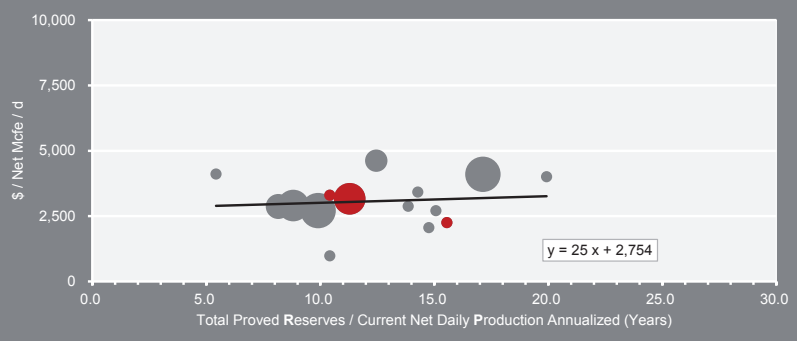


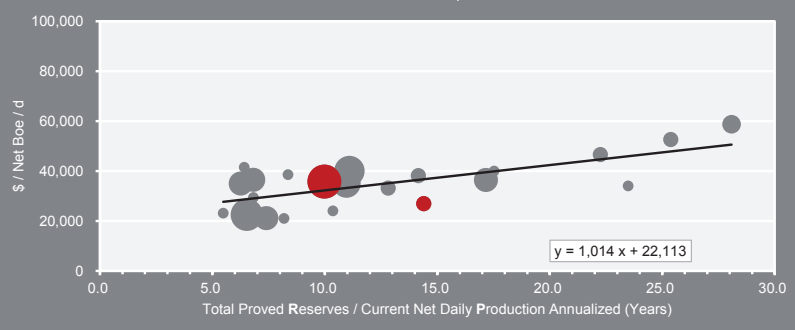
U.S. Upstream **M&A Activity Report**
Third Quarter 2017

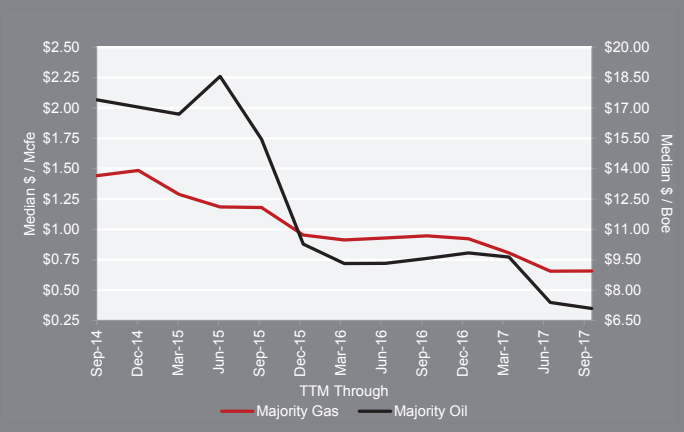
E-SPECTRUM ADVISORS

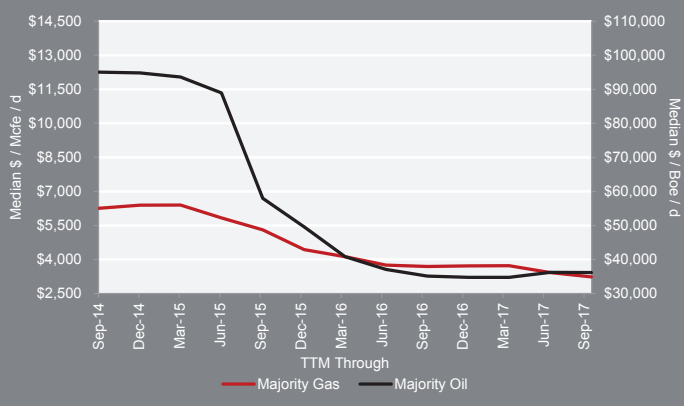
Majority Gas: Net Production Rate Multiple ($/ Mcfe / d) vs. Proved R/P
All Property Sales ($10MM - $2,000MM) Announced in the Last 12 Mos
Red Indicates Last Quarter. Point Size Proportionate to Total Price.



