



North Carolina

Motor Fleet ZEV Plan Update EO80

NC Department of Administration

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Introduction and Overview

In September 2019, the NC Department of Administration (DOA) published the first [Motor Fleet Zero Emission Vehicle \(ZEV\) Plan](#)¹ as directed by Governor Cooper in Executive Order 80 (EO 80), North Carolina's Commitment to Address Climate Change and Transition to a Clean Energy Economy.

The 2020 Motor Fleet ZEV report updated the state's ZEV fleet a year into the plan's implementation. While 2020 was a challenging year for the Division of Motor Fleet Management (MFM) due to supply chain disruptions and a drop in state vehicles being driven caused by the COVID-19 pandemic, the report provided notable achievements as well as areas for continued focus and investment.

The 2021 Motor Fleet ZEV report provided updates on the state motor fleet's ZEV and hybrid inventory. It also summarized the National Renewable Energy Laboratory and Sawatch Labs' vehicle telematics analysis, provided updates on MFM's new vehicle procurement contract, and identified the next steps to increase the number of ZEVs in the state's fleet while focusing on increasing charging infrastructure across the state.

The 2022 Motor Fleet ZEV² report provided an update on the 2021 ZEV Plan actions to increase ZEVs in the State Motor Fleet. The report outlined actions that respond to the directives outlined in Executive Order 80.

The 2023 Motor Fleet ZEV report reflected the challenges that Motor Fleet encountered with ZEV procurement. As MFM continued to promote the importance of ZEVs and charging infrastructure, more agency stakeholders became interested in the use of ZEVs. However, the number of ZEVs MFM was able to secure was lower than anticipated due to supply chain issues and vehicle availability.

The 2024 Motor Fleet ZEV report will discuss the current challenges that continue to affect the acquisition of ZEVs in the state fleet. The biggest ongoing obstacle remains limited ZEV availability for state fleet purchase. Despite these setbacks, there has been progress with electric charging infrastructure across the state thanks to Volkswagen funding. Despite these challenges, MFM continues to work with agencies promoting the use of ZEVs and exploring options to meet the goals of Executive Order 80.

¹ Clean Energy Plans and Progress, <https://ncadmin.nc.gov/about-doa/special-programs/clean-energy-plans-progress>.

² Written by the DOA Policy Office; Evin L. Grant, Policy Director, and Gianna Quilici, Policy and Planning Analyst, with assistance by respective DOA Divisions.

Summary of Highlights

The Department of Administration's [Division of Motor Fleet Management](#)³ (MFM) has pursued various strategies since the 2023 Motor Fleet ZEV report to increase the number of zero-emission vehicles used by state agencies.

- MFM received all 75 Chevy Bolts ordered in 2022, with progress made toward assigning these into the fleet. 63 Chevy Bolts have now been assigned to various agencies. The current ZEV fleet assigned to state agencies is 79 vehicles strong and composed of Chevy Bolts, Ford E-Transit Vans, and a Ford Lightning.
- In 2023, Geotab, the state's telematics vendor, developed a new EV Suitability Assessment (EVSA) tool for their system. Using the Geotab EVSA tool, MFM ran a post-COVID EV Suitability Assessment on every vehicle in the fleet. This analysis proposed that approximately 10% of the fleet is suitable for replacement with an EV based upon driving and parking habits. The EVSA tool does not account for the availability of charging infrastructure.
- The DOA Division of Purchase and Contract updated the [Statewide Term Contract 2613A - Electric Vehicle Charging Station Equipment, Accessories, Installation, and Infrastructure](#) to include a total of six vendors with approximately 17 different brands of charging stations.⁴
- As MFM continues to promote the use of ZEVs by state agencies, ordering new ZEVs for the fleet has been challenging due to low availability of ZEVs for state fleet purchase and budgetary challenges.

³ NC DOA: Motor Fleet Management, <https://ncadmin.nc.gov/government/motor-fleet-management>.

