

# EVs and EV Infrastructure: Resources for Municipalities

EAC Network Conference

Hot Topic Panel

Presented by Melissa Laffen

Upper Dublin Township Environmental Protection  
Advisory Board

April 10, 2021



Electric Vehicle (EV): any vehicle powered by an electric motor and on-board battery that can be charged using an external electricity source

Battery electric vehicle – powered entirely using an electric battery and motor

- Range: 150-300 miles on one charge

Plug-in hybrid vehicle – has both a chargeable electric battery and a gasoline or diesel engine

- Range: 20-50 miles in electric mode, then switch to hybrid mode using engine

## Why EVs are a “hot topic” for municipalities & EACs

### Benefits

- Better air quality = better health
- Lower greenhouse gas emissions
- Energy security
- Potential for lower electricity rates and more balanced load on the electric grid
- Lower fuel costs and maintenance expenses compared to internal combustion engines

### Challenges

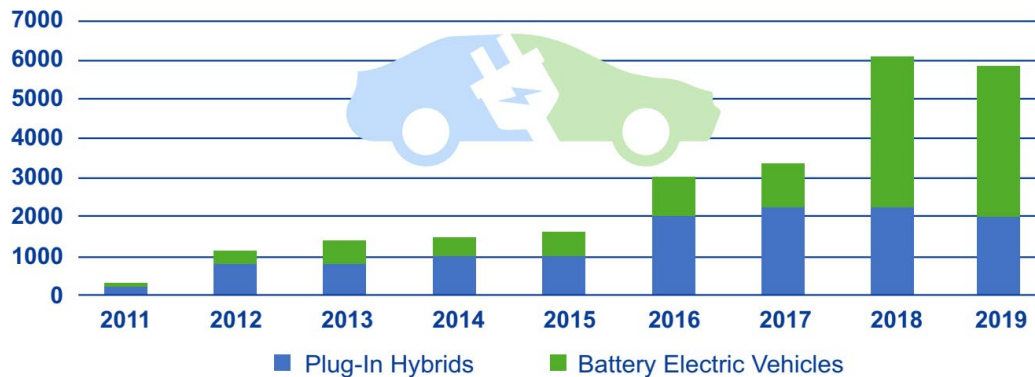
- Higher purchase costs
- Model availability
- Charging infrastructure

# EV Market Growing in Pennsylvania

More than 29,000 electric passenger vehicles were registered in Pennsylvania as of November 2020 – more than double the number in December 2017!

Pennsylvania Department of Environmental Protection, Pennsylvania Electric Vehicle Roadmap: 2021 Update

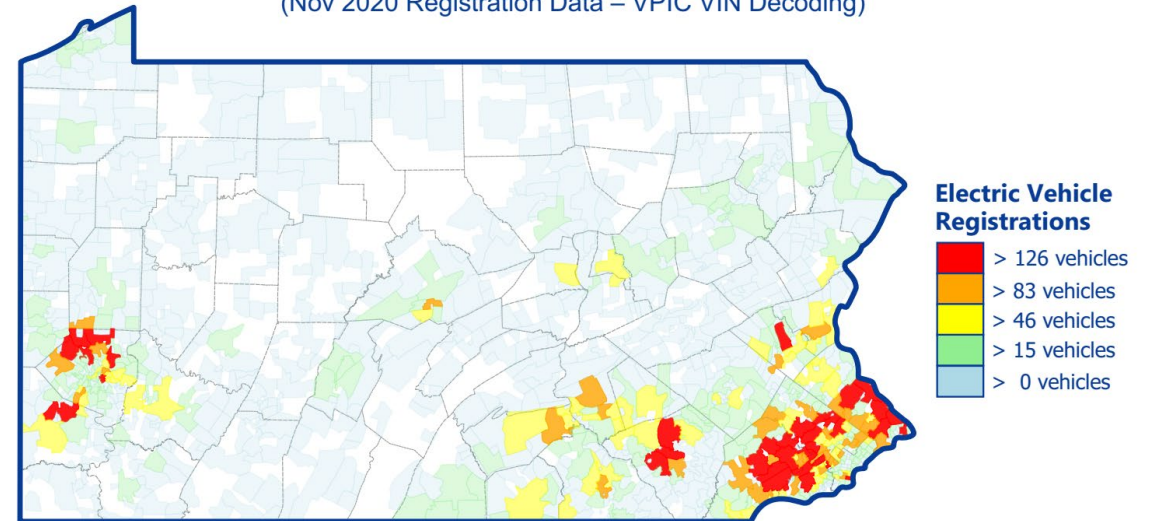
## Annual Electric Vehicle Sales in Pennsylvania



