



PLANNING FOR ELECTRIC VEHICLE CHARGING STATIONS IN MISSOURI



TODAY'S AGENDA

Electric Vehicle (EV) and EV Infrastructure Fast Facts

EV Sales and Registration Trends

NEVI Overview

Federal Funding

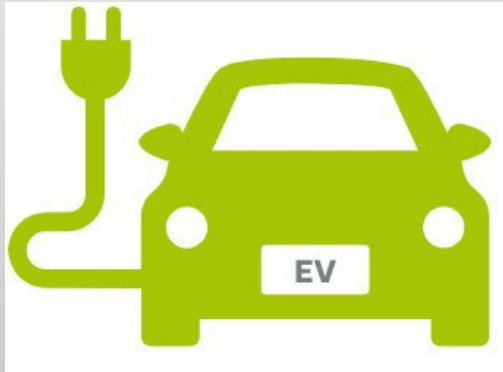
Alternative Fuel Corridors

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



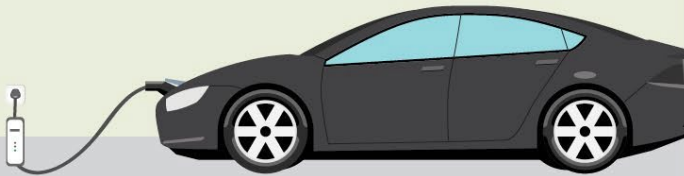
Hybrid Electric Vehicle (HEV)

- 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

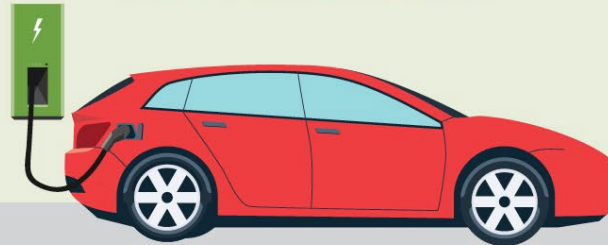
AC Level One



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

Level 2

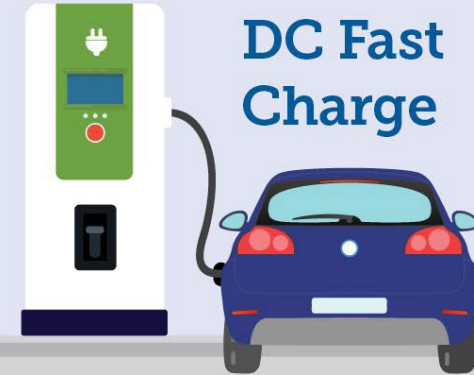
AC Level Two



- “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

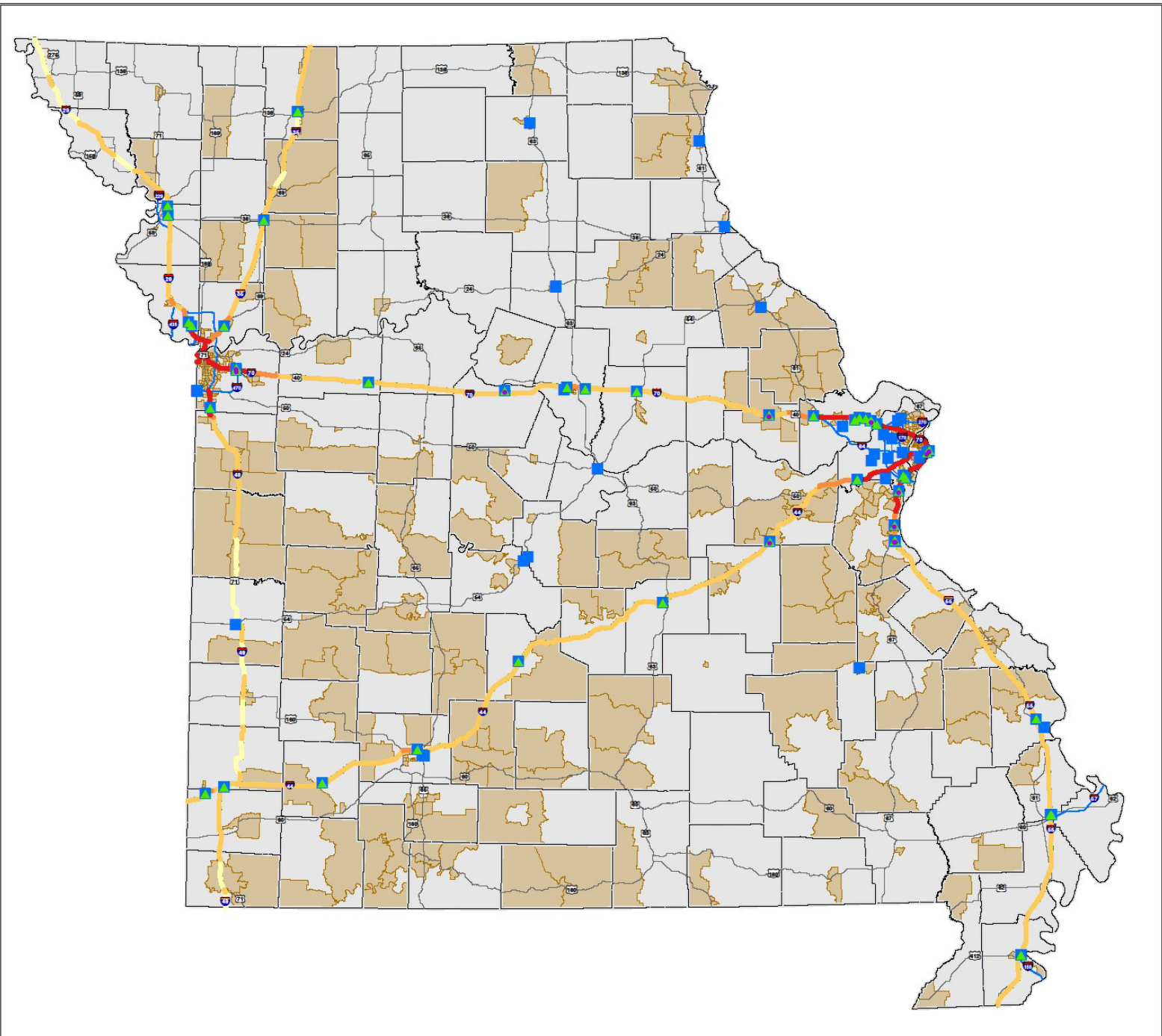
Newly created Joint Office of Energy and Transportation

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



Missouri Department of Transportation
 Transportation Planning
 1-888-ASK-MODOT
 WWW.MODOT.ORG
 May 3, 2022



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.

CHARGING AND
FUELING
INFRASTRUCTURE (CFI)
DISCRETIONARY
GRANT

- AWARDING FY22 AND FY23 FUNDS TOTALING \$700M
- DUE MAY 30, 2023
- TWO CATEGORIES:
 - COMMUNITY CHARGING
 - ALTERNATIVE FUEL CORRIDOR
- 80/20 MATCH
- MUST BE PUBLICLY ACCESSIBLE
- CORRIDOR APPLICATIONS MUST CONTRACT WITH PRIVATE ENTITY AND MEET NEVI MINIMUM STANDARDS



QUESTIONS AND DISCUSSION

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