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### Materials science, energy transition, and the pandemic

During the current pandemic shutdown, everyone has had to make decisions—many of which haven't been easy. For the first time in my life, I experienced what were previously unthinkable—airplanes being grounded, cars being off the roads, all classes and meetings being held virtually. The surreal experience has propelled me to think more deeply about what I do and why it is so important to push forward with doing better materials science to enable breakthroughs in energy technologies and to ensure a robust supply chain of relevant materials for the world.

We are seeing polarizing views about many things—some argue COVID-19 may be a “silver lining” for carbon dioxide reduction in the short run. In the long run, it is more likely to harm the climate because of the delay in clean energy investments and innovations. Some see the fact that the United States expects energy-related carbon dioxide emissions to decrease at least 10% from 2019 (US Energy Information Administration) and expect that some of these improvements could be permanent. Both could be right, depending on each individual's, each corporation's, each community's, and each country's decisions on how they would choose to recover from the pandemic.

The world may see an uptick in emissions as the economy recovers, but a significant amount of the decarbonization taking place in the transportation and power sectors are likely to be permanent. For instance, the number of electric cars on the road is expected to reach almost 10 million in 2020 as sales grow this year, despite the COVID-19 pandemic, according to a new report by the International Energy Agency.

Let's plan for a new kind of recovery, and contemplate the opportunities and challenges ahead. Achieving a robust economic recovery without the same kind of rebound in emissions that followed the 2008 global financial crisis will require that everyone make well-informed decisions. For the materials community both domestically and internationally, let us engage in meaningful dialog and actions to fight the pandemic, accelerate the energy transition, and make materials science a key enabler for a healthier, happier, and more sustainable world.

Y. Shirley Meng

“Greening the production and utilization of ammonia” title image credit: Adobe Stock.

“COVID-19 disrupts battery materials and manufacture supply chains, but outlook remains strong” title image (close-up of lithium-ion battery) credit: Argonne National Laboratory.

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