Medium- & Heavy-Duty (MHD) Zero Emission Vehicle (ZEV) Memorandum of Understanding (MOU)

Introduction to Maryland's Participation

November 2020

Maryland Energy Administration

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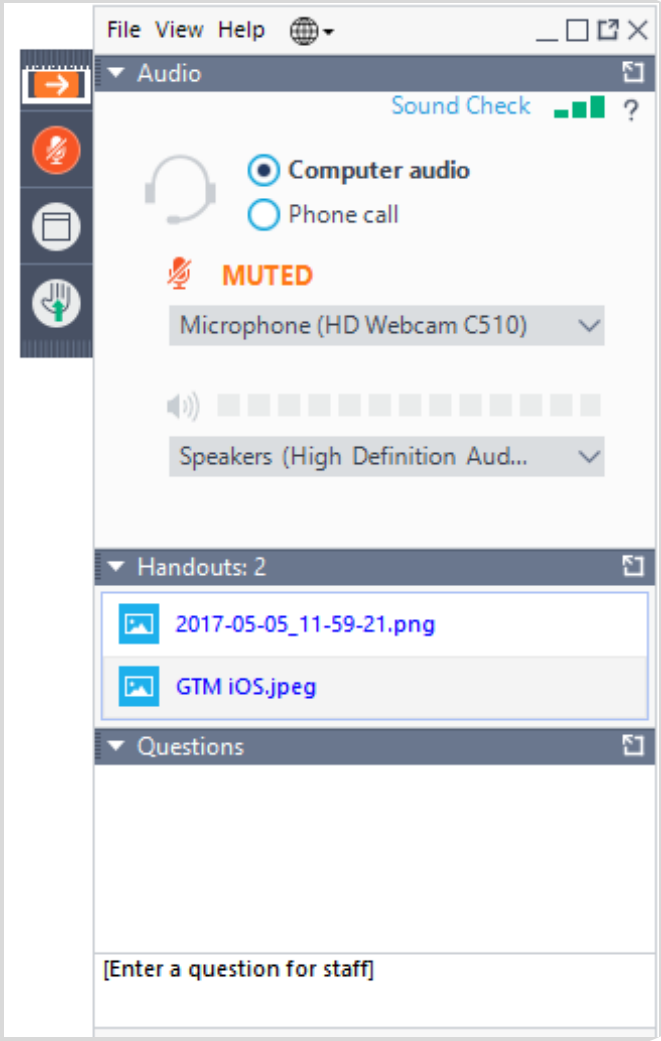
Welcome & Housekeeping

- This meeting is being recorded
- Please mute your microphone
- Tech difficulties? Contact us via the Questions panel

- Discussion
  - Comment or ask questions through the question panel or raise your hand
  - You will be unmuted by the facilitator
  - Please identify yourself and your affiliation(s)
  - Two minutes per participant

Raise Your Hand

Ask a Question



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Agenda

- Opening Remarks
- Introduction and Live Poll
- Background on Climate Change work in Maryland
- Introduction to the MHD ZEV MOU
- Funding and Incentive Opportunities
- Tracking and Implementation
- Facilitated Question and Answer Session
- Live Poll
- Adjourn

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Opening Remarks

- Secretary Ben Grumbles, Maryland Department of Environment
- Director Mary Beth Tung, Maryland Energy Administration
- R. Earl Lewis, Deputy Secretary for Policy, Planning, & Enterprise Services, Maryland Department of Transportation

Introduction

Colleen Turner, Assistant Director, Office of Planning & Capital Programming, MDOT

Maryland State Agencies Overview

Maryland Energy Administration

- MSEC/CFIP/CFTA
- EV/EVSE (Incentives/Rebates)
- Maryland Clean Cities Coalition

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- Install EVSE
- Chair/Staff ZEEVIC
- Track ZEV Registrations
- AFC Corridors

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- ZEV MOUs
- Maryland Clean Cars Program
- VW Settlement
- Chair/Staff MCCC

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Live Polling

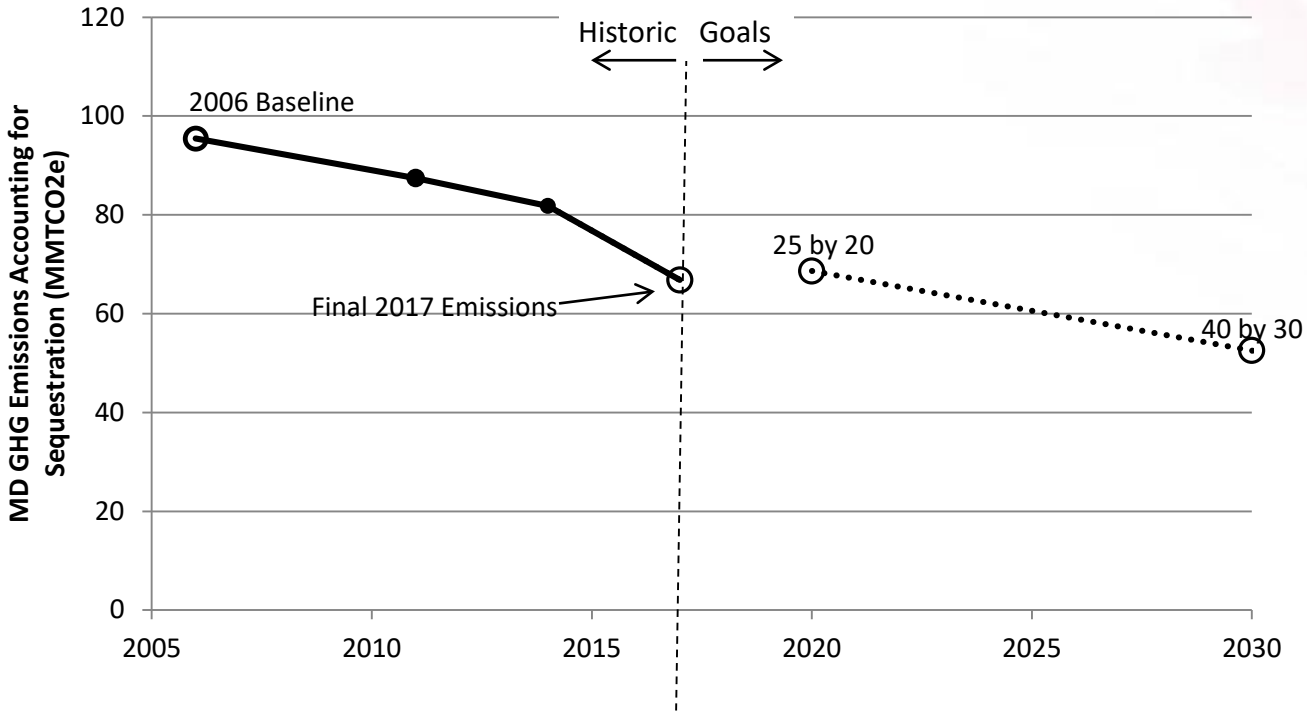
Who is joining us and how familiar are you with the subject matter?

Maryland's Climate Program

Chris Hoagland, Climate Change Program Manager, MDE

The Greenhouse Gas Reduction Act

Maryland Law ("GGRA"): Reduce GHGs 25% by 2020 and 40% by 2030



Maryland greenhouse gas emissions, accounting for sequestration. Note favorable weather drove additional reductions in 2017.

