EV Planning Toolkit

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The Delaware Valley Regional Planning Commission (DVRPC)

- Metropolitan Planning Organization (MPO) for the Philadelphia region, created in 1965
- Bi-state (PA/NJ), nine counties
- Board made up of representatives of the counties, major cities, key state agencies, Governors’ representatives
- Staff of over 120
Drive Electric Pennsylvania

Ready to Roll?
Overview of Challenges and Opportunities for Alternative Fuel Vehicles in the Delaware Valley

Percentage of PEVs in Philadelphia

City of Philadelphia
Electric Vehicle Policy Task Force
Policy Recommendations
March 8, 2018

Percentage PEV by Block Group
- 0.00 percent
- 0.13 percent
- 0.20 percent
- 0.31 percent
- 1.40 percent

Source: PensDOT Registrations, October 2017
EV Planning Questions

• How do we address tomorrow’s – not yesterday’s – needs?

• How do we:
  ▪ Know how much paid charging we need?
  ▪ Know enough geographic detail of demand for wise electric distribution systems planning?
  ▪ Make sure we install the right kind of EV charging infrastructure in the right places?
  ▪ Provide infrastructure that people want to be there, but that they are likely to use only very rarely?
Many Questions

- Where will PEV owners live?
- Where will PEVs be charged?
- What is the expected demand for public and workplace charging?
- How does pricing charging to recover costs affect demand for public and workplace charging?
- What strategies are most effective to provide for charging?
- How do larger batteries and increased range affect behavior?
Source: UC Davis, 2017
Market Forecast

Workplace Charging

EV Planning Toolkit

ArcGIS Interface Allows User to Test Scenarios

Fast Charging - Estimates Take into Account Existing Chargers

Source: UC Davis, 2017
Tool Results

• Three geographies
  ▪ DVRPC Region
  ▪ Commonwealth of Pennsylvania
  ▪ State of New Jersey

• All results are available in an online, interactive map hosted on DVRPC’s website.
  ▪ https://tinyurl.com/DVRPC-EV-Toolkit
  ▪ The data underlying the maps are also available for download at DVRPC’s GIS Portal.
Planning for Electric Vehicles

Mapping Vehicle Distribution and Workplace Charging Demand

DVRPC in collaboration with the PH&EV Research Center at UC Davis | July 24, 2020
Planning for Electric Vehicles

**Map Legend**

**kWh of Workplace Charging Demand per Square Mile**
Scales apply to all three charging scenarios: Free workplace charging, workplace charging costs the same as home charging, workplace charging costs twice as much as home charging.

0 334,713

**Number of Workplace Charging Events per Job**
Scales apply to all three charging scenarios: Free workplace charging, workplace charging costs the same as home charging, workplace charging costs twice as much as home charging.
Fast Charging Analysis Tool

- Evaluates demand for DC fast charging based on travel patterns and demand at existing and proposed sites
- Data inputs
  - Results of Market Tool
  - Long trip data
- Potential opportunity with INRIX data
Next Steps

• Update data to gauge progress
• Use to support partners and stakeholders
  ▪ State governments
  ▪ Regional planners
  ▪ EDCs
  ▪ Local governments
  ▪ Businesses
  ▪ Developers
  ▪ EV charging companies
• Calibrate Fast Charging Tool for east coast
• Integrate into on-line EV resource kit
Thank you!

Questions/Comments/Discussion

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