



Changing the imperative from 'energy transition' to 'energy addition'

Aggregate energy demand will continue to increase in the coming decades, which is creating attractive investment opportunities across both the alternative energy landscape and the traditional energy value chain.

by Tyler Rosenlicht, SVP and Portfolio Manager

Key takeaways

Energy demand will continue to increase

Even as the global economy becomes more energy efficient, population and economic growth will drive increasing global energy consumption through 2040 and beyond.

Both traditional and alternative energy will play meaningful roles

Renewable energy market share is projected to double (from 17% in 2022 to 35% in 2040), but traditional energy will also see an increase in consumption, with traditional (ex-coal) volumes increasing 12% in aggregate, according to our forecasts.

Pairing traditional and alternatives creates superior investment outcomes

The energy industry is changing dramatically, with new technologies coming to market, old technologies facing obsolescence, and companies reacting to significant disruption. The old definition of energy is now obsolete.

Working together

Energy resources	
Traditional	Alternatives
<ul style="list-style-type: none"> • Biomass • Coal • Crude oil • Natural gas 	<ul style="list-style-type: none"> • Hydrogen • Nuclear • Solar • Wind • Other clean forms of energy

Conversations surrounding the world’s energy resources have become exceptionally controversial. Global consumers have a desire for clean, cheap, on-demand energy to fuel growth—and energy markets will get there one day—just later than many pundits expect, in our view.

The expectation that renewables, such as wind and solar, are ready to fully meet the world’s rising energy demands on their own is premature at this stage. At the same time, the demise of traditional, carbon-intensive energy, such as crude oil and natural gas, has been greatly exaggerated.

Renewable energy—thanks to technology and policy support, such as the recently enacted Inflation Reduction Act (IRA) in the U.S.—has taken center stage and will be the key growth driver going forward. Yet, we believe traditional energy sources will continue to dominate market share over the next 20 years given the benefits of in-place infrastructure and reliability of these assets (Exhibit 1).

EXHIBIT 1

Balancing the energy transition

Both traditional and renewable energy will play key roles looking 20 years into the future

	Fossil fuels	Solar and wind energy
Carbon-free generation	✗	✓
Reliability/predictability	✓	✗
Zero fuel costs	✗	✓
Land efficient	✓	✗
Political support	✗	✓
Available electric transmission	✓	✗

At September 30, 2023. Source: Cohen & Steers analysis.

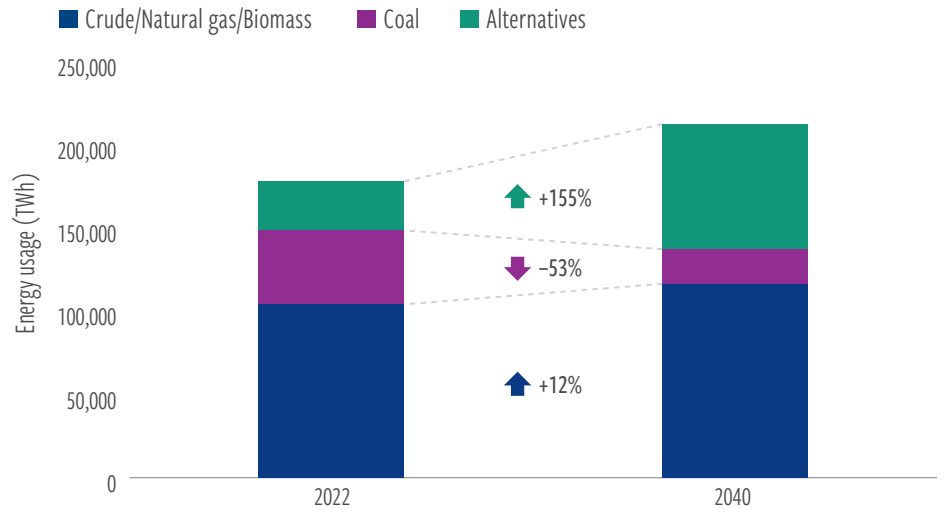
There is no guarantee that any market forecast set forth in this presentation will be realized. There is no guarantee that any historical trend illustrated above will be repeated in the future, and there is no way to predict precisely when such a trend might begin.

Global energy consumption is set to reach unprecedented levels in the coming years, driven by a global population that is growing in size and prosperity. The world needs both alternative and traditional energy to meet this demand (Exhibit 2), and we believe this will create attractive investment opportunities on both sides.

