

ELECTRIFYING PORTFOLIOS

The Economic Case for Fossil Fuel Free Investing

By Betsy Moszeter

Investment industry practitioners and academics increasingly are talking about the financial and economic reasons why an investment advisor should offer clients investment strategies that are void of fossil fuel extractors, utilities, pipelines, and service providers. As advisors evaluate the economic and financial risk presented by fossil fuels, it's also necessary to consider the resulting investment opportunities presented by companies innovating around the growing renewables industry. Even former U.S. Securities and Exchange Commission (SEC) Commissioner Bevis Longstreth is working hard to educate investors and investment professionals about why it's entirely within one's fiduciary duty to rethink the current and near-future investing paradigm of the sector.

In his article, "The Financial Case for Divestment of Fossil Fuel Companies by Endowment Fiduciaries,"¹ Longstreth writes, "At some point down the road towards the red light of 2 Degrees Centigrade ... it is entirely plausible, even predictable, that continuing to hold equities in fossil fuel companies will be ruled negligence." Who knows more about potential negligence and what falls within one's fiduciary duty than a former SEC commissioner? Let's explore a few of the factors leading him and many others to recommend that investment portfolios be divested from fossil fuel companies.

TRANSPORTATION AND ENERGY GENERATION

The clearest economic signals come from transportation and energy generation, both of which trend toward increasing renewable energy demand and decreasing fossil fuel demand. Because it's an advisor's responsibility to invest clients' assets in investments that are expected to grow within a given time horizon, it wouldn't be prudent to invest in a sector or specific company with shrinking demand.

In 2016, there were already more than 2 million electric vehicles (EVs) on the road² globally, and the research and development (R&D) that carmakers are pouring into new EV production is growing rapidly. In July 2017, Volvo made the bold announcement that it no longer will make any cars that are exclusively gas-powered beginning in 2019.³ Volvo obviously has been quietly investing and innovating in the space for a while, because between 2019 and 2021 it plans to launch five new EVs in addition to ensuring that all existing models will either be pure EVs or plug-in hybrids.⁴

As companies such as Volvo now pile into the EV market, BMW already is benefiting from early R&D investments. BMW has steadily increased sales of EVs from 18,000 in 2014⁵ to 20,000 in just the first quarter of 2017.⁶ As BMW's close attention to consumer demand and efficiency gains continues to pay off, it is ramping up its EV development. The

automotive company plans to release several new EVs in the next few years as it phases out internal combustion engine (ICE) production altogether by 2024.⁷

And it is not just a few car makers creating a niche product segment.

In November 2016, Daimler announced that over the next five years it would invest approximately \$11 billion in developing EVs.⁸ Daimler is putting its money where its mouth is: several important investments already have been initiated, including \$1 billion to convert a factory in Tuscaloosa, Alabama, to build batteries and produce EV sport utility vehicles that's creating 600 new jobs,⁹ \$740 million for a new battery factory in China for Mercedes-Benz EVs,¹⁰ and \$543 million to build a plant to assemble lithium-ion batteries in Germany for use in Daimler automobiles.¹¹

Porsche announced in September 2017 that its first all-electric vehicle will be released a year ahead of schedule—originally in 2020, now in 2019.¹² Porsche likely sped up development out of fear of being last to market and left behind.

General Motors (GM) announced in October 2017 that it will not make any internal combustion engines "at some point in the future," declining to comment on when due to the size and complexity of the organization.¹³ Despite GM's lack of transparency about when the switch to EVs will be complete,

the fact that such a conservative car maker has made this commitment makes the death of the internal combustion engine undeniable.

These growth and development opportunities extend beyond vehicle production. BMW has joined forces with Volkswagen and ChargePoint to grow ChargePoint's electric car charger network throughout the United States,¹⁴ a move that will support and further increase EV sales. The United States alone already has more than 44,000 public charging outlets,¹⁵ plus many more private, free charging stations found in store parking lots, and more than 5,000 charging stations in Tesla's proprietary charging network.¹⁶ The day is long gone when consumers needed to fear being too far from a charging station.

And why shouldn't consumer demand for EVs be snowballing? Once purchased, EVs are dramatically cheaper to fuel than their ICE counterparts. The U.S. Department of Energy has a great tool on its website called eGallon (<https://energy.gov/maps/egallon>) that compares how much it costs to fuel an EV via today's energy grid versus purchasing a gallon of gasoline at the pump.¹⁷ The U.S. average is currently \$1.16 for an EV compared to \$2.32 for regular gas. In states with a greater mix of renewable energy available to consumers, the cost is even lower. Fueling an electric vehicle in Oregon, for example, comes out to \$0.97 for an EV vs. \$2.63 for regular gas; these figures do not account for free charging available so readily these days. A recent 17,000-kilometer (about 10,500-mile) demo of a Tesla Model S by journalists at Clean Technica¹⁸ found that the total charging cost for the entire distance was \$70, including electric bills for at-home charging.

EVs also are cheaper to maintain than ICE vehicles,¹⁹ which makes sense when you consider that the average ICE has 2,000 moving parts and an EV has about 20. As the initial purchase price of EVs

comes down and more options come online, it's a no-brainer that EVs will continue to be the fastest-growing²⁰ portion of the personal transportation segment.

