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Automakers face a stark reality when it comes to climate change: With road transportation accounting for almost one-fifth of the carbon dioxide (CO<sub>2</sub>) released into the environment, they have no choice but to play a large part in any effort to reduce global emissions. But while they have tried to chip away at the total with electric vehicles, hybrids, and better fuel efficiency, auto emissions were still rising through 2019.

When it comes to controlling emissions, the fragmented nature of the automotive industry raises challenges to achieving carbon neutrality that often appear beyond the control of car companies. Like most heavy industries, automakers can attack the problem by increasing the efficiency of their manufacturing processes and ensuring that they use clean sources of energy to power their production from renewables. But most emissions related to their primary product are generated after the automobiles have left their possession or reside in the complex supply chains that provide the components to build automobiles, made up of independent companies around the globe.

France recently said it will support sales of lower-emission autos, like electric vehicles (EVs), using coronavirus corporate bailout money to make them more affordable for consumers.

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That means carbon neutrality may require either discouraging consumers from buying SUVs by producing fewer or making them more expensive or re-engineering SUVs to produce significantly fewer emissions. France's subsidies for EVs and other low-emission vehicles would support that effort. Designing SUV platforms that are lighter and more aerodynamic would also help. One manufacturer estimates that making a light truck like an SUV produces 0.6 tonnes of CO<sub>2</sub> while the SUV itself will release 34.5 tonnes over its lifetime. Given the switch to electric vehicles will probably not happen fast enough to prevent rising temperatures, automakers could focus on producing more hybrid SUVs to reduce lifetime emissions.

One of the easier aspects of going carbon-neutral for industry is controlling their own use of energy in production. Automakers can make sure that energy generated elsewhere comes from a clean source. That means, for example, purchasing wind power and putting price

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## RECYCLE PARTS

The spread of electric vehicles (EVs) makes the circular economy even more important. Battery production can be a major source of emissions, depending on the energy source used. Recycling EV batteries could help reduce the carbon footprint from their manufacture and reduce the amount of raw materials, such as lithium, needed.

Oliver Wyman is a global leader in management consulting that combines deep industry knowledge with specialized expertise in strategy, operations, risk management, and organization transformation.