EXHIBIT 2

Traditional energy will continue to satisfy the bulk of energy needs, while alternatives will see staggering growth

Alternatives to more than double by 2040



At June 30, 2023. Source: Energy Institute Statistical Review of World Energy (2023); Vaclav Smil (2017), Our World in Data, Cohen & Steers estimates. There is no guarantee that any market forecast set forth in this presentation will be realized. There is no guarantee that any historical trend illustrated above will be repeated in the future, and there is no way to predict precisely when such a trend might begin.

For the market to satisfy growth requirements and offset desired declines in “dirtier” sources of energy, such as coal, it must continue to complement alternative energy with selected traditional energy sources. In fact, it is our belief that traditional energy will still need to make up ~65% of total energy usage in 2040.

To be clear, the marketplace cannot and will not be dependent on one energy source or the other. With the exception of coal, we are in a “more of everything” world for the next few decades.

The drivers of energy demand

Energy demand can be modeled by making three key assumptions:

1. Population growth → more people = more demand for energy, all else equal
2. Economic growth → bigger economy = more demand for energy, all else equal
3. Energy intensity of the future economy → This is a complicated topic. New energy technologies are typically more efficient, meaning the economy can grow with less energy inputs required. But this can also be influenced by trends in OECD vs. non-OECD (Organisation for Economic Co-operation and Development) countries and macro factors such as shifts in consumption from goods to services, etc.

Simply put, wealthier countries and more service-oriented economies generally consume more energy than less wealthy and more goods-driven economies.

Population growth

Our macroeconomic forecasts assume a deceleration in global population growth from an average of 1.2% in the last two decades to an average of 0.8% in the next two decades, but this still results in the global population increasing from 7.9 billion people in 2022 to 9.1 billion people in 2040. All else equal, more people equals more energy demand.

Economic growth

We also forecast a deceleration in global real GDP growth. From 2000 to 2021, the world enjoyed 2.9% average GDP growth, which we believe will decline to 2.5% through 2040. Though growth is slowing, the real economy will continue to rise, again requiring more energy.

Energy intensity

Looking into the future, the amount of energy needed will be vast. Perhaps the most important factor in our ability to meet this need will be the energy intensity of economic growth. "Energy intensity" is a measure of efficiency—in this case, the amount of energy required to generate a given unit of economic output.

The energy intensity of the future global economy is the most difficult to predict, as it requires assumptions on new technologies, trade patterns, geopolitical and socioeconomic trends, and myriad other factors. That said, we do hold two core beliefs—(1) the global economy has become more energy efficient in the last two decades, and (2) new technologies and higher prices for traditional energy will accelerate the efficiency gains moving forward (Exhibit 3).

Plainly put, we will become more energy efficient globally and we see investment in technologies that accelerate these shifts as particularly interesting. In real numbers, the global economy saw energy intensity decline by -1.1% annually in the last two decades, and we believe this will accelerate to -1.5% per year looking ahead.

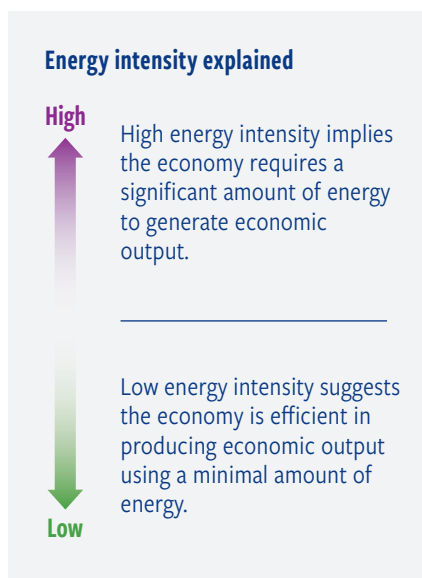
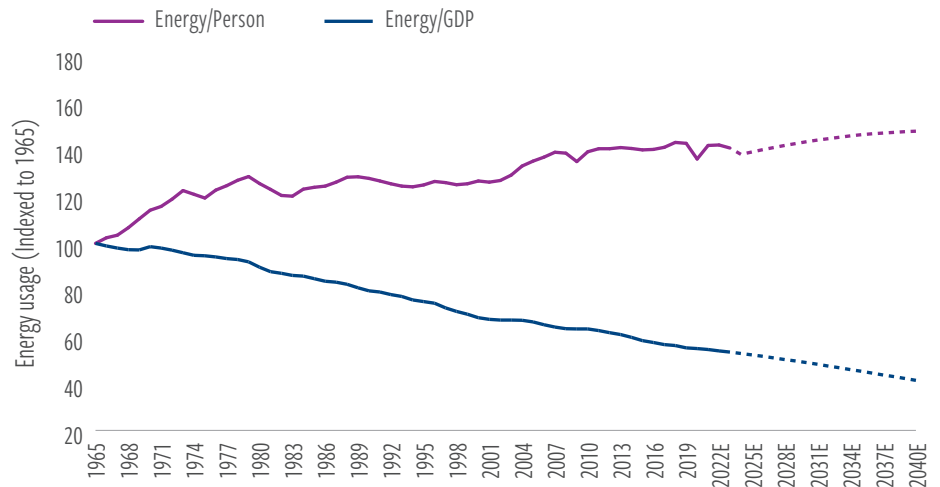


