Preparing and Planning for EV Charging Infrastructure Funding

April 27, 2022

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Discussion Notes

- ❑ This webinar will be recorded
- ❑ Use the chat box to provide comments & ask questions

What We Will Cover

- Intro from PennDOT Secretary Gramian
- Electric Vehicle Benefits & Basics
- Electric Vehicle Sales
- Background on BIL – NEVI – AFC
- NEVI Plan Outline
- Questions and Answers

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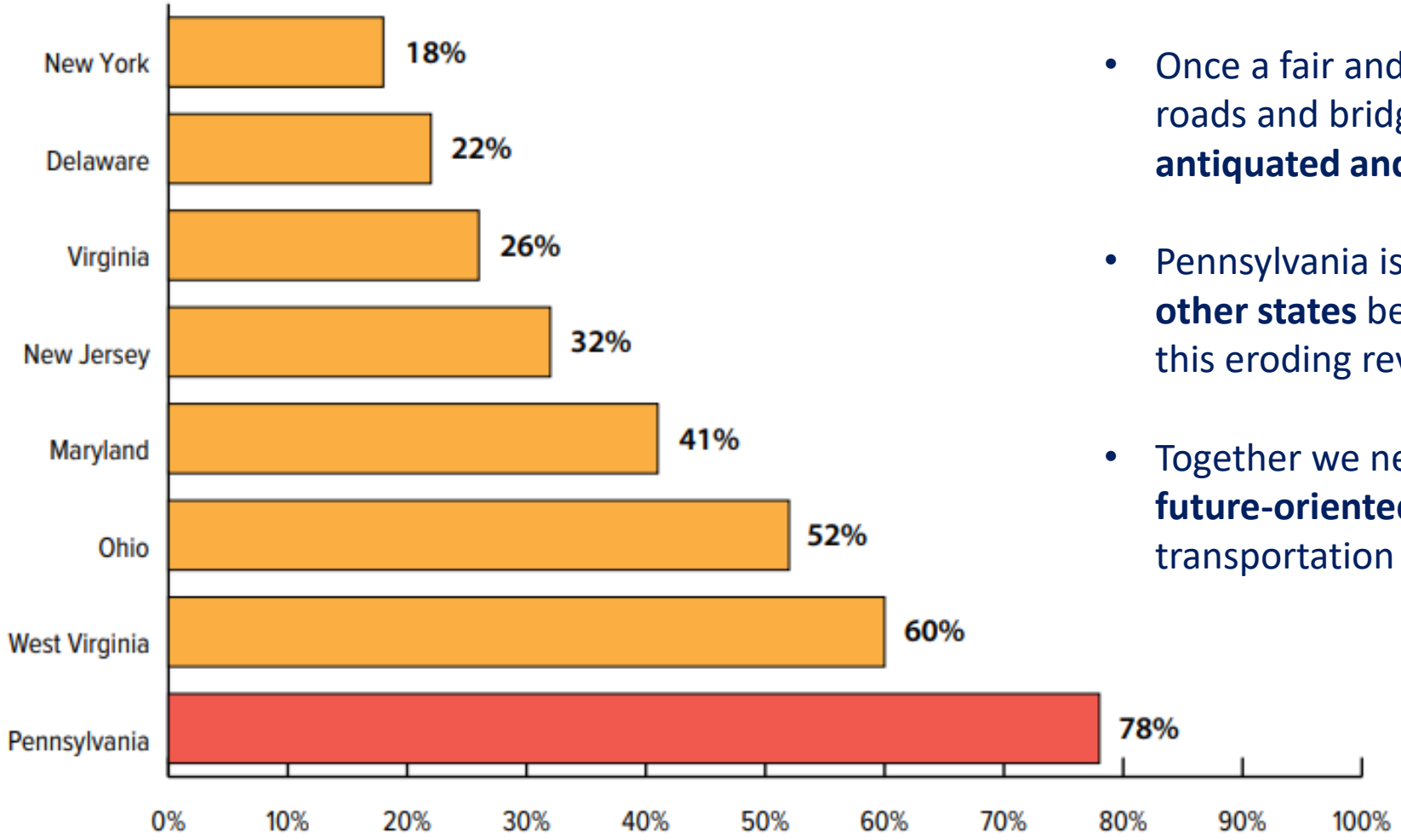
A Reliable Funding Approach is Needed

Gas Tax as a **Percentage of Total Transportation Revenue**, by State*



- Once a fair and sustainable way to pay for roads and bridges, **the gas tax is antiquated and unreliable.**
- Pennsylvania is **more vulnerable than other states** because we rely so heavily on this eroding revenue source.
- Together we need to find **fair, feasible, future-oriented solutions** to pay for all transportation modes

**Source: Pennsylvania Transportation Revenue Options Commission (TROC), "Final Report and Strategic Funding Proposal," August 2021*

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PennDOT PAthways

The Pathways Program was created by PennDOT to identify and explore innovative, future-focused alternative funding solutions for Pennsylvania's transportation system that are:

- **Reliable**
- **Fair and equitable**
- **Sustainable**

For more information, visit:

penndot.pa.gov/funding

Electric Vehicle Benefits

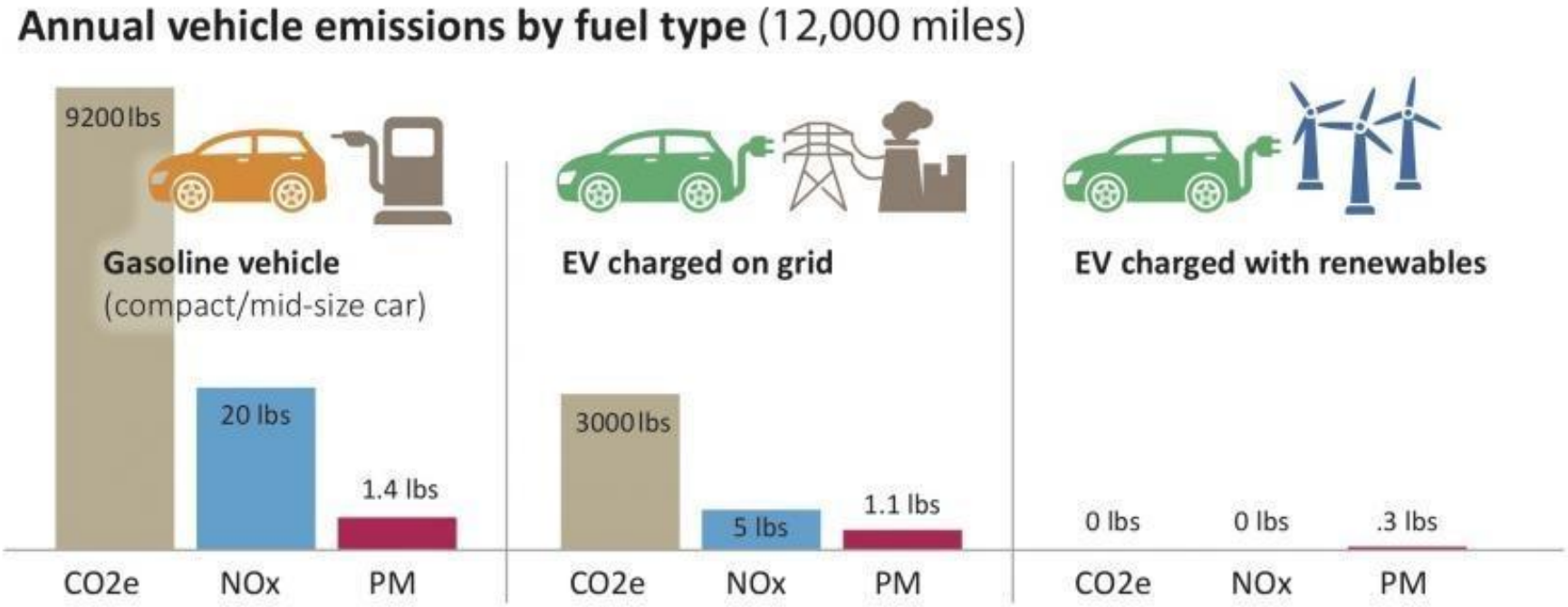

Image source: ElectrifyHeartland.org

Image source: pca.state.mn.us

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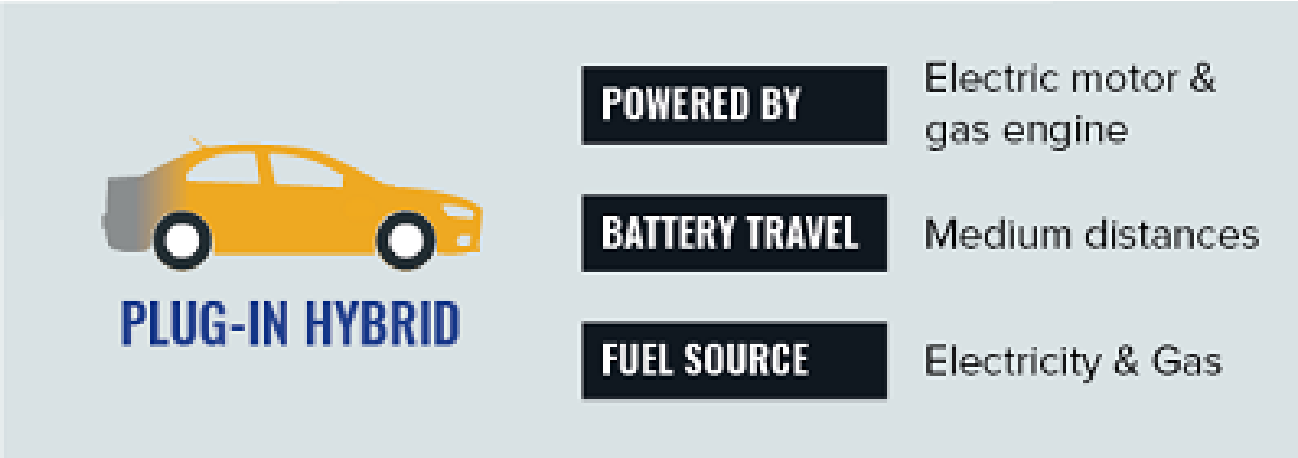
Vehicle Types - Gas

- Gas:
  - Internal combustion engine, transmission

- Hybrid:
  - Adds battery, electric motor, and battery
  - Improved efficiency
  - Brake re-generation

Image source: nyserda.ny.gov

Vehicle Types - Electric



- Plug-In Hybrid
  - Larger battery than regular hybrid
  - Plugs in for electric mode
  - Long range

- Electric
  - Largest batteries
  - No gas engine
  - No tailpipe
  - High torque

Image source: nyserda.ny.gov

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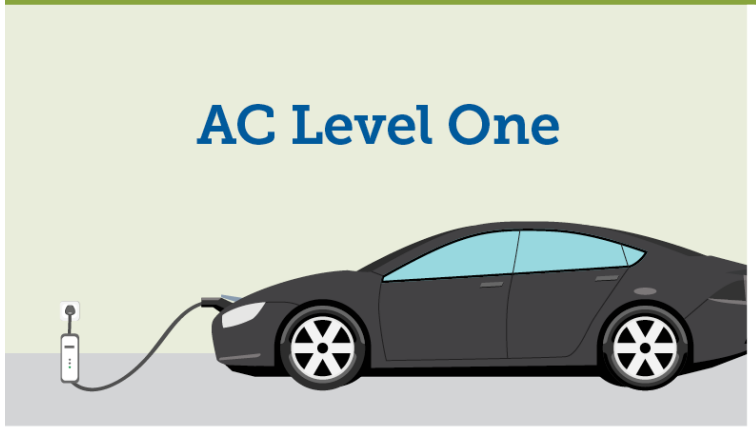
Charging

