

## Sector Primer Series: Energy

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### INTRODUCTION

The Global Industry Classification Standard® (GICS®) assigns a company to business classifications, such as the Energy sector, according to its principal business activities. Sector is the first level of the four-tiered, hierarchical industry classification system that includes 11 sectors, 24 industry groups, 69 industries, and 158 sub-industries. The GICS assignment system uses quantitative and qualitative factors, including revenues, earnings, and market perception. GICS was developed in 1999 and is jointly managed by S&P Dow Jones Indices and MSCI.

The Energy sector comprises companies primarily engaged in:

- Oil and gas exploration, production, refining, marketing, storage, and transportation;
- Contracted drilling or ownership of drilling rigs that contract their services for drilling wells;
- Manufacturing equipment, including drilling rigs, and providing supplies and services to companies involved in the drilling, evaluation, and completion of oil and gas wells; and
- Production and mining of coal, related products, and other consumable fuels related to the generation of energy.

Exhibit 1: GICS of the Energy Sector

SECTOR	INDUSTRY GROUP	INDUSTRY	SUB-INDUSTRY
Energy Code (10)	Energy Code (1010)	Energy Equipment & Services Code (101010)	Oil & Gas Drilling Code (10101010)
			Oil & Gas Equipment & Services Code (10101020)
		Oil, Gas & Consumable Fuels Code (101020)	Integrated Oil & Gas Code (10102010)
			Oil & Gas Exploration & Production Code (10102020)
			Oil & Gas Refining & Marketing Code (10102030)
			Oil & Gas Storage & Transportation Code (10102040)
			Coal & Consumable Fuels Code (10102050)

Source: S&P Dow Jones Indices LLC, MSCI. Data as of Dec. 31, 2018. Table is provided for illustrative purposes.

## COMPOSITION

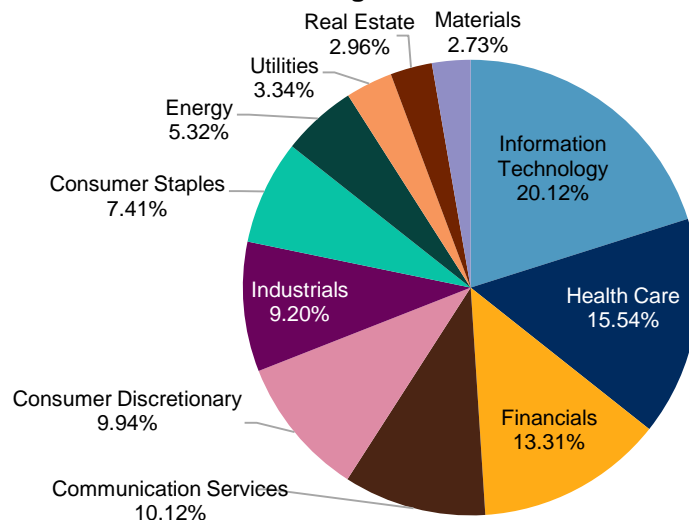
*Energy is the eighth-heaviest sector in the S&P 500...*

The [S&P 500® Energy](#) includes all companies in the [S&P 500](#) that are assigned to the Energy sector by GICS. Created in 1957, the S&P 500 was the first broad U.S. market-cap-weighted stock market index. Today, it is the basis of many listed and over-the-counter investment instruments.

The Energy sector is the eighth most heavily weighted of the 11 sectors within the S&P 500. As of Dec. 31, 2018, the sector represented 5.32% of the S&P 500 (see Exhibit 2).

**Exhibit 2: S&P 500 Sector Weights**

*...representing 5.32% of the index at year-end 2018.*



Source: S&P Dow Jones Indices LLC. Data as of Dec. 31, 2018. Chart is provided for illustrative purposes.

*The sector was the ninth heaviest in the S&P MidCap 400 and S&P SmallCap 600.*

There is a lower exposure to Energy in the mid- and small-cap indices, with the ninth heaviest sector weight in the [S&P MidCap 400®](#) and [S&P SmallCap 600®](#), at 3.74% and 3.43%, respectively. Overall, in the [S&P Total Market Index](#), which consists of over 3,800 stocks—including those in the S&P 500, S&P MidCap 400, S&P SmallCap 600, and micro caps—Energy was the eighth largest sector, with 210 securities and a weight of 4.99%.