⁴ Statewide Term Contract 2613A - Electric Vehicle Charging Station Equipment, Accessories, Installation, and Infrastructure, <https://www.doa.nc.gov/2613a-electric-vehicle-charging-station-equipment-accessories-installation-and-infrastructure/open>.

DOA Actions to Increase Zero Emissions Vehicles in State Motor Fleet

The following sections detail actions that DOA plans to undertake or is already implementing to increase ZEV adoption in the state's motor fleet in compliance with Executive Order 80. The plan will be adjusted over time to address changes in EV and infrastructure technologies, vehicle demand, supply chain issues, and infrastructure needs.

Ensure Agency Engagement Process to Expand Input on Establishing ZEV Priorities

Stakeholder Engagement

Lead Agency: State Agencies, MFM

Timeframe: Ongoing

There have been no substantial changes to this update since October 2023. For a detailed description of the actions taken on this recommendation, review the [2023 NC Motor Fleet ZEV Update](#).⁵

Achieve Agency Awareness and Interest in ZEV Options and Benefits

DOA EV Suitability Assessment

Lead Agency: MFM

Timeframe: Ongoing

Geotab developed a new EV Suitability Assessment tool for their telematics system. For the first time in Motor Fleet history, using the Telematics EVSA tool, the Division of Motor Fleet Management was able to run a post-Covid EV Suitability Assessment on every vehicle in the fleet.

The results showed that approximately 10% of the fleet drive and park in a way that makes them suitable for an EV replacement. If infrastructure were available at their overnight parking location, these vehicles would not need to stop midday to recharge.

Note, the EVSA tool does not consider if infrastructure is available at these locations. The EVSA only reports vehicles that would be "suitable" for replacement with an EV if all conditions for utilization were met. The analysis from this study has been used to help agencies, such as the Department of Adult Corrections (DAC) and Department of Transportation (DOT), identify locations for charging infrastructure.

ZEV Fleet Recommendations Review

Lead Agency: MFM, State Agencies

Timeframe: September 2021 - Ongoing

There have been no substantial changes to this update since October 2023. For a detailed description of the actions taken on this recommendation, review the [2023 NC Motor Fleet ZEV Update](#).⁶

ZEV Transition

Lead Agency: State Agencies, MFM

Timeframe: September 2021 - Ongoing

⁵ 2023 NC Motor Fleet Zero Emission Vehicle (ZEV) Update, NC Department of Administration, <https://www.doa.nc.gov/mfm-2023-zev-report/open>.

⁶ 2023 NC Motor Fleet Zero Emission Vehicle (ZEV) Update, NC Department of Administration, <https://www.doa.nc.gov/mfm-2023-zev-report/open>.

There have been no substantial changes to this update since October 2023. For a detailed description of the actions taken on this recommendation, review the [2023 NC Motor Fleet ZEV Update](#).⁷

Achieve High Rate of ZEV and Hybrid Adoption from Agencies

Lead Agency: State Agencies, DOA, Governor's Office

Timeframe: September 2021 - Ongoing

MFM provided agencies information on vehicles that were identified as suitable for EV replacement with the annual replacement lists sent to agencies spring 2023. Since October 2023, MFM assigned additional ZEVs to these agencies and institutions:

- Department of Adult Correction
- Department of Environmental Quality
- Department of Administration
- Department of Transportation
- Wake Tech Community College
- Central Piedmont Community College
- A&T State University
- UNC-Chapel Hill

Require Written Justification for Not Adopting ZEVs Where Feasible

Lead Agency: State Agencies, MFM

Timeframe: September 2021 - Ongoing

There have been no substantial changes to this update since October 2022. For a detailed description of the actions taken on this recommendation, review the [2022 NC Motor Fleet ZEV Update](#).⁸

Ensure Infrastructure Supports the Expansion of ZEV Usage

Charging Infrastructure

Lead Agency: State Agencies, State Parking, State Construction, State Property, MFM, Purchase and Contract

Timeframe: Ongoing

Accessible charging infrastructure is essential for a successful ZEV transition, and the Department of Administration is pursuing a variety of strategies to expand existing EV infrastructure. DOA is working to identify adequate funding sources to support the cost of building and maintaining new chargers. The agency also is identifying potential locations for new chargers to maximize utilization by state agencies. Some of the decline in agency demand comes from lack of current charging infrastructure, however; many state projects are currently in the process of building charging infrastructure. MFM anticipates an increase in demand once charging stations are in place.