KNOW YOUR EV CHARGING STATIONS

AC Level One



VOLTAGE
120v 1-Phase AC

AMPS
12–16 Amps

CHARGING LOADS
1.4 to 1.9 KW

CHARGE TIME FOR VEHICLE
3–5 Miles of Range Per Hour

AC Level Two

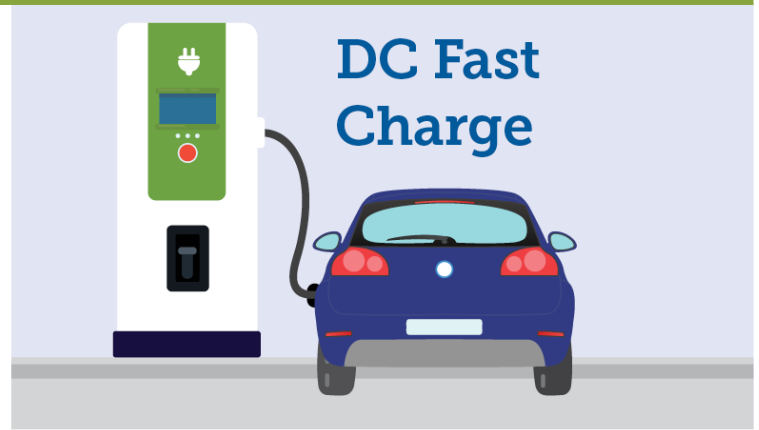
VOLTAGE
208V or 240V 1-Phase AC

AMPS
12–80 Amps (Typ. 32 Amps)

CHARGING LOADS
2.5 to 19.2 kW (Typ. 7 kW)

CHARGE TIME FOR VEHICLE
10–20 Miles of Range Per Hour

DC Fast Charge



VOLTAGE
208V or 480V 3-Phase AC

AMPS
<125 Amps (Typ. 60 Amps)

CHARGING LOADS
50 – 350kW

CHARGE TIME FOR VEHICLE
80% Charge in 20–30 Minutes

Image source: pnm.com

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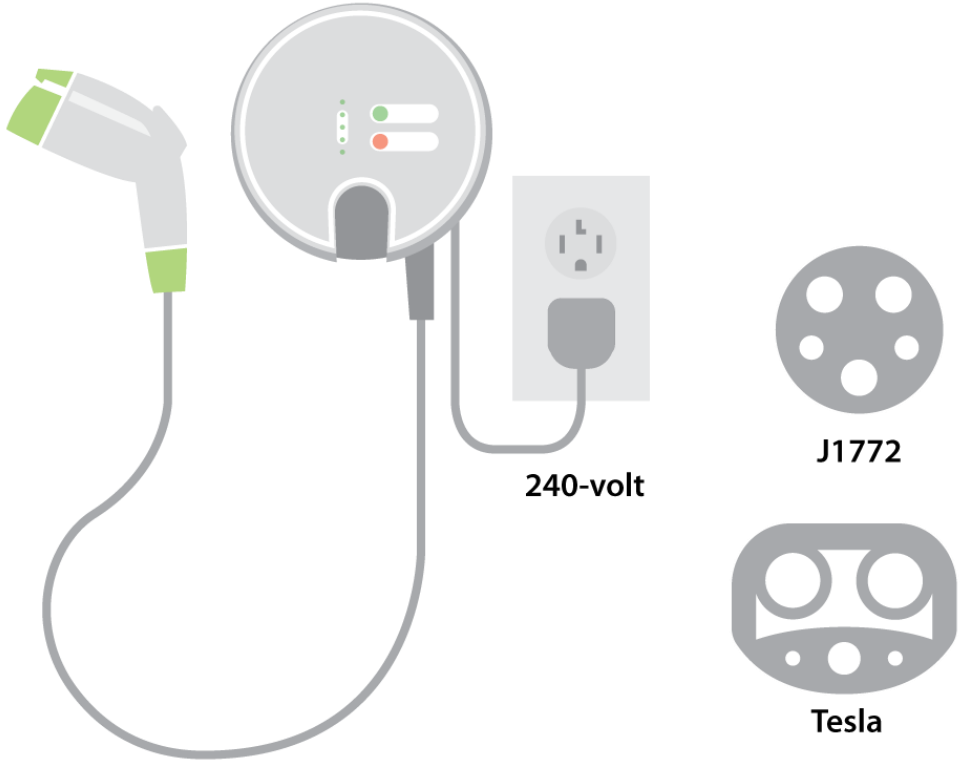
Charging Plugs

Level 1 and 2 AC Charging



- All electric vehicles can use a regular outlet for level 1 charging
- All electric vehicles can use level 2 J1772 plugs (Tesla requires an adapter)
- Only Tesla can use Tesla plugs

Image source: CleanVehicleRebate.org

Charging Plugs

- Many DC fast charging stations have CCS and CHAdeMO plugs
- All electric vehicles can use one of these plugs (Tesla uses an adapter for CHAdeMO)
- Only Tesla can use Tesla plugs