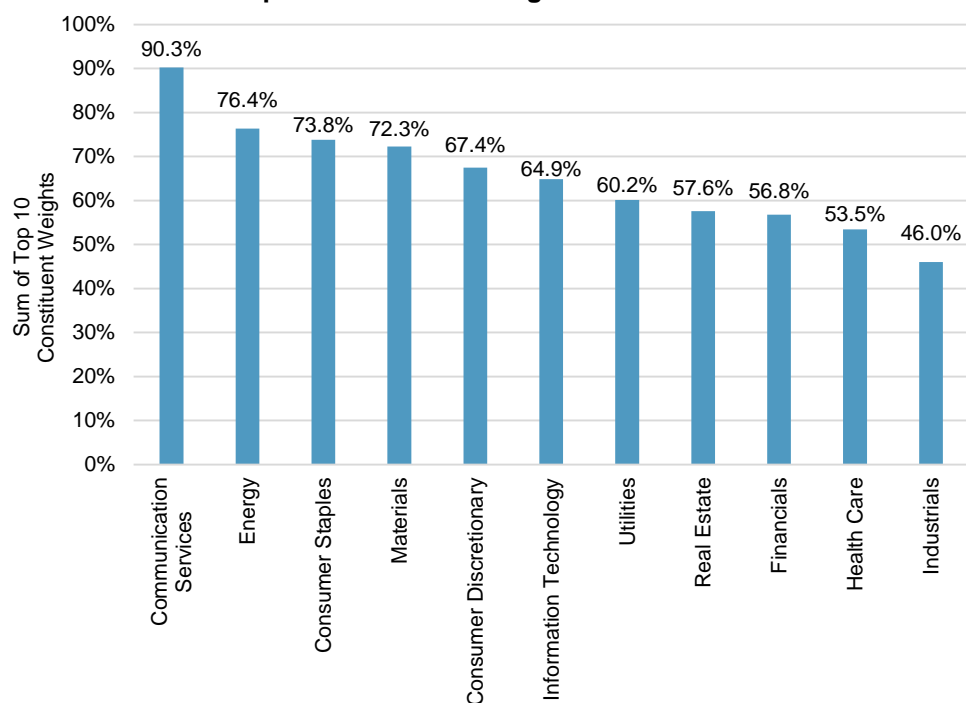
Thirty companies, with a total float-adjusted market capitalization of USD 1,117.72 billion, comprised the S&P 500 Energy as of Dec. 31, 2018. The two largest companies in the sector were Exxon Mobil Corp (XOM) and Chevron Corp (CVX), with float-adjusted market caps of USD 288.70 billion and USD 207.87 billion, translating to S&P 500 weights of 1.37% and 0.99%, respectively. XOM was the ninth largest weight in the S&P 500. The mean market cap of S&P 500 Energy stocks was USD 37.26 billion, the median market cap was USD 21.35 billion, and the minimum market cap was USD 2.94 billion. The top 10 Energy holdings made up 76.37% of the sector. Exhibit 4 shows that the Energy sector was the second most concentrated in its top 10 components among the 11 GICS sectors.

**Exhibit 3: Snapshot of the Top 10 Holdings in the S&P 500 Energy**

CONSTITUENT NAME	TICKER	S&P 500 WEIGHT (%)	S&P 500 ENERGY WEIGHT (%)
Exxon Mobil Corp	XOM	1.37	25.83
Chevron Corp	CVX	0.99	18.60
ConocoPhillips	COP	0.34	6.42
EOG Resources	EOG	0.24	4.52
Schlumberger Ltd	SLB	0.24	4.47
Occidental Petroleum	OXY	0.22	4.15
Marathon Petroleum Corp.	MPC	0.19	3.65
Phillips 66	PSX	0.17	3.27
Valero Energy Corp	VLO	0.15	2.85
Kinder Morgan Inc	KMI	0.14	2.61
<b>Total</b>		<b>4.06</b>	<b>76.37</b>

The two largest companies in the Energy sector were Exxon Mobil Corp and Chevron Corp.

Source: S&P Dow Jones Indices LLC. Data as of Dec. 31, 2018. Table is provided for illustrative purposes.

**Exhibit 4: Sum of Top 10 Constituent Weights**

XOM had the ninth largest weight in the S&P 500.

Energy was the second most top-heavy sector, with the top 10 constituents adding up to 76.4% of the sector.

Source: S&P Dow Jones Indices LLC. Data as of Dec. 31, 2018. Chart is provided for illustrative purposes.

The Energy sector only has one industry group, also named Energy. Within the S&P 500 Energy, Oil, Gas & Consumable Fuels was by far the heavier of the two industries. As of Dec. 31, 2018, it held a 90.4% sector weight, while Energy Equipment & Services accounted for the remaining 9.6%.

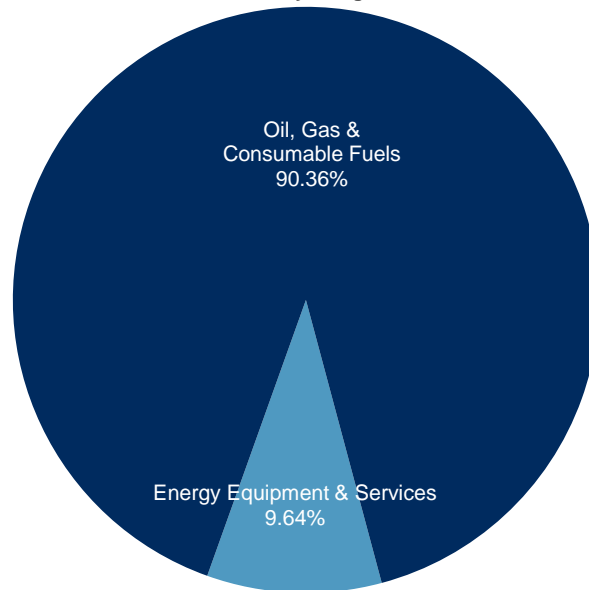
On the sub-industry level, the heaviest weight was Integrated Oil & Gas at 48.6%, consisting of integrated oil companies, such as Exxon Mobil Corp,

engaged in the exploration and production of oil and gas, as well as at least one other significant activity in either refining, marketing and transportation, or chemicals. The second-heaviest weight was Oil & Gas Exploration & Production at 24.3%, including companies like ConocoPhillips (COP).

