

PLANNING FOR ZERO EMISSION VEHICLES - OPPORTUNITIES FOR ACTION

Greenhouse Gas Reduction Strategy

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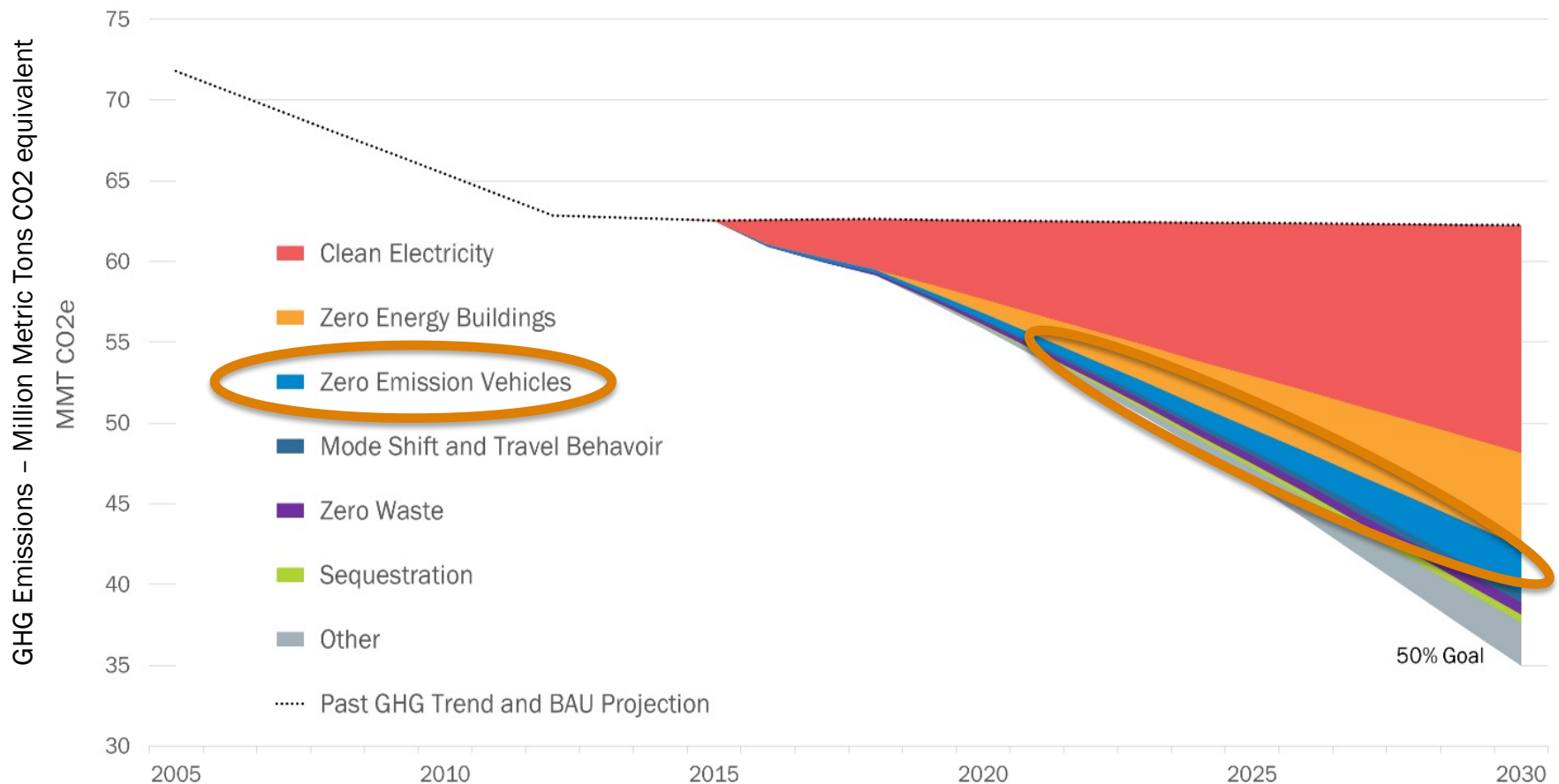
COG Board of Directors
November 10, 2021



