Transportation Sector Update

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April 20, 2021 Mitigation Working Group Meeting

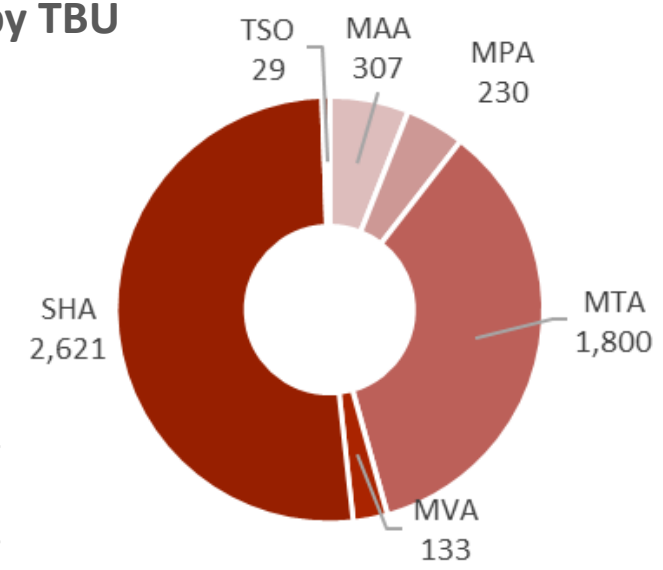
MARYLAND DEPARTMENT OF TRANSPORTATION

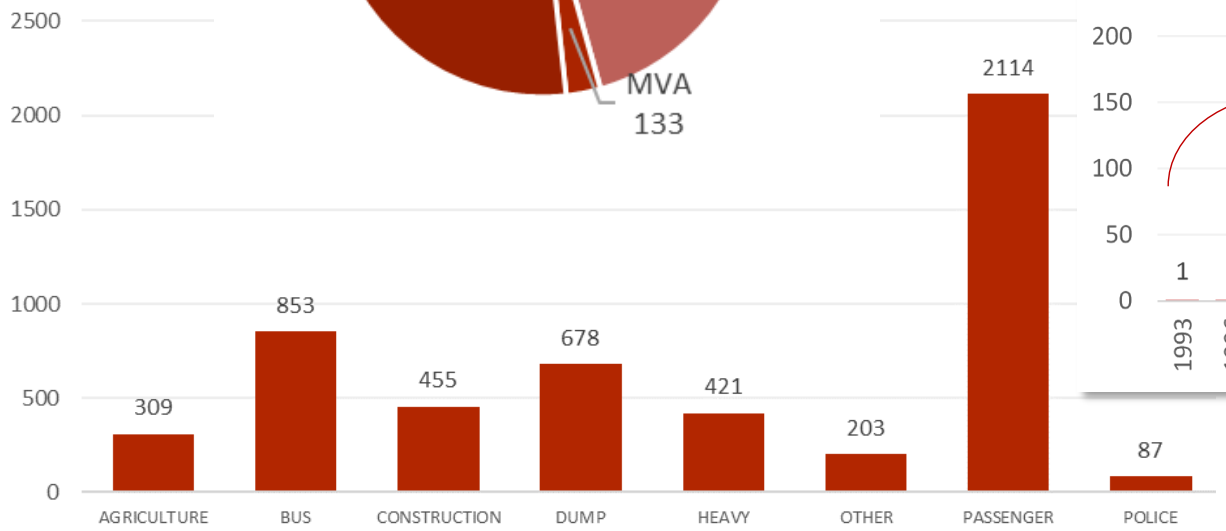
Agenda

- MDOT Fleet Innovation Plan
- MDOT GGRA Plan
- Interpreting Results
- Uncertainties and Variables
- Moving Forward and Recommendations