*Oil, Gas & Consumable Fuels industry was by far the heavier of the two industries.*

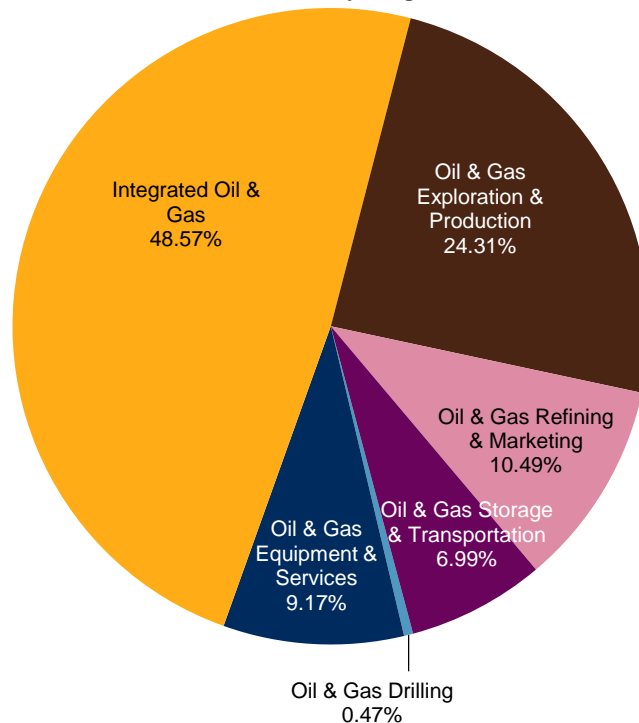
**Exhibit 5: Industry and Sub-Industry Weights in the S&P 500 Energy**

**Industry Weights**



*On the sub-industry level, the heaviest weight was Integrated Oil & Gas at 48.6%...*

**Sub-Industry Weights**



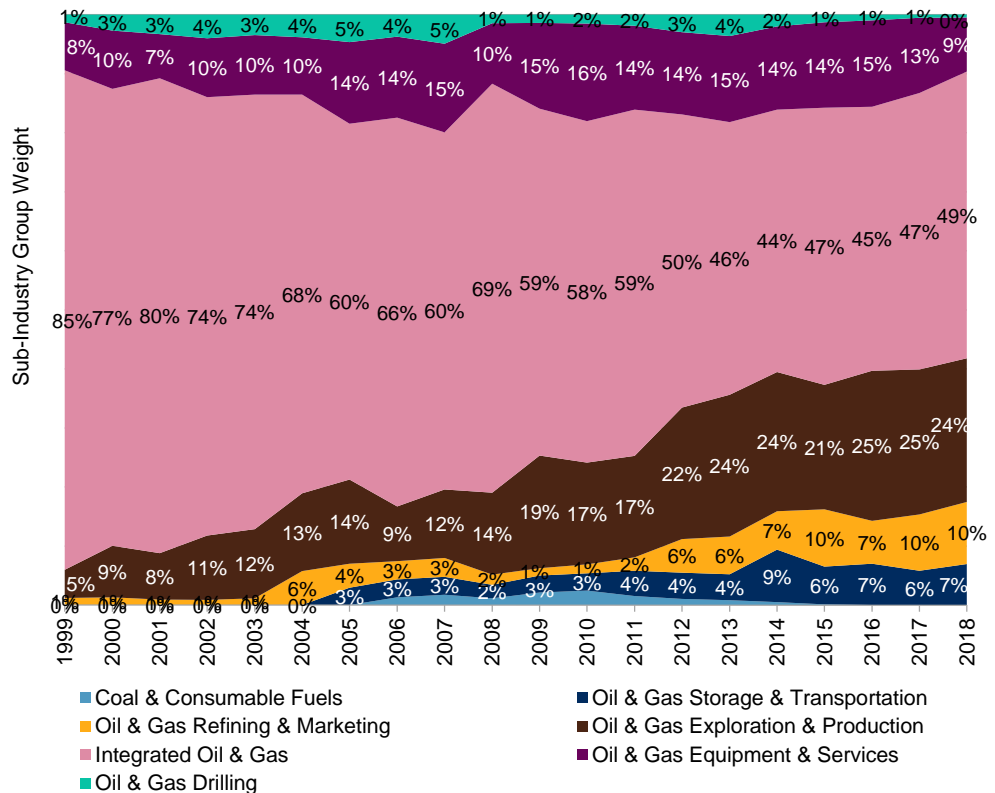
*...and the second was Oil & Gas Exploration & Production at 24.31%.*

Source: S&P Dow Jones Indices LLC. Data as of Dec. 31, 2018. Charts are provided for illustrative purposes.

