

PA Clean Transportation with PennDOT & DEP

February 22, 2022



What We Will Cover

Electric Vehicle Update

State Electric Vehicle Goals

Electric Vehicle Planning Efforts

BIL Funding

DEP EV Programs

PA Active Transportation Plan Update



Electric Vehicle Benefits

electric vehicle
operating costs



50%-70% less than
gasoline-powered vehicles

Image source: ElectrifyHeartland.org

Annual vehicle emissions by fuel type (12,000 miles)

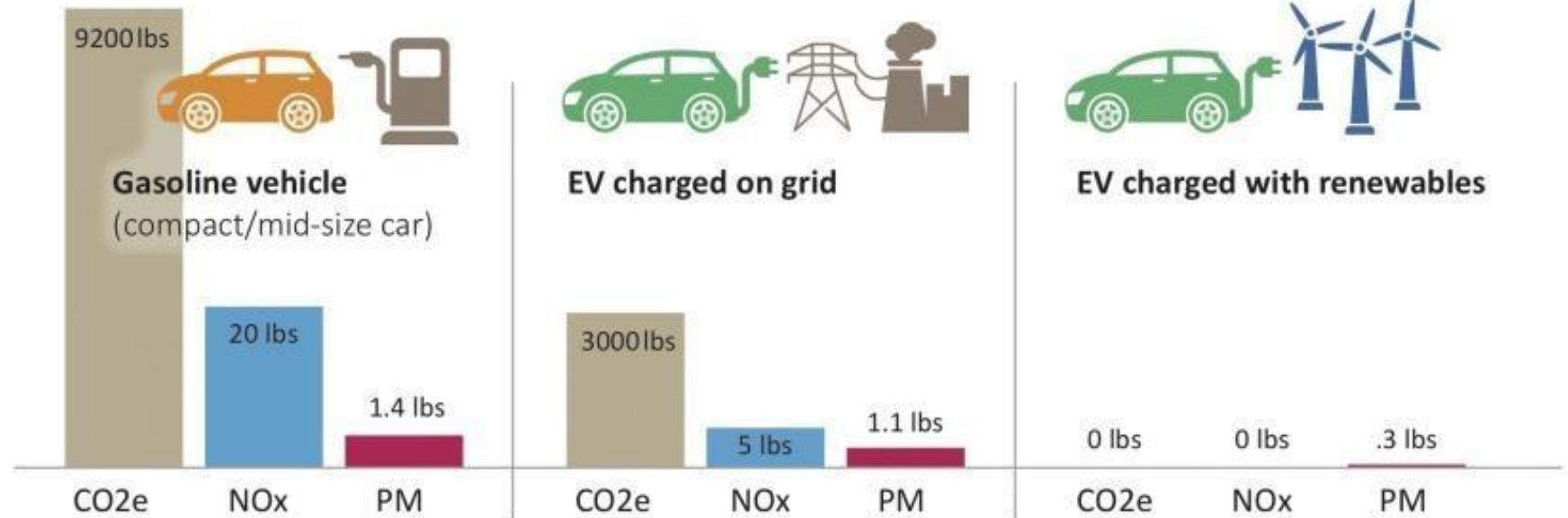


Image source: pca.state.mn.us

Vehicle Types - Gas



CONVENTIONAL GAS

POWERED BY	Gas engine
BATTERY TRAVEL	None
FUEL SOURCE	Gas



CONVENTIONAL HYBRID

POWERED BY	Gas engine & electric motor
BATTERY TRAVEL	Short distances
FUEL SOURCE	Gas

- Gas:
 - Internal combustion engine, transmission
- Hybrid:
 - Adds battery, electric motor, and battery
 - Improved efficiency
 - Brake re-generation