EXHIBIT 3

Energy intensity continues to improve

In global terms, and looking through the lens of a 75-year timeframe, energy efficiency continues to come down even as per-person consumption rises. And we expect this to accelerate.



At December 31, 2021. Source: Bloomberg, Energy Institute Statistical Review of World Energy (2023); Vaclav Smil (2017), Our World in Data, Cohen & Steers estimates.

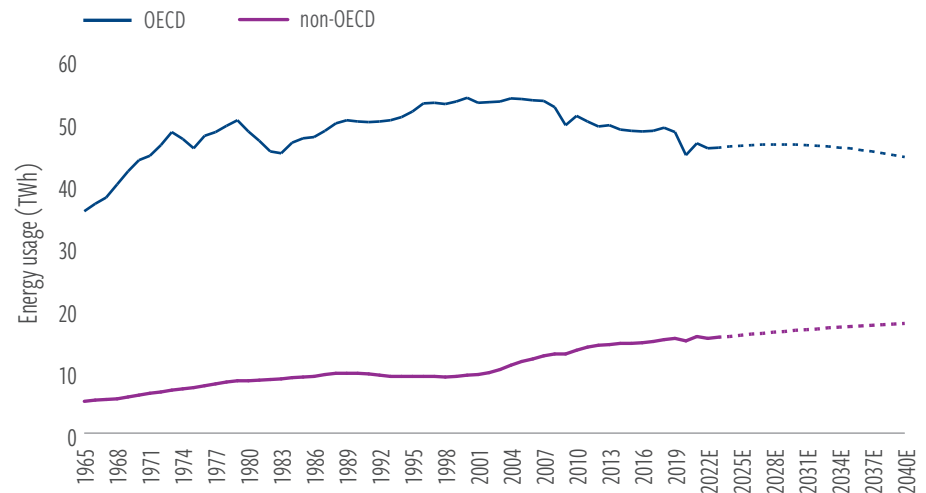
There is no guarantee that any market forecast or investment objective set forth in this presentation will be realized. There is no guarantee that any historical trend illustrated above will be repeated in the future, and there is no way to predict precisely when such a trend might begin.

However, as the emerging markets become wealthier, we expect the energy gap between OECD and non-OECD markets to compress, driving an absolute increase in demand (Exhibit 4). OECD per-person consumption should decline while non-OECD rises, but we still expect to see a wide gap.

EXHIBIT 4

We expect narrowing of the energy gap between OECD and non-OECD countries to occur

Energy consumption of non-OECD countries is rising quickly



At December 31, 2021. Source: Bloomberg, Energy Institute Statistical Review of World Energy (2023); Vaclav Smil (2017), Our World in Data, Cohen & Steers estimates.

There is no guarantee that any market forecast or investment objective set forth in this presentation will be realized. There is no guarantee that any historical trend illustrated above will be repeated in the future, and there is no way to predict precisely when such a trend might begin. Energy Usage is calculated by total TWh / (population/1,000,000).

One simple example of why energy intensity is declining is CAFE (Corporate Average Fuel Economy) Standards. These standards are regulations set by governments to improve the fuel efficiency of vehicles, primarily automobiles. These standards aim to reduce the average fuel consumption and greenhouse gas emissions of a manufacturer's fleet of vehicles. As the global auto fleet becomes more efficient, energy intensity declines.