The distribution of sub-industry weights within the Energy sector has transformed over time. The weight distribution has changed, but there have not been any significant changes to the actual structure within the Energy sector. S&P Global and MSCI conduct annual reviews to ensure that the GICS structure remains fully representative of the global market. The Integrated Oil & Gas sub-industry (led by Exxon Mobil Corp) has consistently been the heaviest weighted sub-industry historically, but it decreased from 85% of the sector in 1999 to 49% by the end of 2018. The most dramatic weight increase was by the Oil & Gas Exploration & Production sub-industry, which went from 5% to 24%.

*The distribution of sub-industry weights within the Energy sector has transformed over time.*

**Exhibit 6: Sub-Industry Weights of the S&P 500 Energy**



*The Integrated Oil & Gas sub-industry has historically been the heaviest weighted sub-industry...*

*...but it decreased from 85% of the sector in 1999 to 49% at the end of 2018.*

Source: S&P Dow Jones Indices LLC. Data from Dec. 31, 1999, through Dec. 31, 2018. Chart is provided for illustrative purposes.

**FUNDAMENTALS**

Across the large-, mid-, and small-cap size segments, the Energy sector had varying 12-month trailing and one-year forward price-to-earnings (P/E) ratios compared to the broader benchmark. The Energy price-to-book-value (P/BV) and price-to-sales ratios were lower than those of the benchmark.

Notably, the indicated annual dividend yield of S&P 500 Energy was 3.75%, which was the highest of the 11 large-cap sectors (see Exhibit 8). Meanwhile, the indicated dividend yield of mid-cap energy was the second lowest for mid- and small-caps.

**Exhibit 7: Fundamental Data Comparison**

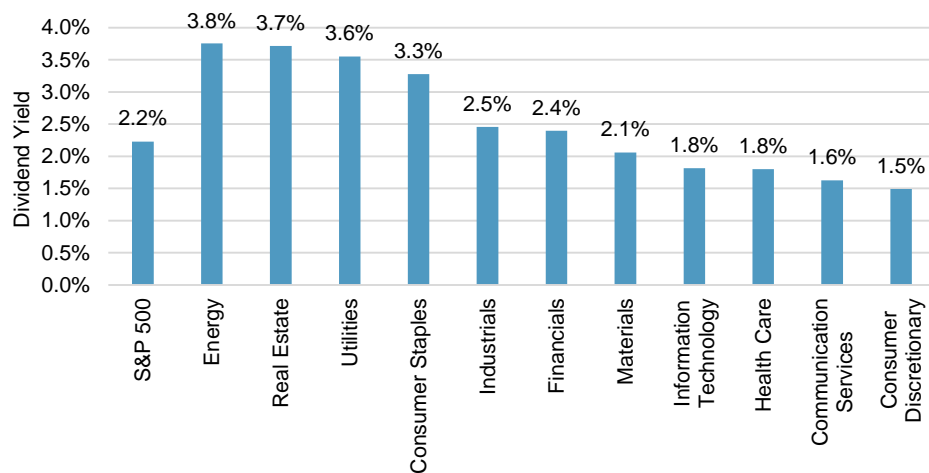
INDEX	12-MONTH TRAILING P/E	ONE-YEAR FORWARD P/E	P/BV	PRICE-TO-SALES	INDICATED DIVIDEND YIELD (%)
S&P 500	18.94	15.55	3.00	1.87	2.23
S&P 500 Energy	15.34	14.44	1.50	1.04	3.75
S&P MidCap 400	23.27	15.45	2.00	1.11	1.90
S&P MidCap 400 Energy	NM	29.38	0.65	0.45	0.96
S&P SmallCap 600	36.24	17.11	1.81	0.84	1.76
S&P SmallCap 600 Energy	NM	17.98	0.65	0.55	0.81

The indicated annual dividend yield of the S&P 500 Energy was 3.75%...

...which was the highest of the 11 large-cap sectors

Source: S&P Dow Jones Indices LLC. Data as of Dec. 31, 2018. If the index P/E is equal to 0 or negative, then the value should be shown as "NM" or Not Meaningful. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

**Exhibit 8: Indicated Annual Dividend Yield of S&P 500 Sectors**



Energy sector companies historically tilted strongly toward value...