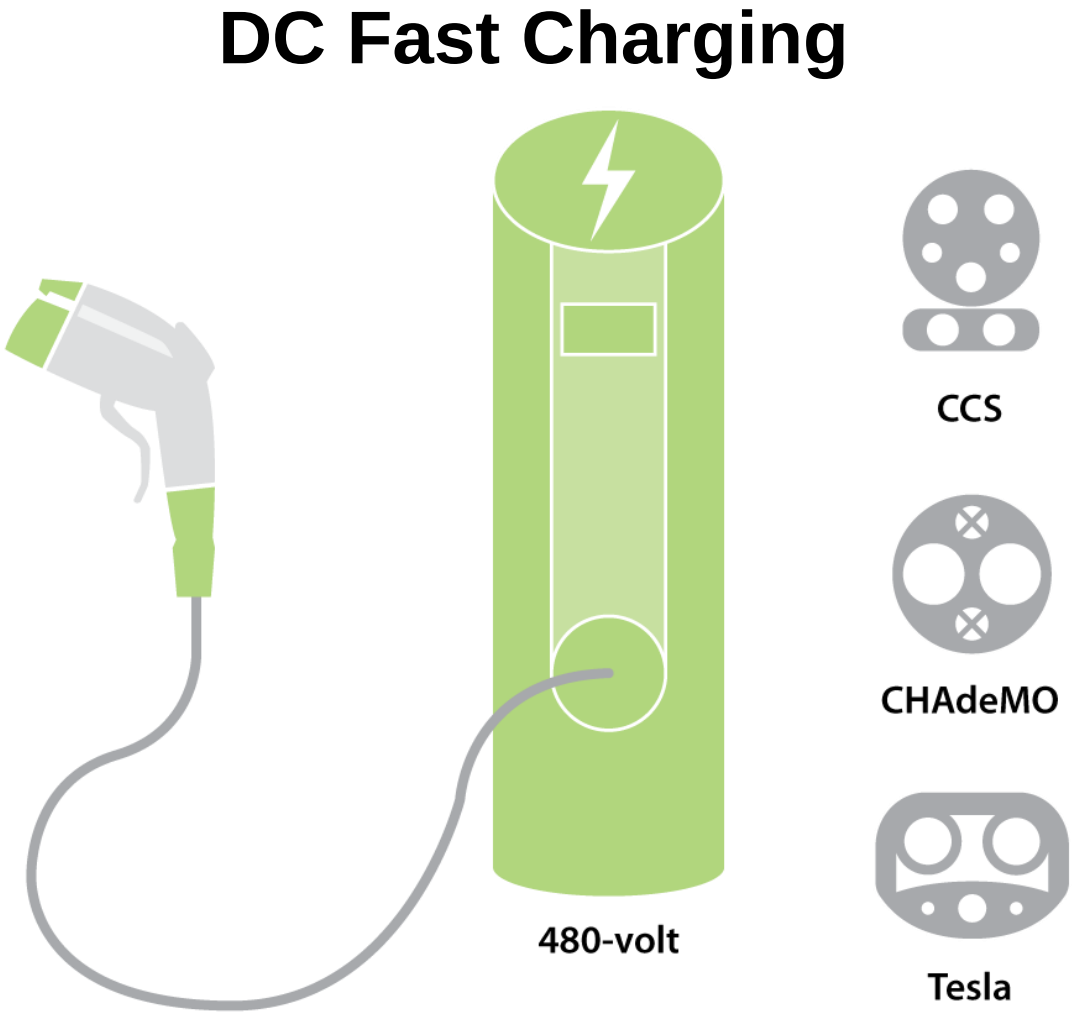


Image source: CleanVehicleRebate.org

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How to Find Charging Stations

- Websites
- Apps
- Trip Planners
- Resources:
  - 511PA
  - Alternative Fuel Data Center (AFDC)
  - PlugShare
  - ChargeHub
  - In-car support

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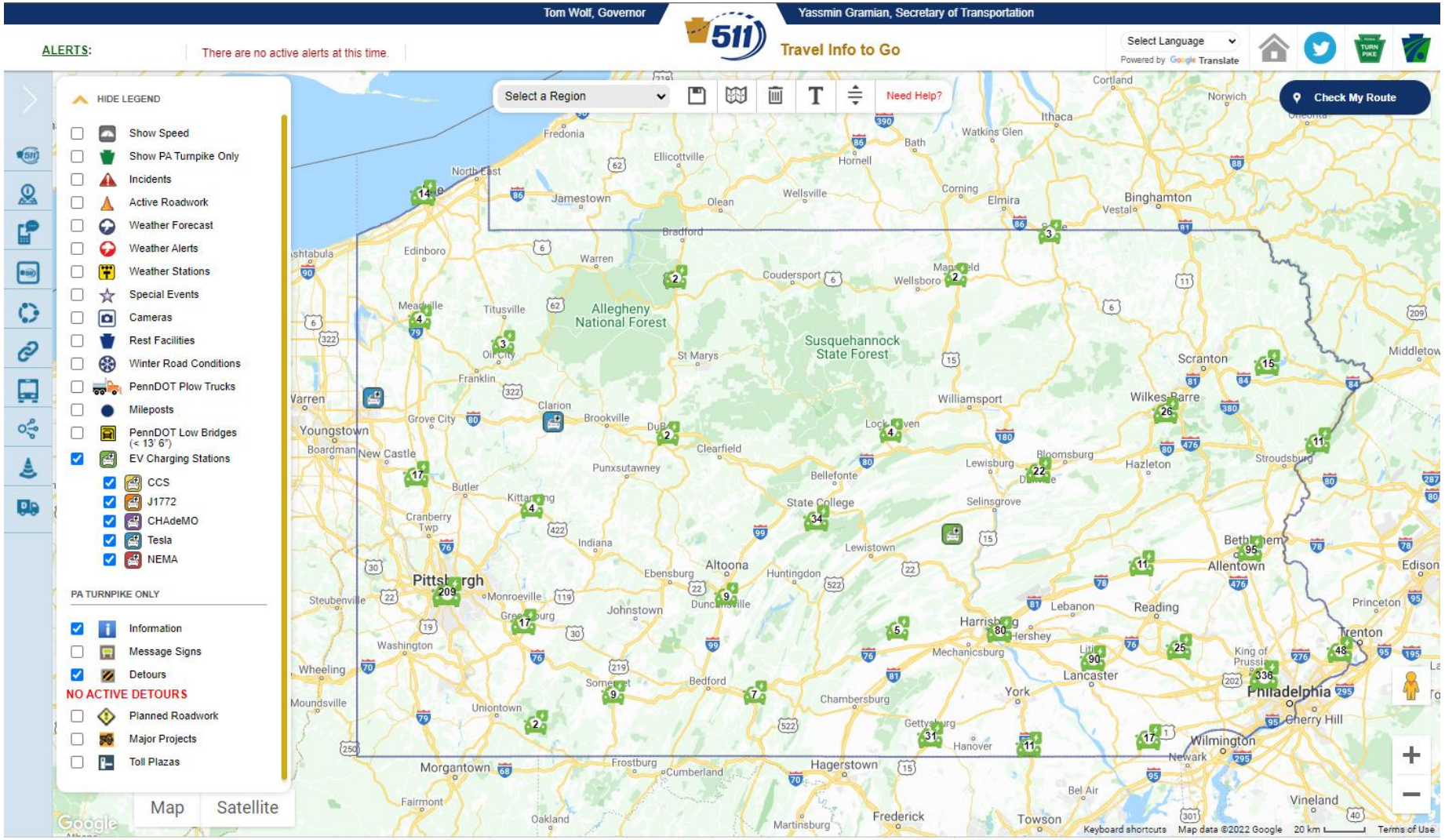
PA Public Charging Locations



