Maryland
Department of
the Environment

Medium and Heavy-Duty Trucks

An Emerging Area to Achieve Significant Emission Reductions

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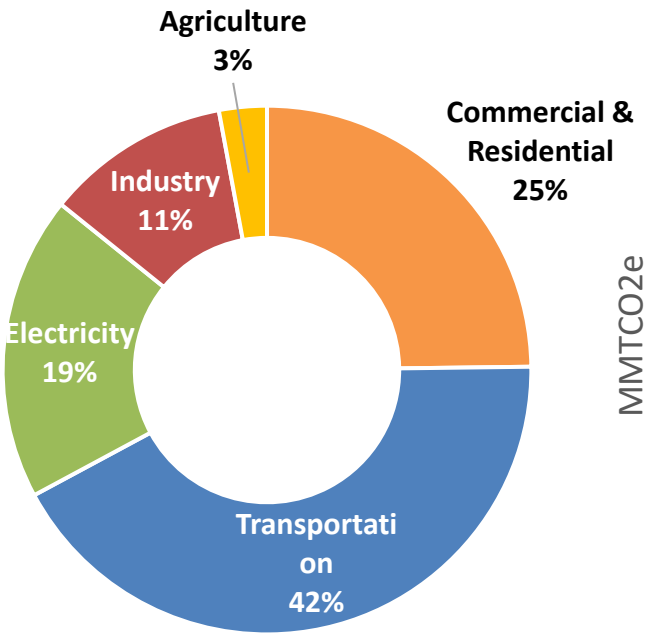
New Vehicle Emission Regulations

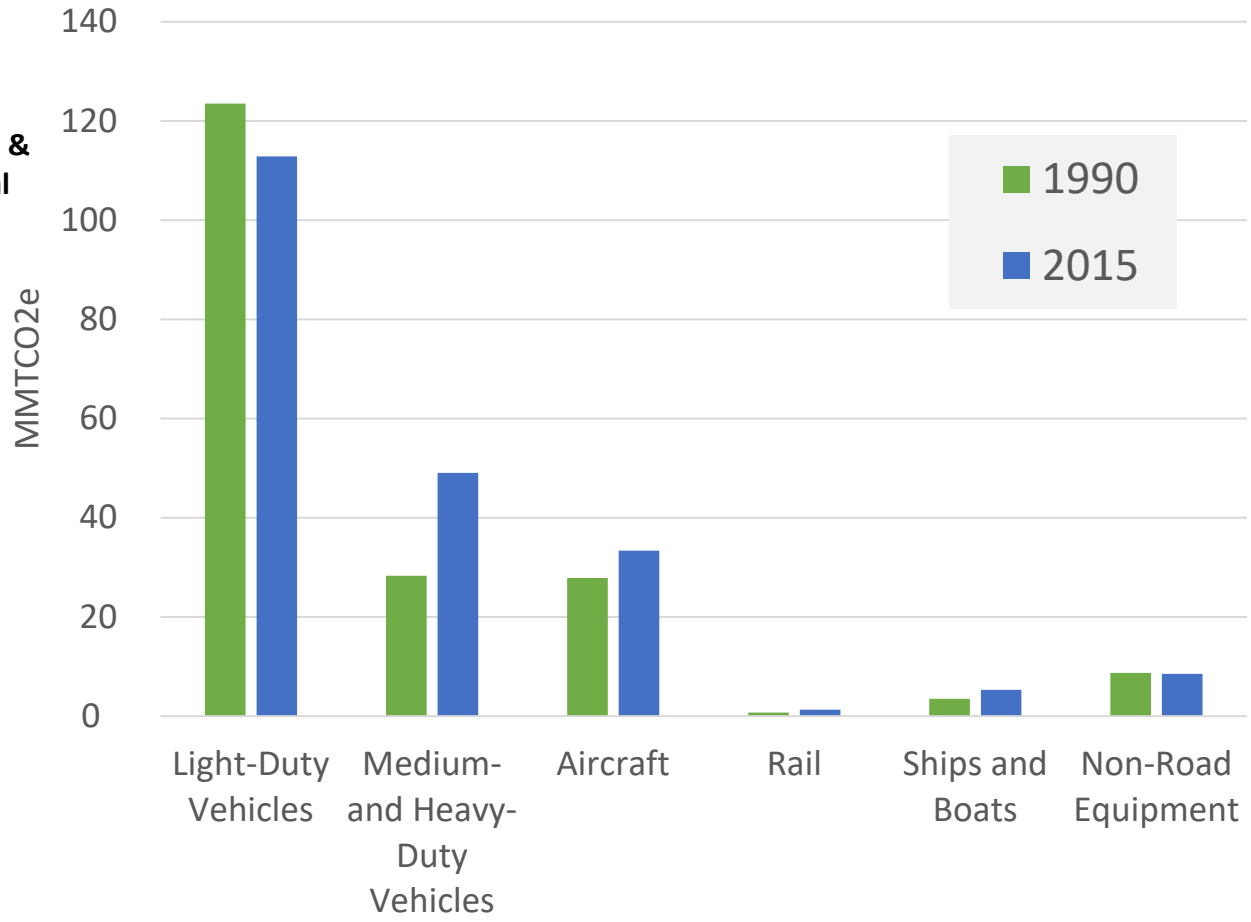
- All new vehicles (light, medium, and heavy-duty) have to meet emission certification standards set by either EPA or California Air Resources Board (CARB).
- California is the only state allowed to set their own new vehicle emission standards under the Clean Air Act (CAA).
- Section 177 of the CAA allows other states to adopt California's emission standards as long as they are identical.