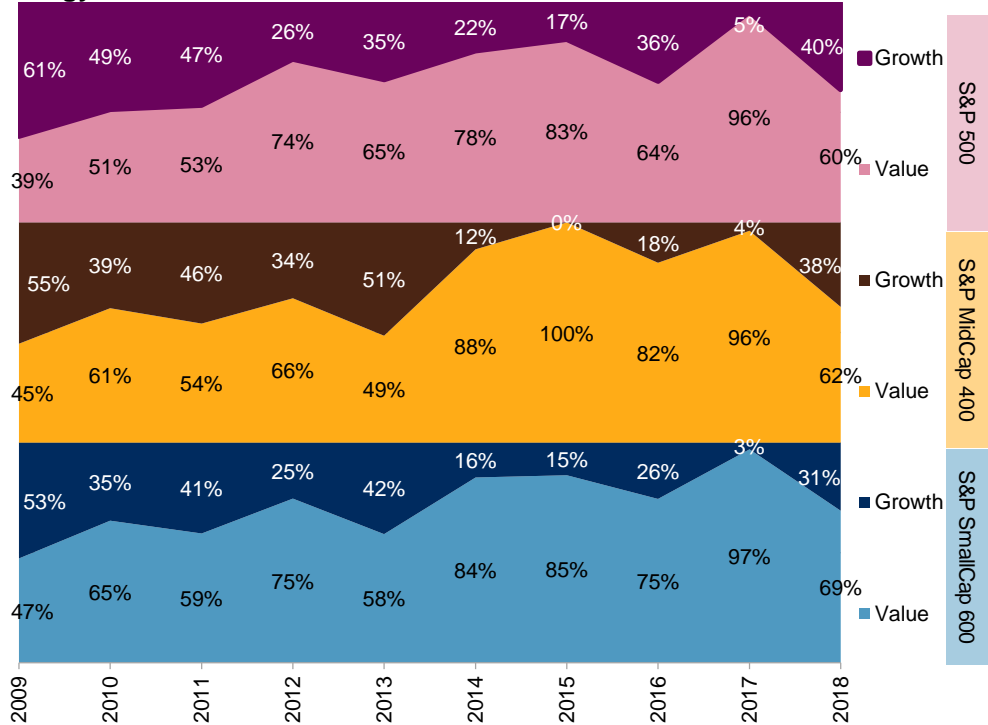
Source: S&P Dow Jones Indices LLC. Data as of Dec. 31, 2018. Chart is provided for illustrative purposes.

Energy sector companies historically tilted strongly toward the value factor. S&P DJI measures value using three factors: book-value-to-price, earnings-to-price, and sales-to-price ratios. As of Dec. 31, 2018, S&P 500 Energy companies averaged 60% value and 40% growth. The average was 62% value and 38% growth for Energy companies in the S&P MidCap 400, and 69% value and 31% growth in the S&P SmallCap 600. These averages varied more than other sectors from year to year. For example, as of Dec. 29, 2017, the large-, mid-, and small-cap Energy sector companies averaged 96%, 96%, and 97% value, respectively.

...averaging about 60% value and 40% growth as of year-end 2018.

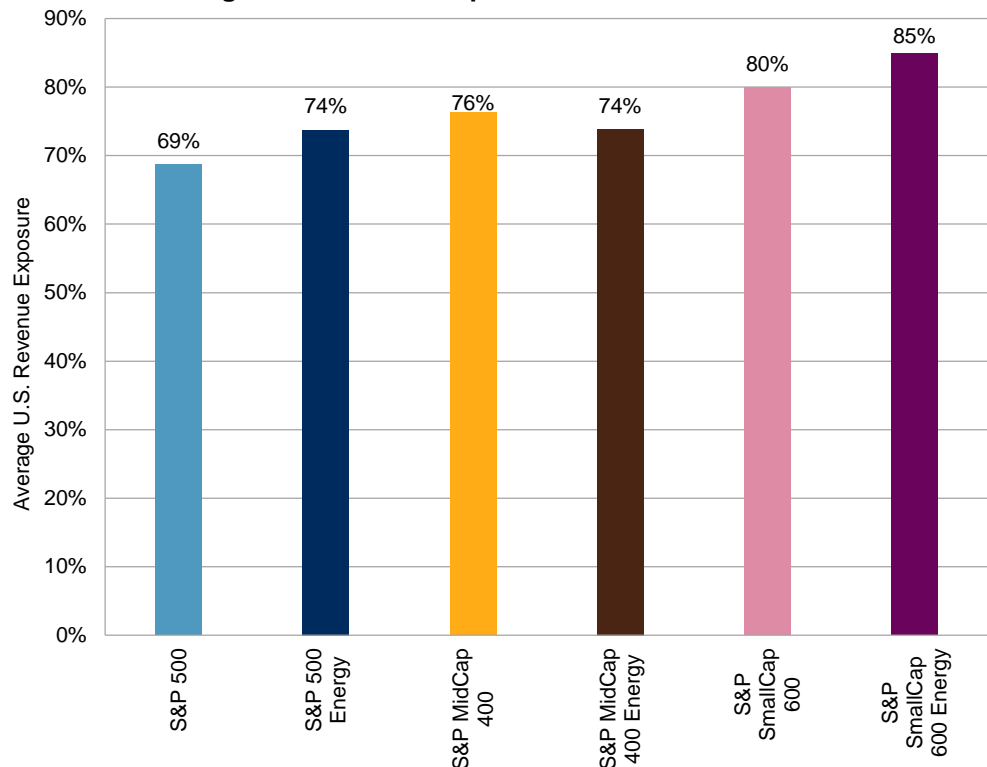
**Exhibit 9: Growth and Value Factor Tilts of the Large-, Mid-, and Small-Cap Energy Indices**

*Energy companies were close to the average of the respective large-, mid-, or small-cap benchmark.*



Source: S&P Dow Jones Indices LLC. Data from Dec. 31, 1999, through Dec. 31, 2018. Chart is provided for illustrative purposes.

