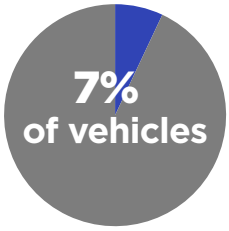
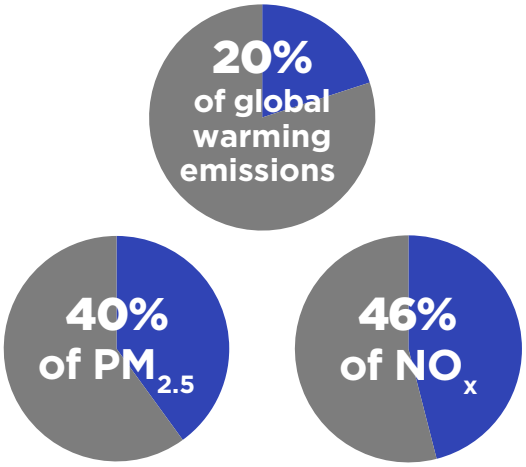
What the Advanced Clean Truck Rule Will Do for Massachusetts

Big trucks and buses cause disproportionate harm.

On Massachusetts' roads, big trucks and buses make up:



However, when it comes to the emissions released by all on-road vehicles in Massachusetts, trucks and buses are responsible for:



NO_x and $PM_{2.5}$ are toxic air pollutants that aggravate respiratory symptoms and can have life-threatening consequences.

Deploying electric trucks will help Massachusetts' economy . . .

- ✓ **$1.8 billion** in health-related savings
- ✓ **$837 million** in annual net societal benefits
- ✓ **$7.5 billion** in net societal benefits cumulatively by 2050

. . . and improve Massachusetts' environment and health.

- ✓ NO_x reduced by **85%**
- ✓ $PM_{2.5}$ reduced by **27%**

  Nearly doubling *expected reductions of $PM_{2.5}$ by 2050*

- ✓ **157** avoided hospital visits
- ✓ **152** avoided premature deaths

Electric trucks and buses eliminate toxic tailpipe pollutants compared with their conventional counterparts—and also carbon emissions, if the electricity or hydrogen comes from renewable sources. Read on to learn about the public health, environmental, and economic costs and benefits of Massachusetts adopting policies that bring more electric trucks and buses on the road.

Union of Concerned Scientists

How Clean Trucks Can Benefit Massachusetts

Buses, delivery vehicles, tractor-trailer trucks, and other medium- and heavy-duty (M/HD) vehicles are an essential part of our economy. Though their operation facilitates commerce, trucks and buses are also a significant source of toxic air pollution and climate-changing carbon emissions. Conversely, electric trucks and buses powered by batteries or hydrogen fuel cells eliminate toxic tailpipe pollutants, and when powered by clean electricity or hydrogen, can operate with zero carbon emissions as well.

These vehicles are becoming increasingly available, and regulatory efforts such as California's Advanced Clean Trucks (ACT) rule can speed the transition to a future in which transportation poses less risk to public health and the climate. California adopted the ACT in 2020, requiring truck manufacturers to produce and sell an increasing percentage of zero-emissions M/HD vehicles. Under the Clean Air Act, California can set emissions standards such as the ACT that are stricter than federal standards, and other states may then adopt California's rules.

A recent study commissioned by the Union of Concerned Scientists and the Natural Resources Defense Council evaluated the public health, environmental, and economic costs and benefits of Massachusetts and other Northeast states adopting the ACT and a related regulation, called the Heavy-Duty Omnibus (HDO) rule, that will reduce nitrogen oxide (NO_x) emissions from internal combustion M/HD vehicles. This fact sheet highlights the key results.

Big Trucks, Even Bigger Impacts

The nearly 340,000 M/HD vehicles on Massachusetts' roads significantly impact public health and the environment. Although they represent less than 1 in 10 of all vehicles on Massachusetts roads and highways, these big trucks and buses are responsible for around 9 percent of the state's global warming pollution (MA DEP 2020), approximately 46 percent of its NO_x, and just over 40 percent of its fine particulate matter ($PM_{2.5}$) from on-road vehicles.

