



# PLANNING FOR ELECTRIC VEHICLE CHARGING STATIONS IN MISSOURI





**ELIZABETH PRESTWOOD – MoDOT  
POLICY AND INNOVATION PROGRAM  
MANAGER**

# TODAY'S AGENDA

---

Electric Vehicle (EV) and EV Infrastructure Fast Facts

---

EV Sales and Registration Trends

---

NEVI Overview

---

Federal Funding

---

Alternative Fuel Corridors

---

Minimum Standards and Requirements

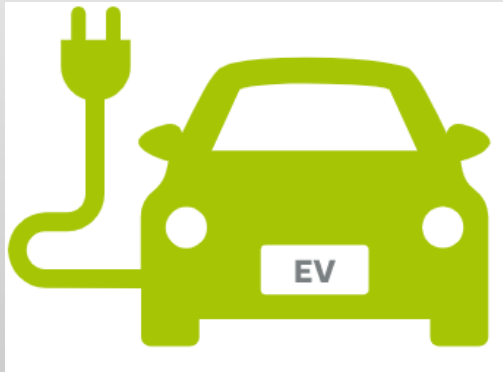
---

EV Task Force and Recommendations

---

Questions and Discussion

# ELECTRIC VEHICLE (EV) TYPES



## Battery Electric Vehicle (BEV)

- Battery Power Only
- Typical Battery Range 150-400 miles



## Plug-In Hybrid Electric Vehicle (PHEV)

- Battery Power and Internal Combustion Engine (ICE)
- Typical Battery Range 20-40 miles



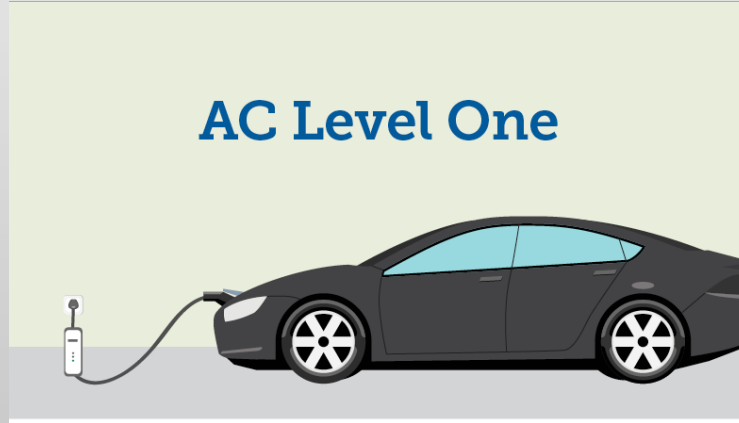
## Hybrid Electric Vehicle (HEV)

- Internal Combustion Engine (ICE) Only
- Battery Charges by Regenerative Braking or Using Engine as a Generator
- Battery Allows for Smaller Engine, Powers Auxiliary Loads, and Reduces idling

# EV CHARGING STATIONS

## Level 1

### AC Level One



- Standard Outlet
- Slowest Charging
- 250 miles in 48-72 hours  
(~5 miles/hour of charge)

## Level 2

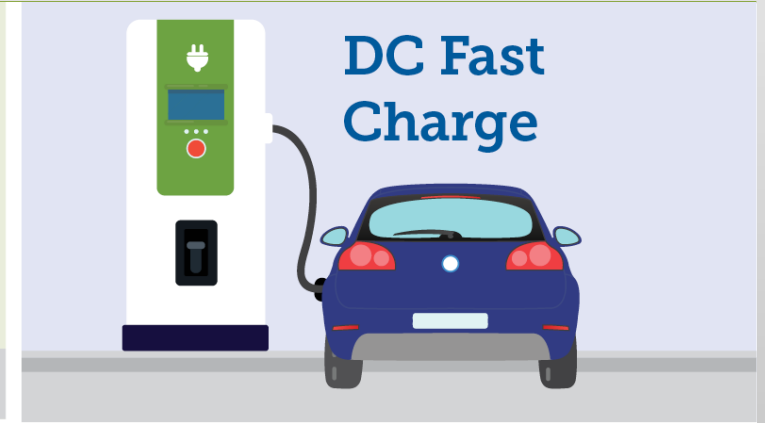
### AC Level Two



- “Dryer Outlet”
- Slow Charging
- 250 miles in 10 hours

## Level 3

### DC Fast Charge



- Direct Current Fast Charging (DCFC)
- Fastest Charging
- 250 miles in 30 minutes

# HOW MANY EV ARE THERE?

## NATIONALLY

- NATIONALLY EV IS LESS THAN 1% OF ALL VEHICLES ON THE ROAD
- NATIONALLY EV MAKES UP 3.4% OF NEW VEHICLE SALES
- SOME FORECAST PUT EV TO BE 50% OF NEW SALES BY 2030