DOA divisions continue to analyze charging location suitability telematics data to determine where new charging infrastructure can be effectively utilized for current and future EV adoption. DOA is also exploring

⁷ 2023 NC Motor Fleet Zero Emission Vehicle (ZEV) Update, NC Department of Administration, <https://www.doa.nc.gov/mfm-2023-zev-report/open>.

⁸ 2022 NC Motor Fleet Zero Emission Vehicle (ZEV) Update, NC Department of Administration, <https://www.doa.nc.gov/2022-nc-motor-fleet-zero-emission-vehicle-update/open>.

contracting options that include charging infrastructure in new building construction, leasing, and purchasing.

State Construction, State Parking, and State Property will work to clarify and minimize the cost of installing new charging infrastructure identified in the location suitability analysis.

The DOA Division of Purchase and Contract updated the [Statewide Term Contract 2613A - Electric Vehicle Charging Station Equipment, Accessories, Installation, and Infrastructure](#) to include a total of six vendors who include approximately 17 different brands of charging stations.⁹

Chargers in State Parking

Lead Agency: State Property, State Construction, State Parking

Timeframe: Ongoing

The State Parking Office maintains 27 EV chargers in Deck 77 to support personal use charging for state employees with electric vehicles. The Parking Office is exploring options for increasing the utilization of those existing charging stations to support electric vehicles in the state's fleet. \$2.2 million was approved for the Deck 75 project to upgrade electrical infrastructure and provide infrastructure for EV charging stations. However, due to safety concerns, the project has been put on pause.

Challenges arose during the design development phase of Deck 75 due to fire safety concerns. Charging industry standards are pushing against chargers in decks, particularly the bottom of parking decks. This is due to the possibility of a fire breaking out and the battery in EVs would burn much hotter and compromise the structural integrity of the deck. The State Construction Office (SCO) and State Parking investigated installing chargers in surface lots instead, but all surface lots but Lot 22 have long-term or short-term plans to be demolished. This would not make it cost efficient to install chargers in the surface lots either. SCO and MFM are going back to the drawing board to assess where best to safely put charging infrastructure to meet the goals of EO 80.

One potential location for charging infrastructure may be the new Department of Health and Human Services (DHHS) parking deck on Blue Ridge Road. The deck is currently in the design phase and construction is expected to start next year. If implemented, the design would prevent charging stations from being grouped together for fire safety purposes; consequently, limiting the number of chargers that would be available for state employees and visitors. Additionally, these charging stations would not be installed until the deck is operational in 2025.

One highlight around installation of chargers is NCDOT working with DOA to receive and deploy 28 Chevy Bolt EV's (from FY 23-24 purchase) for use at Nash, Neuse, Pender, Granville, Warren, Harnett, and Albemarle with BEAM Electric Vehicle Autonomous Renewable Charger (EVARC) units. BEAM EVARC units are solar-powered, making them a good option for locations that may not have electrical capacity to support the installation of EV chargers otherwise.

Round 2 Volkswagen Settlement Funds

In the first round of program funding, \$1 million in Volkswagen Settlement funds were allocated to state agencies to install Level 2 electric vehicle charging infrastructure at state-maintained facilities and attractions. The NC Division of Air Quality (DAQ), a part of the NC Department of Environmental Quality, announced grant awards to state agencies on October 17, 2022. These 103 charging ports will be installed

⁹ Statewide Term Contract 2613A - Electric Vehicle Charging Station Equipment, Accessories, Installation, and Infrastructure, <https://www.doa.nc.gov/2613a-electric-vehicle-charging-station-equipment-accessories-installation-and-infrastructure/open>.