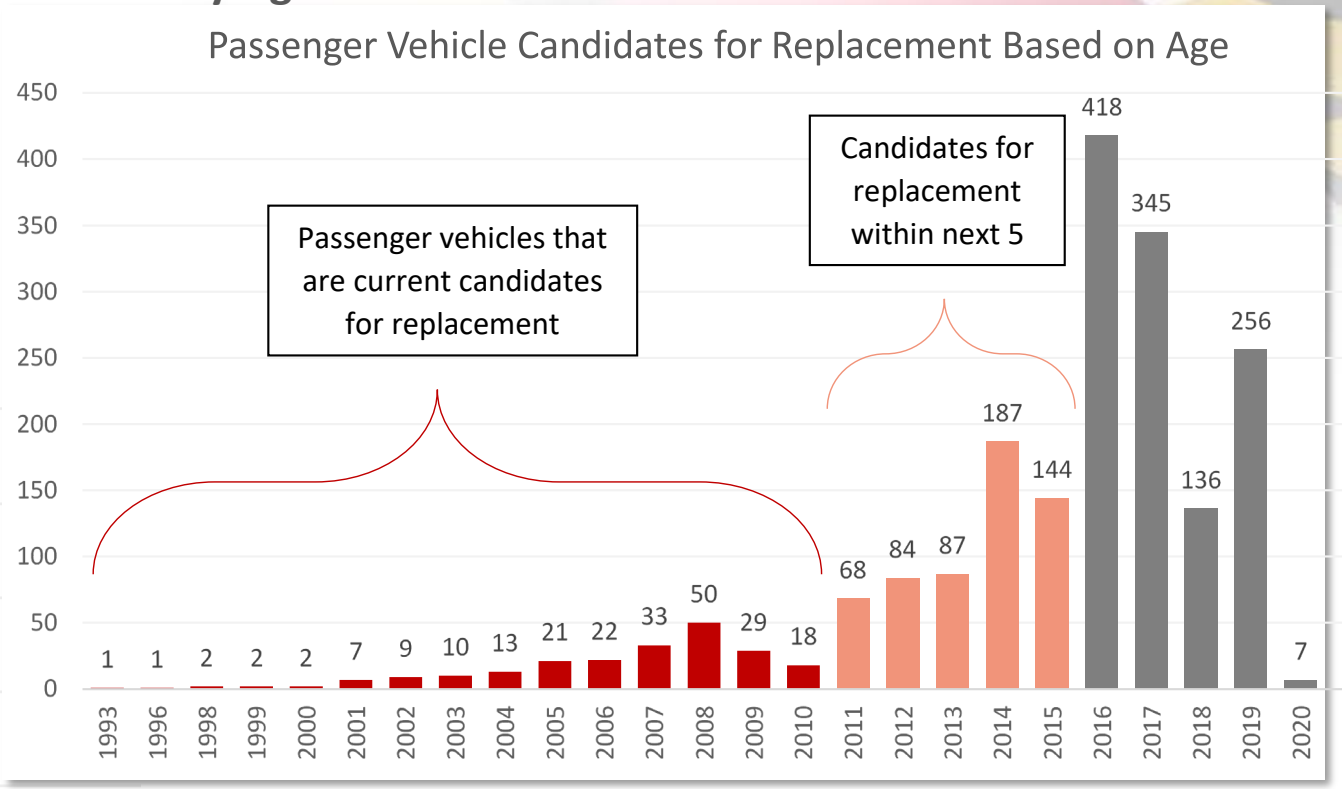
MDOT Fleet Innovation

Vehicles by TBU





Vehicles by Age

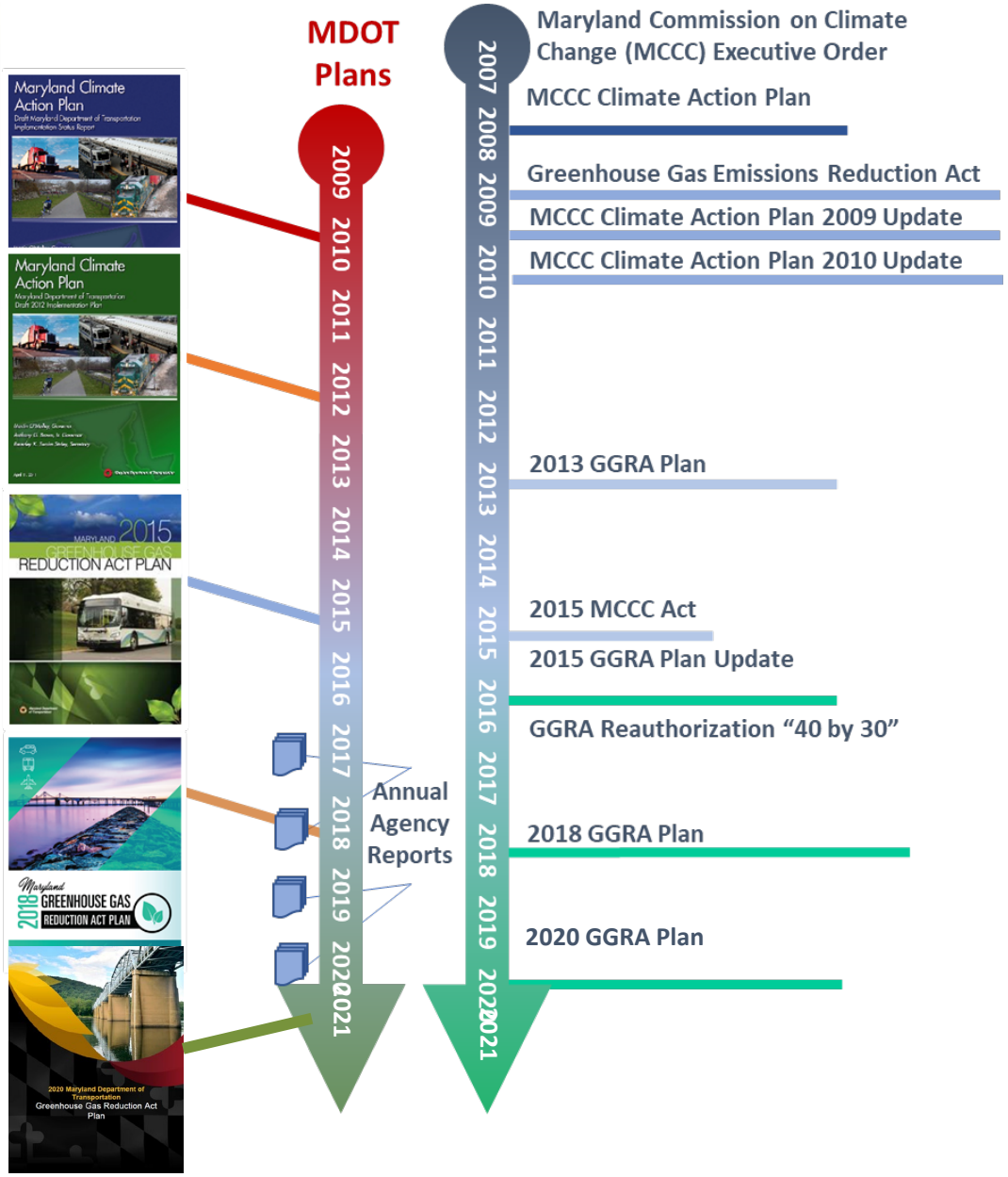


Vehicles by Use

MDOT GGRA Plan

MDOT GGRA Plan

- Assesses transportation sector contributions
  - Accomplishments since 2009
- Discusses broad trends
  - Vehicle miles traveled (VMT)
  - Vehicle technology
  - Fuel use
- Identifies strategic actions, including costs and benefits, for implementation through 2030



The MDOT Scenario Process

Careful and Evidence-Driven Approach to 2030

Reference Case

- Current VMT Growth Trend to 2030
