NC DOA
Department of Administration

Zero-Emission Vehicle Plan

Motor Fleet Management

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What is DOA's role in EO-80?

- Develop a North Carolina Motor Fleet ZEV Plan, that identifies the types of trips for which a ZEV is feasible
- Recommend infrastructure necessary to support ZEV use
- Develop procurement options and strategies to increase the purchase and utilization of ZEVs
- Provide annual reporting to the Governor's Office on the number of ZEVs in fleet and showing the miles driven by vehicle type

ZEV Suitability Assessment

- MFM has ensured telematics is on every MFM issued vehicle, allowing data-informed decisions and mileage tracking to determine vehicles best suitable for ZEV replacement.
- **3,049** vehicles suitable for ZEV replacement according to ZEV Suitability Assessment by Sawatch Labs.
- The Sawatch Labs scoring analysis was shared with agency fleet coordinators and is used as a basis to recommend ZEV replacement.
- Motor Fleet is continuing to analyze the data for parking locations to make recommendations for ZEV charging infrastructure.

Table 1. Fleet Summary

Category	Stats
Vehicles	5901
Telematics Provider	Geotab
Period of Analysis	2/23/2018 – 1/16/2020
Miles Analyzed	64,000,000
Total Trips Analyzed	2,990,000+

NREL
National Renewable Energy Laboratory

SAWATCH

Fleet Mix

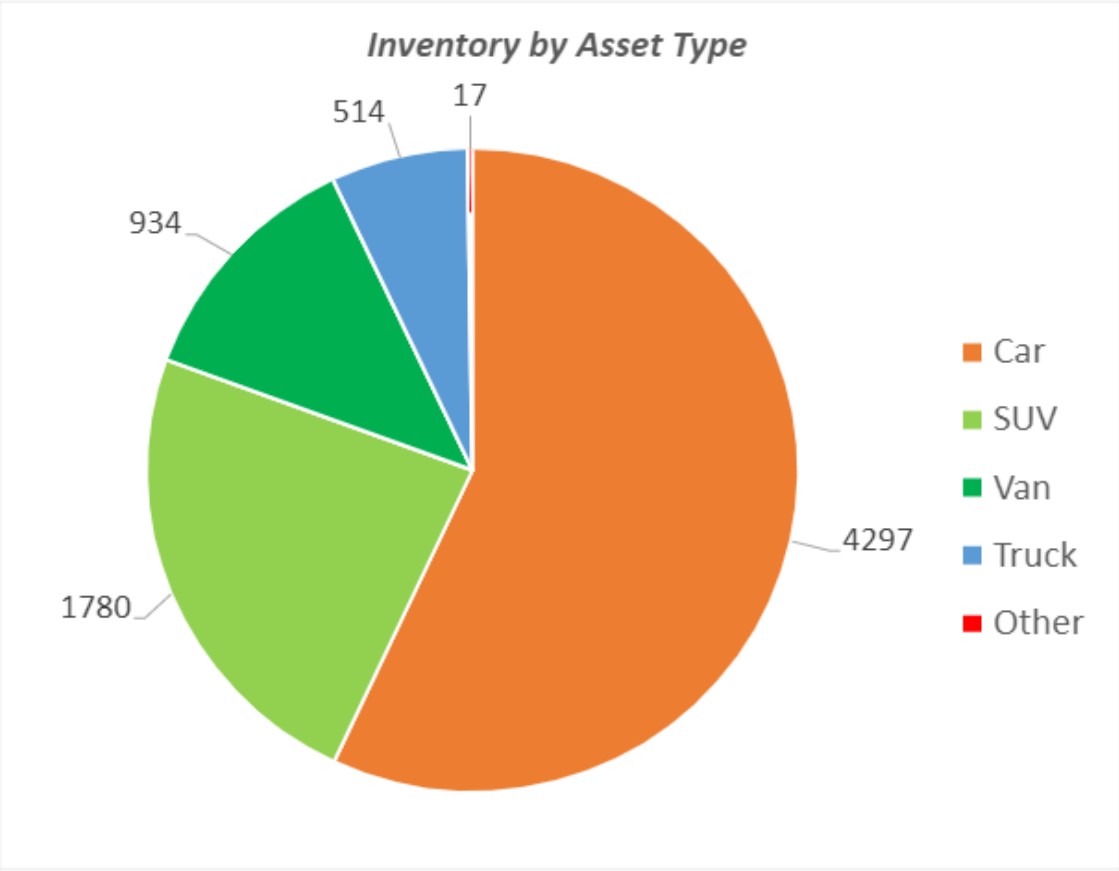


Table 3. EV Suitability Assessment Results Summary

Vehicle Class	# of Vehicles Analyzed	EV Candidates (in class)	EV Candidates (Allowing SUVs[7])
Cargo-van	25	5	5
Minivan	687	235	411
Pickup	170	30	90
Sedan	3968	2020	2020
SUV	1051	514	514
TCO Savings	-	*$13,000,000*	*$14,000,000*
GHG Emissions Reductions	-	*66,000 metric tonnes*	*68,000 metric tonnes*

Transitioning to ZEVs

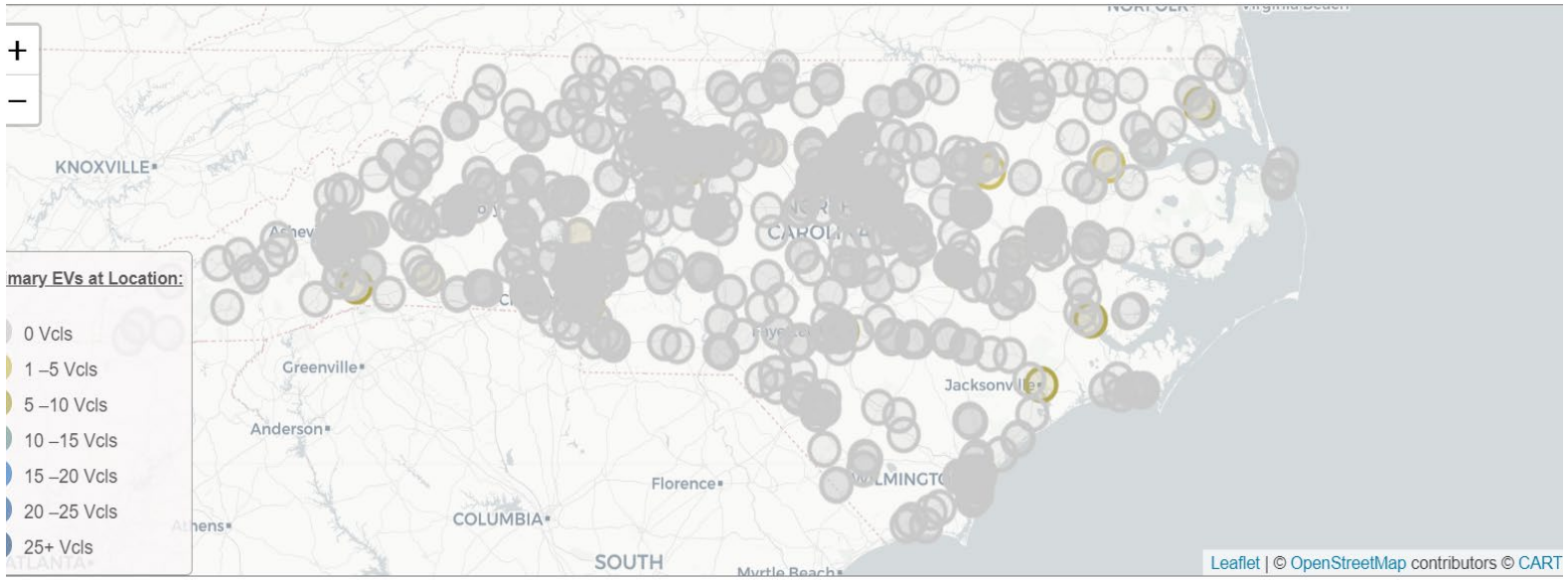
- At the beginning of each fiscal year MFM sends a recommended Vehicle Replacement List to our Agency partners
- Recommended vehicles are due for replacement that year based on age, mileage, and cost of ownership.
- This year, Motor Fleet Recommended **141** ZEVs to replace Internal Combustion Engine (ICE) vehicles
- Work with State Parking and State Construction offices on ZEV charging infrastructure