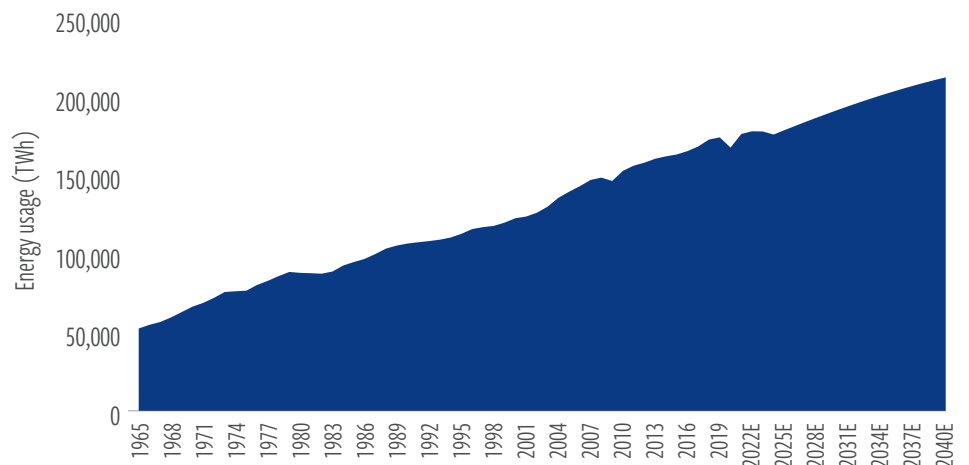
Putting the demand picture together

The preceding methodology leads to one clear conclusion: Even as the world becomes more energy efficient, the absolute demand for energy will continue to rise for at least the next two decades (and likely well beyond). Our assumptions result in an aggregate demand increase of ~20%, or 1% per year. In physical terms, we foresee energy demand climbing to about 213,000 terawatt-hours (TWh) in that timeframe, markedly higher than 2022's usage of roughly 178,000 TWh (Exhibit 5).

EXHIBIT 5

The demand for energy is rising steadily

Annual usage is set to eclipse 200,000 TWh by early 2030s



At December 31, 2021. Source: Energy Institute Statistical Review of World Energy (2023); Vaclav Smil (2017), Our World in Data, Cohen & Steers estimates. There is no guarantee that any market forecast or investment objective set forth in this presentation will be realized. There is no guarantee that any historical trend illustrated above will be repeated in the future, and there is no way to predict precisely when such a trend might begin.

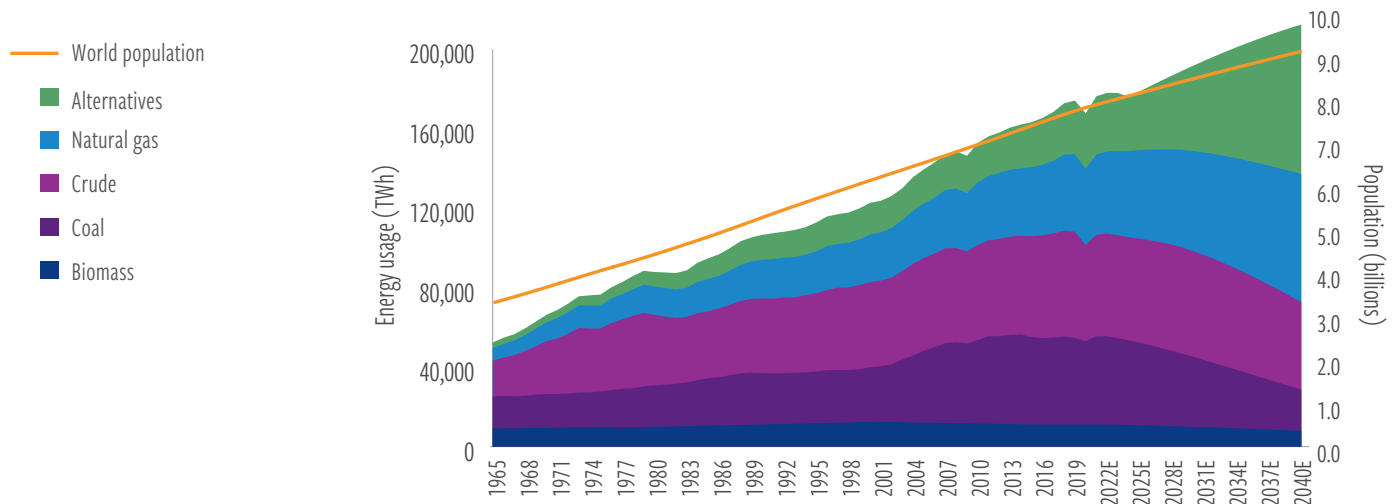
Our supply forecasts: How to satisfy the growing demand for energy

Despite the emergence of renewable resources, the demand for traditional energy will also increase meaningfully in the coming years to satisfy the growth in energy consumption (Exhibit 6).

EXHIBIT 6

The supply side of energy consumption will undergo marked changes in the coming two decades

We believe alternative energy will see significant market share gains



At December 31, 2021. Source: Bloomberg, Energy Institute Statistical Review of World Energy (2023); Vaclav Smil (2017), Our World in Data, Cohen & Steers estimates. The views and opinions are as of the date of publication and are subject to change without notice. There is no guarantee that any market forecast set forth in this presentation will be realized.