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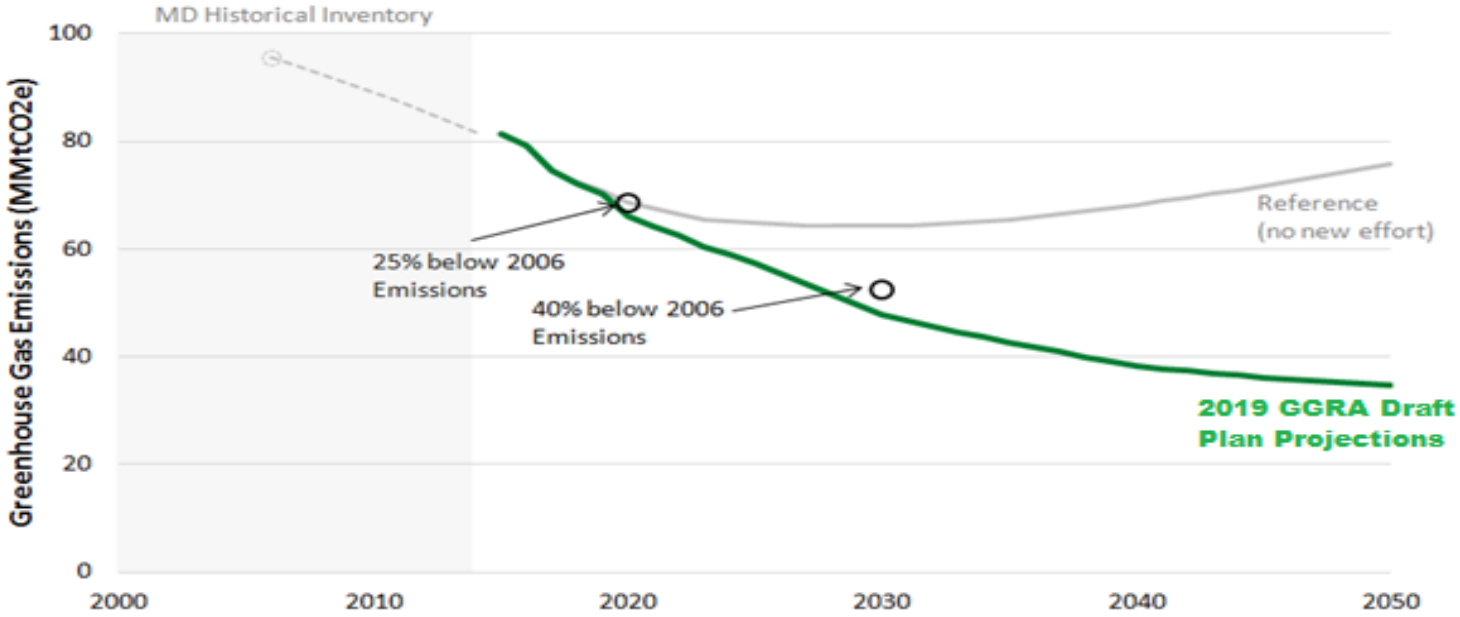
The GGRA Plan

- The GGRA requires MDE to develop a plan to meet the GHG goals.
- That plan draws upon existing programs across all levels of government, and new state programs.



Maryland greenhouse gas emissions, accounting for sequestration. MDE projections from 2019 GGRA Draft Plan.

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Major Mitigation Programs

Electricity Supply
- Renewable Portfolio Standard (current)
- Clean and Renewable Energy Standard (proposed)
- Regional Greenhouse Gas Initiative (RGGI)

Transportation
- Public Transit & Other Infrastructure
- Electric Vehicles: Clean Cars & ZEV Mandate
- 50% ZEV Transit Buses by 2030
- Smart Growth & Compact Development
- Transportation and Climate Initiative (TCI)
  - Could fund & enable other measures

Building Energy Use
- EmPOWER Maryland
- Compact Development
- State Building Efficiency EO

Short-lived Climate Pollutants
- HFC regulation
- Methane regulation
- Sustainable Materials Management

Carbon Sequestration
- Forest Management Programs
- Healthy Soils Program

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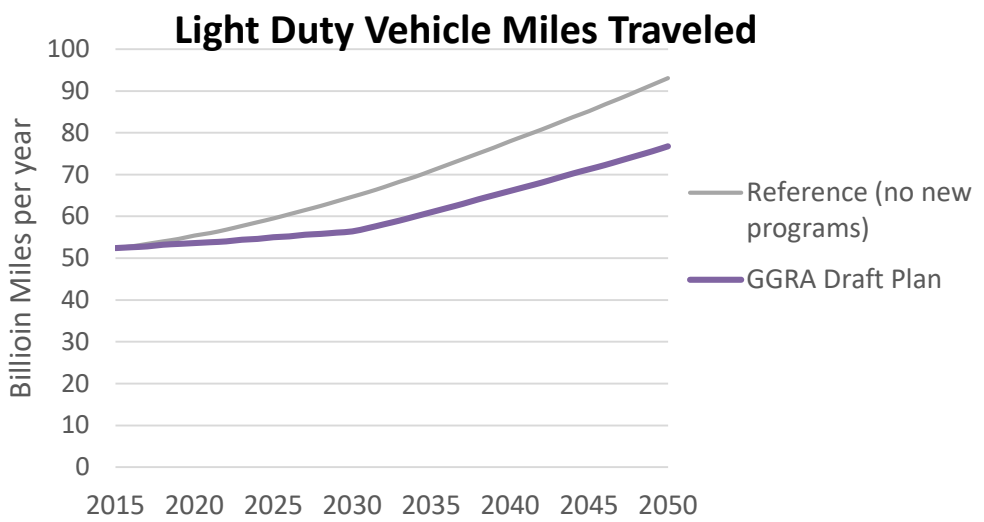
Transportation Programs

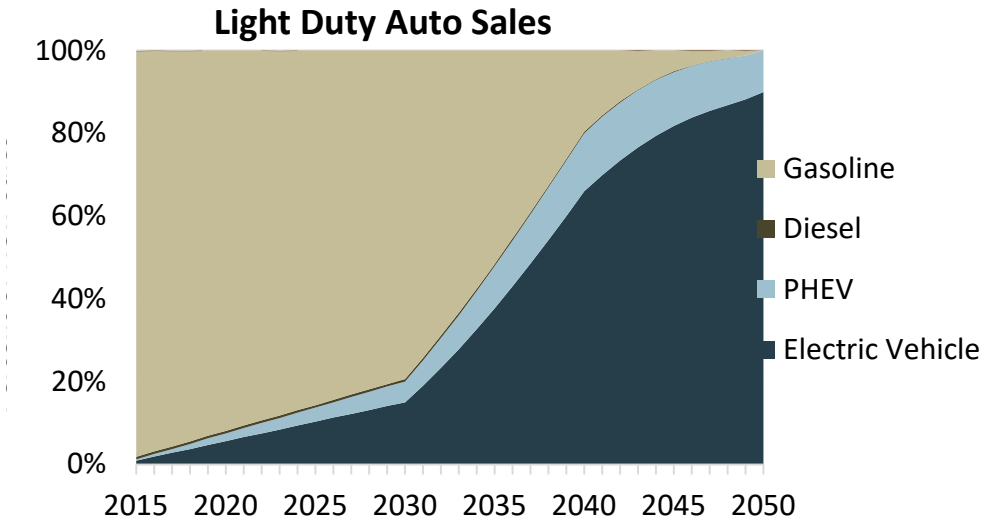
Transportation strategy:

Reduce vehicle miles traveled and **deploy electric vehicles** that run on increasingly clean electricity

- Transit Investments
- Intercity Transportation
- Active Transportation (e.g., bike lanes)
- Compact Development

- Clean Cars Program & ZEV mandate
- 50% ZEV Transit Buses by 2030
- Transportation and Climate Initiative





