



How the Upcoming ACT/HDO Deadline Will Adversely Impact Government, Businesses and Residents

What is the Advanced Clean Truck (ACT) Rule? In accordance with Mass. Gen. Laws ch. 111; §142K, Massachusetts adopted the emissions standards established by the California Air Resources Board (CARB). Specifically, CARB approved the Advanced Clean Truck rule in June 2020; Massachusetts adopted the same in 2021. The Advanced Clean Truck (ACT) rule has two main parts: (1) the ACT requires that manufacturers sell an increasing number of zero-emission medium and heavy-duty vehicles (MHDs), greater than 8,500 pounds GVWR, from 2024 to 2035. The sales target varies according to the size of the vehicle. Specifically, by 2035, the standard will require that electric vehicles make up 55% of Class 2b to Class 3 annual sales, 75% of Class 4 to Class 8 straight truck annual sales, and 40% of truck tractor annual sales. *See* 310 CMR 7.40(1)(d)(3).

What is the Heavy-Duty Omnibus Rule? To further complicate matters, CARB also developed, and Massachusetts adopted in 2022, the Low NOx Heavy-Duty Omnibus (HDO) rule, which aims to substantially reduce toxic air pollutants (NOx) from heavy-duty vehicles. *See* 310 CMR 7.40(1)(d)(4). While the ACT rule establishes sales targets for electrifying MHD vehicles, the HDO rule focuses on strengthening the heavy-duty in-use testing program and creating certification procedures for these vehicles. Only two or three engines in the MHD space meet these standards and, if available, are much more expensive. In states that have only adopted the ACT, 1 for 10 MHD sales must be electric. In states that have adopted both the ACT and HDO, the effect is a mandate that 1 for 3 MHDs sold be electric.

What is the current state of the medium and heavy-duty market in Massachusetts? As of January 1, 2025, truck dealers in Massachusetts will be required to adhere to the heightened sales rules established by the ACT and further impacted by the HDO. Since the Commonwealth has adopted both the ACT and HDO, it has created a three-prong problem in Massachusetts: (i) lack of technological advances (i.e. not enough engines meet the ACT/HDO rule); (ii) a lack of existing inventory for private and public purchasers (i.e. limited stock of compliant MHD vehicles have been already spoken for or sold) and (iii) lack of electric infrastructure (i.e. infrastructure to support a MHD electric fleet is essentially non-existent within the state). As one can imagine, no one is buying electric MHD vehicles under these conditions, meaning dealers cannot sell diesel MHD vehicle, even if a compliant one is available.

















What will be the impact on Massachusetts businesses and residents as a result of ACT/HDO rules? First, Massachusetts fleet owners, public and private, will not be able to readily buy vehicles they need as of January 1, 2025 since there is a limited supply of engines that actually meet both the ACT/HDO rules. Most, if not all, of the limited supply of compliant vehicles, have already been sold or are committed for sale. Second, even if there was the infrastructure to support electric MHD, compliant electric MHD vehicles are much more expensive. Third, notwithstanding the aforementioned point, non-electric MHD vehicles will see a dramatic price increase as dealers struggle to meet the required ACT/HDO standards of 1 for 3 sales of electric vehicles. Finally, this issue further highlights the fact that the infrastructure does not currently exist in Massachusetts to support electric MHD yet. Given the unreliability (or the non-existence of) electric infrastructure necessary to support electric fleets, fleet owners, both public and private, are hesitant to purchase electric MHD vehicles. Of note, public fleet owners – whether state or local – will not even be able to buy the MHD vehicles they regularly purchase to plow roads, repairs streets, etc..

Will CARB and EPA rules governing emissions eventually align? Yes. In 2023, the CARB announced a Clean Truck Partnership to help achieve the state's own zero-emission goals. The Clean Truck Partnership, which includes many of the country's leading manufacturers, agreed that CARB would align with the United States Environmental Protection Agency's (EPA's) 2027 regulations for NOx emissions. This means that while 11 states nationwide have adopted the ACT rule, it is essentially a temporary measure before all states fall under the EPA's new rules in 2027. In fact, of states that initially supported the adoption of CARB standards, North Carolina, Connecticut, and Maine have since backed away from this initiative for many of the aforementioned problems.

What can the Commonwealth do to lessen the impact of the upcoming deadline? With the upcoming deadline of January 1, 2025, the Commonwealth should consider moving the deadline to align with the EPA's eventual standard in 2027. Absent a strategy that embraces the meeting of the EPA and CARB standards in 2027, the Commonwealth should institute a delay of a year to work with truck dealers and public and private fleet owners as they work through the aforementioned issues related to technology, availability (i.e. lack of ACT/HDO compliant vehicles) and capacity (i.e. lack of infrastructure).

