

# How Will Climate Change and Electrification Impact Investing?

## A roadmap for the electric revolution

With a federal government turnover to the Democratic party this year, hopes are high for a focused, comprehensive federal approach to tackling climate change, rather than the patchwork state approach of the past administration. President Biden has consistently highlighted the climate crisis as urgent, and the team of advisors he has assembled on the issue demonstrates his commitment. Concurrently, the European Union has focused its own economic plan on the theme of “building back better,” tying climate concerns to Covid recovery. In what will hopefully turn out to be ‘in the nick of time’, the world has seemingly increased earnest and serious efforts to combat climate change, with real commitments, policies, intention, and funding—and investors are ready.

Among others, there are two drivers causing this global shift at the moment. First, climate change is not a theoretical concept anymore, it’s happening now. According to the U.S. National Oceanic and Atmospheric Administration, the 10 hottest years on record have all occurred since 2005<sup>1</sup>, and the years of 2014-2020 have been the top 7 hottest. While no individual storm or weather event can be tied to climate change, scientists are increasingly pointing to the impact of global temperatures on storm intensity and frequency<sup>2</sup>. And so as this is being written, Texans are huddled in dark, frozen homes. While there are many reasons for the failure of the state’s energy grid and generation capacity, climate change may be one of them. As the lights slowly came back on and pipes thawed in Texas, the New York Times published a devastating catalog of infrastructure failures caused by erratic weather that drinking water and sewage plants, pipelines, dams, roads, and the electric grid were not built to withstand<sup>3</sup>, but increasingly are.

<sup>1</sup> <https://www.ncei.noaa.gov/projected-ranks#:~:text=The%20warmest%20years%20globally%20have,Courtesy%20of%20NOAA%20NCEI>

<sup>2</sup> <https://www.pnas.org/content/117/22/11975>

<sup>3</sup> <https://www.nytimes.com/2021/02/20/climate/united-states-infrastructure-storms.html>

<sup>4</sup> <https://www.irena.org/newsroom/articles/2020/Jun/How-Falling-Costs-Make-Renewables-a-Cost-effective-Investment>

<sup>5</sup> <https://www.eia.gov/todayinenergy/detail.php?id=46416>

<sup>6</sup> <https://www.gm.com/commitments/electrification.html>

\*PV - Photovoltaics is the conversion of light into electricity using [semiconducting materials](#) that exhibit the [photovoltaic effect](#), a phenomenon studied in [physics](#), [photochemistry](#), and [electrochemistry](#). The photovoltaic effect is commercially utilized for electricity generation and as [photosensors](#).

Second, the tools to combat climate change—electrifying our economy, powered by renewable energy—are now economic. According to the International Renewable Energy Agency, between 2010 and 2019, solar PV\* energy costs fell 82% and onshore wind fell 39%<sup>4</sup>. Solar and wind are increasingly now cost competitive with existing fossil fuel generation and are expected to be 70% of new generation in the U.S. in 2021<sup>5</sup>. And of course, electric vehicles are rapidly becoming mainstream, with GM pledging an all-electric future .

These factors together create a perfect storm for the much-needed shift in the way investors understand the markets they work within. As the results of the 2020 elections became clear, investors were quick to react. Many “green” stocks, such as renewable energy companies, are trading at high valuations, having attracted investor attention quickly. These obvious company examples are unlikely to be the only beneficiaries of the electric revolution, as we expect the change from a combustion-based economy to an electric one will be similar to the transition from the analog economy to the digital one. It will touch many different aspects of people’s lives; there will likely be a lot of invention and creative destruction, and therefore investment beyond renewable energy stocks.

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For example, it's understood that combusting anything in a home has negative climate and health impacts. A recent academic study from researchers at Harvard in the *Journal of Environmental Research* found that fossil fuel pollution causes one in five premature deaths globally<sup>7</sup>, and that the northeastern U.S., where many homes rely on natural gas for cooking, is one of the most impacted areas. Electrifying homes will have both climate benefits, as well as direct indoor air quality benefits for the home's residents. It will also give traditional HVAC and appliance manufacturers reasons to expand their sales and integrate themselves into customers' lives through future service agreements. Similarly, electric vehicle (EV) charging at home will give utilities the opportunity to expand their relationship with customers and take share of the energy budget that is normally spent at gas stations. This presents opportunities for companies making charging infrastructure, as well as the ones making the EVs. Similarly, upgrading the grid to prepare it to manage two-way flows of electricity will provide many opportunities for component companies, grid specialists, consultants, and data managers.