Image source: nysesda.ny.gov

Vehicle Types - Electric



PLUG-IN HYBRID

POWERED BY

Electric motor &
gas engine

BATTERY TRAVEL

Medium distances

FUEL SOURCE

Electricity & Gas



BATTERY-POWERED

POWERED BY

Electric motor

BATTERY TRAVEL

Long distances

FUEL SOURCE

Electricity

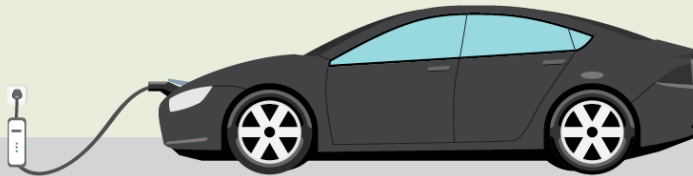
- Plug-In Hybrid
 - Larger battery than regular hybrid
 - Plugs in for electric mode
 - Long range
- Electric
 - Largest batteries
 - No gas engine
 - No tailpipe
 - High torque

Image source: nyserda.ny.gov

Charging

KNOW YOUR EV CHARGING STATIONS

AC Level One



VOLTAGE

120v 1-Phase AC

AMPS

12–16 Amps

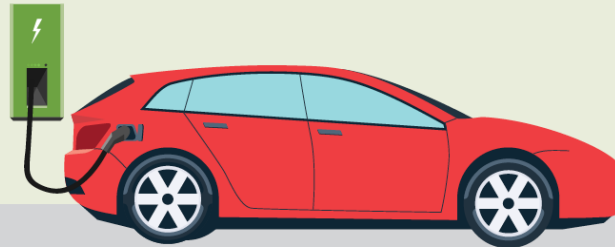
CHARGING LOADS

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)

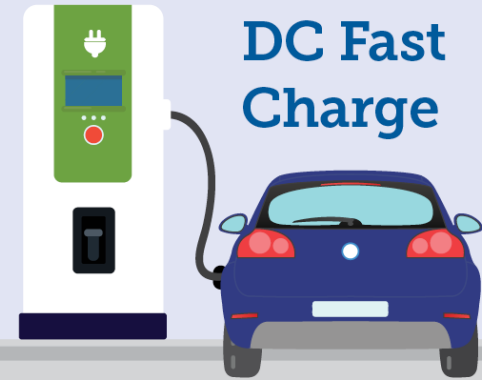
CHARGING LOADS

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

<90 kW (Typ. 50 kW)

