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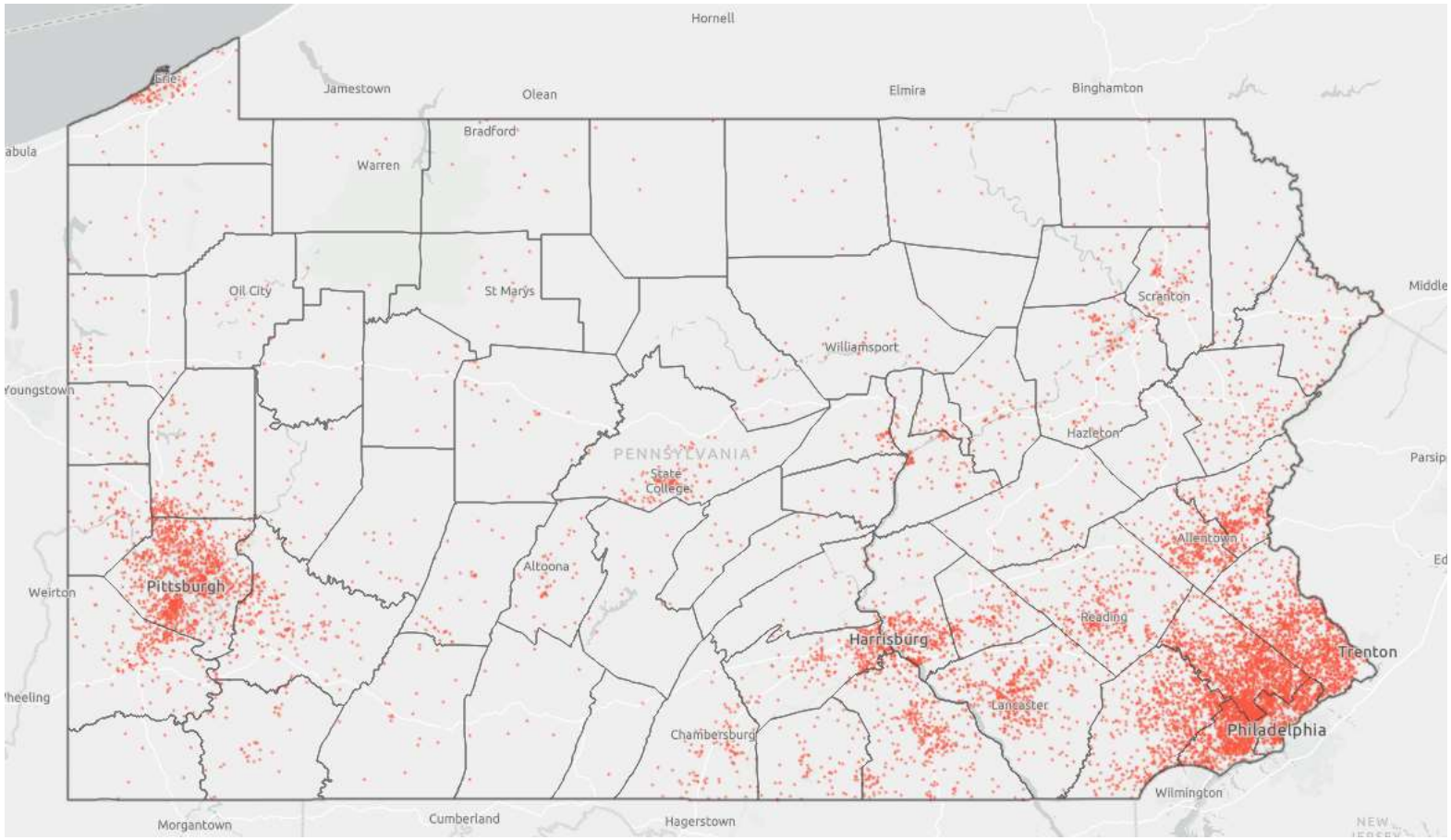
Clean Transportation Electrification Strategy