California Medium/Heavy-Duty Regs

- CARB has more stringent emission regulations for MHD vehicles.
  - MDE did not adopt these regulations when adopting the light-duty regulations.
- CARB has recently developed regulations that strengthen the emission requirements for MHD vehicles.
  - Vehicles with a GVWR over 8,500 lbs.
  - Class 2b – Class 8 vehicles.
- The Advanced Clean Truck (ACT) Regulation requires a growing percentage of vehicles sold to be zero emission.
- The Heavy-Duty Omnibus Regulation reduces NOx emissions.

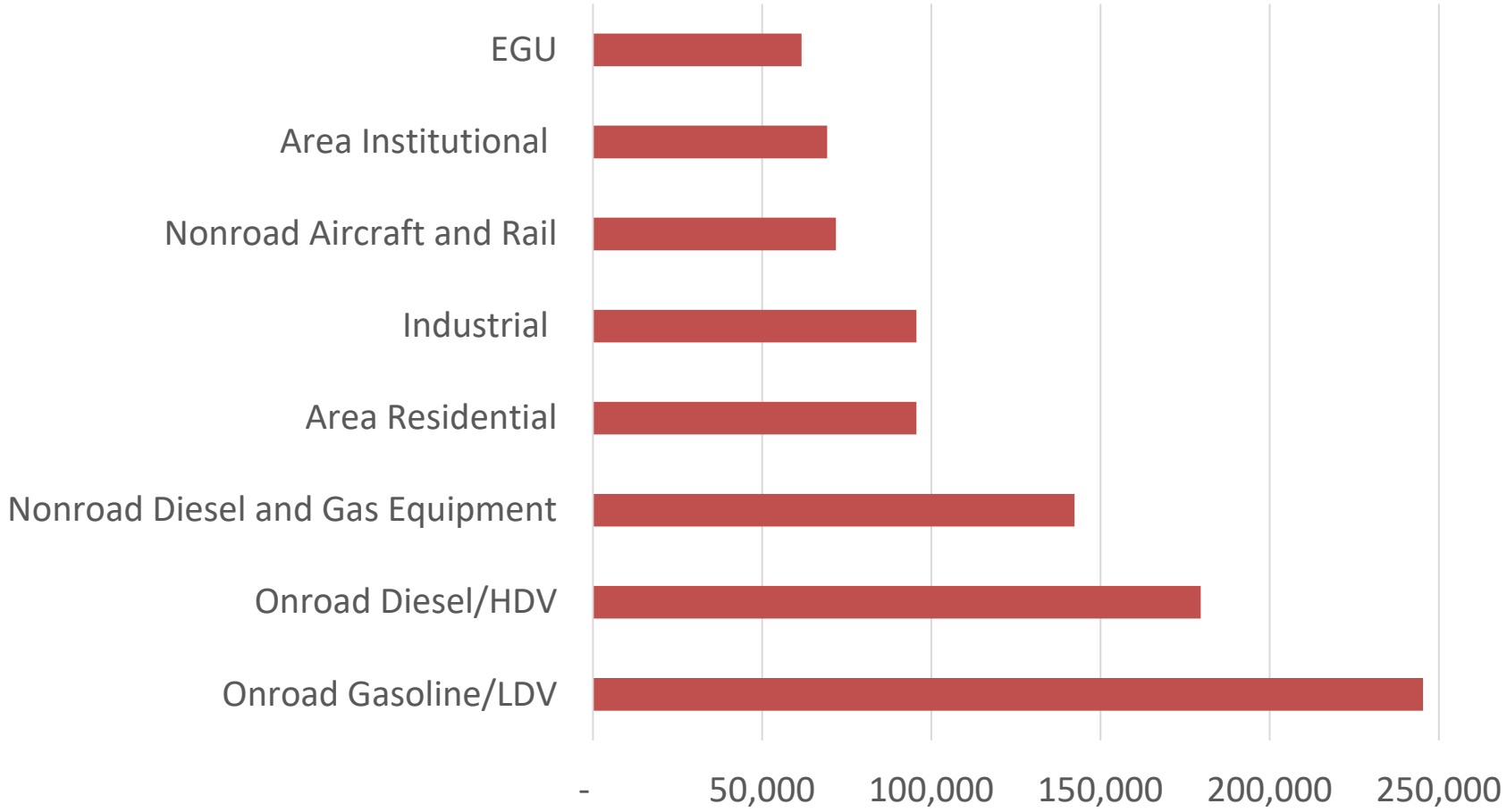
Greenhouse Gas Emission in the Northeast





Source: State Inventory Tool (2015 emissions)

2017 NOx Emissions (Tons) in Mid-Atlantic/Northeast



Advanced Clean Truck (ACT) Program

- HB230 and SB224 would require Maryland to adopt the ACT by December 1, 2023.
- If adopted by the end of 2023, the first year we could capture is MY 2027(January 2, 2026). The Clean Air Act requires two MY lead time for vehicle manufacturers.
  - MDE could adopt using existing authority or through specific enabling legislation.
  - Would adopt through Incorporation by Reference the same way Clean Cars Program was adopted.

Advanced Clean Truck (ACT) Program

- The ACT requires certain manufacturers of medium and heavy-duty trucks to sell ZEVs as an increasing percentage of annual truck and bus sales in California.
  - Regulation also contains a Large Entity Reporting Requirement for owner/operators of trucks to submit fleet information to CARB by April 1, 2021.
  - This Large Entity Reporting Requirement can be carved out of the regulation without altering the ZEV component.
- ZEV sales were phased-in beginning in MY 2024 and increase through MY 2035, remaining constant thereafter.

Advanced Clean Truck (ACT) Program

- Different Truck Classes have different ZEV sales percentage requirements.
  - Class 2b-3, begin at 5% and increase to 55% by 2035MY
  - Class 4-8, begin at 9% and increase to 75% by 2035MY
  - Class 7-8 tractors, begin at 5% and increase to 40% by 2032MY
- Similar credit, banking, and trading program as light-duty manufacturers have under the Advanced Clean Car.

