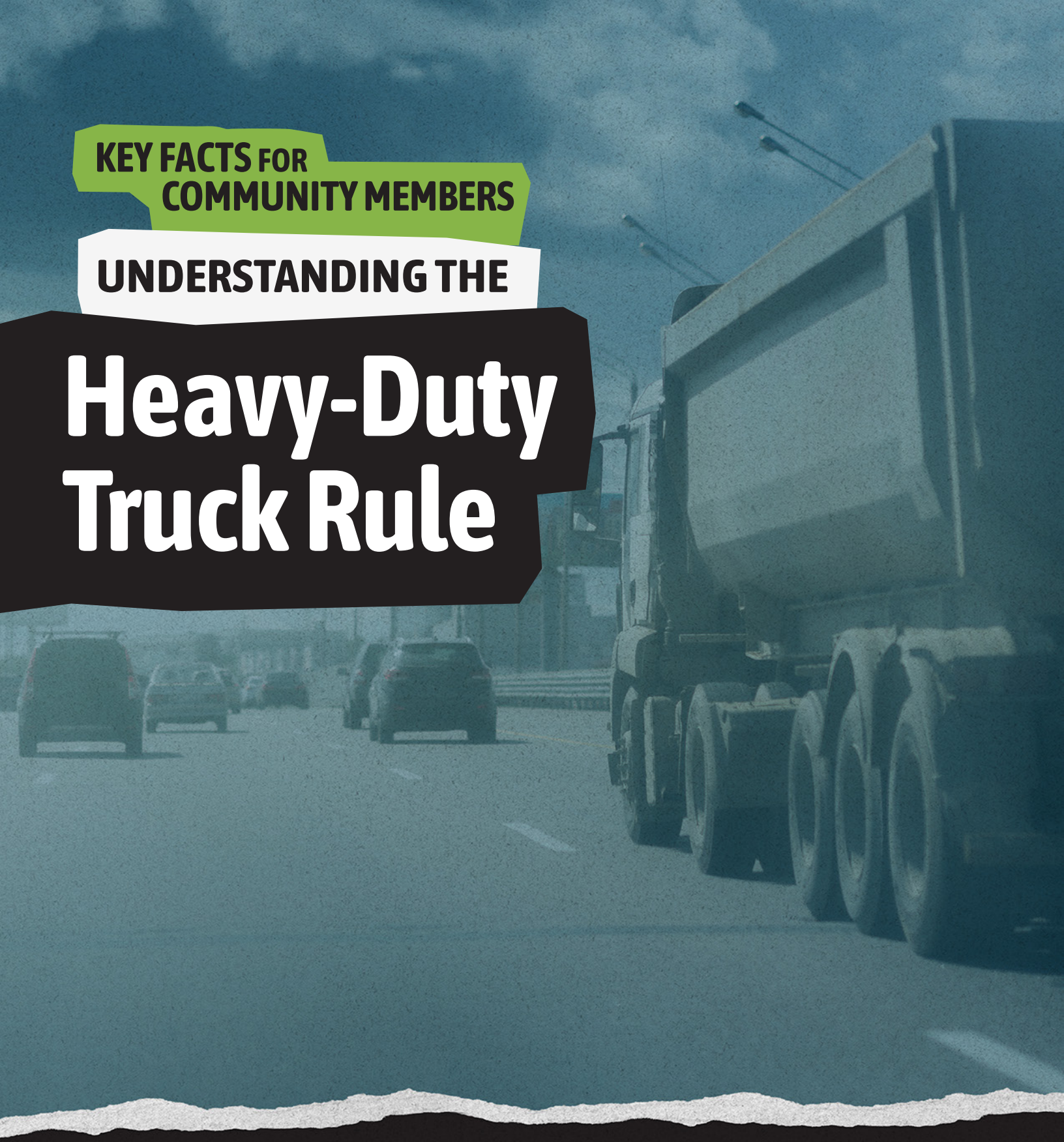

KEY FACTS FOR COMMUNITY MEMBERS

UNDERSTANDING THE

Heavy-Duty Truck Rule

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Moving Forward Network

Moving Forward Network

Understanding the Heavy-Duty Truck Rule

The **Heavy-Duty Truck Rule**, first adopted as part of the US Environmental Protection Agency's (EPA) Clean Trucks Plan in 2022, attempts to curb health-harming pollution from new heavy-duty trucks.[1] This fact sheet introduces how the rule came to be, what activity it regulates, and the gaps it leaves in fully protecting environmental justice (EJ) communities.

The Heavy-Duty Truck Rule addresses health-harming pollutants including NOx and particulate matter from heavy-duty trucks. The EPA's Clean Trucks Plan includes two other proposed rules (the proposed GHG Phase 3 Rule and the proposed Multi-Pollutant Emissions Standards for Light-Duty and Medium-Duty Vehicles) that attempt to regulate greenhouse gas emissions from new heavy-duty trucks as well as multiple emission types from medium-duty trucks.

DIESEL AND PUBLIC HEALTH:

What harms environmental justice (EJ) communities?

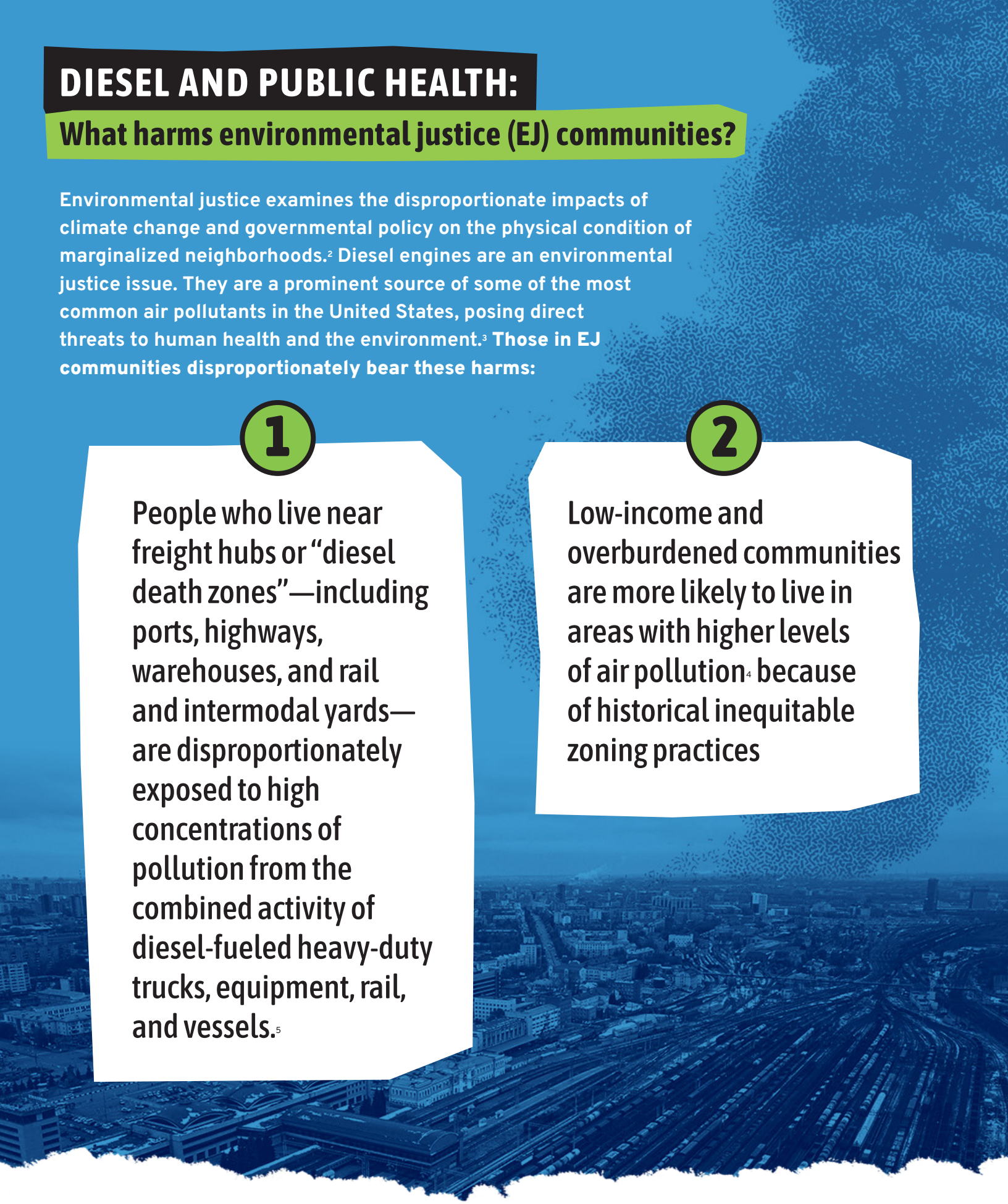
Environmental justice examines the disproportionate impacts of climate change and governmental policy on the physical condition of marginalized neighborhoods.[2] Diesel engines are an environmental justice issue. They are a prominent source of some of the most common air pollutants in the United States, posing direct threats to human health and the environment.[3] Those in EJ communities disproportionately bear these harms:

1

People who live near freight hubs or "diesel death zones"—including ports, highways, warehouses, and rail and intermodal yards—are disproportionately exposed to high concentrations of pollution from the combined activity of diesel-fueled heavy-duty trucks, equipment, rail, and vessels.[5]

2

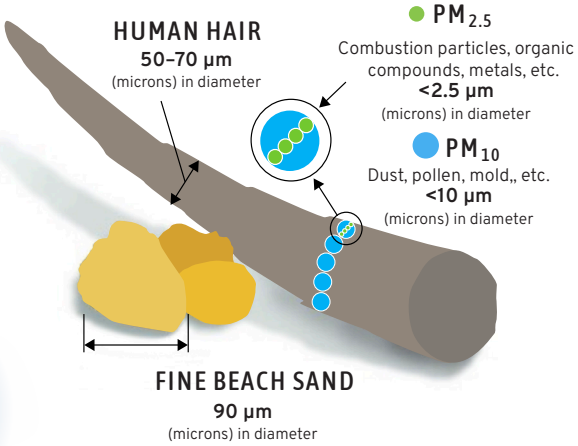
Low-income and overburdened communities are more likely to live in areas with higher levels of air pollution[4] because of historical inequitable zoning practices



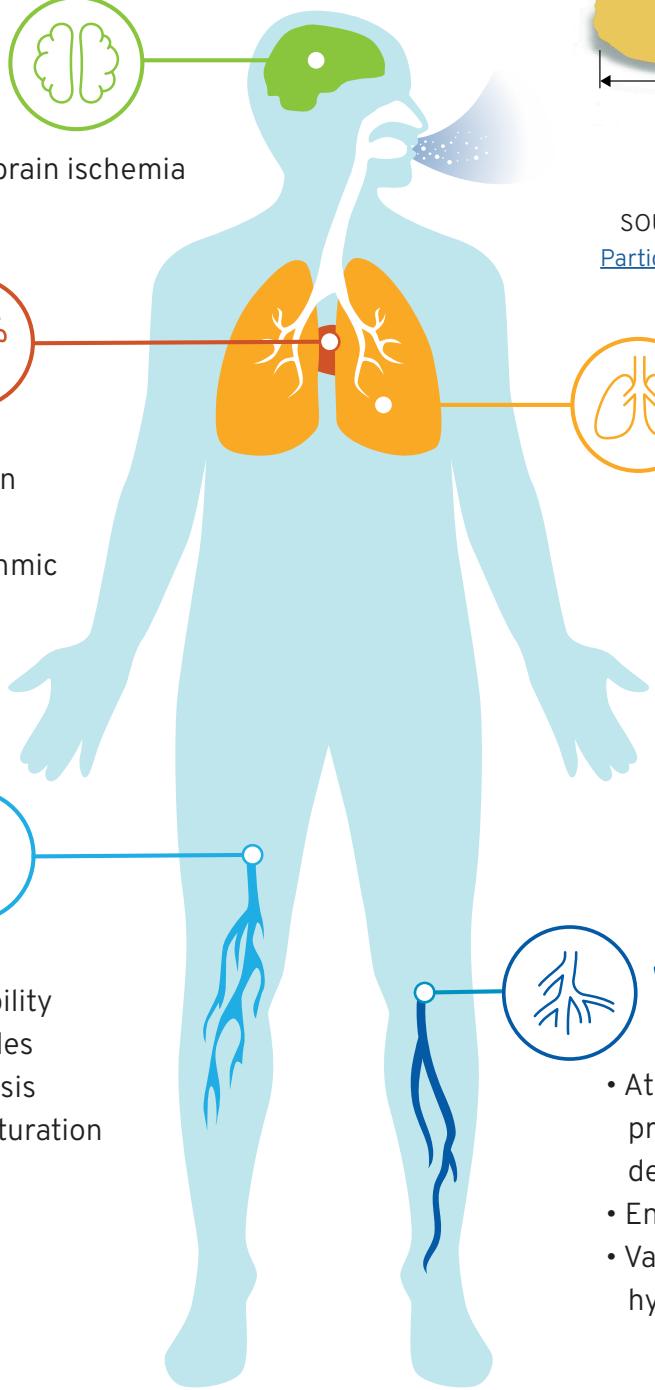
DIESEL AND PUBLIC HEALTH:

How Does Particulate Matter Affect Your Body?

COMPARISON OF HAIR, SAND AND $PM_{2.5}$ & PM_{10} PARTICLES



SOURCE: A Critical Review on the Effect of Particulate Matter (PM) in Air on Public Health



Brain

- Increased brain ischemia

Heart

- Altered cardiac autonomic function
- Oxidative stress
- Increased dysrhythmic susceptibility
- Altered cardiac repolarization

Lungs

- Inflammation
- Oxidative stress
- Accelerated progression and exacerbation of COPD
- Increased respiratory symptoms
- Effected pulmonary reflexes
- Reduced lung function

Blood

- Altered Rheology
- Increaded coagulability
- Translocated particles
- Peripheral thrombosis
- Reduced oxygen saturation

Vasculature

- Atherosclerosis, accelerated progression and destablization of plaques
- Endothelial dysfunction
- Vasocontriction and hypertension

Source: "Summary Report of the Aphekom Project 2008-2011."

DIESEL AND PUBLIC HEALTH:

Common Types of Pollutants

Some common pollutants in the United States include NOx and particulate matter.

PM

Particulate matter (PM) is made of solids and liquids that are small enough to inhale. Once in your body, particulate matter can enter your lungs and bloodstream, causing health issues such as asthma, heart attacks, and even death for people with pre-existing heart and lung illnesses.[6]

NOx

NOx is the collective term for nitrogen monoxide and nitrogen dioxide. Long-term exposure to high levels of NOx can lead to diseases like bronchitis, worsen the impact of heart disease, and contribute to premature deaths.[7]

GREENHOUSE GASES

Greenhouse gases, primarily CO_2, speed up the rate of climate change by trapping heat in the atmosphere. In the United States, the communities that are most vulnerable to heat-related health impacts are Black and Hispanic communities.[10]

HC

Hydrocarbons (HC) are another pollutant that, when mixed with NOx, create ground-level ozone that can cause long-term lung damage.[8]