For U.S. revenue exposure, the average of Energy companies was close to that of the broader large-, mid-, or small-cap benchmark. Revenue exposure can be an indication of how insulated companies are from regions outside the U.S. and it could be used to make assumptions on how likely a company is to be affected by foreign policies and trade. Generally, large-cap companies do the most global business relative to mid- and small-cap companies of the same sector. According to data from the FactSet Geographic Revenue Exposure (GeoRev™) database, S&P 500 Energy companies had an average U.S. revenue exposure of 74% as of Dec. 31, 2018. Mid-cap Energy companies also had an average of 74% of revenue sourced domestically, while small-cap Energy companies were more insulated from foreign markets, with an average of approximately 85% (see Exhibit 10). In the amount of revenue sourced from within the U.S., Energy ranked fourth among large-cap sectors, eighth among mid-cap sectors, and seventh among small-cap sectors.

**Exhibit 10: Average U.S. Revenue Exposure**

*S&P 500 Energy companies had an average U.S. revenue exposure of 74%.*

*Mid-cap Energy companies also had an average of 74% of revenue sourced domestically...*

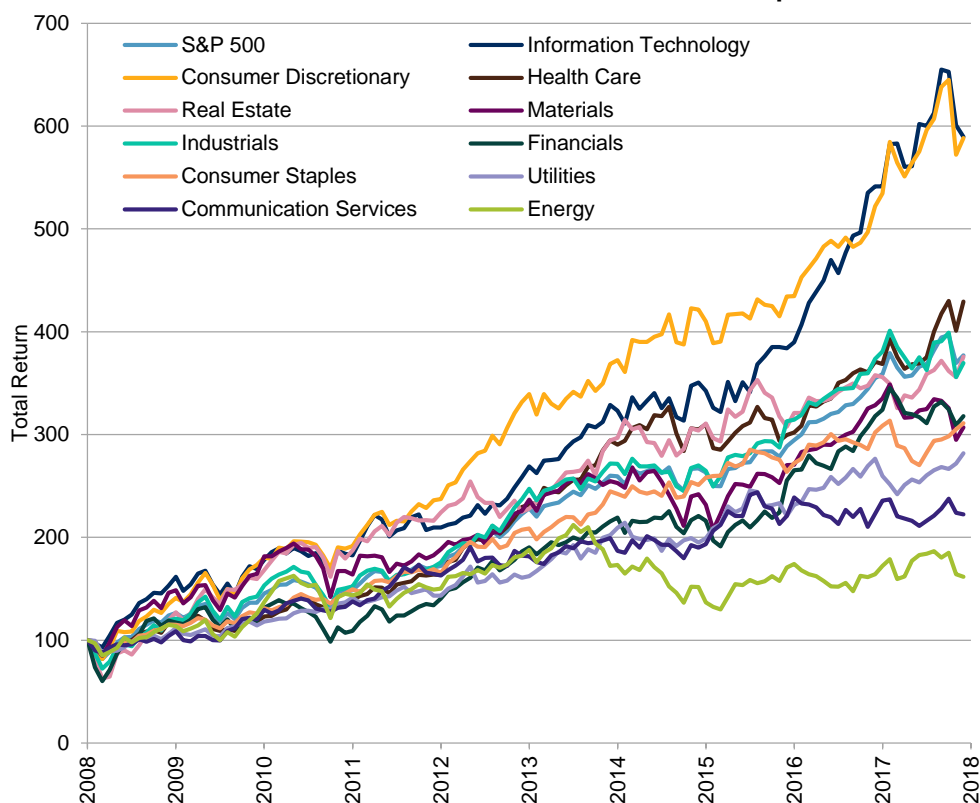
*...while small-cap Energy companies were more insulated from foreign markets, with an average of approximately 85%*

Source: S&P Dow Jones Indices LLC, FactSet GeoRev database. Data as of Dec. 31, 2018. Chart is provided for illustrative purposes.

## PERFORMANCE

Over the 10-year period ending in 2018, the S&P 500 Energy had a 3.50% annualized return, which was the worst return of the 11 large-cap sectors. It was also the worst-performing sector on an annualized five-, three-, and one-year return basis. Energy underperformed the S&P 500, which as a whole had a 10-year annualized return of 13.12%. In terms of risk (defined as standard deviation and calculated based on the total returns of monthly values), Energy was the fourth best of the sectors. On a total return basis, the S&P 500 Energy offered a 10-year annualized risk-adjusted return of 0.18, which was the by far the lowest (see Exhibit 12).