Advanced Clean Truck (ACT) Program

Model Year	Class 2b-3	Class 4-8	Class 7-8 Tractor
2024	5%	9%	5%
2025	7%	11%	7%
2026	10%	13%	10%
2027*	15%	20%	15%
2028	20%	30%	20%
2029	25%	40%	25%
2030	30%	50%	30%
2031	35%	55%	35%
2032	40%	60%	40%
2033	45%	65%	40%
2034	50%	70%	40%
2035	55%	75%	40%

*First Year MD can enforce

Medium/Heavy-Duty Trucks

TRUCK CLASSES

LIGHT DUTY

- Class 1: Truck GVWR from 0 to 6,000 pounds (0 to 2,722 kg).
- Class 2: Truck GVWR from 6,001 to 10,000 pounds (2,722 to 4,536 kg). Class 2 is subdivided into Class 2A and Class 2B, with Class 2A being 6,001 to 8,500 pounds (2,722 to 3,856 kg) pounds, and Class 2B being 8,501 to 10,000 pounds (3,856 to 4,536 kg) pounds
- Class 3: Truck GVWR from 10,001 to 14,000 pounds (4,536 to 6,350 kg)

MEDIUM DUTY

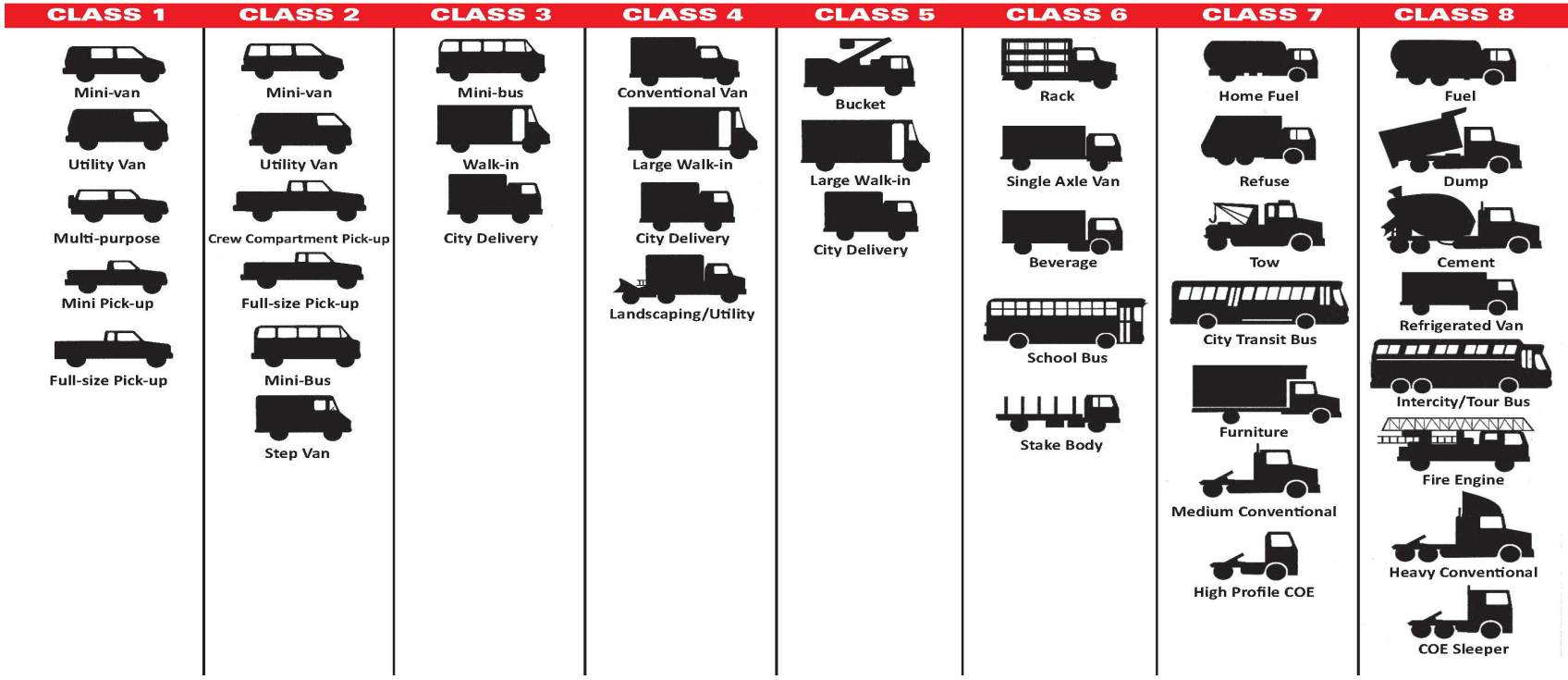
- Class 4: Truck GVWR from 14,001 to 16,000 pounds (6,351 to 7,257 kg).
- Class 5: Truck GVWR from 16,001 to 19,500 pounds (7,258 to 8,845 kg).
- Class 6: Truck GVWR from 19,501 to 26,000 pounds (8,846 to 11,793 kg).