## MISSOURI

- MISSOURI HAS 0.30% REGISTERED EV OR ABOUT 6,740 EV
- MISSOURI EV SALES ARE 0.66% OF MARKET SHARE



# NATIONAL ELECTRIC VEHICLE INFRASTRUCTURE - NEVI

Bipartisan Infrastructure Law (BIL) established \$7.5B NEVI funding

- Formula funding to states \$5B
- Discretionary Grants \$2.5B

Newly created Joint Office of Energy and Transportation

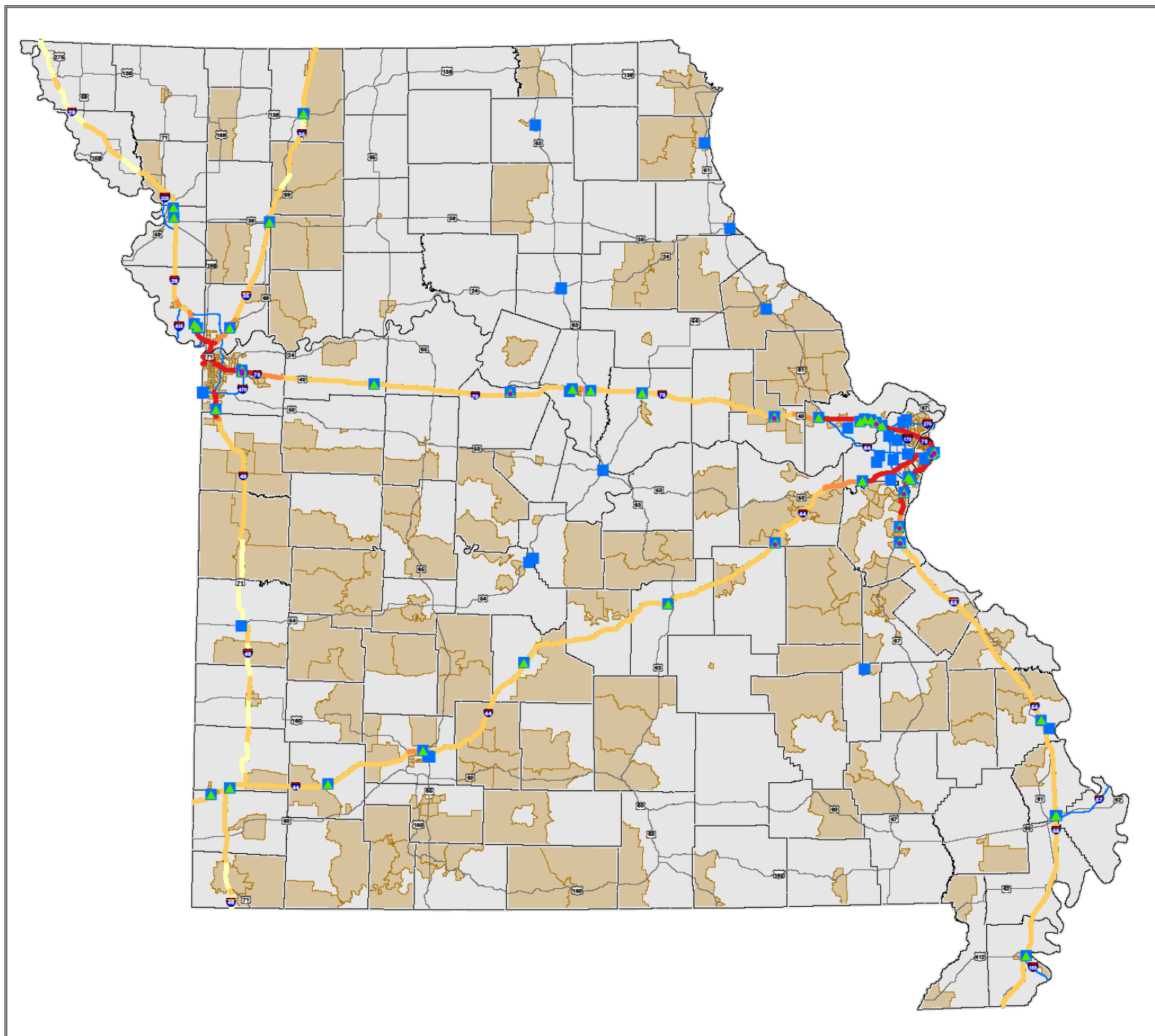
Dedicated formula funding to States to deploy EV charging infrastructure on the Alternative Fuels Corridor – particularly the Inter State system

For Fiscal years 2022-2026, Missouri will receive \$98.9M to fund EV charging infrastructure \*subject to change

NEVI will cover 80% of eligible project costs







- 15-Missouri EV  
DC Fast Charge  
Locations within 1  
mile of MDAFC in  
Justice 40
- 53-Missouri EV  
DC Fast Charge  
Locations within 1  
mile of MDAFC
- 90-Missouri EV  
DC Fast Charge  
Location
- Missouri Designated  
Alternate Fuel Corridor  
Total AADT
  - Up to 15,000
  - 15,000 to 45,000
  - 45,000 to 70,000
  - Over 70,000
- Interstate Routes
- US Routes
- DOT Justice 40