Majority Oil: Net Production Rate Multiple ($ / Boe / d) vs. Proved R/P
All Property Sales ($10MM - $2,000MM) Announced in Last 12 Mos
Red Indicates Last Quarter. Point Size Proportionate to Total Price.







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 $37,323 per net Boe / d.



Select Current and Recent Transactions

MERRION OIL & GAS	ENERVEST	*UNDISCLOSED*	RED MOUNTAIN ENERGY, LLC / IOG CAPITAL
Sale of Multi-Basin Mineral & Royalty Interests	Sale of Western Anadarko Upstream and Midstream (Wheeler County, TX)	Sale of Operated Properties (Caddo County, OK)	Sale of Operated and Non-Operated STACK Properties (Woodward, Major, and Dewey Counties, OK)
Marketing	**PSA Negotiations**	**July 2017**	**February 2017**
Exclusive Divestiture Agent	***Co-Divestiture Agent***	***Exclusive Divestiture Agent***	***Exclusive Divestiture Agent***

E-SPECTRUM ADVISORS

E-Spectrum Advisors provides creative solutions that are best for you and your upstream business and can help in every aspect of the transaction process. Our capabilities include: raising capital, asset divestiture, acquisitions (buyside advisory), financial advisory, restructuring consultation and evaluation services and fairness opinions.

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

Jason Reimbold - Senior Vice President | 713.412.9079
Will Hundley - Vice President | 214.395.1710
Jeff Hawes - Associate | 214.417.3554

Securities offered through BOK Financial Securities, Inc., a registered broker/dealer, member FINRA/SIPC and a subsidiary of BOK Financial Corporation. E-Spectrum Advisors is a division of BOK Financial Securities, Inc.

