



ZERO EMISSIONS PLAN

Required by Section 2(a) of Executive Directive 2023-5:
Conversion of State Fleet

Prepared for
The Honorable Gretchen Whitmer
Governor of Michigan

Department of Technology, Management & Budget
Office of Support Services, Vehicle and Travel Services
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ZERO EMISSIONS PLAN

for the STATE OF MICHIGAN FLEET

INTRODUCTION AND PURPOSE

Under sections 213 and 215 of the Management and Budget Act (PA 431 of 1984, as amended), the Department of Technology, Management & Budget (DTMB) is authorized to issue directives relative to all motor vehicles except for those under the jurisdiction of the Michigan Department of Transportation (MDOT). DTMB provides these centralized motor vehicle services to state agencies through its organizational unit, Vehicle and Travel Services (VTS). MDOT leases some passenger vehicles and light-duty work trucks through VTS; however, it maintains its own fleet.

Executive Directive 2023-5: Conversion of State Fleet

Executive Directive 2023-5¹ requires DTMB to, in consultation with the Department of Environment, Great Lakes, and Energy (EGLE); the Michigan Infrastructure Office (MIO); the Michigan Public Service Commission; MDOT; and the Office of Future Mobility and Electrification (collectively, “the agencies”), establish policies to promote the immediate use of zero-emission vehicles (ZEVs) in the state’s fleet and achieve the following minimum targets:

- i. Conversion of light-duty vehicles in the state fleet to ZEVs by 2033; and
- ii. Conversion of medium- and heavy-duty vehicles in the state fleet to ZEVs by 2040.

The executive directive further states that when formulating these policies, DTMB should strive to accomplish the following:

- i. Prioritize the purchase and use of ZEVs in the fleet and develop vehicle purchase exception criteria.
- ii. Prioritize the transition of fleet vehicles and site electric vehicle supply equipment (EVSE) in Justice40 communities and other communities that have been historically disadvantaged by higher pollution levels.
- iii. Explore joint procurement with local units of government, higher education institutions, and local school districts.
- iv. Research the potential for funding opportunities within state government.
- v. Research funding opportunities outside of state government.

DTMB is also required, in consultation with the agencies, to prepare a Zero Emissions Plan (ZEP) within six months of the issuance of Executive Directive 2023-5.

In addition to the policies noted earlier, the ZEP includes the following:

- i. Fleet replacement schedules.
- ii. EVSE siting and build-out plans.
- iii. Operations and maintenance plans for ZEVs and EVSE.
- iv. Anticipated funding needs.

This ZEP outlines actions to be performed that will ensure directives are met and progress is made to reach target goals. The plan will be updated annually to report progress and address changes in vehicle and infrastructure technology.

In order to address the governor’s directive, DTMB called together the agencies named to develop the ZEP, as well as to draft a project plan to identify specific tasks to reach the goals. Subsequently, four work groups plus VTS staff were identified to focus on specific topic areas. A benefit of this broad coalition of state agencies will be knowledge sharing and contact with multiple communities already focused on reducing emissions.

CURRENT STATE OF MICHIGAN FLEET

PA 431 of 1984 defines the fleet in Section 213(1)(b): “motor vehicle” means a passenger vehicle, van, minibus, truck, tractor, or other motorized vehicle. In its 2024 Fleet Plan², DTMB summarized the leased and agency-owned vehicles and equipment reported as of Sept. 30, 2023. Using the broadest definition of “motorized vehicles,” the total state fleet included 14,482 vehicles and units of equipment: 9,067 leased vehicles (managed by VTS) and 5,415 agency-owned vehicles and heavy equipment. These were classified as follows:

On-road vehicles	8,739
Off-road vehicles	279
Non-self-propelled Equipment	49
Leased Total	9,067
Agency-owned Total	5,415
Grand Total	14,482

As of April 2024, MDOT owned two electric trucks, and the VTS leased fleet contained eight electric on-road vehicles, five of which were trucks.