FY21-22 Replacement List

EO-80- First choice is a ZEV, next Hybrid, then right-sized ICE, AWD before 4x4

VehicleNumber	VehicleModel	Suggested Vehicle	Vehicle Needed	VehicleYear	LastLogMileage	AgencyName
250277	Impala Limited FWD	Chevy Bolt or Camry Hybrid		2015	98628	DHHS Cherry Hospital
262254	Fusion FWD	Chevy Bolt or Camry Hybrid		2017	83326	Board Of Cosmetic Arts
250055	Fusion FWD	Chevy Bolt or Camry Hybrid		2015	91959	Dept Of Administration
240272	Impala Limited FWD	Chevy Bolt or Camry Hybrid		2014	88254	Dept Of Environmental Quality
262719	Fusion	Chevy Bolt or Camry Hybrid		2018	93163	Dept Of Insurance
241537	Impala Limited FWD	Chevy Bolt or Camry Hybrid		2014	90098	DHHS Public Health
241199	Impala Limited FWD	Camry Hybrid		2014	98678	DHHS Cherry Hospital
250253	Impala Limited FWD	Camry Hybrid		2015	91455	DHHS Health Service Regulation
250194	Impala Limited FWD	Camry Hybrid		2015	91061	UNV UNC-Chapel Hill

Charging infrastructure needs for MFM vehicles



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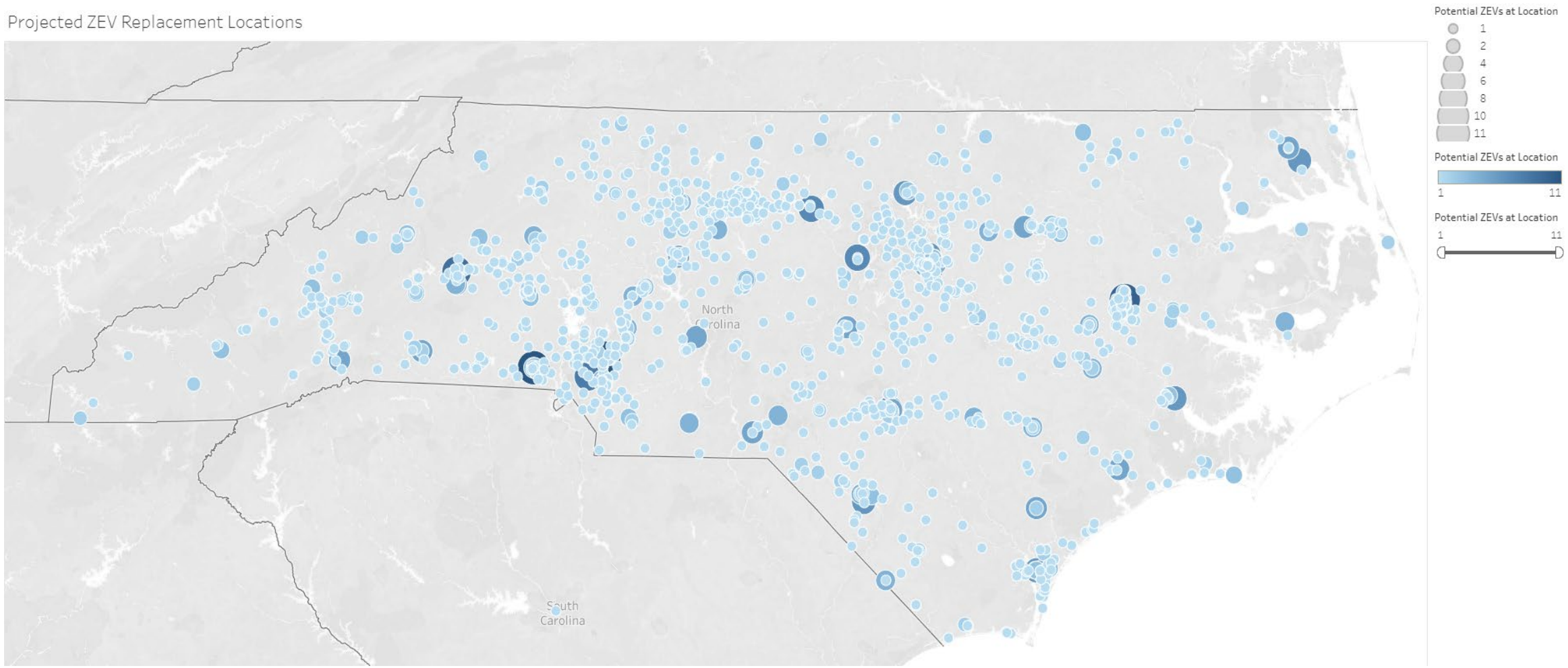
Identifying Charging Infrastructure Needs