- Existing Federal GHG Emission Standards (Light Duty Vehicles and Medium/Heavy-Duty Trucks)
- Electric Vehicle Market Share Consistent with TCI Reference Case Projections

Policy Scenario 1

- Funded and Committed Transportation Projects, Programs and Initiatives through 2030
- Regional Clean Low-Carbon Fuel Standard and Land-Use Efficiency Assumptions

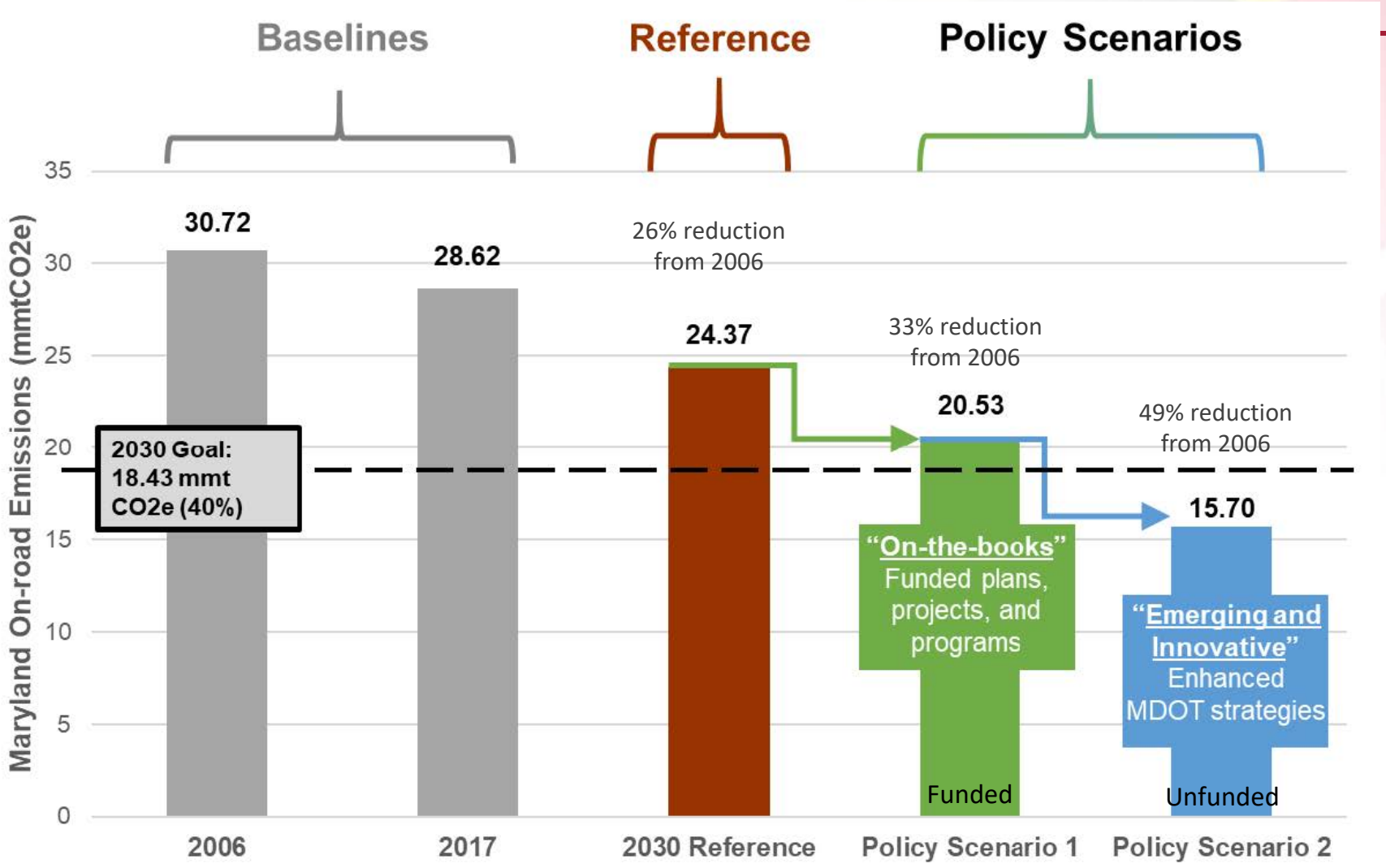
Fully Funded for Implementation by 2030

Policy Scenario 2

- Mix of Expanded and Accelerated Traditional and Emerging along with Innovative and Market-based Transportation Strategies
- Organized as Bundles broadly covering Technology, Freight, Transit and TDM Categories