Source: Atlas EV Hub

## Pennsylvania Electric Registered Vehicles by Zip Code

(Nov 2020 Registration Data – VPIC VIN Decoding)



A large orange circle on the left side of the slide, partially cut off by the edge.

# Impacts and opportunities for municipalities

- Increased demand for EV chargers in the places we live, work, and play
- Potential cost savings for municipalities and their constituents
- Public support/demand for clean air and climate action



# How local governments can become EV-ready



# More things local governments can do

Plan	Use	Educate	Leverage
Prioritize EV adoption and development of charging infrastructure in land use planning and policies.	Use zoning, building codes, parking, and signage policy and a streamlined permitting process to encourage EV adoption and accessibility.	Mobilize existing communication channels to engage and educate local residents and businesses.	Leverage existing grant opportunities and other funding sources for EV readiness planning efforts.

## Resource #1: Drive Electric PA Coalition

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

## Pennsylvania Electric Vehicle Roadmap (2019) and 2021 Update



### Electric Charging Infrastructure in Pennsylvania

Charging Equipment Type	Level 2	DC Fast	Total
<b>Public plugs:</b> Available to all electric vehicle drivers	1,355	114	1,469
<b>Tesla plugs:</b> Available to Tesla drivers only	241	210	451
<b>TOTAL</b>	<b>1,596</b>	<b>324</b>	<b>1,920</b>

Source: Alternative Fuels Data Center, Electric Vehicle Charging Station Locations, 2020,  
[https://afdc.energy.gov/fuels/electricity\\_locations.html#/find/nearest?fuel=ELEC](https://afdc.energy.gov/fuels/electricity_locations.html#/find/nearest?fuel=ELEC)



### Sample of New Electric Vehicle Models Available in Pennsylvania in 2021

Vehicle Type	Battery Electric	Plug-In Hybrid
Compact and Subcompact Cars	Nissan Leaf (MSRP \$31,620; range 150 miles)	No models are currently available in Pennsylvania.
Mid-Size and Large Cars	Chevy Bolt (MSRP \$36,500; range 259 miles) Tesla Model 3 (MSRP \$37,990; range 250 miles)	Prius Prime (MSRP \$28,220; electric range 25 miles) Honda Clarity (MSRP \$33,400; electric range 48 miles)
SUV	Hyundai Kona EV (MSRP \$37,190; range 258 miles)	Mitsubishi Outlander PHEV (MSRP \$36,295; electric range 22 miles)
Van	No models are currently available.	Chrysler Pacifica PHEV (MSRP \$39,995; electric range 33 miles)
Pick-up	Several manufacturers have announced pick-up models to be released by 2022.	No models are currently available.



# Charging Options

Level 1 – All EVs can plug into a regular wall outlet

- 3-5 miles of driving range per hour of charging

Level 2 – Most common charging equipment for home, workplaces, businesses, public parking locations