Metropolitan Washington
Council of Governments

2030 Greenhouse Gas (GHG) Emission Reduction Strategies

Zero Emission Vehicles Strategy – 3rd highest potential overall



2030 Climate Plan ZEV Strategies

- Regional Zero Emission Vehicle (ZEV) Strategies
 - ZEV-1: expand light-duty electric vehicle deployment
 - ZEV-2: accelerate electrification of medium- and heavy-duty vehicles
 - ZEV-3: build out regional electric vehicle charging network

Opportunity #1

Government Lead By Example: Coordinated Local/Regional EV Planning

1) COG consultant contract:

- a. ICF Consulting – Clean Transportation Team Under Contract to support COG and local members
- b. Developing EV plans for government fleets and community-wide

2) Opportunity for Coordinated Planning

- a. Pool Resources for Regional Plan Development
- b. Local Site-specific Focus
 - i. Asset surveys, site assessments, fleet assessments
- c. Regional Common Elements
 - i. Policy and incentives, requirements (e.g., ADA)

3) Examples:

- a. Prince George's County
- b. Frederick County



Opportunity #2

Government Lead By Example: Support Zero Emission Bus Fleets

- 1) Transit Buses and School Buses
- 2) Grant funding available for purchase of buses
 - a. FTA, Dominion, Infrastructure Bill, VW Settlement
- 3) Lessons Learned from Pilot Programs
 - a. Forums, Ride and Drive
- 4) Examples:
 - a. Frederick County and DC Circulator
 - b. Fairfax County and Montgomery County Public Schools

Opportunity #3

Government Lead By Example: EV Charger Deployment

- 1) Programs Offering EV Charging Equipment at No Cost
 - a. Mid-Atlantic EV Partnership, Department of Energy Grant
 - b. Utilities – Pepco, BGE, SMECO
- 2) Government Site Locations
 - a. Must be Publicly Accessible
 - b. Parking Garages
 - c. Government Buildings
- 3) Examples:
 - a. Prince George’s County (Pepco)
 - b. City of Laurel (EV Partnership)



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Additional Fleet Data Slides



Growth of Electric Vehicle Fleets

Total Vehicles in Region (2020): >4 million

LD Cars/Motorcycle ~47.3%; LD Trucks ~47.2%; Heavy Duty and Bus ~5.5%

159k hybrid vehicles, 3.9% out of all vehicles, increased by 32.0% between 2016 and 2020

23k electric vehicles (BEVs), 0.6% out of all vehicles, increased by 452.9% between 2016 and 2020

40 Electric Transit Buses of a total of 2,714 Total Transit Buses ~1.5% of fleet

CHALLENGE - ZEV Implementation Levels in CEAP, up to 30% penetration by 2030 for LDV and Transit Buses.

Growth in Electric Vehicle Charging Stations

Metropolitan Washington Electric Vehicle Charging Total Stations and Plugs

Year	Station Locations	Total Plug Count
2012	124	334
2019	852	2,424
2021 (draft)	>1100	>3,100

Metropolitan Washington Electric Vehicle Charging Plug Count by Type

Year	Level 1	Level 2	DC Fast
2012	129	205	0
2019	185	2,016	223
2021 (draft)	>80	>2,600	>450

Source: Metropolitan Washington EV Charging Station Database, MWCOG DEP, Updated November 2021.



Trends and Developments

- Growth in Vehicle Offerings
- Light Duty Fleet and Transit Interest and Deployment Growing
- Infrastructure Deployment Expanding
 - Role of Private Sector, Vendor Ecosystem, New OEM models
 - Role of Government and Utilities
 - Federal GSA, Army, Washington HQ Service (Pentagon)
 - Fleets/Consumers
 - Electric Utility Infrastructure Partnerships (Pepco/Dominion)
 - Cooperative/Creative Procurement
 - Congress and White House - Infrastructure Investment



Drivers and Areas of Interest

- Market moving fast, how get out in front of it
- Accelerate ideal market conditions
- Economy of scales: Planning, Procurement, Deployment
- Building “Consumer” acceptance
- Addressing Workforce needs, education and training
- Transit, last mile, Autonomous, EV Rideshare can support workforce development
- Learning from Pilot Programs
- Active supporters - Clean Cities Coalitions, EV enthusiasts, leading practitioners, NVTC, Dealer network with WANADA
- Advanced Energy Group Task Force – EV Coalition, Transit Bus Infrastructure needs assessment framework, Congressional funding letter.



