

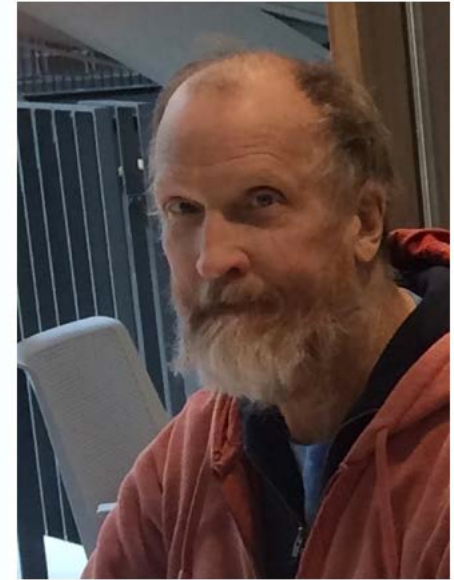
Solar-Energized Electric Vehicle Charging at Work

V2G Energy, LLC, Presentation
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November 19, 2020

Outline

- V2G Energy, LLC, who we are
- The Urban Electric Vehicle charging opportunity
- Characteristics of Electric Vehicles
- EV charging with Solar Energy
- Our project at the Navy Yard

The Team



Company Background

- Mission: V2G Energy aims to resolve unmet needs in the **Urban Electric Vehicle Charging** market
 - Philadelphia-based
 - We have had public chargers in operation for two years at the Navy Yard
 - We have chargers in multifamily residential locations
 - We are starting a major workplace charging program
 - We are a technology company with 3 patents and 4 patent applications

Multifamily Residential



Another Philadelphia Site



Unmet Need

- Urban Electric Vehicle (EV) owners have no good recharging options and no incentive to go electric.
 - They generally do not have their own overnight parking with access to electricity
 - Public charging facilities are inconvenient and expensive
 - Even DC fast charge is not as fast as a gas station
 - And rough on the battery
- V2G Energy, LLC, is addressing this need

Local Market Size

- Currently modest-- 7,990 EV registrations in Pennsylvania, about half in the Philadelphia area
 - Per (AFDCEnergy.gov) August, 2020
- Delaware Valley Regional Planning Commission forecast of Philadelphia Electric Vehicle registrations
 - When PA reaches 5% of registrations as EVs (400,000)--- 2025
 - 26,700 EVs will be registered in Philadelphia
- Healthy growth and size

Characteristics of Electric Vehicles Favoring Workplace Charging

- Electric vehicle batteries are getting bigger as they get cheaper
 - Typical 40-80 kWh (150- 300 mile range)
 - Workplace charging can provide nearly all of their energy needs except for long trips
- Electric vehicles provide a controllable load
 - They are flexible as to when they are charged
 - Their charging can be aggregated and controlled remotely

Compatibility with Solar Energy

- The typical working day is 8-5 when the sun is shining
- EVs can be charged at any time during the day at any rate
 - The EV battery acts as storage
 - Offsets the variability of solar energy
- Solar can provide the energy needed
 - 10'x20' canopy = 3600 Watts
 - In Philadelphia generates 4250 kWh/year
 - 15,000-18,000 miles of driving

