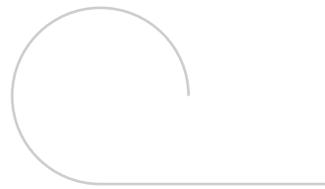
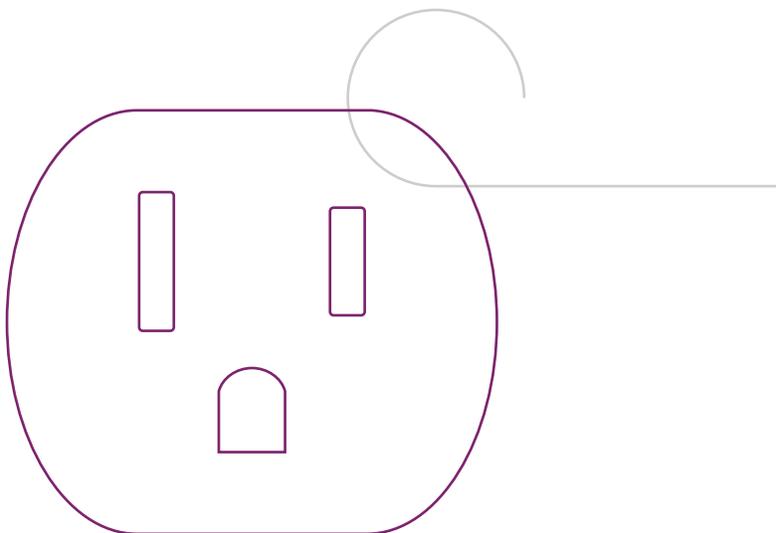
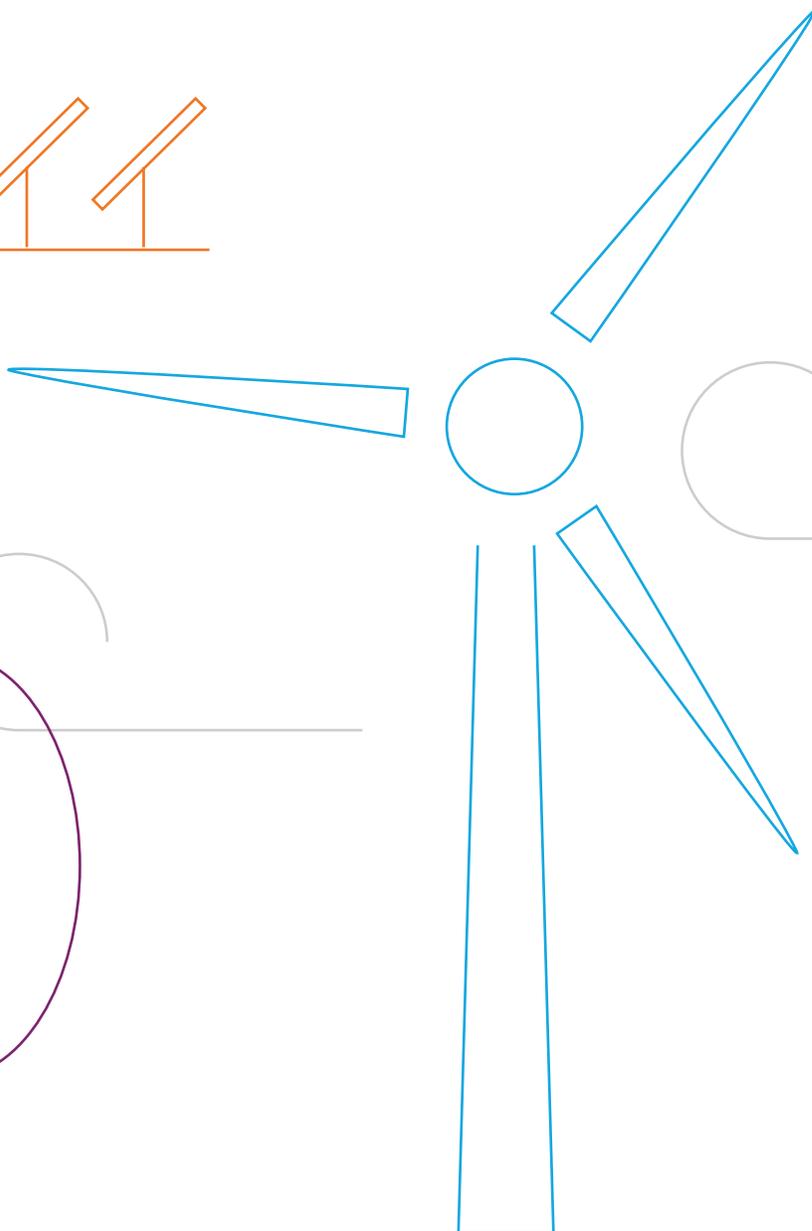
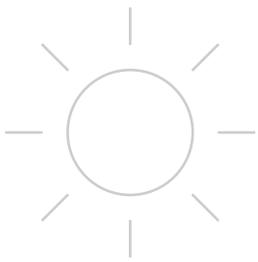


