House Committee on Energy and Commerce
Subcommittee on Environment, Manufacturing, & Critical Materials Hearing:

"Driving Affordability: Preserving People's Freedom to Buy Affordable Vehicles and Fuel."
June 22, 2023

Response to Questions for the Record for Chet Thompson
Submitted on August 3, 2023

Congressman Fulcher:

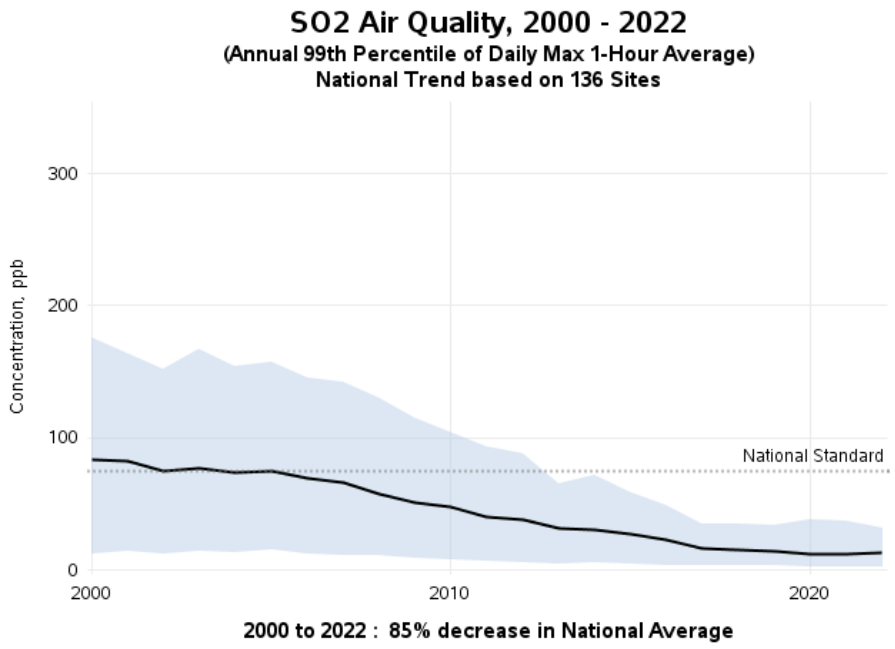
1. **Q: Can you tell me about how much cleaner diesel has gotten over the past 20 years?**

   A: Diesel fuel has continued to get cleaner over the past 20 years, and has enabled engine technology to further improve. For instance, in the past twenty years the sulfur content of diesel fuel declined from as much as 5,000 parts per million (ppm) sulfur to a maximum of 15 ppm. Diesel fuel sulfur reductions reduced emissions of SO2 and enabled vehicle and engine manufacturers to meet stricter NO2 and PM2.5 emission standards.

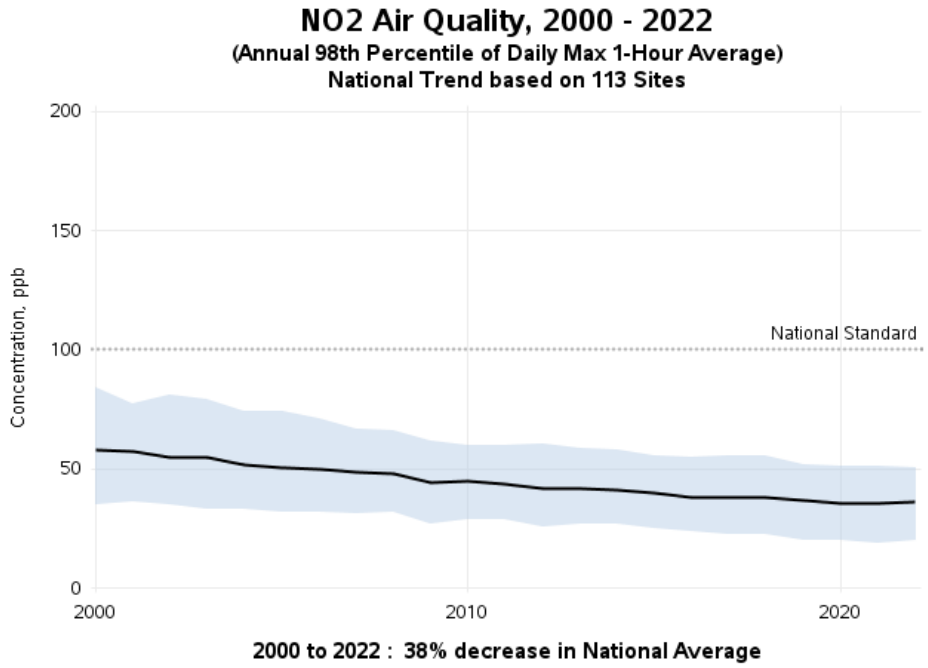
   Before 2006, on-highway diesel fuel sold in the United States had a maximum sulfur content of 500 ppm, and higher for non-road use. Since 2014, all diesel fuel sold in the United States for on-highway, non-road, locomotive, and marine use is ultra-low sulfur diesel (ULSD), which has a sulfur content of 15 parts per million or less.

