 63,300 70,500 1.11 100 1.24 99 1.24 99 1.24 1.24 1.25			69.44				6.9	9.1	53	5.4	0.7						
EOG Resources, Inc. EOG 109.30 63,300 70,500 1.11 10 Occidental Petroleum Corp. OXY 73.98 56,700 70,200 1.24 9 Hess Corporation HES 47.85 15,100 24,200 1.61 8 Pioneer Natural Resources PXD 172.92 29,400 31,400 1.07 8 ConcoPhillips COP 55.32 67,000 91,000 1.35 8 Marathon Oil Corporation MRO 17.38 14,770 21,800 1.48 7 Devon Energy Corporation DVN 42.23 22,300 30,000 1.35 8 Small Independent Continental Resources (32%) CLR 54.26 6,500 8,600 1.33 8 Cimarex Energy Company XEC 125.51 11,700 13,200 1.13 9 California Resources CRC 19.99 900 7,000 8.2 7 Range Resources RRC 17.92 <td></td> <td>n</td> <td></td> <td>956,000</td> <td>1,255,000</td> <td>1.28</td> <td>7.7</td> <td>9.2</td> <td>59</td> <td>3.5</td> <td>0.8</td>		n		956,000	1,255,000	1.28	7.7	9.2	59	3.5	0.8						
Occidental Petroleum Corp. OXY 73,98 56,700 70,200 1.24 99 Hess Corporation HES 47.85 15,100 24,200 1.61 8 Pioneer Natural Resources PXD 172.92 29,400 31,400 1.07 8 ConcocPhillips COP 55.32 67,000 91,000 1.35 8 Marathon Oil Corporation MRO 17.38 14,770 21,800 1.48 7 Devon Energy Corporation DVN 42.23 22,300 30,000 1.35 8 Small Independent Continental Resources (32%) CLR 54.26 6,500 8,600 1.33 8 Cimarex Energy Company XEC 125.51 11,700 13,200 1.13 9 California Resources CRC 19.99 900 7,000 8.2 7 Range Resources RRC 17.92 4,400 9,000 2.04 7 Whiting Petroleum Corporation WLL 2		70.5	100.00	42.200	50.500		10.0	40.4									
Hess Corporation HES 47.85 15,100 24,200 1.61 8 Pioneer Natural Resources PXD 172.92 29,400 31,400 1.07 8 ConocoPhillips COP 55.32 67,000 91,000 1.35 8 Marathon Oil Corporation MRO 17.38 14,770 21,800 1.48 7 Devon Energy Corporation DVN 42.23 22,300 30,000 1.35 8 Small Independent Continental Resources (32%) CLR 54.26 6,500 8,600 1.33 8 Cimarex Energy Company XEC 125.51 11,700 13,200 1.13 9 California Resources CRC 19.99 900 7,000 8.2 7 Range Resources RRC 17.92 4,400 9,000 2.04 7 Whiting Petroleum Corporation WLL 27.37 2,500 5,700 2.31 5 Birchcliff Energy Ltd. BIREF 3.64 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>10.3</td> <td>10.4</td> <td>91</td> <td>0.6</td> <td>0.9</td>							10.3	10.4	91	0.6	0.9						
Pioneer Natural Resources PXD 172.92 29,400 31,400 1.07 8 ConocoPhillips COP 55.32 67,000 91,000 1.35 8 Marathon Oil Corporation MRO 17.38 14,770 21,800 1.48 7 Devon Energy Corporation DVN 42.23 22,300 30,000 1.35 7 Total or Median 268,600 339,000 1.35 7 Small Independent Continental Resources (32%) CLR 54.26 6,500 8,600 1.33 8 Cimarex Energy Company XEC 125.51 11,700 13,200 1.13 9 California Resources CRC 19.99 900 7,000 8.2 7 Range Resources RRC 17.92 4,400 9,000 2.04 7 Whiting Petroleum Corporation WLL 27.37 2,500 5,700 2.31 5 Birchcliff Energy Ltd. BIREF 3.64 1,000 1,600							9.7	9.8	82	4.2	0.9						