Over 2,500 public plugs at over 1,000 locations

- *600 more plugs than this time last year*

● Charging station

Source: [511PA.com](511PA.com)

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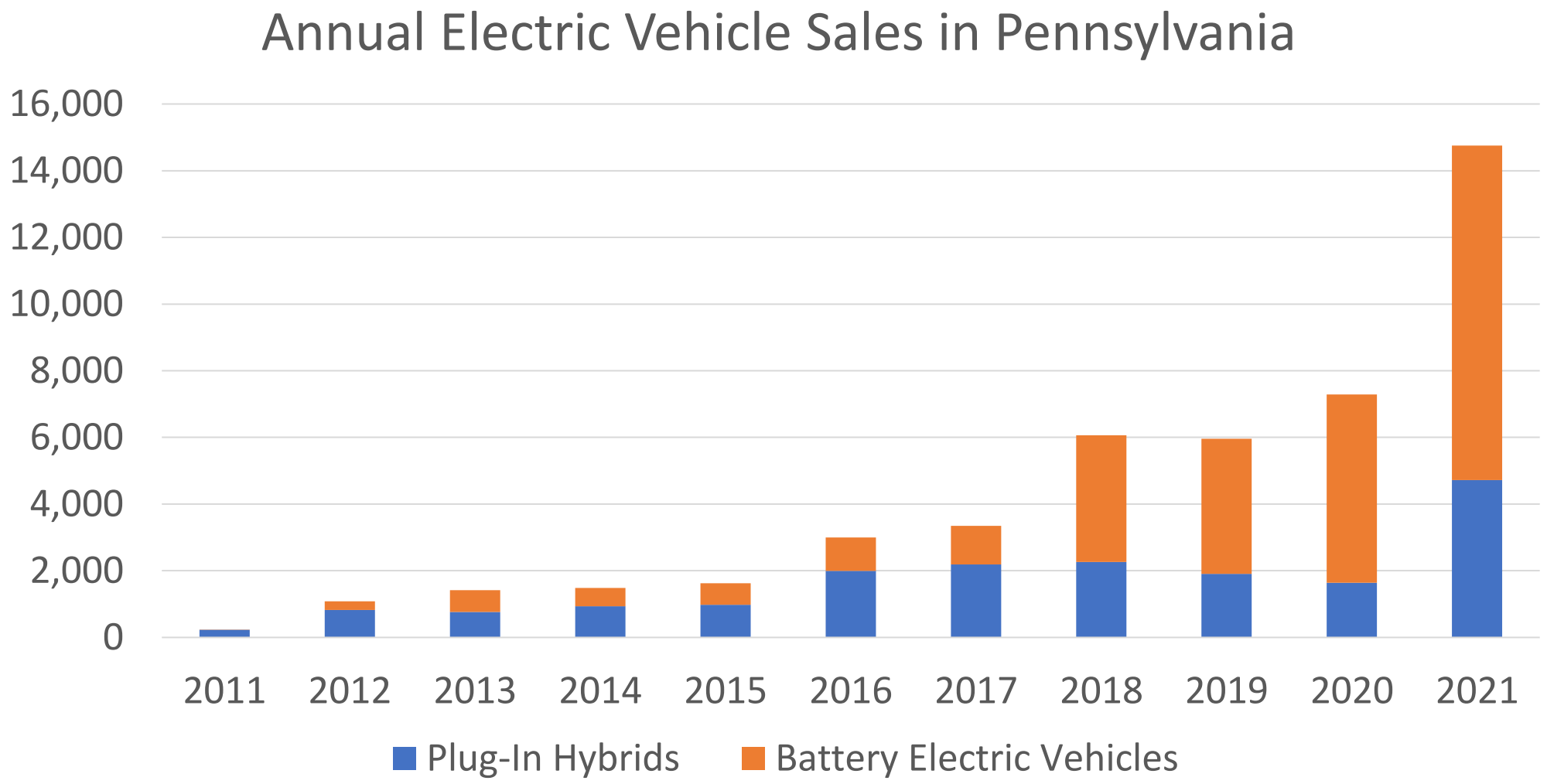
Electric Vehicle Sales



Source: Atlas EV Hub

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PennDOT Support for EVs

- EV Website Update
- EV Mobility Plan
- EV Model Ordinance
- EV Equity Principles
- NEVI State Plan

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BIPARTISAN INFRASTRUCTURE LAW (BIL)