FIGURE 1: MHD VEHICLE CLASSIFICATION

BY GROSS VEHICLE WEIGHT RATING (GVWR)

WT CLASS	CLASS 2B	CLASS 3	CLASS 4	CLASS 5	CLASS 6	CLASS 7	CLASS 8
GVWR	8,501-10,000 LB 3,856-4,536 KG	10,001-14,000 LB 4,537-6,350 KG	14,001-16,000 LB 6,351-7,257 KG	16,001-19,500 LB 7,258-8,845 KG	19,501-26,000 LB 8,846-11,793 KG	26,001-33,000 LB 11,794-14,969 KG	>33,000 LB >14,969 KG
EXAMPLE VEHICLES	 Crew Size Pickup	 City Delivery	 School Bus	 Coach Bus			
	 Work Truck	 Large Walk-in	 Single Axle	 Semi Tractor			
	 Utility Van	 Bucket Truck	 Rack Truck	 Dump Truck			
	 Walk-In Van	 Box Truck	 Refuse Truck	 Fire Truck			

SOME DEFINITIONS

THIS ACTION PLAN USES THE FOLLOWING TERMS TO REFER TO CERTAIN TYPES OF ON-ROAD VEHICLES:

MEDIUM-AND HEAVY-DUTY (MHD) refers to vehicles with a gross vehicle weight rating (GVWR) greater than or equal to 8,501 pounds (3,860 kilograms) regardless of how they are powered.

ZERO-EMISSION VEHICLES (ZEVs) INCLUDE:

Battery electric vehicles (BEVs) powered solely by an electric motor and battery;

and

Fuel cell electric vehicles (FCEVs) powered by an electric motor fueled by hydrogen.





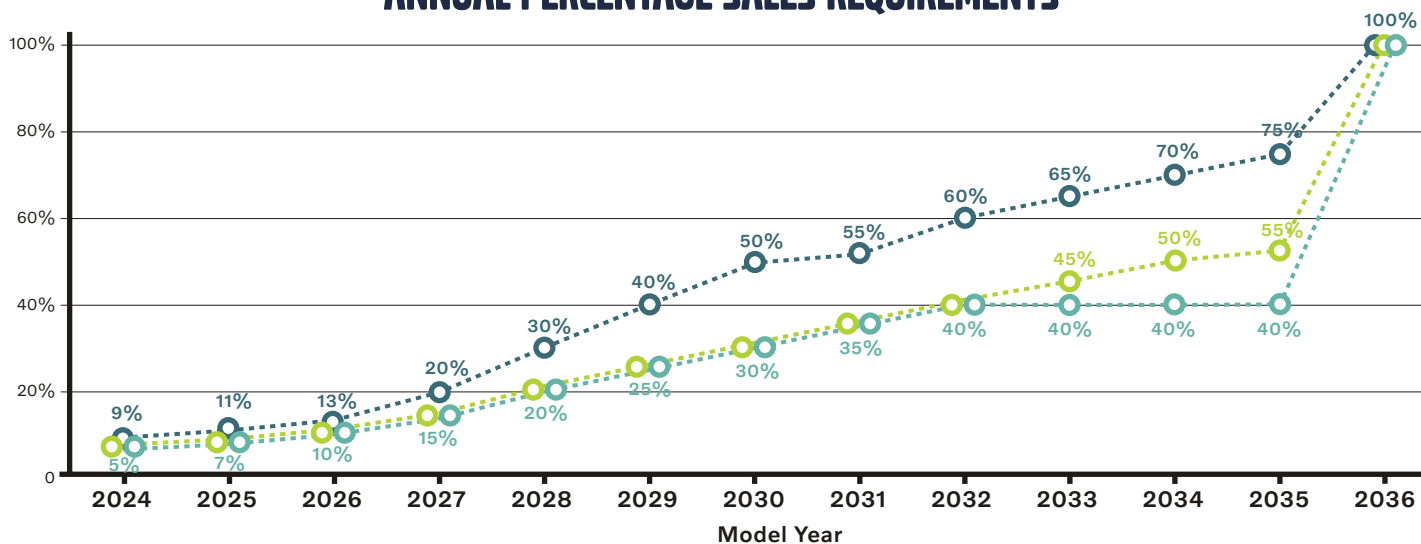
UNDERSTANDING CALIFORNIA'S ADVANCED CLEAN TRUCKS (ACT) REGULATION

California's Advanced Clean Trucks (ACT) Rule is a regulation approved by the California Air Resources Board (CARB) in March 2021 that requires medium- and heavy-duty vehicle manufacturers to sell zero-emission vehicles (ZEVs) as an increasing percentage of their annual sales in the state from 2024 to 2035, ultimately transitioning to only ZEV sales in California by 2036.