ZERO EMISSION BUS TRANSITION SIGNATORIES



Local EV Plans: Light Duty Vehicles

- Completed Plans
 - City of Frederick – Community plan
 - City of Alexandria – Community plan
 - Prince George’s County – Government fleet plan
- Forthcoming Plans
 - DC’s Transportation Electrification Roadmap
 - Frederick County – Community and government plans
 - Arlington County – Government Operations Interim Plan, County-wide Master plan
- Under Consideration
 - Falls Church - Community-wide plan
 - Rockville – Government fleet plan
 - City of Manassas - Both government and community-wide
 - Charles County – Under consideration
 - Greenbelt – Electric Vehicle Infrastructure Planning Group



Transit and School Buses

Transit Buses

- Alexandria DASH
- DC Circulator
- Frederick County Transit
- Metrobus
- Montgomery County Ride On
- Prince George's County The Bus

School Buses

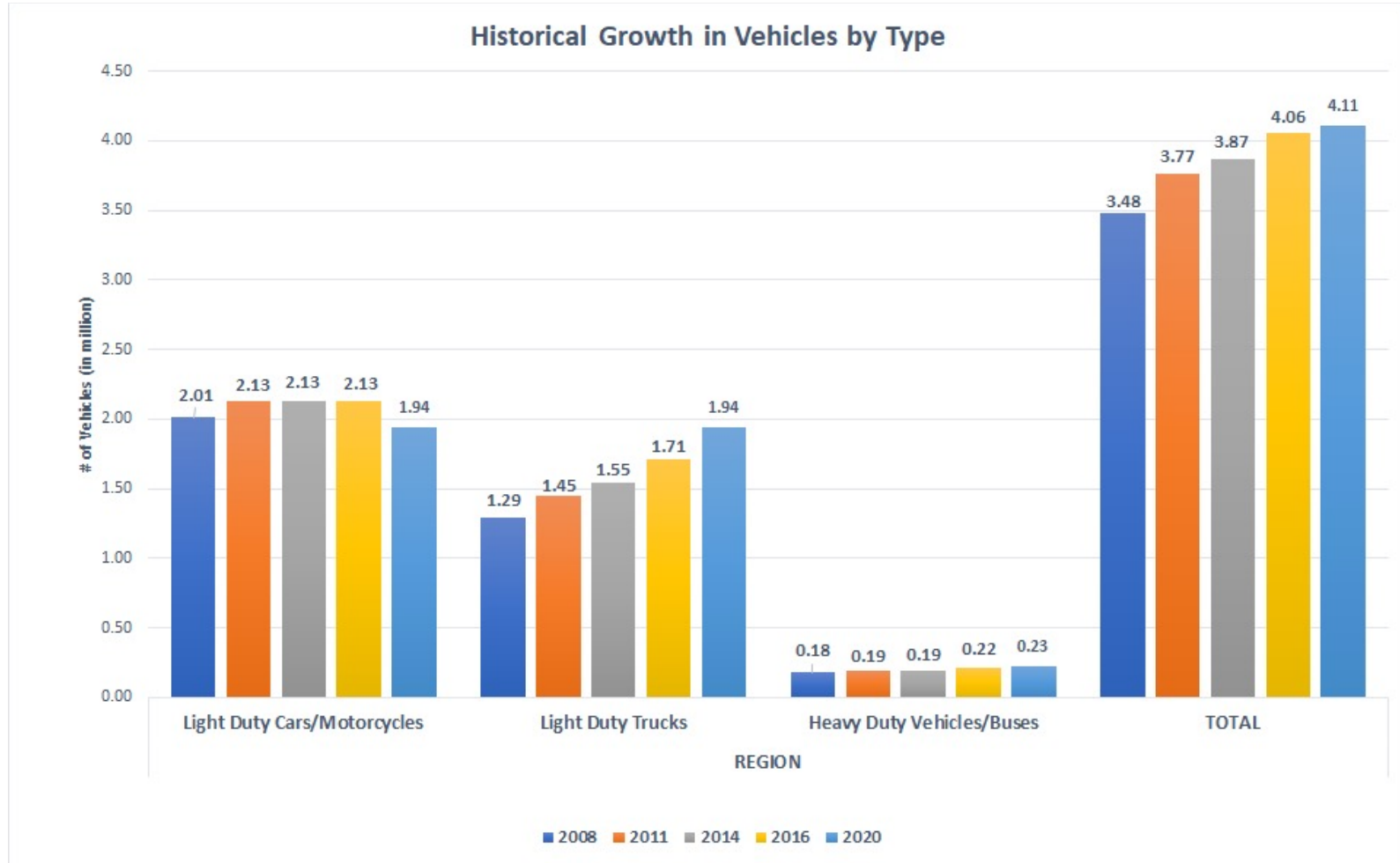
- Fairfax County Public Schools
- Montgomery County Public Schools

