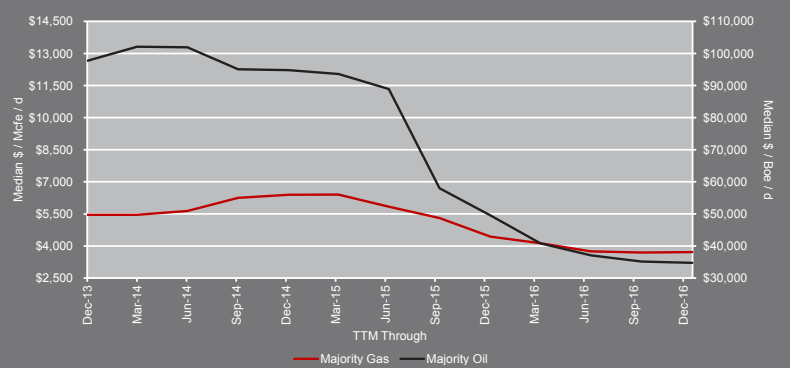
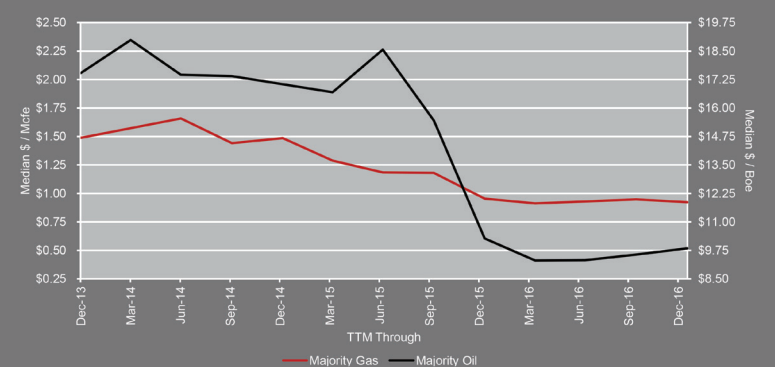
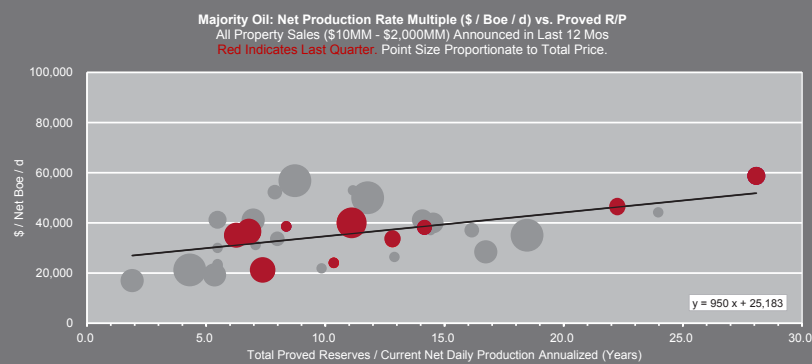
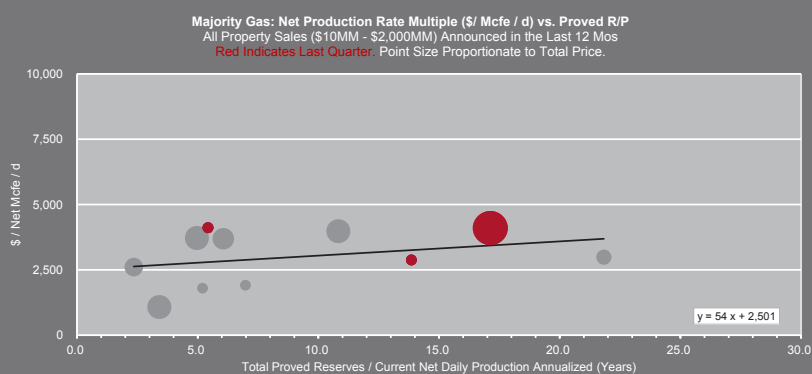


U.S. Upstream M&A Activity Report Year End 2016



Proved R/P as Estimate of Asset Sale Price

Why does one property sell for \$40,000 per net Boe / d and another for \$140,000 per net Boe / d? Using statistical analysis, E-Spectrum Advisors has identified a positive correlation between Proved R/P and dollar paid per daily unit of net production.

