



Energy

Kyler Cummins, Andrew Cuellar, Preston Cooke



THE OHIO STATE UNIVERSITY

FISHER COLLEGE OF BUSINESS

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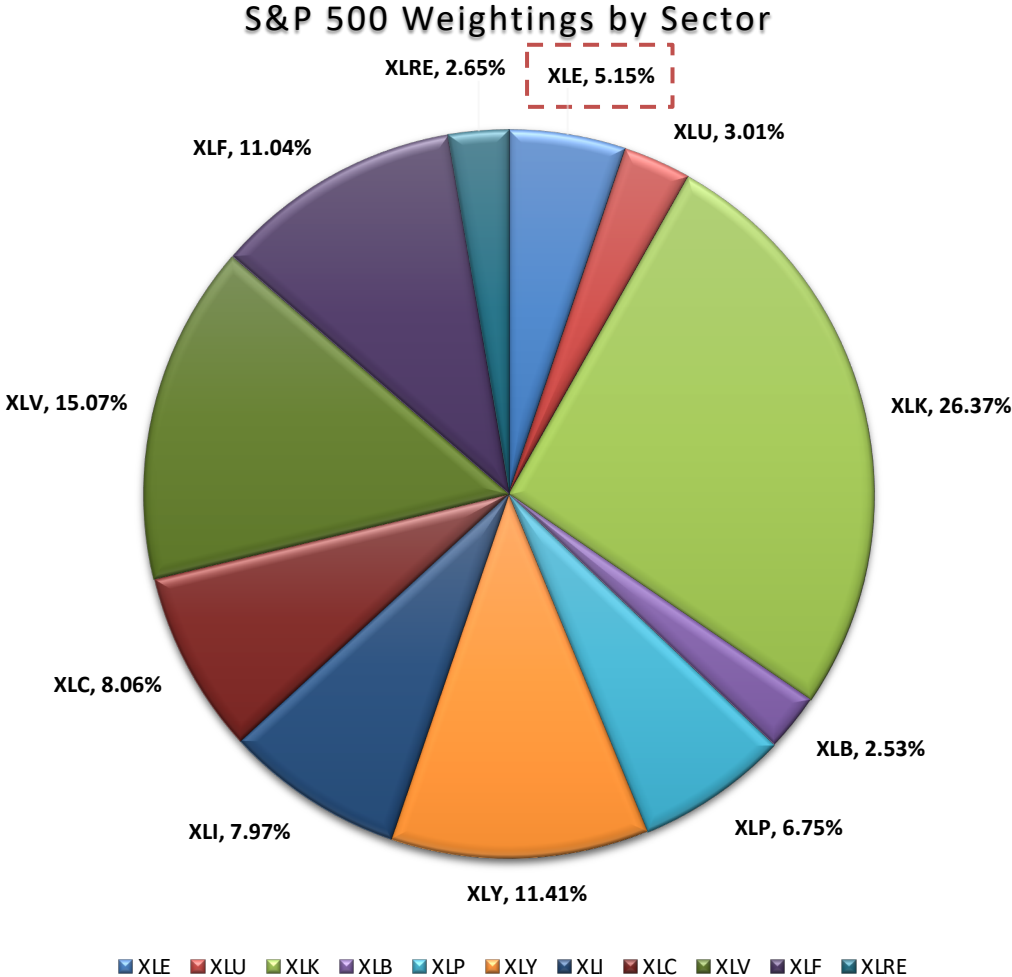
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Energy Sector Overview

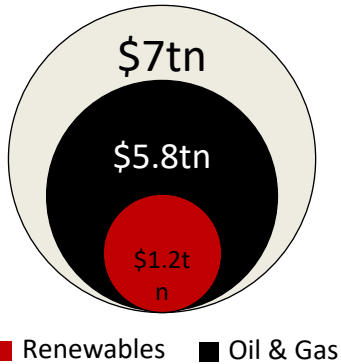
Sector Overview - Energy Sector S&P 500 Weight



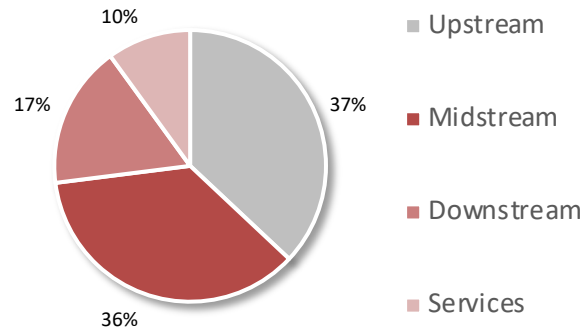
Sector Overview - Energy Sector at a 30,000 Foot View