Annually, 1,200–1,400 vehicles are identified for replacement; of these, approximately 900 are light-duty vehicles. The replacement projection captures those vehicles nearing 100,000 miles (slightly higher for trucks) or 10 years of age. Until real world experience produces hard data on EVs used in the fleet, this schedule will continue to be utilized.

When ordering a new or replacement vehicle, departments first define the functional need to be met. Vehicle selections are made based on manufacturers’ ordering cycles, availability of appropriate models from manufacturers, and total cost of ownership. The total cost of ownership over the life of the vehicle is calculated based on the vehicle acquisition cost, maintenance costs, expected mileage and fuel costs, and projected resale value.

ZEV technology in Michigan is identified primarily as pure battery electric vehicles (BEVs, referred to as EVs or ZEVs in this document) and plug-in hybrid electric vehicles (PHEVs). California is the only state where hydrogen-powered vehicles are sold, and it has only 55 hydrogen passenger retail fuel stations statewide³.

- BEVs rely entirely on battery power and must be plugged in to recharge.
- PHEVs are compatible with electric charging and conventional gas fueling, generally operating purely on electricity before using gasoline to extend the driving range.

The availability and total cost of ownership of electric vehicles manufactured by the Detroit Three is constantly being monitored. For the 2023 and 2024 model years, only the following BEVs from those original equipment manufacturers (OEM) in the non-luxury category are available:

- Chevrolet Blazer small sports utility vehicle (SUV)
- Chevy Equinox compact SUV

- Ford Mach-E SUV
- Chevrolet Silverado standard pickup truck
- Ford F-150 Lightning pickup truck
- Ford E-Transit truck

At this point in time, no electric vehicles that would fit the needs of the state fleet are available to replace heavy-duty vehicles. Challenges include issues related to upfitting vehicles with additional equipment to meet business needs, an average range of 150–275 miles for American-built electric semi-trucks, and the lack of charging infrastructure. Of the more than 12 million heavy-duty vehicles in the U.S., fewer than 1,000 are electric. In addition, electric semi-trucks currently cost up to 2.8 times more to purchase than their diesel counterparts.⁴

ELECTRIC VEHICLE SUITABILITY AND INFRASTRUCTURE ASSESSMENT (EVSA)

Best practice indicates an assessment be undertaken of current vehicle use in terms of miles driven, number and duration of trips, and overnight parking locations to determine which vehicles are suitable to be replaced by EVs and identify optimal locations for charging stations.

VTS is contracting with a vendor that develops and markets vehicle telematics hardware and software to install Global Positioning System (GPS) devices on nearly half of the light-duty vehicles to obtain real-world data about the state's fleet. The GPS devices will be used on each vehicle for a 12-month period to capture seasonal fluctuations. The statistics gathered will allow the vendor to provide an electrification recommendation based on the fleet's unique needs. Their EVSA analysis of telematics data will result in an EV adoption recommendation based on each vehicle's distinctive driving patterns, taking into consideration range capability and total cost of ownership. It uses real-world EV performance data to determine which vehicles have a suitable EV replacement, highlights the financial and environmental impact of making the switch, and identifies optimal charging infrastructure locations.

The study will provide data to assist in making the most cost-effective decisions to increase the adoption of EVs. Telematics data is just one component of understanding which vehicles have a good use case for EVs. It is imperative to understand additional requirements for each vehicle, including cargo capacity, passenger capacity, towing capability, and other operational requirements. The availability of an accessible charging infrastructure is also critical to that decision-making process.

MILESTONES

The primary long-range goal is to transition light-duty vehicles in the state fleet to ZEVs by 2033. Dependent upon future state appropriations and other federal funding sources, milestones have been set to support this conversion.

- By December 2025, vendor will complete electric vehicle suitability and infrastructure assessment and make recommendations.
- By the end of fiscal years (FY) 2025 and 2026, engage the DTMB State Facilities Administration (SFA) to contract for necessary services to install 100 EV charging stations at identified locations.