CHARGE TIME FOR VEHICLE

80% Charge in 20–30 Minutes

How to Find Charging Stations

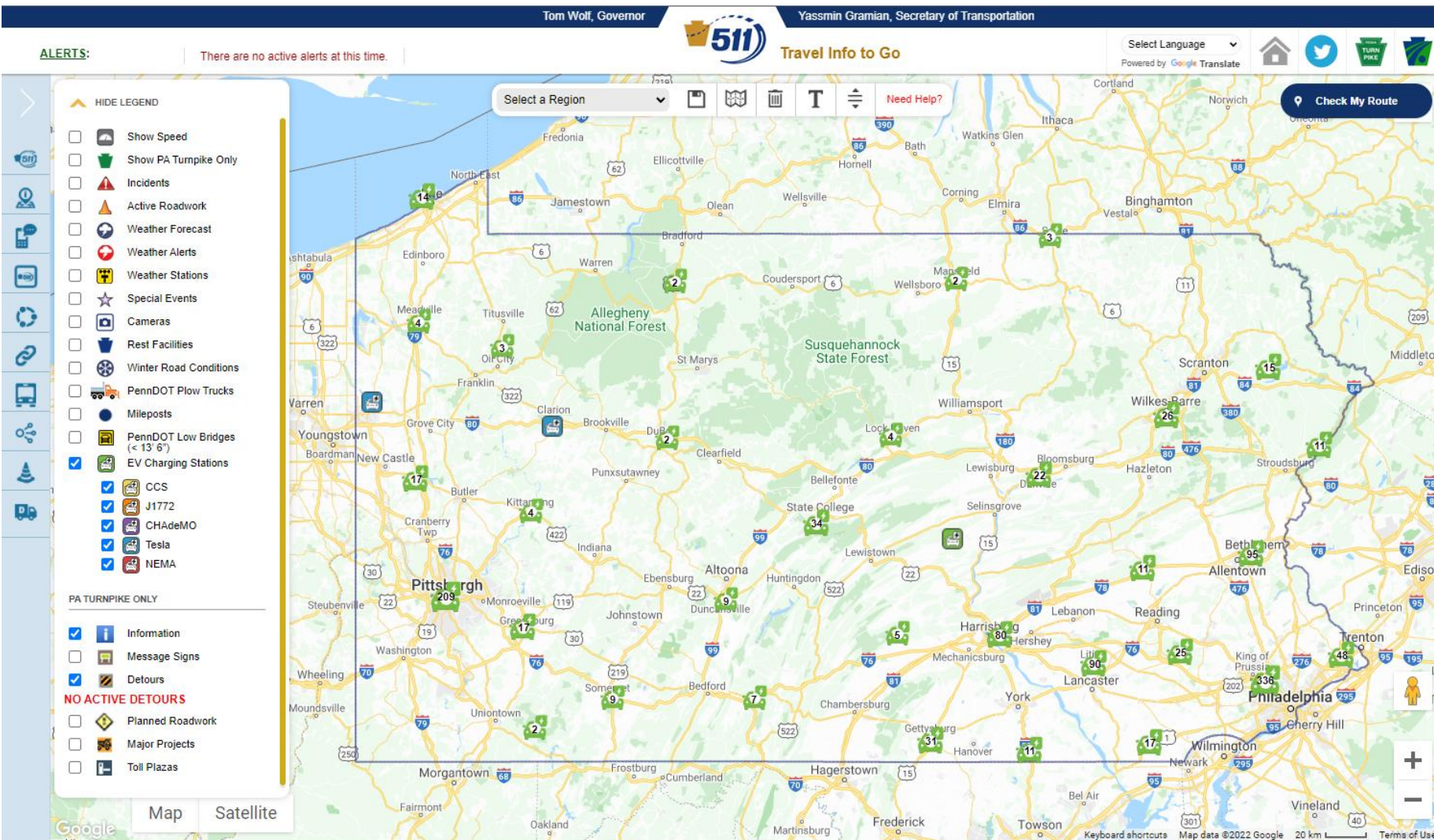


- Websites
- Apps
- Trip Planners
- Resources:
 - 511PA
 - Alternative Fuel Data Center (AFDC)
 - PlugShare
 - ChargeHub
 - In-car support

EV Registration in Pennsylvania

	March 2019	March 2020	March 2021*	Jan. 2022*
Electric	9,784	11,343	16,924	23,543
Hybrid	29,680	36,252	46,401	57,777
Other	5,432	6,510	4,159	3,980
Total	44,896	54,105	67,484	85,300

Public Charging Locations



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

➤ *600 more plugs than this time last year*

● Charging station

Automaker Electric Vehicle Commitments

The auto industry has committed \$225 billion toward electrification.

Ford:	40 models by 2022
Chrysler:	12 models by 2022
Volkswagen:	50 percent of models by 2030
Honda:	All models w/ option by 2022
Volvo:	All models by 2030
GM:	All models by 2035

BMW:	15-25 percent of sales by 2025
Toyota:	50 percent of sales by 2025



► State Electric Vehicle Commitments

Executive Order: 2019-01 – Commonwealth Leadership in Addressing Climate Change and Promoting Energy Conservation and Sustainable Governance

January 08, 2019



Sets statewide goal to reduce greenhouse gas emissions:

- 26 percent by 2025
- 80 percent by 2050

Leading by example:

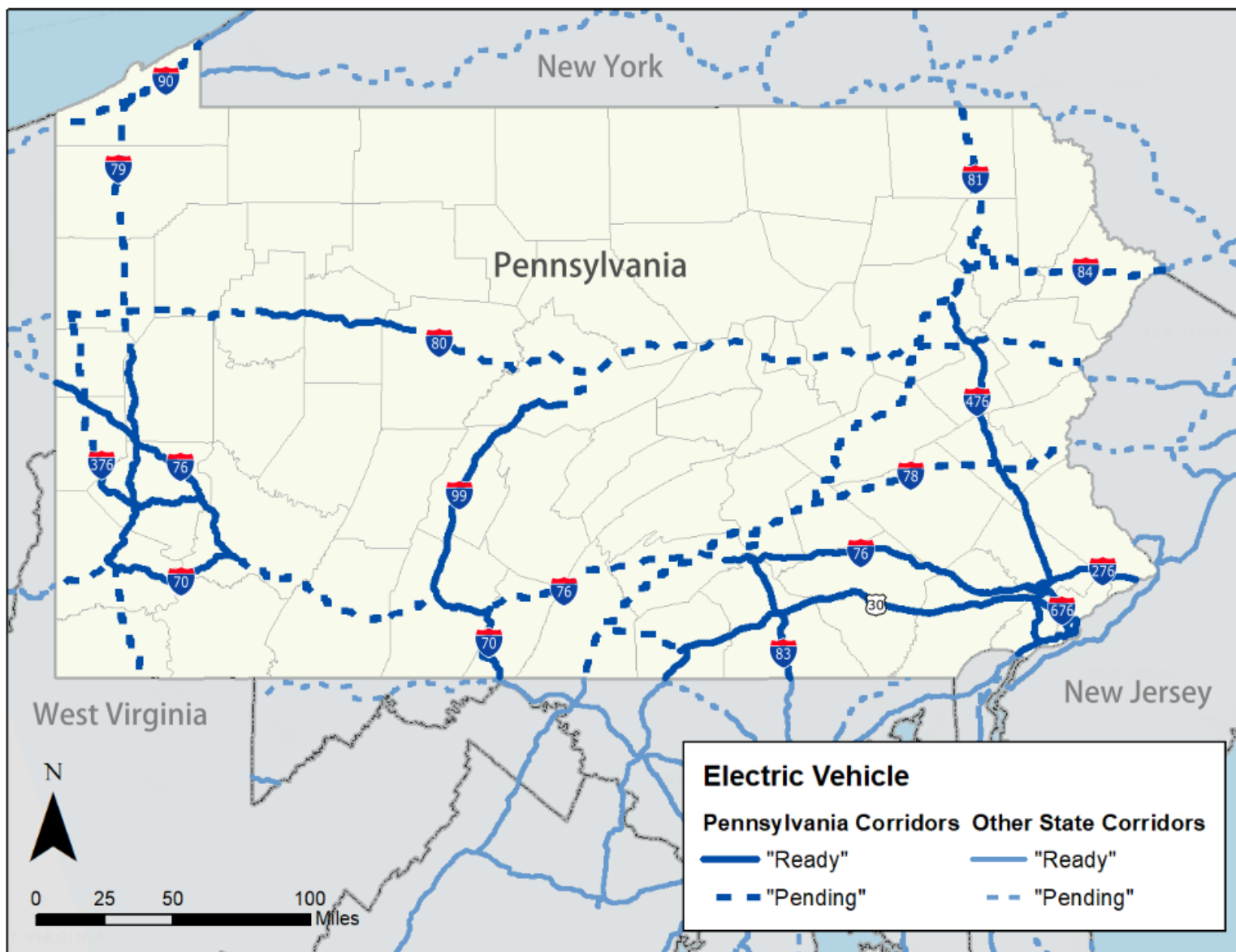
- Replace 25 percent of state passenger cars with electric cars by 2025

PennDOT Support for EVs

- Alternative fuel corridor deployment plan (I-78/I-81 & I-80)
- Mobility Plan
- Statewide EV Task Force



Alternative Fuel Corridors



Pennsylvania's Electric Vehicle Corridors currently have:

- 692 Interstate Miles in Ready Status
- 1,051 Interstate Miles in Pending Status

EV Equity Principles

- A. Make EVs More Affordable
- B. Make EV Charging More Accessible
- C. Invest in Fleet Electrification
- D. Invest in Traditionally Underserved, Low-Income, Persons of Color and Otherwise Vulnerable Population Areas
- E. Increase EV Awareness, Education, and Technical Capacity

Viewable at

<https://www.penndot.gov/ProjectAndPrograms/Planning/Pages/Energy-and-Environment-Initiatives.aspx>



Electric Vehicle (EV) Equity Guiding Principles

A. Make EVs More Affordable

1. Ensure availability of EV purchase incentives and payment options targeted to underserved, low-income, persons of color, disabled and otherwise vulnerable consumers.
2. Verify effectiveness of EV purchase incentive programs at local and state levels by tracking the appropriate metrics (EV registrations, income levels, incentives leveraged, etc.) and adjusting incentive structures as needed.