R is defined as Total Net Proved Reserves. **P** is defined as Current Net Daily Production Annualized. As indicated in the data table, most reserve information is taken from buyers' press releases.

For example, using the oil chart and formula above, one can see that a majority-oil transaction with an R/P of 15 years could sell on **average** for \$39,433 per net Boe / d.



E-Spectrum Advisors provides advisory services to upstream companies in the oil and gas industry. With a team of specialized advisors and engineers, we know every situation is unique, especially during challenging times, which is why we provide creative solutions that are best for you and your business and can help in every aspect of the transaction process.

- Raising capital
- Acquisitions (buyside advisory)
- Restructuring consultation
- Asset divestiture
- Financial advisory
- Evaluation services and fairness opinions

To learn more about E-Spectrum Advisors, visit www.energyspectrumadvisors.com or contact:

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MAJORITY GAS ALL U.S. FROM \$10 MILLION TO \$2 BILLION

Announced	Date	Buyer	Seller	Total Price* (\$MM)	Reserve Price (\$MM)	Proved Reserves (Bcfe)	Value* (\$ / Mcfe)	Production (MMcfe / d)	Net (Mcfe / d)	Value* (\$ / Mcfe / d)	Region	% Gas	Proved R/P	Oil **	Gas **
	12/22/2016	Alta Resources LLC	Mitsui & Co Ltd	207	207	NA	NA	70.0		2,957	APP (Marcellus)	100%	NA	54.88	3.45
	12/21/2016	Alta Resources LLC	Anadarko	1,240	1,240	NA	NA	470.0		2,638	APP (Marcellus)	100%	NA	54.88	3.45
	12/20/2016	Covey Park Energy LLC	Chesapeake	465	188	NA	NA	50.0		3,750	Haynesville Shale	100%	NA	55.29	3.27
	12/19/2016	Undisclosed Buyer¹	Eclipse Resources	64	4	NA	NA	1.0		4,002	APP (Utica)	75%	NA	54.86	3.41
	12/13/2016	Gulfport Energy Corp	Vitruvian Exploration II LLC	1,850	750	1,145	0.66	183.0		4,100	MC (SCOOP/STACK)	67%	17.1	55.57	3.40
	12/5/2016	Indigo Minerals LLC	Chesapeake	450	113	NA	NA	30.0		3,750	Haynesville Shale	100%	NA	54.70	3.48
	10/31/2016	Undisclosed Buyer	Black Hills Corp	11	11	5	2.08	2.7		4,111	Multiple	>50%	5.4	49.08	3.13
	10/25/2016	EQT Corporation¹	Antero Resources Corp	170	8	NA	NA	2.0		3,754	APP (Marcellus)	100%	NA	52.20	3.16
	10/24/2016	EQT Corporation	Trans Energy Inc; Republic Energy	513	158	NA	NA	42.0		3,750	APP (Marcellus)	100%	NA	52.76	3.28