## In 20 years, gas stations may be the next Blockbuster.



The flip side of opportunities is disintermediation, and just as we saw during the digital revolution, there will be companies at risk in the electric revolution. Two decades ago, the presence of a video rental shop was something that made a neighborhood livable and attractive. Now, referencing Blockbuster Video is a shorthand way of referring to a time that many can remember, but was also a part of another, very fundamentally different era, before the digital revolution. In 20 years, gas stations may be the next Blockbuster. People will marvel that we stood around breathing toxic fumes next to giant tanks of flammable fuels, instead of using excess wind energy on the grid to

charge car batteries at night. In the U.S., few traditional energy companies seem to be doing anything to avoid being the next Blockbuster Video.

Exxon, for example, recently made a splashy announcement about dedicating billions of dollars over the next few years to green technologies. However, the commitment amounted to only about 5% of annual capex\*\* spending, while the other 95% will continue to be spent on drilling for the same oil and gas they have historically. We believe that won't be enough for Exxon to last as a large company as the electrification revolution unfolds, and definitely not enough to help reverse the worst effects of climate change. Some investors are not falling for Exxon's greenwashing attempts and are pressing for change of the composition of the company's board. Other market participants, perhaps less skilled at separating substantial corporate sustainability actions and commitments from marketing ploys, are heaping praise on the company, creating the sense for end asset owners and beneficiaries that their portfolios are prepared for the electric revolution.

We believe combatting climate change through the electric revolution will touch every aspect of our lives and the economy, and every type of company and investor needs to plan. Insurers will struggle to rely on existing actuarial tables as physical climate risks change. Banks are already facing consumer and investor pressure about what they are funding. We foresee food companies' supply chains becoming vulnerable to shifting physical climates, resulting in new opportunities in different locations around the world. We believe health care will also likely need to adapt as health risks shift, for example as tropical diseases become endemic in regions not historically considered tropical. The Zika virus outbreak in 2017 cost Miami-Dade County alone \$1.6b in lost taxes due to decreased hotel revenue<sup>8</sup>, not to mention impacts on airlines, restaurants, and retail sales.

Over the next few years, the electrification revolution should pick up steam as the economics of clean energy continue to beat fossil fuels, and the threats of climate change continue to fuel action within political decision-making. We believe this presents investors a unique opportunity and challenge. ESG investors, who already

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<sup>7</sup> <https://www.sciencedirect.com/science/article/abs/pii/S0013935121000487>

<sup>8</sup> <https://www.itij.com/latest/long-read/zikas-impact-tourism>

\*\***Capital expenditures (CapEx)** are funds used by a company to acquire, upgrade, and maintain physical assets such as property, plants, buildings, technology, or equipment. CapEx is often used to undertake new projects or investments by a company.



take a holistic approach when analyzing company performance, seem well prepared. We believe all investors, however, will need to think creatively about their investments and utilize more thorough research methods. We believe they will have to incorporate the moving, complex parts that are likely to soon be reality in a world with a continued changing climate: physical risks and changes, shifting policy landscapes, new and dwindling business opportunities, and stranded assets and fading business models. In other words, we foresee using the critical lenses of ESG analysis will be more critical than ever, as investors navigate the electric revolution.

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Trillium Asset Management, with over \$4.0 billion in assets under management (as of 12/31/2020), offers investment strategies and services that advance humankind towards a global sustainable economy, a just society, and a better world. For nearly 40 years, the firm has been at the forefront of ESG thought leadership and draws from decades of experience focused exclusively on responsible investing. Trillium uses a holistic, fully integrated fundamental investment process to uncover compelling long-term investment opportunities. Devoted to aligning stakeholders' values and objectives, Trillium combines impactful investment solutions with active ownership. The firm delivers equity, fixed income, and alternative investments to institutions, intermediaries, high net worth individuals, and other charitable and non-profit organizations with the goal to provide positive impact, long-term value, and 'social dividends'.

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