



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION



Energy Programs Office

Pennsylvania Electric Vehicle Incentive Programs

Colton Brown

Pennsylvania Department of Environmental Protection

Energy Programs Office


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Agenda

1. Electric vehicle basics
2. Electric vehicle trends
3. Consumer electric vehicle incentives
4. DEP incentive programs for organizations:
 - Charging equipment programs
 - EV fleet purchase programs



Fuel Types – Gasoline/Diesel



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/Diesel:
 - Internal combustion engine, transmission

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

Fuel Types – Electric



PLUG-IN HYBRID

POWERED BY	Electric motor & gas engine
BATTERY TRAVEL	Medium distances
FUEL SOURCE	Electricity & Gas

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



BATTERY-POWERED

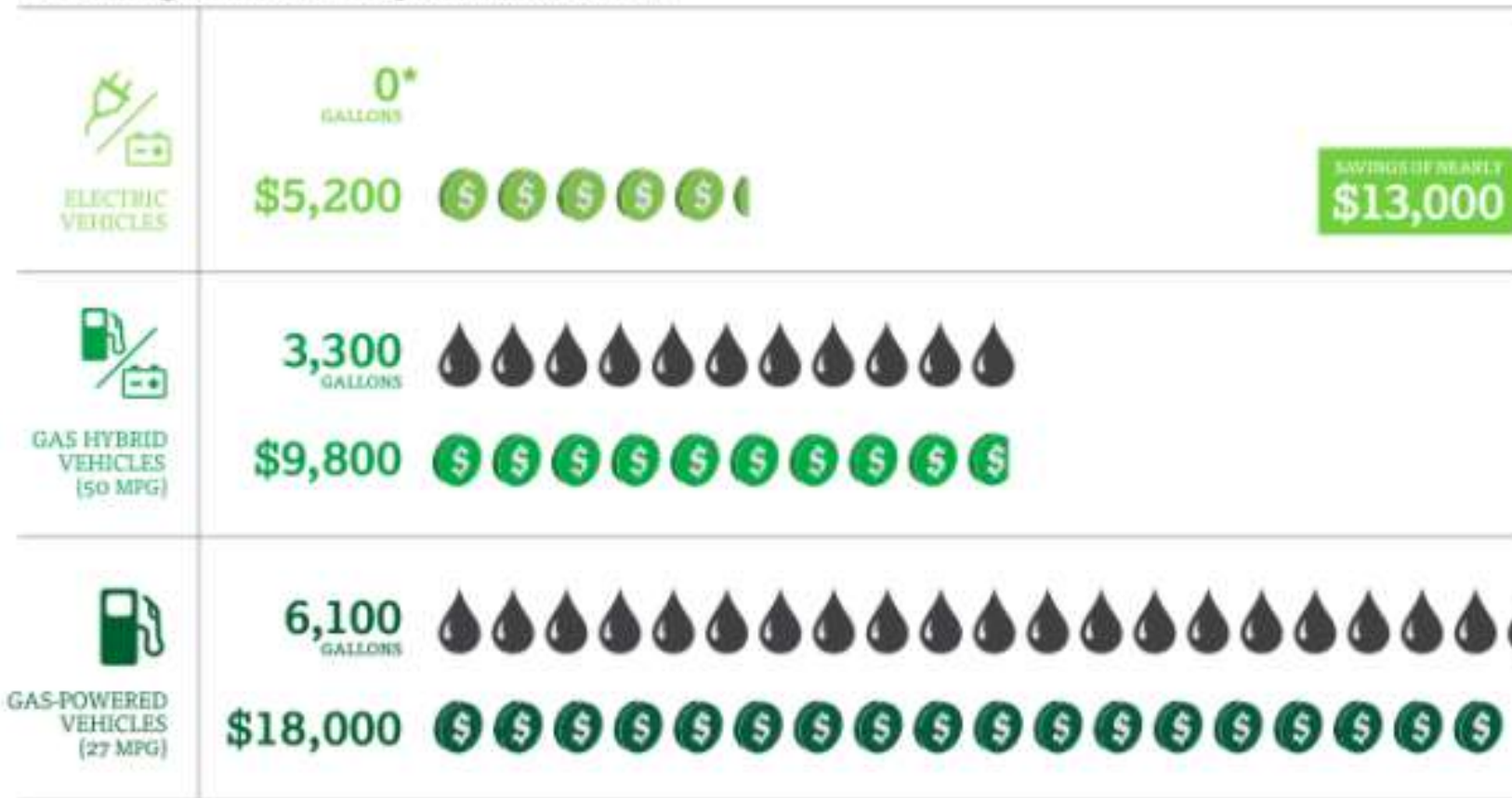
POWERED BY	Electric motor
BATTERY TRAVEL	Long distances
FUEL SOURCE	Electricity