Industry Size

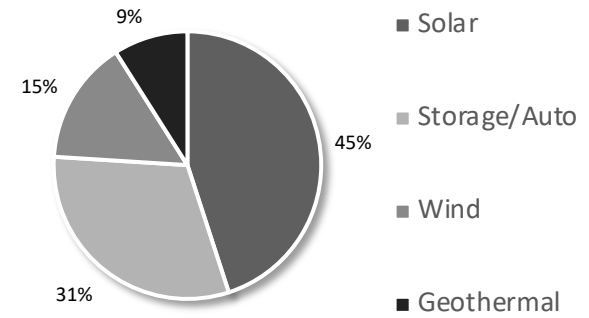
Global TAM



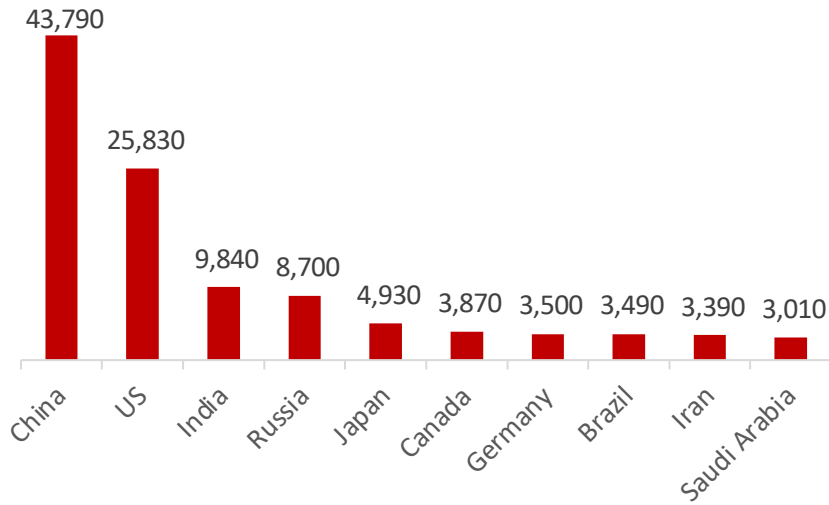
Oil & Gas Market Share Breakdown



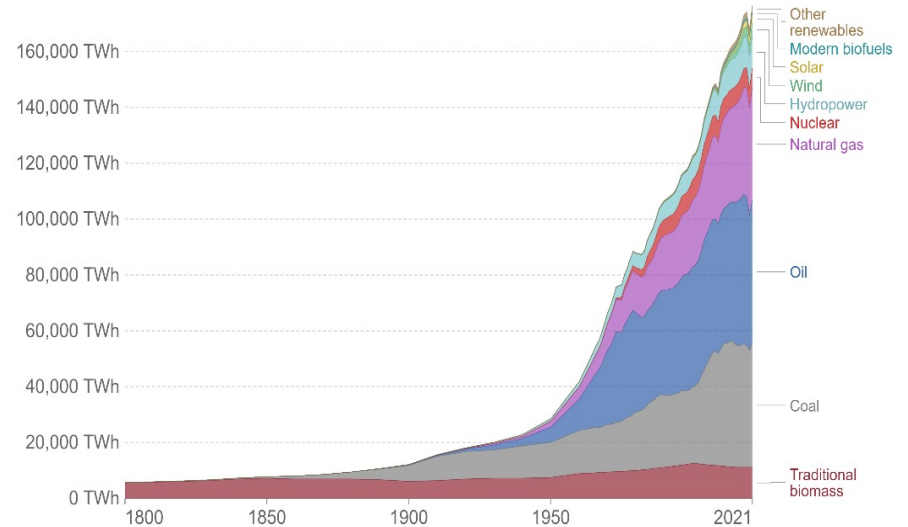
Renewable Energy Breakdown



Energy Consumption by Country ¹



History of Energy Consumption



Sector Overview - Oil & Gas Vertical Breakdown

Upstream

Description

Exploration and drilling for oil and gas in different locations; once they find deposits, they produce the energy

Major Players



Focus/Drivers

- Expand production while maintaining or increasing reserves
- M&A driven by reserve expansion, geographic diversification, Capex

Midstream

Description

Transport oil and gas from the producers to the refiners via pipelines, ships, and other methods

Major Players



Focus/Drivers

- Less affected by commodity prices as revenue is fee based
- Act as the “middleman” between producers and distributors

Downstream

Description

Turn crude oil and gas into usable products, such as gasoline for cars and jet fuel for planes

Major Players



Focus/Drivers

- Focus on refining capacity and margins
- M&A driven by improving refining capacity/margins, diversifying suppliers and geography

Energy Services

Description

“Assist” the other verticals, typically by renting out equipment or construction services. They don’t own deposits directly

Major Players



Focus/Drivers

- Categorized into drilling or equipment & services
- M&A drivers include Capex, rig counts, dayrates and rig utilization

Sector Overview - Oil & Gas Trends and Drivers

1

Commodity Prices – higher oil and gas prices benefit most companies in the sector, but not always directly. They encourage companies to spend more on finding new reserves and enhancing existing products

2

Capital Expenditure – how much are companies spending to find new reserves and maintain existing ones? Affects demand for Energy Services and resources processed

