



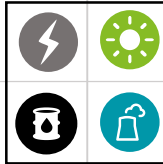
Energy & Resources Quarterly update

Q4 2018

Energy sector trends

Utilities increase investment in microgrid technology.¹

Recent wildfires in California have lead some established utility companies to look into alternate avenues to boost resiliency and functionality outside of traditional utility service offerings. As a result, several utilities have shifted microgrids to the forefront of their business development units and invested significant strategic capital. Widespread adoption by large utility companies is the first step in the commercialization of microgrid technology.



The oil market experiences its worst annual loss since 2015.³

Amid concerns of over-production by OPEC and Russia, a potential trade war with China, and a faltering stock market, US crude ended the year down nearly 25 percent. Much of this decline can be attributed to a sharp drop in the fourth quarter; since mid-October, crude has tumbled and lost nearly half its value. Heighted geopolitical uncertainty and continued over-production is expected to weigh on the oil market going into 2019.

Corporate change: large companies lead the renewable charge.²

Since 2015, the US renewables market has nearly doubled its annual total of corporate off-site deals. Corporate power purchase agreements, green power purchases, green tariffs, and sole renewable energy project ownership rose to an annual high of 6.43 GW. Miranda Ballentine, CEO of the Renewable Energy Buyers Alliance, anticipates that there will be a fourfold increase in corporate renewables procurement by 2025. Corporations have purchased over 15 GW of renewables cumulatively since 2013.

Energy, mining, and utilities dominate global M&A in Q4.⁴

Energy, Mining, and Utilities (EMU) led global M&A activity in November 2018. Total deal value within the sector topped \$45.8 billion in November 2018, which represented a 30.4 percent increase from the same time last year, even though there were 66 fewer deals. The EMU sector in the US and Canada alone saw 36 deals valued at \$35.3 billion, which is up 106 percent by value with 13 fewer deals transacted compared to November 2017. The EMU sector lead almost all regions for M&A value.

In the news

December 14th, 2018⁵ – California became the first state to require all public transport buses to be fully electric by 2029. As of 2029, the State will only be allowed to purchase fully electric buses. The rule came into effect after years of opposition from the natural gas industry. On Friday, December 14, all 16 members of the air resources board voted unanimously to adopt the law. The new law has several steps: a quarter of new buses must be electric by 2023, and half of new buses must be electric by 2026. Despite the high upfront investment, analysts expect this new law would save \$1.5 billion in the long run through maintenance and fuel costs. As of today, 150 out of California's 12,000 buses are electric.

December 19th, 2018⁶ – The Washington, DC City Council unanimously voted in December to require all electricity sold be renewable by 2032. This piece of legislation also includes new standards for energy efficient buildings and calls for all public transportation and passenger fleets be electric powered by 2045. The legislation offers incentives for consumers who purchase electric vehicles in addition to increasing the number of electric vehicle charging stations throughout the city. The law is among the most ambitious renewable energy policy in the United States to date.

In this update

- Energy trends
- Economic outlook
- Industry analysis
- Select M&A transactions
- Appendix

This update will focus on news and trends in the following areas:

- Oilfield Services
- Renewable Energy
- Power & Utilities

Who we are

Deloitte Corporate Finance LLC is a leading global middle market M&A adviser. The firm's professionals have extensive knowledge within various sectors of the Energy space.