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

Electric Vehicle Benefits

Electric vehicles **slash** oil consumption and cost thousands of dollars **less** to fuel compared with gasoline vehicles.

Lifetime gasoline consumption and fuel costs



electric vehicle
operating costs



50%-70% less than
gasoline-powered vehicles

Image source: ElectrifyHeartland.org

Electric Vehicle Benefits

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

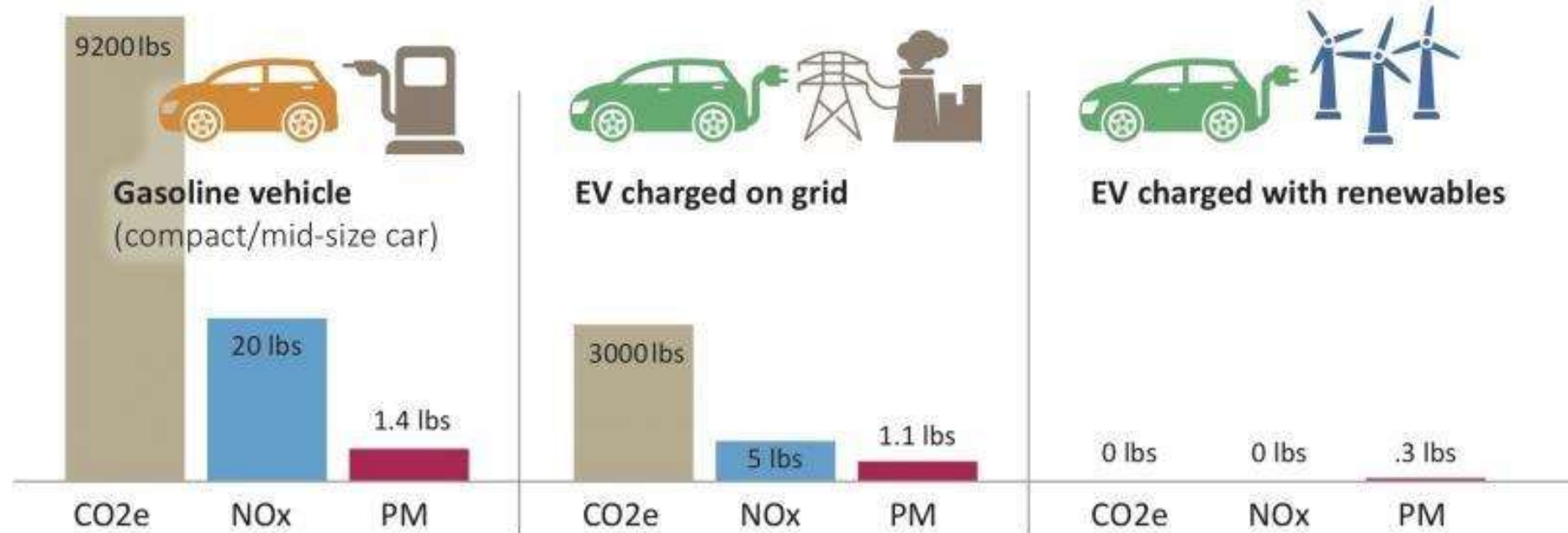


Image source: pca.state.mn.us

Fewer Emissions → Cleaner Air → Better Health

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

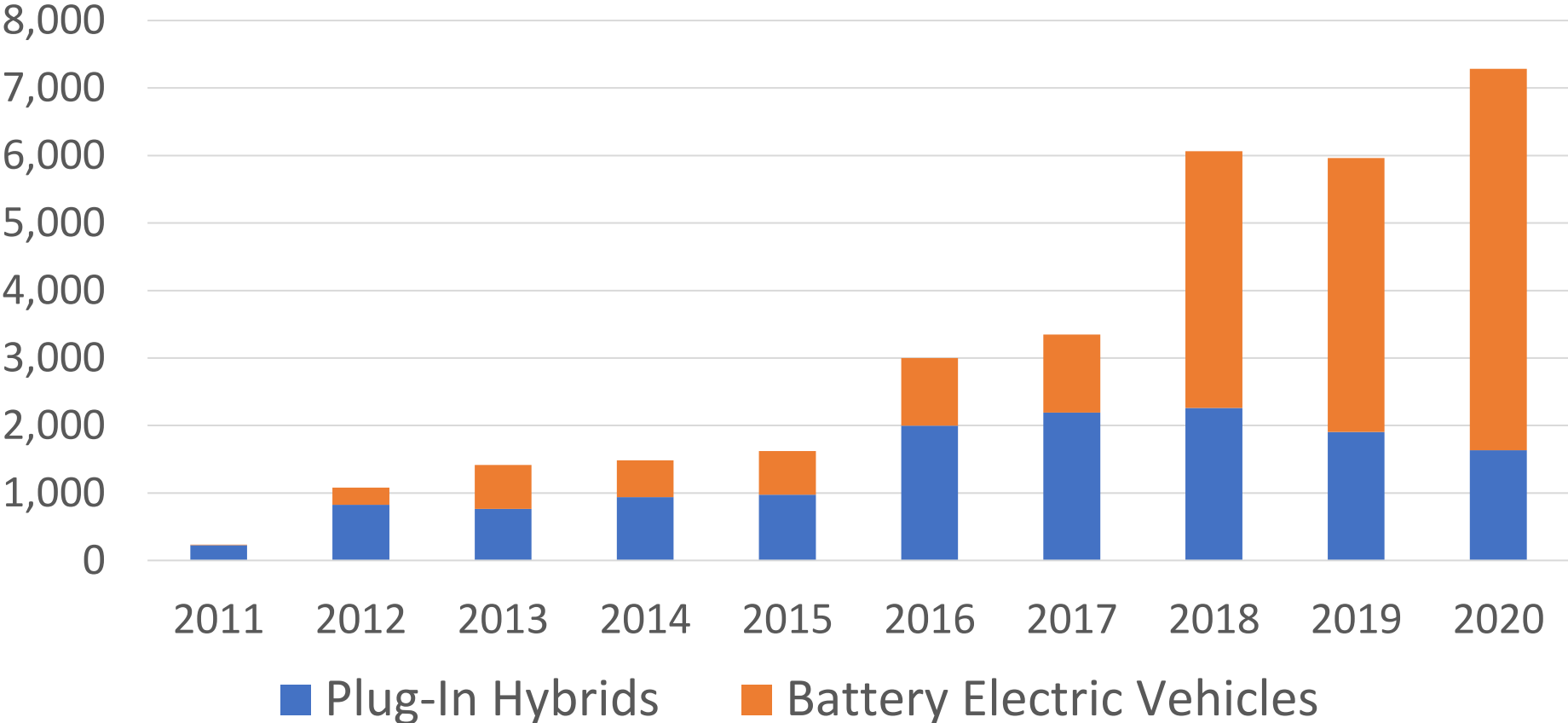
<90 kW (Typ. 50 kW)