The use of fossil fuels is under heavy scrutiny today for numerous reasons, including climate change concerns and air quality issues. We are seeing global protests surrounding investment in and usage of carbon-intensive fossil fuels—all with an eye on ushering in a new era of clean, renewable energy to fuel global growth.

Meanwhile, there are three main drivers speeding up the development of renewables:

1. **Costs.** Renewable energy costs are becoming more competitive and are expected to continue declining.
2. **Consumer preferences.** Consumers are taking environmental considerations into account, with electric vehicle growth being a prime example.
3. **Government support.** The recently enacted IRA in the U.S. and other policy approaches across the globe offer substantial support for renewable development.

As we look to the future, we believe the global energy markets can reach a place where: (1) biomass and coal see significant declines (>50%); (2) crude oil demand grows through the 2020s, then plateaus and declines during the 2030s; and (3) all future growth comes from natural gas, nuclear and renewables such as wind, solar and hydrogen (Exhibit 7).

EXHIBIT 7

The energy transition is occurring, albeit at a more moderate pace than many expect
 Natural gas and renewables will likely benefit the most

Energy consumption growth/
 decline by source
 (TWh annualized)



Biomass



Coal



Crude



Natural gas



Renewables

	Biomass	Coal	Crude	Natural gas	Renewables
1965–2021	0.35%	1.83%	1.88%	3.37%	4.24%
2000–2021	-0.56%	2.33%	0.85%	2.51%	2.94%
2021–2040E	-1.75%	-3.92%	-0.79%	2.50%	5.09%

At June 30, 2023. Source: Our World in Data, Bloomberg and Cohen & Steers estimates.
 The views and opinions are as of the date of publication and are subject to change without notice. There is no guarantee that any market forecast set forth in this presentation will be realized.

We take a bottom-up view when we forecast crude oil demand and believe it will be difficult to substitute for it quickly. As an example, Exxon Mobil recently estimated that if all car sales from today were electric vehicles, demand for liquid forms of energy would remain near 2010 levels into 2050. “Alternatively, a slowdown in fuel efficiency improvement of internal combustion engines could increase fuel demand by almost 3 million barrels per day by 2050.” (Source: Exxon Mobil global outlook, published September 2023)

We believe natural gas represents a key bridge fuel as the world pursues the energy addition path. Natural gas has seen significant growth since 2000 and we see global markets continuing to invest in the critical infrastructure required to maintain this growth rate path through 2040. Importantly, natural gas emits approximately -50% less CO2 than coal-fired generation. This transition from coal to natural gas is a step in the right direction for the world’s decarbonization efforts.

We estimate renewables must boost energy output by about 45,000 TWh – from today’s count of 30,000 TWh to 2040’s predicted need of 75,000 TWh. To put this into perspective, 45,000 TWh is nearly the equivalent to the entire oil industry, which stands at 51,200 TWh today. But with capital, technology and incentives, we believe this scenario is achievable and desirable relative to the status quo. To be clear, this will not be enough to achieve Net Zero goals — but it represents an outcome that is possible.

Supply growth needs to evolve

World economies are making progress on growing energy supply, but much work still needs to be done.

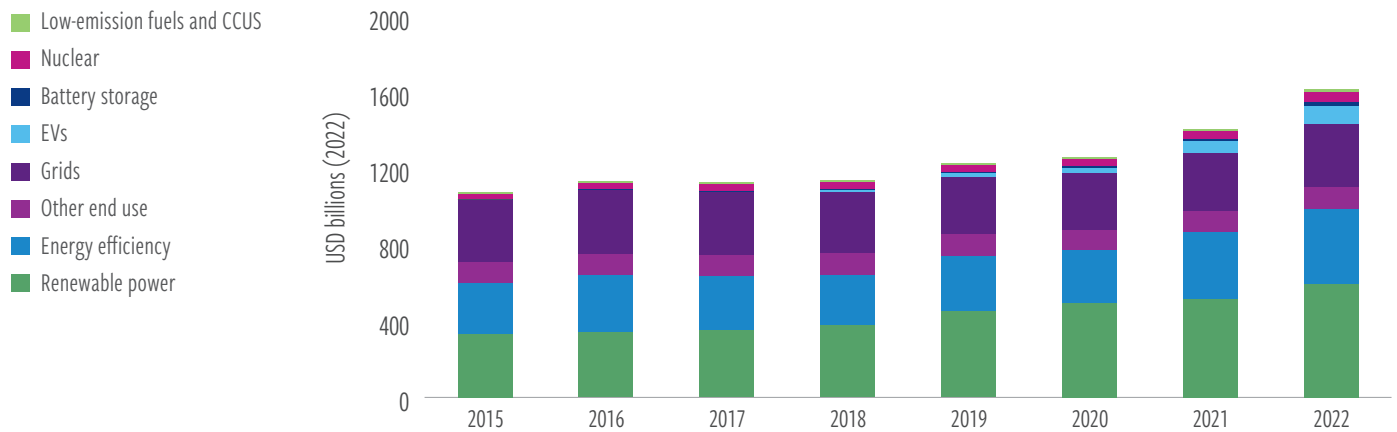
In fact, between 2015-2022, the global economy invested \$1.25 trillion per year in alternative energy capex to produce approximately 1,000 TWh per year (Exhibit 8).