at 25 sites, including state parks, museums, aquariums, government office buildings, universities, and community colleges. Twenty-two of the 103 charging ports will be in historically under-resourced counties.¹⁰

The second round of funding has approximately \$739,839 available for state agencies to install Level 2 electric vehicle charging infrastructure at state-maintained facilities and attractions. DOA worked with DAQ to establish criteria that add points to proposals that allow the applying agency to adopt fleet electric vehicles identified by the EV Suitability Assessment. Proposal applications were submitted to DAQ by September 1, 2023, and Round 2 project selections were announced on November 2023 and can be found on DEQ's [website](#). In total, Phase 1 and 2 Volkswagen awards included:

- 76 all-electric, zero-emission vehicles and 347 lower-emission vehicles, including school buses, transit buses and heavy-duty trucks and equipment
- 155 DC Fast charging ports at 78 sites
- 839 Level 2 charging ports at 240 sites

Develop Procurement Options and Strategies to Increase the Purchase and Utilization of ZEVs

Motor Fleet Management ZEV and Hybrid Vehicles Inventory

Lead Agency: MFM

Timeframe: Ongoing

For the past two fiscal years, procuring vehicles has proven difficult due to the unavailability of ZEVs for fleet purchase or budgetary issues. Hybrid vehicles are practical alternatives to internal combustion engine (ICE) vehicles in cases where ZEV replacement is not feasible. For long distances that require a mid-trip charge, a hybrid vehicle can yield significant emissions savings compared to a similar ICE vehicle. In FY 23-24, MFM ordered 550 hybrid vehicles, making up over 69% of total motor fleet vehicle purchases during the fiscal year. Due to receiving these vehicles during FY 24-25, a majority of MFM's procurement budget for the year has gone toward hybrids.

As discussed, MFM received all 75 Chevy Bolts ordered in 2022, and 63 are now assigned in the fleet as of October 2024. The current EV fleet assigned to state agencies is 79 vehicles strong and includes Chevy Bolts, Ford E-Transit Vans, and one Ford Lightning.

To date, in FY 24-25, MFM has not been able to secure an order for any EVs or hybrids. The Chevy Bolt is now being retired, which is another obstacle given that model was on the state term contract.

A visual summary of the [ZEV inventory](#) can be found in the appendix of this report.

Leased Space

Lead Agency: State Property

Timeframe: Ongoing

There have been no substantial changes to this update since October 2022. For a detailed description of the actions taken on this recommendation, review the [2022 NC Motor Fleet ZEV Update](#).¹¹

¹⁰ Level 2 State Agency Program | NC DEQ, <https://www.deq.nc.gov/about/divisions/air-quality/motor-vehicles-and-air-quality/volkswagen-settlement/phase-2-volkswagen-settlement/level-2-infrastructure-program/level-2-state-agency-program>.

¹¹ 2022 NC Motor Fleet Zero Emission Vehicle (ZEV) Update, NC Department of Administration, <https://www.doa.nc.gov/2022-nc-motor-fleet-zero-emission-vehicle-update/open>.

Challenges & Policy Recommendations

As discussed in the action items above, there were significant impairments of ZEV acquisition due to lack of availability for MFM to place a ZEV order with manufacturers. Most manufacturers are opting to sell supply of ZEV's directly to consumers. Delay in delivering ordered vehicles also presented another challenge in FY 24-25. Hybrid vehicle orders from FY 23-24 are being delivered in FY 24-25 and as a result, there are no remaining budget funds from FY 24-25 to purchase new ZEVs.

Size, cost, and availability of ZEV's are also factors for not yet reaching the ZEV goal. Unfortunately, Chevrolet stopped making the Bolt in 2023. However, the Nissan Leaf is of similar size and is available on state term contract but has not been available to purchase. The remaining three ZEVs on state term contract: Mustang Mach E, Chevy Blazer EV, and Ford Lightning are more expensive than comparable ICE or hybrid vehicles, making them cost prohibitive to acquire. Finally, the rising cost of vehicle acquisition, maintenance, and fuel for ICE vehicles have dramatically impacted MFM's purchasing power.