ConocoPhillips COP 55.32 67,000 91,000 1.35 8 Marathon Oil Corporation MRO 17.38 14,770 21,800 1.48 7 Devon Energy Corporation DVN 42.23 22,300 30,000 1.35 7 Total or Median 268,600 339,000 1.35 8 Small Independent Continental Resources (32%) CLR 54.26 6,500 8,600 1.33 8 Cimarex Energy Company XEC 125.51 11,700 13,200 1.13 9 California Resources CRC 19.99 900 7,000 8.2 7 Range Resources RRC 17.92 4,400 9,000 2.04 7 Whiting Petroleum Corporation WLL 27.37 2,500 5,700 2.31 5 Birchcliff Energy Ltd. BIREF 3.64 1,000 1,600 1.62 5 Total or Median 27,000 45,000							8.9	9.7	89	2.1	0.9						
Marathon Oil Corporation MRO 17.38 14,770 21,800 1.48 7 Devon Energy Corporation DVN 42.23 22,300 30,000 1.35 7 Total or Median 268,600 339,000 1.35 8 Small Independent Continental Resources (32%) CLR 54.26 6,500 8,600 1.33 8 Cimarex Energy Company XEC 125.51 11,700 13,200 1.13 9 California Resources CRC 19.99 900 7,000 8.2 7 Range Resources RRC 17.92 4,400 9,000 2.04 7 Whiting Petroleum Corporation WLL 27.37 2,500 5,700 2.31 5 Birchcliff Energy Ltd. BIREF 3.64 1,000 1,600 1.62 5 Total or Median 27,000 45,000 1.83 7 Income San Juan Basin Royalty Trust SJT 8.50 400<							8.8	10.1	92	0.0	0.8						
Devon Energy Corporation DVN 42.23 22,300 30,000 1.35 7							8.0	9.4	76	1.9	0.8						
Total or Median 268,600 339,000 1.35 8 Small Independent 268,600 339,000 1.35 8 Continental Resources (32%) CLR 54.26 6,500 8,600 1.33 8 Cimarex Energy Company XEC 125.51 11,700 13,200 1.13 9 California Resources CRC 19.99 900 7,000 8.2 7 Range Resources RRC 17.92 4,400 9,000 2.04 7 Whiting Petroleum Corporation WLL 27.37 2,500 5,700 2.31 5 Birchcliff Energy Ltd. BIREF 3.64 1,000 1,600 1.62 5 Total or Median 27,000 45,000 1.83 7 Income San Juan Basin Royalty Trust SJT 8.50 400 400 1.00 1.00 13							7.2	9.4	84	1.2	0.7						
Small Independent Small Independent St.26 6,500 8,600 1.33 8 Cimarex Energy Company XEC 125.51 11,700 13,200 1.13 9 California Resources CRC 19.99 900 7,000 8.2 7 Range Resources RRC 17.92 4,400 9,000 2.04 7 Whiting Petroleum Corporation WLL 27.37 2,500 5,700 2.31 S Birchcliff Energy Ltd. BIREF 3.64 1,000 1,600 1.62 5 Total or Median 27,000 45,000 1.83 7 Income San Juan Basin Royalty Trust SJT 8.50 400 400 1.00 1.00 13	Energy Corporation	DVN	42.23		30,000	1.35	7.0	9.2	77	0.6	0.7						
Continental Resources (32%) CLR 54.26 6,500 8,600 1.33 8 Cimarex Energy Company XEC 125.51 11,700 13,200 1.13 9 California Resources CRC 19.99 900 7,000 8.2 7 Range Resources RRC 17.92 4,400 9,000 2.04 7 Whiting Petroleum Corporation WLL 27.37 2,500 5,700 2.31 5 Birchcliff Energy Ltd. BIREF 3.64 1,000 1,600 1.62 5 Total or Median 27,000 45,000 1.83 7 Income San Juan Basin Royalty Trust SJT 8.50 400 400 1.00 13		n		268,600	339,000	1.35	8.8	9.7	84	1.2	0.8						