Trailing Twelve Months September 2017

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

Date Announced	Buyer	Seller	Total Price* ($MM)	Reserve Price ($MM)	Proved Reserves (Bcfe)	Value* ($ / Mcfe)	Net Production (MMcfe / d)	Value* ($ / Mcfe / d)	Region	% Gas	Proved R/P	Oil * *	Gas * *
9/29/2017	Carbon Appalachian Co LLC	Undisclosed Seller	41	41	NA	NA	37.4	1,104	APP (Marcellus)	99%	NA	48.96	3.07
9/18/2017	Zarvona Energy LLC	Trinity River Resources LP	50	50	126	0.40	22.2	2,252	East Texas	51%	15.5	48.96	3.15
9/6/2017	Tellurian Inc	Rockcliff Energy II LLC	85	12	NA	NA	4.0	3,000	Haynesville Shale	100%	NA	49.26	3.07
8/31/2017	Ascent Resources	Carrizo	62	22	NA	NA	3.9	5,641	APP (Utica)	52%	NA	47.87	3.07
8/15/2017	Carbon Appalachian Co LLC	Undisclosed Seller	22	22	NA	NA	7.5	2,867	APP (Marcellus)	100%	NA	49.23	3.02
8/8/2017	Corterra Energy LLC	Continental Resources Inc	68	35	41	0.87	10.7	3,300	MC (Arkoma)	100%	10.4	50.00	2.97
8/1/2017	Rockcliff Energy II LLC	Samson Resources II LLC	525	525	NA	NA	90.0	5,833	Haynesville Shale	85%	NA	50.07	2.92
7/27/2017	Scout Energy Partners	ConocoPhillips	200	200	NA	NA	48.0	4,167	TX Panhandle	91%	NA	46.19	3.04
7/24/2017	Oak Ridge Natural Resources LLC	QEP Resources Inc	740	740	964	0.77	234.0	3,162	RM (Green River)	88%	11.3	46.69	3.01
7/11/2017	Undisclosed Buyer	Rice Energy Inc	175	175	NA	NA	76.0	2,303	Barnett	85%	NA	45.48	3.05
7/1/2017	AVAD Energy Partners	Anadarko Petroleum Corp	80	80	NA	NA	28.0	2,857	RM (Utah)	100%	NA	47.52	3.07
6/29/2017	Miller Thomson & Partners LLC	ConocoPhillips	305	305	300	1.02	66.0	4,621	Barnett	55%	12.5	44.44	3.11
6/22/2017	Foundation Energy Management LLC	Jones Energy	65	65	99	0.66	19.0	3,421	MC (Arkoma)	68%	14.3	43.72	3.02
6/9/2017	Caerus Oil and Gas LLC	EnCana	735	735	814	0.90	253.1	2,904	RM (Piceance)	95%	8.8	47.59	3.13
5/23/2017	Abraxas[1]	Devon Energy	22	1	NA	NA	0.2	3,990	PER	91%	NA	52.14	3.32
5/16/2017	Banpu Public Co Ltd	LSB Industries Inc	16	16	33	0.49	6.0	2,708	APP (Marcellus)	100%	15.1	49.95	3.35
5/5/2017	Diversified Gas & Oil Plc	Titan Energy LLC	84	84	220	0.38	40.9	2,060	APP (Multiple)	96%	14.8	47.90	3.32
5/2/2017	HG Energy II LLC	Noble Energy	1,125	1,125	1,500	0.75	415.0	2,711	APP (Marcellus)	88%	9.9	50.18	3.31
5/2/2017	Jonah Energy LLC	Linn Energy LLC	582	370	384	0.96	129.0	2,868	RM (Green River)	80%	8.2	50.18	3.31
4/3/2017	Carbon Natural Gas Co	Undisclosed Seller	20	20	NA	NA	3.6	5,556	APP (Other)	92%	NA	51.55	3.29
3/22/2017	Gastar Exploration Inc[1]	Undisclosed Seller	51	10	NA	NA	2.0	5,177	MC (SCOOP/STACK)	51%	NA	49.44	3.25
2/15/2017	Merit Energy Co	Occidental Petroleum Corp	560	560	NA	NA	151.2	3,703	STX	>50%	NA	54.53	3.24
2/8/2017	EQT Corporation	Stone Energy	527	300	NA	NA	80.0	3,750	APP (Marcellus)	100%	NA	54.05	3.38
2/1/2017	Saddle Resources	EV Energy Partners	52	52	16	0.55	13.0	4,008	Barnett	100%	19.9	54.62	3.33
1/4/2017	Elk Petroleum Ltd	Freeport-McMoRan Inc	20	20	78	0.26	20.4	980	Rockies	100%	10.4	56.09	3.28
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 Buyer[1]	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 Corporation[1]	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
10/17/2016	Undisclosed Buyer	Comstock	28	28	49	0.57	9.7	2,877	GC Onshore	99%	13.9	51.92	3.39
	Per Mcfe	**Median**				**$0.66**		**$3,231**					
		Simple Average				**$0.75**		**$3,359**					