	10/20/2016	Tug Hill Inc	Stone Energy	360	360	NA	NA	95.0		3,790	APP (Marcellus)	100%	NA	52.20	3.37
	10/17/2016	Undisclosed Buyer	Comstock	28	28	49	0.57	9.7		2,877	GC Onshore	99%	13.9	51.92	3.39
	9/30/2016	Castleton Commodities International LLC	Anadarko	1,000	1,000	NA	NA	237.0		4,219	Haynesville Shale	72%	NA	50.42	3.07
	9/30/2016	Aethon; Treadstone; Epic; Prima; Grizzly	Anadarko	500	500	NA	NA	106.0		4,717	Multiple	77%	NA	50.42	3.07
	9/9/2016	Total	Chesapeake	420	420	486	0.86	390.0		1,077	Barnett	96%	3.4	48.44	3.04
	8/2/2016	Jones Energy	EOG	27	27	NA	NA	5.1		5,314	MC (SCOOP/STACK)	62%	NA	42.81	3.06
	8/2/2016	Undisclosed Buyer¹	Continental Resources Inc	281	16	NA	NA	3.3		4,697	MC (SCOOP/STACK)	68%	NA	42.81	3.06
	7/14/2016	International Western Petroleum Corp	Undisclosed Seller	10	10	NA	NA	5.3		1,964	GC Onshore	95%	NA	48.68	3.04
	7/1/2016	CPP WI Holding Co LLC	HRG Group Inc	145	145	387	0.37	48.6		2,984	Multiple	85%	21.8	50.72	3.14
	6/20/2016	Undisclosed	Memorial Production Partners LP	19	19	26	0.75	10.0		1,910	RM (WY & CO)	76%	7.0	50.03	2.93
	6/6/2016	Sheridan Production Partners	Devon Energy Corp.	525	525	522	1.01	132.0		3,977	ETX (Haynesville)	70%	10.8	51.30	2.84
	6/6/2016	Tecolote Energy LLC	Devon Energy Corp.	310	310	186	1.67	84.0		3,690	MC (Anadarko)	>50%	6.1	51.30	2.84
	5/3/2016	Undisclosed	Synergy Resources Corp.	27	6	NA	NA	1.2		4,841	RM (Niobrara)	64%	NA	45.82	2.66
	5/2/2016	EQT Corporation	Statoil	407	187	NA	NA	50.0		3,751	APP (Marcellus)	100%	NA	46.68	2.64
	4/28/2016	Triumph Energy Partners LLC¹	Range Resources Corp.	75	21	NA	NA	5.0		4,229	MC (SCOOP/STACK)	83%	NA	48.06	2.68
	4/20/2016	White Star Petroleum LLC	Devon Energy Corp.	200	200	66	3.03	76.8		2,604	MC (Woodford)	70%	2.4	45.77	2.57
	4/20/2016	GR Woodford Properties LLC	PetroQuest Energy	18	18	19	0.95	10.0		1,800	MC (Woodford)	>50%	5.2	45.77	2.57
	3/18/2016	Covey Park Energy LLC	EP Energy LLC	420	420	205	2.05	113.0		3,717	ETX (Haynesville)	100%	5.0	43.08	2.38
	2/22/2016	Tug Hill Inc	Gastar Exploration Inc	80	80	89	0.90	NA		NA	APP (Marcellus)	100%	NA	37.35	2.16
	2/15/2016	Undisclosed	Range Resources Corp	112	112	NA	NA	22.0		5,090	APP (Marcellus)	100%	NA	36.52	2.31
	2/8/2016	Terra Energy Partners LLC	WPX Energy Inc	910	820	NA	NA	500.0		1,640	RM (Niobrara)	100%	NA	36.46	2.44
Per Mcfe				Median			\$0.92		\$3,717						
				Simple Average			\$1.24		\$3,308						