August 31, 2021

EVs in Pennsylvania

Registration Location as of December 2017

One Dot = One EV

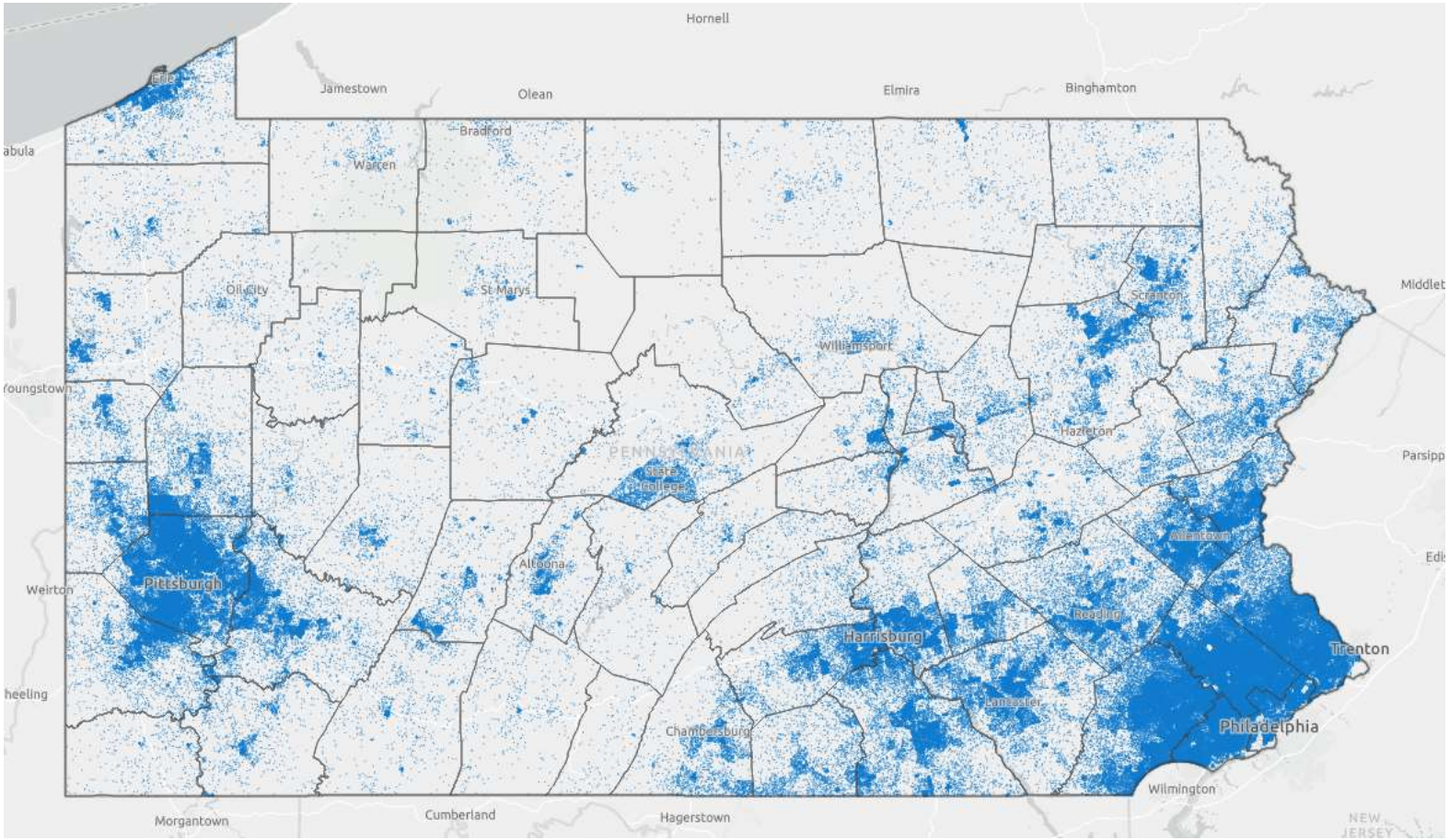


Source: DVRPC, 2020

EVs in Pennsylvania

Registration Location with 5% Uptake (~400,000 EVs)