Unfunded Strategies for Implementation by 2030

Results Summary



MDOT MARYLAND DEPARTMENT OF TRANSPORTATION

Interpreting Results

Interpreting Results and Key Takeaways

Policy Scenario 1

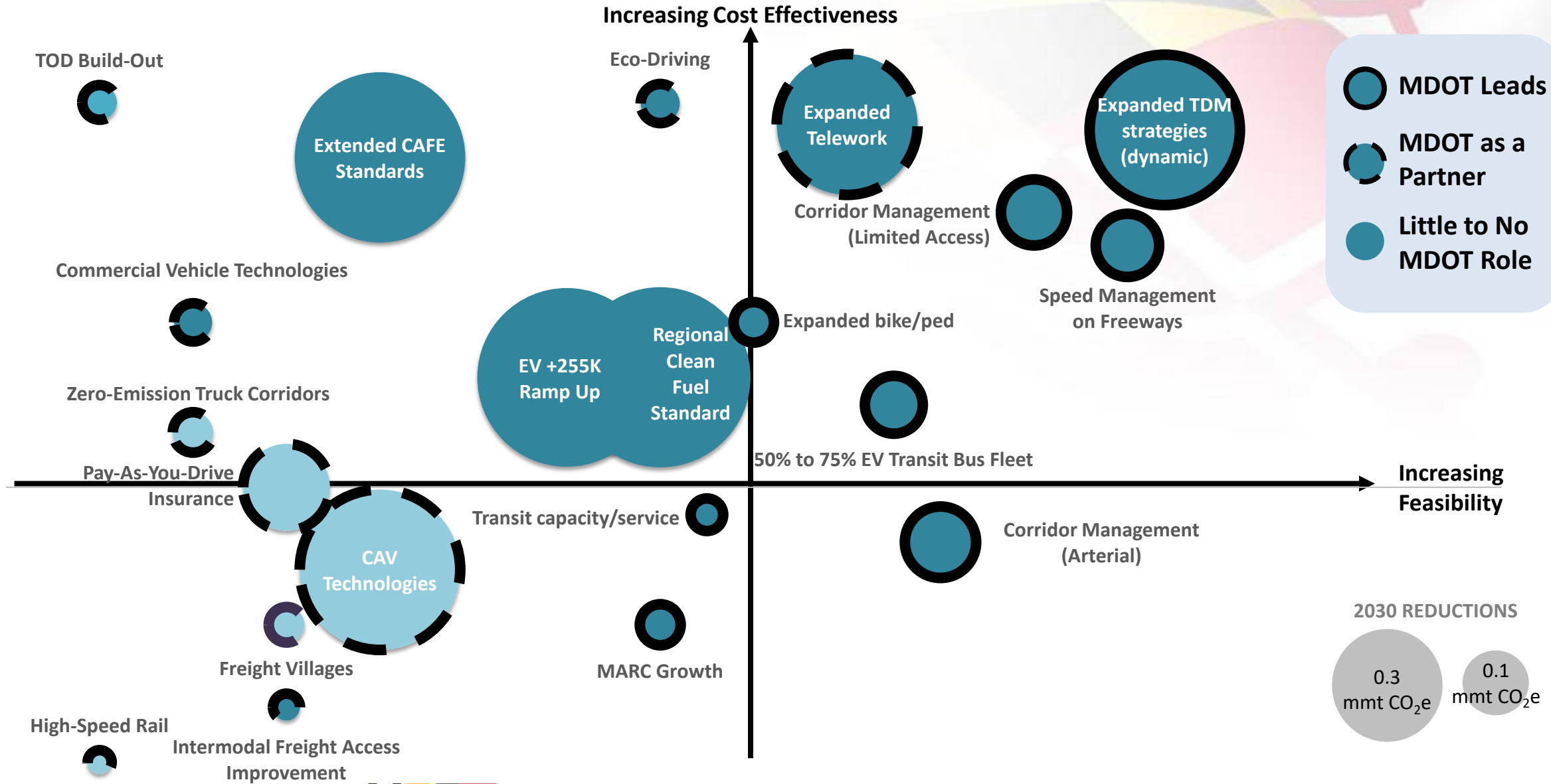
- Total cost is **$14.09 billion** for an estimated **2.19 mmt CO_2e reduction**
- Reduction estimates assume sustained funding based on 2020-25 CTP levels and federal funding
- VMT growth and economic activity impact emissions pathways

Policy Scenario 2

- Total cost is **$11.59 billion** for an estimated **4.54 mmt CO_2e reduction**
- All strategies are **unfunded**
- Technological and market-based dependencies
- MDOT control limited to enabling policy and facilitation