3

Interest Rates and Monetary Policy – similar to utility companies, Midstream firms are “safe investments”. Therefore, high interest rates make them less attractive

4

Taxes, Politics, and Regulations – governmental taxes on oil & gas, wars, and political regulation on industry



Sector Overview - Renewable Energy Vertical Breakdown

Solar

Description

Produce individual photovoltaics and frames that hold them and direct sunlight to them

Major Players



Focus/Drivers

- End users include warehouses, agricultural, commercial offices, houses
- Also separated in Upstream and Downstream segments

Storage/Auto

Description

Anything mobile, or transportation applications. Energy storage batteries are used in cars, buses, and power supplies

Major Players



Focus/Drivers

- Consumer applications revolve around hand-held and power tools, transportation, and grid-wide backup

Wind

Description

Focus on turbine production. High setup costs and barriers to entry create a highly consolidated industry

Major Players



Focus/Drivers

- Activity driven by regulation, project stage, and strategic fit
- Most controversy revolves around wind farm aesthetics

Geothermal

Description

Collection of plants that tap into the ground and harness the earth's heat

Major Players



Focus/Drivers

- Usually located next to geysers or oil field
- Large setup costs but low cost of production
- Lowest volatility

Sector Overview - Renewable Energy Transition

Headwinds

1

Lack of Proper Substitutes – in the US, 1/3 of oil is used for non-transportation services and cannot be easily electrified. Natural gas is even harder to replace

2

Lack of Grid-Scale Storage – as long as solar and wind are only useful when conditions are right, they cannot replace fossil fuels. Tech could change this, but not anytime soon

Tailwinds

1

Governmental Factors – policies that provide investment into emerging products. Tax credits, state grants, loan programs, and other incentives have boosted particular renewable areas

2

Market Factors – renewables are reaching the price of traditional forms of energy, end-user awareness of the positives of using renewables, and increasing ease of access

Sector Overview - S5ENRS YTD Performance



- YTD Performance – 52.17%
- 1 Yr. Performance – 49.53%
- 5 Yr. Performance – 69.72%



Business Analysis

Business Analysis – Factors Influencing Demand

Sector Classification

Cyclical

Energy is considered a cyclical sector, meaning it typically outperforms the market during periods of economic expansion. Changes in business cycles lead to the rapid development and rapid decrease in industries with high energy consumption, which cause severe fluctuations in demand for energy and changes in energy intensity. Business cycles have a significant impact on energy intensity

Current Stage

Contraction

The current state of the global macro economy is slow when compared to where it has been in previous years due to high global inflation, supply chain issues, tension overseas, amongst other issues. Economic outlook is grim and could be of concern for energy demand in coming months. However, the energy sector has performed well, despite economic outlook due to high oil prices. The energy sectors performance is exceptionally dependent on oil prices even if demand for the commodity is slowing

Foreign Economies

Description

The energy sector is very affected by the current state of geopolitical environment's as well as regional government regulations. Supply disruptions in oil-producing countries has a large effect. OPEC countries, for example, produce almost half of the world's crude oil, as well as control nearly 75 percent of known crude oil reserves. Conflicts in OPEC-member countries like Iraq and Iran disrupt OPEC's annual fuel outputs and trigger global price volatility.

External Factors

Description

Weather, clean energy regulations, supply chain bottlenecks all effect the sector. Weather triggers uncertainty about both the supply and demand of oil, natural gas and similar petroleum and hydrocarbon-liquid commercial fuels. This uncertainty, in turn, increases price volatility, typically producing cost-per-barrel and cost-per-gallon hikes. For example, hurricanes in the Gulf of Mexico can negatively impact U.S. petroleum production, causing petroleum prices to experience short term spikes.



Business Analysis – OPEC Overview & it's Effect on the Energy Sector

What is OPEC

The Organization of the Petroleum Exporting Countries (OPEC) is a permanent, intergovernmental Organization, created at the by Iran, Iraq, Kuwait, Saudi Arabia and Venezuela. Current OPEC members are Algeria, Angola, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, the Republic of the Congo, Saudi Arabia, the United Arab Emirates and Venezuela