[Division J]

[NEW] National Electric Vehicle Formula Program (formula and discretionary*)

Purpose	Strategically deploy electric vehicle (EV) charging infrastructure and establish an interconnected network to facilitate data collection, access, and reliability
Funding	$5 B (FY 22-26) in advance appropriations from the GF
Recipients	• States (including DC and Puerto Rico)
Distribution formula	• Same shares as Federal-aid highway apportionments
Other key provisions	• Funded projects must be located along designated alt fuel corridors • Sets aside 10% of funding for discretionary grants to State and local governments that require additional assistance to strategically deploy EV charging infrastructure • State must submit plan to DOT describing planned use of funds • If State doesn't submit plan (or carry it out), DOT may withhold or withdraw funds and redistribute within the State, or to other States • Establishes DOT-DOE Joint Office of Energy and Transportation • Requires DOT to designate national EV charging corridors to support freight and goods movement

** Program sets aside funds for discretionary technical assistance grants; also if DOT withholds or withdraws funding from a State, DOT may award funds to local governments in the same State.*

§ 11401

[NEW] Charging and Fueling Infrastructure (discretionary)

Purpose	Deploy electric vehicle (EV) charging and hydrogen/propane/natural gas fueling infrastructure along designated alternative fuel corridors and in communities
Funding	$2.5 B (FY 22-26) in Contract Authority from the HTF
Eligible entities	• State or political subdivision of a State • MPO • Local government • Special purpose district or public authority with a transportation function • Indian Tribe • Territory
Eligible projects	• Acquisition and installation of publicly accessible EV charging or alternative fueling infrastructure • Operating assistance (for the first 5 years after installation) • Acquisition and installation of traffic control devices
Other key provisions	• Requirement to redesignate alternative fuel corridors and establish a process to regularly redesignate these corridors • Set-aside (50%) to install EV charging and alternative fueling infrastructure on public roads or in other publicly accessible locations, such as parking facilities at public buildings, schools, and parks

https://www.fhwa.dot.gov/bipartisan-infrastructure-law/evs.cfm

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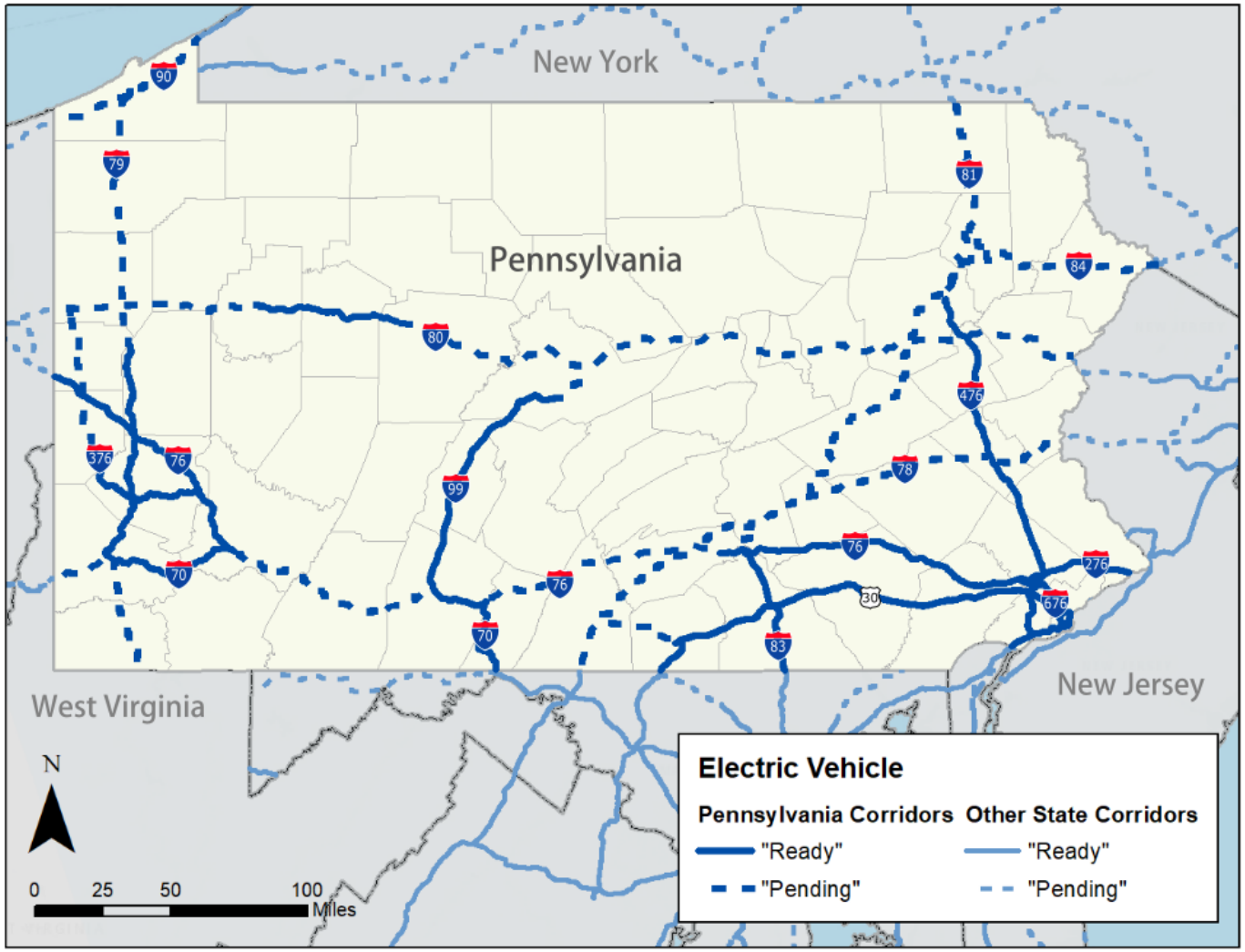
Alternative Fuel Corridors