**Exhibit 11: S&P 500 Sector Indices 10-Year Total Return Comparison**

Source: S&P Dow Jones Indices LLC. Data as of Dec. 31, 2018. Indices rebased to 100 on Dec. 31, 2008. Performance based on total return in USD. Past performance is no guarantee of future results. Chart is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

**Exhibit 12: Annualized Returns of S&P 500 Sector Indices**

INDEX NAME	1-YEAR	3-YEAR	5-YEAR	10-YEAR
<b>ANNUALIZED RETURN (%)</b>				
S&P 500 Energy	-18.10	1.07	-5.56	3.50
S&P 500	-4.38	9.26	8.49	13.12
S&P 500 Communication Services	-12.53	2.17	2.58	7.51
S&P 500 Consumer Discretionary	0.83	9.55	9.69	18.35
S&P 500 Consumer Staples	-8.38	3.09	6.26	10.96
S&P 500 Financials	-13.03	9.28	8.16	10.92
S&P 500 Health Care	6.47	8.14	11.12	14.65
S&P 500 Industrials	-13.29	7.65	5.95	12.68
S&P 500 Information Technology	-0.29	16.37	14.93	18.36
S&P 500 Materials	-14.70	7.22	3.84	11.07
S&P 500 Real Estate	-2.22	3.87	8.84	13.28
S&P 500 Utilities	4.11	10.72	10.74	10.46

Source: S&P Dow Jones Indices LLC. Data as of Dec. 31, 2018. Risk is defined as standard deviation calculated based on total returns using monthly values. Performance based on total return in USD. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

The S&P 500 Energy 10-year risk-adjusted return was the by far the lowest.

**Exhibit 12: Annualized Returns of S&P 500 Sector Indices (cont.)**

INDEX NAME	1-YEAR	3-YEAR	5-YEAR	10-YEAR
<b>RISK</b>				
S&P 500 Energy	23.75	18.71	18.95	19.33
S&P 500	15.33	10.95	10.94	13.60
S&P 500 Communication Services	13.60	15.90	14.40	14.54
S&P 500 Consumer Discretionary	19.89	13.58	13.69	16.54
S&P 500 Consumer Staples	15.13	11.39	11.35	11.32
S&P 500 Financials	16.57	16.46	14.69	21.95
S&P 500 Health Care	18.47	13.69	13.06	13.33
S&P 500 Industrials	20.11	14.59	13.53	18.11
S&P 500 Information Technology	18.65	15.29	14.53	16.10
S&P 500 Materials	15.36	14.51	15.34	19.50
S&P 500 Real Estate	14.46	13.01	13.08	21.48
S&P 500 Utilities	9.80	12.39	12.78	12.62
<b>ANNUALIZED RISK-ADJUSTED RETURNS</b>				
S&P 500 Energy	-0.76	0.06	-0.29	0.18
S&P 500	-0.29	0.85	0.78	0.96
S&P 500 Communication Services	-0.92	0.14	0.18	0.52
S&P 500 Consumer Discretionary	0.04	0.70	0.71	1.11
S&P 500 Consumer Staples	-0.55	0.27	0.55	0.97
S&P 500 Financials	-0.79	0.56	0.56	0.50
S&P 500 Health Care	0.35	0.59	0.85	1.10
S&P 500 Industrials	-0.66	0.52	0.44	0.70
S&P 500 Information Technology	-0.02	1.07	1.03	1.14
S&P 500 Materials	-0.96	0.50	0.25	0.57
S&P 500 Real Estate	-0.15	0.30	0.68	0.62
S&P 500 Utilities	0.42	0.86	0.84	0.83

*The Energy sector has been most correlated with the Materials sector and least correlated with Utilities.*

Source: S&P Dow Jones Indices LLC. Data as of Dec. 31, 2018. Risk is defined as standard deviation calculated based on total returns using monthly values. Performance based on total return in USD. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

The Energy sector has been most correlated with the Materials sector and least correlated with Utilities. Exhibit 13 shows that as of Dec. 31, 2018, the S&P 500 Energy was most correlated with the [S&P 500 Materials](#) (0.75) and least correlated with the [S&P 500 Utilities](#) (0.20), based on 10 years of monthly returns. Correlation with other major country indices also varied. Outside of the U.S., the S&P 500 Energy was most correlated with the S&P Canada BMI (0.80). It was least correlated with the S&P Japan BMI (0.52).

**Exhibit 13: Correlations of the S&P 500 Energy**

S&P 500 SECTOR (TR)	CORRELATION	INDEX (TR)	CORRELATION
Materials	0.73	S&P Canada BMI	0.80
Industrials	0.71	S&P United Kingdom BMI	0.75
Consumer Discretionary	0.63	S&P Developed Ex-U.S. BMI	0.73
Financials	0.62	S&P Global Ex-U.S. BMI	0.72
Information Technology	0.55	S&P Germany BMI	0.66
Health Care	0.51	S&P France BMI	0.65
Real Estate	0.45	S&P Australia BMI	0.65
Consumer Staples	0.44	S&P Emerging BMI	0.63
Communication Services	0.44	S&P China BMI	0.60
Utilities	0.20	S&P Korea BMI	0.60
		S&P Switzerland BMI	0.59
		S&P Japan BMI	0.52
		S&P Developed BMI	0.77
		S&P Global BMI	0.76
		S&P United States BMI	0.76
		S&P 500	0.75
		S&P MidCap 400	0.74
		S&P SmallCap 600	0.72

*Internationally, S&P 500 Energy was most correlated with the S&P Canada BMI ...*

Source: S&P Dow Jones Indices LLC. Correlations based on monthly total return data from January 2009 to December 2018. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

*...and least correlated with the S&P Japan BMI.*

The performance varied among the different industry and sub-industry buckets of the Energy sector. These groupings and the types of companies included become increasingly more specific. Exhibit 14 shows the annualized returns of the company groupings within the Energy sector. For the sub-industries, Oil & Gas Refining & Marketing had the highest 10-year annualized return at 16.2%, while Oil & Gas Drilling had the lowest at -5.2%.