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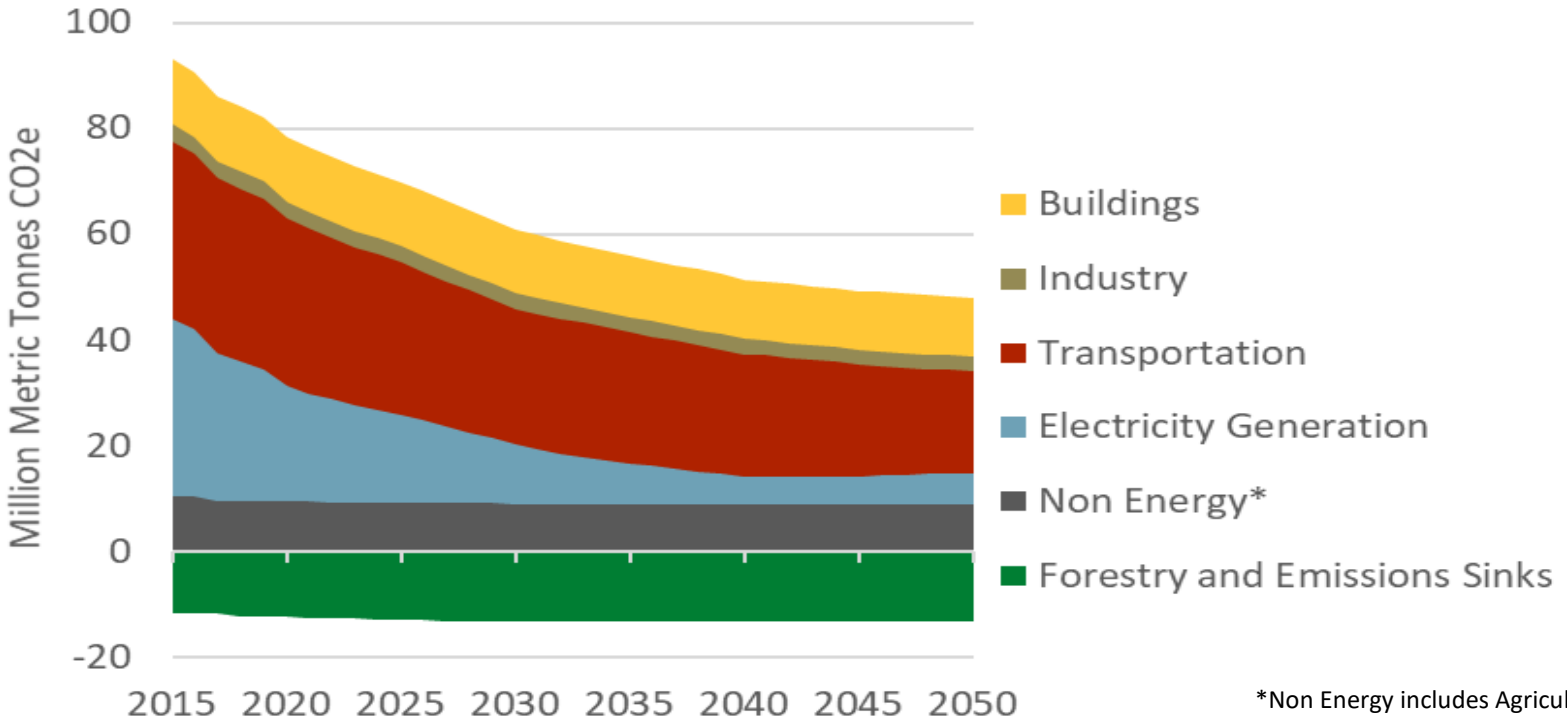
GHG Emissions by Sector

Transportation is now the largest source of GHG emissions in Maryland, and where reductions are needed most in the future.



*Non Energy includes Agriculture, Waste Management, Industrial Process and Fossil Fuel Industry.

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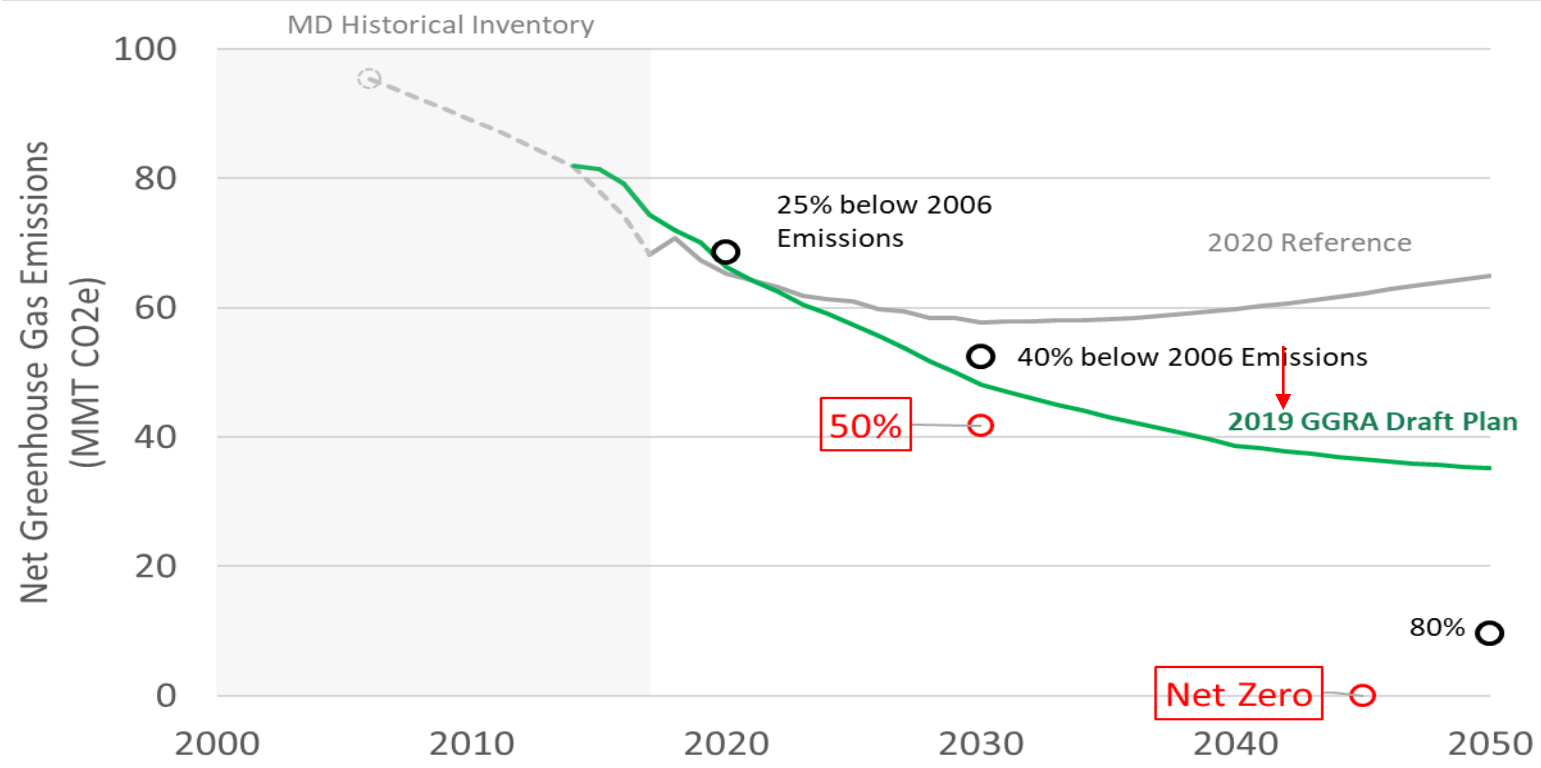
More Ambition



- Working with Maryland's Climate Change Commission, MDE is reaching for even greater progress in the upcoming Final GGRA Plan
- Transitioning to Medium- and Heavy-Duty ZEVs will be a key component of achieving additional reductions.