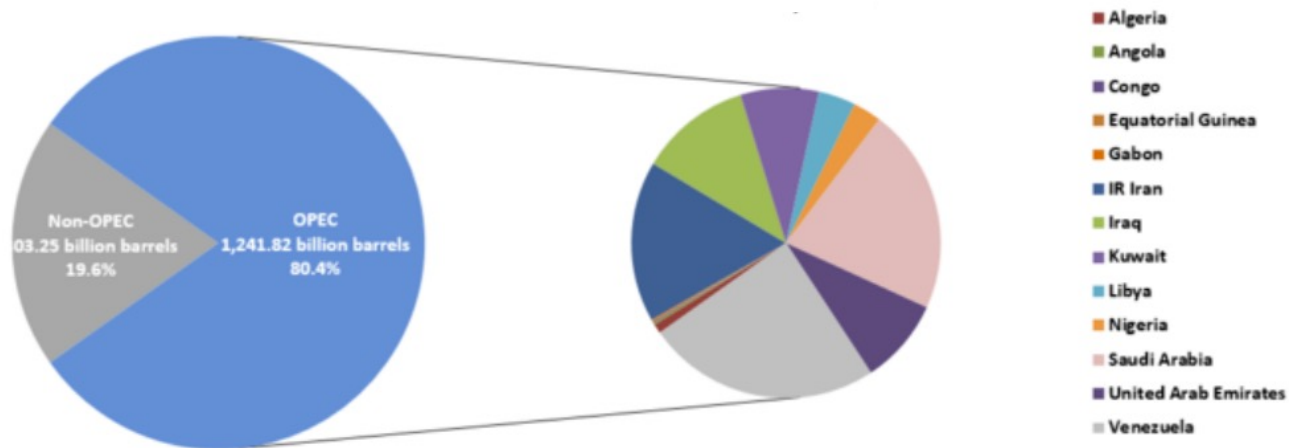
OPEC's Objective

OPEC's objective is to co-ordinate and unify petroleum policies among Member Countries, in order to secure fair and stable prices for petroleum producers; an efficient, economic and regular supply of petroleum to consuming nations; and a fair return on capital to those investing in the industry

OPEC Effect

Historically, crude oil prices have seen increases in times when OPEC production targets are reduced. OPEC member countries produce about 40 percent of the world's crude oil. Equally important to global prices, OPEC's oil exports represent about 60 percent of the total petroleum traded internationally. control nearly 75 percent of known crude oil reserves. Conflicts in OPEC-member countries like Iraq and Iran disrupt OPEC's annual fuel outputs and trigger global price volatility.

OPEC Share of world Crude Oil Reserves, 2021



Business Analysis – United States Crude Oil Production

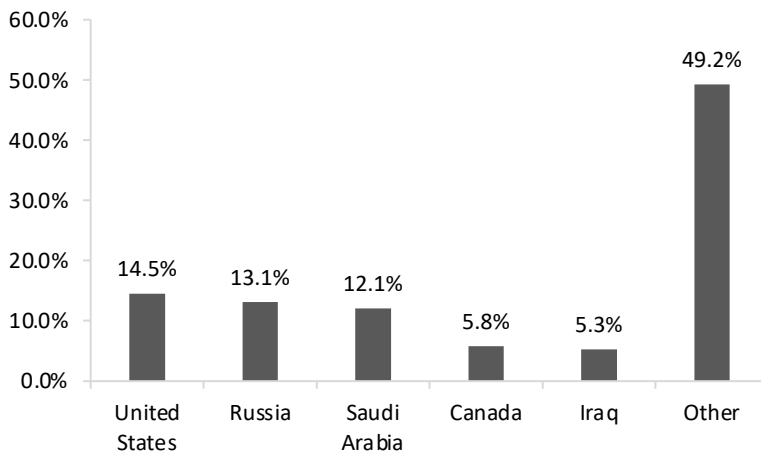
One of the Largest Crude Oil Producers

The United States became the world's top crude oil producer in 2018 and maintained the lead position through 2021. U.S. oil refineries obtain crude oil produced in the United States and in other countries. Different types of companies supply crude oil to the world market. Although total U.S. crude oil production generally declined between 1985 and 2008, annual production increased nearly each year from 2009 through 2019, reaching the highest amount on record in 2019. More cost-effective drilling technology helped to boost production, especially in Texas, North Dakota, Oklahoma, New Mexico, and Colorado. U.S. crude oil production declined in 2020 and 2021 mainly because of the effects of the COVID-19 pandemic on the economy.

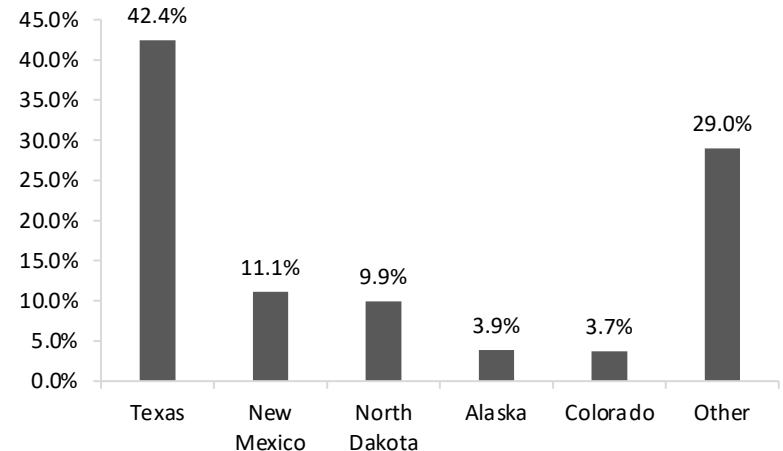
Different Types of Oil Companies Supply Crude Oil

The world oil market is complex. Governments and private companies play various roles in moving crude oil from producers to consumers. In the United States, companies produce crude oil on private and public land and offshore waters. Most of these companies are independent producers, and they usually operate only in the United States. The other companies, often referred to as major oil companies, may have hundreds or thousands of employees and operate in many countries. Examples of major U.S. oil companies are Chevron and ExxonMobil. Three types of companies supply crude oil to the global oil market. Each type of company has different operational strategies and production-related goals.