Regional Planning and Coordination Opportunities

- EV Plan Development
 - Vehicle and support equipment and services
 - Policy and Programming support
- EV Infrastructure Needs Assessment
- Shared investment in common elements
 - Utility programs
 - Technology/Vendor information
 - Certain policies and procedures
 - Jurisdiction-specific information
 - EV ownership, registrations, locations

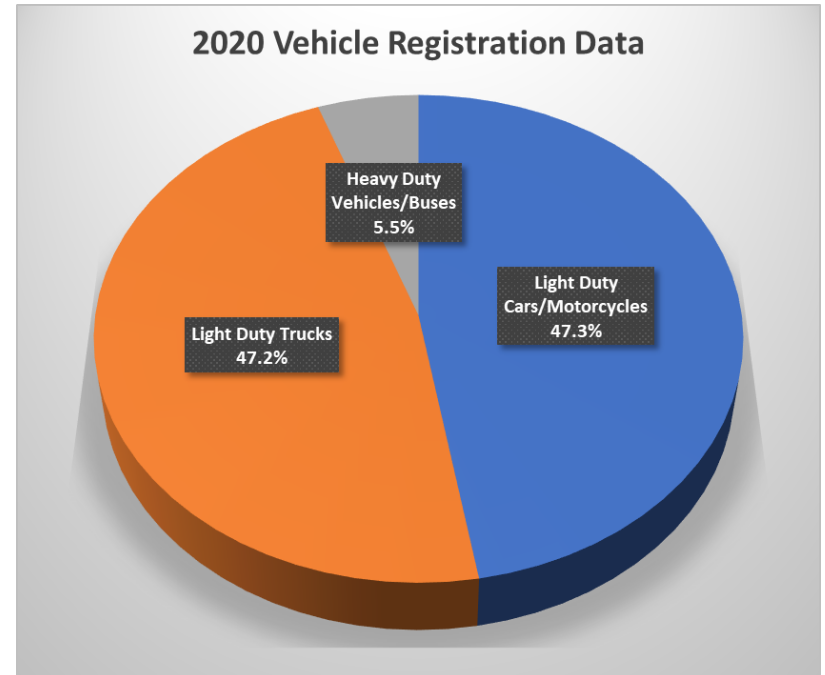
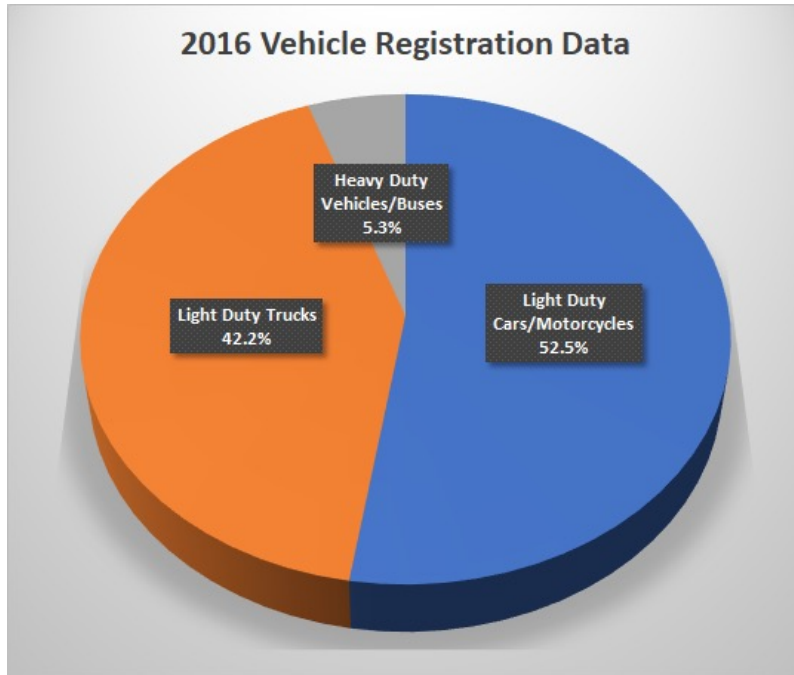