Thereafter, on an annual basis, evaluate outstanding need and install EV charging stations at identified locations, as funding allows.

- During both FY2025 and FY2026, identify at least 5% of the vehicles to be replaced with EVs and place vehicle orders.

Beginning with FY2027, identify 15–20% of vehicles to be replaced with EVs annually and place vehicle orders, as funding allows.

Milestones will be modified annually to allow for fluctuations in funding, contracting, vehicle availability, and infrastructure development.

Development of goals to support the conversion of medium and heavy-duty vehicles to ZEVs by 2040 will be included in a future ZEP update as EVs in these categories become available.

ANTICIPATED FUNDING NEEDS

In FY2024, VTS received \$1 million to begin the transition of the State of Michigan's fleet to electric vehicles. That \$1 million is expected to be included in the VTS budget annually. The governor's recommendation for the FY2025 budget contains an additional one-time appropriation of \$2 million.

The initial \$1 million is expected to fund part of an electric vehicle suitability and infrastructure assessment and to add 11 EVs to the state fleet.

The following projections focus only on replacing light-duty vehicles at this time due to the lack of available medium- and heavy-duty EVs.

The cost estimates are based on an annual replacement of 466 vehicles utilizing the Chevy Equinox SUV, Ford E-Transit electric van, and Ford F-150 Lightning pickup truck.

Depending upon funding and vehicle availability, annual replacement costs are estimated to be \$6.3 million to replace 466 vehicles. This is based on the cost difference between the internal combustion engine vehicle and the electric vehicle multiplied by the number of vehicles. Although presently about 900 light-duty vehicles are replaced annually, it would not be feasible to utilize EVs for all replacements until they are able to meet all vehicle specifications and operational needs.

Based on the replacement of 466 vehicles, the estimated charging infrastructure costs range from \$3.5 million to \$7 million dependent on whether a charging unit will be providing power to two or four vehicles. These estimates are based upon the average cost of a Level 2 charger, installation, maintenance, warranty, software, and network. These estimates do not include electrical infrastructure upgrades that may be necessary.

This estimate is based upon VTS's actual experience and that of state fleet managers in four other states. The U.S. Department of Energy, Alternative Fuels Data Center states that "equipment costs will vary based on factors such as application, location, charging level, and type. When choosing charging infrastructure, features to consider include networking capabilities, theft deterrence, output power rating (in kilowatts), number and type of connectors, number of vehicles that can simultaneously charge, and operation and maintenance (e.g., payment and data collection capabilities). Installation costs can vary significantly based on factors including the number and type of charging infrastructure, geographic location, site location and required trenching, existing wiring and required electrical upgrades to accommodate existing and future charging needs, labor costs, and permitting."

To obtain accurate costs to calculate total cost of ownership and rental rates in the long run, a mechanism to report energy consumed by each EV will need to be developed. MDOT is currently planning on using a manual system and meters at its plug-in locations for their two Ford Lightnings. DTMB plans to utilize software at its charging stations that will track energy consumption and related data.

Identifying the locations where the infrastructure will be needed and the projected replacement schedule will allow DTMB to install the infrastructure in advance of purchasing the EV. The completion of the

electrification suitability assessment will provide better data and allow for updates to these preliminary estimates.

POLICY

The executive directive requires the establishment of policies to promote the use of ZEVs in the state's fleet. This plan serves as a statement of intent and will be implemented through various internal procedures and protocols. It provides a reasonable course of action to achieve the stated goal.

The transition is planned to occur over a number of years as funding and additional vehicle models become available, and charging infrastructure is developed. An evaluation will be conducted annually to identify which electric vehicles available to the state would be best suited to replace current vehicles and be able to operate with the same functionality.

In October 2021, the Michigan Council on Climate Solutions, Transportation and Mobility Workgroup Recommendations⁵ noted, "To make sure the state fleet can still operate successfully during this transition, strict exceptions can be designed for certain vehicles based on whether electric vehicles are practical based on the conditions and uses of the fleet and whether electric vehicles are reasonably available when factoring in sufficient supply of vehicles, delivery systems, and potential limitations of the current procurement process." An example is MDOT's practice of considering the minimum operating requirements of a specific equipment unit to understand whether an EV or alternative-fueled vehicle meets standards and is "equally substitutable."