Cimarex Energy Company XEC 125.51 11,700 13,200 1.13 9 California Resources CRC 19,99 900 7,000 8.2 7 Range Resources RRC 17,92 4,400 9,000 2.04 7 Whiting Petroleum Corporation WLL 27,37 2,500 5,700 2.31 5 Birchcliff Energy Ltd. BIREF 3.64 1,000 1,600 1.62 3 Total or Median 27,000 45,000 1.83 7 Income San Juan Basin Royalty Trust SJT 8.50 400 400 1.00 13																	
California Resources CRC 19.99 900 7,000 8.2 7 Range Resources RRC 17.92 4,400 9,000 2.04 7 Whiting Petroleum Corporation WLL 27.37 2,500 5,700 2.31 5 Birchcliff Energy Ltd. BIREF 3.64 1,000 1,600 1.62 5 Total or Median 27,000 45,000 1.83 7 Income San Juan Basin Royalty Trust SJT 8.50 400 400 1.00 13						1.33	8.8	9.5	79	-	0.9						
Range Resources RRC 17.92 4,400 9,000 2.04 7 Whiting Petroleum Corporation WLL 27.37 2,500 5,700 2.31 5 Birchcliff Energy Ltd. BIREF 3.64 1,000 1,600 1.62 5 Total or Median 27,000 45,000 1.83 7 Income San Juan Basin Royalty Trust SJT 8.50 400 400 1.00 13	x Energy Company				13,200		9.1	10.0	74	0.3	0.9						
Whiting Petroleum Corporation WLL 27.37 2,500 5,700 2.31 5 Birchcliff Energy Ltd. BIREF 3.64 1,000 1,600 1.62 5 Total or Median 27,000 45,000 1.83 7 Income San Juan Basin Royalty Trust SJT 8.50 400 400 1.00 13				900			7.8	9.2	90	-	0.8						
Birchcliff Energy Ltd. BIREF 3.64 1,000 1,600 1.62 5 Total or Median 27,000 45,000 1.83 7 Income San Juan Basin Royalty Trust SJT 8.50 400 400 1.00 13	Resources	RRC	17.92	4,400	9,000	2.04	7.2	11.6	39	0.4	0.6						
Total or Median 27,000 45,000 1.83 7		WLL	27.37	2,500	5,700		5.3	9.1	95	-	0.5						
Income San Juan Basin Royalty Trust SJT 8.50 400 400 1.00 13	iff Energy Ltd.	BIREF	3.64	1,000	1,600	1.62	5.6	11.6	39	2.2	0.4						
San Juan Basin Royalty Trust SJT 8.50 400 400 1.00 13	Total or Media	ı		27,000	45,000	1.83	7.5	9.7	77	0.1	0.7.						
	e																
Sabine Royalty Trust SBR 45.35 660 660 1.00 16	an Basin Royalty Trust	SJT	8.50	400	400	1.00	13.9	13.1	-	7.2	1.0						
Data it is to the state of the	Royalty Trust	SBR	45.35	660	660	1.00	16.8	18.6	63	5.9	0.9						
		PBT	8.86	410	410	1.00	12.0	13.5	81	7.9	0.8						
Dorchester Minerals, L.P. DMLP 15.25 490 490 1.00 9	ster Minerals, L.P.	DMLP	15.25	490	490	1.00	9.5	15.0	79	10.0	0.6						
Cross Timbers Royalty Trust CRT 14.85 90 90 1.00 9	Γimbers Royalty Trust	CRT	14.85	90	90	1.00	9.5	15.9	32	8.3	0.5						
		1		2,100	2,100	1.00	12.0	15.0	63	7.9	0.8						
EV = Enterprise Value = Market Cap and Debt; Ebitda = Earnings before interest, tax, depreciation, amort.	interprise Value = Market	Cap and Debt; El	oitda = Earnir	ngs before inter	rest, tax, depre	ciation, ar	nort.										