Changes in Regional Vehicle Composition: 2016 vs. 2020 Vehicle Registration Data



Source: TPB Tech Agenda Item 9: Analysis of 2020 Vehicle Registration Data, September 10, 2020

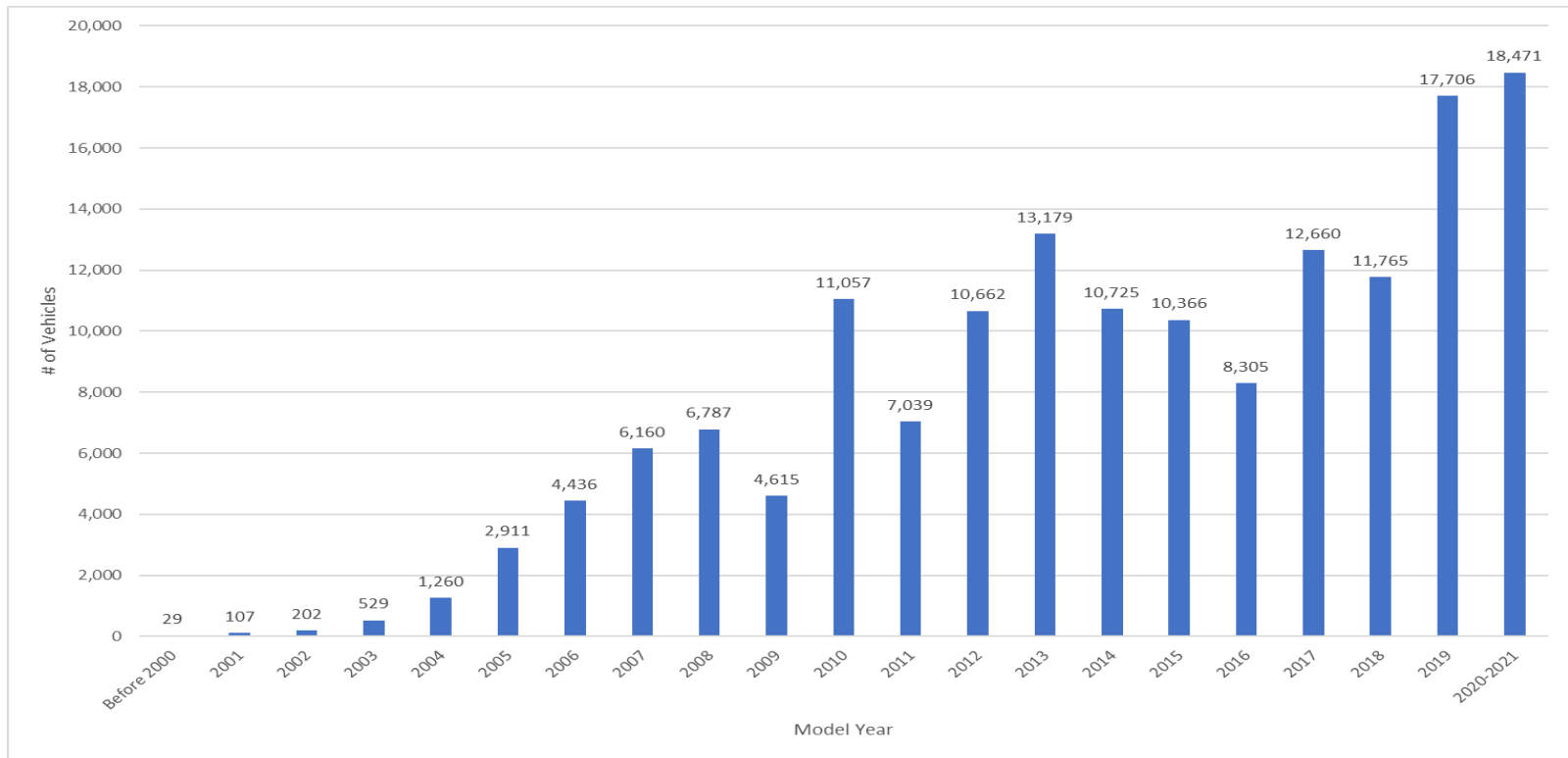
Changes in Regional Vehicle Composition: 2016 vs. 2020 Vehicle Registration Data



Between 2016 and 2020:

- Share of light duty trucks (including SUVs) increased by 5.0%
- Share of heavy duty vehicles increased by 0.2%
- Share of light duty cars decreased by 5.2%

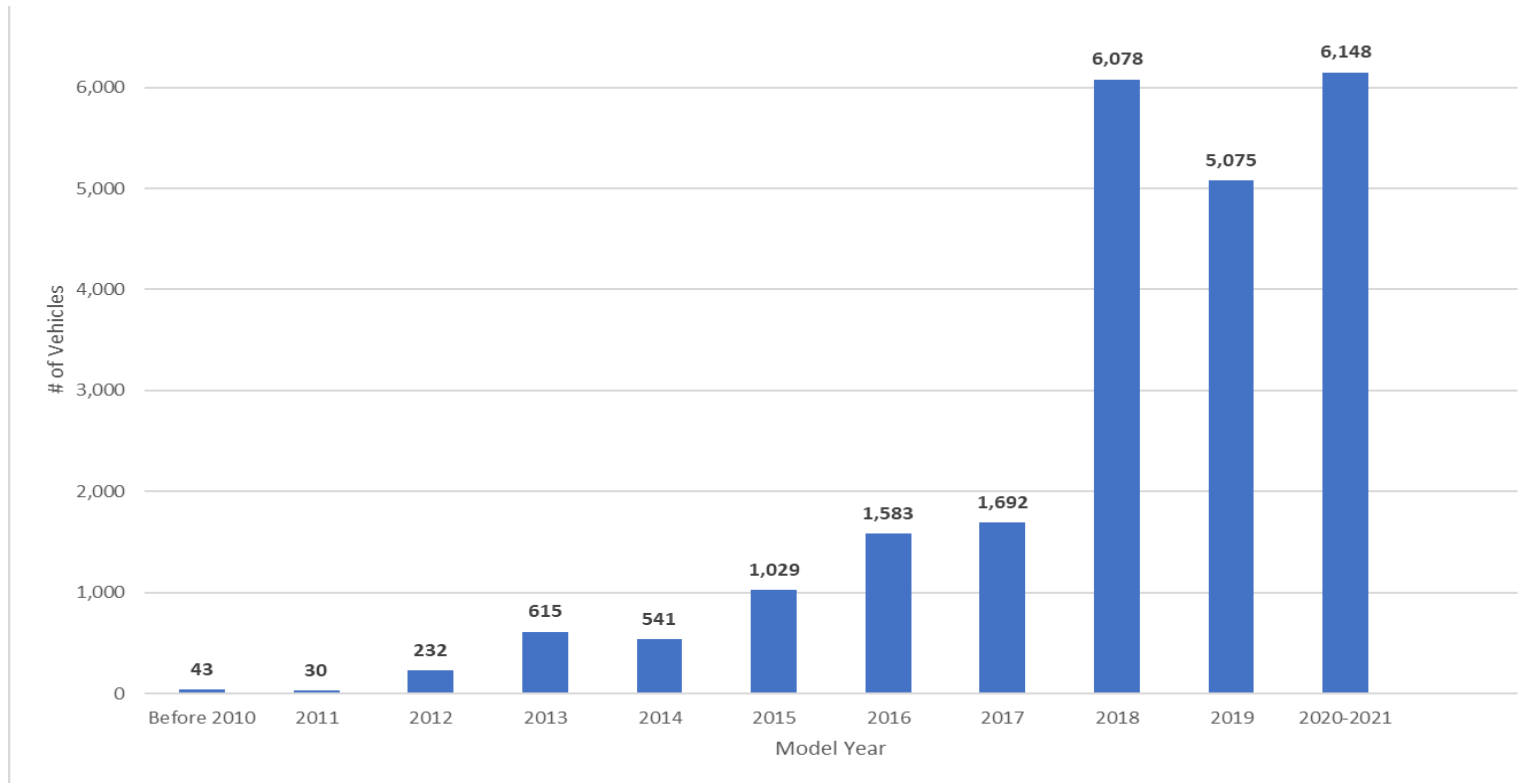
Current Distribution of Hybrid Vehicles by Model Year



- Hybrid vehicles include hybrid electric and plug-in hybrid vehicles
- Regional total = 159k hybrid vehicles, 3.9% out of all vehicles
- Number of registered hybrid vehicles in the fleet increased by 32.0% between 2016 and 2020 data

Source: TPB Tech Agenda Item 9: Analysis of 2020 Vehicle Registration Data, September 10, 2020