Vehicle acquisition exception criteria by which agencies may seek exceptions for specific state fleet vehicles are already under development. In addition to the factors noted above, exceptions could be granted due to extreme hot or cold environmental conditions, which could affect electrical load requirements; range requirements and availability of charging stations; the need to idle; towing requirements; payload needs; and ability to customize the vehicle with additional accessories.

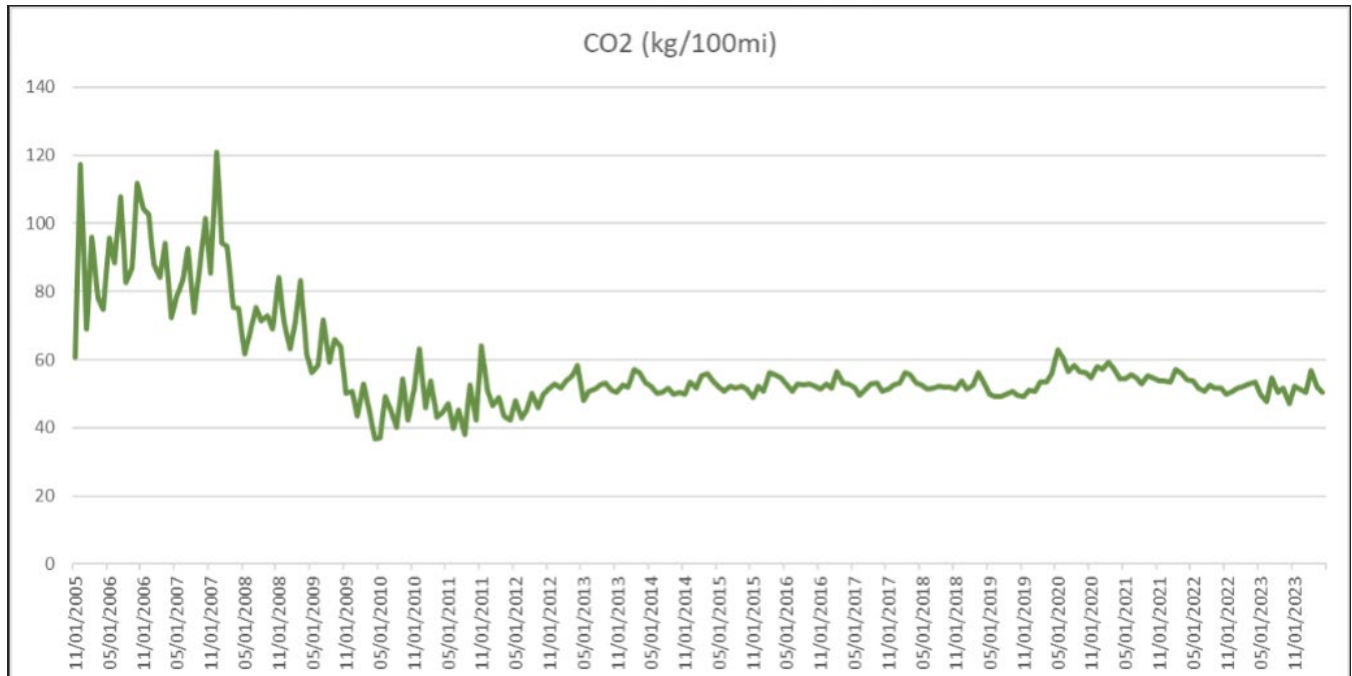
If an exception is granted, the next step will be to consider alternate decarbonization strategies for reducing fleet emissions including, but not limited to, biofuels and PHEVs. Exceptions are expected to become more limited as technology evolves and vehicles models can meet business needs.