U.S. Crude Oil Production by State in 2021



Top Five Crude Oil-Producing States





Economic Analysis

Economic Analysis - S5ENRS Versus WTI Crude Oil



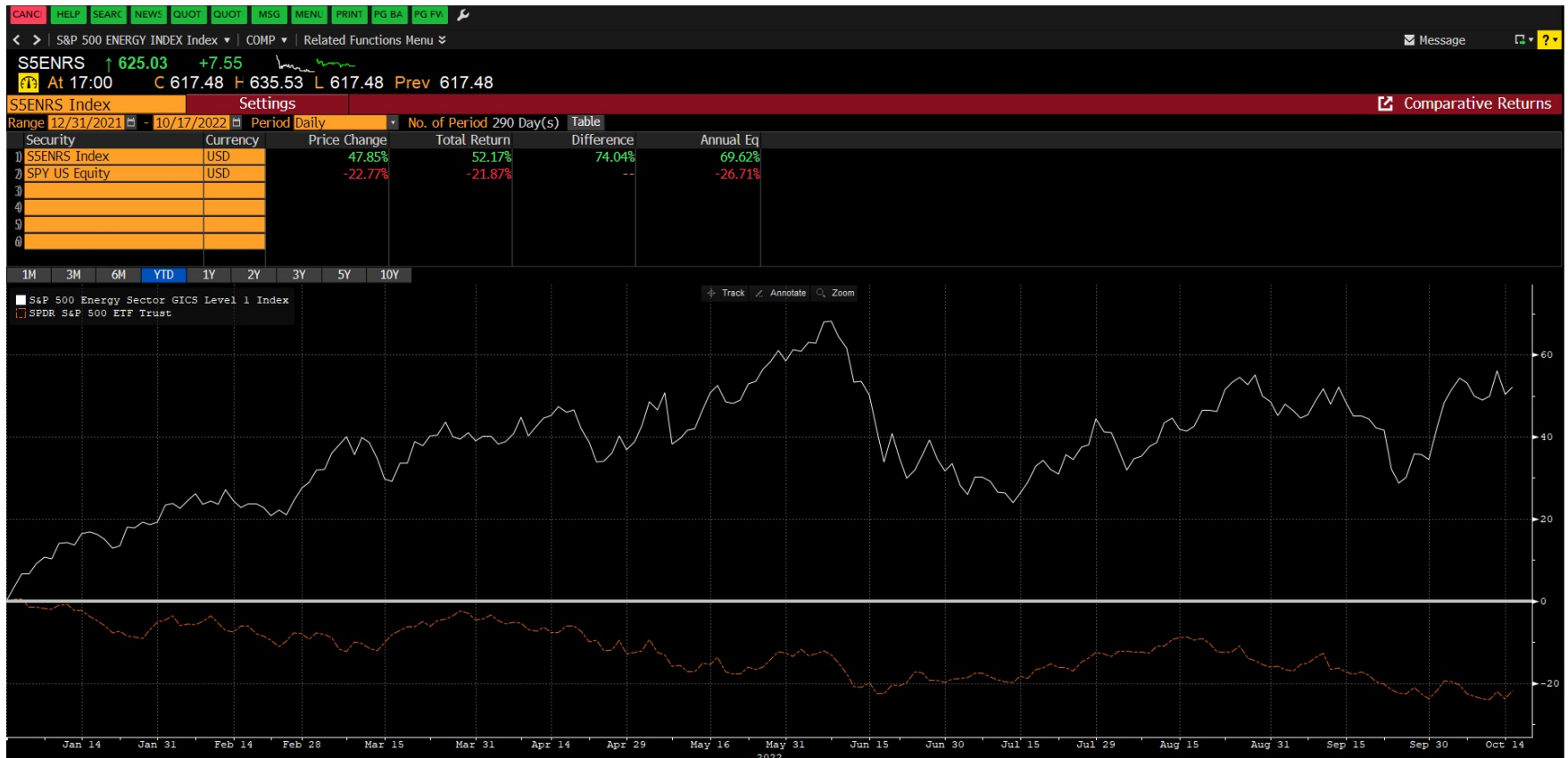
➤ Oil prices and energy equities are highly correlated... or are they?