- 10-25 miles of driving range per hour of charging

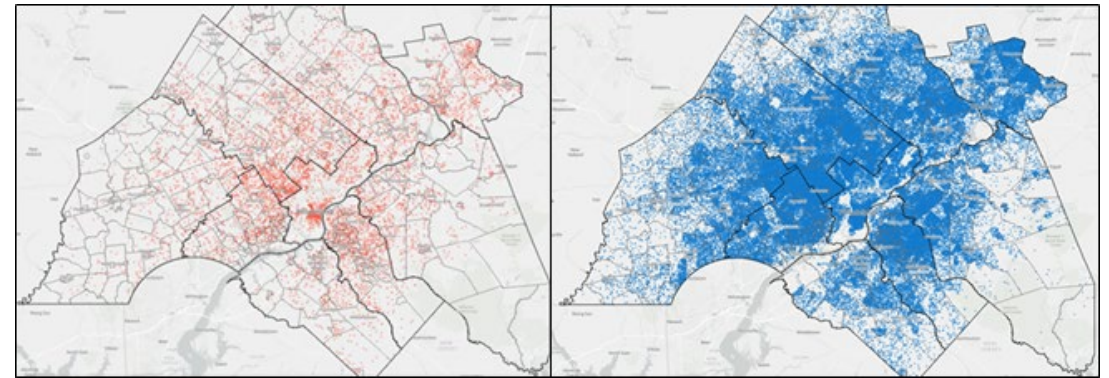
DC Fast Charging – Fastest form of charging, usually installed near highway interchanges, in areas with high EV adoption, and at businesses with heavy-duty EVs

- 100-250 miles of driving range in 30 minutes for a light-duty vehicle

## Resource #2: Delaware Valley Regional Planning Commission

<https://www.dvrpc.org/energyclimate/alternativefuelvehicles/evmuniresource>

- Electric Vehicle Resource Kit for Municipalities
  - Where Are EVs Now and Where Will They Be?
  - EVs 101 – Introduction to Electric Vehicles
  - Incorporating PEVs Into A Municipal Fleet
  - Determining the First Vehicle to Replace with a PEV
  - Selection and Placement of PEV Chargers
  - Resources to Purchase PEVs and Charging Equipment
  - Contacts For Assistance
  - Municipal PEV and Charging Equipment Case Studies



Resource #3: Southern California Edison

[https://download.newsroom.edison.com/create\\_memory\\_file/?f\\_id=5cc3803a2cfac24d1faf3094&content\\_verified=True](https://download.newsroom.edison.com/create_memory_file/?f_id=5cc3803a2cfac24d1faf3094&content_verified=True)

## EV-Ready Communities

### ACTION STEPS FOR LOCAL GOVERNMENTS

- #1 Prioritize EV adoption and development of charging infrastructure in land use planning and policies.
- #2 Use zoning, building codes, parking and signage policy and a streamlined permitting process to encourage EV adoption and accessibility.
- #3 Make use of well-attended, frequently used and municipally-owned property — parking lots, street parking, city buildings and offices, civic centers, libraries, schools — for publicly available EV parking and charging.
- #4 Electrify city or regional fleets by replacing gasoline-powered vehicles with EVs.
- #5 Mobilize existing communication channels to engage and educate local residents and businesses.
- #6 Leverage existing grant opportunities and other funding sources for EV readiness planning efforts.



## EV-READY COMMUNITIES

Paving the way for electric vehicles

February 2019

## Resource #4: Sierra Club

<https://www.sierraclub.org/sites/www.sierraclub.org/files/program/documents/EV%20Policy%20Toolkit.pdf>

AchiEVe: Model State & Local Policies to Accelerate Electric Vehicle Adoption: Policy Toolkit

### Table of Contents

#### 1. EXPANDING PERKS AND INCENTIVES

- Vehicle Rebates and Tax Credits
- Sales Tax Exemptions
- HOV Lane Access

#### 2. ELECTRIFYING VEHICLE FLEETS

- Government Fleet Mandates
- Transit Bus Fleet Upgrades
- Using VW Settlement Funds for ZEB Adoption

#### 3. EXPANDING CHARGING ACCESS

- EV-Ready Wiring Codes and Ordinances
- Multi-Unit Dwellings (MUDs)
- Streetlight and Power Pole Charging Access
- Right-of-way Charging
- EV-Utility Investments
- Best practices for installing EVSE
- Using VW Settlement Funds to Grow EV Charging Networks

#### 4. EVALUATING VEHICLE REGISTRATION FEES

- Resisting Anti-EV Registration Fees
- States with Waived or Reduced Vehicle Registration Fees for EV Drivers

#### 5. EXPANDING EQUITY AND ACCESS

- Rebates for low-income drivers
- Electric car-sharing programs
- Charging access for underserved communities