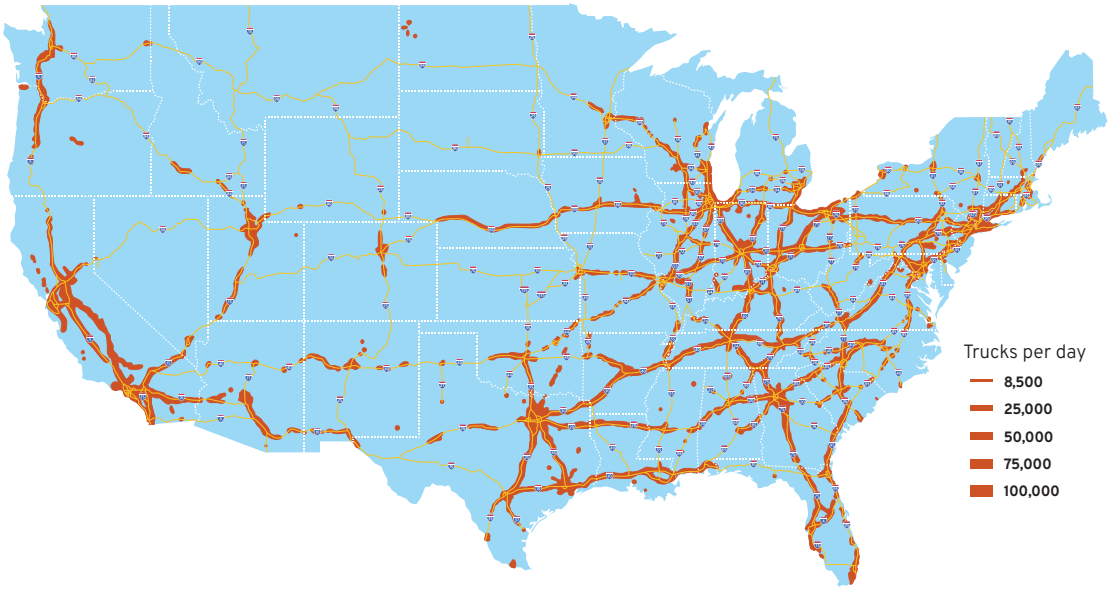
CO

Carbon monoxide (CO) can poison and kill humans when inhaled.[9]

WHY DO WE NEED THE HEAVY-DUTY TRUCK RULE?

Medium and heavy-duty trucks are a major source of NOx and particulate matter emitted by the transportation sector: while only 10% of vehicles on the road are medium and heavy-duty vehicles, 45% of NOx and 56% of PM2.5 (the smallest, most hazardous type of particulate matter[11]) originate from these vehicles.[12] These emissions worsen community air quality, contributing to increased rates of diseases like asthma and lung cancer within communities near major transportation routes.[13]

Trucking Routes Across the US Carrying 8,500 or More Trucks per Day



Source: American Lung Association. "Delivering Clean Air: Health Benefits of Zero-Emission Trucks."

The transportation sector is the largest contributor to man-made greenhouse gas emissions in America.[14] Medium and heavy-duty trucks produce a disproportionate share of this pollution: they make up 10% of on-road vehicles but produce 28% of greenhouse gases emitted from among on-road vehicles.[15]

Decreasing the level of pollution allowed by new heavy-duty trucks on the road can help improve air quality, support community health, and lessen the speed of climate change.

WHO HAS DECISION-MAKING POWER OVER THE HEAVY-DUTY TRUCK RULE?

Who Decides?

While regulations on air quality are often drafted and implemented by the US Environmental Protection Agency (EPA), multiple elected officials and governmental bodies hold decision-making power and influence over the final version of the EPA's regulations.

The EPA sets nationwide standards to protect and improve air quality, as directed by the Clean Air Act. One way that the EPA does this is through setting emissions standards for vehicles.[16]

The President often sets the agenda and direction for the EPA by issuing Executive Orders, as President Biden did with the Justice40 Initiative.