Industry Insights From
Morningstar® Indexes

Investing in the Future of Energy:

A unique index harnessing
the secular shift
toward renewable energy



Efforts to combat climate change are taking on greater urgency. According to the United Nations Intergovernmental Panel on Climate Change, renewable energy sources must supply 70%-85% of electricity needs by 2050—that is, if the global temperature increase is to be limited to 1.5 degrees Celsius over preindustrial levels and the direst consequences of climate change are to be averted.

With strong encouragement from governments, renewable energy represents an area of tremendous innovation. Top-down government mandates have catalyzed renewable energy development at the expense investment in nonrenewable energy sources like coal, petroleum, natural gas, and uranium. For example, Germany now produces more electricity from renewable energy sources than coal and nuclear power combined—48% of the country’s electricity generation is now supplied from renewable energies, up from 18% just a decade ago.¹ Furthermore, Norway’s \$1-trillion sovereign wealth fund, the largest in the world², announced in early 2019 that it would close out all investments in firms that pursue oil and gas exploration, except for those that also offer renewable-energy operations like BP and Shell. The nation’s parliament voted in favor of a \$13-billion divestiture of oil, gas, and coal investments while simultaneously allowing for up to \$20 billion of investments in renewable energy projects and companies. This follows a nearly \$7-billion divestment of coal-related investments back in 2015. Norway’s Minister of Finance, Siv Jensen, indicated that the shift is not policy-driven but rather strategic from an investment standpoint. It aims to reduce the fund’s exposure to the historically high volatility associated with fossil fuel-related investments and provides exposure to the secular growth story for renewable energy.

¹ Fraunhofer Society

² Sovereign Wealth Fund Institute

Pertaining to the risks associated with a reliance on fossil fuels, the World Bank’s *The Changing Wealth of Nations 2018*³ white paper noted:

³ World Bank

“Carbon wealth is becoming increasingly risky because of price uncertainty. Furthermore, large-scale attempts at global decarbonization may diminish the value of carbon assets and undermine traditional development pathways for carbon-rich nations. . . . Significant cost reductions in alternative energy technologies—such as solar and wind power—may soon begin to undercut the costs of extracting oil, gas, and coal, thus leading to potential reductions in fossil fuel consumption.”