MAJORITY OIL ALL U.S. FROM \$10 MILLION TO \$2 BILLION

Announced	Date	Buyer	Seller	Total Price* (\$MM)	Reserve Price (\$MM)	Proved Reserves (MMboe)	Value* (\$ /Boe)	Production (MMbbl /d)	Net (\$ / Boe /d)	Value* (\$ / Boe /d)	Region	Proved R/P		Oil **	Gas **
												% Oil			
	12/30/2016	PDC¹	Fortuna Resources Holdings LLC	118	9	NA	NA	0.3		29,867	PER	65%	NA	56.26	3.62
	12/22/2016	SLF SL Purchaser LLC	Shoreline Energy LLC	117	117	20	5.74	2.5		46,600	GC Onshore	>50%	22.2	54.88	3.45
	12/20/2016	KLR Energy Acquisition Corp	Tema Oil and Gas Co	400	186	12	15.32	5.3		35,000	PER	76%	6.3	55.29	3.27
	12/13/2016	Callon¹	American Resource Development LLC	615	78	NA	NA	1.9		40,000	PER	71%	NA	55.57	3.40
	12/12/2016	Undisclosed Buyer	Enerplus	292	146	NA	NA	4.0		36,500	Bakken Shale	90%	NA	55.29	3.41
	11/30/2016	Noble Energy	Manti Tarka Permian LP	300	84	NA	NA	2.4		35,000	PER	70%	NA	52.24	3.29
	11/30/2016	Matador Resources Company	Undisclosed Seller	63	40	NA	NA	1.2		34,748	PER	70%	NA	52.24	3.29
	11/28/2016	Centennial Resource Development Inc¹	Silverback Exploration LLC	855	123	NA	NA	3.5		35,000	PER	>50%	NA	50.14	3.28
	11/21/2016	Hilcorp Energy Co	Swift Energy	40	40	NA	NA	1.2		34,483	GC Onshore	97%	NA	50.60	3.09
	11/19/2016	Concho Resources Inc	Endurance Resources	430	86	NA	NA	2.5		34,576	PER	69%	NA	48.74	3.01
	11/10/2016	WildHorse Resources II LLC¹	Undisclosed Seller	30	0	NA	NA	0.0		31,429	STX (Eagle Ford)	53%	NA	47.92	2.86
	11/8/2016	Earthstone Energy Inc	Bold Energy III LLC	324	78	NA	NA	2.3		33,526	PER	84%	NA	47.96	2.86
	10/31/2016	Oxy¹	Browning Oil Co; J Cleo Thompson; Patriot Resources	1,765	246	NA	NA	7.0		35,100	PER	72%	NA	49.08	3.13
	10/24/2016	WildHorse Resources II LLC	Clayton Williams Energy	400	142	10	14.68	3.9		36,500	STX (Eagle Ford)	91%	6.8	52.76	3.28
	10/24/2016	Carrizo	Sanchez Energy Corp	181	103	15	7.09	3.1		33,174	STX (Eagle Ford)	71%	12.8	52.76	3.28
	10/19/2016	Red Bluff Resources Operating LLC¹	Gastar Exploration Inc	61	5	NA	NA	0.2		28,122	MC (SCOOP/STACK)	59%	NA	53.23	3.37
	10/17/2016	SM Energy¹	QStar LLC	1,600	79	NA	NA	2.4		33,000	PER	60%	NA	51.92	3.39
	10/17/2016	Oasis Petroleum Inc	SM Energy	785	496	50	9.88	12.4		40,000	Bakken Shale	77%	11.1	51.92	3.39
	10/14/2016	Sentinel Peak Resources LLC	Freeport-McMoRan Inc	592	592	76	7.83	28.0		21,143	West Coast	98%	7.4	52.20	3.40
	10/6/2016	Sanchez Production Partners LP	Sanchez Energy Corp	27	27	2	12.64	0.7		38,571	STX (Eagle Ford)	86%	8.4	52.52	3.20
	10/5/2016	Undisclosed Buyer	Lonestar Resources Inc	14	14	2	6.36	0.6		24,055	Multiple	79%	10.4	51.97	3.18
	10/4/2016	Resolute Energy Corporation	FireWheel Energy LLC	135	46	6	7.39	1.2		38,167	PER	67%	14.2	51.03	3.11
	10/3/2016	Oxy	Marathon	235	235	41	5.73	4.0		58,750	PER	80%	28.1	51.05	3.11
	9/30/2016	Undisclosed Buyer	Noble Energy	68	68	NA	NA	2.0		34,000	STX (Eagle Ford)	>50%	NA	50.42	3.07
