

# Decarbonization 2.0: Investment Implications on the Path to Net Zero

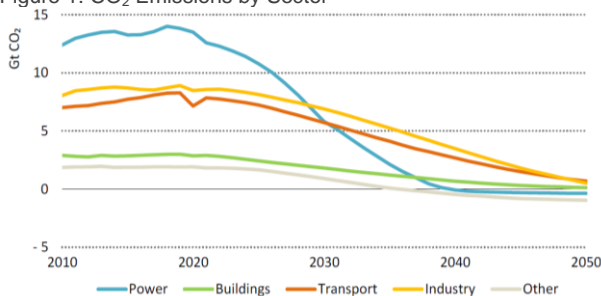
Executive Summary:

- Decarbonization 2.0 will usher in an era of rapid consumer facing change.
- We remain in the early days of a generational investment theme.
- Market disruption will create winners and losers, best capitalized on by a discerning investor.

While there are still references in the popular media over climate change being a “debate”, make no mistake that the world economy is on an inexorable path to decarbonization. Diplomats can argue about pace and urgency, and the difficulty in bridging the interests of developed versus emerging economies, but market forces are increasingly driving the change, with advances in technology, economies of scale, and pricing ushering in a wave of new solutions.

Although it feels like we’ve been discussing climate change and the associated solutions forever, we would suggest that this tectonic shift toward decarbonization is merely just transitioning from the first phase to the second. In the first phase, so-called “1.0,” the push to decarbonize was driven primarily by developed economies and the largest sources of carbon emissions were targeted – more specifically, emissions from coal powered utilities. And rightly so as this strategy could make the most significant dent in greenhouse gas (“GHG”) emissions. The first phase, while still underway in some areas, has largely been accomplished in developed countries. The U.K. is now down to only 3 coal fired plants which are used only sparingly at times of peak need and will be decommissioned entirely in the near future. France is down to less than 1% of its power mix coming from coal. In the U.S., coal power now generates only 20% of the country’s electricity, down from 39% in 2014 with decommissioning plans in place for most of the remaining U.S. facilities. We can see this progress in the figure 1, as the overall emissions coming from power generation recently peaked and the declines going forward are projected to accelerate in the coming years.

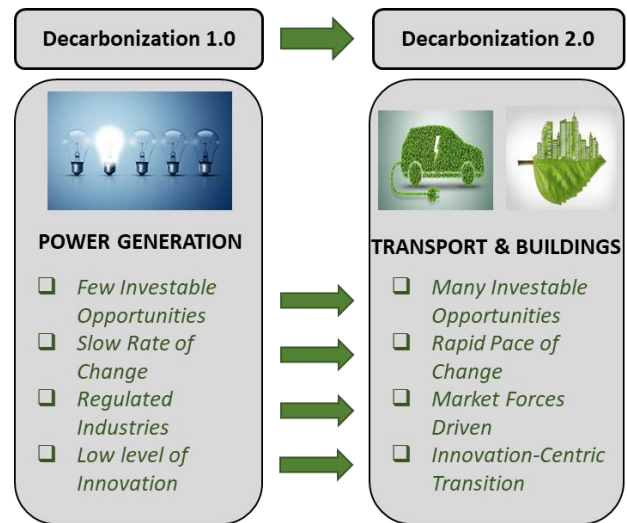
Figure 1: CO<sub>2</sub> Emissions by Sector



Source: International Energy Agency, as of October 2021

While the electric utility sector represented the first wave of decarbonization, we are transitioning now to the second phase (“2.0”) where the next two largest sources of emissions are coming from - transportation and buildings. These industries will see rapid change over the next two decades owing to technological innovation, declining cost curves, and supported by regulatory stimulus. And unlike 1.0 where the rate of change was slow due to the scope of the projects and the players involved, and where relatively few public equity investment opportunities existed, 2.0 will feature waves of unprecedented innovation and growth with exponentially more opportunities for investors to capitalize on the trend through public equities investment.