Without the presence of generous government subsidies, the elevated capital costs associated with building out renewable-energy capacity have, indeed, been a limiting factor for development. However, this dynamic has begun to shift in recent years. As noted in a recent *Financial Times* article titled “Renewable energy is good money, not just good for the earth”:

“The reason why wind and solar energy pose such a threat to the energy system established over the past 100 years is simple: they have a short-run marginal cost of zero. In other words, when the wind blows and the sun shines, the energy itself arrives for free. Nearly all the costs of wind and solar energy are in the infrastructure required to capture it, and these capital costs have been

plummeting over the past five years. The same is not true for oil and gas, so those sectors will eventually have to recognise that the economics of renewables are becoming irresistible.”⁴

⁴ Financial Times

Morningstar’s equity research analysts expect that capital costs for renewable-energy capacity will continue to decline in the coming years, making the value proposition for renewable energy more attractive going forward. For example, by 2040, Bloomberg New Energy Finance (BNEF) forecasts that offshore wind power’s levelized cost of energy will fall 71% from 2017 levels⁵ and onshore wind’s by 47%. This points to unit costs well below current European power prices. From a capital cost perspective, we’d still expect renewable energy to gain significant ground on non-renewable energy in the years to come.

⁵ Bloomberg New Energy Finance

The Morningstar North America Renewable Energy Index provides an attractive solution whether an investor’s call to action is inspired by the perception of an attractive risk-reward proposition, or simply by a desire to engage in responsible investing. The growing adoption of renewable energy represents a seismic shift to how companies conduct business and the proportion of investors sensitive to environmental concerns continues to increase around the globe. The Morningstar North America Renewable Energy Index sits at the crossroad of these themes, providing unique exposure to the secular trend of renewable energy adoption.

Better Ways to Invest in Renewable Energy

Investors have a wide variety of investment strategies focused on renewable or clean energy. However, most of these strategies focus on individual nodes of the renewable-energy supply chain, leading to industry homogeneity across their holdings. As a result, many of these strategies can be subject to the same degree of volatility that has roiled energy indexes that are heavily leveraged to the fossil fuels in recent years.

This index reflects the notion that involvement in renewables can take many forms. Some companies operate energy-generation facilities using naturally replenished sources—the sun, wind, and water. Others offer products or services, such as wind turbines or hydrogen fuel cells, which support clean power. Then there are firms applying renewable technologies to the field of transportation (electric cars, for example). Finally, there are companies that rely on renewables to meet their own needs, thereby reducing carbon emissions.

Along these lines, the Morningstar North America Renewable Energy Index (RENW) represents a differentiated offering, providing exposure to companies that operate across the full renewable-energy supply chain. This includes renewable-energy innovators, suppliers, adopters, and end users. While staying true to the broader secular trend toward increased renewable-energy adoption, the index construction provides a wider range of sector and industry exposures than other similar offerings. In analyzing 20 similar investible strategies that are currently available to investors, it was found that each of these strategies tends to concentrate assets into very few sectors, leaving behind many sectors with no asset exposure. The Morningstar North America Renewable Energy Index, however, has at least some exposure to every economic sector as of July 2019.

The Morningstar North America Renewable Energy Index combines a cohort of companies that are leading the transition to a low-carbon economy. Constituents are either involved in the renewable energy and green-transportation fields directly, or they are significant users of clean-energy sources.

The Morningstar North America Renewable Energy Index focuses on the following research areas:

Renewable Energy

- ▶ Renewable-energy generation: Companies that own renewable energy generation facilities.
- ▶ Renewable-energy-supporting products and services: Companies that manufacture or develop tailor-made products that contribute to the building or development of renewable energy generation facilities.

Green Transportation

- ▶ Green-transportation vehicles: Companies that make purely electrically powered cars, buses, trucks, trams, and plug-in electric hybrids.
- ▶ Green-transportation technologies and equipment: Companies that provide technologies or equipment that support the manufacturing of electric cars, buses, trucks, trams, and plug-in electric hybrids.
- ▶ Green-transportation services: Companies that operate public/cargo transportation systems, focused on rail, trams, light rail, or metros/subways.
- ▶ Green-transportation infrastructure: Companies that build tracks for rail, trams, light rail, charging stations/infrastructure for electric vehicles, plug-in hybrid vehicles, and related activities.

We translate these themes into an underlying strategy via unique portfolio construction rules that leverage valuable data from Sustainalytics, a leading ESG and corporate governance research firm.

At every semiannual reconstitution, the selection universe is divided into two sleeves.

