



John Reilly

Co-Director Emeritus

MIT Joint Program on the Science and Policy of Global Change

A New Road Map for the US Energy Transition

Our study shows that by exploiting declining costs of zero- and low-carbon energy sources in a more aggressive and focused way, the US can meet its target within eight years – all while substantially reducing its dependence on fossil fuels, including high-priced gasoline, and cutting back the air pollution, climate and health impacts resulting from their combustion.

While there are differences among the six analyses in our study, all find that most of the needed emissions reductions – about 70% to 90% – can come from the electric power and transportation sectors. These can be achieved through a further transition to solar and wind power as costs for those technologies continue to drop. Solar and wind can't do it all; we found that natural gas – some of it accompanied by technology that captures the carbon emissions released during its combustion – and nuclear power and hydropower can play supporting roles.

Much of the needed emissions reductions – about 10% to 25% – can be achieved through a rapid transition to electric light-duty vehicles along with additional reductions from freight transportation. Our study shows that electric vehicles, which accounted for about 4% of new car sales in the US in 2021, would need to rise to between 34% and 100% of sales by 2030 to meet that target. That's a huge jump. But it now appears that battery costs have fallen enough to allow production of EVs at a cost equivalent to that of conventional vehicles. Moreover, EVs are typically cheaper to operate and maintain, further reducing total ownership costs.

While our study finds that most of the needed emission reductions can come from electric power and transportation, other sectors of the economy – including industry, agriculture and buildings – must also shift to low- and zero-carbon energy sources to meet the 2030 goal. The key challenges for these sectors include developing technology to eliminate emissions from energy-intensive processes, such as chemical, iron and steel production, and retrofitting existing homes and businesses with electric heat pumps in a timely manner.

That's a lot to accomplish in just eight years. It will require an unprecedented buildout of electric power production and transmission capacity, a rapid ramp-up of electric vehicle production and sales, and a nationwide deployment of EV recharging stations. ■

Source: *The Conversation*

Series Supported By