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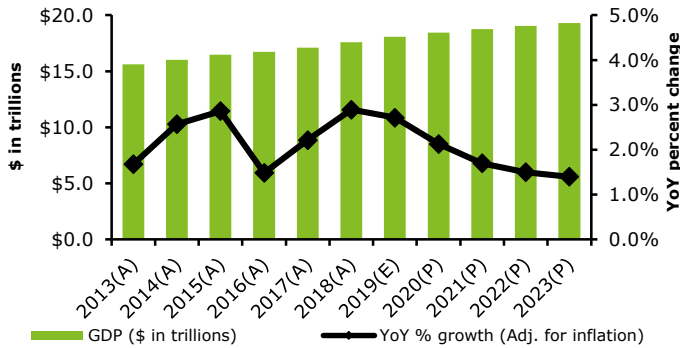
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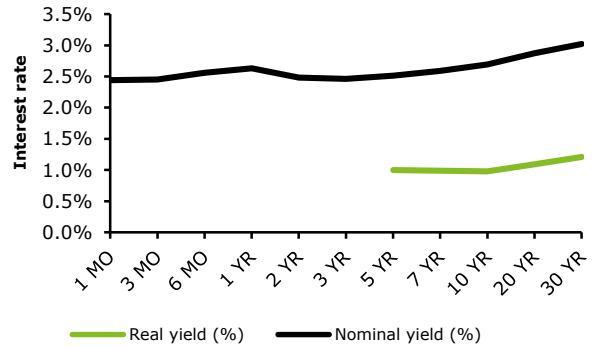
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Macroeconomic outlook

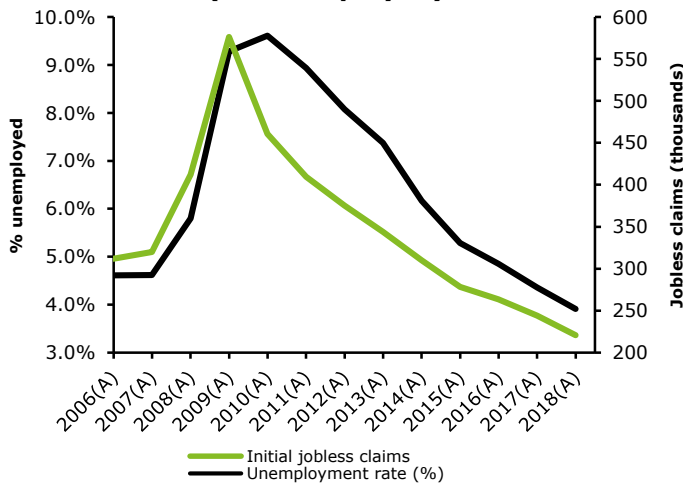
US gross domestic product (\$ in trillions)¹



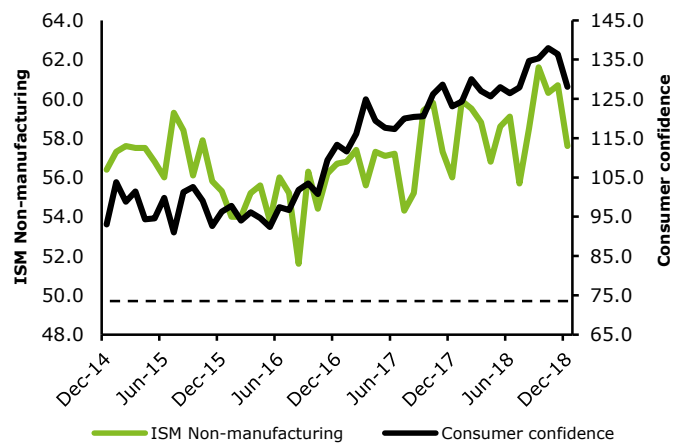
US Treasury yield curve (nominal vs. real)²



US unemployment rate (% unemployed)³



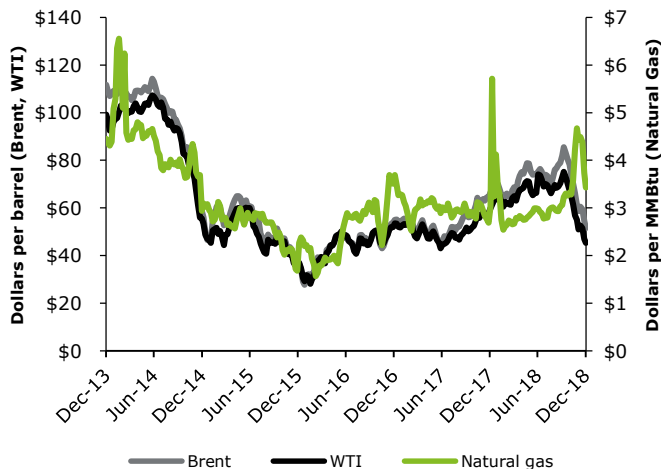
ISM non-manufacturing index and consumer confidence index⁴