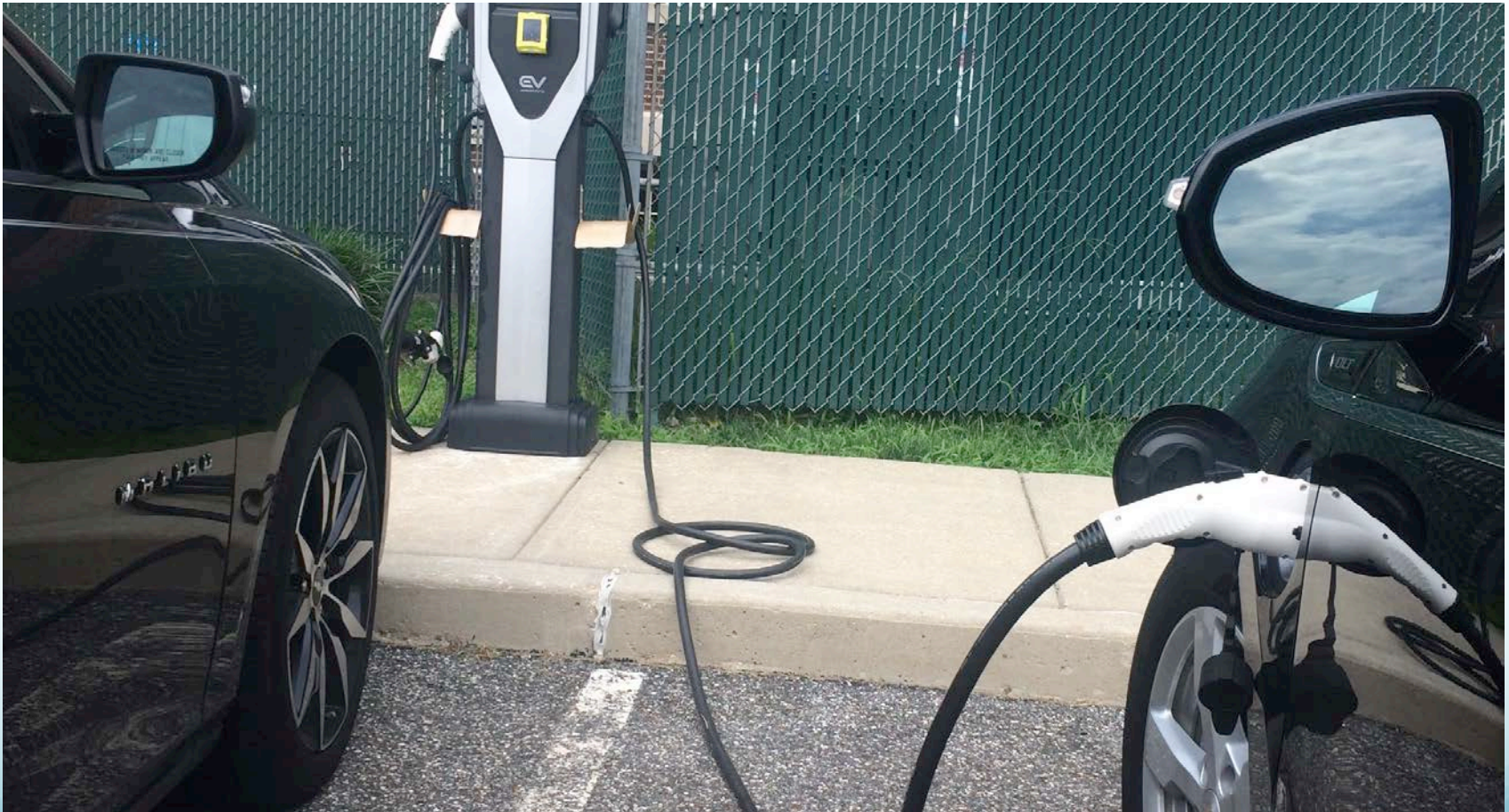
Prospects

- We are starting a New Alternative Fuels Incentive Grant program
- Supported by the PA DEP
 - Contract support for software development
 - Construction of five solar canopies with EV chargers installed in and near the Navy Yard
- Cost shared
 - We need investors
 - We need participants
 - We offer opportunity

Value Proposition

- Solar PV in parking lots is marginally economic
- AFIG subsidy makes it solidly economic
- EV energy costs $\frac{1}{4}$ as much as gasoline per mile
- Enables an attractive offer to drivers
 - Protected parking
 - Convenient energy supply
 - Acceptable pricing
- Attractive opportunity for employers
 - Return doubled when fully occupied

Our Original Workplace Charger



Solar-Energized Workplace Charging Canopy Concept



Technical Advances Needed

- Optimum use of solar energy, particularly:
 - In winter time--too little
 - In summer time--too much
 - Daily peak and interruptions
- Load leveling and demand charges
 - Optimize the profile of the new load
- Driver satisfaction
 - Pricing
 - Service
 - Reliability



Our initial Territory, The Philadelphia Navy Yard

Opportunities

- Profitable early adopter installations
- Participation in a frontier technology development
- Development of new modes of electric utility interactions
 - Ancillary services
 - Load leveling
- Ultimately will amount to a massive storage capability
 - The energy stored in the 300 million strong light duty fleet as EVs could provide the entire US electric demand for 30 hours

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