Current Distribution of Battery Electric Vehicles (BEVs) by Model Year

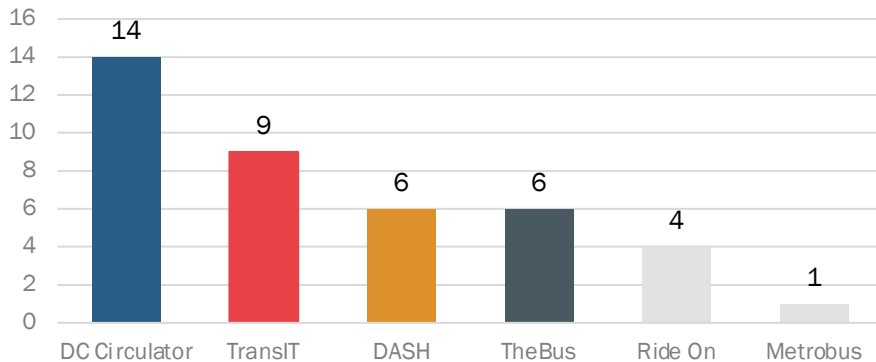


- Regional total = 23k electric vehicles (BEVs), 0.6% out of all vehicles
- Number of registered BEVs in the fleet increased by 452.9% between 2016 and 2020 data

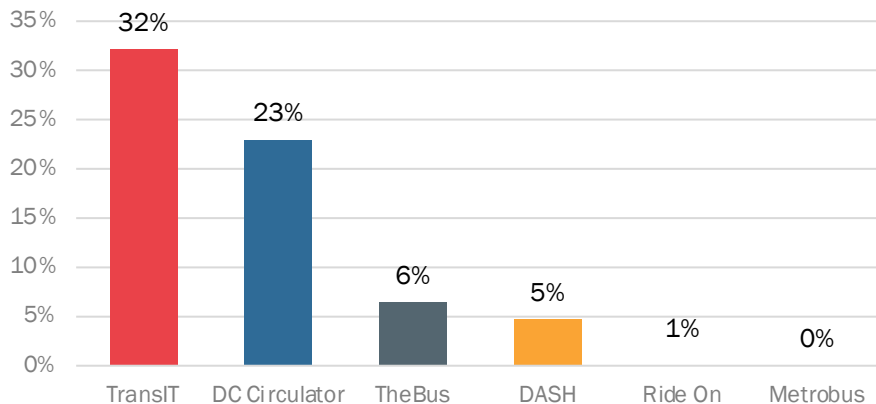
Source: TPB Tech Agenda Item 9: Analysis of 2020 Vehicle Registration Data, September 10, 2020

FINDINGS regional e-bus fleet by count & percent

2021 Total Count of E Buses by Agency
(Total: 40)

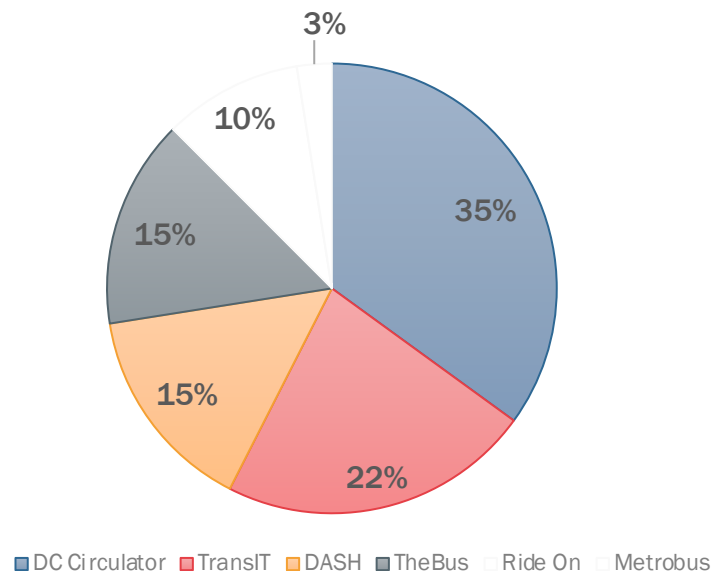


E Buses as % of Agency's Total Fleet (2021)



Data Source: Mixed: NTD RVI & review of local reports / articles

2021 Regional E Bus fleet (by agency)



NCR Total Local Bus Fleet (2019)
2,714 buses