



Electric Vehicle Perspectives

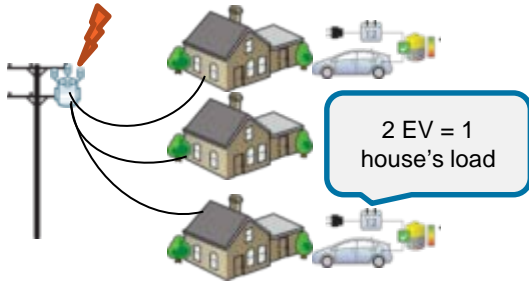


NGA Maryland Grid Modernization Retreat

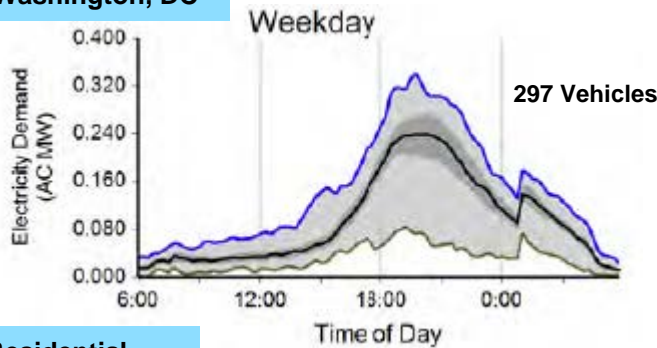
Presented by Robert Stewart

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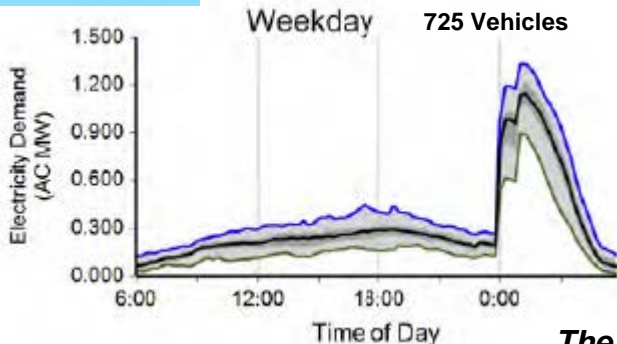
Unmanaged EV charging can create reliability problems for utilities.....



Residential Washington, DC¹



Residential San Diego, CA¹



Local Distribution System Impact

- EV load is equivalent to 1/2 of full home load, so adding EVs may overload local transformers
- Older, more established neighborhoods with higher concentrations of EVs will be particularly at risk (e.g., Montgomery County and Prince Georges's County Suburbs)

Local Peak Load Increase

- Most drivers will return home and plug in between 4-8 PM, resulting in an increase to the normal afternoon peak
- Uncontrolled charging will create the need for additional Infrastructure and result in longer and higher peak demand
- Potential for Impact to Distribution System reliability

Operational Needs

- Metering EVSE as separate load for Innovative Rates
- Back-office integration of EVSE for control, billing
- Remote diagnostics for lower maintenance costs
- Ability to manage charging in pockets to prevent stress on the Distribution System
- Need to validate the accuracy of on-board metering in EVSE in order to eliminate the need for a second AMI meter

The EV Project Report, Q1 2013, US DOE¹

Utilities' Essential Role in the EV Revolution

Utilities are uniquely positioned to keep States on the forefront of this EV revolution

Manage charging load

on the grid to ensure power reliability and stability

Enhance Charging Infrastructure

to help increase access to electricity as a transportation fuel



Develop Innovative Rate Options

to maximize fuel savings for customers

Educate Customers

about EVs, options and benefits

Potential Program & Rate Offerings

Residential



Homes

1. Rebates for Residential Smart Chargers.
2. Installation of Smart Level 2 chargers, with option for 100% renewable adder and plug-in vehicle rate
3. Whole House Time of Use rate for unlimited qualified residential customers
4. Off-Bill Off-Peak Credit

Commercial



Multi-Dwelling Units

4. Installation of Level 2 chargers for condominium and/or apartment buildings with dedicated parking

Public



Public Places

5. Installation of Direct Current fast chargers in service territory for public use.
6. Installation of Level 2 chargers in service territory for public use

PHI Maryland EVSmart Programs

Program Component	Delmarva	Pepco
Residential rebates	250	750
Residential discount incentives	37	100
MDU/Commercial discount incentives	50	200
Commercial demand charge credit	unlimited	unlimited
Public chargers – utility owned	100	250
Whole House Time of Use rate	unlimited	unlimited

PHI Electric Vehicle Pilot Success Story

MD Formal Case 9261

1-1/2-year working Group

Develop Demand Response Capabilities for
Electric Vehicle Chargers

Looked at: Pricing, Demand Response, Customer
Education Smart Technology, Baseline
Information

Recently approved
EV programs in
Pepco DC
PHI MD
Delmarva DE

Questions



For Additional Information

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