CHARGE TIME FOR VEHICLE

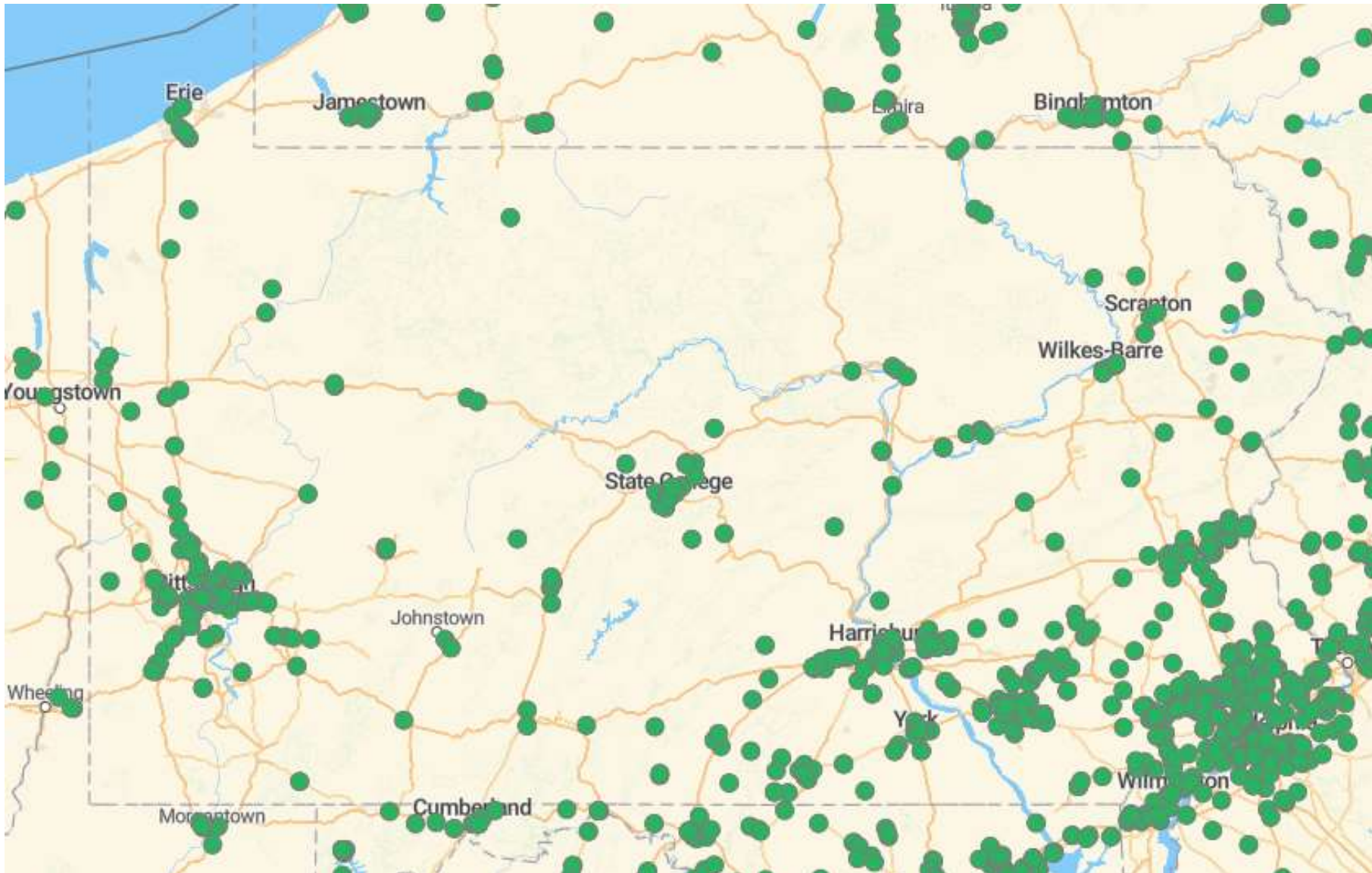
80% Charge in 20–30 Minutes

Electric Vehicle Growth

Annual Electric Vehicle Sales in Pennsylvania



Charging Equipment Expansion

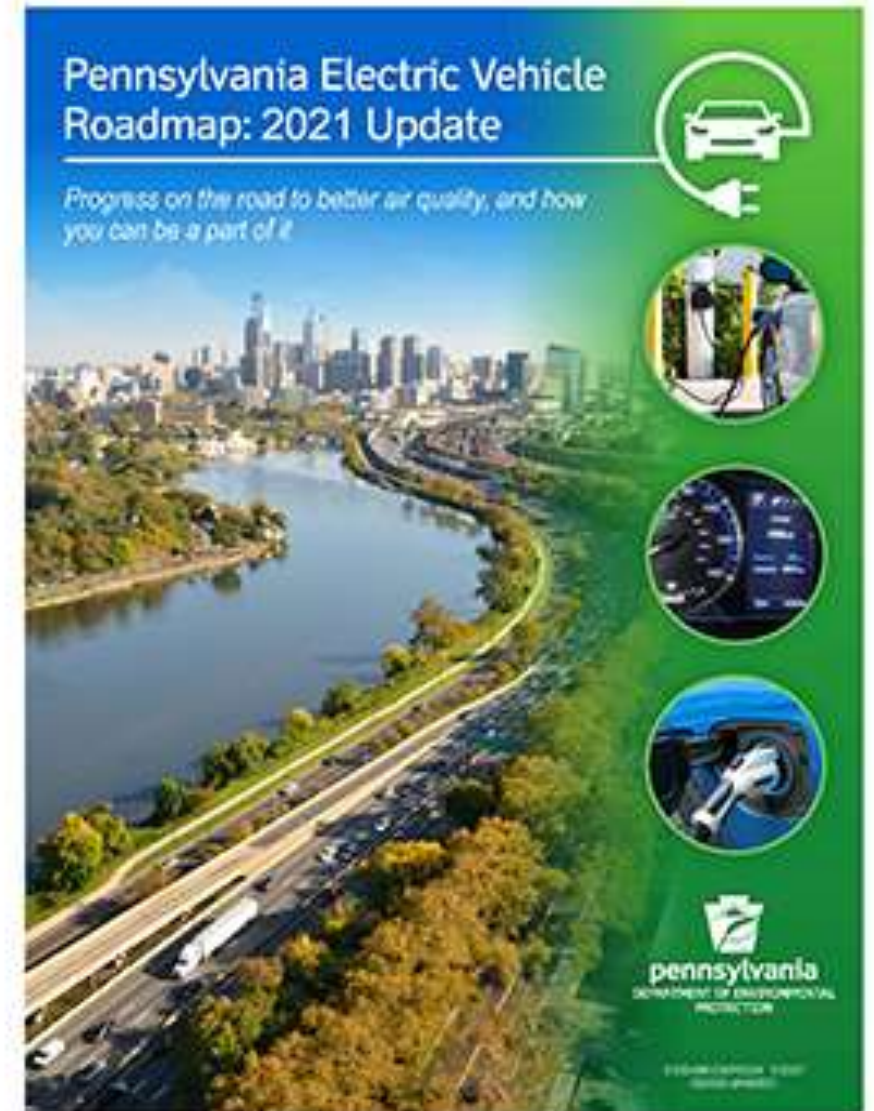


- Over 2,300 public charging plugs at over 1,000 locations
- Number of plugs doubled from 2018 to 2020

Pennsylvania Electric Vehicle Roadmap

- 13 recommended actions to increase electric vehicle use statewide
- Benefits of EVs and basics on driving, charging
- 2021 Update Booklet
- Developed by Drive Electric PA Coalition:
 - **100+ partners:** State and local governments, industry, utilities, businesses academic and community organizations

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



Electric Vehicle Federal Incentives

Federal Incentives

- Up to \$7,500 [federal income tax credit](#) for purchase of new electric vehicle
 - Not available for GM or Tesla

Form **8936**
(Rev. January 2021)
Department of the Treasury
Internal Revenue Service

Qualified Plug-in Electric Drive Motor Vehicle Credit
(Including Qualified Two-Wheeled Plug-in Electric Vehicles)
▶ Attach to your tax return.
▶ Go to www.irs.gov/Form8936 for instructions and the latest information.