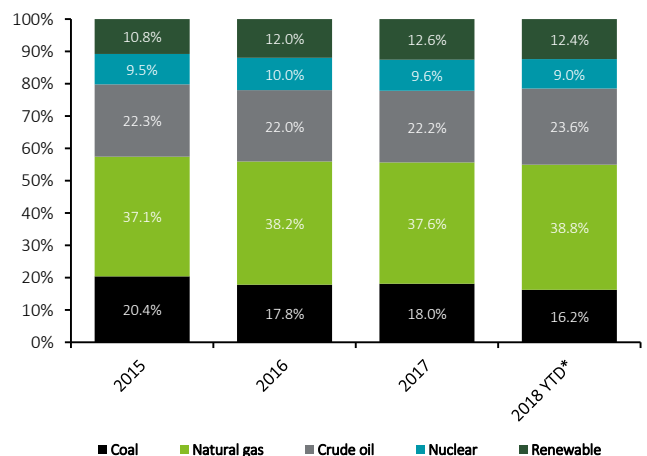
*An ISM non-manufacturing index value above 50 signals economic expansion.

Energy sector outlook

Brent, WTI, and natural gas prices (2012 - 2018 YTD)⁵



US energy production by source⁶

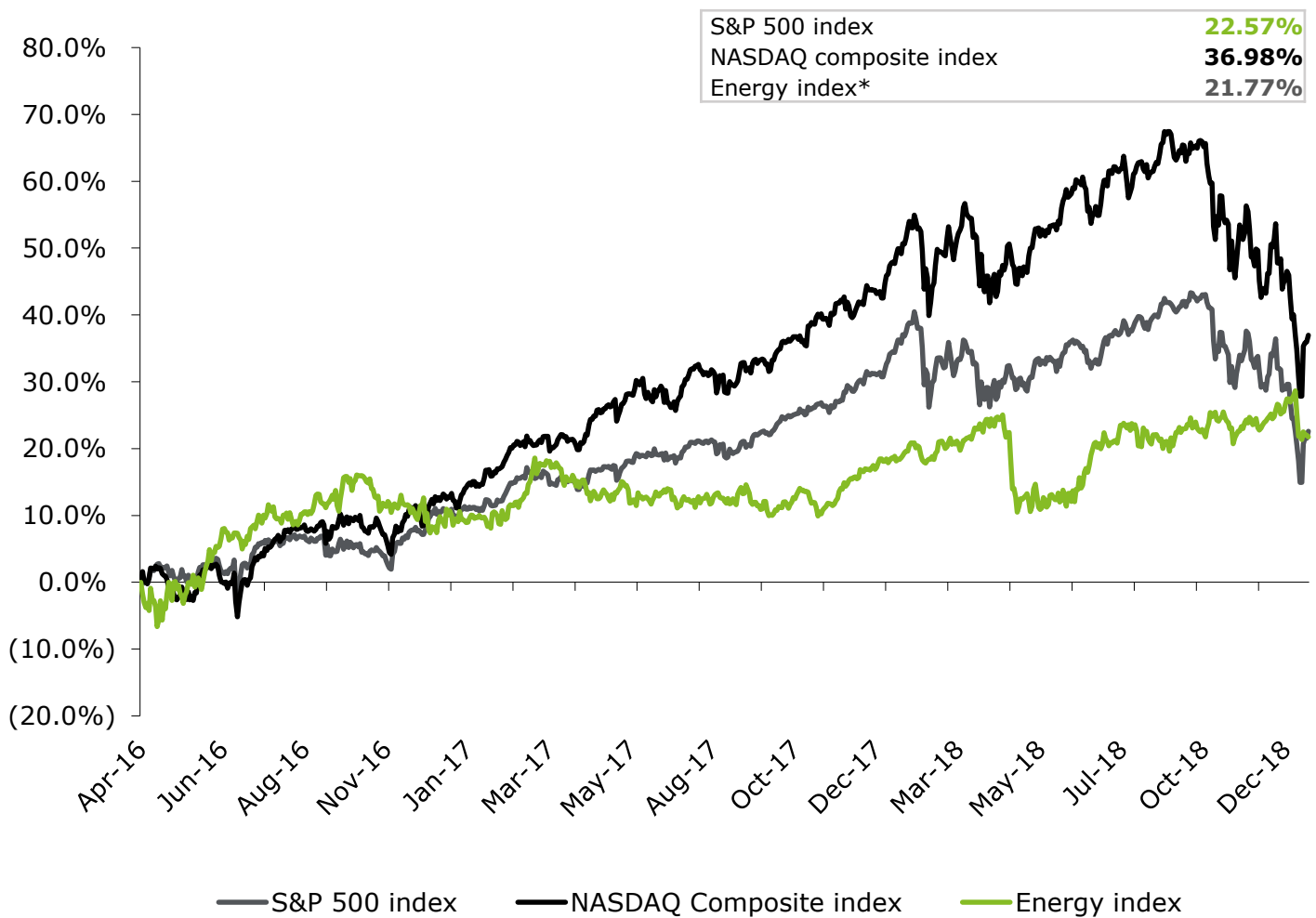


*Data as of September 30, 2018.

Energy sector breakdown & trading statistics¹

Sector	Number of companies	% of 52 week high	Median revenue CAGR (3 Yr)	Median LTM EBITDA	Median EBITDA Margin	Median enterprise value	Last twelve months		NTM
							EV/ Revenue	EV/ EBITDA	EV/ EBITDA