#### 6. PROMOTING CONSUMER EDUCATION & PROTECTION

- EV Proclamations & Driver Bill of Rights
- Ride and Drive Events
- Open Access and Interoperability
- Uniform Signage Requirements

#### 7. CONCLUSION

## Resource #5: Great Plains Institute

[https://www.betterenergy.org/wp-content/uploads/2019/06/GPI\\_EV\\_Ordinance\\_Summary\\_web.pdf](https://www.betterenergy.org/wp-content/uploads/2019/06/GPI_EV_Ordinance_Summary_web.pdf)

Summary of Best Practices in Electric Vehicle Ordinances (June 2019)

Typical Ordinance Includes	Language Example	
Specification:	City, State:	Text:
<p>Treats different types of EVSE as different land uses and may distinguish between where different types of charging stations are allowed.</p> <ul style="list-style-type: none"><li>Charging station types are typically distinguished as different "levels" contingent on charging speed (see "definitions" p11-12).</li><li>Most often, levels 1 &amp; 2 are allowed in all zones while level 3 stations are restricted to specific zoning districts.<ul style="list-style-type: none"><li>May provide a table to delineate use permitted zoning districts for each station type.</li></ul></li></ul>	Chelan, WA	"Level 1 and 2 electric vehicle charging stations are a permitted use in all zoning districts... Level 3 electric vehicle charging stations are a permitted use in the Warehouse and Industrial (WI), Highway Service Commercial (C-HS),..., zoning districts"
	Des Moines, IA	"Levels 1, 2, and 3 electric vehicle charging stations are allowed in all zoning designations."

## Resource #6: PA DEP Funding Programs

<https://www.dep.pa.gov/Citizens/GrantsLoansRebates/Pages/default.aspx>

- Alternative Fuel Vehicle Rebate (individuals)
- Alternative Fuel Incentive Grant – for clean energy vehicles and fueling infrastructure (school districts, municipal authorities, political subdivisions, incorporated nonprofit entities, corporations, LLCs or partnerships registered to do business in PA)
- Driving PA Forward – DC Fast Charging & Hydrogen Fueling Grant Program, Electric Cargo Handling Grant Program, Level 2 EV Charging Rebate, Marine and Rail Freight Movers Grant Program, Ocean Going Vessel Shorepower Grant Program, Onroad Rebate Program, Truck and Bus Fleet Grant Program
- FAST Act Corridor Infrastructure Grant – for clean energy fueling infrastructure along major interstate routes

**www.fueleconomy.gov**

the official U.S. government source for fuel economy information

Find a Car Save Money & Fuel Benefits My MPG Advanced Cars & Fuels Abt

## Federal Tax Credits for New All-Electric and Plug-in Hybrid \

### Federal Tax Credit Up To \$7,500!

All-electric and plug-in hybrid cars purchased new in or after 2010 may be eligible for a federal income tax credit of up to \$7,500. The credit amount will vary based on the capacity of the battery used to power the vehicle. [State](#) and/or local incentives may also apply.

Small neighborhood electric vehicles do not qualify for this credit, but they may qualify for another [credit](#).



### Filter table by...







#### Vehicle Type

- ☐ All-Electric **EV**
- ☐ Plug-in Hybrids **PHEV**
- ☒ All

OR

#### Manufacturer

All

Vehicle Make & Model		Vehicle Type	Full Credit	Phase Out	
				50%	25%
AMP Electric Vehicles			1/1/10 to Present	TBD	TBD
	2012 GCE Electric Vehicle	EV	\$7,500	-	-
	2012 MLE Electric Vehicle	EV	\$7,500	-	-
Audi			1/1/10 to Present	TBD	TBD
	2020-21 e-tron Sportback	EV	\$7,500	-	-
	2016-18 A3 e-tron	PHEV	\$4,502	-	-
	2019, 2021 e-tron SUV	EV	\$7,500	-	-
	2016 A3 e-tron ultra	PHEV	\$4,502	-	-

Resource #7: [www.fueleconomy.gov](https://www.fueleconomy.gov/feg/taxevb.shtml)  
<https://www.fueleconomy.gov/feg/taxevb.shtml>