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

Date Announced	Buyer	Seller	Total Price* ($MM)	Reserve Price ($MM)	Proved Reserves (MMboe)	Value* ($ / Boe)	Net Production (Mboe / d)	Value* ($ / Boe / d)	Region	% Oil	Proved R/P	Oil * *	Gas * *
9/25/2017	PDC	Bayswater Exploration & Production	210	70	NA	NA	2.2	31,918	Rockies	60%	NA	48.96	$3.05
9/20/2017	Riverbend Oil & Gas LLC	Halcon Resources Corp	110	83	35	2.36	2.3	36,567	Bakken	88%	42.4	48.96	$3.11
9/14/2017	Elk Petroleum Ltd	Resolute Energy Corporation	160	160	31	5.13	5.9	26,945	Rockies	95%	14.4	48.96	$3.08
8/15/2017	RimRock Oil & Gas	Whiting Petroleum	500	280	NA	NA	7.8	35,979	Bakken	90%	NA	49.23	$3.02
7/31/2017	Penn Virginia	Devon Energy	205	105	NA	NA	3.0	35,000	STX (Eagle Ford)	64%	NA	50.07	$2.94
7/26/2017	QEP Resources Inc[1]	JM Cox Resources LP; Alpine Oil	732	22	44	0.51	0.6	34,992	PER	71%	189.8	46.69	$3.00
7/11/2017	Bruin E&P Partners LLC	Halcon Resources Corp	1,400	1,030	105	9.82	28.8	35,780	Bakken	90%	10.0	45.48	$3.05
6/28/2017	Carrizo	ExL Petroleum Management LLC	648	280	32	8.75	8.0	35,000	PER	67%	11.0	44.44	3.11
6/19/2017	Oxy	Hess	600	600	NA	NA	8.2	73,171	PER	70%	NA	44.60	2.99
6/12/2017	Merit Energy Co	Titan Energy LLC	105	105	NA	NA	2.5	42,000	RM (Piceance)	92%	NA	46.97	3.12
6/7/2017	Bridge Energy LLC	Linn Energy LLC	100	100	18	5.68	1.9	52,632	West Coast	90%	25.4	46.61	3.10
6/7/2017	Multiple Buyers[1]	Enduro Resource Partners LLC	50	3	0	11.81	0.1	29,412	PER	>50%	6.8	46.61	3.10
6/1/2017	Halcon Resources Corp	Occidental Petroleum Corp	88	32	NA	NA	0.8	40,000	PER	80%	NA	48.16	3.08
5/30/2017	Lonestar Resources Inc	Battlecat Oil and Gas LLC; Sanchez Energy Corp	117	82	NA	NA	2.1	40,156	STX (Eagle Ford)	89%	NA	49.18	3.19
5/30/2017	Denbury Resources Inc	Linn Energy LLC	72	72	18	3.97	2.1	34,048	Rockies	100%	23.5	49.18	3.19
5/23/2017	Berry Petroleum Co LLC	Linn Energy LLC	263	168	43	3.90	3.0	56,000	West Coast	100%	39.4	52.14	3.32
5/11/2017	WildHorse Resource Development Corp	Anadarko	625	303	NA	NA	7.6	40,000	STX (Eagle Ford)	89%	NA	49.06	3.42
5/1/2017	Centennial Resource Development Inc	GMT Exploration Co LLC	350	84	NA	NA	2.1	40,000	PER	77%	NA	50.18	3.31
4/26/2017	Resource Energy Partners LLC	Blue Ridge Mountain Resources Inc	35	35	3	11.57	1.5	23,133	Bakken	>50%	5.5	49.74	3.33
4/17/2017	Lime Rock Resources	Forge Energy LLC	119	71	NA	NA	1.9	37,526	PER	90%	NA	54.36	3.41
4/4/2017	Unit Corp	EOG	57	57	3	17.73	1.4	41,514	MC (Hoxbar)	73%	6.4	52.36	3.46
3/21/2017	Marathon[1]	Black Mountain Oil & Gas LLC	700	10	NA	NA	0.4	25,400	PER	>50%	NA	49.38	3.32
3/15/2017	PetroLegacy Energy II	Pioneer	266	54	NA	NA	1.5	35,973	PER	77%	NA	50.24	3.20
3/9/2017	Marathon[1]	BC Operating	1,100	127	NA	NA	5.0	25,400	PER	>50%	NA	50.79	3.23
3/3/2017	Resolute Energy Corporation	CP Exploration II LLC	160	26	NA	NA	0.8	33,000	PER	60%	NA	53.78	3.15
3/2/2017	White Star Petroleum LLC	Sundance Energy	19	19	3	7.03	0.9	21,023	Multiple	69%	8.2	53.78	3.15
2/28/2017	Halcon Resources Corp	Undisclosed Seller	22	6	NA	NA	0.2	35,125	PER	87%	NA	55.01	3.08