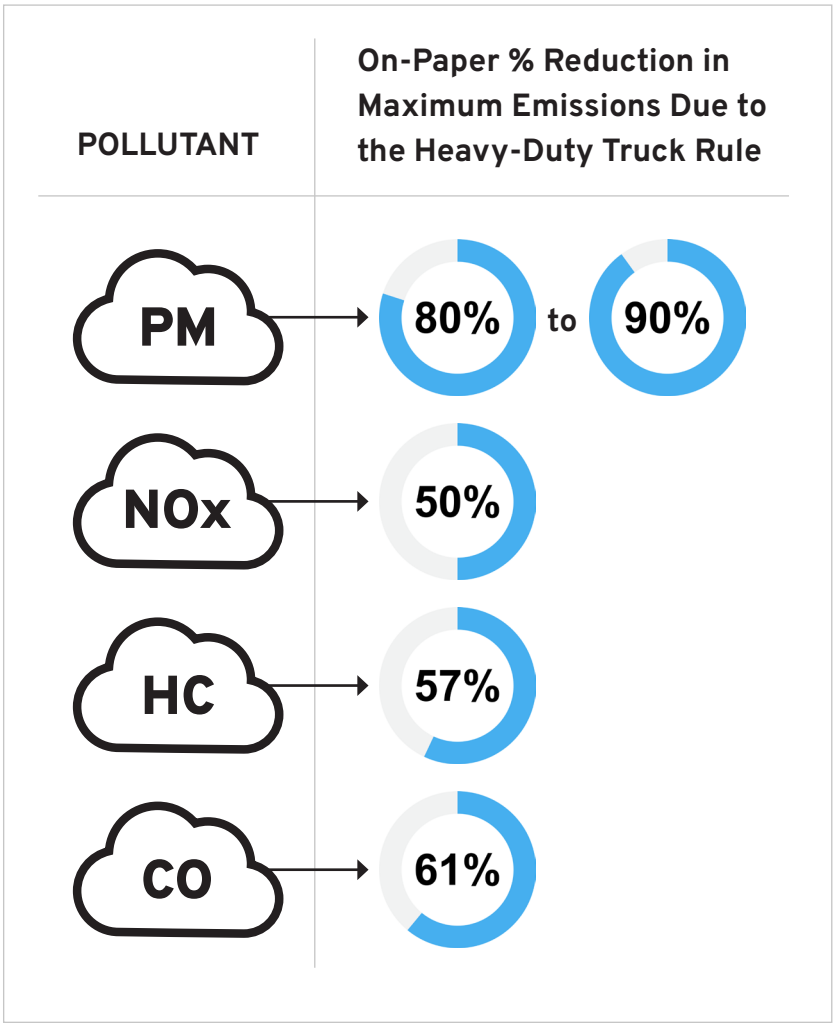
Congress has the power to overturn EPA rules that have recently been finalized.[17] For Congress to officially block new rules, the President must approve the Congressional block.[18]

The Office of Management and Budget (OMB) establishes how government agencies, including the EPA, should draft and implement "significant" regulations.[19]

WHAT ACTIVITY IS REGULATED BY THE HEAVY-DUTY TRUCK RULE?

The Heavy-Duty Truck Rule establishes the amount of NOx, particulate matter, HC, and CO emissions allowed by heavy-duty trucks manufactured in model year 2027 and later. When compared to current regulations, the rule regulates the levels of emissions over a longer period of time and for a wider range of uses.

Reducing Maximum Emissions Levels



While these are the emissions reductions the EPA claims the Heavy-Duty Truck Rule will achieve, actual reductions are dependent on the operating conditions of the truck.