	9/27/2016	New Emerald Energy LLC	Emerald Oil Inc	127	127	NA	NA	5.7		22,244	Bakken Shale	95%	NA	47.02	3.14
	9/20/2016	Undisclosed Buyer	Abraxas	13	13	NA	NA	0.1		89,041	GC Onshore	87%	NA	46.23	3.18
	9/12/2016	Anadarko	Freeport-McMoRan Inc	2,000	1,700	126	13.50	80.0		21,250	GOM	80%	4.3	42.81	3.09
	9/1/2016	Callon¹	Plymouth Petroleum LLC	327	92	12	7.54	2.3		40,000	PER	87%	14.5	45.65	3.04
	8/29/2016	EnVen Energy Ventures	Shell	425	425	17	24.57	25.0		17,000	GOM	86%	1.9	49.56	3.09
	8/27/2016	Torrent Oil LLC	Linc Energy Ltd	38	38	6	6.08	1.7		21,853	GC Onshore	91%	9.8	50.24	3.09
	8/23/2016	PDC¹	Kimmeridge Energy	1,505	245	NA	NA	7.0		35,000	PER	65%	NA	50.56	3.01
	8/18/2016	Undisclosed Buyer	Continental Resources Inc	222	103	NA	NA	2.8		36,850	Bakken	82%	NA	50.89	2.99
	8/15/2016	Parsley Energy LP¹	BTA Oil Producers LLC	400	9	NA	NA	0.3		34,407	PER	68%	NA	48.48	2.95
	8/15/2016	Concho Resources Inc¹	Reliance Energy Inc	1,625	500	43	11.63	10.0		50,000	PER	67%	11.8	48.48	2.95
	8/8/2016	SM Energy¹	Rock Oil Company LLC	980	176	NA	NA	4.9		35,918	PER	77%	NA	45.95	3.06
	8/3/2016	Protege LLC; Undisclosed Buyer	Newfield Exploration	390	390	NA	NA	12.7		30,709	STX (Eagle Ford)	51%	NA	43.93	3.13
	8/1/2016	Undisclosed Buyer	SM Energy	173	173	10	18.16	3.3		52,273	Bakken	87%	7.9	44.66	3.15
	7/29/2016	Extraction Oil & Gas	Bayswater Exploration & Production LLC	420	420	26	16.16	10.2		41,148	RM (Niobrara)	73%	7.0	44.13	3.13
	7/28/2016	Mid-Con Energy Partners LP	Undisclosed Seller	20	20	2	13.00	0.4		52,989	PER	99%	11.2	44.13	3.13
	7/28/2016	Cornerstone Petroleum Resources LLC	Rimrock Resource	38	15	NA	NA	0.5		28,571	MC (SCOOP/STACK)	55%	NA	44.13	3.13
	7/28/2016	Rimrock Resource¹	Merit Energy	150	62	NA	NA	2.1		29,524	MC (SCOOP/STACK)	55%	NA	44.13	3.13
	7/27/2016	Four Corners Petroleum	Whiting Petroleum	300	300	120	2.49	8.6		34,884	PER	99%	38.3	44.85	2.99
	7/25/2016	Royale Energy	Matrix Oil Corp	42	42	12	3.40	NA		NA	Multiple	>50%	NA	46.15	3.03
	7/13/2016	Laredo Petroleum Inc¹	McClure Oil Co Inc	125	10	NA	NA	0.3		32,133	PER	55%	NA	47.68	3.04
	7/12/2016	Diamondback Energy¹	Luxe Energy LLC	560	38	NA	NA	1.0		38,080	PER	89%	NA	49.79	3.04
	7/10/2016	Antero Resources Corp¹	Statoil	108	6	NA	NA	0.5		12,000	APP (Marcellus)	53%	NA	48.16	3.09
	7/6/2016	Silver Run Acquisition Corp¹	Centennial Resources Development LLC	1,735	253	49	5.20	7.2		35,100	PER	82%	18.5	50.07	3.08
	6/30/2016	Angelus Private Equity Group LLC	Samson Oil & Gas Limited	15	15	1	11.42	0.7		22,866	Bakken	88%	5.5	52.29	3.10
	6/21/2016	QEP Resources, Inc.¹	RK Petroleum Corp.; Undisclosed	600	52	76	0.68	1.4		37,029	PER	75%	NA	51.43	3.03
	6/20/2016	Marathon Oil Corp.¹	PayRock Energy LLC	888	168	NA	NA	8.6		19,558	MC (SCOOP/STACK)	60%	NA	50.03	2.93
	6/20/2016	Undisclosed	Energen	552	256	55	4.66	9.0		28,450	PER	61%	16.7	50.03	2.93