2/27/2017	Australis Oil & Gas Ltd	EnCana	80	69	NA	NA	1.9	36,316	GC Onshore	100%	NA	54.86	2.98
2/23/2017	WildHorse Resource Development	Undisclosed Seller	16	7	NA	NA	0.2	36,154	STX (Eagle Ford)	89%	NA	55.07	2.97
2/15/2017	Carbon Natural Gas Co	Undisclosed Seller	39	39	NA	NA	0.8	50,000	West Coast	65%	NA	54.53	3.24
1/31/2017	EV Energy Partners	Undisclosed Seller	59	40	6	6.25	1.0	40,000	STX (Eagle Ford)	61%	17.5	54.65	3.31
1/31/2017	Piedra Energy III[1]	Pioneer	63	10	NA	NA	0.3	33,333	PER	70%	NA	54.65	3.31
1/24/2017	Hawkwood Energy LLC	Halcon Resources Corp	500	204	35	5.81	5.6	36,429	STX (Eagle Ford)	80%	17.2	55.19	3.41
1/24/2017	Halcon Resources Corp[1]	Samson Energy Co LLC	705	104	NA	NA	2.6	40,000	PER	88%	NA	55.19	3.41
1/19/2017	Lario Oil & Gas Co	Trail Ridge Energy; Undisclosed Seller	345	67	NA	NA	1.9	36,151	PER	78%	NA	54.00	3.45
1/16/2017	Chisholm Oil & Gas	Staghorn Petroleum	613	97	NA	NA	3.0	32,300	SCOOP/STACK	65%	NA	55.34	3.47
1/12/2017	Undisclosed Buyer	Synergy Resources Corp	71	22	NA	NA	0.7	31,600	RM (Niobrara)	52%	NA	55.90	3.44
1/12/2017	WPX Energy Inc	Panther Energy II; Carrier Energy	775	260	NA	NA	6.5	40,000	PER	55%	NA	55.90	3.44
1/10/2017	Parsley Energy LP	Apache; Undisclosed Seller	248	40	NA	NA	1.1	36,500	PER	90%	NA	53.82	3.34
1/10/2017	Parsley Energy LP[1]	Apache; Undisclosed Seller	402	43	NA	NA	1.2	35,450	PER	84%	NA	53.82	3.34
1/3/2017	Antero Resources Corp	Rex Energy; MFC Drilling; Abarta Energy	50	50	NA	NA	2.5	20,000	Other (Ohio)	60%	NA	55.12	3.35
1/3/2017	Venado Oil & Gas	SM Energy	800	613	65	9.43	27.3	22,482	STX (Eagle Ford)	69%	6.5	55.12	3.35
12/30/2016	PDC[1]	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	Callon[1]	American Resource Development LLC	615	78	NA	NA	1.9	40,000	PER	71%	NA	55.57	3.40
12/12/2016	Bruin E&P Partners	Enerplus	292	146	NA	NA	4.0	36,500	Bakken	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 Inc[1]	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 LLC[1]	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	Oxy[1]	Browning Oil Co; J Cleo Thompson; Patriot ...	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 LLC[1]	Gastar Exploration Inc	61	5	NA	NA	0.2	28,122	MC (SCOOP/STACK)	59%	NA	53.23	3.37
10/17/2016	SM Energy[1]	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	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
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
	Per Boe	**Median**				**$7.09**		**$36,151**					
		Simple Average				**$8.27**		**$36,887**					

*Total Price may include and Value may exclude consideration for non-E&P assets, such as gathering & processing assets and working capital. **12-month NYMEX Strip as of the transaction announcement date.

[1]Considered to be an acreage transaction and / or is not included in the R/P correlation.

The information in these tables come from multiple sources: ESA internal database, 1Derrick, company presentations, press releases and public filings.