Status of sedans

Past
27 MPG

Ford Fusion

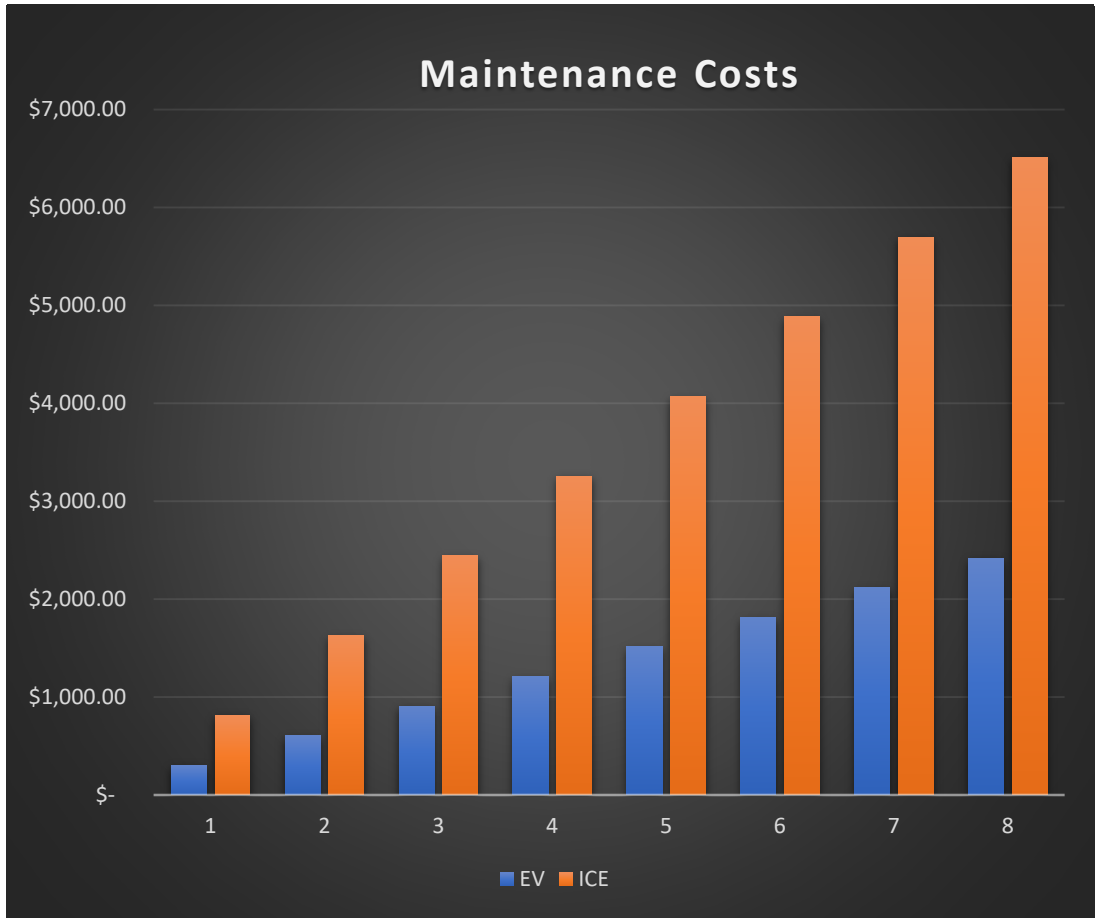
Present/Future
52 MPG

Toyota Camry Hybrid

Recommended
120 MPGe(equivalent)