As shown in the chart below, the ACT Regulation divides vehicles into three groups:

- **Class 2b-3 On-road vehicles, 8,501 - 14,000 pounds GVWR**
- **Class 4-8 On-road vehicles with $\geq 14,001$ pounds GVWR, including yard tractors**
- **Class 7-8 On-road vehicles, $\geq 26,001$ pounds GVWR**

ANNUAL PERCENTAGE SALES REQUIREMENTS



Class 2b-3

On-road vehicles, 8,501 - 14,000 pounds GVWR



Class 4-8

On-road vehicles with $\geq 14,001$ pounds GVWR, including yard tractors



Class 7-8

On-road vehicles, $\geq 26,001$ pounds GVWR

HOW IS THE ACT REGULATION MEASURED?

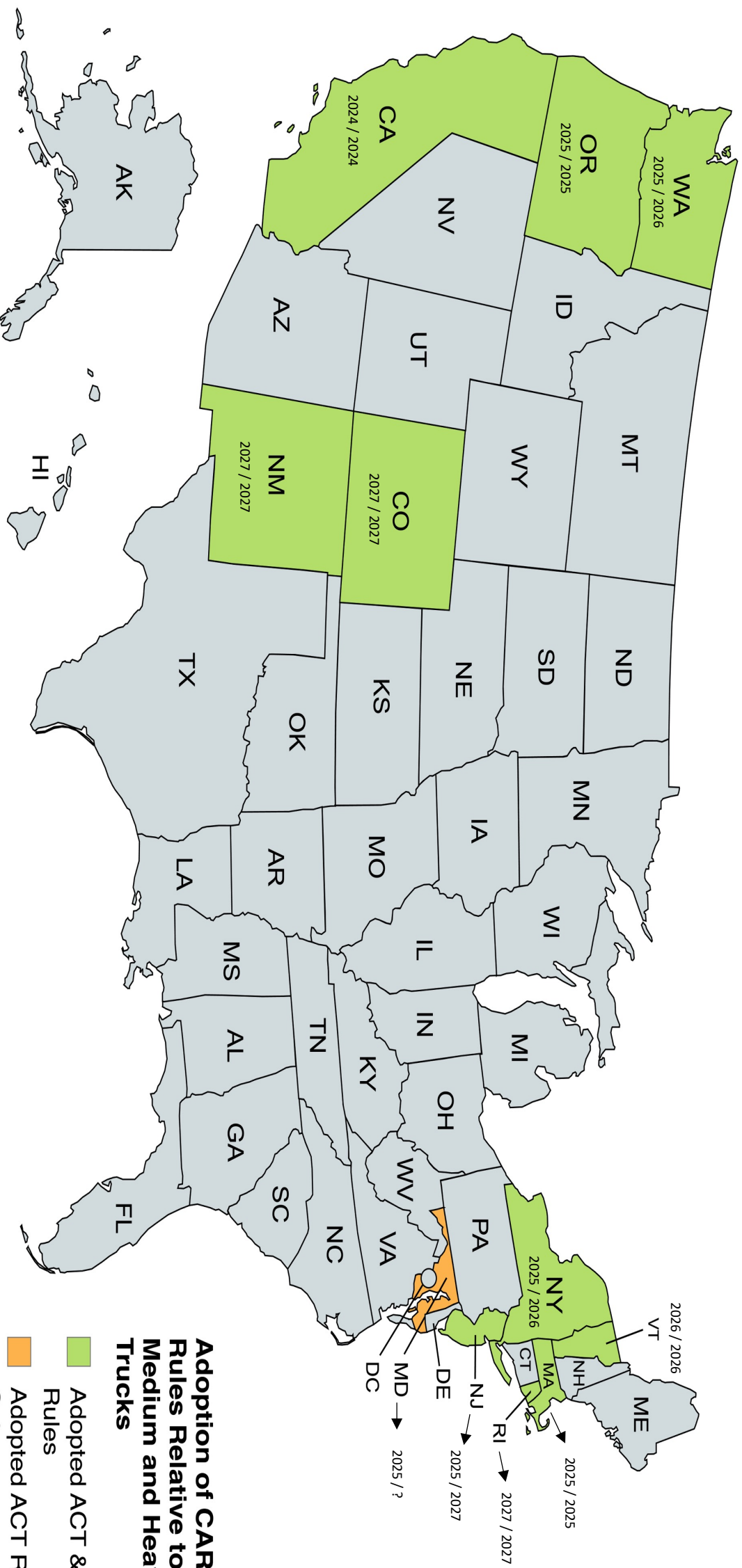
The ACT Regulation mandates the above ZEV sales percentages for all vehicle manufacturers that sell 500 or more vehicles per year in California. The ACT Regulation, which requires vehicle manufacturers to report the number of vehicles they sell within California each year, is structured as a credit and deficit accounting system. A manufacturer accrues deficits based on the total volume of on-road heavy-duty vehicle sales within California beginning with model year 2024 vehicles. These deficits must then be offset with credits generated by the sale of ZEVs or near-zero emission vehicles (NZEVs).