**Exhibit 14: Annualized Returns of the S&P 500 Energy GICS Sub-Indices**

INDEX	ANNUALIZED RETURN (%)			
	1-YEAR	3-YEAR	5-YEAR	10-YEAR
S&P 500 Energy	-18.10	1.07	-5.56	3.50
<b>INDUSTRY GROUP</b>				
S&P 500 Energy	-18.10	1.07	-5.56	3.50
<b>INDUSTRY</b>				
S&P 500 Energy Equipment & Services	-40.76	-12.95	-14.76	1.08
S&P 500 Oil, Gas & Consumable Fuels	-14.62	3.24	-4.10	3.90
<b>SUB-INDUSTRY</b>				
S&P 500 Integrated Oil & Gas	-12.97	3.32	-2.39	4.01
S&P 500 Oil & Gas Drilling	-22.55	-7.96	-20.67	-5.25
S&P 500 Oil & Gas Equipment & Services	-41.47	-12.99	-13.17	2.40
S&P 500 Oil & Gas Exploration & Production	-19.50	0.07	-10.02	1.25
S&P 500 Oil & Gas Refining & Marketing	-11.08	5.96	8.79	16.18
S&P 500 Oil & Gas Storage & Transportation	-11.57	10.19	-4.70	10.83

Source: S&P Dow Jones Indices LLC. Data as of Dec. 31, 2018. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

*Performance of industry industries and sub-industries within the Energy sector has varied.*

## CONCLUSION

As of Dec. 31, 2018, the S&P 500 Energy had the lowest 10-year annualized return of the 11 GICS sector indices. Returns were most correlated with the Materials sector domestically and Canada internationally.

Notably, the indicated annual dividend yield of S&P 500 Energy was 3.75%, which was the highest of the 11 large-cap sectors. Meanwhile, the indicated dividend yield of the Energy sector was the second lowest in the mid- and small-cap indices.

*The Energy sector is the second most concentrated in its top 10 components of the 11 GICS sectors.*

Energy was the eighth largest of the 11 GICS sectors in the U.S. market and accounted for approximately 5.3% of the weight of the S&P 500. Within the sector, the Integrated Oil & Gas sub-industry was the heaviest weighted sub-industry historically. Exxon Mobil Corp and Chevron Corp were the largest Energy companies, with approximate weights of 25.8% and 18.6%, respectively, in the S&P 500 Energy. The Energy sector is the second most concentrated in its top 10 components of the 11 GICS sectors. The largest 10 companies account for 76.4% of the sector. In the mid- and small-cap segments, Energy was less prominent as the ninth largest sector, accounting for 3.7% and 3.4%, respectively.

## PERFORMANCE DISCLOSURE

The S&P 500 Real Estate was launched September 19, 2016. All information presented prior to an index's Launch Date is hypothetical (back-tested), not actual performance. The back-test calculations are based on the same methodology that was in effect on the index Launch Date. However, when creating back-tested history for periods of market anomalies or other periods that do not reflect the general current market environment, index methodology rules may be relaxed to capture a large enough universe of securities to simulate the target market the index is designed to measure or strategy the index is designed to capture. For example, market capitalization and liquidity thresholds may be reduced. Complete index methodology details are available at [www.spdji.com](http://www.spdji.com). Past performance of the Index is not an indication of future results. Prospective application of the methodology used to construct the Index may not result in performance commensurate with the back-test returns shown.

S&P Dow Jones Indices defines various dates to assist our clients in providing transparency. The First Value Date is the first day for which there is a calculated value (either live or back-tested) for a given index. The Base Date is the date at which the Index is set at a fixed value for calculation purposes. The Launch Date designates the date upon which the values of an index are first considered live: index values provided for any date or time period prior to the index's Launch Date are considered back-tested. S&P Dow Jones Indices defines the Launch Date as the date by which the values of an index are known to have been released to the public, for example via the company's public website or its datafeed to external parties. For Dow Jones-branded indices introduced prior to May 31, 2013, the Launch Date (which prior to May 31, 2013, was termed "Date of introduction") is set at a date upon which no further changes were permitted to be made to the index methodology, but that may have been prior to the Index's public release date.

The back-test period does not necessarily correspond to the entire available history of the Index. Please refer to the methodology paper for the Index, available at [www.spdji.com](http://www.spdji.com) for more details about the index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations.

Another limitation of using back-tested information is that the back-tested calculation is generally prepared with the benefit of hindsight. Back-tested information reflects the application of the index methodology and selection of index constituents in hindsight. No hypothetical record can completely account for the impact of financial risk in actual trading. For example, there are numerous factors related to the equities, fixed income, or commodities markets in general which cannot be, and have not been accounted for in the preparation of the index information set forth, all of which can affect actual performance.

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