In addition to these benefits, EVs also can be more adaptable and flexible than traditional internal combustion vehicles. For example, as reported in September 2017, as mandatory and voluntary evacuations were underway in Florida,

Tesla drivers who fled Hurricane Irma last weekend received an unexpected lesson in modern consumer economics along the way. As they sat on choked highways, some of the electric-car giant's more keenly priced models suddenly gained an extra 30 or so miles in range thanks to a silent free upgrade.²¹

Some negative press resulted from Tesla's proactive measures, but other press explained the facts: For a time Tesla produced Model S and Model X vehicles with 75 kilowatt-hour (kwh) battery packs to offer more-affordable versions at scale, then used software to limit the energy to 60 or 70 kwh, thereby limiting the battery range.²² Owners of these models have the choice to upgrade the range at any time. When one customer fleeing the hurricane called and asked for a temporary range expansion at no cost, Tesla enabled all cars in that area to extend the range. Power of choice, with possibilities to execute in real time, are EV benefits that cannot be discounted; as more consumers experience these benefits, demand will increase.

At the risk of stating the obvious, expanding demand for and production of EVs means that demand for transportation-fueling gasoline is on the decline. Not only is this trend driven by consumers, but global regulations are playing their part, too. Norway is banning the sale of all fossil fuel-based cars by 2025.²³ Germany, the country that invented the ICE and produces more

cars than any other country in Europe, has voted to ban ICEs by 2030.²⁴ France is following Germany's lead and has committed to banning the sale of all fossil fuel-based cars by 2040.²⁵ In fact, ING Bank expects to see "battery-powered vehicles accounting for 100% of registrations in 2035 across the [European] continent."²⁶

India, one of the world's fastest-growing economies, has set goals for transitions away from ICEs to EVs, proposing a ban on ICE sales by 2030 and a total, nationwide fleet turnover to electric by 2030. India's target is a "goal few see possible,"²⁷ but any meaningful progress toward it will materially dent oil demand.

China's government is loudly developing a plan to phase out vehicles powered by fossil fuels.²⁸ This is no small matter considering that China is the world's largest and fastest-growing auto market. One response called this development a "defining moment for the auto industry," and another declared, "If China says no more fossil-fuel powered cars, global carmakers must follow." Indeed, if car makers focus on EVs, the increase in scale and growth in options will lower consumers' perceived barriers to adoption.

China's phase-out plan has not been fully divulged, but in the meantime the Chinese government has placed restrictions on the number of new ICE vehicle registrations in major cities such as Beijing and Shanghai. Qualified EVs remain exempt from these restrictions, further encouraging consumers to shift toward EVs.²⁹

Overall, it is hard to see the transportation sector providing demand growth for oil and gas. On the contrary, demand is about to decline, and precipitously.

ELECTRICAL ENERGY GRID

Of course, the other major driver of fossil fuel consumption is our electrical energy grid. Fortunately for the health of the entire population,³⁰ energy

consumption is down³¹ in the United States due to efficiency efforts that have been in place for decades, and the percentage that is generated through renewable means is up.³²

There's an exciting race on in the world of renewable energy generation, with wind and solar jockeying for the leading position. In 2015, wind energy was the fastest-growing source of electricity in the United States.³³ In 2016, solar overtook the lead, growing 95 percent in the United States, contributing 39 percent of the grid's capacity additions.³⁴ Renewables will capture most of the estimated \$10.2 trillion that will be invested in new power generation globally by 2040, according to projections by Bloomberg New Energy Finance.³⁵

Solar and wind power are both already less expensive per kwh, without subsidies, than new natural gas, coal, or nuclear power plants.³⁶ Solar power is declining in price so rapidly that the "lowest price for solar power last year is the highest price now."³⁷ Renewables will continue to get cheaper because wind, solar, and battery storage technologies are racing each other down the cost curve.

According to a press release accompanying a recent report from the National Renewable Energy Laboratory,

*... solar photovoltaic (PV) capital costs have declined recently and are projected to continue to decline. Similarly, land-based wind capital costs have fallen while capacity factors have increased. These are trends that are both projected to continue and make wind increasingly competitive with new generation from natural gas combined cycle plants in the near term.*³⁸

Unlike commodity-based fossil fuels that become more expensive as demand increases, renewables are tech-driven and follow both Moore's and Wright's laws.³⁹ They become more efficient and

cheaper as more are produced, so cost competitiveness will only continue to improve. As new reports forecast the acceleration of these trends, we're seeing headlines such as, "Wind power costs could drop 50%. Solar PV could provide up to 50% of global power. Damn."⁴⁰

As demand for fossil fuels shrinks due to the shift toward EVs and renewables, it's important for an investor to understand how incredibly sensitive oil and gas prices are to marginal changes in the balance between supply and demand.⁴¹ In the transportation sector, 2 million barrels per day of demand will be displaced by 2023 by electric passenger cars alone.⁴² Recall that it was a 2-million barrel per day imbalance that led to steep oil price declines between 2014 and 2017. Given the rapid rise of EVs, the 2-million barrel per day displacement by 2023 will be only the beginning of much larger demand reductions. Consequently, investments in companies whose primary source of revenues is tied to fossil fuel extraction, transportation, and/or refining will soon be in peril.

CONCLUSION

A portfolio of stocks is simply an illustration of a portfolio manager's vision of the future. Investments held reflect the industries and companies that the manager believes are most likely to grow during the investing time horizon. A prudent investor should consider carefully the current and evolving economics when determining whether fossil fuel companies are a safe source of risk-adjusted returns. Companies innovating around renewable energy are gaining market share and becoming more competitive. Therefore, they are investments that will help clients preserve and create wealth, rather than risky investments in fossil fuel companies that have begun their decline. ●

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