Sleeve One

This sleeve constitutes 75% of the total index weight. It includes the following:

1. Companies that derive at least 5% of their revenues from renewable energy.

Exhibit 1. **Constituent Examples: 5% of Revenue from Renewable Energy**

Company	Inclusion Criteria	Renewable Energy Exposure
TerraForm Power	100% of revenue from generation	Owns and operates solar and wind-energy resources
Innergex Renewable Energy	100% of revenue from generation	Owns and operates hydro, wind and solar-energy resources
First Solar	100% of revenue from supporting products/services	Manufactures solar panels and provides photovoltaic power plants and supporting services
Sunrun	100% of revenue from supporting products/services	Provides residential solar electricity

Revenue involvement data is sourced from Sustainalytics.

2. Companies that derive at least 10% of their revenues from green transportation.

Exhibit 2. **Constituent Examples: 10% of Revenue from Green Transportation**

Company	Inclusion Criteria	Description
Tesla	73% of revenue from vehicles 9% from technologies/equipment	Manufactures electric cars and solar panels
Bombardier	25% of revenue from vehicles 25% from infrastructure 3% from services	Manufactures electric trains for public transportation purposes
Wabtec	75% of revenue from infrastructure 3% from vehicles 3% from technologies/equipment	Manufactures railway electrification products for public transportation purposes

Revenue involvement data is sourced from Sustainalytics.

Although the Morningstar North America Renewable Energy Index includes companies across a variety of industries along the renewable-energy supply chain, the highest asset exposure lies within the utilities sector (roughly 45% of assets as of June 30). According to Morningstar equity strategist Travis Miller, this comes as no surprise.

“The buildout of renewable energy is a significant growth opportunity for all utilities. The industry is investing billions of dollars in renewable energy to meet public policy goals, respond to customer demand, and lower energy bills. For regulated utilities, renewable energy development accelerates asset base growth, resulting in earnings, cash flow and dividend growth. Utilities also benefit from investing in transmission and distribution infrastructure to support renewable energy.”

— Travis Miller, Equity Research Strategist – Energy & Utilities

Sleeve Two

This sleeve constitutes 25% of the total index weight. Sector weights are capped at 20% within this sleeve. It includes the following companies:

1. Companies that have a score less than 10 regarding the intensity of carbon usage in their own operations and also meet at least 50% of their primary energy requirements from renewable energy
2. Companies that have a carbon-own operations exposure more than or equal to 10 and meet at least 25% of their primary energy requirement from renewable energy.

We employ different thresholds for inclusion to account for the fact that carbon footprints can differ drastically across different types of companies. The first screening criterion addresses the notion that companies with a minimal carbon footprint should be more readily able to embrace renewable energy. Thus, the bar for inclusion in meeting their energy needs from renewables is higher. The second screening criterion addresses the notion that companies with a greater degree of carbon emissions face greater challenges in meeting their energy needs from renewables. Thus, the bar for inclusion is lower but is still set at a demanding level in absolute terms. Carbon exposure and renewable-energy use are determined by data from Sustainalytics.

Renewable Energy Is Good Business

The following examples illustrate the means by which various index constituents are embracing or facilitating the use of renewable energy. In each case, exposure to renewable energy provides attractive growth opportunities



Sleeve	Sector	Revenue From Renewable Energy
1	Utilities	15% via generation

NextEra is already the largest wind-power producer in the United States, proving to be a best-in-class renewable-energy operator and developer. Declining costs for wind and solar will sustain a favorable market position over at least the next decade. NextEra's early entry into battery storage will further enhance the company's sustainable competitive advantage. NextEra operates some of the country's most desirable wind and solar-generation sites, locking in 20-year-plus purchase power agreements with escalator clauses protecting returns. Moreover, a large, diversified generation fleet gives this segment scale, cost, and flexibility advantages over smaller competitors. Additionally, NextEra Energy investors have exposure to U.S. renewable-energy growth. By 2030, the utility aims to install 10 gigawatts of incremental solar capacity, of which the utility earns near-immediate returns upon completion. For NextEra's Florida Power & Light subsidiary, this program would increase solar energy across the service territory to 20%, up from roughly 1% today. NextEra recently divested most of its no-moat fossil fuel-generation fleet.



