



An Exelon Company

GPAEE Meeting

Utility Electrification

Feb 20, 2019



Utility Impacts and Opportunities

System Impact

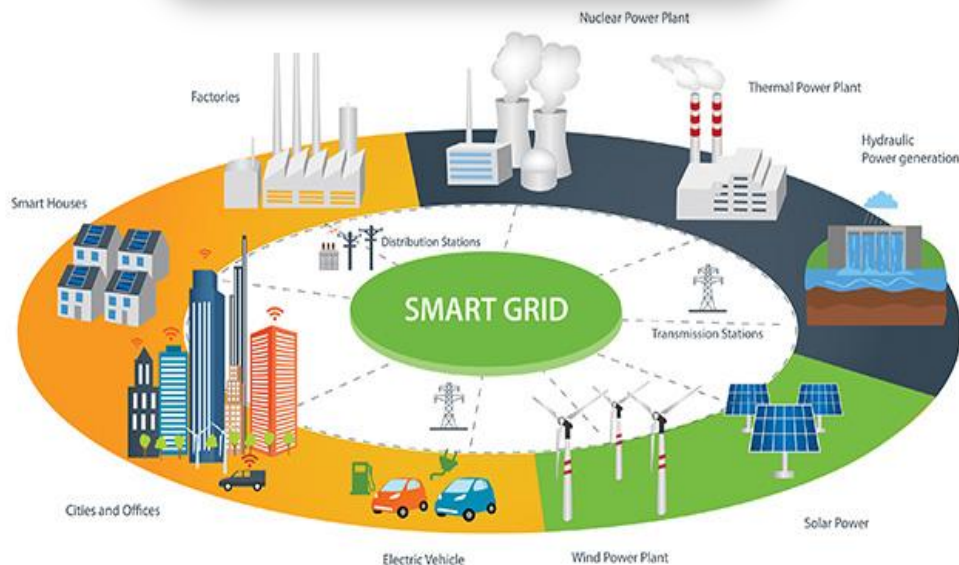
- Load
- Load Profiles
- Circuit Capacity