(\$ in millions)									
Oil and gas, general (14)	14	67.5 %	1.0 %	\$4,553.5	19.6 %	\$25,972.9	1.3 x	7.5 x	5.5 x
Power & utilities (19)	19	90.1	2.2	3,014.4	31.5	34,106.9	3.7	11.8	10.8
Renewable energy (13)	13	68.8	13.5	107.1	11.1	2,597.2	2.7	12.9	10.2
Nuclear (3)	3	70.8	4.2	486.7	20.2	5,073.4	2.1	10.4	10.0
Energy index	49	80.3 %	3.0 %	\$2,443.7	27.1 %	\$18,627.5	2.6 x	10.8 x	9.8 x

Public comparables three-year stock market performance²



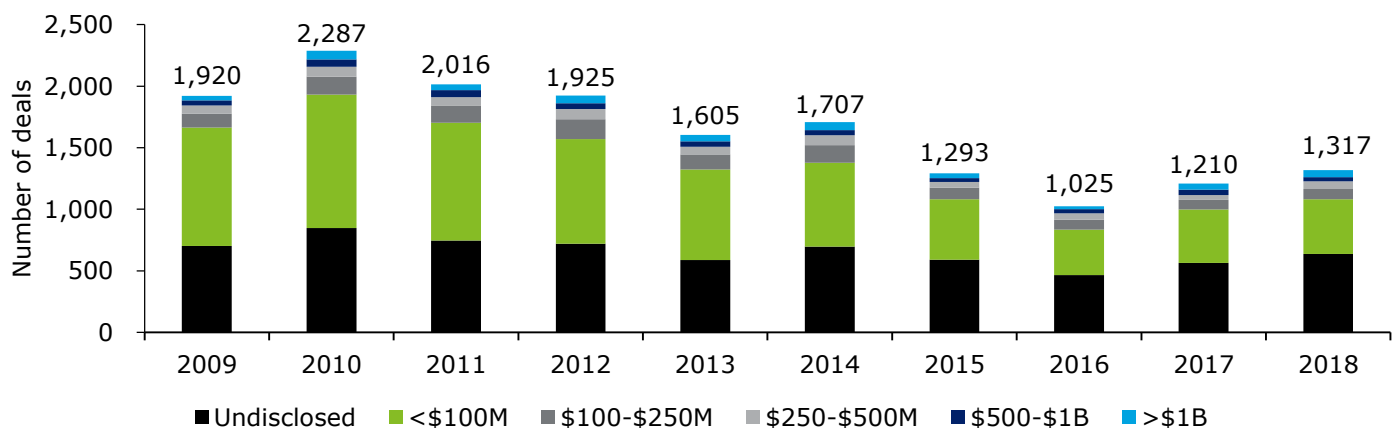
*Energy index companies listed on pages 5 & 6 in the appendix.