HEAVY DUTY

- Class 7: Truck GVWR ranges from 26,001 to 33,000 pounds (11,794 to 14,969 kg).
- Class 8: Truck GVWR includes anything above 33,000 pounds (14,969 kg). These include all tractor trailer trucks.

Vehicles in Class 7 and above require a Class B CDL (Commercial Drivers License) to operate in the United States.

GVWR = gross vehicle weight rating



California Heavy-Duty Omnibus Regulation

- The Heavy-duty Omnibus Regulation is a separate regulatory action to ACT. The Omnibus regulation reduces NOx emissions from heavy-duty trucks.
  - The rule was finalized and adopted by California December 2021.
- The Omnibus Regulation ultimately requires a 90% reduction in tailpipe NOx emissions for on-road heavy-duty engines from the current 0.20 gNOx/bhp-hr to 0.02 gNOx/bhp-hr.
- CARB'S standard is phased in with 0.05gNOx/bhp-hr for 2024-2026 with full reductions (0.02 gNOx/bhp-hr) starting in 2027 and fully implemented in 2031.
- CARB also updated testing requirements to ensure real-world emission performance meets the regulatory requirements.
- The Omnibus Regulation lengthens existing emission warranty periods to better reflect the longevity and usage of modern vehicles.

California Heavy-Duty Omnibus Regulation

- Similar to ACT, the earliest we could adopt would be December 2023, which means the first year we could capture is MY 2027(January 2, 2026).
  - MDE could adopt using existing authority or through specific enabling legislation.
  - Would adopt through Incorporation by Reference the same way Advanced Clean Car Program was adopted.

Where Is EPA on this Issue?

- The EPA used the CA rule as the basis for its proposed Clean Truck Program (CTP), the two programs are similar.
  - On December 20, 2022, EPA released their Final Clean Truck Rule
  - Similar to CARB Omnibus
  - Implementation will begin in 2027

Quick comparison of Omnibus and CTP

- For 2027 and subsequent model years, the Omnibus regulation progressively increases the stringency of the heavy-duty emissions standards in two phases:
  - 2027 -2030 model year transitional period, and
  - Final standards for 2031+ model years.

- CTP includes one set of standards for 2027 and subsequent model years

- Lowest requirement in CTP is 0.035 gNOx/bhp-hr, compared to 0.02 gNOx/bhp-hr for California Omnibus Program

- While some of the CTP elements are more stringent than the Omnibus transitional 2027 requirements, many of the CTP elements are weaker than the final Omnibus requirements

- CTP has introduced the concept of a temperature adjustment function for off-cycle standards, which significantly relaxes the NOx standards at ambient temperatures below 25 ˚C. This temperature adjustment would lower the effectiveness of the CTP.

QUESTIONS?