## Federal Tax Credits for New All-Electric and Plug-in Hybrid Vehicles

# Resource #8: Clean Cities Coalitions

- Eastern Pennsylvania Alliance for Clean Transportation
  - <https://ep-act.org/>
- Pittsburgh Region Clean Cities
  - <http://pgh-cleancities.org/>

Knowledge and connections related to a range of alternative fuels and efficient transportation options, including EVs

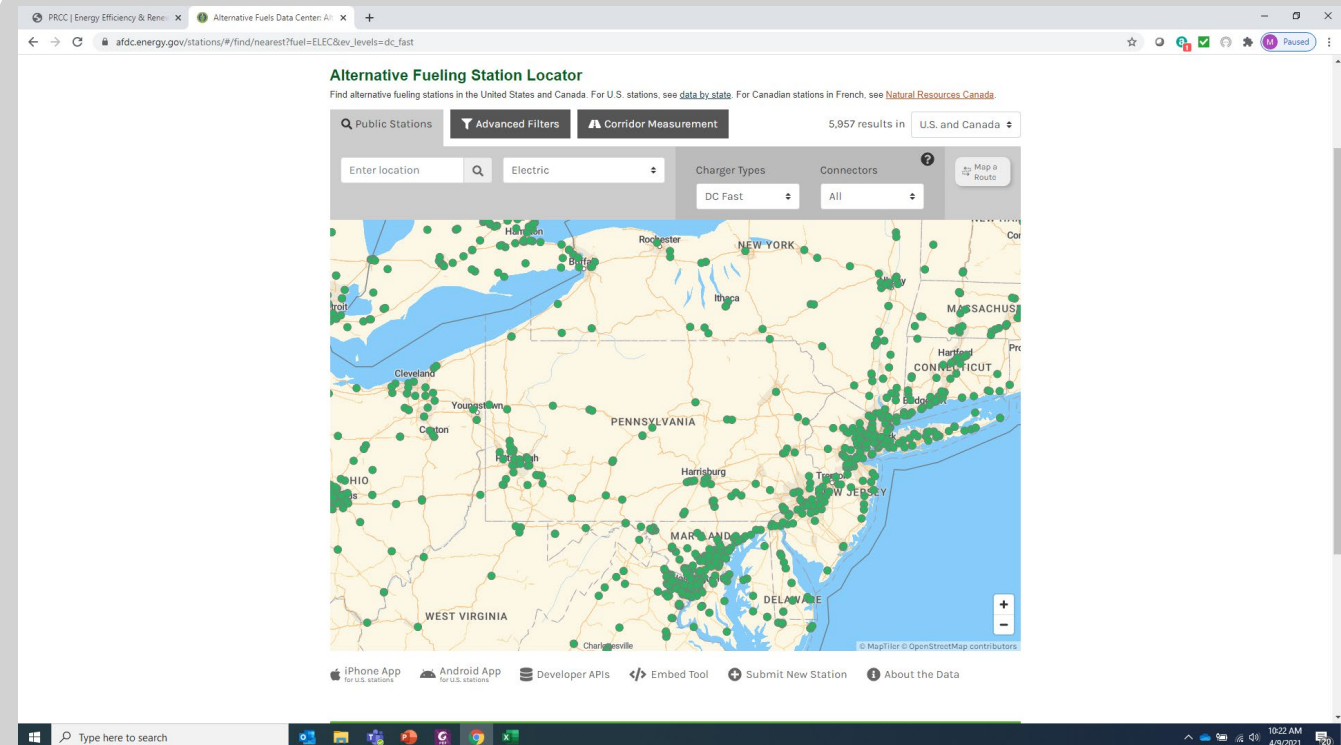




## Resource #9: Alternative Fuel Data Center

<https://afdc.energy.gov>

- Maps to locate EV charging stations
- U.S. vehicle registration data by vehicle type
- Electric drive cost calculator
- List of tax credits and incentives by state
- Vehicle availability
- Much more



# Questions?

*Melissa Laffen*

(301) 252-3809

mjlaffen@gmail.com