Future Grid Operation

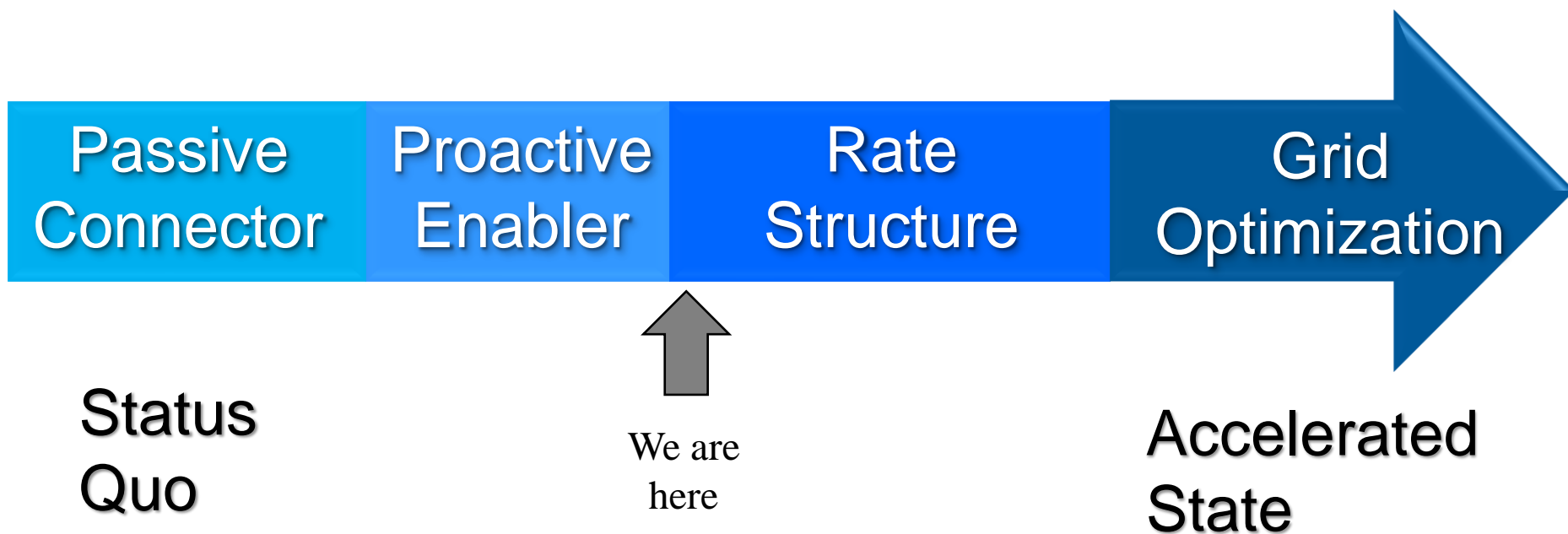
- Managing Grid Assets

Economic Development

- Load growth
- Smart Communities
- Positive Environmental Impact



Spectrum of Utility Involvement






The more broadly electrification use cases provide a public benefit, the more appropriate to consider an expanded utility role

Driving PA Forward

Open Driving PA Forward Programs

- Level 2 EV charger rebates - \$3M phase 1
- Level 3 EV charger / hydrogen fuel station - \$3M phase 1
- Class 8 freight and transit buses (pre-2009), incentive - \$6.4M phase 1
- Class 4-7 trucks & class 4-8 school & shuttle buses - \$12M phase 1

KNOW YOUR EV CHARGING STATIONS		
 <p>AC Level One</p>	 <p>AC Level Two</p>	 <p>DC Fast Charge</p>
<p>VOLTAGE 120v 1-Phase AC</p>	<p>VOLTAGE 208V or 240V 1-Phase AC</p>	<p>VOLTAGE 208V or 480V 3-Phase AC</p>
<p>AMPS 12–16 Amps</p>	<p>AMPS 12–80 Amps (Typ. 32 Amps)</p>	<p>AMPS <125 Amps (Typ. 60 Amps)</p>
<p>CHARGING LOADS 1.4 to 1.9 kW</p>	<p>CHARGING LOADS 2.5 to 19.2 kW (Typ. 7 kW)</p>	<p>CHARGING LOADS <90 kW (Typ. 50 kW)</p>
<p>CHARGE TIME FOR VEHICLE 3–5 Miles of Range Per Hour</p>	<p>CHARGE TIME FOR VEHICLE 10–20 Miles of Range Per Hour</p>	<p>CHARGE TIME FOR VEHICLE 80% Charge in 20–30 Minutes</p>

PECO and EVs

Initiatives & Proactive Approach

- Customer, manufacturers and vendors outreach
 - Transportation electrification forum
- Website provide consumer information
- Offer upfront technical assistance to potential applicants to analyze their infrastructure needs and interconnection options

Special Offer



**\$3,500 Nissan Leaf
Rebate!**

[Click here for details!](#)



**\$500 PECO Level 2
EV Commercial
Charger Rebate!**



[Click here for details!](#)

PECO & SEPTA Case Study

SEPTA Fleet Electrification

High Level Estimates

- ~75MW total load increase
- Depot loading range 1.5 – 15.5 MW
- Total ~\$30MM (\$400K/MW or \$400/kW)

Key Assumptions

- Combining 50kW and 150kW charging stations
- Majority peak loading overnight 11PM – 4AM
- Infrastructure analysis at 8 bus depots and 2 maintenance facilities



Learnings Around Scaling EV

Sustainable Practices

- \$400/kW is significant
 - Consider cost/rate structure options
 - Proactive enabling works
 - (Low-No awards SEPTA \$1.5M)
- Combination of options
 - Multiple charging locations
 - Charger levels
 - Considering in-route charging options
- Thinking differently
 - Driving new sustainable practices

High-Level Issues

Policy Questions to be Considered in PA

- Should public policy proactively support electrification? If so, through what tools?
- What types of electrification investments are appropriate for policy support?
- What is the role of utilities and regulators?
- How do we encourage integration of electric grid and transportation planning?
- What pricing and technology options can maximize the value of EVs to the grid?
- How do customer-supported investments in transportation electrification relate to PUC oversight of electricity sales?
- How do you plan for such a fast-evolving market?

Available Resources

- <https://www.peco.com/SmartEnergy/InnovationTechnology/Pages/ElectricVehiclesL3.aspx>
- smartideasbiz@peco-energy.com
 - PA DEP Driving Forward application
 - Approved voucher
 - W-9 Form
 - Completed and signed PECO application
- <http://www.depgis.state.pa.us/drivingpaforward/>
- [Level 2 Program Guidelines](#)
 - [Application Instructions](#)
- [Level 3 Program Guidelines](#)
- [Application Instructions](#)