Estimated Ebitda (cash flow) tied to NTM futures prices for oil and natural gas. NTM = Next Twelve Montl								nding 12/	31/18.								



Unleve	Volume (mmboe) 1371 1485 1025 277 4158 420 237 232 192	Flow (Ebitda) oitda	Ebitda (\$/boe) 30.00 23.90 28.40 32.19 29.20 26.90 28.80 26.00	Down- stream Uplift (\$/boe) 13.43 11.85 7.81 8.03 9.94 0.00 0.00 5.17	Total Ebitda NTM (\$mm) 41,116 35,503 29,098 8,929 114,647 11,294 6,835	Distrib./ Ebitda (%) 26 25 22 15 23	3.08 4.32 1.02
Coperation Cop	red Cash ked by T Nolume (mmboe) 1371 1485 1025 277 4158 420 237 232 192	Flow (total Et Upstream Equiv. Price (\$/boe) 41.85 43.68 45.49 56.24 44.59 42.71 41.29 41.97	Ebitda) itda m NTM Ebitda Margin (%) 72 555 62 57 60 63 70 62	Ebitda (\$/boe) 30.00 23.90 28.40 32.19 29.20 26.90 28.80	stream Uplift (\$/boe) 13.43 11.85 7.81 8.03 9.94 0.00 0.00	Ebitda NTM (\$mm) 41,116 35,503 29,098 8,929 114,647 11,294 6,835	Ebitda (%) 26 25 22 15 23	NTM (\$/sh 3.76 3.08 4.32 1.02
Ran Price (US\$/sh Symbol/Rating 2-Jan 2016 2	wed by T Nolume (mmboe) 1371 1485 1025 277 4158 420 237 232 192	Upstream Equiv. Price (\$/boe) 41.85 43.68 45.49 56.24 44.59 42.71 41.29 41.97	Sittla	Ebitda (\$/boe) 30.00 23.90 28.40 32.19 29.20 26.90 28.80	stream Uplift (\$/boe) 13.43 11.85 7.81 8.03 9.94 0.00 0.00	Ebitda NTM (\$mm) 41,116 35,503 29,098 8,929 114,647 11,294 6,835	Ebitda (%) 26 25 22 15 23	NTM (\$/sh 3.76 3.08 4.32 1.02
Cuss/sh Symbol/Rating 2-Jan 2016	Volume (mmboe) 1371 1485 1025 277 4158 420 237 232 192	Equiv. Price (\$/boe) 41.85 43.68 45.49 56.24 44.59 42.71 41.29 41.97	Ebitda Margin (%) 72 55 62 57 60 63 70 62	30.00 23.90 28.40 32.19 29.20 26.90 28.80	stream Uplift (\$/boe) 13.43 11.85 7.81 8.03 9.94 0.00 0.00	Ebitda NTM (\$mm) 41,116 35,503 29,098 8,929 114,647 11,294 6,835	Ebitda (%) 26 25 22 15 23	NTM (\$/sh) 3.76 3.08 4.32 1.02
Cuss/sh Symbol/Rating 2-Jan 2016	Volume (mmboe) 1371 1485 1025 277 4158 420 237 232 192	Equiv. Price (\$/boe) 41.85 43.68 45.49 56.24 44.59 42.71 41.29 41.97	Ebitda Margin (%) 72 55 62 57 60 63 70 62	30.00 23.90 28.40 32.19 29.20 26.90 28.80	stream Uplift (\$/boe) 13.43 11.85 7.81 8.03 9.94 0.00 0.00	Ebitda NTM (\$mm) 41,116 35,503 29,098 8,929 114,647 11,294 6,835	Ebitda (%) 26 25 22 15 23	NTM (\$/sh) 3.76 3.08 4.32 1.02