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MHD ZEV MOU Introduction

Tim Shepherd, MDE

Air Quality & Climate Change

- NAAQS (National Ambient Air Quality Standards)
  - Nonattainment for Ozone
  - NOx greatest contributor to ozone
  - On road Mobile Sources are largest contributor to NOx in Maryland
- Climate Change
  - Due to geographic location, Maryland very vulnerable to effects of Climate Change
  - 2015 Maryland updated to the Maryland GGRA (Greenhouse Gas Reduction Act), requires 40% reduction by 2030
  - On-road mobile sources account for over a third of all GHG emissions

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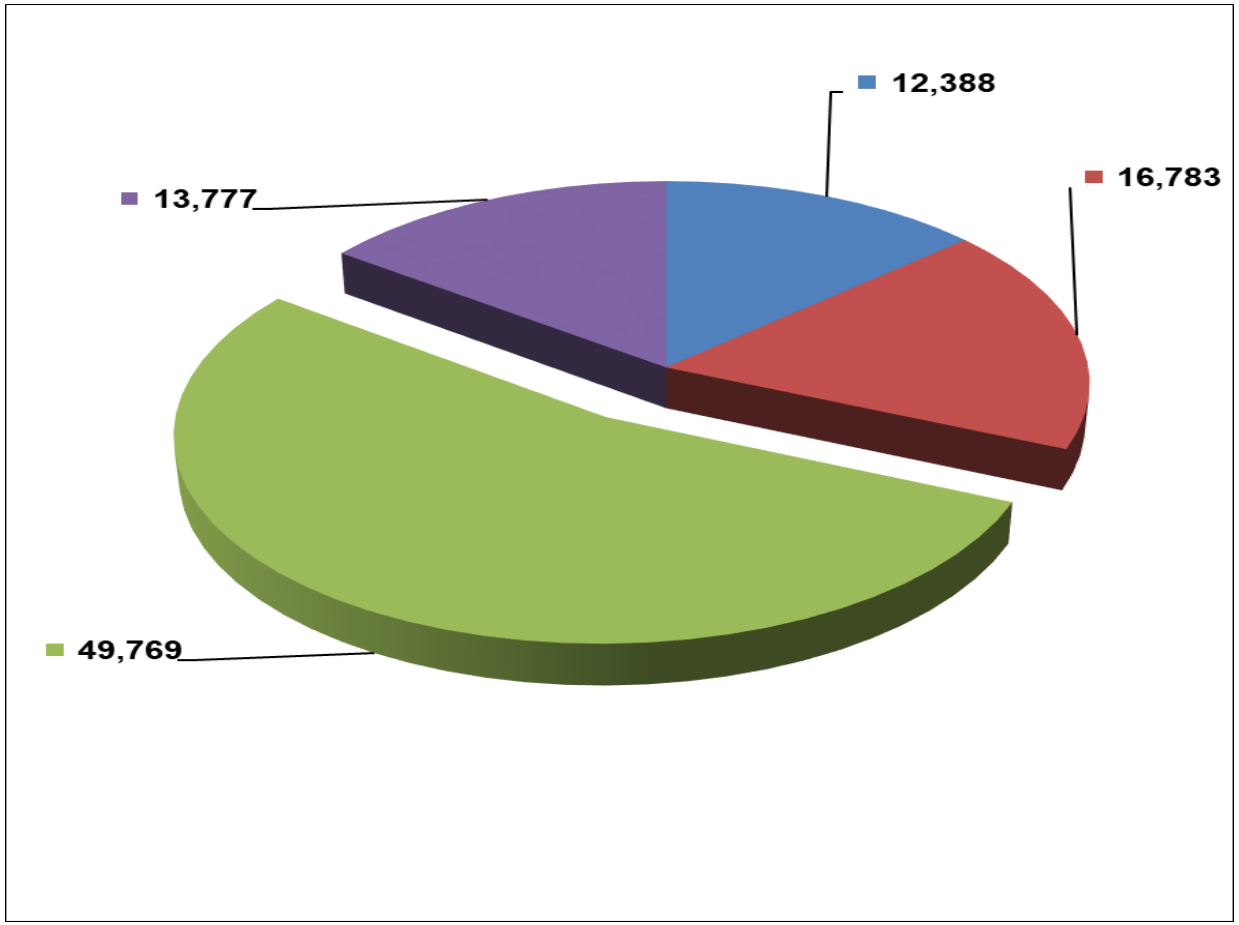
Air Quality – NOx Emissions by Source Type



2017

- Area – 13%
- Point – 15%
- On Road– 54%
- Nonroad – 18%

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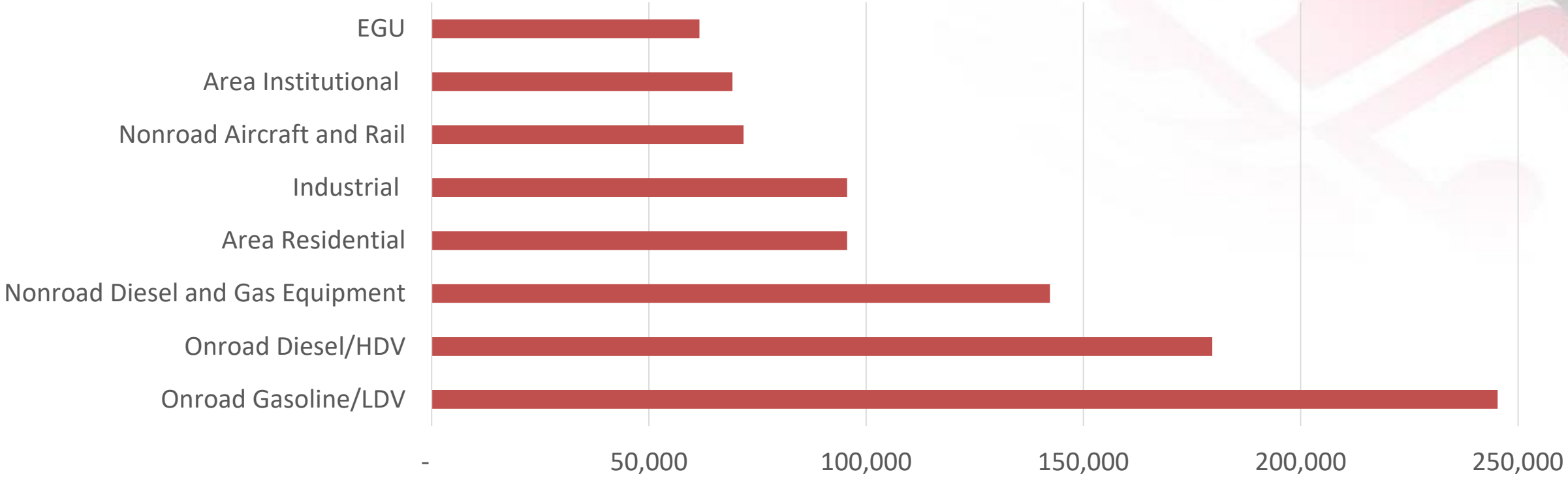
2017 NOx Emissions (tpy) in Mid-Atlantic / Northeast