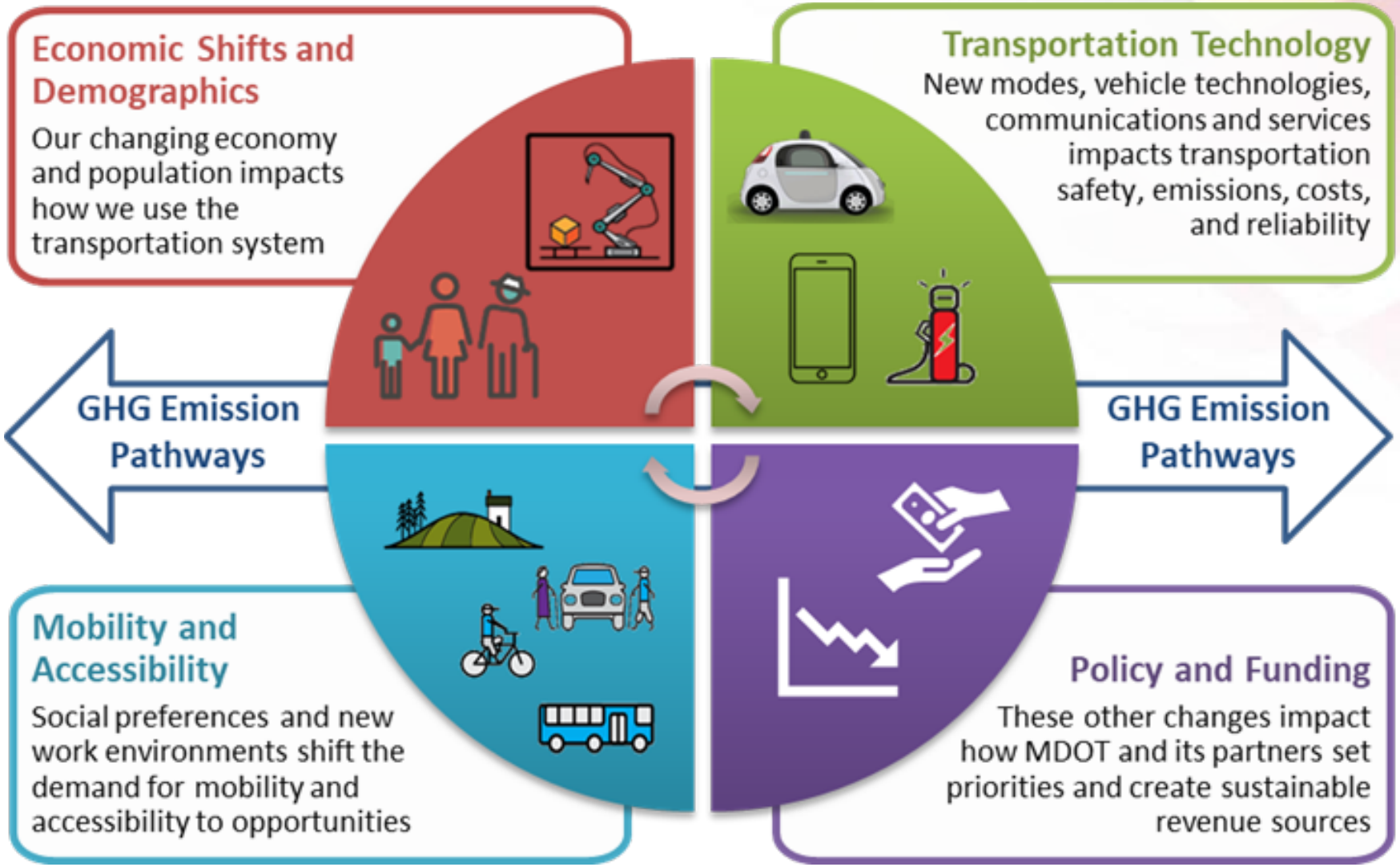
** not including potential investments in SCMAGLEV or Loop*

