



Maryland
Department of
the Environment

Medium-Heavy Duty ZEV MOU



September 20, 2022
Tim Shepherd, MDE



MOU Background

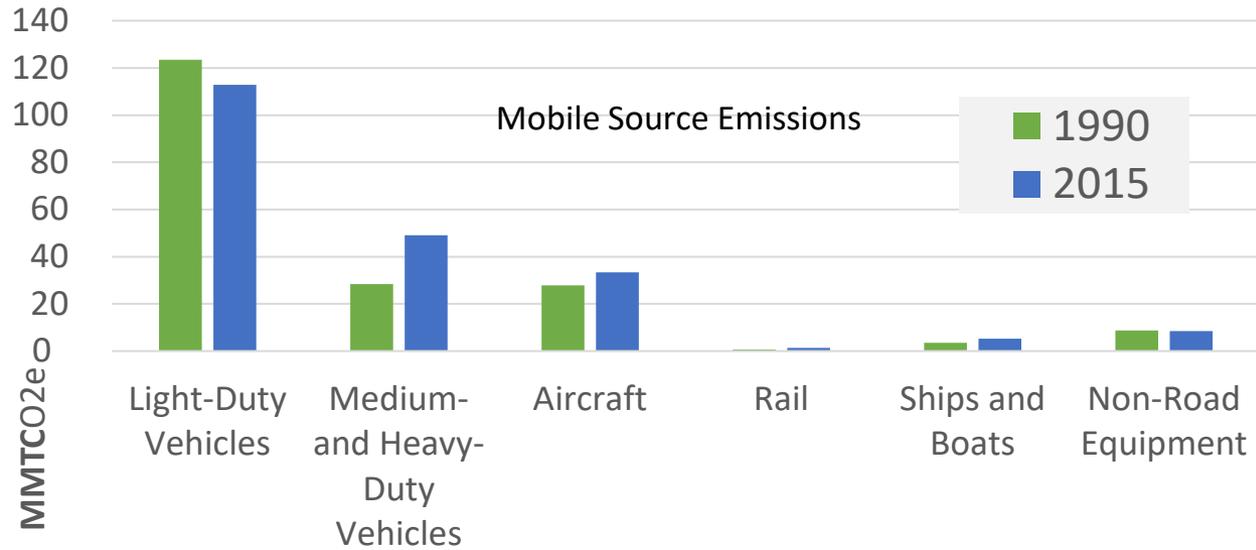
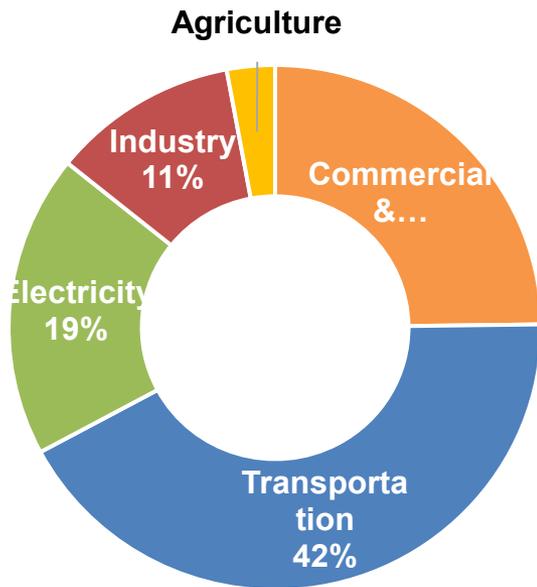
Environmental Issues

- NAAQS (National Ambient Air Quality Standards)
 - Nonattainment for ozone
 - Nitrogen Oxides (NOx) the greatest contributor to ozone
 - On-road mobile sources are the largest contributor to NOx in Maryland Climate Change
 - Due to geographic location, Maryland is very vulnerable to effects of climate change
 - Maryland has set aggressive Greenhouse Gas (GHG) reduction goals of 60% reduction by 2031
 - On-road mobile sources account for over a third of all GHG emissions