Symbol/Rating 2-Jan 2016 Integrated Royal Dutch Shell RDS-B 69.44 Exxon Mobil Corporation XOM 85.03 Chevron Corporation CVX 127.58 Suncor Energy SU 37.44 Total or Median Total or Median Large Independent COP 55.32 EOG Resources, Inc. EOG 109.30 Occidental Petroleum Corp. OXY 73.98 Devon Energy Corporation DVN 42.23 Pioneer Natural Resources PXD 172.92 Marathon Oil Corporation MRO 17.38 Hess Corporation HES 47.85 Total or Median Small Independent Cimarex Energy Company XEC 125.51 Range Resources RRC 17.92 Range Resources RRC 17.92 Range Resources RRC 17.92	Volume 1371 1485 1025 277 4158 420 237 232 192	Price (\$/boe) 41.85 43.68 45.49 56.24 44.59 42.71 41.29 41.97	Margin (%) 72 55 62 57 60 63 70 62	30.00 23.90 28.40 32.19 29.20 26.90 28.80	Uplift (\$/boe) 13.43 11.85 7.81 8.03 9.94 0.00 0.00	NTM (\$mm) 41,116 35,503 29,098 8,929 114,647 11,294 6,835	Ebitda (%) 26 25 22 15 23	NTM (\$/sh) 3.76 3.08 4.32 1.02
Comparison Com	1371 1485 1025 277 4158 420 237 232	(\$/boe) 41.85 43.68 45.49 56.24 44.59 42.71 41.29 41.97	(%) 72 55 62 57 60 63 70 62	30.00 23.90 28.40 32.19 29.20 26.90 28.80	(\$/boe) 13.43 11.85 7.81 8.03 9.94 0.00 0.00	(\$mm) 41,116 35,503 29,098 8,929 114,647 11,294 6,835	(%) 26 25 22 15 23	(\$/sh) 3.76 3.08 4.32 1.02
Integrated	1371 1485 1025 277 4158 420 237 232	41.85 43.68 45.49 56.24 44.59 42.71 41.29 41.97	72 55 62 57 60 63 70 62	30.00 23.90 28.40 32.19 29.20 26.90 28.80	13.43 11.85 7.81 8.03 9.94 0.00 0.00	41,116 35,503 29,098 8,929 114,647 11,294 6,835	26 25 22 15 23	3.76 3.08 4.32 1.02
Royal Dutch Shell	1485 1025 277 4158 420 237 232 192	43.68 45.49 56.24 44.59 42.71 41.29 41.97	55 62 57 60 63 70 62	23.90 28.40 32.19 29.20 26.90 28.80	11.85 7.81 8.03 9.94 0.00 0.00	35,503 29,098 8,929 114,647 11,294 6,835	25 22 15 23	4.32 1.02
Exxon Mobil Corporation XOM 85.03 Chevron Corporation CVX 127.58 Suncor Energy SU 37.44 Total or Median Large Independent COP 55.32 ConocoPhillips COP 55.32 EOG Resources, Inc. EOG 109.3 Occidental Petroleum Corp. OXY 73.98 Devon Energy Corporation DVN 42.23 Pioneer Natural Resources PXD 172.92 Marathon Oil Corporation MRO 17.38 Hess Corporation HES 47.85 Small Independent Cimarex Energy Company XEC 125.51 Range Resources RRC 17.92	1485 1025 277 4158 420 237 232 192	43.68 45.49 56.24 44.59 42.71 41.29 41.97	55 62 57 60 63 70 62	23.90 28.40 32.19 29.20 26.90 28.80	11.85 7.81 8.03 9.94 0.00 0.00	35,503 29,098 8,929 114,647 11,294 6,835	25 22 15 23	3.08 4.32 1.02
Chevron Corporation CVX 127.58 Suncor Energy SU 37.44 Total or Median Large Independent COP 55.32 ConocoPhillips COP 55.32 EOG Resources, Inc. EOG 109.30 Occidental Petroleum Corp. OXY 73.96 Devon Energy Corporation DVN 42.23 Pioneer Natural Resources PXD 172.92 Marathon Oil Corporation MRO 17.38 Hess Corporation HES 47.85 Total or Median Small Independent Company XEC 125.51 Range Resources RRC 17.92 17.92	1025 277 4158 420 237 232 192	45.49 56.24 44.59 42.71 41.29 41.97	62 57 60 63 70 62	28.40 32.19 29.20 26.90 28.80	7.81 8.03 9.94 0.00 0.00	29,098 8,929 114,647 11,294 6,835	22 15 23	3.08 4.32 1.02 1.06 0.67