- AFC is a plan for build-out of DC fast chargers (DCFC)
- PennDOT has nominated corridors over 5 rounds - includes all interstates
- Only non-interstates nominated are portions of US 30 and US 15
- AFC corridors designated as either “Pending” or “Ready” based on older criteria
- “Ready” means qualifying stations not more than 50 miles apart
- NEVI funding can be applied to all AFC corridors (Pending or Ready)
- NEVI funding <u>must</u> be applied to AFC until a “Build-Out” certification by FHWA

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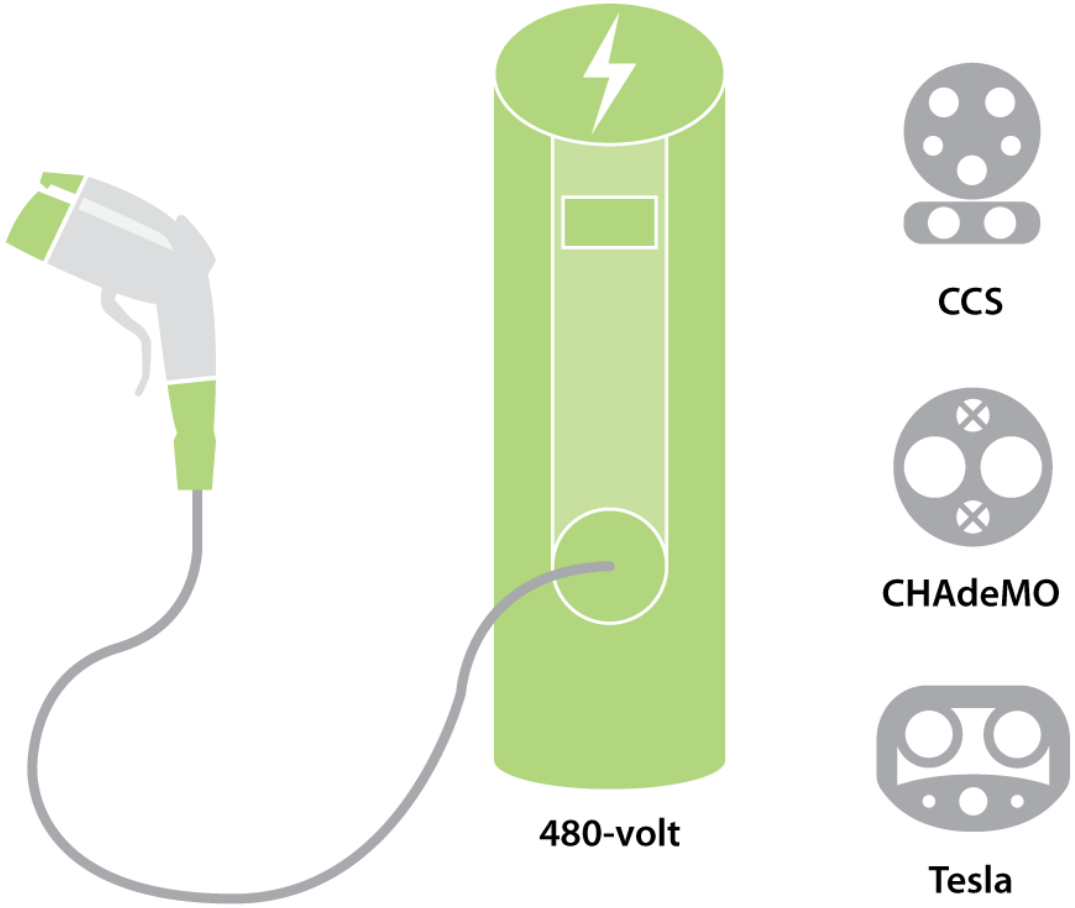
NEVI QUALIFYING FAST CHARGERS FOR AFC

- DC Fast Charging
- Public (Tesla doesn’t count now)
- 4 ports
- CCS Connectors
- At least 150kw power per port (600kw total)
- Within 1-mile of highway, within 50 miles of the next station