Figure 2: The Phases of Decarbonization



Source: Westfield

## Transportation

While Decarbonization 1.0 did not touch consumers closely (my electricity still worked regardless of the fuel source), decarbonizing transportation will bring the consumer up close and personal with the trend. Nowhere is this trend more apparent to the general public than within the automotive industry where there

is an explosion in electric car models coming to consumers globally over the next few years. Just a short time ago the menu of electric car models consisted primarily of Tesla and the odd low range offering from a traditional auto manufacturer. The market is about to explode with a plethora of model offerings from virtually all major car companies at price points which can appeal to the average household. Importantly for investors, this revolution will create dramatic growth opportunities up and down the value chain – from battery and component suppliers to charging stations and infrastructure to the car makers themselves. However, this trend is not simply limited to consumer products and will impact commercial enterprise in a transformational way as well. Buses, trucks, and high-speed rail will all be electrified in the coming years as the improving unit economics and falling total cost of ownership make adoption a “must-do” as opposed to “nice-to-do.”

Unit economics aside, there are also competitive and regulatory dynamics that are mandating accelerated adoption of more efficient, less carbon-intensive transportation. Some of the largest companies on the planet such as Apple, Walmart, and Amazon are directing their suppliers to meet internal requirements for efficiency and emissions or else risk their role as strategic suppliers to these large buyers. In addition, many developed countries have set drop-dead dates for the sale of internal combustion engine vehicles which is forcing a rapid response from market participants to evolve with the changing landscape. Some countries like France have gone so far as to announce plans to eliminate or substantially tax domestic flights to drive use of high-speed rail. London, as another extreme example, plans to charge emission inefficient vehicles exorbitant tolls to enter the city center. Anecdotes aside, the transition to cleaner, more efficient methods of transportation is accelerating and this market disruption will create many investment opportunities along the way.

### **Buildings**

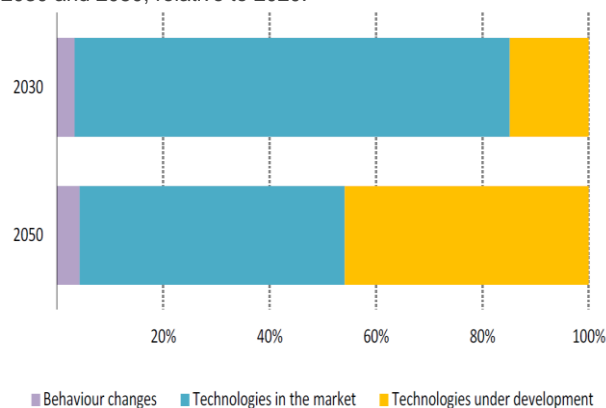
As the third largest source of GHG emissions behind electricity production and transportation, buildings also provide ample opportunities for decarbonization and improved efficiencies, and as a result they are rightly being targeted as a key area of focus for industry and policymakers alike. Anyone that has recently built a house or replaced a deck, windows, or a fence can speak to the variety of options now available to consumers looking for alternative materials, many of which are either produced more efficiently with less waste and emissions, or have properties which improve the energy efficiency of the home (think thermal efficient windows). In addition to building materials, high efficiency appliances and HVAC systems are also becoming commonplace.

For some of these innovations, the economics are now driving purchase decisions, be it the return on investment for a more energy-efficient HVAC system or the extended life of maintenance-free composite decking. For others, governments around the globe are forcing accelerated adoption. For example, some European countries have instituted new efficiency minimums that must be met for those wanting to sell an existing home. In the U.S., some cities like San Francisco, San Jose, and most recently New York City, have banned new construction utilizing natural gas connections. All of these examples ultimately force more rapid adoption to new technologies.

### **Investment Opportunity**

The pace of innovation targeting energy efficiency and carbon emissions reductions has accelerated meaningfully and is poised to profoundly impact the daily lives of all of us in the coming years. We are seeing the beginning wave of change in the form of electric vehicles, composite building materials, and energy efficient buildings, but the reality is that this is merely the start of a transformational time. With change will come great opportunity for investment as markets are disrupted and existing technologies are replaced. It is estimated that to attain the net zero emission target of 2050, nearly 50% of the planned emission reduction is dependent on technologies that are merely in development currently as shown in figure 3.

Figure 1: Annual CO2 emissions savings in the net zero pathway, 2030 and 2050, relative to 2020.



Source: International Energy Agency, October 2021

The secular trend towards energy efficient living could possibly be most significant investment theme of our generation and one in which fortunes will be earned and lost. Needless to say, it is an exciting time to be a growth-minded investor with a keen eye towards developments in this emerging ecosystem.

As always, we would happily elaborate further on our views. Please contact our Marketing team to continue the conversation ([clientservice@wcmgmt.com](mailto:clientservice@wcmgmt.com)).

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