Chevrolet Bolt or Nissan Leaf

Projected Savings with ZEVs

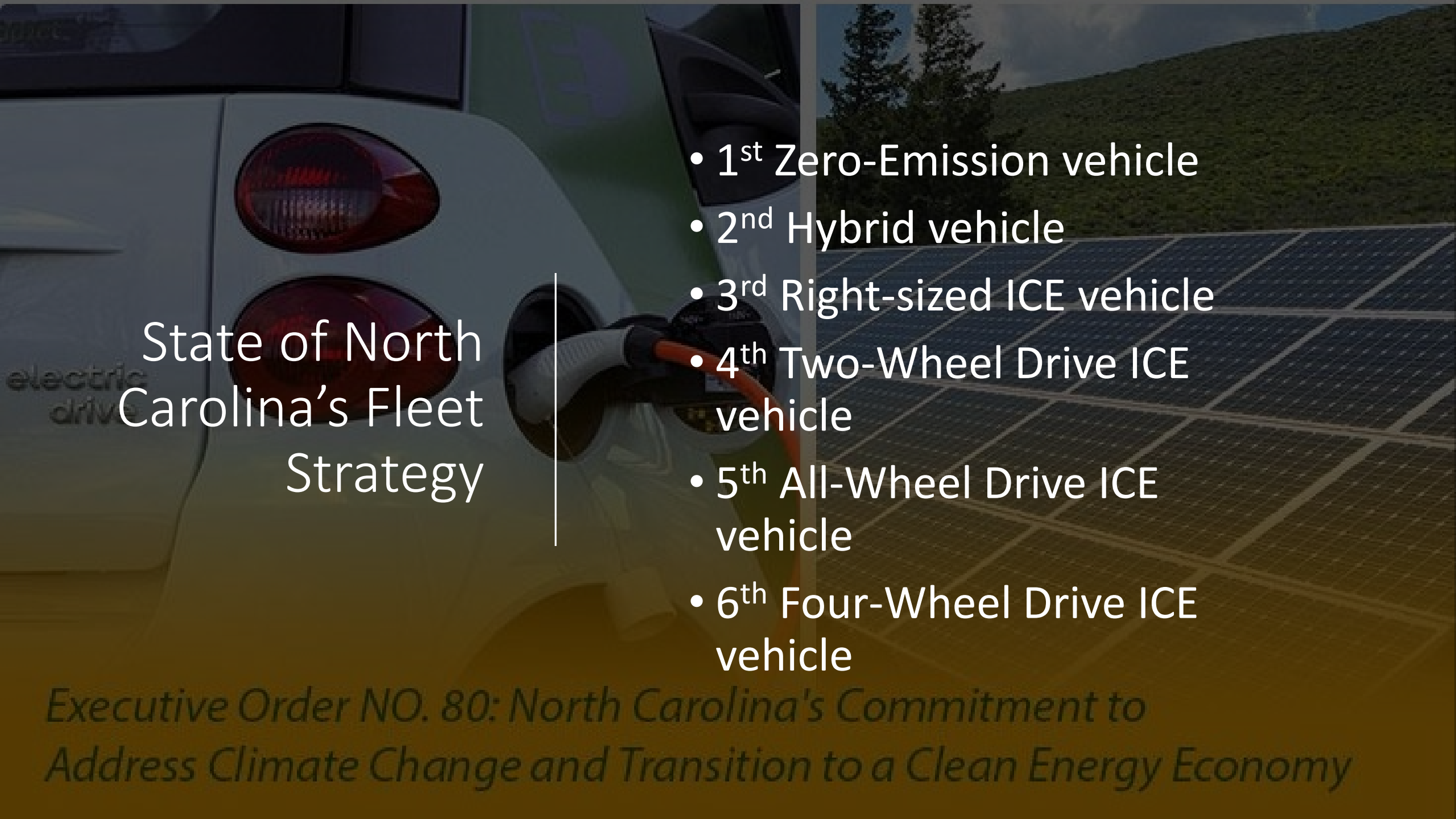


Maintenance savings

- If we're able to switch all recommended **3049** vehicles over to ZEVs we would save **$12,477,971.50**, in maintenance costs, every 8 years

Table 2. Custom Settings

Input Category	Custom Setting
Gas Price	$2.00/gallon
Electricity Rate	$0.11/kWh
GHG Emissions Factor for Electricity Generation	360 g/kWh
Social Cost of Carbon	$36/ton
ICE Maintenance Cost	$969 /15,000 miles
EV Maintenance Cost	$360/15,000 miles
Vehicle Life Cycle	8 years



State of North Carolina's Fleet Strategy

- 1st Zero-Emission vehicle
- 2nd Hybrid vehicle
- 3rd Right-sized ICE vehicle
- 4th Two-Wheel Drive ICE vehicle
- 5th All-Wheel Drive ICE vehicle
- 6th Four-Wheel Drive ICE vehicle

Executive Order NO. 80: North Carolina's Commitment to Address Climate Change and Transition to a Clean Energy Economy

Motor Fleet Management's Transition to Electric

- Motor Fleet Management has 41 EVs in its fleet
- Motor Fleet has ordered 540 hybrids in FY21-22
- We will offer hybrid vehicles in four different size classes
- To date, over 70% of vehicle purchases this FY have been hybrid vehicles
- The gas mileage difference will amount to half the amount of carbon emissions when ICE sedan is replaced with Toyota Camry Hybrid