Select Energy M&A transactions¹

Close date*	Target/acquiror	Target business description	Enterprise value (EV)	EV/ EBITDA
12/27/2018	KyungDong Co., Ltd. Kyungdong Invest Co., Ltd	Engaged in coal mining, eco-coal energy, and biomass businesses in South Korea.	\$54.6	N/A x
12/20/2018	Gulf Pine Energy Partners, LP Standard Exploration Ltd	Gulf Pine is an exploration and production company that focuses on developing light oil resources in the Southern United States primarily Mississippi and Alabama.	24.4	N/A
12/19/2018	Shanxi Tianfengda Group GTI Holdings Limited	Shanxi Tianfengda Group Energy Company Limited, through its subsidiaries, engages in natural gas pipeline construction, operation, management, natural gas sales, and natural gas business consulting services.	92.3	N/A
12/18/2018	EnerMech Limited Carlyle International Energy Partners LP	Provides mechanical engineering services to the energy services sector in the United Kingdom and internationally.	574.1	14.0
12/14/2018	BlackPearl Resources Inc. International Petroleum Corporation	Engages in the acquisition, exploration, development, and production of heavy crude oil, bitumen, and natural gas in Canada.	527.4	22.4
12/13/2018	Onstream Pipeline Inspection Ltd. Mistras Group, Inc.	Provides inline inspection services to pipeline operators in Western Canada.	142.7	N/A
12/4/2018	Stanmore Coal Limited Golden Energy and Resources Limited	Explores, produces, and sells metallurgical and thermal coal in Australia.	156.4	4.8
11/5/2018	Motley Services LLC High River LP	Provides well completion and intervention services in the Permian Basin.	148.2	5.6
10/29/2018	Adler Hot Oil Service, LLC. Enservco Corporation	Provides oilfield services for the hot oil and water heating industry.	12.5	4.3
10/25/2018	Magnum Oil Tools International Nine Energy Service, Inc.	Manufactures downhole completions products, including dissolvable frac plugs, and other consumables to the oil and gas industry.	536.9	23.3
10/11/2018	Core Minerals III, LLC Diversified Gas & Oil PLC	Acquires and operates oil and natural gas producing properties.	180.5	6.3

*Pending transactions sorted by announcement date.

