A review of national EV statistics and state-specific travel patterns and transportation electrification metrics
ABOUT
ATLAS PUBLIC POLICY

• DC-based policy tech firm started in 2015
• We equip businesses and policymakers to make strategic, informed decisions through the greater use of technology that aggregates publicly available information

Our Key Focus Areas

• **Access**: Collect and disseminate publicly available information.
• **Interpret**: Create technology to spur insights and conduct data-driven analyses.
• **Empower**: Strengthen policymakers, businesses, and non-profits’ ability to meet emerging challenges and identify and seize opportunities.
About the Atlas EV Hub

- The EV Hub gives stakeholders from across the EV industry quick access to key data and information on the market, policies and regulations, and activities by the EV community.
- A one-stop shop for businesses, policy professionals, and the advocacy community to learn more about what’s going on in the EV market.
- A comprehensive platform for the EV community: www.atlasevhub.com

Free access for public agencies and Clean Cities Coordinators!
DATA SOURCES

• All national data is collected by Atlas
• State-specific metrics are either statewide or from 2 urban regions in Pennsylvania (Core Based Statistical Area):
  • Philadelphia (Philadelphia-Camden-Wilmington, PA-NJ-DE-MD)
  • Pittsburgh (Pittsburgh, PA)
• Caveats
  • National Household Travel Survey (NHTS) data is a survey (not population-level data)

Data Sources by Category

National Figures
  • Atlas EV Hub Dashboards

State Emissions
  • U.S. EPA/EIA
  • Union of Concerned Scientists

State Travel Behavior
  • Federal Highway Administration
  • 2017 National Household Travel Survey (NHTS)

State Mass Transit
  • National Transit Database
NATIONAL OVERVIEW

Review of EV sales, government funding, and market developments
NATIONAL EV SALES DOWN 29% JAN-JUNE 2020 COMPARED TO 2019

- The auto market overall saw a 24% decline in the first half of 2020 due to COVID-19
- U.S. passenger EV sales total 1.6 million through August 2020
- EV market holding steady around 2% of all light-duty vehicle sales and > 5% of passenger car sales
- Tesla accounts for 60% of sales since 2018
- EV market down 25% through August compared to 2019
Investors remain bullish on EVs despite recent sales dip due to COVID-19

- $437 billion in global investment
  - $70 billion destined for U.S.
- $14 billion in new investment between July and October
- GM leads new investment push with $2 billion commitment in October

$14 BILLION IN NEW PRIVATE INVESTMENT ANNOUNCED BETWEEN JULY AND OCTOBER
Government programs have provided more than $1.25 billion for electric trucks and buses through September 2020.

Almost 60% going to electric transit buses.

Electric trucks and school buses each claim roughly 20%.

19% of funding awarded through the VW Settlement.

- Transit Bus: $712,960,789 (59%)
- School Bus: $228,134,436 (19%)
- Freight Trucks: $120,532,598 (10%)
- Delivery Trucks: $100,054,575 (8%)
- Other Trucks: $48,269,635 (4%)
- Total: $1,251,910,595
More than 14 new EVs introduced since July 2019
Luxury brands like BMW, Volvo and Porsche claim the most EV models
Ford, GM, and Fiat-Chrysler only claim 5 out of 52 EVs across all brands
MORE THAN 30 NEW MODELS EXPECTED IN 2021

- Some new EVs have been delayed by COVID-19
- Rivian and Tesla electric pickups expected in second half of 2021
- Volkswagen ID4 crossover in production in Europe, will be made in U.S. in 2022
More than 18,400 fast charging ports

More competition for market-leader Tesla

Electrify America nationwide network reaches coast to coast

ChargePoint entered the stock market through a reverse merger

*Estimated based on dates stations added to AFDC Station Locator

Source: Atlas EV Hub (www.atlasevhub.com)
Bloomberg New Energy Finance (BNEF) projects EVs to reach 60% of new passenger vehicles sales in the U.S. by 2040.

• EVs only expected to account for 4% of new vehicles sales in 2023
• Electric buses and trucks to make up 64% and 15% of global fleets by 2040

Source: BNEF
PENNSYLVANIA OVERVIEW

Analysis of emissions and EV deployment and funding
90% of VW Settlement Funds Unspent

Statewide EV Rebate Program Available

Signed ZEV Truck and Bus MOU in July 2020
EV Sales (through August 2020)
- State Total: 27,800 (13th in nation)
- Change 2019-2020 (Jan - August): -25%
- EVs per 1k People: 2.2 (26th in nation)
- Models Offered: 44 out of 52

EV Charging Deployment
- State Level 2 Total: 1,543 ports
- State DCFC Total: 323 ports (18th in nation)
- DCFC per 1k people: 0.03 (43rd in nation)

Approved Utility Investment
- State Approved Total: $2.5 million
- Pending Investment: $0 million

Government Funding for EVs
- State Total since 2016: $14 million
- % of Total Awarded in 2020: 30%
Pennsylvania ranks 5th of 50 states in total CO$_2$ emissions and 26th in energy consumption for all sectors per capita.