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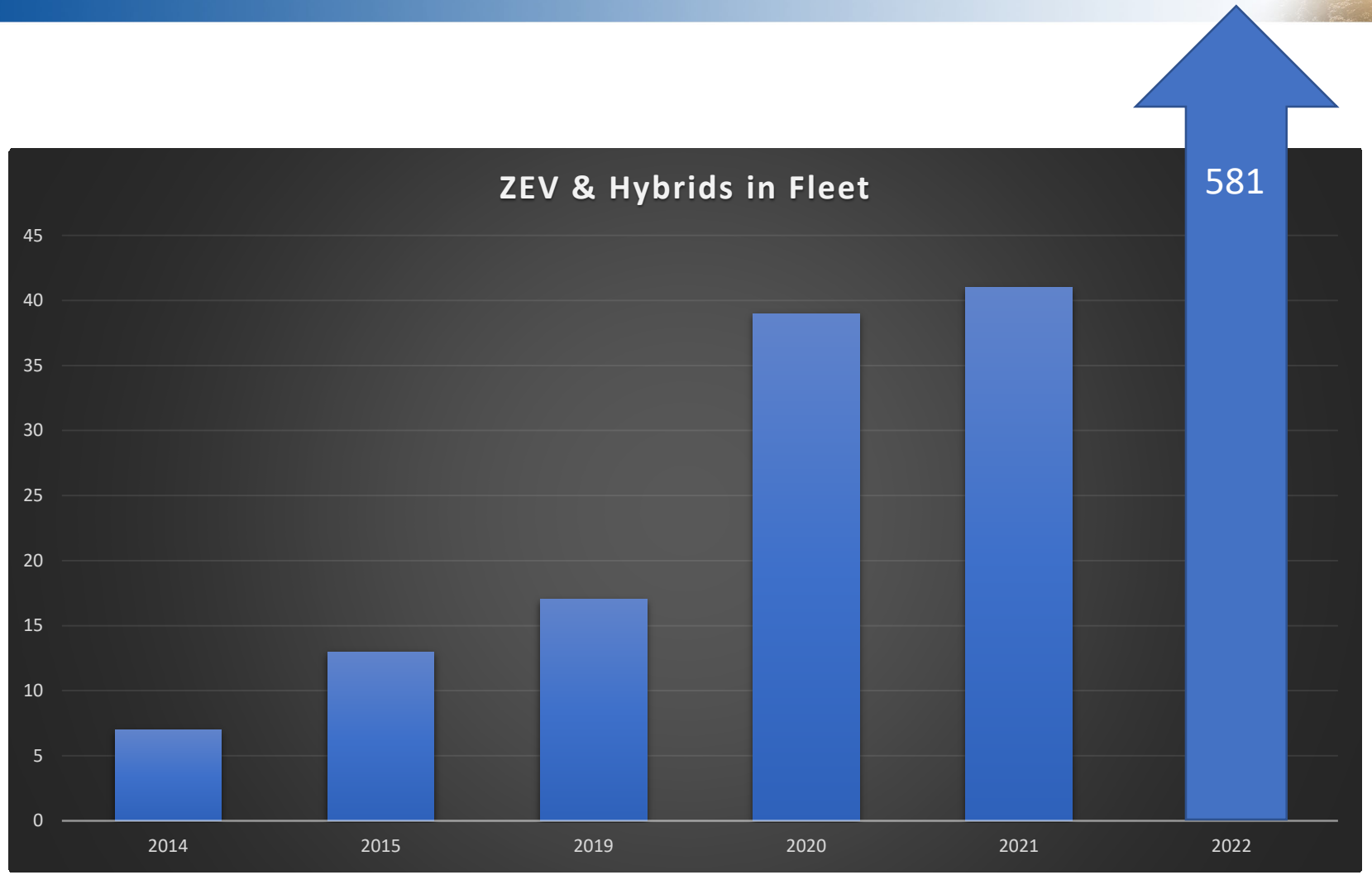
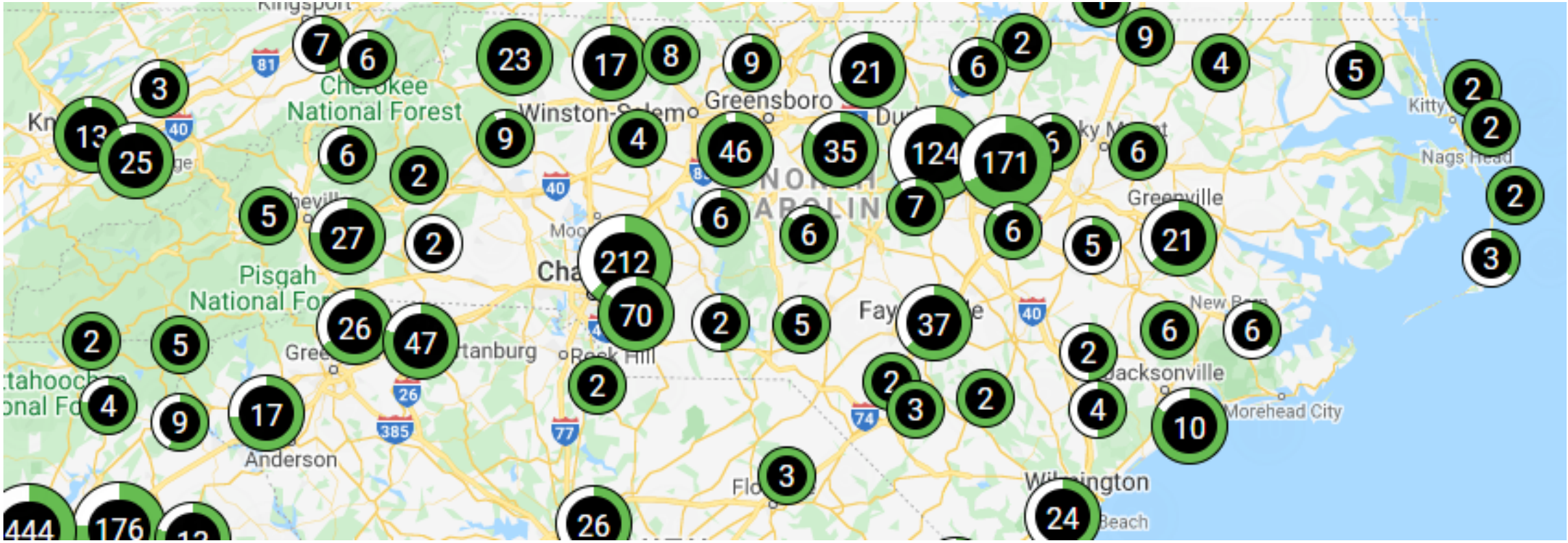
DOA's Electric Vehicle Fleet