Suncor Energy	277 4158 420 237 232 192	56.24 44.59 42.71 41.29 41.97	57 60 63 70 62	32.19 29.20 26.90 28.80	8.03 9.94 0.00 0.00	8,929 114,647 11,294 6,835	15 23	1.02
Total or Median	4158 420 237 232 192	42.71 41.29 41.97	60 63 70 62	29.20 26.90 28.80	9.94 0.00 0.00	114,647 11,294 6,835	23	1.06
Large Independent COP 55.32 ConocoPhillips COP 55.32 EOG Resources, Inc. EOG 109.30 Occidental Petroleum Corp. OXY 73.98 Devon Energy Corporation DVN 42.23 Pioneer Natural Resources PXD 172.92 Marathon Oil Corporation MRO 17.38 Hess Corporation HES 47.85 Total or Median Small Independent Cimarex Energy Company XEC 125.51 Range Resources RRC 17.92	420 237 232 192	42.71 41.29 41.97	63 70 62	26.90 28.80	0.00	11,294 6,835	11	
ConocoPhillips COP 55.32 EOG Resources, Inc. EOG 109.30 Occidental Petroleum Corp. OXY 73.98 Devon Energy Corporation DVN 42.23 Pioneer Natural Resources PXD 172.92 Marathon Oil Corporation MRO 17.38 Hess Corporation HES 47.85 Total or Median Small Independent Cimarex Energy Company XEC 125.51 Range Resources RRC 17.92 17.92	237 232 192	41.29 41.97	70 62	28.80	0.00	6,835		
EOG Resources, Inc. EOG 109.30 Occidental Petroleum Corp. OXY 73.98 Devon Energy Corporation DVN 42.23 Pioneer Natural Resources PXD 172.92 Marathon Oil Corporation MRO 17.38 Hess Corporation HES 47.85 Small Independent Total or Median Cimarex Energy Company XEC 125.51 Range Resources RRC 17.92	237 232 192	41.29 41.97	70 62	28.80	0.00	6,835		
Occidental Petroleum Corp. OXY 73.98 Devon Energy Corporation DVN 42.23 Pioneer Natural Resources PXD 172.92 Marathon Oil Corporation MRO 17.38 Hess Corporation HES 47.85 Small Independent Cimarex Energy Company XEC 125.51 Range Resources RRC 17.92	232 192	41.97	62			-,	6	0.67
Devon Energy Corporation DVN 42.23 Pioneer Natural Resources PXD 172.92 Marathon Oil Corporation MRO 17.38 Hess Corporation HES 47.85 Total or Median Small Independent Cimarex Energy Company XEC 125.51 Range Resources RRC 17.92 17.92	192			26.00	5 17	- 0.5 :		0.07
Pioneer Natural Resources PXD 172.92 Marathon Oil Corporation MRO 17.38 Hess Corporation HES 47.85 Total or Median Small Independent Cimarex Energy Company XEC 125.51 Range Resources RRC 17.92		31.69	C1		3.17	6,031	33	3.08
Marathon Oil Corporation MRO 17.38 Hess Corporation HES 47.85 Total or Median Small Independent Small Independent Cimarex Energy Company XEC 125.51 Range Resources RRC 17.92	104		04	20.30	2.17	3,897	3	0.24
Hess Corporation	124	41.05	70	28.70	0.00	3,567	0	0.08