- Up to 30% federal tax credit to [install charging equipment](#)
 - Install by 12/31/21
 - Up to \$1,000 for home installations
 - Up to \$30,000 for businesses

Form **8911**
(Rev. February 2021)
Department of the Treasury
Internal Revenue Service

Alternative Fuel Vehicle Refueling Property Credit
▶ Attach to your tax return.
▶ Go to www.irs.gov/Form8911 for instructions and the latest information.

State Electric Vehicle Consumer Incentive

State Incentive

- [Rebate for Individuals:](#)
 - \$750 for new electric vehicle
 - \$500 for new/used plug-in hybrid or used electric vehicle
 - Additional \$1,000 for applicants with low income
 - \$50,000 purchase cap
 - Used vehicles must have less than 75,000 miles

- Check with your local utility, too

Alternative Fuels Incentive Grant Program





PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
DRIVING PA FORWARD
Rebates For Level 2 Charging Stations

- Funding for Level 2 EV charging projects at:
 - Public spaces
 - Workplaces (employee or fleet)
 - Multi-unit dwellings
- Voucher system
- Over 1,100 plugs installed so far!



Current Rebate Amounts

Project Type	Maximum Rebate per Plug	OR (whichever is less)	Maximum % of Total Project Cost
Full Public Access, Networked	\$4,000	or	70% (Government Property - 80%)
Multi-Unit Dwelling	\$3,500	or	50%
All Other Eligible Projects	\$3,000	or	50%

Level 2 Charging Considerations

Project Location

- Customer experience
- Installation cost

Networked?

- Cost
- Data

Open to the public?

- Cost to charge?