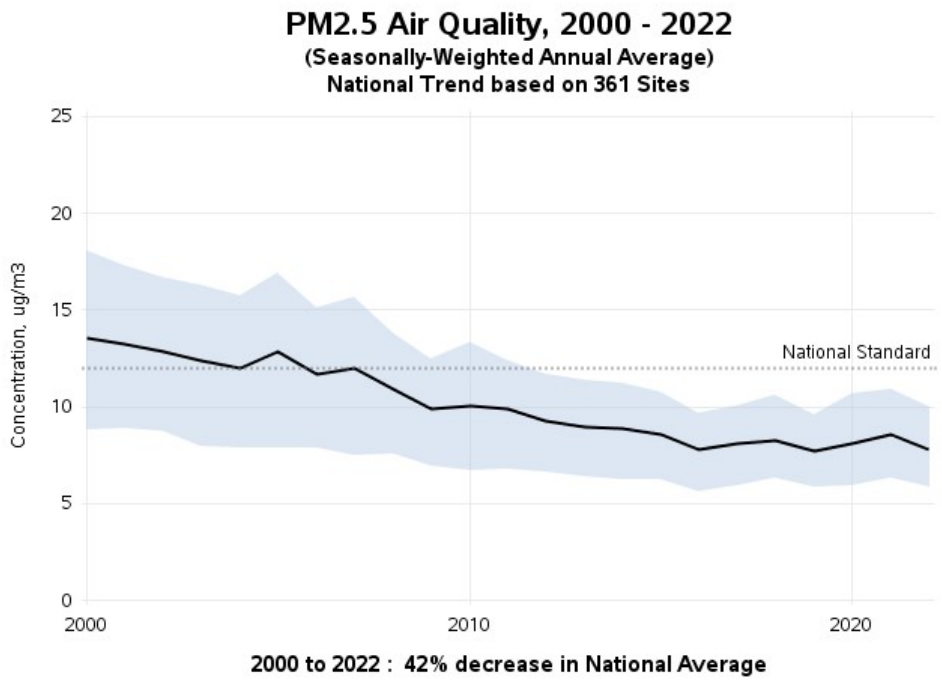
   Lowering the sulfur content of diesel fuel allowed vehicle engine manufacturers to install advanced emission control devices in modern diesel engines that reduce NOx and PM emissions by 90% and 95% respectively.

   According to the EPA, ambient air concentrations of SO2 have been reduced by 85% since 2000, a decrease supported in part by the reduction in the sulfur content of diesel fuel.



Similarly, EPA data indicates that between 2000 and 2022, ambient air concentrations of NO2 and PM2.5 likewise declined by 38% and 42% respectively. These reductions are supported, in part, by the use of ULSD and advanced pollution control systems on diesel engines.





2. Q: What has the industry done to improve diesel fuel emissions?

A: As noted in the response to Question 1, the refining industry reformulated petroleum diesel fuel to reduce its sulfur content. Lower sulfur diesel fuel enabled the use of advanced emission control devices in diesel engines that reduced NOx and PM emissions by 90% and 95% respectively and contributed to improvements in ambient air quality.

In addition, the refining industry produces renewable diesel and biodiesel, both of which can achieve up to 80 percent reductions in lifecycle greenhouse gas emissions as compared with traditional diesel. In 2022, U.S. refiners invested to expand capacity to be able to supply 2.6 billion gallons of renewable diesel, and production capacity has to potential to double in the next two years.