Annual Energy M&A transaction volume²



Appendix

Public comparables analysis¹

Market data as of 12/31/18

Company (ticker)	% of 52 week high	LTM Revenue	Revenue CAGR (3 Yr)	LTM EBITDA	EBITDA Margin	Enterprise Value ("EV") ⁽¹⁾	Last twelve months		NTM
							EV/Revenue	EV/EBITDA	EV/EBITDA
<i>(\$ in Millions)</i>									
Oil and gas, general (14)									
Andeavor	82.6 %	\$38,000.0	8.3 %	\$2,728.0	7.2 %	\$26,123.3	0.7 x	9.6 x	7.2 x
Chevron Corporation (NYSE:CVX)	85.2	133,606.0	3.9	24,116.0	18.1	252,981.3	1.9	10.5	6.5
ConocoPhillips (NYSE:COP)	96.7	31,166.0	0.2	15,051.0	48.3	79,440.7	2.5	5.3	6.4
Devon Energy Corporation (NYSE:DVN)	70.4	13,549.0	1.2	3,188.0	23.5	29,370.7	2.2	9.2	7.6
Diamond Offshore Drilling, Inc. (NYSE:DO)	71.8	1,375.6	(22.2)	517.6	37.6	3,607.9	2.6	7.0	8.9
Energy Transfer Operating, L.P.	66.6	30,439.0	(5.0)	5,982.0	19.7	59,306.5	1.9	9.9	7.6
Exxon Mobil Corporation (NYSE:XOM)	83.5	248,391.0	2.1	34,987.0	14.1	362,128.1	1.5	10.4	6.9
Halliburton Company (NYSE:HAL)	81.1	22,081.0	(4.2)	3,992.0	18.1	49,631.3	2.2	12.4	9.8
Hess Corporation (NYSE:HES)	91.2	5,427.0	(6.4)	2,025.0	37.3	19,381.9	3.6	9.6	9.7
Marathon Petroleum Corporation (NYSE:MPC)	97.6	69,859.0	3.0	5,910.0	8.5	52,412.7	0.8	8.9	8.0
Phillips 66 (NYSE:PSX)	89.3	93,072.0	3.5	3,424.0	3.7	54,063.9	0.6	15.8	8.3
Southwestern Energy Company (NYSE:SWN)	48.4	3,277.0	0.9	1,563.0	47.7	7,663.8	2.3	4.9	5.7
Transocean Ltd. (NYSE:RIG)	75.9	2,688.0	(28.2)	1,085.0	40.4	9,048.0	3.4	8.3	8.0
Valero Energy Corporation (NYSE:VLO)	92.8	92,882.0	5.6	5,927.0	6.4	43,907.7	0.5	7.4	6.8
Median	83.1 %	\$83.1	83.1 %	\$83.1	83.1 %	\$83.1	83.1 x	83.1 x	83.1 x
Mean	80.9 %	\$80.9	80.9 %	\$80.9	80.9 %	\$80.9	80.9 x	80.9 x	80.9 x
Power & utilities (19)									
Ameren Corporation (NYSE:AEE)	87.3 %	\$6,033.0	0.6 %	\$2,458.0	40.7 %	\$22,331.5	3.7 x	9.1 x	9.4 x
ALLETE, Inc. (NYSE:ALE)	88.9	1,411.9	(0.2)	367.3	26.0	5,108.6	3.6	13.9	12.3
American Electric Power Company, Inc. (NYSE:AEP)	87.9	15,539.9	(0.9)	5,175.9	33.3	56,526.4	3.6	10.9	10.1
Avangrid, Inc. (NYSE:AGR)	95.6	6,070.0	13.6	1,868.4	30.8	21,976.5	3.6	11.8	10.2
Black Hills Corporation (NYSE:BKH)	75.4	1,708.1	7.8	605.0	35.4	6,332.5	3.7	10.5	10.6
CenterPoint Energy, Inc. (NYSE:CNP)	90.0	10,034.0	8.6	2,169.0	21.6	19,442.3	1.9	9.0	9.2
Consolidated Edison, Inc. (NYSE:ED)	86.9	12,169.0	(0.9)	3,912.0	32.1	40,008.3	3.3	10.2	10.0
Dominion Energy, Inc. (NYSE:D)	79.1	12,668.0	3.1	6,209.0	49.0	83,506.5	6.6	13.4	11.9
DTE Energy Company (NYSE:DTE)	89.4	13,124.0	7.9	2,472.0	18.8	32,086.9	2.4	13.0	11.3
Duke Energy Corporation (NYSE:DUK)	84.4	23,587.0	0.7	10,251.0	43.5	108,357.9	4.6	10.6	11.4