B. Make EV Charging More Accessible

3. Ensure sufficient public charging and electrical grid infrastructure in underserved, low-income, persons of color, disabled and otherwise vulnerable communities, especially in areas with low home-charging access (i.e. high percentage of multifamily dwelling units) and a lack of public transit options.
4. Support sufficient public charging infrastructure along major highway corridors, including in rural locations that are necessary to fill gaps in the statewide EV charging network, but may not have the critical mass (e.g. of traffic volume, EV registrations, etc.) to be financially feasible in the short-term without public funding.
5. Certify public charging investments address the Americans with Disabilities Act (ADA) standards and includes safety and security accommodations.
 - o Consider a standard of amenities including sufficient lighting, regular staffing, security on site, and steady foot traffic that allow comfortable access for persons with disabilities and people with personal safety concerns.
6. Ensure equal access to electric vehicle supply equipment (EVSE) funding opportunities for all businesses that are interested in hosting public EVSE on their property.
 - o Focus on small and diverse businesses where appropriate.
 - o Support a variety of charging station business models.
7. Reduce financial barriers for businesses (e.g. demand charges) who are interested in hosting public EVSE on their property by working with electric utility companies to make EV charging both affordable and beneficial to the local distribution networks.
8. Expand payment options to accommodate drivers that do not have access to a personal banking account, credit cards, and other cashless options (e.g. offering a pre-paid card to charge EVs).

C. Invest in Fleet Electrification

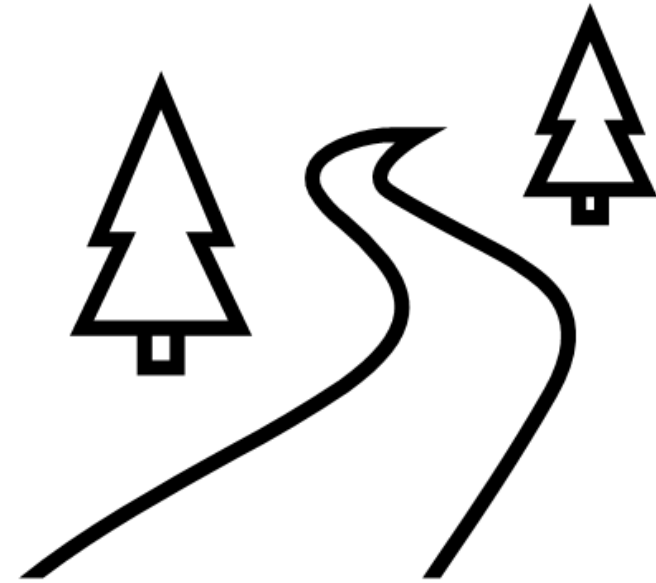
9. Support fleet electrification funding programs are accessible to transit authorities and school districts that serve predominantly underserved, low-income, minority and otherwise vulnerable populations.

Updated: February 7, 2022



► Bipartisan Infrastructure Law (BIL)

- New sources of funding for EV infrastructure
- Formula Funding - \$171.5 million to PA over 5-year period
- Discretionary Grant Program - \$2.5 billion across all states
- Working on planning documents
- Prioritizing “pending” alternative fuel corridors
- Information sharing with our planning partners
- Educating local municipalities and key stakeholders on new funding



► DEP Support for Electric Vehicles

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



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>



State Incentives

- Pennsylvania has provided funding for over 1,400 charging plugs!
- Other projects including electric fleet vehicles and public DC fast charging stations.
- Funding is available for businesses, non-profits, and local governments. Contact us for details!



[Driving PA Forward](#)

[Alternative Fuel Incentive Grant](#)

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

Alternative Fuels Incentive Grant Program



Federal Incentives

Up to \$7,500 [federal income tax credit](#) for new electric vehicle

- Not available for GM or Tesla

Up to 30% or \$1,000 to [install home charging equipment](#)