MOU Background

Greenhouse Gas Emissions in the Northeast



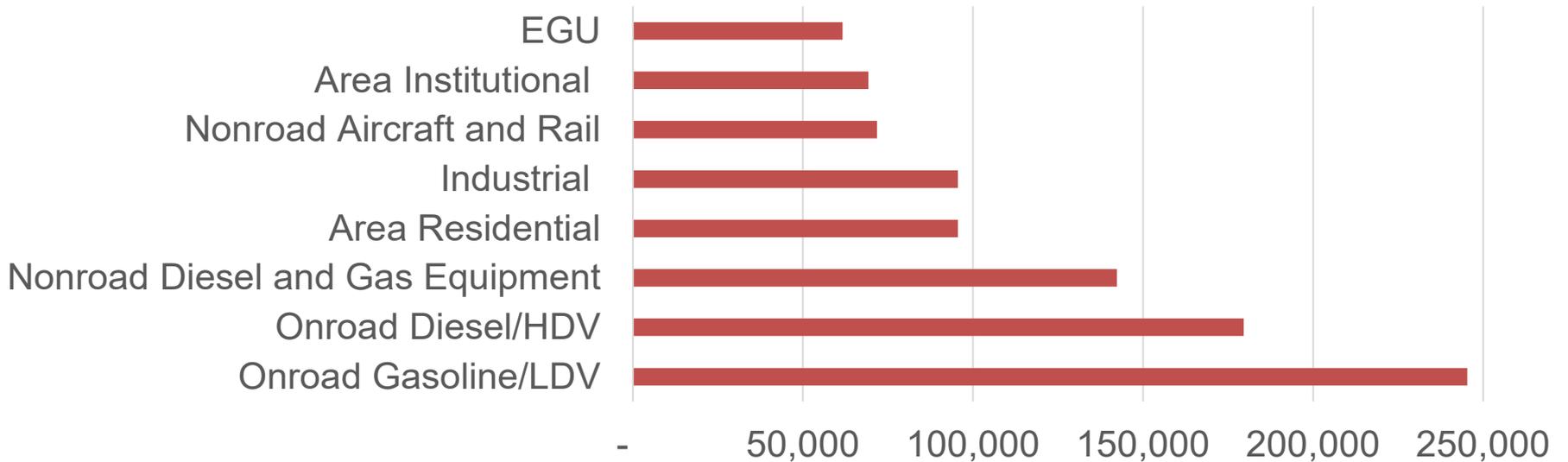
Source: State Inventory Tool (2015 emissions)





MOU Background

2017 NO_x Emissions (Tons) in mid-Atlantic/Northeast





Light Duty Programs

State Initiatives

- Low Emission Vehicle (LEV) Standards
 - California adopted stricter light duty emission standards
 - Some states have adopted these stricter standards
 - Maryland adopted regulations under the Maryland Clean Car Program in 2008 and implemented in 2011
 - Adopts California's low emission vehicle program
 - Includes Zero Emission Vehicles (ZEV) mandate requiring manufacturers to make an increasing percentage of new vehicles for sale in Maryland ZEVs
 - The U.S. Environmental Protection Agency (EPA) harmonized with emission standards in 2012, creating one national program
- Light Duty ZEV MOU
 - Signed in 2013, and updated in 2018, includes nine states
 - Developed an Action Plan that identified barriers and policies for the acceleration of light duty ZEVs
 - Set a goal of 300,000 plug-in vehicles in Maryland by 2025



Heavy-Duty Programs

Heavy Duty Initiatives Stalled

- Heavy Duty Truck Standards of 2007
 - Developed in 2001
 - Implemented 2007 thru 2010
- Federal Clean Truck Standard
 - Announced in November 2018
 - Original intent was to work with CARB to develop a harmonized std. (similar to 2012 light duty stds.)
 - The new rule has been delayed several times and now has been pushed back, new date uncertain
 - Originally to go into effect 2027
 - California Air Resources Board (CARB) has moved ahead and proposed a new heavy-duty rule to go into effect 2024
 - EPA has delayed or rolled back several other heavy-duty rules (phase 2 fuel economy, glider rule)



Medium Heavy-Duty (MHD) ZEV MOU Background

States still need to meet Air Quality Standards/Goals

- Federal heavy-duty standards stalled
- Unable to set individual state standards
- Monitoring actions in California
- States moved ahead with exploring voluntary measures
 - December 12, 2019: nine states and the District of Columbia (D.C.) signed a letter of intent to develop a MOU to accelerate ZEVs in the heavy-duty sector
 - Work continues on MOU thru winter and spring 2020
 - July 14, 2021: 15 states and D.C. sign MOU