# PROGRAM REQUIREMENTS

500,000 DC fast chargers installed across the US AFC network

Charging stations shall be:

- Every 50 miles within 1 mile of AFC

Stations shall be minimum:

- DC Fast Chargers
- Provide at least 4 Combined Charging System (CCS) ports capable of simultaneously charging 4 EVs
- Station power capability should be no less than 600kW
  - Supporting at least 150kW per port simultaneously across four ports
- Design and construction should allow for 350kW > future upgrades

Must meet Justice40 guidance



# STATE EV PLAN REQUIREMENTS

## USDOT GUIDANCE ADDRESSES:

- FEDERAL SHARE AND MATCH REQUIREMENTS
- FUNDING REQUIREMENTS
- PROJECT ELIGIBILITY
- DEPLOYMENT / SITING CONSIDERATIONS

# STATE EV PLAN REQUIREMENTS

## USDOT GUIDANCE ADDRESSES

- FEDERAL SHARE AND MATCH  
REQUIREMENTS

80% is the maximum Federal share

Private funds can be used as match



# STATE EV PLAN REQUIREMENTS

## USDOT GUIDANCE ADDRESSES

- FEDERAL SHARE AND MATCH REQUIREMENTS
- FUNDING REQUIREMENTS

- **Along Alternative Fuel Corridors**
- **Maximum 50 mile spacing**
- **Maximum 1 mile from corridor**
- **Min 4-150 kW DC Fast Charging ports**
- **Locations open to general public**
- **Contracting with private entities is allowed**

# STATE EV PLAN REQUIREMENTS

## USDOT GUIDANCE ADDRESSES

- FEDERAL SHARE AND MATCH REQUIREMENTS
- FUNDING REQUIREMENTS
- PROJECT ELIGIBILITY

- Acquisition and installation
- Upgrades, on-site power storage
- Operating and maintenance (up to 5 years)
- Development phase activities
- Signage and traffic control
- Several other related and support items



# STATE EV PLAN REQUIREMENTS

## USDOT GUIDANCE ADDRESSES

- FEDERAL SHARE AND MATCH REQUIREMENTS
- FUNDING REQUIREMENTS
- PROJECT ELIGIBILITY
- DEPLOYMENT / SITING CONSIDERATIONS

- Distance between chargers (50 mi, 1 mi)
- Connections to electric grid
- Proximity of existing businesses/services
- Needs in rural and disadvantaged areas
- Fostering private investment
- Meeting market demands

# PLAN ELEMENTS

## 1. Communications

- Agency Coordination
- Stakeholder Meetings / Public Outreach
- Website Development and Surveys

## 2. EV and EV Charging Infrastructure Analysis

- Existing and Future EV Market
- EV Charging Infrastructure (current stations)
- EV Charging Demand / Needs
- General locations for new charging infrastructure

## 3. Policy and Implementation

- Vision and Goals
- Deployment Implementation
- Contracting Methods
- Civil Rights / Equity Considerations
- Cybersecurity
- Program Evaluation

# EV TASK FORCE

JULY – DECEMBER  
2022

- ESTABLISHED BY SENATE BILL 262 IN 2021
- GOAL TO BRING TOGETHER ENERGY AND POLICY LEADERS FROM BOTH PRIVATE AND PUBLIC SECTORS TO ANALYZE AND MAKE RECOMMENDATION REGARDING THE IMPACT OF ELECTRIC VEHICLE ADOPTION ON MISSOURI'S TRANSPORTATION FUNDING.
- MET JULY 2022 – DECEMBER 2022
- REPORT WITH RECOMMENDATIONS COMPLETED DECEMBER 31, 2022
- [ELECTRIC VEHICLE TASK FORCE \(MO.GOV\)](#)



# EV TASK FORCE RECOMMENDATIONS

More discussion and research is needed regarding ev technologies and impact; recommend extending task force for at least another year with modot overseer of the task force

work to ensure ev decal pays for usage of highway system and is easy to obtain

Replace outdated registration fee assessment method using taxable horsepower

Establish a motor fuel tax equivalent for kilowatt hour for vehicle charging

Stay current on new regulations developed by the National Conference of Weights and Measures (NCWM) necessary to enforce safety and inspection requirement for EV and electric charger.

General Assembly and Department of Agriculture discuss the current rolling compliance of Division of Weights and Measures and whether it is better to decouple from the federal government.

Dept of Natural Resources research and report a systematic plan for recycling batteries from EV and associated fees.



# QUESTIONS AND DISCUSSION

[ELIZABETH.PRESTWOOD@MODOT.MO.GOV](mailto:ELIZABETH.PRESTWOOD@MODOT.MO.GOV)