As the fleet moves towards electrification, the efforts to reduce emissions will be directed, where possible, towards geographic areas historically disadvantaged by higher pollution levels.

VTS has consistently worked to "green" its fleet over the past 18 years. Its approaches have included the following:

- Adding hybrid and flex fuel vehicles in the state fleet when it is cost effective, and the vehicle meets functional needs.
- Encouraging vehicle drivers to refuel with an E-85 blend when economically feasible.
- Encouraging the use of biodiesel fuels.
- Ensuring compliance with the requirements of the federal Energy Policy Act (EPAAct) of 1992⁶, which aimed to reduce U.S. dependence on petroleum and improve air quality by addressing all aspects of energy supply and demand, including alternative fuels, renewable energy, and energy efficiency.

During that time, VTS has made significant progress⁷, cutting its carbon dioxide emissions in half while the number of vehicles during that period increased by 26%. Contributing factors included restricting the types of vehicles in the fleet and improvements in engine technology.



ENSURE INFRASTRUCTURE SUPPORTS THE EXPANSION OF ZEV USAGE

SFA manages and maintains DTMB-owned facilities and properties throughout the state, including infrastructure, building operations/maintenance, parking, and energy management systems. In addition, SFA takes an active role in sustainability, energy, and climate strategies. SFA also has responsibility for design and construction management services for state agencies, colleges, and universities through implementing infrastructure improvements and new construction projects. Furthermore, SFA strategically manages DTMB's portfolio of leased space, providing agencies with services to meet changing space requirements.

As such, SFA will lead the effort to install EVSE to accommodate EVs as they are added to the fleet. Siting and building plans, a maintenance and operations plan, and infrastructure needs at leased facilities were identified as the broad areas that will need to be developed. While most locations will not be identified until the EVSA recommendations have been issued, preliminary work is underway.

Siting and Building Plans for EVSE

SFA has responsibility for 44 state-owned structures and 421 leased locations throughout Michigan. The broad intent is to consolidate fleet charging locations by market and/or region for efficiency as the investment to install these charging stations can be significant.

According to the U.S. Department of Transportation⁸, many factors influence EV charging speed, including the battery's state of charge, battery deterioration, use of power while charging, ambient temperature, and power level of charging equipment. EV charging is categorized according to the speed of electric power flow into three charging levels: Level 1, Level 2, and Level 3.

Level 1 equipment provides charging through a common residential 120-volt alternating current outlet. Level 1 chargers can take 40–50 hours to charge a light-duty BEV from empty and 5–6 hours to charge a PHEV.

Level 2 equipment offers charging through 240-volt (in residential applications) or 208-volt (in commercial applications) electrical service and is common for home, workplace, and public charging. Level 2 chargers can charge a light-duty BEV from empty in 4–10 hours and a PHEV in 1–2 hours.

Level 3 direct current fast charging (DCFC) equipment can charge a light-duty BEV to 80% in 20 minutes to 1 hour.

As data becomes available from the EVSA, VTS and SFA/Design and Construction Division (DCD) will jointly identify the optimal location(s) for EV charging stations. Identified locations in Justice40 communities and other communities that have been historically disadvantaged by higher pollution levels will be prioritized. Depending upon the location, the following actions may be taken.

- Conduct an engineering study to produce plans for siting and building for EVSE for State of Michigan (SOM) owned properties.
 - Use existing site plan guidance from the federal government.
 - Coordinate with local energy provider to ensure sufficient power for EVSE.
 - Conduct capacity forecasting for siting selection.
- Establish parameters for optimal EVSE to best facilitate adoption (i.e., solar, level 2 and 3 charging stations).

Maintenance and Operation Plan for EVSE

Availability of working charging stations has become a concern for EV drivers. As of October 2023, the U.S. Department of Energy reported⁹ that nationally nearly 4,000 public charging stations with more than 7,000 ports were out of service, an outage rate of more than 6%. In January 2024, MDOT secured \$1.8 million in grant funding under the Bipartisan Infrastructure Law to fix or replace 172 inoperable charging stations (3.6% of 4,829 chargers in Michigan) across 105 different locations.