Policy Scenario 2 Strategies

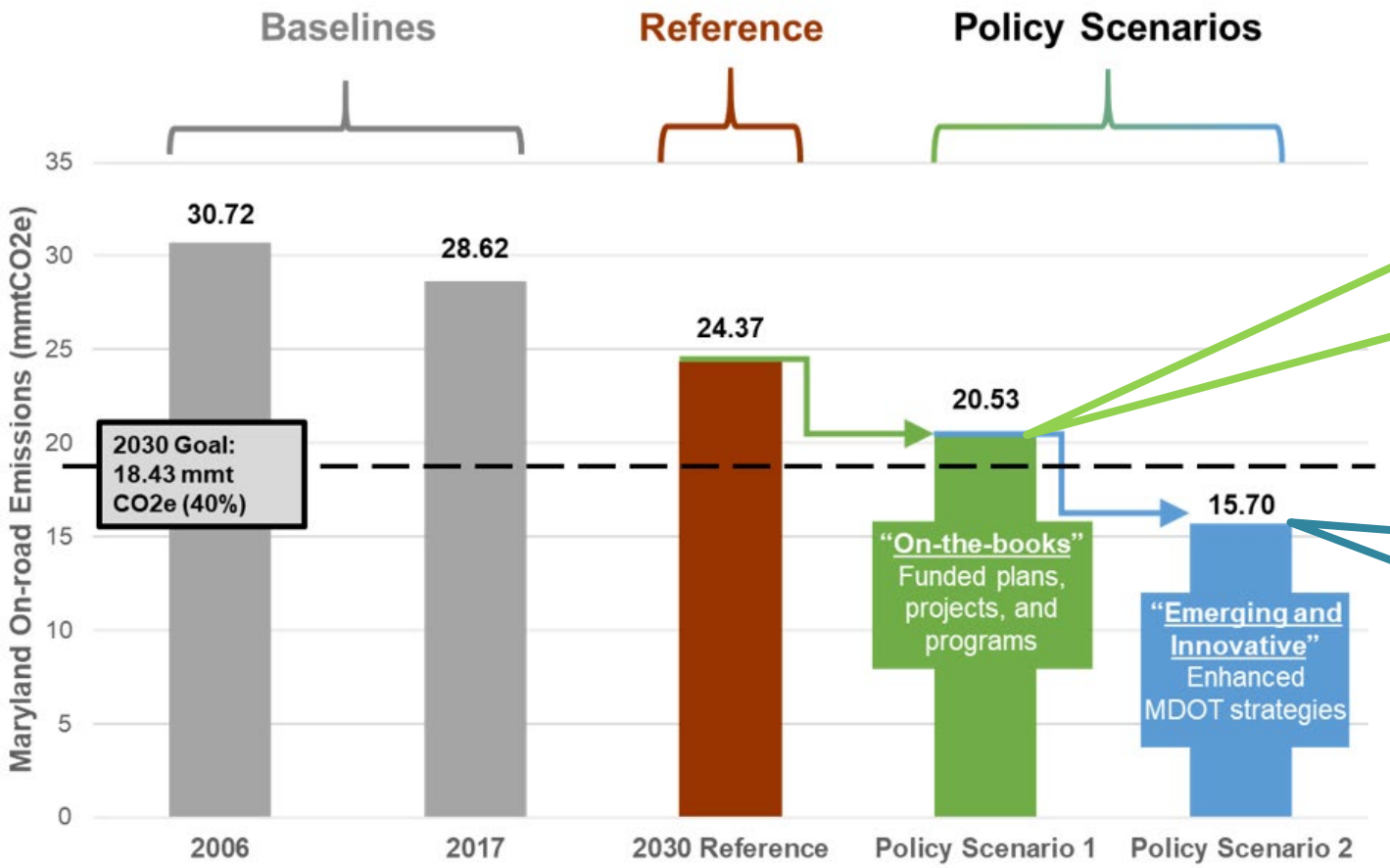


Uncertainties and Variables

Drivers and Trends



Uncertainty Through 2030



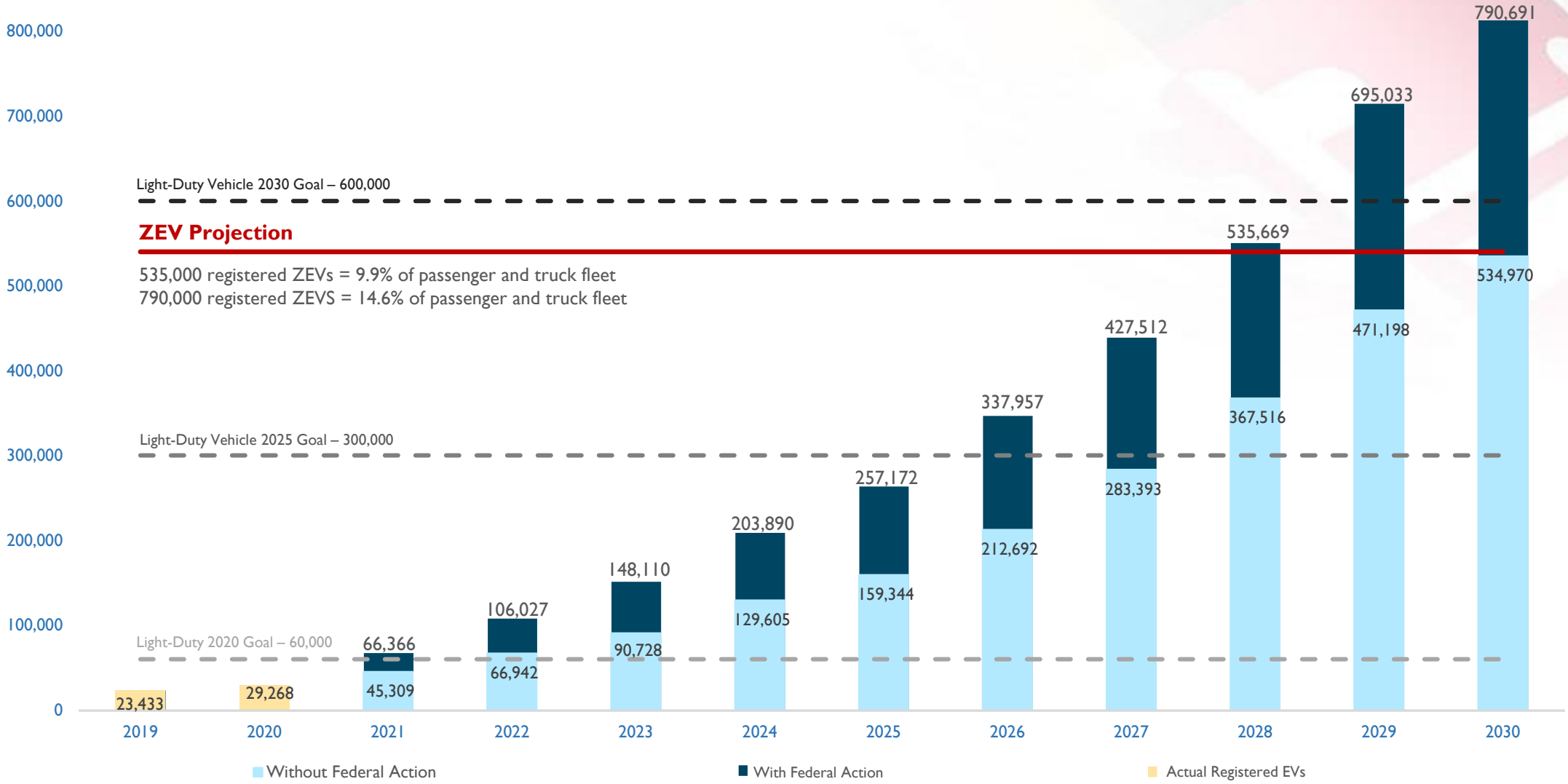
- Transportation funding constraints
- High O&M costs
- Low fuel/travel costs and strong economy (high VMT)