This needs to accelerate to approximately 2,600 TWh per year moving forward if we are to meet expected demand.

EXHIBIT 8

Renewable energy spending is rising

Investments in renewable power, battery storage and energy efficiency are drivers of spending



At May 31, 2023. Source: International Energy Agency

The views and opinions are as of the date of publication and are subject to change without notice. There is no guarantee that any market forecast set forth in this presentation will be realized.

World of energy addition, not replacement

If the industry is to meet energy demand by 2040, record investments in energy must be made. Plainly put, the marketplace needs all the reliable—and, ideally, clean—energy sources it can summon.

Technological advances must (and will) occur for alternative energy to be heavily relied upon, but it will take time. For example, energy produced by wind or solar cannot be stored for long periods of time due to limitations in battery storage technology, and production at any given moment is dependent on weather patterns. Conversely, one of the benefits of traditional resources, such as crude oil, is that they can be stored, transported and utilized on demand.

Further, a change in narrative is taking place as renewed attention is levied on domestic energy security, given the rise in geopolitical uncertainty and post Russia's invasion of Ukraine. The need for dependable energy has never been more critical.

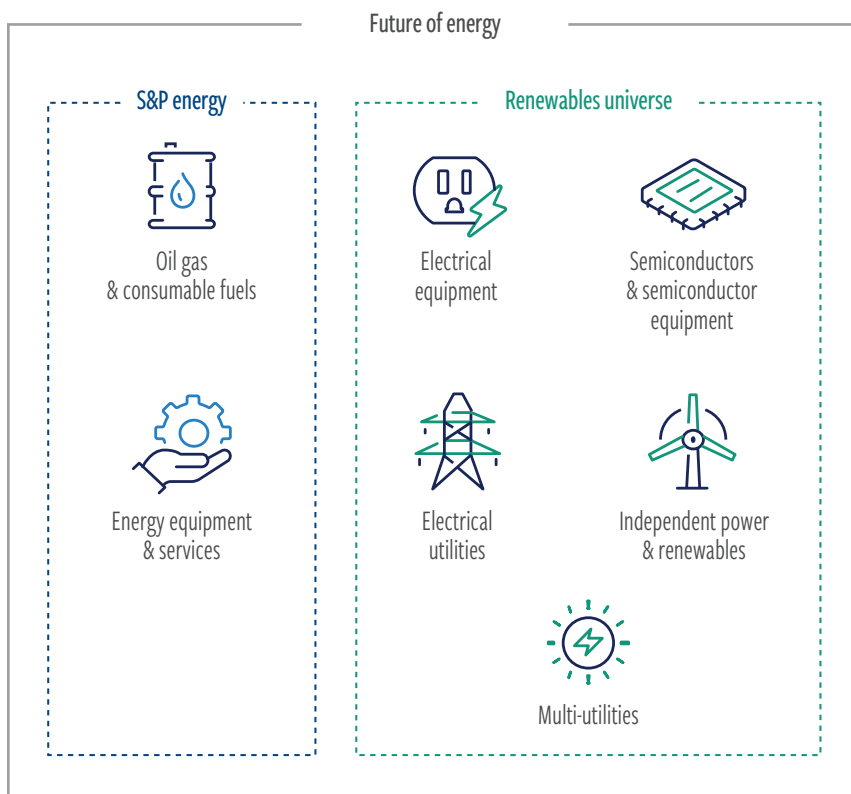
Investing in the overall energy picture

Looking ahead, we see attractive opportunities across the energy value chain in both traditional and alternative energy. However most passive investment strategies, and many active ones, take a zero-sum view, and limit their investment universes to either traditional energy companies, or new renewables opportunities. We believe this is suboptimal and the definition of 'energy' needs to be expanded. As seen in Exhibit 9, the MSCI GICS (Global Industry Classification Standard) segment the energy universe in a way that is not representative of where global energy markets are going (Exhibit 9).