Total or Median Small Independent Small Independent Cimarex Energy Company XEC 125.51 Range Resources RRC 17.92	148	33.39	61	20.40	0.00	3,026	6	0.20
Small Independent Independent Cimarex Energy Company XEC 125.51 Range Resources RRC 17.92	127	41.40	52	21.40	0.00	2,728	12	1.00
Cimarex Energy Company XEC 125.51 Range Resources RRC 17.92							6	
Range Resources RRC 17.92								
Range Resources RRC 17.92	74	29.85	66	19.60	0.00	1.454	2	0.32
Whiting Petroleum Corporation WII 27.37	132	18.43	51	9.40	0.00	1,244	2	0.08
		39.01	62	24.10	0.00	1,074	-	_
Continental Resources (32%) CLR 54.26	33	37.53	79	29.70	0.00	982	-	_
California Resources CRC 19.99		45.89	42	19.10	0.00	893	-	-
Birchcliff Energy Ltd. BIREF 3.64	23	17.82	4	12.30	0.00	284	7	0.08
Total or Median							1	
Income							-	
Dorchester Minerals, L.P. DMLP 15.25	2.14	33.73	71	24.08	0.00	52	96	1.53
Sabine Royalty Trust SBR 45.35		32.36	84	27.13	0.00	39	100	2.69
Permian Basin RT PBT 8.86		39.98	65	26.06	0.00	34	95	0.70
San Juan Basin Royalty Trust SJT 8.50		15.00	62	9.33	0.00	28	100	0.61
Cross Timbers Royalty Trust CRT 14.85		37.97	59	22.57	0.00	9	79	1.24
Total or Median	0.42	31.71	37	22.57	0.00		96	1.27



			Tabl							
		McD	ep Ene	ergy Sto	ocks					
	N	let Pres				re				
		Price				Devel.	Undev/	Nat	Top	Net
		(US\$/sh)				Resrvs/	Devel.	Gas/	Line/	Presen
Sym	bol/Rating	2-Jan	Shares	Debt	P/E	Prod	Resrvs	Ebitda	Ebitda	Valu
		2018	(mm)	(\$mm)	NTM	NTM	(%)	(%)	(%)	(US\$/sh
Integrated										
Chevron Corporation	CVX	127.58	1,896	64,410	23	7.0	48	21		150.00
Exxon Mobil Corporation	XOM	85.03	4,271	91,771	17	8.9	45	26		100.00
Royal Dutch Shell	RDS-B	69.44	4,163	124,534	16	6.9	34	29		100.00
Suncor Energy	SU	37.44	1,663	17,833	13	9.1	80			50.00
Median						7.9				
Large Independent										
Pioneer Natural Resources	PXD	172.92	170	2,000	31	5.4	8	7		200.00
EOG Resources, Inc.	EOG	109.30	579	7,214		5.4	43	9		110.00
Occidental Petroleum Corp.	OXY	73.98	766	13,500	31	7.8	30	2		75.00
ConocoPhillips	COP	55.32	1,215	23,479		9.5	25	22		68.00
Devon Energy Corporation	DVN	42.23	529	7,746	66	7.6	25	14		60.00
Hess Corporation	HES	47.85	315	9,178		6.1	39	3		55.00
Marathon Oil Corporation	MRO	17.38	850	7,044		5.4	65	14		25.00
Median						6.1				
Small Independent										
Cimarex Energy Company	XEC	125.51	94	1,483	20	5.1	26	23		140.00
Whiting Petroleum Corporation	WLL	27.37	91	3,242		7.1	111	4		72.00
Continental Resources (32%)	CLR	54.26	119	2,134		5.7	146	18		60.00
California Resources	CRC	19.99	43	6,100		8.4	40	8		50.00
Range Resources	RRC	17.92	245	4,575	16	7.8	78	56		40.00