CHARGEPOINT

- All ZEVs are assigned a ChargePoint card
- Provides remote charging opportunities for ZEV drivers
- 720 charging locations in North Carolina
- Utilizes existing WEX billing structure
- Hyperlink to ChargePoint locations on MFM website

Lenior, NC



Distance traveling-Removing the Barriers to ZEV Refueling

Charging at Motor Fleet Management

STC 070A - Vehicles

- DOA updated the State Term Contract for vehicles to a “bid your portfolio” style contract
- Rather than a winner take all, it opened the State of NC up to all makes/models
- It resulted in dramatic price decreases from the last contract
- Allows Motor Fleet to purchase *a la carte* on the vehicles that have the best total cost of ownership value

STC 691A - EV Charging, Station Equipment, Accessories, Installation & Infrastructure

Contract Administrator: Myra Welch

Who's on contract?

- **EVSE LLC**, Mark Zirolli (860) 745-2433
- **National Car Charging LLC**, Jim Burness (303) 437-4947
- **Pine Shore Energy LLC**, Dave Thompson (828) 553-6257

What does the contract cover?

- 1. Electric Vehicle Charging Stations
  - A. Level II
  - B. DC Fast Charge
- 2. Networking
- 3. Asset Management
- 4. Outdated Equipment Trade-In
- 5. Fleet Charging Network
- 6. Additional Equipment, Accessories & Services
- 7. Future EVSE Technology
- 8. Installation
- 9. Infrastructure

Next Steps for the State

- Identify funding opportunities for charging infrastructure
- Prioritize installation of charging infrastructure in locations of most need for EV fleet deployment
- Incorporate EV chargers in new state construction projects
- Add EV charging infrastructure in lease agreements and renewals where feasible
- Develop/leverage educational materials for drivers to raise comfort levels and reduce apprehension when transitioning to EVs

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Questions?

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