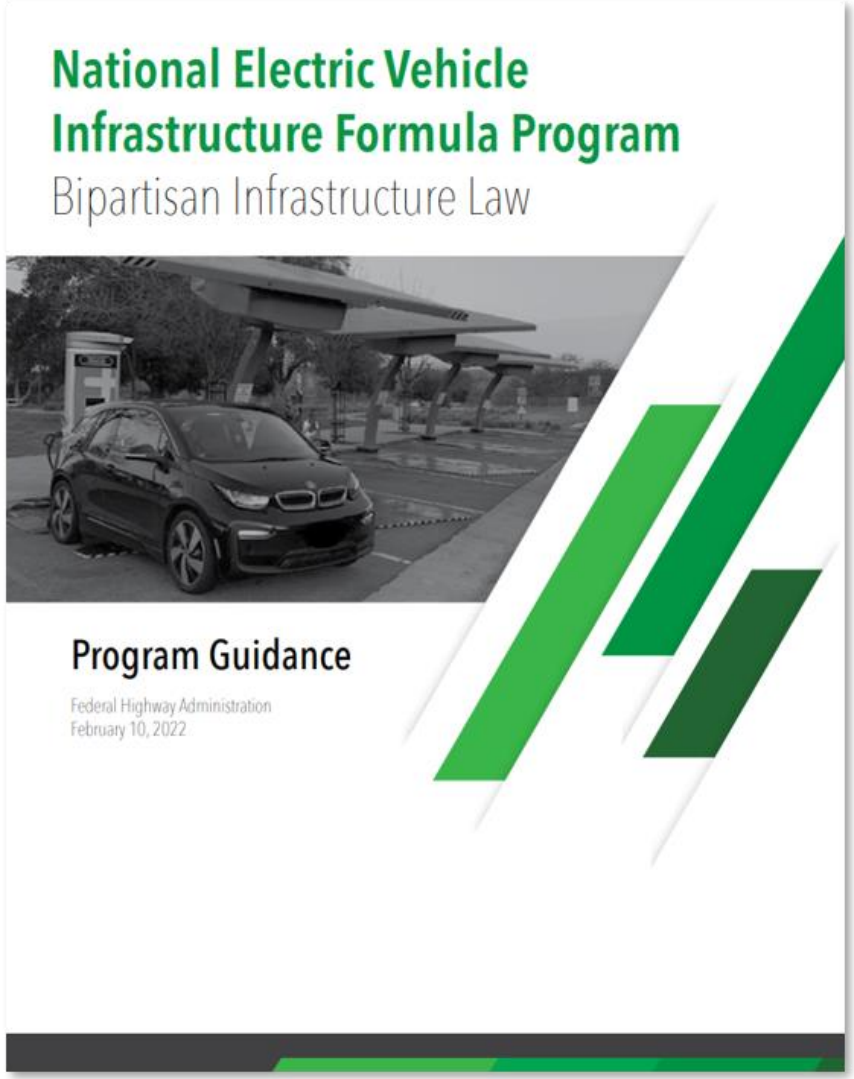
PENNDOT EFFORTS UNDERWAY

1. Address National Electric Vehicle Infrastructure (NEVI) Program – AFC Focus

- Rural Charging Toolkit Issued Early February
- Initial NEVI Plan Guidance Issued February 10th
- ***Critical Technical Guidance is Expected on May 13th***
- State EV Infrastructure Plan Required to be submitted to FHWA by August 1st

2. Preparing for Discretionary Funding Beyond AFC

- Position our Planning Partners Take Advantage of Discretionary
- $ and guidance [Nov]



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NEVI PLAN OUTLINE

- Introduction
- State Agency Coordination
- Public Engagement
- Plan Vision & Goals
- Existing & Future Conditions
- EV Charging Infrastructure Deployment
- Implementation
- Civil Rights
- Equity Considerations
- Labor & Workforce Considerations
- Cybersecurity
- Program Evaluation
- Discretionary Exceptions

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ESTABLISHING NEVI GOALS (DRAFT)

Strategically deploy a convenient, reliable, affordable, and equitable electric vehicle charging network to support range confidence for Pennsylvanians and visitors.

Construct a consistent, robust charging network to enhance availability when and where people need to charge.

Fund infrastructure that is safe and convenient for travelers.

Ensure EV infrastructure funding is distributed and applied in an equitable manner and provides benefits to all populations including underserved and rural communities.

Complement the NEVI formula program with proper training and diversity of the workforce and job impacts.

Develop a charging network to support freight and goods movement through the Commonwealth.

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Outreach Overview & Next Steps

March/April

- Stakeholder Meetings: Planning Partners, Utilities, Local (PSATS, PSABS, County Commissioners, etc.), Electric Vehicle Charging Companies, Advocacy/Equity, Labor/Education, Environment, Food Merchant's Association

April 27th

- Legislative Webinar
- General Public Webinar

May

- Additional Stakeholder Meetings: Manufacturers/OEMs, Commercial/Freight, Transit, Destinations
- Survey tool for feedback on components of the NEVI State Plan

June/July

- Complete draft plan and review

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April Outreach Results

- Utilities
  - Capacity mapping and cost recovery are essential for utilities to meet new demand.
  - Equity is a major consideration and utilities may play a role in encouraging equitable buildout.
  - PennDOT can partner by providing planning studies and EV density/adoption estimates.
- EVSE Network Providers
  - The market is already pivoting towards the new NEVI requirements.
  - Major deployment barriers include procurement, utility, and permitting concerns.
  - Support providers with routine engagement/communications and allow for input.
  - Heard interest from businesses looking to own & operate chargers as well.
- Advocacy & Equity
  - Provide ample opportunities for community input.
  - Leverage the Justice40 Initiative and non-attainment areas as starting points.
  - Ensure accessibility at all charging sites.
- Food Merchants Association
  - Simplify application processes & support utility regulation.
  - Ensure safety and accessibility are promoted.
  - Desirable site amenities.
- Localities
  - Partner on planning, business outreach, and education efforts.
  - Support localities with communication and identifying priority EV site locations.
- Environment
  - Ensure open access and diverse payment options at stations.
  - Consider on-site renewable energy and battery storage technologies.
  - Encouraging EV adoption via signage, messaging campaigns, and social media.
- Labor & Education
  - Must identify knowledge, skills, and abilities necessary for workforce development.
  - Apprenticeships and Career & Technical Schools are great places to start.
  - NEVI funds could support training with focus on transferable skills sets and outreach efforts to build job awareness.

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Quick Break for Questions?

DEP Support for Electric Vehicles

- Level 2 and DC fast charging equipment funding programs for businesses, non-profits, and local governments
- Consumer EV rebate
- Grant program for alternative fuel fleet vehicles
- Drive Electric PA Coalition
- Electricity rate design study for electric vehicle charging
- Stakeholder and public education

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EV Roadmap

Pennsylvania Electric Vehicle Roadmap:

- 13 recommended actions to increase electric vehicle use

EV Roadmap 2021 Update:

- Booklet with updated information

https://www.dep.pa.gov/Business/Energy/OfficeofPollutionPrevention/State-Energy-Plan/Pages/Drive-Electric-PA-Coalition.aspx

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DEP EV Rebate

Alternative Fuel Vehicle Rebate for Individuals:

- $750 for new or used electric vehicle
- $500 for new or used plug-in hybrid or electric motorcycle
- Additional $1,000 for applicants with low income

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Questions?

EV Resource Account

ra-pdevcorridors@pa.gov

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