Economic Analysis - S5ENRS Versus SPY ETF (Five-Year)



➤ Over the past five years, energy and the S&P 500 have been trading nearly in tandem

Economic Analysis - S5ENRS Versus SPY ETF (YTD)



- Year-to-Date S&P Return: **-21.87%**
- Year-to-Date S5ENRS Return: **52.17%**
- One-Year S&P Return: **-16.48%**
- One-Year S5ENRS Return: **49.53%**

Economic Analysis - Our Stocks Versus WTI Crude Oil



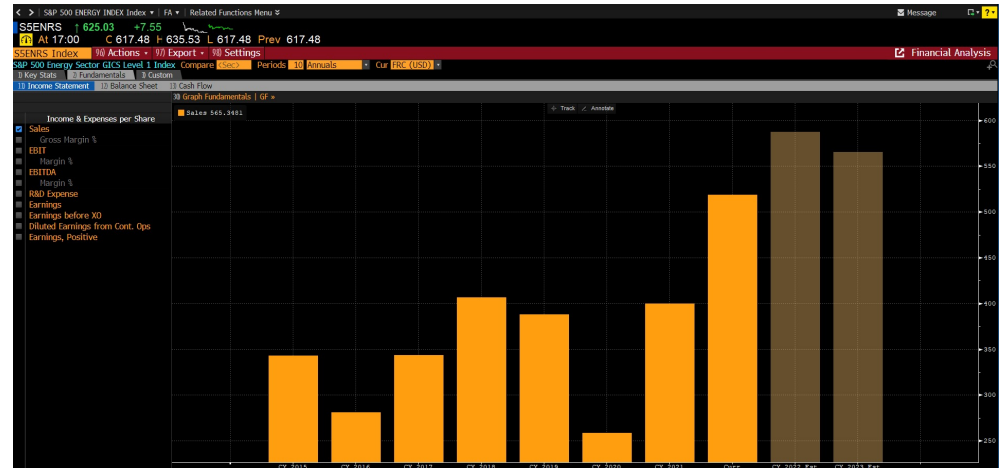


Financial Analysis

Financial Analysis - Industry Sales Analysis

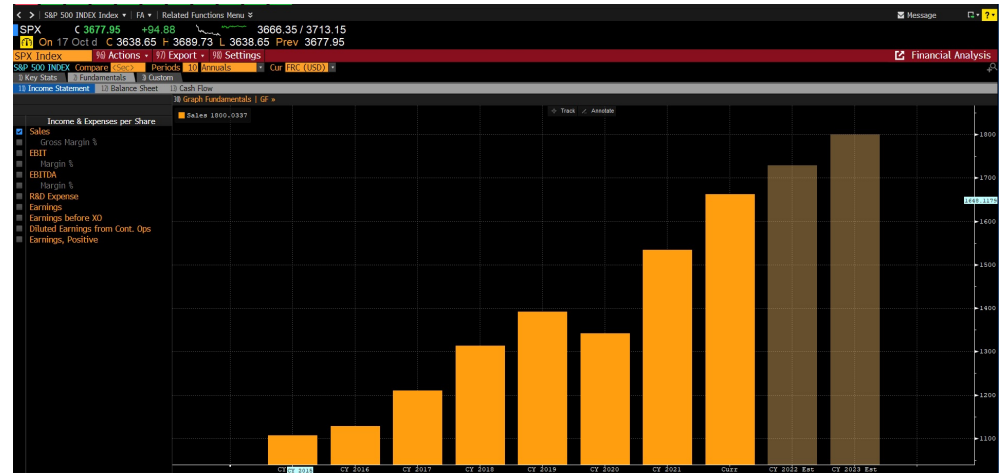
S5ENRS

- I. TTM Sales per Share: \$518.88
- II. Five-Year CAGR: 3.08%



SPX

- I. TTM Sales per Share: \$1,662.09
- II. Five-Year CAGR: 4.86%



Financial Analysis - Industry Versus SPX Margin Analysis

SPX Margin Analysis:

	2018A	2019A	2020A	2021A	LTM	2022E	2023E
Gross Margin	34.04%	33.45%	33.34%	35.27%	34.42%		
Operating Margin	13.31	13.09	9.48	16.20	15.04		
Profit Margin	12.23	9.45	7.36	13.10	11.70		
Return on Assets	3.37	3.06	2.10	4.10	3.91	5.66	4.10
Return on Equity	15.88	14.83	10.78	20.62	19.48	22.27	21.88

S5ENRS Margin Analysis:

	2018A	2019A	2020A	2021A	LTM	2022E	2023E
Gross Margin	15.91%	12.64%	4.64%	16.03%	19.30%	N/A	N/A
Operating Margin	9.27	2.55	(19.85)	9.34	13.98	N/A	N/A
Profit Margin	7.35	1.49	(17.67)	8.18	11.34	N/A	N/A
Return on Assets	5.08	0.93	(8.77)	6.18	10.54	14.09	10.31
Return on Equity	10.33	1.99	(20.92)	14.22	23.65	27.62	20.33