Birchcliff Energy Ltd.	BIREF	3.64	268	604	15	4.9	218	57		10.00
Median						6.4				
Income										
Sabine Royalty Trust	SBR	45.35	15	-	17	11.3	4	33	100	50.00
Cross Timbers Royalty Trust	CRT	14.85	6	-	12	9.1	-	60	79	25.00
Dorchester Minerals, L.P.	DMLP	15.25	32	-	13	6.5	-	19	87	24.00
Permian Basin RT	PBT	8.86	47	-	13	8.8	14	20	40	10.00
San Juan Basin Royalty Trust	SJT	8.50	47	-	14	10.2	-	98	-	8.00
Median						9.1				



		Tabl	le 4						
	Mc	Dep Ene	ergy Sto	cks					
	Total Re		O.		8				
	Ranked by								
		Price	Price			Equity	U	nlevered	
		(\$/sh)	(\$/sh)	Price	Cash	Total	-	Total	
	Symbol/Rati	2-Jan	29-Dec	Change	Distrib.	Return	Debt	Return	McDep
		2018	2017	(%)	(%)	(%)	(\$/sh)	(%)	Ratio
Integrated	CII	27.44	26.72	2		2	1.1	2	0.70
Suncor Energy	SU	37.44	36.72		-		11	2	0.79
Chevron Corporation	CVX	127.58	125.19	2	-	2	34	2	0.88
Exxon Mobil Corporation	XOM	85.03	83.64	2	-	2	21	1	0.88
Royal Dutch Shell	RDS-B	69.44	68.29	2	-	2	30	1	0.76
Median				2		2		1	0.83
Large Independent	MDO	17.20	16.02				0	2	0.77
Marathon Oil Corporation	MRO DVN	17.38 42.23	16.93	3 2	-	3 2	8 15	1	0.77
Devon Energy Corporation			41.40		-				0.76
EOG Resources, Inc.	EOG	109.30	107.91	1	-	1	12	1	0.99
ConocoPhillips	COP	55.32	54.89	1	-	1	19	-	0.85
Hess Corporation	HES	47.85	47.47	1		1	29	0	0.92
Occidental Petroleum Corp.	OXY	73.98	73.66	0	-	0	18	0	0.99
Pioneer Natural Resources	PXD	172.92	172.85	0	-	0	12	0	0.87
Median				1		1		1	0.87
Small Independent	VEC	105 51	122.01	2		2	1.0	2	0.01
Cimarex Energy Company	XEC	125.51	122.01	3	-	3	16	3	0.91
Birchcliff Energy Ltd.	BIREF	3.64	3.50	4	-	4	2	2	0.48
Range Resources	RRC	17.92	17.06	5	-	5	19	2	0.62
Continental Resources (32%)	CLR	54.26	52.97	2	-	2	18	2	0.93
Whiting Petroleum Corporation	WLL	27.37	26.48	3	-	3	36	1	0.59
California Resources	CRC	19.99	19.44	3	-	3	143	0	0.84
Median				3		3		2	0.73
Income	CYT	0.50	0.24	-				2	1.06
San Juan Basin Royalty Trust	SJT	8.50	8.24	3	-	3	-	3	1.06
Sabine Royalty Trust	SBR	45.35	44.60	2	-	2	-	2	0.91
Cross Timbers Royalty Trust	CRT	14.85	14.69	1	-	1	-	1	0.59
Dorchester Minerals, L.P.	DMLP	15.25	15.20	0	-	0	-	0	0.63
Permian Basin RT	PBT	8.86	8.87	(0)	-	(0)	-	(0)	0.89
Median				1		1		1	0.89
Grand Median				2		2		1	0.86
Natural Gas (\$/mmbtu)		3.04	2.95	3					
Oil -West Texas Intermediate (\$/bbl)		60.38	60.09	0					
Total Stock Market - U.S.	VTI	138.22	137.25	1					
Developed Markets - ex US	VEA	45.25	44.86	1					
Emerging Markets	VWO	46.72	45.91	2					
Source: McDep LLC, Yahoo, CME Group,	Bloomberg	F	or historica	l research	see www.r	ncdep.cor	n		



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