EXHIBIT 9

How MSCI GICS classifications segment the future of energy

Companies participating in the future of energy come from a broad array of GICS sectors



Further, the line between clean and so-called “dirty” companies has blurred in recent years. Large, fossil-based companies are investing billions of dollars in research and development of cleaner energy forms. This includes lower-carbon hydrogen, carbon capture and storage and renewable facility investments by the world’s leading integrated energy companies.

Limited access to capital for conventional energy and a rising cost of capital will continue to constrain investment in traditional resources. This should lead to continued focus on capital efficiency and return on capital employed for businesses in the crude oil and natural gas value chain, which may lead to strong investment performance as the cycle continues.

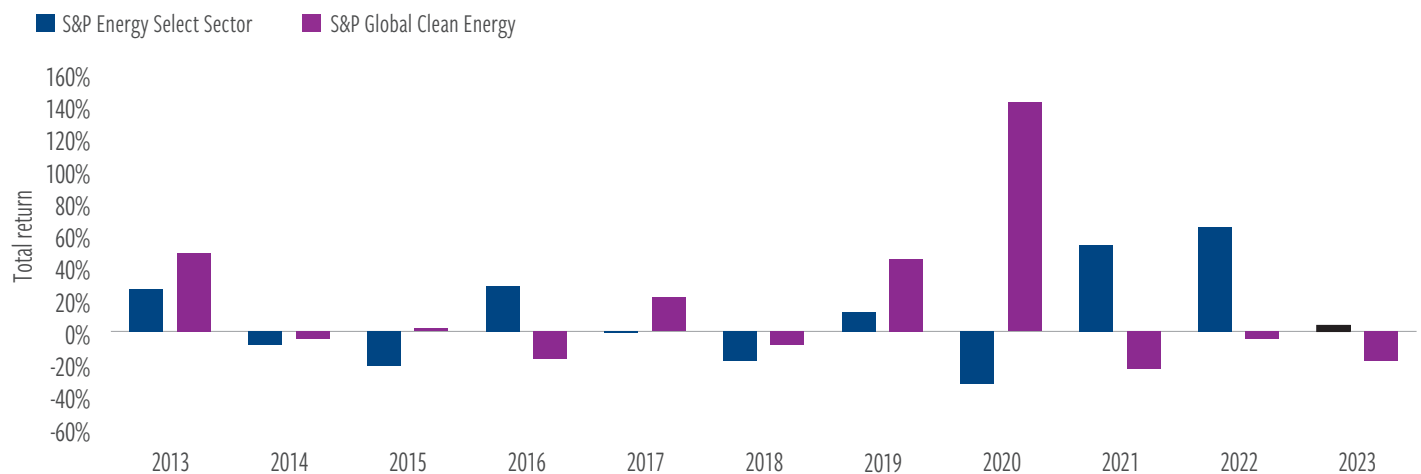
Traditional energy companies' woeful stock performance during 2014-2020, which was driven by poor capital allocation and value destruction, alienated investors. And the volatility of many renewable investments has left many with a 'proceed-with-caution' mindset. However, disruption is afoot. Amid attractive valuations, improving fundamentals, better capital allocation and disruptive change, we believe active managers can provide superior returns to investors. And the opportunity is especially timely, given that many investors are under-allocated to energy today.

As seen in Exhibit 10, traditional and alternative energy have unique and differentiated performance profiles. Since 2013, and including the year to date period, these two sectors have performed inversely (traditional up / alternative down and vice versa) in 7 of 11 periods. We believe combining the two helps to smooth volatility and will create superior risk adjusted returns going forward. Dynamic structural change is accelerating in this new energy landscape. The menu of choices for investments continues to broaden which enhances the return opportunity and potential for alpha, particularly for active managers adept at managing through disruption.

EXHIBIT 10

Traditional and alternative energy have experienced divergence in performance profiles

Blending traditional with alternative gives full access to the energy industry



At August 31, 2023. Source: Morningstar.

The views and opinions are as of the date of publication and are subject to change without notice. There is no guarantee that any market forecast set forth in this presentation will be realized.

The complementary performance profile of traditional energy and alternative investments, when combined, creates attractive risk return profiles for investors. We analyzed an illustrative blend of index performance representative of how we believe the global energy composition will look in 2033 (70% traditional / 30% alternative). This starting point delivered better returns at lower volatility with lower drawdowns than an investment in traditional energy alone.

An illustrative blend of indices offers attractive risk/return profile

Jan 2013–Aug 2023	Annualized return	Annualized volatility (std. dev.)	Max drawdown
S&P Energy Select Sector	6.0%	29.1%	-63.9%
70/30 (Traditional/Alternative) Split	8.3%	24.2%	-50.4%

At August 31, 2023. Source: Morningstar.