- Install by December 31, 2021



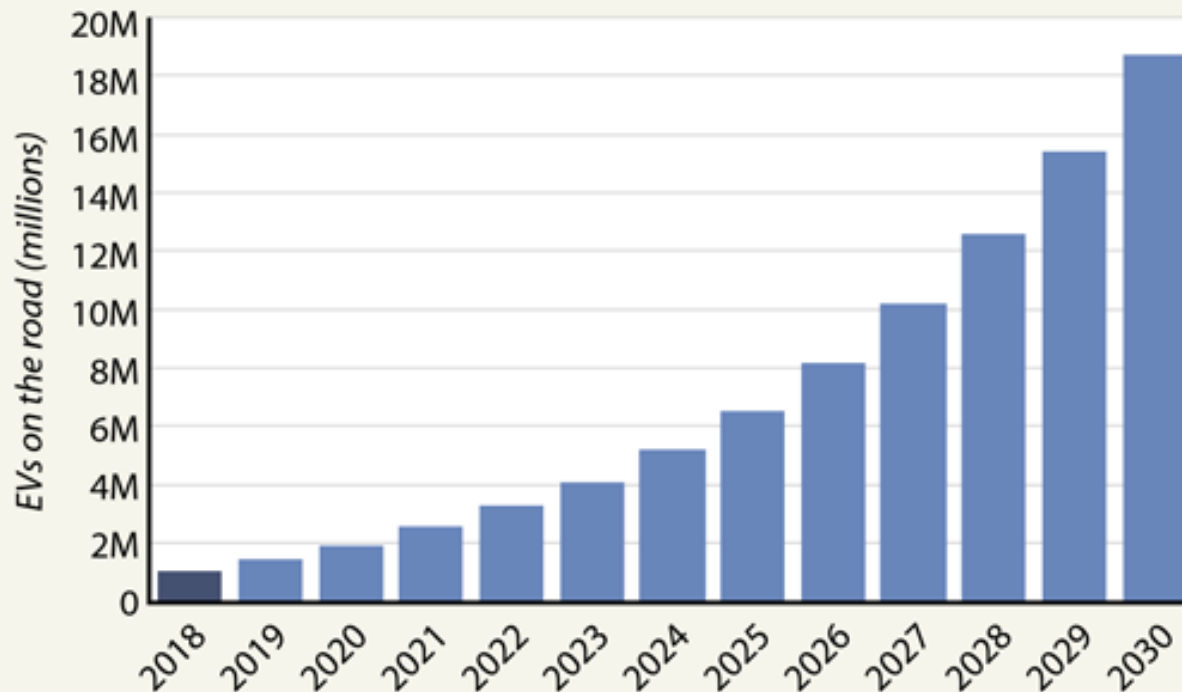
▶ Near Future of Electric Vehicles

EVs on the U.S. Roads

Edison Electric Institute, which represents U.S. power utilities, projects a significant increase in the number of electric vehicles on the road over the next 12 years. Other analysts expect an even faster rise.

ELECTRIC VEHICLES FORECAST FOR U.S.

2018 projected to 2030



SOURCE: Edison Electric Institute

PAUL HORN / InsideClimate News

- Sales increasing
- More models becoming available
- More charging stations being installed
- Most forecasts anticipate at least 25% EV sales by 2030

PENNSYLVANIA ACTIVE TRANSPORTATION PLAN



FEBRUARY 2022

ACTIVE TRANSPORTATION PLAN



Pennsylvania Active Transportation Plan Vision Statement

“Biking and walking are integral elements of Pennsylvania’s transportation system that contribute to community health, economic mobility, and quality of life.”



ACTIVE TRANSPORTATION PLAN

Themes

The Plan outlines the following six themes and provides specific goals and actionable objectives for advancing bicycling and walking in Pennsylvania.

THEME 1: ENHANCE SAFETY



THEME 2: PROVIDE TRANSPORTATION EQUITY



THEME 3: CONNECT WALKING & BICYCLING NETWORKS



THEME 4: LEVERAGE PARTNERSHIPS



THEME 5: IMPROVE PUBLIC HEALTH



THEME 6: INCREASE ECONOMIC MOBILITY



ACTIVE TRANSPORTATION PLAN

Ongoing Work

Completed new Trails in Limited Access ROW Policy

Updates to PennDOT Design Manual

Coordination with other PennDOT Plans

Providing input nationally to American Association of State Highway and Transportation Officials (AASHTO) and US DOT on the Infrastructure Bill



Questions?

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