- Technology barriers
- Less private investment
- Less sustained federal support/policy

Little to no MDOT control - primarily tied to the strength of the economy, private sector, and funding policy

Transportation Technology

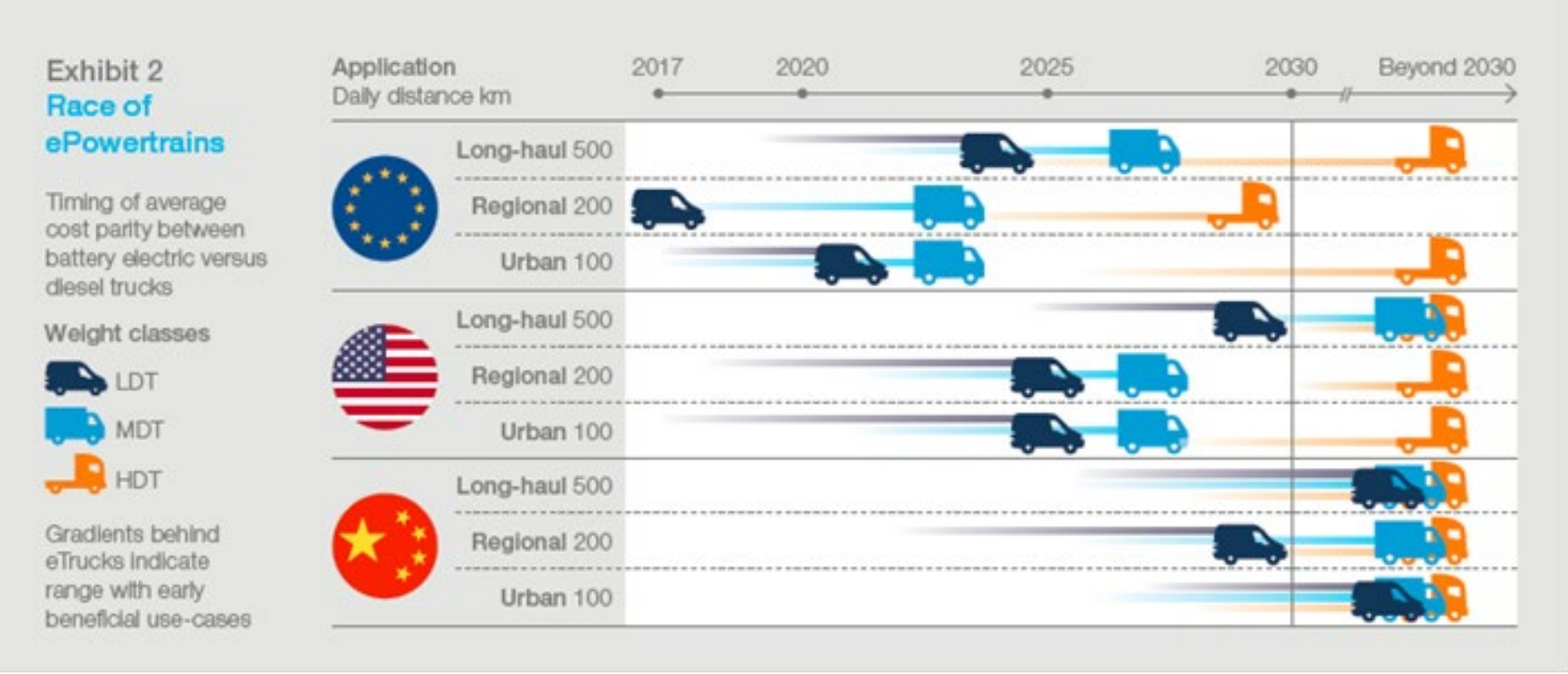
Electric Vehicle Projections



Transportation Technology

Electric Vehicle Market Trends

- "US electric market is expected to reach 6.9-million-unit sales by 2025, up from 1.4-million-unit in 2020, due to government incentives driving EV ownership." Frost & Sullivan, Nov. 2020
- General Motors Sets a Goal of all-EV Offerings by 2035.
- Ford invested $500M in Rivian and committed $29B to EV/AV through 2025.
- Volvo Truck launches sales of its new VNR Electric Class 8 regional hauler (early 2021 production).



