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Alert is a monthly update on transportation and air quality planning activities in the Delaware Valley.



Air Quality Regulations

U.S. Environmental Protection Agency Finalizes Stricter Nitrogen Oxide Emissions Standards for Heavy-Duty Trucks

On December 20, 2022, the U.S. Environmental Protection Agency (EPA) finalized new emissions standards for heavy-duty trucks that cut the permissible amount of nitrogen oxide (NO_x) emissions by over 80 percent. The new standards, which will take effect for new vehicles starting with model year (MY) 2027, are the first revision of NO_x standards for heavy-duty trucks in over 20 years.

The new rules also broaden the scope of emissions testing to include engines operating at low loads. Historically, systems designed to control NO_x emissions were not effective when the engine was operating under low loads (such as when a truck is idling or driving in stop-and-go traffic), but new technologies have allowed for improved performance over a wider range of operating conditions. To ensure vehicles meet the standards as the vehicles age, the EPA will require manufacturers to cover emissions systems under longer warranties and design pollution controls to be tamper-resistant.

NO_x emissions contribute to the formation of ground-level ozone and fine particulate matter (PM_{2.5}) pollution which are implicated in poor cardiovascular health outcomes. The EPA estimates that these standards will cut U.S. NO_x emissions nearly in half by 2045. This will result in \$200 billion worth of public health benefits by preventing hundreds of premature deaths, thousands of hospitalizations, and reducing missed days of work and school.

The EPA claims that if NO_x emissions from heavy-duty vehicles aren't reduced from today's levels, these vehicles will continue to be the largest source of on-road mobile source NO_x emissions. These emissions directly impact communities that are located near major highways, ports, and goods movement centers which tend to be disproportionately low income and minority communities.

This rule is the first of three proposed regulations under the EPA's Clean Trucks Plan. The agency plans to release proposals for greenhouse gas emissions standards for heavy-duty vehicles and multipollutant standards for medium- and light-duty vehicles in the coming months. These would also take effect for MY 2027 vehicles.

The California Air Resource Board (CARB) has also developed a set of emissions standards for trucks known as the advanced clean truck (ACT) rule. Compared to the federal standards, CARB's rules are stricter, place a greater emphasis on zero emissions vehicles, and have earlier deadlines. Implementation of the ACT will



Save the Date

**Wednesday
March 1, 2023**

**PA DEP
Medium- and Heavy-Duty
Zero Emissions Vehicle
Funding Program**

Applications Due

Information is available at:
dep.pa.gov

Search "Driving PA Forward"

**Applications Still Being
Accepted**

**PA DEP
Level 2 EV Charging Station
Rebate Program**

Information is available at:
dep.pa.gov

Search "Driving PA Forward"

require a waiver from the EPA. If the waiver is granted, CARB's standards will apply not just to California, but also states like New York and New Jersey which have adopted the ACT rule. The EPA said it will decide on California's waiver requests early in 2023.

Critics of the EPA's Clean Trucks Plan have noted that it does not address the electrification of trucks or the status of CARB's waiver. Fleet operators and engine manufacturers claim that the goals of reducing NO_x emissions and improving fuel efficiency to reduce greenhouse gas emissions often work at cross purposes as emission controls can impact fuel efficiency. Manufacturers note that current technologies will not meet the MY 2027 standards and place a significant burden on fleet managers to bear the maintenance costs of these standards into the future.

Read more about the EPA's "[Heavy-Duty 2027 and Beyond: Clean Trucks Final Rulemaking](https://www.epa.gov/heavy-duty-2027-and-beyond-clean-trucks-final-rulemaking)," at www.epa.gov.



Air Quality and Transportation

US EPA Reports that CO₂ Emissions Rates for Model Year (MY) 2021 Vehicles are the Lowest Ever Measured

The U.S. Environmental Protection Agency (EPA) released the *2022 EPA Automotive Trends Report* in December 2022. The report provides the public with information about new light-duty vehicle greenhouse gas (GHG) emissions, fuel economy, technology data, and auto manufacturers' performance in meeting the agency's GHG emissions standards. EPA has collected data on every new light-duty vehicle model sold in the United States since 1975. The information in the report is used to support several important national programs, including EPA criteria pollutant and GHG standards, and vehicle Fuel Economy and Environment labels. The report is updated each year to reflect the most recent data available to EPA for all model years, relevant regulatory changes, methodology changes, and any other changes relevant to the auto industry.

A key finding of the report shows that in MY 2021, the average estimated real-world carbon dioxide (CO₂) emission rate for all new vehicles fell by 2 grams per mile (g/mi) to 347 g/mi, the lowest ever measured. Real-world fuel economy remained at a record high 25.4 miles per gallon (mpg). Since MY 2004, CO₂ emissions have decreased 25 percent and fuel economy has increased 32 percent.

According to the report, overall fuel economy trends depend on the trends within five vehicle types, which all have different fuel economy and emissions regulations. The trends also depend on the market share of each of the vehicle types. The trend away from sedan/wagons, which remain the vehicle type with the highest fuel economy and lowest CO₂ emissions, and towards vehicle types (trucks and sport utility vehicles) with lower fuel economy and higher CO₂ emissions, has offset some of the fleetwide benefits that otherwise would have been achieved from the improvements within each vehicle type.

For traditional internal combustion engines, fuel economy and CO₂ emissions are correlated. Electric vehicles have zero tailpipe emissions so the distance that the vehicle can travel on a miles per gallon equivalent basis are not related to tailpipe CO₂ emissions. The EPA notes that increasing vehicle electrification may require rethinking many of the metrics and methods used in this report. While no significant changes were made this year, EPA is evaluating the best metrics and methods to explain these ongoing trends and technologies for future reports.

EPA's [2022 EPA Automotive Trends Report](https://www.epa.gov/automotive-trends) and supporting data and interactive graphics are available for download at <https://www.epa.gov/automotive-trends>.



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