Powering Business Worldwide

Sleeve	Sector	Revenue From Renewable Energy
1	Industrials	8% via products/services

Eaton is a specialized producer of highly engineered products and services. In 2018, the company created a new eMobility segment that aims to take advantage of the secular trend toward electric vehicles. Eaton plans to leverage valuable core competencies from its Electrical Sector, while also taking advantage of OEM relationships from its Vehicle segment. There is an opportunity to increase the company's content per vehicle as electrification increases, which should only reinforce the customer-switching costs that Eaton enjoys. Areas of complexity in this arena include the need to comply with vehicle-weight restrictions, build vehicle components that withstand vibration, and, most importantly, safely manage electric power in a vehicle. Eaton will also benefit from additional secular trends, including increasing environmental and safety regulations, cybersecurity threats, less-available skilled labor in developed nations, and upgrades to aging infrastructure.



Sleeve	Sector	Revenue From Renewable Energy
1	Technology	100% via generation

First Solar is well positioned to capitalize on worldwide solar energy growth. Solar energy has a long worldwide growth runway as costs come down and all populations move toward cleaner energy. First Solar's concentrated business supplies its core photovoltaic modules while also offering turnkey development and operating capabilities. The major question is how First Solar's cadmium telluride technology will fare versus the industry standard crystalline silicon, or c-Si, in the long run. First Solar's technology remains about 10% more efficient than the standard c-Si competition, implying

a significant energy yield advantage. However, continued innovation will be needed for the company to maintain its edge. Additionally, the company's PV modules are manufactured using less energy, water, and semiconductor material versus competing technologies.



Sleeve	Sector	Energy Use From Renewable Sources
2	Utilities	25–50%

Xcel's diverse group of U.S.-regulated utilities serve gas and electric customers across eight states and own infrastructure that ranges from nuclear plants to wind farms. The company is embarking on a bold shift toward renewable energy, as Xcel aims to be one of industry's leading clean-energy providers. The company is set to invest \$20 billion in 2019-23, with much of this spend dedicated to environmentally friendly projects. In the long run, Xcel could spend more than \$1 billion per year on renewable energy and other clean-energy initiatives. For example, Colorado and New Mexico, states in which Xcel operates, are working on legislation that would require 100% carbon-free generation by 2050. Although this strategy will require significant reinvestment, it offers impressive growth potential for the future. Xcel's service territories have among the best wind resources in the country, making the company one of the largest wind-energy providers in the U.S. The states it serves are strong supporters of shifting from a heavy reliance on coal generation to renewable energy, offering billions of dollars of infrastructure subsidization.

Conclusion

The Morningstar North America Renewable Energy Index offers a unique way to capitalize on the seismic shift toward renewable energy. As the renewable energy industry develops further, it remains unclear which nodes of this supply chain will ultimately capture the lion's share of economic profits, an uncertainty only heightened by the rapid pace of technological change present among participants. This inherent uncertainty sharpens the appeal of a comprehensive index that includes renewable-energy innovators, suppliers, adopters, and consumers. Accordingly, the Morningstar North America Renewable Energy Index presents an attractive value proposition for investors interested in broad-based renewable energy exposure. ■■

About Morningstar Indexes

Morningstar Indexes combine the science and art of indexing to give investors a clearer view into the world's financial markets. Our indexes are based on transparent, rules-based methodologies that are thoroughly back-tested and supported by original research. Covering all major asset classes, our indexes originate from the Morningstar Investment Research Ecosystem—our network of accomplished analysts and researchers working to interpret and improve the investment landscape. Clients such as exchange-traded fund providers and other asset management firms work with our team of experts to create distinct, investor-focused products based on our indexes. Morningstar Indexes also serve as a precise benchmarking resource.

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