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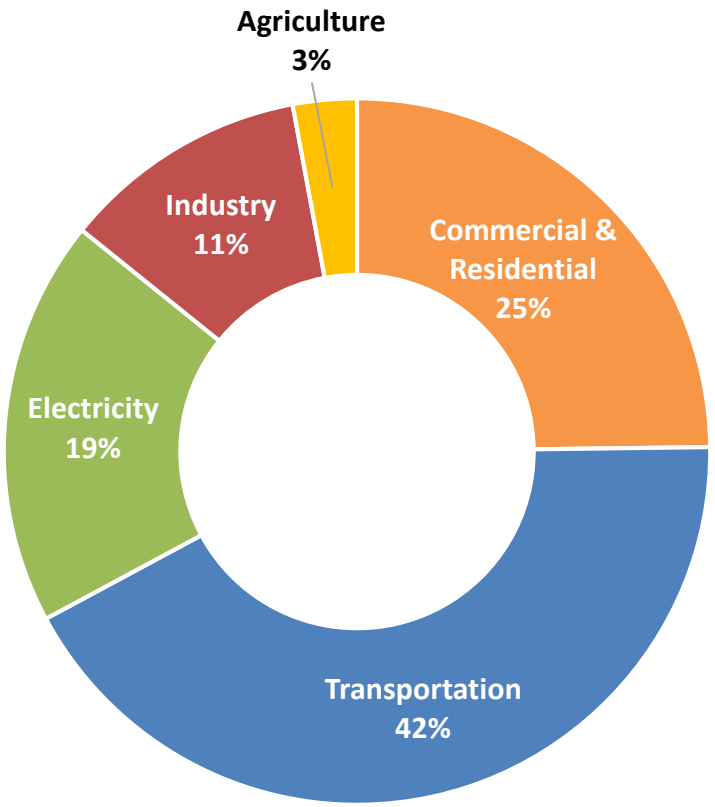
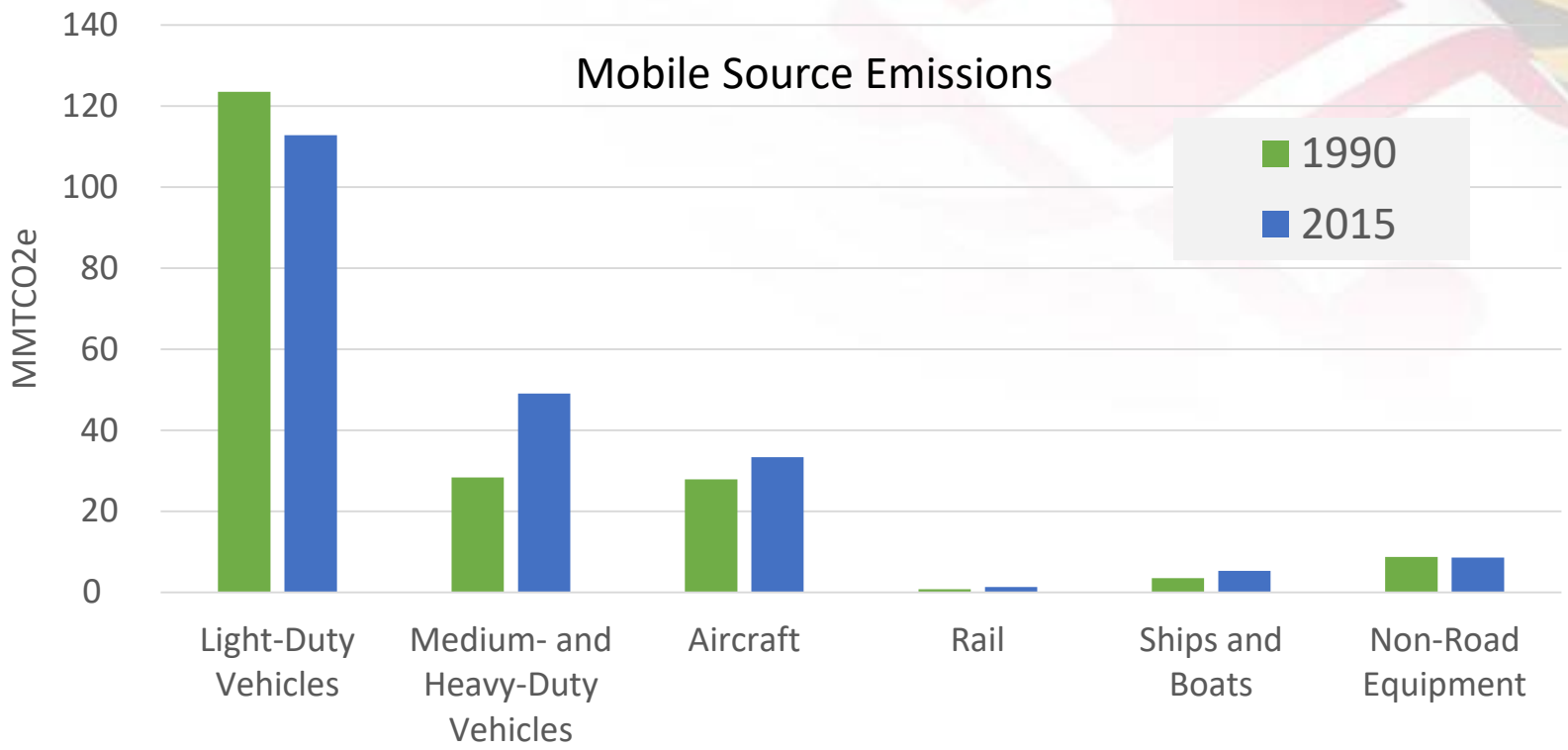
Greenhouse Gas Emissions in the Northeast





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Light-Duty Vehicle Programs – State Initiatives

- Low Emission Vehicle (LEV) Standards
  - California adopted stricter light duty emission standards
  - Fourteen States plus D.C. States of have adopted these stricter standards
  - Maryland adopted under the Maryland Clean Car Program in 2007 and implemented in 2011
  - Adopts California's low emission vehicle program
  - Includes ZEV mandate requiring manufacturers to make an increasing percentage of new vehicles for sale in Maryland ZEVs
  - EPA harmonized with emission standards in 2012, creating one national program
  - Allows Maryland to adopt standards stricter than federal if needed
- Light Duty ZEV MOU
  - Signed in 2013 and updated in 2018, includes 9 states
  - Developed an Action Plan that identified barriers and polices for the acceleration of light duty ZEVs
  - Set a goal of 300,000 plug-in vehicles in Maryland by 2025

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Heavy-Duty Vehicle Programs

- 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
  - 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)

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MHD ZEV MOU Background

States still need to meet Air Quality Standards/Goals

- Federal Heavy-Duty Standards stalled
- Unable to set individual State standards (Can only adopt Federal or California)
- Monitoring actions in California
- States moved ahead with exploring Voluntary Measures
  - December 12, 2019 nine states and D.C. sign letter of intent to develop MOU to accelerate ZEVs in heavy-duty sector
  - Work continues on MOU thru winter and spring 2020
  - July 14, 2020 fifteen states and D.C. sign MOU

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MHD ZEV MOU Background

Medium and Heavy-Duty ZEV MOU

- Builds off success of 2013 governors MOU and subsequent Action Plans for light-duty vehicles.
- Commits signatories to work together to foster a self-sustaining market for zero emission medium- and heavy-duty 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.

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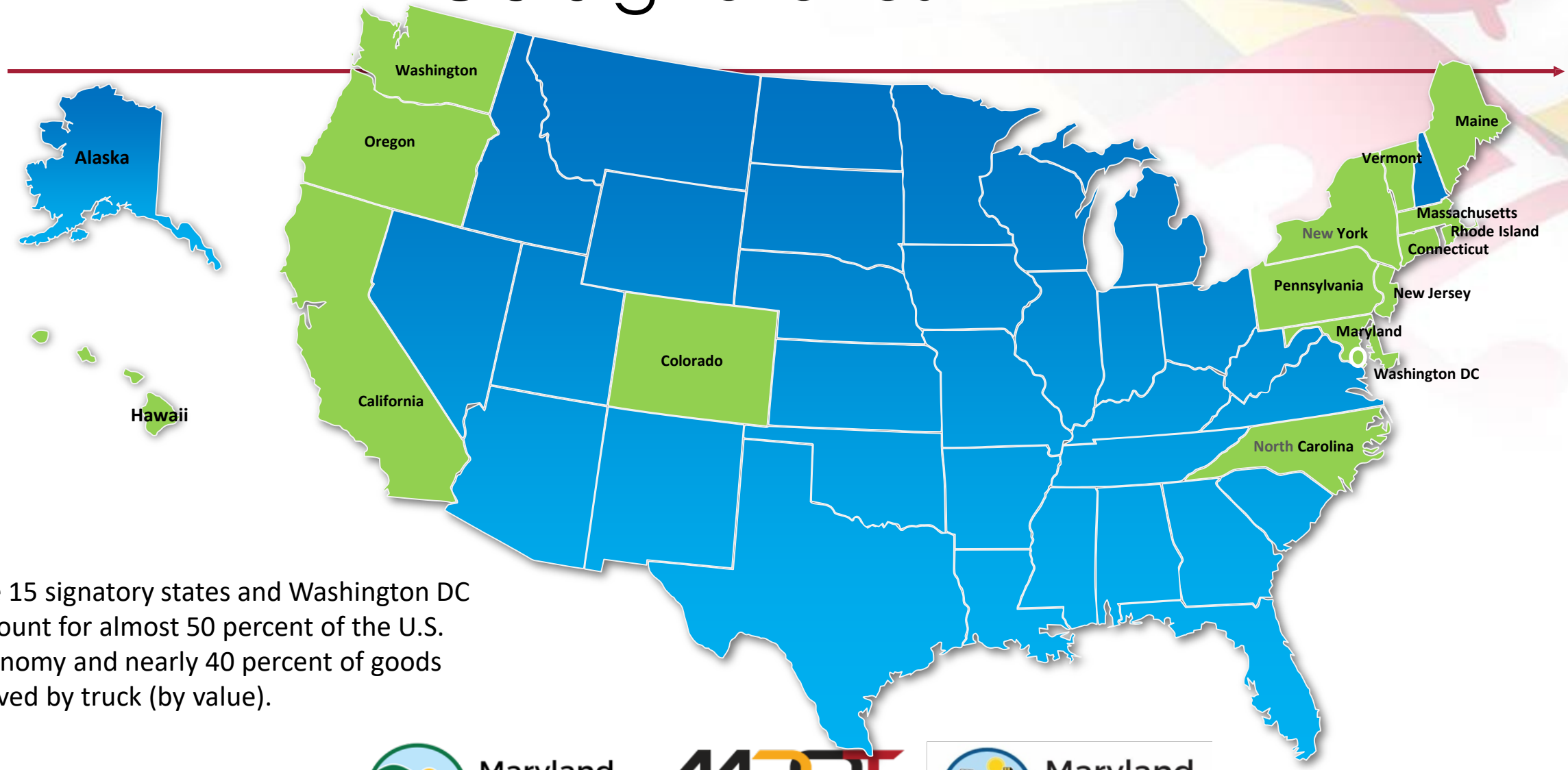
MHD ZEV MOU Signatories