Valuation Analysis

Valuation Analysis - Industry Versus SPX Multiples Analysis

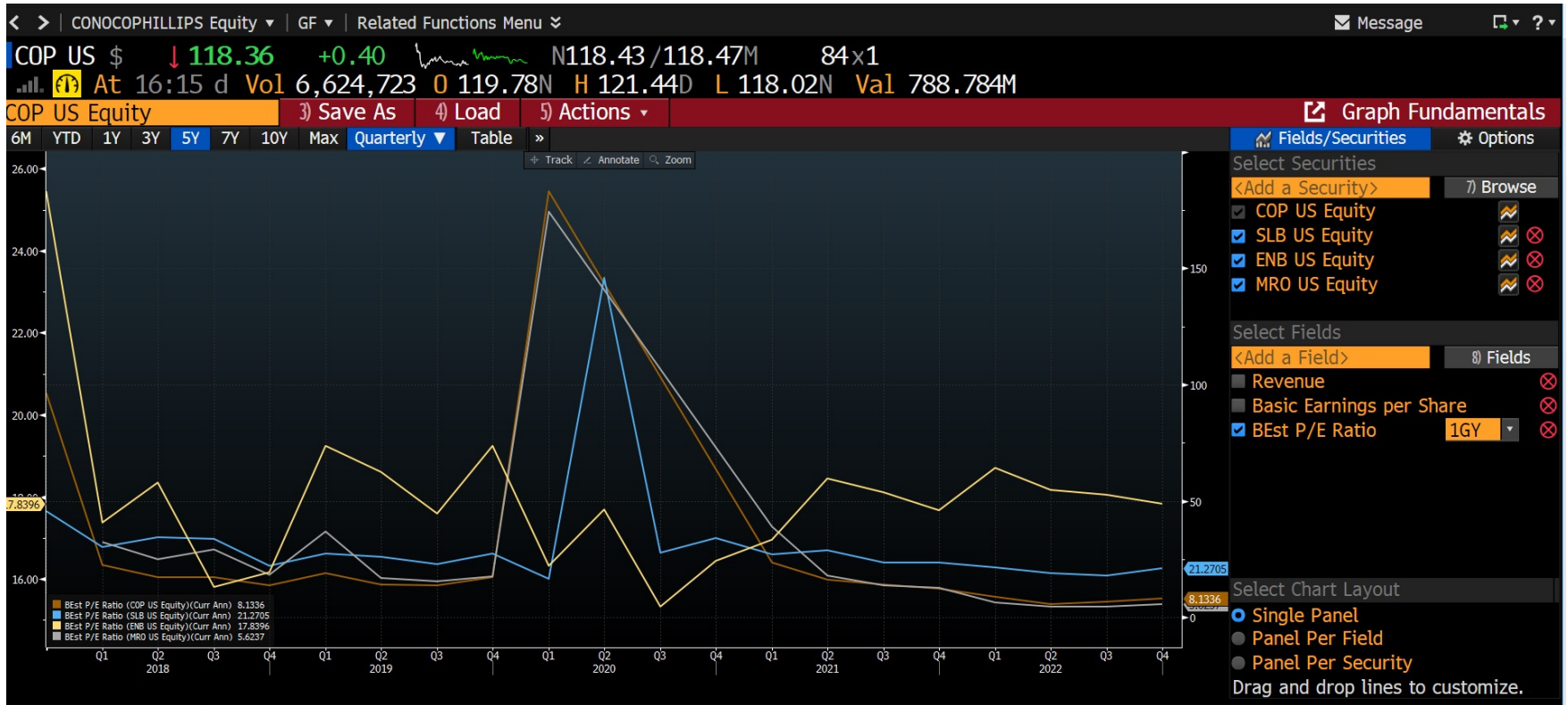
SPX Multiples Analysis:

	2018A	2019A	2020A	2021A	LTM	2022E	2023E
P/E	16.64x	20.85x	30.41	24.75x	18.04x	16.43x	15.21x
P/B	2.96	3.48	3.97	4.77	3.69	3.47	3.15
EV/Sales	2.25	2.77	3.26	3.44	2.48	2.39	2.29
EV/EBIT	16.80	20.12	33.25	20.91	16.38		
EV/EBITDA	11.86	13.43	19.51	16.22	12.19	11.08	10.55
Div. Yield	2.15	1.82	1.57	1.27	1.80	1.79	1.92

S5ENRS Multiples Analysis:

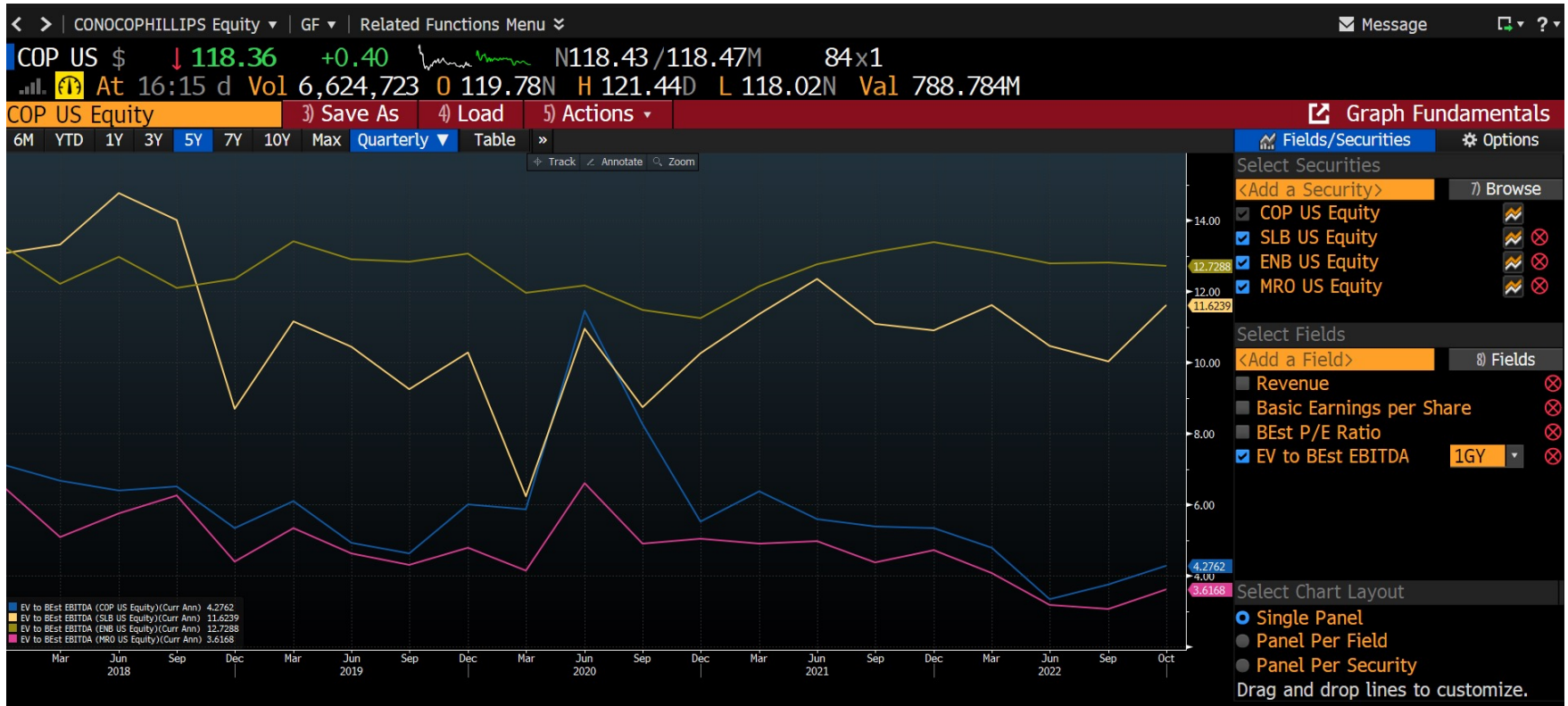
	2018A	2019A	2020A	2021A	LTM	2022E	2023E
P/E	14.47x	15.74x	-	13.39x	10.36x	8.00x	8.93x
P/B	1.50	1.66	1.35	1.81	2.45	2.31	2.06
EV/Sales	1.34	1.55	1.71	1.37	1.38	1.22	1.26
EV/EBIT	14.87	60.54	-	14.61	9.84		
EV/EBITDA	7.52	11.28	-	7.74	6.76	4.80	5.24
Div. Yield	3.68	3.82	5.85	4.27	3.87	3.07	3.30

Valuation Analysis – Oil & Gas Multiples (P/E)



- Upstream: Conoco Phillips in orange
- Midstream: Enbridge in yellow
- Downstream: Marathon Oil in grey
- Energy Services: Schlumberger in blue

Valuation Analysis – Oil & Gas Multiples (EV/EBITDA)



- Upstream: Conoco Phillips in blue
- Midstream: Enbridge in green
- Downstream: Marathon Oil in pink
- Energy Services: Schlumberger in yellow

Valuation Analysis - Renewable Energy Multiples (P/E)



- Solar: First Solar in purple
- Storage / Auto: Tesla in gray
- Geothermal: Ormat in yellow

Valuation Analysis - Renewable Energy Multiples (EV/EBITDA)



- Solar: First Solar in green / yellow
- Storage / Auto: Tesla in pink
- Geothermal: Ormat in blue

Valuation Analysis - Technical Analysis



- Technical analysis indicates a BUYING opportunity with the 50 day moving average well above the 200 day moving average
- 50 day moving average has been above the 200 day average since YTD and has returned 52.17%

Recommendation



dreamstime.

Recommendation



Recommendation

- 1 Be OVERWEIGHT Relative to S&P 500
- 2 Portfolio is overweight 7.7% vs. 4.67% (S&P weight)



Risks

- 1 Uncertain political environment (OPEC+)
- 2 Sharp fluctuations in oil demand



Opportunities

- 1 Steady rise in oil prices
- 2 Steady global demand for crude oil & natural gas
- 3 Price floor provided by OPEC+



Conclusion

- 1 MAINTAIN the energy sector's current 7.7% weight in the SIM portfolio



ANY
QUESTIONS?