SFA will address maintenance and operations through the following actions:

- Establish contracts with vendors for maintenance and operations for EVSEs (including preventative maintenance). DTMB Central Procurement Services has identified four prequalified vendors for “Charging Equipment for Battery-Electric Vehicles & Transit Buses” that offer this service.
- Establish an acceptable access policy for EVSE. Depending upon location and ownership, EV chargers could be restricted to state government use only or made available to the public.
- Research fire-safety requirements for EVSEs and establish safety plans for siting and building of EVSEs. Regulations are still being developed in this area; federal and state guidelines will be researched.
 - The SFA Building Operations Division is anticipating promulgation of new fire codes, and, once they are issued, will collaborate on establishing guidelines specifically for the state.

VTS will take the lead on training drivers through researching educational materials used by other states and provided by the auto manufacturers, as well as Occupational Health and Safety Administration requirements. Drivers need to understand the difference between driving an internal combustion engine and an electric vehicle. They also need to understand safety practices while driving and when involved in a crash, as well as proper use of EV charging stations.

VTS will also ensure that those in the state garage at the Secondary Complex working on EVs have adequate safety training. SFA may be involved if modifications to the garage work areas are required.

Leased Facilities Identified as Advantageous Locations for EVSE

Consideration will be given in all new lease negotiations regarding the need to install EVSE.

Should a leased facility be identified as being a desirable location for EVSE to serve state vehicles, SFA/Real Estate Division (RED) will approach the lessor with that request. The lessor would be responsible for making any infrastructure modifications and operating the charging station. It could be made accessible to other tenants and/or the public but would also be required to meet SOM standards for charging and billing purposes.

SFA/RED could negotiate with current property owner(s) to obtain any necessary approvals (contract change orders, maintenance, and access agreements, etc.). For example, they might offer lease amendments in exchange for this improvement.

SFA/DCD could be authorized to provide guidance and high-level technical assistance to the lessor for this project.

VTS GARAGE OPERATIONS AND MAINTENANCE PLAN FOR ZEVS AND EVSE

Training

The VTS garage staff has undergone ZEV maintenance training, which covers tire replacement, brakes, and general maintenance such as air conditioning and suspension. It encompassed both safety and technical training. Specific guidance aimed at tow truck drivers who may service electric vehicles is being researched and will be implemented.

Potential Modifications to the VTS Garage

The DTMB motor pool at the VTS garage presently has four Level 2 chargers. A power study needs to be conducted to determine whether sufficient power is available to add additional EVSE.

Safety rules about additional precautions needed in a garage environment where EVs are serviced are still being developed at the federal and state levels. VTS will continue to monitor published codes and take measures for adherence.

DEVELOP PROCUREMENT OPTIONS AND STRATEGIES

Identify Local Units and/or Schools to Leverage in Joint Procurement

The first step in partnering with local units of government, school districts, and other interested parties will be to identify those that may be developing a vehicle electrification strategy. A list will be developed to include local units of government and school districts, as well as organizations such as the Michigan Municipal League, Michigan Townships Association, Michigan Association of Counties, and other organizations involved in developing green initiatives.

That list of organizations will be surveyed to determine whether they are purchasing or have plans to purchase EVs or charging stations and whether they have contracts for those services.

The survey document will also contain information about the State of Michigan's MiDEAL program. MiDEAL is the State of Michigan's extended purchasing program, which allows Michigan cities, townships, villages, counties, school districts, universities, colleges, and nonprofit hospitals to buy goods and services from state contracts.

The survey responses will be used to identify gaps in the state's contract portfolio and opportunities for joint procurements for MiDEAL members and to inform those local units and schools about potential procurement agreements that could be leveraged to obtain ZEVs.

Identify Current Contracts From Which SOM Could Purchase ZEVs

DTMB Central Procurement Services has identified state contracts with nine automotive dealerships that would allow the purchase of ZEVs; these were vetted through a competitive bidding process.