	6/20/2016	Undisclosed	Memorial Production Partners LP	37	37	3	12.06	1.2		31,167	PER	99%	7.1	50.03	2.93
	6/15/2016	Pioneer Natural Resources Co.¹	Devon Energy Corp.	435	35	NA	NA	1.0		34,750	PER	70%	NA	49.84	2.91
	6/15/2016	Undisclosed	Devon Energy Corp.	423	423	43	9.84	22.0		19,227	PER	65%	5.4	49.84	2.91
	6/14/2016	Lime Rock Resources	Natural Resource Partners LP	116	116	10	11.54	3.5		33,647	Bakken	88%	8.0	50.47	2.93
	6/14/2016	Campbell Development Group LLC	Rex Energy Corp.	40	40	3	11.76	1.7		23,529	East Region (IL, IN, KY)	100%	5.5	50.47	2.93
	5/27/2016	Undisclosed	Arsenal Energy Inc.	34	34	7	5.05	0.8		44,194	Bakken	95%	24.0	50.86	2.70
	5/26/2016	Undisclosed	Mid-Con Energy Partners LP	18	18	3	5.60	0.7		26,399	MC (Hugoton)	99%	12.9	50.91	2.62
	5/25/2016	New Emerald Holdings LLC	Emerald Oil Inc.	73	73	NA	NA	5.7		12,837	Bakken	95%	NA	50.92	2.62
	5/5/2016	Newfield Exploration Co¹	Chesapeake Energy Corp.	470	50	NA	NA	3.8		13,158	MC (SCOOP/STACK)	55%	NA	46.15	2.67
	5/2/2016	Synergy Resources Corp.¹	Noble Energy, Inc.	505	76	NA	NA	2.4		31,596	RM (Niobrara)	52%	NA	46.68	2.64
	5/2/2016	Undisclosed	Bill Barrett Corp.	30	30	2	15.00	1.0		30,000	RM (Uinta)	63%	5.5	46.68	2.64
	4/29/2016	EnerVest Management Partners Ltd.	GulfTex Energy LLC; BlackBrush Oil & Gas LP	1,175	781	44	17.83	13.7		56,820	STX (Eagle Ford)	85%	8.7	48.06	2.68
	4/25/2016	Centennial Resources Development LLC¹	Caird Energy LLC; Undisclosed	44	9	NA	NA	0.3		35,210	PER	73%	NA	45.12	2.62
	4/19/2016	Callon Petroleum Co.¹	BSM Energy LP; Crux Energy LP, Zaniah Energy LP	301	58	NA	NA	1.9		29,878	PER	82%	NA	44.20	2.57
	4/11/2016	Merit Energy	Marathon	870	768	NA	NA	16.5		46,546	RM (WY)	96%	NA	43.56	2.42
	4/4/2016	Argent Energy Inc.	BXP Partners IV LP	46	46	NA	NA	3.0		15,193	Multiple	65%	NA	39.28	2.45
	4/1/2016	Parsley Energy LP¹	Riverbend Permian LLC; Undisclosed	215	39	NA	NA	1.1		35,455	PER	84%	NA	40.46	2.43
	3/29/2016	Titanium Exploration Partners LLC	Vanguard Natural Resources LLC	280	280	NA	NA	8.0		35,000	MC (Woodford)	>50%	NA	41.54	2.42
	3/11/2016	Parsley Energy LP	Anadarko; Undisclosed	144	56	NA	NA	1.2		46,750	PER	87%	NA	42.38	2.32
	2/10/2016	Zarvona Energy LLC	Anadarko	105	105	NA	NA	4.4		23,772	GC Onshore	53%	NA	34.36	2.37
	1/27/2016	Carrier Energy Partners II LLC	AWE	199	153	24	6.29	4.1		37,093	STX (Eagle Ford)	69%	16.1	37.28	2.41
	1/18/2016	Silver Hill Energy Partners II LLC	Concho Resources Inc	290	103	5	20.62	2.5		41,248	PER	>50%	5.5	33.68	2.38
	1/18/2016	Carrier Energy Partners II LLC	Empyrean Energy Plc	62	46	7	7.05	1.3		37,088	STX (Eagle Ford)	69%	14.4	33.68	2.38
	1/14/2016	Concho Resources Inc.	Jetta Operating Co. Inc.	360	149	19	8.03	3.6		41,250	PER	>50%	14.1	35.50	2.42
	1/5/2016	Samson Oil & Gas Limited	Oasis Petroleum Inc	17	17	10	1.73	0.7		22,917	Bakken	89%	36.2	40.47	2.52
		Per Boe	Median				\$9.84			\$34,748					
			Simple Average				\$10.26			\$35,048					