One Dot = One EV

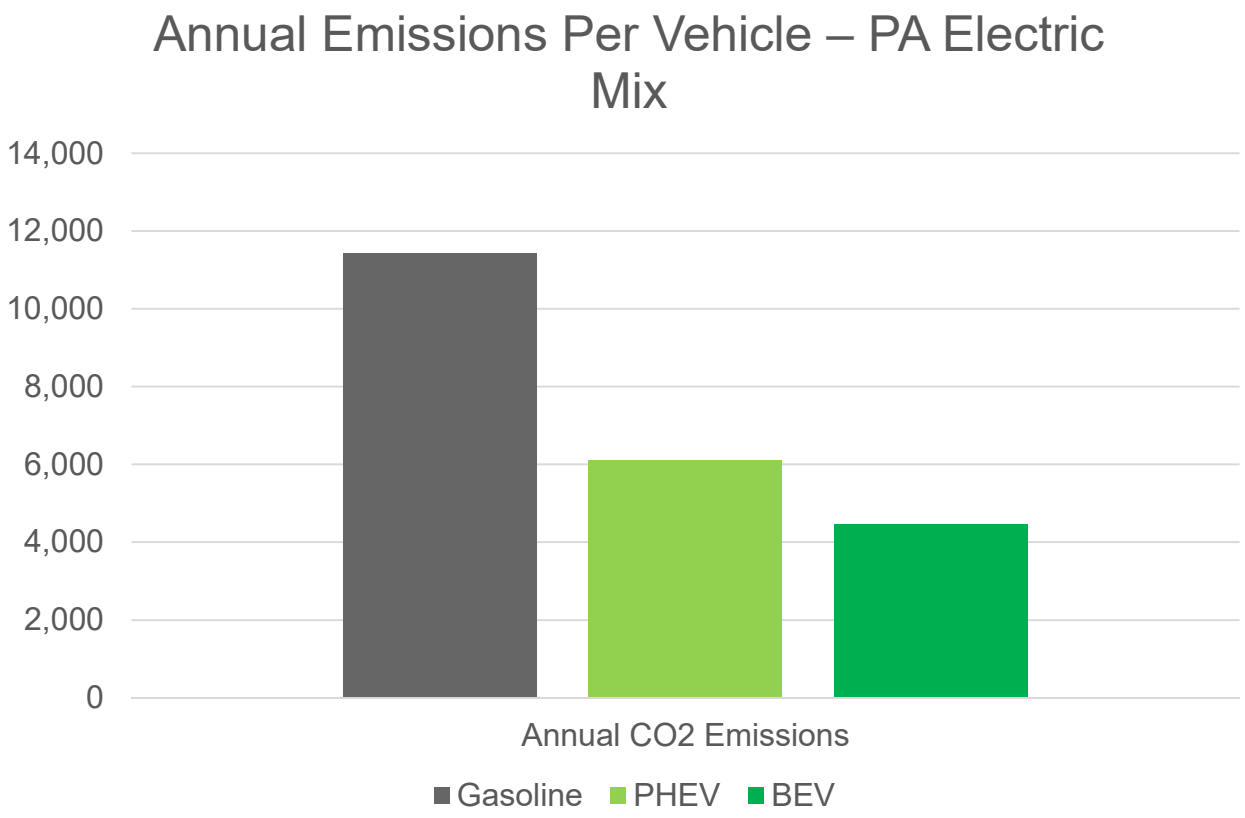


Source: DVRPC, 2020

What's Our Challenge?

- Get the right charging solutions…
- In the right locations…
- Charging vehicles and equipment at the right times…
- At the lowest capital and operating cost…
- To meet the most needs…
- Delivering the greatest environmental benefit…
- While growing our economy…
- In an accessible and equitable manner

Electrifying Transportation Benefits the Environment and PA's Economy



Source: U.S. Department of Energy Alternative Fuels Data Center, Emissions from Hybrid and Plug-In Electric Vehicles

- ✓ Net crude oil imports have fallen significantly but still represent more than 37% of U.S. consumption
- ✓ Of these imports, more than 34% (3.16 million barrels/day) come from OPEC countries
- ✓ In contrast, virtually 100% of U.S. electric supply is domestic, with PA the largest net exporter