Data quoted represents past performance, which is no guarantee of future results. The information presented above does not reflect the performance of any fund or other account managed or serviced by Cohen & Steers, and there is no guarantee that investors will experience the type of performance reflected above. Return reflects compound annualized return. The blended performance is not representative of an actual portfolio and is for illustrative purposes only. 70/30 portfolio composed of 70% traditional energy (represented by S&P Energy Select Sector Index) and 30% alternative energy (represented by S&P Global Clean Energy Index).

In our view, investors should be taking a much closer look at the energy sector, but must do so with a wider aperture that recognizes the new energy world. Taking this action will help optimize portfolios and generate superior investment outcomes.

About the author

Tyler Rosenlicht, Senior Vice President, is a portfolio manager for Global Listed Infrastructure and serves as Head of Natural Resource Equities. Prior to joining the firm in 2012, Mr. Rosenlicht was an investment banking associate with Keefe, Bruyette & Woods and an investment banking analyst with Wachovia Securities. Mr. Rosenlicht has a BA from the University of Richmond and an MBA from Georgetown University. He is based in New York.



Index Definitions and important disclosures

Data quoted represents past performance, which is no guarantee of future results. This material is for informational purposes and reflects prevailing conditions and our judgment as of this date, which are subject to change. There is no guarantee that any market forecast set forth in this presentation will be realized. This material represents an assessment of the market environment at a specific point in time and should not be relied upon as investment advice, does not constitute a recommendation to buy or sell a security or other investment and is not intended to predict or depict performance of any investment.

This material is not being provided in a fiduciary capacity and is not intended to recommend any investment policy or investment strategy or take into account the specific objectives or circumstances of any investor. We consider the information in this presentation to be accurate, but we do not represent that it is complete or should be relied upon as the sole source of appropriateness for investment. Please consult with your investment, tax or legal professional regarding your individual circumstances prior to investing. Important risk considerations. There are several specific risks associated with investments in the energy sector, including: commodity price risk, depletion risk, supply and demand risk, regulatory risk, political risk, acquisition risk, weather risks, exploration risk, catastrophic-event risk, interest-rate transaction risk, affiliated-party risk and limited partner risk.

S&P Energy Sector Index seeks to provide a representation of the energy sector of the S&P 500 Index. The Index includes companies from the following industries: oil, gas and consumable fuels; and energy equipment and services.

S&P Global Clean Energy Index measures the performance of 30 largest companies in global clean energy related businesses from both developed and emerging markets.

Risks of Investing in Energy:

Investing involves risk, including entire loss of capital invested. There can be no assurance that the investment strategy will meet its investment objectives. Diversification is not guaranteed to ensure a profit or protect against loss. The portfolio will be subject to more risks related to the energy sector than if the portfolio were more broadly diversified over numerous sectors of the economy. A downturn in the energy sector of the economy could have a larger impact on the portfolio than on an investment company that does not concentrate in the sector. Investments within the energy industry may be highly volatile due to significant fluctuation in the prices of energy commodities as well as political and regulatory developments.

Cohen & Steers Capital Management, Inc. (Cohen & Steers) is a U.S. registered investment advisory firm that provides investment management services to corporate retirement, public and union retirement plans, endowments, foundations and mutual funds. **Cohen & Steers U.S.** registered open-end funds are distributed by **Cohen & Steers Securities, LLC** and are only available to U.S. residents. **Cohen & Steers Asia Limited** is authorized and regulated by the Securities and Futures Commission of Hong Kong (ALZ367). **Cohen & Steers Japan Limited** is a registered financial instruments operator (investment advisory and agency business and discretionary investment management business with the Financial Services Agency of Japan and the Kanto Local Finance Bureau No. 3157) and is a member of the Japan Investment Advisers Association. **Cohen & Steers UK Limited** is authorized and regulated by the Financial Conduct Authority (FRN458459). **Cohen & Steers Ireland Limited** is regulated by the Central Bank of Ireland (No.C188319).

For recipients in the Middle East: This document is for informational purposes only. It does not constitute or form part of any marketing initiative, any offer to issue or sell, or any solicitation of any offer to subscribe or purchase, any products, strategies or other services, nor shall it or the fact of its distribution form the basis of, or be relied on in connection with, any contract resulting therefrom. In the event that the recipient of this document wishes to receive further information with regard to any products, strategies or other services, it shall specifically request the same in writing from us.

Publication Date: **October 2023**. Copyright © 2023 Cohen & Steers, Inc. All rights reserved.