Project Timeline

- Voucher valid for 180 days
- Can re-apply if delayed



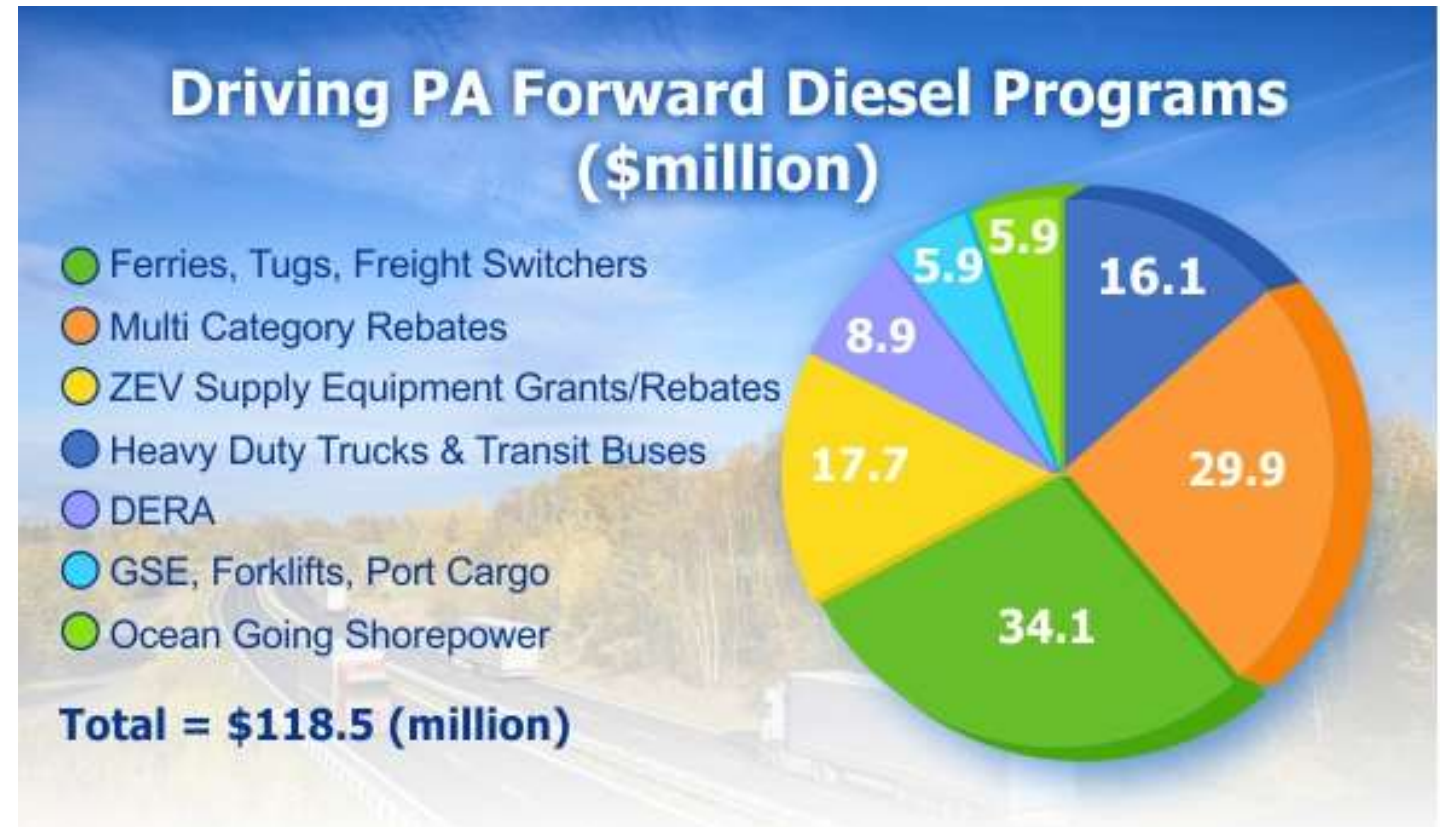
DC Fast Charging and Hydrogen Grant Program

- Competitive Grant Program
- About \$2 million in new awards each year
- About two years of funds remaining
- Charging equipment must be available to public 24/7
- Maximum award: \$250,000
- High power output requirement
- Scoring criteria listed in guidelines
 - Location, location, location



Driving PA Forward Vehicle Programs

- About \$6 million per year to replace pre-2010 diesel trucks
- Must be class 4-8
- Rebate for five or fewer vehicles
- Competitive grant for six or more vehicles
- Higher funding amounts when replacing with electric
- Opens for applications annually



Alternative Fuel Incentive Grant Program

- About \$4 million per year to incentivize fleet transitions to alternative fuels
- Competitive grant program
- Open until December 17
- Three project types readily apply to electric vehicles
 - Incremental cost of purchasing new alternative fuel vehicles (class 1-8)
 - Fleet re-fueling equipment
 - Public re-fueling stations

Alternative Fuels Incentive Grant Program



<https://www.dep.pa.gov/Citizens/GrantsLoansRebates/Alternative-Fuels-Incentive-Grant/Pages/default.aspx>

Summary of Incentives

Federal Tax Credits

- Up to \$7,500 for vehicle purchase
- Up to 30% for charging equipment

Incentives for Individuals

- Up to \$750 for EV purchase
- Check with local electric utility

DEP Incentives for Organizations

- Driving PA Forward
 - Level 2 Rebate – Up to \$4,000 per plug
 - DC Fast Charging Grant – Up to \$250,000 per project
 - Diesel Replacement Programs – Varies
- Alternative Fuel Incentive Grant Program
 - Alternative fuel vehicle purchases and/or charging equipment





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Questions?

Colton Brown

717-705-4156

coltbrown@pa.gov