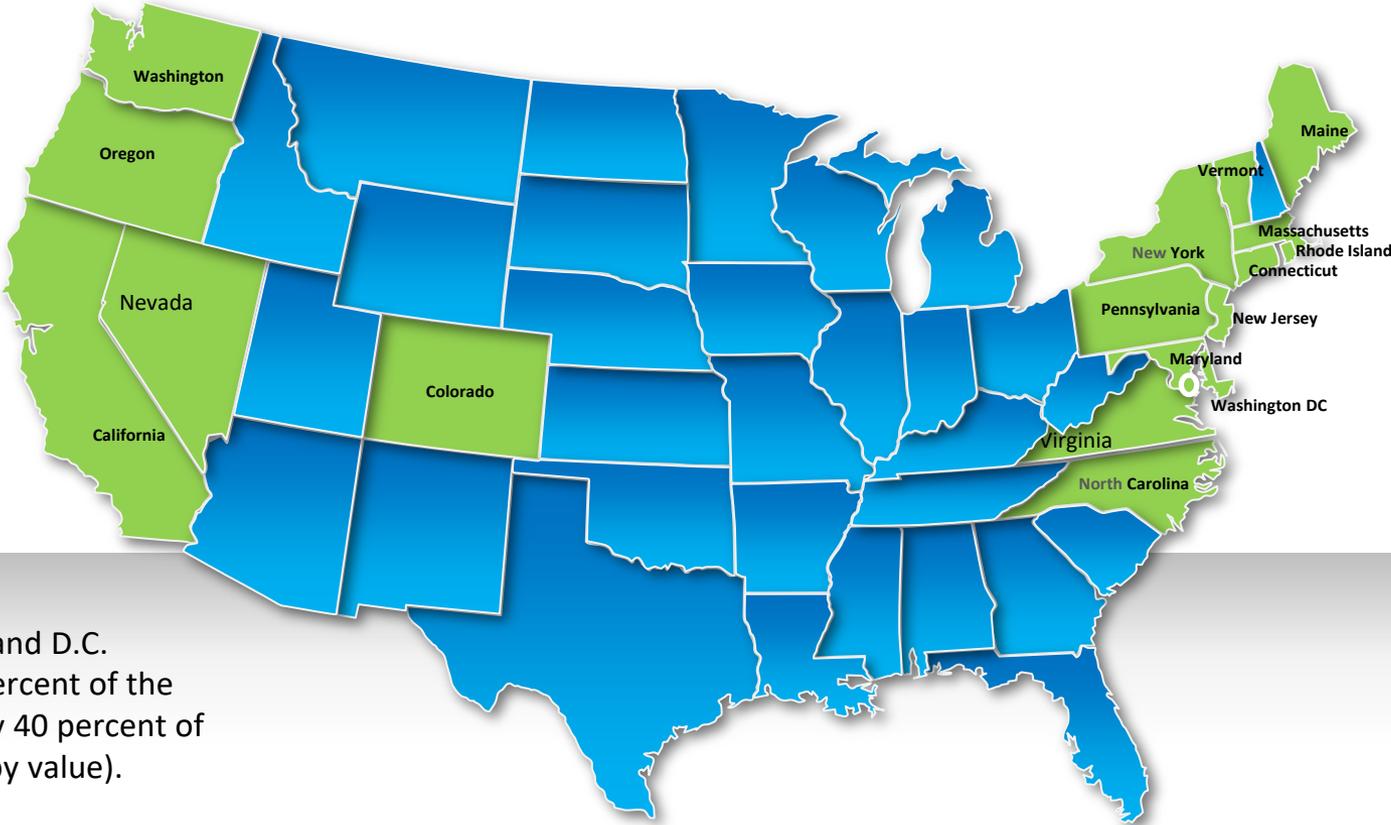


MHD ZEV MOU Background

MHD ZEV MOU

- Builds off success of 2013 MOU and subsequent Action Plans for light-duty vehicles
- Commits signatories to work together to foster a self-sustaining market for zero emission MHD vehicles
- Calls for 30% of new truck and bus sales to be zero-emission by 2030, and 100% by 2050
- Emphasizes need to accelerate deployment of zero-emission trucks and buses in disadvantaged communities
- Directs development and implementation of a MHD ZEV Action Plan
- Originally 15 states signed on (California, Colorado, Connecticut, Hawaii, Maine, Maryland, Massachusetts, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Rhode Island, Vermont, and Washington) plus D.C.
- Since original MOU, Nevada, Virginia and the Quebec have also signed on

MHD ZEV MOU Signatories



The 17 signatory states and D.C. account for almost 50 percent of the U.S. economy and nearly 40 percent of goods moved by truck (by value).

Sources:
U.S Bureau of Economic Analysis <https://apps.bea.gov/itable/iTable.cfm?ReqID=70&step=1#reqid=70&step=1&isuri=1>;
FHWA Freight Analysis Framework <https://faf.ornl.gov/faf4/Extraction1.aspx>

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



Action Plan Development

- The ZEV Task Force conducted stakeholder outreach to develop a multi-state Action Plan that considered the need for market-enabling actions. These stakeholder groups included:
 - Key National Community and EJ Organization
 - Commercial Fleets
 - Truck and Engine Manufacturers
 - Battery Manufacturers
 - Utilities
 - Electric Vehicle Supply Equipment (EVSE) Provider
 - NGOs (Non-Governmental Organizations)
 - Labor Unions





MHD ZEV Action Plan

- Based on stakeholder involvement, Northeast States for Coordinated Air Use Management (NESCAUM) developed the MHD ZEV Action Plan
- The Action Plan was released on July 27, 2022
- Plan divided into following sections:
 - Introduction
 - Supporting a Just and Equitable Transition
 - Why Zero-Emission Trucks and Buses
 - The Zero-Emission Truck and Bus Market Today
 - Building Market Momentum and Addressing Barriers
 - Strategies and Recommendations
 - Appendix
 - References, Photo Credits, and Acknowledgements



MHD ZEV Action Plan

- Strategies and Recommendations broken up into the following categories:
 - Vehicle Sales and Purchase Requirements
 - Vehicle and Infrastructure Purchase Incentives
 - Actions for Electric Utilities and Utility Regulators
 - Mobilizing Private Capital to Finance Fleet Conversions
 - Outreach and Education
 - Economic Equity for Workers
 - Community Air Monitoring
 - Planning for and Deploying Public Charging and Fueling Infrastructure
 - Ongoing Multi-State Research and Policy Evaluation
- Over 80 Strategies and Recommendations



MHD ZEV Action Plan

Next Steps



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