- Deficits are generated separately for each vehicle group. A weight class multiplier is applied to account for differences in emissions by internal combustion engines.
- Deficits from Class 2b-3 and Class 4-8 vehicle groups can be met with ZEV and NZEV credits from any vehicle group or sub-group.
- Deficits from Class 7-8 tractor trucks may only be met with credits from that same vehicle group.
- To achieve compliance, the number of credits banked or newly generated by a manufacturer must meet or exceed the number of deficits in a given year.



IF A VEHICLE MANUFACTURER DOES NOT MEET ITS ZEV SALES REQUIREMENTS, THE COMPANY CAN BE FINED BY CARB.

Adoption of Advanced Clean Truck (ACT) Rule and Heavy-Duty Omnibus (HDO) Rule



Adoption of CARB Rules Relative to Medium and Heavy Duty Trucks

- Adopted ACT & HDO Rules
- Adopted ACT Rule Only

Effective Date (Year):
ACT / HDO

Advanced Clean Truck Rule (ACT) and Heavy-Duty Omnibus Rule (HDO) Effective Dates







State	ACT Rule (Effective)	HDO (Effective)
California	2024	2024
Colorado	2027	2027
Maryland	2027	--
Massachusetts	2025	2025
New Jersey	2025	2027
New Mexico	2027	2027
New York	2025	2026
Oregon	2025	2025
Rhode Island	2027	2027
Vermont	2026	2026
Washington	2025	2026





















CARB 2024 / EPA 2027 Rules and Reggs.

Low NOx Omnibus








 Available
  Limited Availability
  Unavailable

2024 Engine Availability EPA/ 50-State  Non-CARB States  CARB States 	2025 Engine Availability EPA/ 50-State  Non-CARB States  CARB States 
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PACCAR (Peterbilt and Kenworth)		Navistar (International Trucks)		Daimler (Freightliner and Western Star Trucks)						Isuzu
MX11	MX13	A26	S13	DD5	DD8	DD13	DD15	DD16	4HK1	
										
										
455 & 510 HP Only				Gen 5						
455 & 510 HP Only				Gen 5						

 Available
  Limited Availability
  Unavailable

2024 Engine Availability		Cummins (All Brands of Trucks)												
Engine Model	Availability	B6.7	B6.7N	B6.7 octane	B6.7 propane	B7.2	L9	L9N	X10	X12	ISX12N	X15	X15 nxgen	X15N
EPA/ 50-State Non-CARB States   California w/CARB Warranty	Available	Available	Available	Available	Available	Unavailable	Available	Available	Unavailable	Available	Available	Available	Unavailable	Available
	Available	Available	Available	Available	Available	Unavailable	Limited Availability	Limited Availability	Unavailable	Limited Availability	Available	Limited Availability	Unavailable	Available
CARB States 	Limited Availability	Limited Availability	Unavailable	Unavailable	Unavailable	Unavailable	Limited Availability	Limited Availability	Unavailable	Limited Availability	Unavailable	Limited Availability	Unavailable	Available
	Available	Available	Available	Available	Available	Unavailable	Limited Availability	Limited Availability	Unavailable	Limited Availability	Available	Limited Availability	Unavailable	Available
2025 Engine Availability		Cummins (All Brands of Trucks)												
Engine Model	Availability	B6.7	B6.7N	B6.7 octane	B6.7 propane	B7.2	L9	L9N	X10	X12	ISX12N	X15	X15 nxgen	X15N
EPA/ 50-State Non-CARB States   California w/CARB Warranty	Available	Available	Available	Available	Available	Unavailable	Available	Available	Unavailable	Available	Available	Available	Unavailable	Available
	Available	Available	Available	Available	Available	Unavailable	Limited Availability	Limited Availability	Unavailable	Limited Availability	Available	Limited Availability	Unavailable	Available
CARB States 	Limited Availability	Limited Availability	Unavailable	Unavailable	Unavailable	Unavailable	Limited Availability	Limited Availability	Unavailable	Limited Availability	Unavailable	Limited Availability	Unavailable	Available
	Available	Available	Available	Available	Available	Unavailable	Limited Availability	Limited Availability	Unavailable	Limited Availability	Available	Limited Availability	Unavailable	Available