The 15 signatory states and Washington DC account for almost 50 percent of the U.S. economy and nearly 40 percent of goods moved by truck (by value).

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ZEV Task Force – Next Steps

The ZEV Task Force will conduct stakeholder outreach and develop a multi-state Action Plan that considers the need for market-enabling actions such as:

- Incentives for vehicles and infrastructure;
- Adoption of regulatory standards (e.g., California's Advanced Clean Trucks Regulation);
- Utility actions to support infrastructure buildout and beneficial rate design;
- Measures to increase the use of zero emission trucks and delivery vans in densely populated areas;
- Innovative financing models and new funding sources;
- Actions to encourage fleet purchases; and
- Uniform standards and data collection requirements.

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Status of MHD ZEV Action Plan

ZEV Task Force Currently Organizing Workgroups

- Key National Community & EJ Organizations
- Commercial Fleets
- Truck and Engine Manufacturers
- Battery Manufacturers
- Utilities
- EVSE Providers
- NGOs
- Labor Unions

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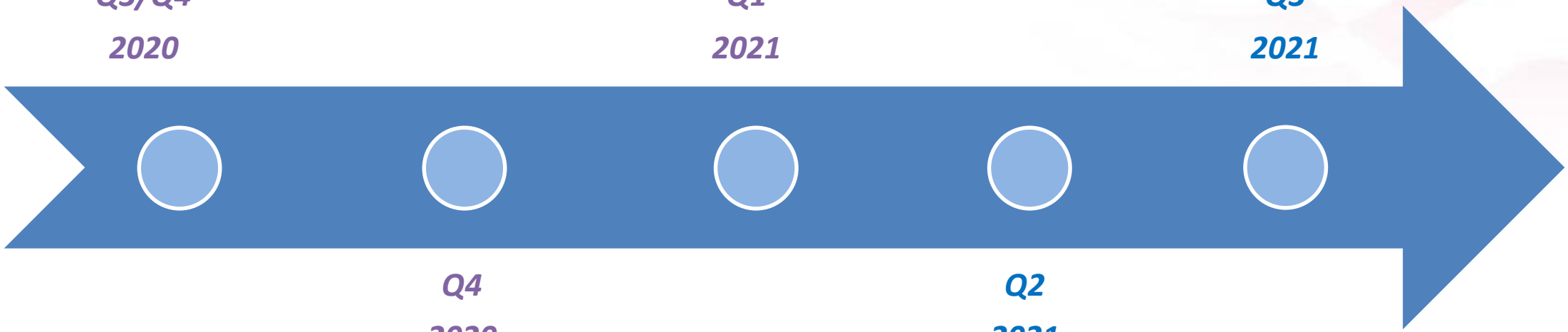
MHD ZEV Action Plan Tentative Timeline



Conduct Stakeholder Outreach

Q3/Q4

2020

Q4

2020

Begin Developing Draft Action Plan

Seek Stakeholder Input on Draft Plan

Q1

2021

Q2

2021

Revise Draft Action Plan

Release Final Action Plan

Q3

2021

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Potential Incentives & Funding

- Many potential options all on the table, both existing and new
- All-of-the-above strategy, need for identification/establishment of sustainable, multi-year/long-term funding sources
  - Federal/regional/state/utilities/local/other
- DERA- US EPA-MDE
- CMAQ- US DOT-MDOT
- TCI regional transportation cap-and-invest program
- RGGI/Strategic Energy Investment Fund (SEIF)/MEA programs
- Utility programs (make-ready infrastructure)