Long term exposure of NO_x and $PM_{2.5}$ can have life-threatening consequences and damage ecosystems already threatened by climate change.

Under the ACT, nearly 30 percent of medium- and heavy-duty vehicle sales in Massachusetts will be zero-emissions trucks by 2030, where far less than 1 percent are today.

Short-term exposure to toxic air pollutants such as NO_x and $PM_{2.5}$ aggravates respiratory symptoms, especially in vulnerable populations, and long-term exposure at even moderate concentrations can have life-threatening consequences. These health impacts significantly reduce Massachusetts' economic productivity, and the commonwealth's environment suffers too: NO_x and $PM_{2.5}$ damage sensitive ecosystems and acidify rain, streams, rivers, and lakes. Climate change will intensify these effects.

Clean Trucks for Massachusetts

The Massachusetts Department of Environmental Protection is poised to adopt California's ACT and HDO rules in late 2021; the former will require a growing percentage of the new trucks and buses being sold to be zero emissions beginning in 2024, and the latter will minimize toxic air pollution from new diesel trucks. Adopting the ACT will put Massachusetts well on the path to a cleaner and more efficient transportation future: by 2030, nearly 30 percent of M/HD vehicle sales in the commonwealth will be zero-emissions trucks, where far less than 1 percent are today. That share of annual sales is estimated to rise to nearly 60 percent by 2035, eliminating almost 22 million metric tons of carbon dioxide cumulative through 2050. This shift to cleaner trucks will bring significant health, economic, and environmental benefits to Bay Staters.

Cleaner Trucks, Clear Health Benefits

With the ACT and HDO regulations in place, Massachusetts will see a nearly 85 percent reduction in NO_x emissions from M/HD vehicles in 2050 and a 27 percent reduction in $PM_{2.5}$ emissions, resulting in approximately 152 fewer premature deaths, 157 fewer hospital visits, and nearly 90,000 avoided minor sicknesses. This amounts to more than $1.7 billion in savings from avoided health care costs.

Clean Trucks Mean Business

Massachusetts' economy will also benefit from the savings that zero-emissions M/HD vehicles will bring to truck operators and businesses—more than $830 million annually in 2050—along with increased electric utility revenue and air quality and climate benefits. While the sticker price of electric trucks may be higher than comparable diesel trucks today, continuing reductions in battery costs and vastly reduced fuel and maintenance expenses will save electric truck operators more than $12,000 in net lifetime savings per vehicle by 2040.

Massachusetts Can Still Aim Higher

Massachusetts' transition to cleaner, more efficient trucks and buses under the ACT and HDO would be good for the commonwealth's environment, economy, and human health—but these rules would still leave some benefits on the table. If Massachusetts adopts additional policies to ensure that all new M/HD vehicles sold by 2040 produce zero emissions, the commonwealth would see more than twice the reduction in global warming pollution by 2050 (83 percent lower than the baseline) and a 25 percent increase in cumulative health-related savings.

The content of this fact sheet is distilled from the Southern New England Clean Trucks Program report conducted by ***M.J. Bradley for the Union of Concerned Scientists and Natural Resources Defense Council****. Read the report online at www.ucsusa.org/resources/truck-pollution-united-states. For more information, contact Sam Wilson, senior vehicles analyst in the UCS Clean Transportation Program, at swilson@ucsusa.org.*

Reference

MA DEP (Massachusetts Department of Environmental Protection). 2020. Statewide Greenhouse Gas Emissions Level: 1990 Baseline and 2020 Business As Usual Projection Update: Appendix C. Boston, MA. https://www.mass.gov/doc/appendix-c-massachusetts-annual-greenhouse-gas-emissions-inventory-1990-2017-with-partial-2018/download

[Adopting California's Advanced Clean Trucks rule in Massachusetts will benefit the state's public health, environment, and economy.]

Union of Concerned Scientists

www.ucsusa.org/resources/truck-pollution-united-states

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