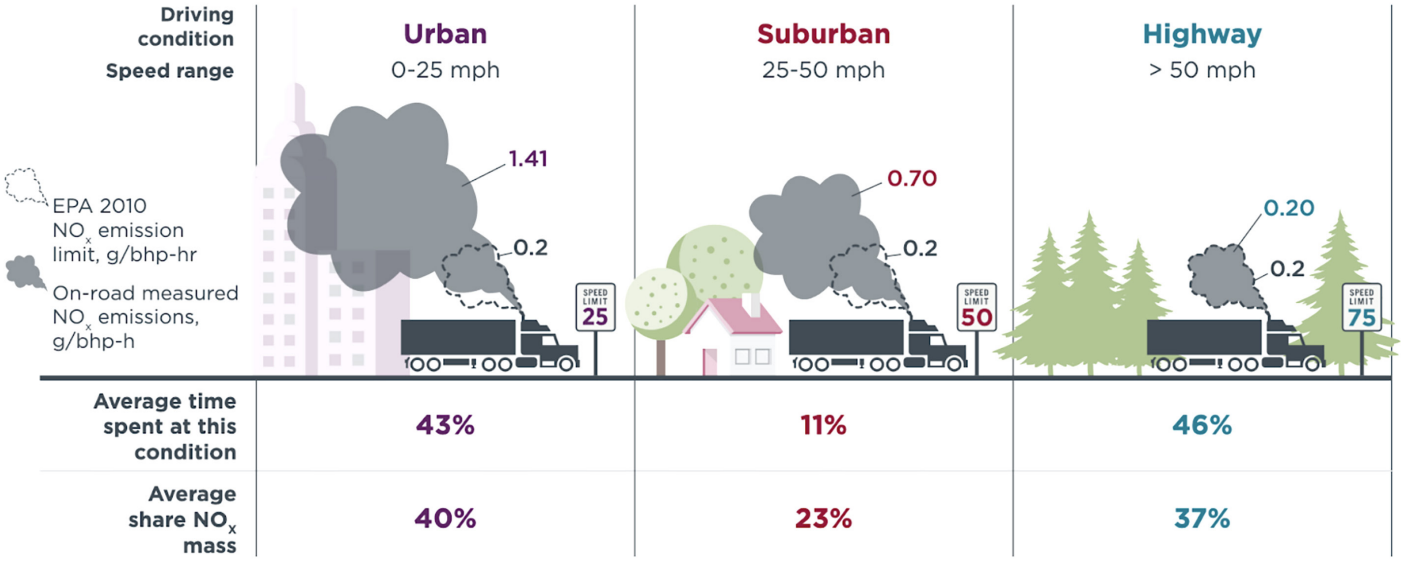
WHAT ACTIVITY IS REGULATED BY THE HEAVY-DUTY TRUCK RULE?

Addressing Operating Conditions

Trucks can generate different levels of emissions depending on how they are operated.

Slightly more regulation for different operating loads: Emissions control systems are less effective when trucks are idle. This means that a truck in stop-and-go traffic, often seen in urban diving conditions, can actually release more pollutants than the same truck in continuous movement.[20] The Heavy-Duty Truck Rule establishes that a truck will be subject to two sets of emissions standards: 1) emissions when the truck is in continuous, high-power movement and 2) emissions when the truck is idle or in stop-and-go traffic.