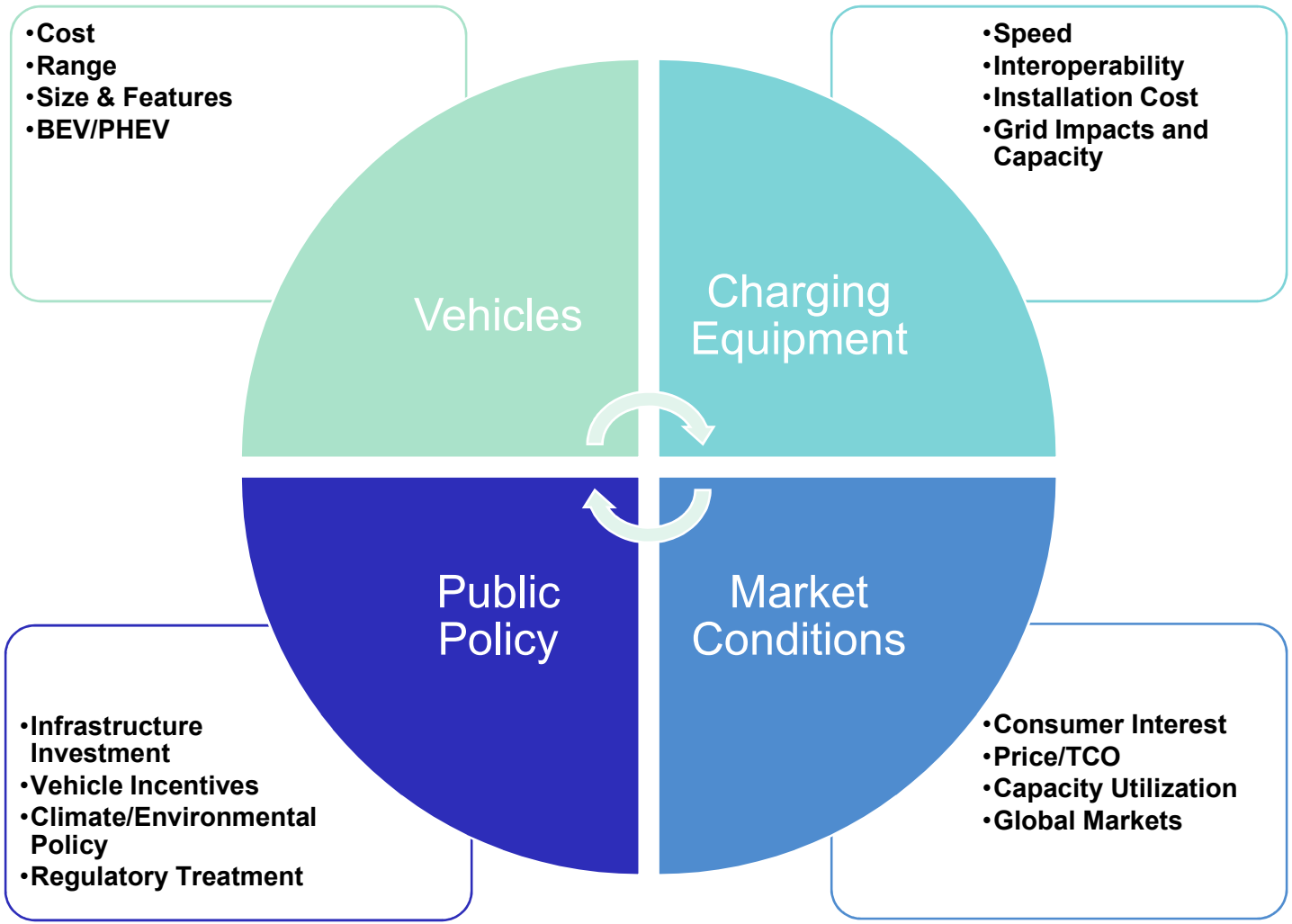
Source: U.S. EIA, How much Petroleum does the U.S. Import and Export

*5.6 million Pennsylvanians live in ozone nonattainment counties where emissions reductions through electrification would provide health benefits and help lift economic development limitations (EPA Green Book 6/18)

Electrification Goes Beyond Cars

- ✓ EV buses are cost-effective on a Total Cost of Ownership basis, but infrastructure costs are challenging
- ✓ Trucking and port electrification offer major environmental benefits, particularly Environmental Justice

Key Factors in Future EV Growth



The EV Wave May Have Arrived

How Does PECO Support Increased Electrification?

- ✓ Customer
  - Proactive Enabler for Complex Projects
  - Rebates and Incentives
  - Education and Promotion Events
  - Grant Support
- ✓ Projects
  - Fleet and Workplace Commitment
  - Technology Pilots
- ✓ Policies
  - Innovative Rates (DC FC Pilot Rate)
  - Legislative Framework

Transitioning the transportation sector to an electrified future requires proactive involvement by utilities to help address customer, project and policy challenges

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Why Do Policymakers Support Public Investments?