Entergy Corporation (NYSE:ETR)	89.6	11,209.9	(2.1)	3,599.0	32.1	30,391.2	2.7	8.4	8.9
Eversource Energy (NYSE:ES)	89.1	7,934.8	0.7	2,667.0	33.6	32,201.9	4.1	12.1	11.3
Exelon Corporation (NYSE:EXC)	91.4	34,477.0	5.8	9,828.0	28.5	74,603.1	2.2	7.6	8.6
PG&E Corporation (NYSE:PCG)	61.4	16,923.0	(0.4)	5,642.0	33.3	41,613.9	2.5	7.4	6.4
Sempra Energy (NYSE:SRE)	90.4	11,138.0	3.6	3,822.0	34.3	51,156.4	4.6	13.4	12.8
The Southern Company (NYSE:SO)	83.5	23,632.0	9.9	6,224.0	26.3	95,372.4	4.0	15.3	11.0
Vectren Corporation (NYSE:VVC)	91.5	2,691.2	2.2	650.8	24.2	7,382.0	2.7	11.3	11.0
WEC Energy Group, Inc. (NYSE:WEC)	89.5	7,630.5	13.0	2,528.2	33.1	30,809.1	4.0	12.2	12.2
Xcel Energy Inc. (NasdaqGS:XEL)	87.1	11,409.0	0.4	3,805.0	33.4	38,805.8	3.4	10.2	10.3
Median	88.9 %	\$88.9	88.9 %	\$88.9	88.9 %	\$88.9	88.9 x	88.9 x	88.9 x
Mean	86.2 %	\$86.2	86.2 %	\$86.2	86.2 %	\$86.2	86.2 x	86.2 x	86.2 x
Renewable energy (13)									
Ballard Power Systems Inc. (TSX:BLDP)	60.6 %	\$118.7	27.6 %	(\$4.5)	NM %	\$563.9	4.7 x	NM x	158.8 x
Brookfield Renewable Partners L.P. (TSX:BEP.UN)	88.1	2,741.0	20.5	1,653.0	60.3	26,676.6	9.7	16.1	14.0
Canadian Solar Inc. (NasdaqGS:CSIQ)	85.2	4,138.3	6.2	395.7	9.6	2,898.2	0.7	7.3	9.1
Enphase Energy, Inc. (NasdaqGM:ENPH)	81.9	301.4	(8.5)	(2.6)	NM	458.5	1.5	NM	31.8
First Solar, Inc. (NasdaqGS:FSLR)	92.7	2,616.8	(19.6)	384.0	14.7	4,904.5	1.9	12.8	13.3
JA Solar Holdings Co., Ltd.	77.4	2,869.5	20.3	257.9	9.0	923.4	0.3	3.6	3.8
Macquarie Infrastructure Corporation (NYSE:MIC)	45.2	1,864.8	5.4	629.9	33.8	6,863.4	3.7	10.9	10.0
Ormat Technologies, Inc. (NYSE:ORA)	79.8	686.9	6.7	323.2	47.1	3,814.5	5.6	11.8	10.7
ReneSola Ltd (NYSE:SOL)	67.6	147.5	NM	(1.4)	NM	771.4	5.2	NM	27.8
Renewable Energy Group, Inc. (NasdaqGS:REGI)	94.5	2,428.6	22.3	237.6	9.8	704.0	0.3	3.0	6.2
SunPower Corporation (NasdaqGS:SPWR)	68.2	1,871.8	(5.5)	(132.2)	NM	2,915.9	1.6	NM	18.2
Sunrun Inc. (NasdaqGS:RUN)	96.7	569.0	36.2	(48.0)	NM	2,698.3	4.7	NM	NM
Vivint Solar, Inc. (NYSE:VSLR)	59.9	283.2	74.8	(18.4)	NM	1,461.0	5.2	NM	59.4
Median	79.8 %	\$79.8	79.8 %	\$79.8	14.7 %	\$14.7	14.7 x	14.7 x	14.7 x
Mean	76.7 %	\$76.7	76.7 %	\$76.7	26.3 %	\$26.3	26.3 x	26.3 x	26.3 x
Nuclear (3)									
BWX Technologies, Inc. (NYSE:BWXT)	93.9 %	\$1,717.0	6.6 %	\$352.1	20.5 %	\$6,632.9	3.9 x	18.8 x	17.0 x
Curtiss-Wright Corporation (NYSE:CW)	96.4	2,295.0	2.7	456.2	19.9	6,315.1	2.8	13.8	13.4
Huntington Ingalls Industries, Inc. (NYSE:HII)	93.2	7,591.0	4.2	1,101.0	14.5	12,117.2	1.6	11.0	9.9
Median	93.9 %	\$93.9	93.9 %	\$93.9	93.9 %	\$93.9	93.9 x	93.9 x	93.9 x
Mean	94.5 %	\$94.5	94.5 %	\$94.5	94.5 %	\$94.5	94.5 x	94.5 x	94.5 x