Hurricane Helene hit Western North Carolina (WNC) September 2024, causing major devastation. Roads and towns were swept away, and the infrastructure was badly damaged. Recovery is still underway as of October 2024 and rebuilding is expected to continue for years. The hurricane also hindered the goals of MFM and EO 80 impacting some of the state's fleet and charging infrastructure in WNC. Wex gas cards and fuel stations also went down, while others currently remain up and running. MFM is working to get telematics data around what vehicles are not able to travel or roads that are closed by working with OnStar to get additional resources (i.e., wireless hotspots in General Motor cars). Though Hurricane Helene did not specifically impact ZEVs in the fleet, charging infrastructure may have been lost as power went out. Priorities have also now shifted to help WNC with hurricane recovery which can impact progress with ZEVs.

Conclusion

The state term contract for motor vehicles allows the state to order new models of ZEVs and hybrids when they become available, though attempts to procure and order ZEVs have proven difficult over FY 24-25 due to low availability. However, progress is being made around the state to build more charging infrastructure with Volkswagen funding. MFM is hopeful agency demand will increase after charging stations are running.

DOA will also continue to engage in intentional executive-level interagency coordination with cabinet agencies to adopt and improve shared ZEV and charging infrastructure best practices. Different state agencies have been interested in leasing ZEVs as MFM continues to hold meetings with stakeholders and state agencies.

State charging infrastructure and ZEV availability remain the most significant barriers to transitioning the state's fleet to ZEVs. MFM encountered challenges of ZEV procurement for the last few years. Despite these challenges, DOA continues to evaluate opportunities to expand access to ZEV charging infrastructure and identifying suitable new ZEVs. DOA will continue to partner with the Governor's Office, state government agencies, and external stakeholders to implement the goals defined in Executive Order 80.

Appendix: ZEV Inventory List

Vehicle Description	Assigned Agency	Date Vehicle Acquired
2020 Chevrolet Bolt	DHHS Child Development	1/2/2020
2020 Chevrolet Bolt	DAC	1/14/2020
2021 Chevrolet Bolt	Dept Of Administration	5/10/2021
2020 Chevrolet Bolt	DAC CDS of Operations - Institutions	1/2/2020
2022 Ford E-Transit Cargo Van	Dept Of Administration	5/3/2022
2022 Ford E-Transit Cargo Van	Dept Of Administration	5/3/2022
2022 Ford E-Transit Cargo Van	Dept Of Administration	5/4/2022
2022 Ford E-Transit Cargo Van	Dept Of Administration	5/4/2022
2022 Ford E-Transit Cargo Van	Dept Of Administration	5/4/2022
2022 Ford E-Transit Cargo Van	Dept Of Administration	5/4/2022
2022 Ford E-Transit Cargo Van	Dept Of Administration	5/4/2022
2020 Chevrolet Bolt	UNV UNC-Chapel Hill	1/8/2020
2020 Chevrolet Bolt	UNV UNC-Chapel Hill	1/14/2020
2023 Chevrolet Bolt	DHHS Central Administration	11/7/2022
2023 Chevrolet Bolt	DHHS Blind Services	11/7/2022
2023 Chevrolet Bolt	Dept Of Natural & Cultural Resources	11/7/2022
2023 Chevrolet Bolt	DAC CDS of Operations - Institutions	11/7/2022
2023 Chevrolet Bolt	Dept Of Natural & Cultural Resources	11/8/2022
2023 Chevrolet Bolt	UNV UNC-Chapel Hill	11/7/2022
2023 Chevrolet Bolt	UNV UNC-Chapel Hill	11/7/2022