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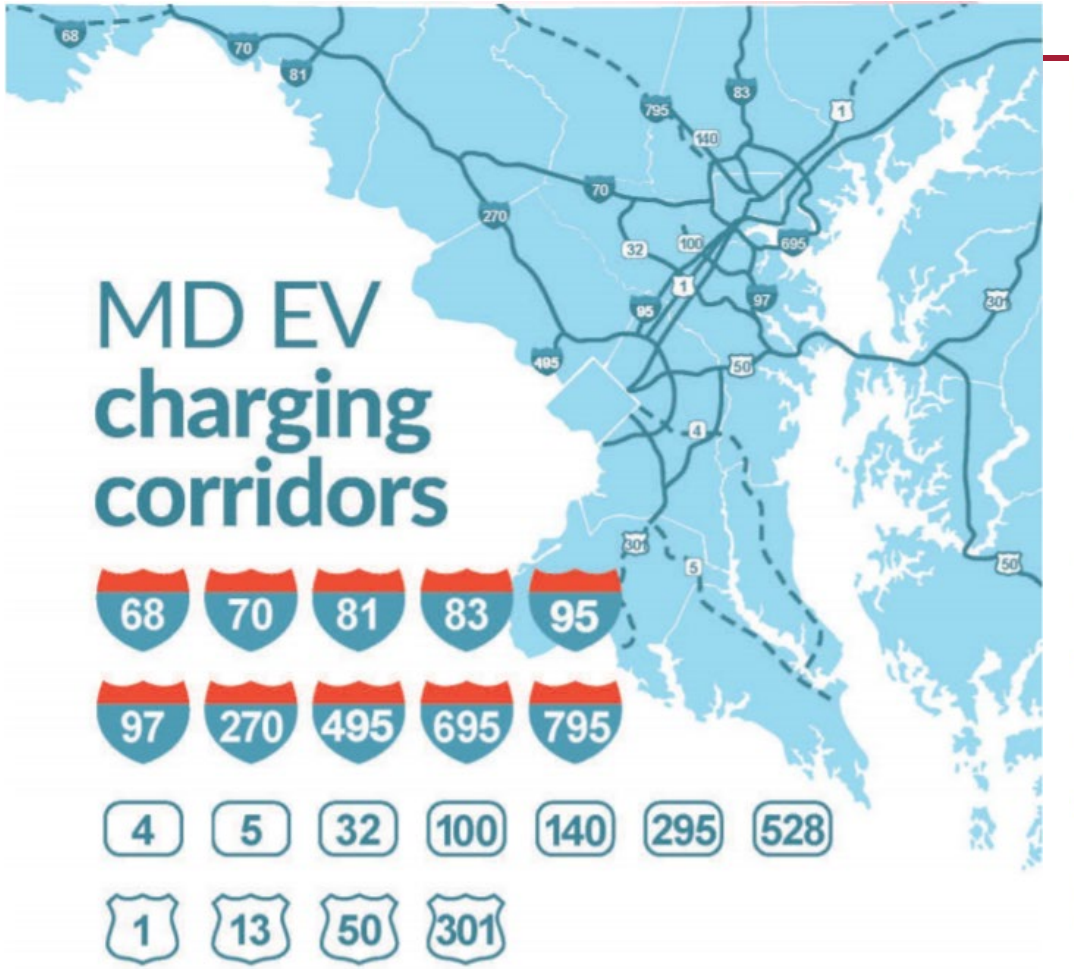
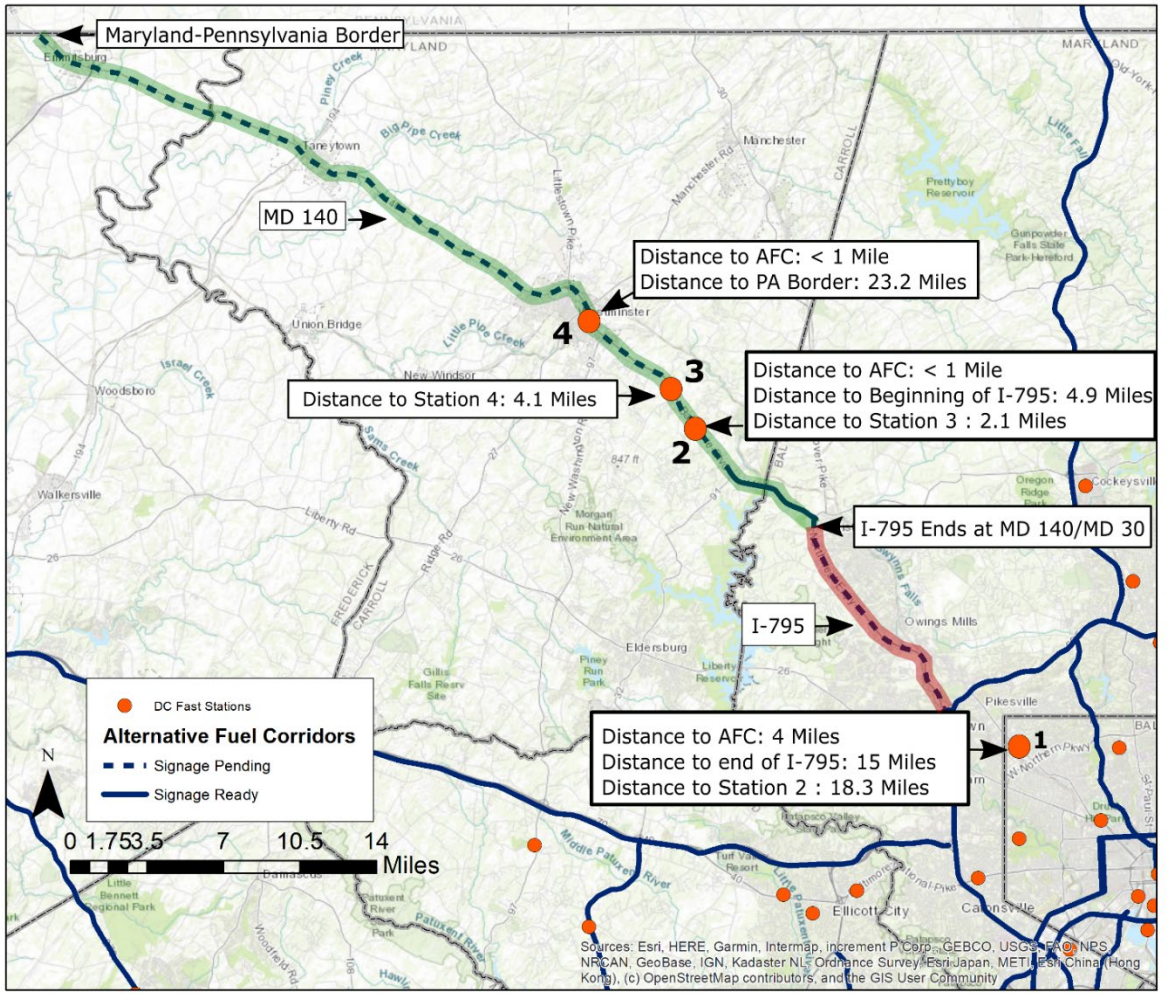
Alternative Fuel Corridors





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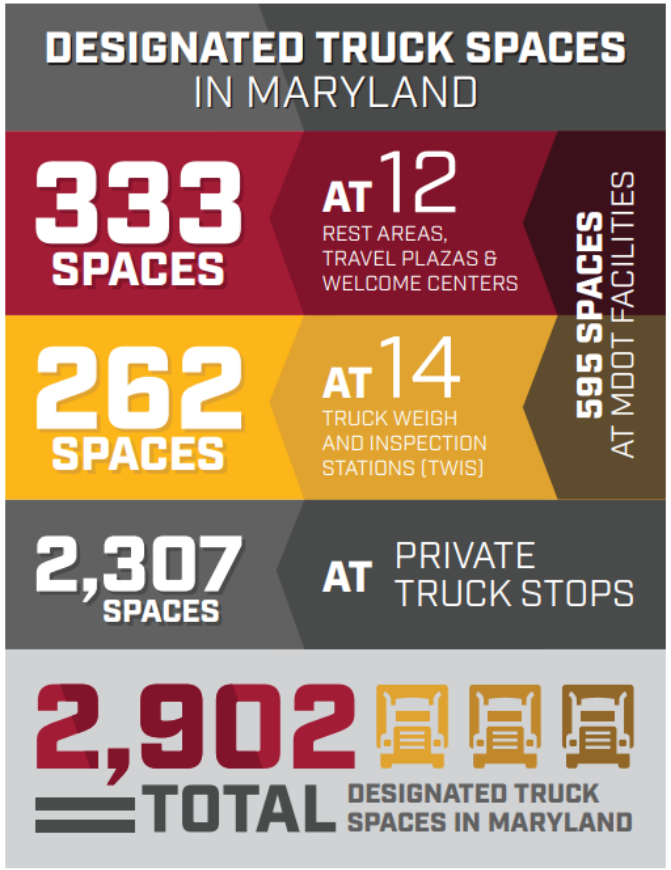
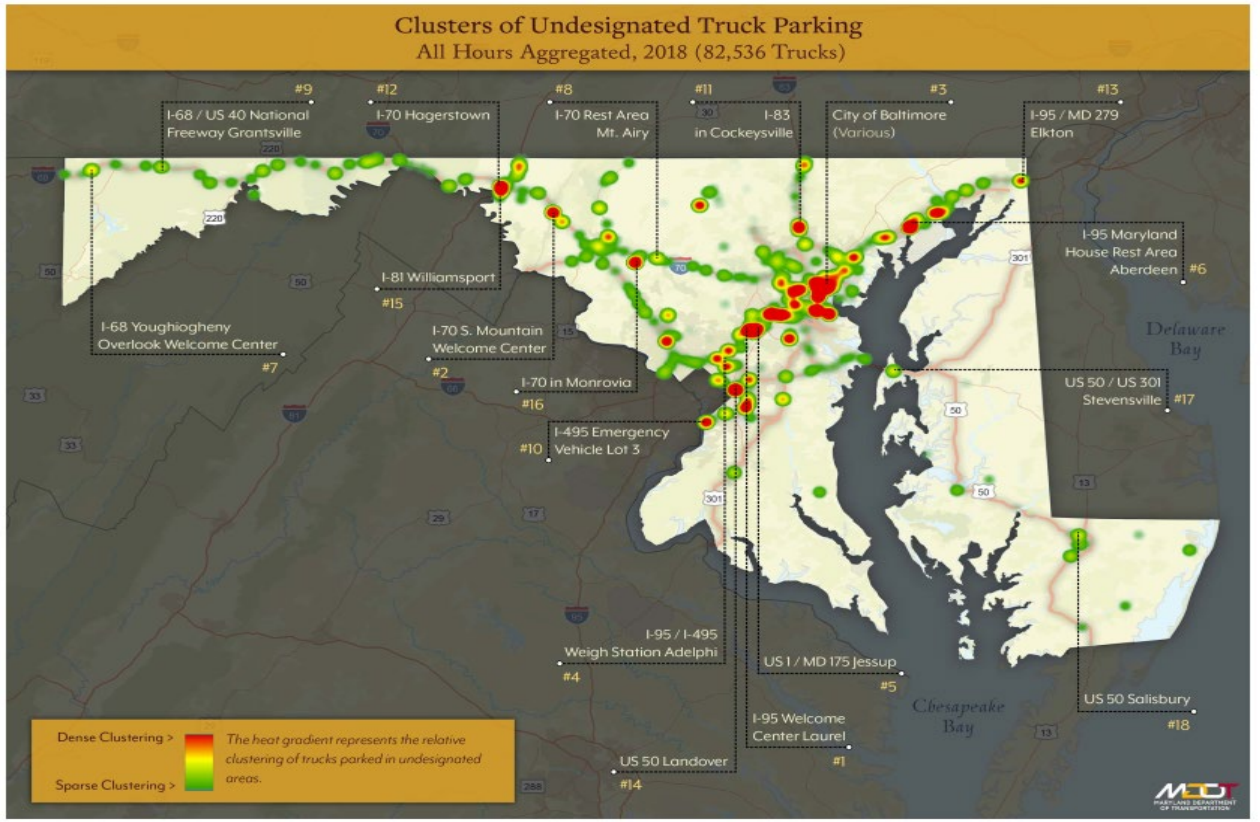
Incorporating ZEV in Infrastructure Analyses