To assist departments in developing their charging infrastructure, the State of Michigan has vetted four vendors that responded to a request for solution for "Charging Equipment for Battery-Electric Vehicles & Transit Buses." These prequalified vendors will be able to provide services ranging from engineering through implementation and maintenance of EV charging stations.

Utilize Existing Fleet Management Vendor to Lease ZEVs

DTMB has an established contract with a vendor to provide comprehensive fleet management services, including vehicle acquisition. It tracks emissions data by agency based on the 9,000+ vehicles in the leased fleet and provides lifecycle analysis on EV models that might be suitable as replacement vehicles. It also provides a public charging solution through its fuel card system.

VTS expects to continue to utilize this contract to lease ZEVs. MiDEAL members are also eligible to utilize this contract.

POTENTIAL FUNDING SOURCES

The cost to convert the state fleet to ZEVs and provide an EV charging infrastructure over the next 10 years will require a significant initial investment. Therefore, seeking funding sources beyond the state General Fund to help cover these costs must be an integral part of this initiative.

The state continuously searches for cost-sharing and grant opportunities. State agencies are leveraging new state and federal funding to develop and implement programs focused on additional market sectors, such as medium- and heavy-duty vehicles.

EGLE, MIO, MEDC, DNR, and MDOT are among the organizations that seek funding.

Potential Federal Resources/Programs

The following federal programs have been identified as potential sources of funding:

- Buses and Bus Facilities Program (U.S. Department of Transportation (USDOT))
- Low or No Emission (Bus) Grants (USDOT)
- Charging and Fueling Infrastructure Grant Program (USDOT)
- Clean School Bus Rebates Program (Environmental Protection Agency (EPA))
- Electric or Low-Emitting Ferry Pilot Program (USDOT/Federal Transit Administration (FTA))
- Reduction of Truck Emissions at Port Facilities (USDOT/ Federal Highway Administration (FHWA))
- Clean Heavy Duty Vehicles Grants (EPA)

Explore Federal Grant Opportunities for EVSE and ZEVs

The Office of Future Mobility and Electrification leads a regular conference call to focus on the pursuit of federal funding opportunities tied to EVs and fuel cell vehicles. Regular participants include MIO, EGLE, and DNR. Topics include monitoring programs like the National Electric Vehicle Infrastructure Formula Program, Clean School Buses, funding for hydrogen refueling stations, and more. In addition to federal funding opportunities, this call also serves as a touchpoint on various state efforts related to EVs, including the administration of state funding to support fleet conversions and deploy charging/fueling infrastructure.

Other grant programs indirectly tackle climate change through research and planning related to EVs and EVSE. Under the Inflation Reduction Act of 2022, Climate Pollution Reduction Grants¹⁰ support efforts to develop and implement strong local greenhouse gas reduction strategies. Recently, MDOT and EGLE partnered with the Minnesota Department of Transportation and the Wisconsin Department of Transportation to submit a grant application that would do the following:

- Develop a publicly accessible digital optimization map for EV infrastructure placement.
- Produce a white paper identifying technical and safety standards for charging sites.
- Prepare a regional infrastructure plan addressing the short-, medium-, and long-term goals for developing and deploying a publicly accessible multiuse charging infrastructure network, and pilot multiuse charging hubs in cities offering the most greenhouse gas emissions reduction benefit to low-income and disadvantaged communities.

Explore Grant Opportunities that Support Efforts to Reduce Emissions in Areas Historically Disadvantaged by Higher Pollution Levels.

EGLE will review the various models available to identify Justice40 communities and others that have historically been disadvantaged by higher overall pollution levels. After evaluating them, one or more will be adopted as a standard for use in this initiative.

Specific grant opportunities available for these areas will be researched using the Climate & Economic Justice Screening Tool, as well as the MiEJScreen, a Michigan-specific web-based environmental justice mapping tool. Utility providers will be queried about their data related to Justice40 communities, which might contribute to making an argument for funding.