- ✓ Achieve public good where costs not internalized by markets
- ✓ Provide equitable access
- ✓ Support economic development
- ✓ Promote new technology development
- ✓ Ensure efficiency of systems

***EV infrastructure development lies well within historic reasons for supporting public investment**
***Overinvestment results in low utilization factors; underinvestment hinders consumer adoption**
***Who should make investments and who pays for these investments?**

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What a Regional EV Infrastructure Could Look Like

- ✓ Corridor and Downtown Fast Chargers (~15/30-minute charging capability)
- ✓ Custom Rates and/or Infrastructure Cost-Share for Public Purpose Investments (transit and school buses, airport, industrial equipment and fleets)
- ✓ Curbside, Workplace and Destination Charging Installation Assistance and "Smart" Charging Incentives (2/3-hour charging)
- ✓ Incentives for Smart Home Charging and Time-of-Use Rates to encourage efficient use of the grid

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Proposed Pennsylvania Solution (SB 435 - Sen. Mensch)

The Pennsylvania Clean Transportation Infrastructure Act will create a framework for building this infrastructure by combining the expertise of our transportation and public utility sectors. Under this proposal, Pennsylvania will:

- ✓ Establish a state goal of increasing electrification by 50 percent over currently forecasted levels by 2030;
- ✓ Require the development of regional electrification infrastructure frameworks for our metropolitan areas;
- ✓ Direct electric utilities to develop infrastructure implementation plans to support the development of these networks under PA PUC oversight; and
- ✓ Direct the Governor to submit recommendations to the Legislature and PUC on strategies to promote other clean transportation options, including CNG and hydrogen.

Charger Levels

Charging your EV requires plugging into a charger connected to the electric grid, also called electric vehicle supply equipment (EVSE). There are three major categories of chargers, based on the amount of power the charger can provide:

AC Level 1
Provides charging through a **120 V AC plug** and does not require installation of additional charging equipment. Level 1 can typically deliver two to five miles of range per hour of charging. Level 1 is most often used in **home applications** but is sometimes used at workplaces. A **full charge may take up to 24 hours** with level-1 120 V charging.

AC Level 2
Provides charging through a **240 V plug** and requires the installation of additional charging equipment by a qualified electrician/installer. Level-2 chargers **typically deliver 10 to 20 miles of range per hour of charging**. Level 2 is used in homes, workplaces and for some public charging. Level 2 charging systems provide slight energy efficiency benefits over level 1 chargers - savings estimates vary based on length of charge time.

DC Fast-Charge
Provides charging through **480 V** AC input and requires specialized, high-powered charging equipment and special equipment in the vehicle itself. **DC Fast-Charging can deliver an 80 percent battery charge or 60 to 100 miles of range for most EV models in about 20-30 minutes of charging.** This format is used in public charging stations, especially along heavy-traffic corridors. Plug-in hybrid electric vehicles typically do not have fast charging capabilities.

PECO Rebates

✓ *For all customers - Smart Driver Rebate* program

- $50 rebate per plug-in electric vehicle purchased
- *Vehicle rebate:* *pecorebateportal.com/electric-vehicles/smart-driver-rebate.html*

✓ *For Commercial Customers - Level 2 Charger Rebate*

- PECO customers that receive a PA DEP Level 2 EV Charging Rebate through Pennsylvania's Driving PA Forward Program can receive a $500 per charging station incentive from PECO, up to $1,500 per entity
- Level 2 charger rebate: www.peco.com/SiteCollectionDocuments/PECOL2EV.pdf
  - Application Steps (Information Required)
  - Approved PA DEP Level 2 EV Charging Rebate Voucher
  - Copy of PA DEP Level 2 EV Charging Rebate application
  - W-9
  - PECO form – Entity name, project location, payee, mailing address, contact name, contact phone number, Voucher amount and PA DEP application ID

Reference for Questions

- ✓ You can learn more about the **PA DEP Driving PA Forward** opportunities at: http://www.depgis.state.pa.us/DrivingPAForward/
- ✓ For specific questions about the **Driving PA Forward Level 2 or Level 3 EV charger programs**, contact Colton Brown at coltbrown@pa.gov
- ✓ You can learn more about the **Alternative Fuels Incentive Grant Program (AFIG)** at https://www.dep.pa.gov/Citizens/GrantsLoansRebates/Alternative-Fuels-Incentive-Grant/Pages/default.aspx
- ✓ For questions to PECO about the DEP programs contact Steve McGill, stephen.mcgill@exeloncorp.com
- ✓ For questions about the PECO rebates contact Clif Krausz, Clifton.Krausz@exeloncorp.com
- ✓ For EV and related questions, please visit the PECO EV Tool Kit at www.PECO.com/ev
- ✓ The Delaware Valley Regional Planning Commission (DVRPC) has several PEV resources on their website at www.dvrpc.org/EnergyClimate.