2023 Chevrolet Bolt	Dept Of Transportation	11/8/2022
2023 Chevrolet Bolt	DHHS Central Administration	11/7/2022
2023 Chevrolet Bolt	DHHS Central Administration	11/7/2022
2023 Chevrolet Bolt	DHHS Central Administration	11/7/2022
2023 Chevrolet Bolt	UNV NC State University	11/7/2022
2023 Chevrolet Bolt	Dept Of Natural & Cultural Resources	1/3/2023
2023 Chevrolet Bolt	DAC CDS of Operations - Institutions	11/7/2022
2023 Chevrolet Bolt	DAC CDS of Operations - Institutions	11/7/2022
2023 Chevrolet Bolt	DAC CDS of Operations - Institutions	11/7/2022
2023 Chevrolet Bolt	DAC CDS of Operations - Institutions	11/7/2022
F-150 Ford Lightning	Dept Of Transportation	3/13/2023
2023 Chevrolet Bolt	Dept Of Natural & Cultural Resources	1/3/2023
2023 Chevrolet Bolt	Dept Of Administration	1/3/2023
2023 Chevrolet Bolt	Dept Of Environmental Quality	1/3/2023
2023 Chevrolet Bolt	Dept Of Environmental Quality	11/7/2022
2023 Chevrolet Bolt	Dept Of Administration	1/3/2023
2023 Chevrolet Bolt	DCC Wilkes	1/3/2023
2023 Chevrolet Bolt	DCC Wilkes	1/3/2023
2023 Chevrolet Bolt	DCC Wilkes	1/3/2023
2023 Chevrolet Bolt	DCC Wilkes	1/3/2023
2023 Chevrolet Bolt	DCC Wilkes	1/3/2023
2020 Chevrolet Bolt	Dept Of Public Safety	1/8/2020

2020 Chevrolet Bolt	Dept Of Public Safety	1/8/2020
2023 Chevrolet Bolt	Dept Of Transportation	1/3/2023
2023 Chevrolet Bolt	Dept Of Natural & Cultural Resources	11/7/2022
2022 Ford E-Transit Cargo Van	Dept Of Environmental Quality	5/13/2022
2023 Chevrolet Bolt	Dept Of Environmental Quality	11/7/2022
2023 Chevrolet Bolt	Dept Of Transportation	11/7/2022
2023 Chevrolet Bolt	Dept Of Environmental Quality	1/3/2023
2020 Chevrolet Bolt	Dept Of Natural & Cultural Resources	1/2/2020
2020 Chevrolet Bolt	Dept Of Natural & Cultural Resources	1/2/2020
2023 Chevrolet Bolt	DAC CDS of Operations - Institutions	11/7/2022
2023 Chevrolet Bolt	DAC CDS of Operations - Institutions	11/7/2022
2023 Chevrolet Bolt	DAC CDS of Operations - Institutions	11/8/2022
2023 Chevrolet Bolt	Dept Of Transportation	11/7/2022
2023 Chevrolet Bolt	Dept Of Administration	1/3/2023
2023 Chevrolet Bolt	Dept Of Administration	8/8/2023
2020 Chevrolet Bolt	UNV Appalachian State U	1/14/2020
2020 Chevrolet Bolt	UNV Appalachian State U	1/8/2020
2020 Chevrolet Bolt	UNV Appalachian State U	1/8/2020

	UNV Appalachian State U	1/8/2020
2020 Chevrolet Bolt		
2023 Chevrolet Bolt	UNV A&T State	1/3/2023
2023 Chevrolet Bolt	UNV A&T State	1/3/2023
2023 Chevrolet Bolt	Dept Of Natural & Cultural Resources	11/8/2022
2020 Chevrolet Bolt	DAC CDS of Operations - Institutions	1/8/2020
2020 Chevrolet Bolt	DAC CDS of Operations - Institutions	1/8/2020
2023 Chevrolet Bolt	DAC CDS of Operations - Institutions	11/8/2022
2023 Chevrolet Bolt	DCC Wake Tech	1/3/2023
2020 Chevrolet Bolt	Dept Of Public Safety	1/2/2020
2023 Chevrolet Bolt	Dept Of Environmental Quality	1/3/2023
2020 Chevrolet Bolt	UNV UNC- Asheville	1/8/2020
2023 Chevrolet Bolt	UNV UNC- Chapel Hill	1/3/2023