Current grant opportunities for Justice40 communities within MDOT will be researched.

Explore Funding Opportunities from Outside of State Government

The members of this work group will focus on identifying opportunities outside of state government to secure grants, credits, or reimbursements from the federal government and private, nonprofit and/or philanthropic organizations. This includes elective pay, which allows states and other tax-exempt entities to take advantage of clean energy tax credits.

This effort will be broad. The Detroit Three OEMs have offered varying price discounts based upon the volume of vehicles ordered by the state, and VTS will continue to work with them to obtain bid assistance for ZEVs. The EGLE Office of Climate and Energy will explore opportunities to capture federal carbon credits for EVSE and ZEV funding.

Other research followed by potential action will include:

- Investigation into incentives and credits offered by energy companies, including Consumers Energy, DTE Energy, Indiana Michigan Power Company, Upper Peninsula Power Company, Alpena Power Company, Lansing Board of Water and Light, and electrical cooperatives.

- Investigation into the Office of Foundation Coordination for potential funding provided to Justice40 communities.
- Sharing opportunities with Ingham County to assist in planning their EV charging network to benefit the SOM transition plan.
- Advocating for support in the FY2025 SOM budget dedicated to EVSE and ZEV transition.

¹ Executive Directive 2023-5: Conversion of State Fleet. <https://www.michigan.gov/whitmer/news/state-orders-and-directives/2023/12/05/executive-directive-2023-5-conversion-of-state-fleet>

² 2024 State of Michigan Fleet Plan. <https://www.michigan.gov/dtmb/-/media/Project/Websites/dtmb/Law-and-Policies/Legislative-Reports/FY2024/2024-Fleet-Plan.pdf?rev=5934b56180ef4528b96c3f6bce6efe2d&hash=F26254AA99BACBB8A98E2C2053912378>

³ “California’s Hydrogen Economy Dealt A Hammer Blow By Shell’s Exit,” Forbes, Feb. 11, 2024. <https://www.forbes.com/sites/gauravsharma/2024/02/11/californias-hydrogen-drive-dealt-a-hammer-blow-by-shells-exit/?sh=fe35cc17fbc>

⁴ Environmental and Energy Study Institute. <https://www.eesi.org/papers/view/fact-sheet-the-future-of-the-trucking-industry-electric-semi-trucks-2023>. Fact Sheet | The Future of the Trucking Industry: Electric Semi-Trucks (2023)

⁵ Michigan Council on Climate Solutions Transportation and Mobility Workgroup Recommendations, October 2021. <https://www.michigan.gov/egle/-/media/Project/Websites/egle/Documents/Groups/CCS/Workgroup-Recommendations-Transportation-Mobility.pdf?rev=643b0b791dce4809a3ec85606824a18d>

⁶ Public Law 102-486 Oct. 24, 1992. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.gpo.gov/fdsys/pkg/STATUTE-106/pdf/STATUTE-106-Pg2776.pdf

⁷ CO₂ (kg/100ml) Chart provided by Wheels Inc.

⁸ U.S. Department of Transportation. Electric Vehicle Charger Levels and Speeds. <https://www.transportation.gov/urban-e-mobility-toolkit/e-mobility-basics/charging-speeds#:~:text=Many%20factors%20influence%20electric%20vehicle,and%20direct%20current%20fast%20charging>.

⁹ Automotive News. “Wanted: Electricians to fix thousands of broken EV chargers.” Oct. 10, 2023.

https://www.autonews.com/mobility-report/broken-ev-chargers-need-more-certified-technicians?utm_source=dont-miss&utm_medium=email&utm_campaign=20231010&utm_content=hero-headline

¹⁰ U.S. Environmental Protection Agency. Climate Pollution Reduction Grants. <https://www.epa.gov/inflation-reduction-act/climate-pollution-reduction-grants#:~:text=The%20Climate%20Pollution%20Reduction%20Grants,and%20other%20harmful%20air%20pollution>.