COMPARISON OF LINE-HAUL VEHICLE NOX EMISSIONS UNDER URBAN, SUBURBAN, AND HIGHWAY DRIVING CONDITIONS

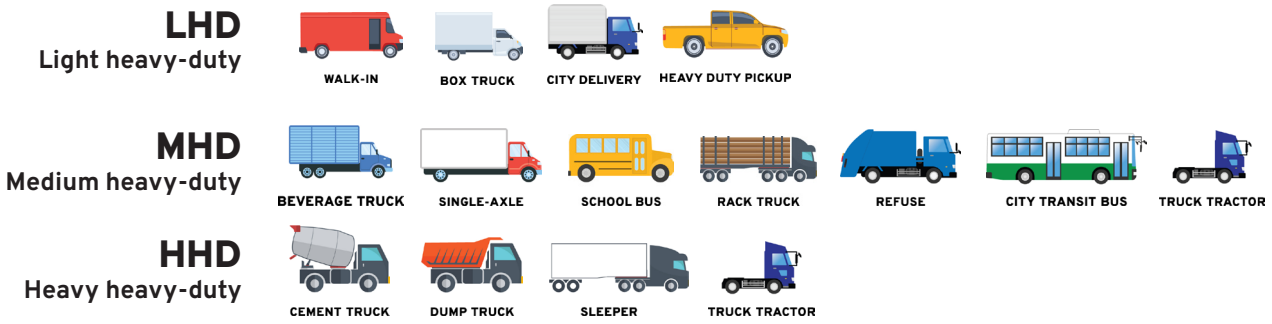


Source: https://theicct.org/sites/default/files/publications/NOx_Emissions_In_Use_HDV_US_20191125.pdf

A loophole for different operating temperatures: Truck manufacturers claim that the temperature of the air around the engine can drastically impact emissions control systems. The rule allows trucks to pollute more at temperatures under 77°F and **does not regulate truck emissions at temperatures under 40°F.**[21]

WHAT ACTIVITY IS REGULATED BY THE HEAVY-DUTY TRUCK RULE?

TYPES OF VEHICLES REGULATED BY HEAVY-DUTY TRUCK RULE



Source: How Much Does a Semi Truck Weigh? A Comprehensive Overview

Extending the Useful Life

The Heavy-Duty Truck Rule also extends the legally defined "useful life" of trucks depending on their model year (MY). This means that the vehicles must meet the emissions standards set in the rule for a longer period of time.[22]

A USEFUL LIFE PERIODS FOR HEAVY-DUTY COMPRESSION IGNITION PRIMARY INTENDED SERVICE CLASSES

PRIMARY INTENDED SERVICE CLASS	CURRENT (PRE-MY 2027)			FINAL (2027 AND LATER)		
	MILES	YEARS	HOURS	MILES	YEARS	HOURS
LHD ENGINE	110,000	10	-	270,000	15	13,000
MHD ENGINE	185,000	10	-	350,000	12	17,000
HHD ENGINE	435,000	10	22,000	650,000	11	32,000

Source: Heavy-Duty Engine and Vehicle Standards – Final Rule, p. 123

How will the EPA ensure compliance?

The rule specifies how manufacturers should test and report the performance of their stock to the EPA. The EPA can fine manufacturers for selling trucks that do not meet the emissions requirements stated in the Heavy-Duty Truck Rule.[23]

WHAT SHOULD EJ COMMUNITIES KEEP IN MIND?

How are trucks regulated when operating near EJ communities?

- ✔ Urban EJ communities may still be subject to higher levels of pollution from truck traffic. Trucks are more likely to experience stop-and-go traffic within urban areas and port communities, where highways often cut through low-income communities and communities of color. While the Heavy-Duty Truck Rule introduces new standards to regulate emissions in these conditions, trucks are still permitted to pollute more in stop-and-go traffic.

How did the EPA calculate the new emissions standards?

- ✔ The standards for particulate matter emissions are based on the current state of diesel engines.[24] This means that in some cases, rather than push for increased protection of communities, the Heavy-Duty Truck Rule maintains the status quo.

How will the EPA monitor truck performance?

- ✔ The temperature-based loophole allows for trucks to pollute more at temperatures under 77°F and pollute freely at temperatures under 40°F. This loophole could lead to real-life NOx emissions that are 60% higher than on-paper emissions.[25]

How can we ensure that EJ communities benefit from truck regulations?

- ✔ The Moving Forward Network demands zero emissions throughout the freight transportation system. The coalition mobilizes grassroots efforts to advocate for policies that require all new trucks are zero emission by 2035 and retire all diesel trucks before 2045.

ENDNOTES

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