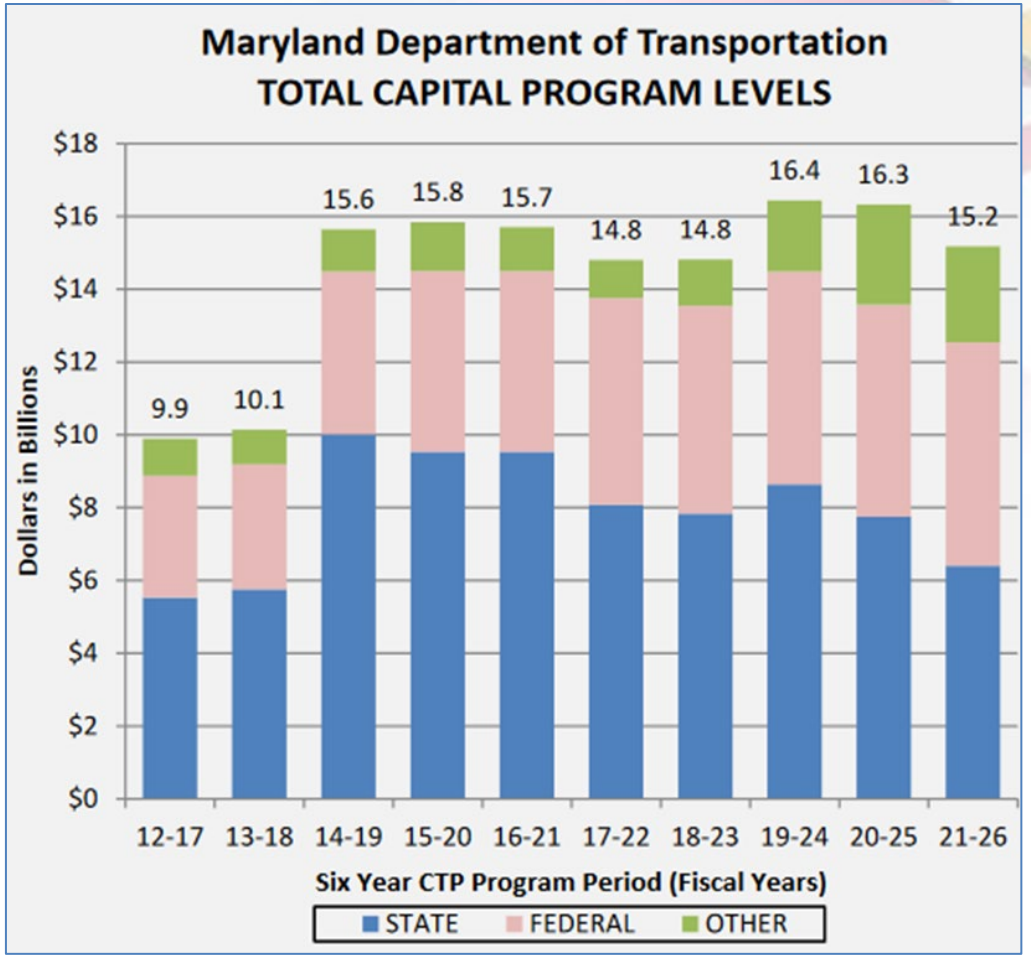
Source: McKinsey Energy Insights, McKinsey Center for Future Mobility

Federal Transportation Policy Direction

- Infrastructure Bill "American Jobs Plan" - **April 2021**
- INFRA & RAISE (formerly BUILD/TIGER) - **March/July 2021**
- future of Transportation Funding
- Electric Highway Coalition – 6 Major Utilities - **March 2021**
- Presidential Executive Order - federal Vehicle Fleet - **Jan 2021**
  - "Ensuring the Future Is Made in All of America by All of America's Workers"
- Moving Forward with Reauthorization – FAST Act expires Sept 2021

Funding Uncertainties

- CTP Outlook: assumes economy will return to a **moderate** growth scenario during the next six years
- Federal Highway Trust Fund: programs **exceed** annual revenues and rely on fund transfers
- Incremental funding sources not well-suited to **upfront** capital investment needs for EV transition
- **Price parity** of technologies is a key uncertainty for adoption of vehicle technologies (especially for HDVs)



Moving Forward

Recommendations/Priorities

Key Policy / Program Areas

- ZEVs and Infrastructure Deployment,
- Connected / Autonomous Vehicles, and
- Expanded Telework / Demand Management (TDM)

Thoughtful Planning and Deployment **– What could these mean to the MWG / MCCC:**

- **Scenario Analyses**
- Positioning MD to **Maximize Funding Opportunities**
  - Infrastructure Deployment
  - EV Sales Incentives
  - Federal Infrastructure Bill
- **Education and Outreach**

Underway & Promising

- Commuter Choice Maryland / TDM Expansion
- Telework Expansion
- 2021 INFRA Grant Application / MHDV Charging Pilot
- Multi-State MOU - Medium-and-Heavy Duty Vehicles
- EV Charger installations on State Sites
- Continued growth in consumer EV market
- Public and private fleet electrification
- Workplace EV charging
- Integrated Corridor Management/Transportation Systems Management
- Road Usage Fee Studies/Pilots

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