Infrastructure Analyses | Light-Duty | Medium- and Heavy-Duty





* Priority Clusters were selected from the top 15 locations in Central Maryland with the highest prioritization score and also three additional clusters were added to include locations in both Western Maryland and along the Eastern Shore.

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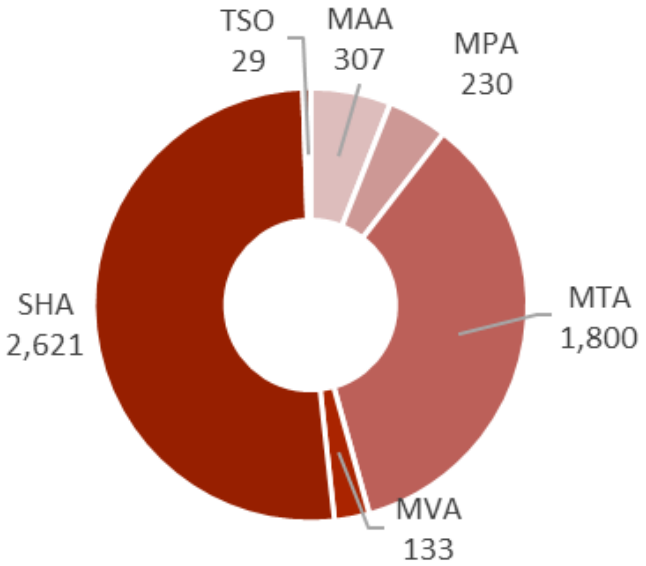
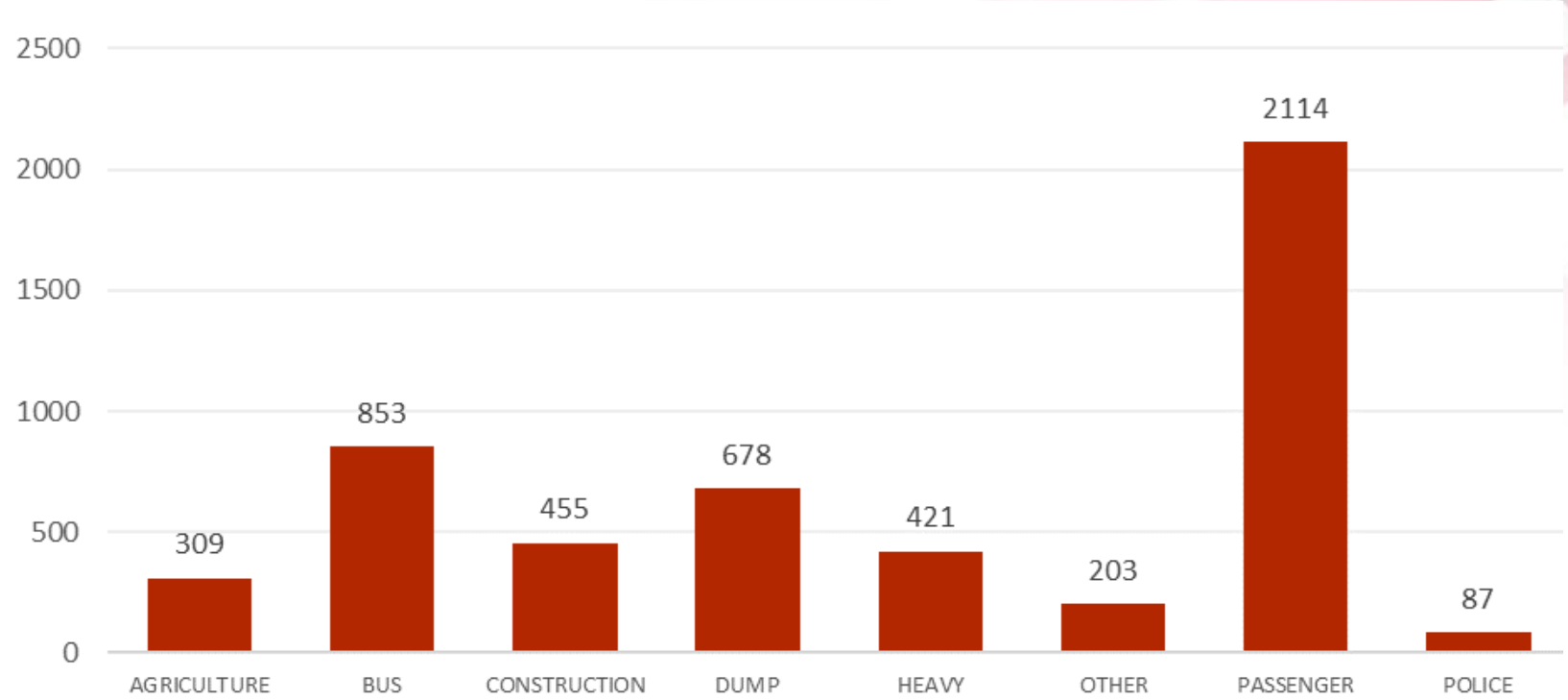
MDOT Fleet Innovation

Leading by example – Vehicles by TBU and Use





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Live Polling

Challenges and Opportunities

Next Steps in Maryland

- Conduct introductory webinars (2)
  - Watch for short, post-webinar survey
- Receive feedback from stakeholders
- Develop Stakeholder sub-groups
- Conduct smaller stakeholder sub-group meetings
- Host additional webinars

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Resources

- MDE ZEV Website: https://mde.maryland.gov/programs/air/mobilesources/pages/zev.aspx
- MDE VW Website: https://mde.maryland.gov/programs/Air/MobileSources/Pages/MarylandVolkswagenMitigationPlan.aspx
- ZEV Task Force: https://www.nescaum.org/topics/zero-emission-vehicles
- Maryland EV: https://marylandev.org/
- Maryland Zero Emission Electric Vehicle Council (ZEEVIC) **NEW Website**: https://www.mdot.maryland.gov/tso/Pages/Index.aspx?PageId=81
- CALSTART Zero-Emission Technology Inventory (ZETI) tool: https://globaldrivetozero.org/tools/zero-emission-technology-inventory/
- US DOE Alternative Fuels Data Center: https://afdc.energy.gov/

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Discussion – Mike Jones, MEA

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Thank You.

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