Recent transactions¹

(\$ in millions)

Target/acquiror	Sub-sector	Close date	LTM revenue	LTM EBITDA	EBITDA margin	Enterprise value (EV)	Last twelve months	
							EV/revenue	EV/EBITDA
KyungDong Co., Ltd. Kyungdong Invest Co., Ltd	Coal and Consumable Fuels	Dec-18	\$85.2	N/A	N/A %	\$54.6	0.6 x	N/A x
Gulf Pine Energy Partners, LP Standard Exploration Ltd (nka:Southern Energy Corp.)	Oil and Gas Exploration and Production	Dec-18	11.9	N/A	N/A	24.4	2.0	N/A
Shanxi Tianfengda Group Energy Company Limited GTI Holdings Limited	Oil and Gas Storage and Transportation	Dec-18	25.5	N/A	N/A	92.3	3.6	N/A
EnerMech Limited The Carlyle Group L.P.; Carlyle International Energy	Oil and Gas Equipment and Services	Dec-18	340.7	41.2	12.1	574.1	1.7	14.0
BlackPearl Resources Inc. International Petroleum Corporation	Oil and Gas Exploration and Production	Dec-18	122.1	23.6	19.3	527.4	4.3	22.4
Onstream Pipeline Inspection Ltd. Mistras Group, Inc.	Oil and Gas Equipment and Services	Dec-18	26.8	N/A	N/A	142.7	5.3	N/A
Stanmore Coal Limited Golden Energy and Resources Limited	Coal and Consumable Fuels	Dec-18	148.4	32.5	21.9	156.4	1.1	4.8
Motley Services LLC KLX Energy Services LLC	Oil and Gas Equipment and Services	Nov-18	99.0	26.7	27.0	148.2	1.5	5.6
Adler Hot Oil Service, LLC. Enservco Corporation	Oil and Gas Equipment and Services	Oct-18	18.5	2.9	15.7	12.5	0.7	4.3
Magnum Oil Tools International, LTD. Nine Energy Service, Inc.; Nine Energy Canada Inc.	Oil and Gas Equipment and Services	Oct-18	90.0	23.0	25.6	536.9	6.0	23.3
Core Minerals III, LLC Diversified Gas & Oil PLC	Oil and Gas Exploration and Production	Oct-18	127.8	28.7	22.5	180.5	1.4	6.3
Median			\$90.0	\$26.7	21.9 %	\$148.2	1.7 x	6.3 x
Mean			\$99.6	\$25.5	20.6 %	\$222.7	2.6 x	11.5 x

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Page 5:

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Page 6:

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DCF provides deal execution and lead financial advisory services to large corporate, middle market, private equity and venture capital firms. DCF and its affiliates maintain a presence in key US financial centers.

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