Light-duty vehicles account for 50% of the state’s mobile emissions of criteria air pollutants.

Sources: EIA State Carbon Dioxide Emissions Data, EIA State Profiles
Urban areas in the eastern part of the state fall in the RFCE grid region. Driving an EV charged in the RFCE region produces emissions comparable to a 87-mpg vehicle. This puts the eastern part of the state near the national average of 88 mpg. The grid is mixed in the western part of the state where driving an EV is equivalent to a gas vehicle with 56-mpg.

Source: Union of Concerned Scientists
• 28k EVs sold in Pennsylvania through August 2020
  • 13th out of 50 states
• 2.2 EVs per 1,000 people
  • 26th out of 50 states
• Sales down 25% between January and August compared to 2019
• Most Popular EVs since 2019:
  • Tesla Model 3 (4,056)
  • Ford Fusion Energi (783)
  • Tesla Model Y (595)

*Note: Q3 in the chart only shows July and August data*
$14M awarded for EVs and EV charging in Pennsylvania through September 2020

$2.6M from VW Settlement

EVs account for 29% of awards made through VW Settlement

92% of state's VW Settlement allocation unspent

State signed onto ZEV Truck and Bus MOU

Grants for MD/HD EVs Open

Transit Bus
$11,901,875
85%

Charging Station
$2,131,226
15%

EV Awards
Transportation electrification efforts in Pennsylvania are organized under Drive Electric Pennsylvania Coalition.

- Coalition developed Pennsylvania Electric Vehicle Roadmap in 2019 establishing clear goals for EV & charging deployment.

- State offers a $750 rebate for EVs.

- State is member of regional Transportation and Climate Initiative (TCI) seeking to accelerate EV market in Northeast.

- Pennsylvania among 15 states to sign ZEV Truck and Bus MOU in July 2020 setting targets for 100% ZEV Bus and Truck sales by 2050.
A review of vehicle miles traveled (VMT) statewide and travel choices in two primary metro regions using data from 2017 National Household Travel Survey
**PASSENGER VEHICLES ACCOUNT FOR 72% OF VMT IN PENNSYLVANIA**

- Trucks, including light-duty, account for 27% of VMT in state
- Drivers in Pennsylvania’s largest metro regions reported average 9,590 annual VMT
  - Lower than average of 11,620 annual VMT across 52 most populous U.S. metros*

* Combined Statistical Areas with a population of more than 1 million

In urban Pennsylvania, personal vehicles made up 88% of reported annual VMT.

- Average across 52 major U.S. metro areas* was 90%.
- Urban drivers in Pennsylvania drive fewer pickups compared to average across major 52 U.S. metro areas.

* Combined Statistical Areas with a population of more than 1 million

Source: https://nhts.ornl.gov/
Trains are 2\textsuperscript{nd} most popular travel mode after passenger vehicles in urban Pennsylvania.

Train travel in Pennsylvania is almost 50\% above national average.

Bus travel in Pennsylvania is also above national average.

**PENNSYLVANIA METRO ABOVE NATIONAL AVERAGE PUBLIC TRANSIT VMT**

- Trains are 2\textsuperscript{nd} most popular travel mode after passenger vehicles in urban Pennsylvania.
- Train travel in Pennsylvania is almost 50\% above national average.
- Bus travel in Pennsylvania is also above national average.
PUBLIC TRANSIT USE

A review of transit patterns in major urban areas using data from National Transit Database
Philadelphia sees significant per-person usage of heavy, light, and streetcar rail services.

People in Pittsburgh travel more miles per person on buses compared to Philadelphia.

Source: https://www.transit.dot.gov/ntd/transit-agency-profiles
ELECTRIC TRANSIT BUSES ADDED SINCE 2018

- Transit agencies awarded $7.6 million for electric transit bus procurement since 2018
- Neither Philadelphia nor Pittsburgh reported passenger miles on battery electric transit in 2019 or 2020
- Philadelphia reported adding 25 electric buses to their fleet in mid-2019
- Diesel buses dominate Pittsburgh’s fleet
- Both cities operate significant electric propulsion transit services via heavy and light rail trains as well as trolley buses

### PHILADELPHIA HAS THE MOST ELECTRIC BUSES

- Diesel hybrid buses account for most of Philadelphia’s fleet
- Biodiesel transit buses make up 40% of the total vehicle fleet in Pittsburgh
- Philadelphia has acquired 25 battery electric buses since 2018 and operates a significant trolley bus fleet also

| Source: [https://www.apta.com/research-technical-resources/transit-statistics/vehicle-database](https://www.apta.com/research-technical-resources/transit-statistics/vehicle-database) |  
|---|---|
| **Philadelphia (2020)** | **Pittsburgh (2019)** |
| Electric Propulsion | 38 | 0 |
| Diesel Hybrid | 1,269 | 26 |
| Battery Electric | 25 | 2 |
| Bio Diesel | 0 | 326 |
| Diesel | 339 | 451 |