Electric Vehicle Perspectives

NGA Maryland Grid Modernization Retreat
Presented by Robert Stewart
November 7, 2019
Unmanaged EV charging can create reliability problems for utilities.....

**Local Distribution System Impact**
- EV load is equivalent to ½ 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 Geor...)

**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 DOE*
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

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

<table>
<thead>
<tr>
<th>Program Component</th>
<th>Delmarva</th>
<th>Pepco</th>
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<tbody>
<tr>
<td>Residential rebates</td>
<td>250</td>
<td>750</td>
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<tr>
<td>Residential discount incentives</td>
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<td>100</td>
</tr>
<tr>
<td>MDU/Commercial discount incentives</td>
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<td>200</td>
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<tr>
<td>Commercial demand charge credit</td>
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</tr>
<tr>
<td>Public chargers – utility owned</td>
<td>100</td>
<td>250</td>
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<tr>
<td>Whole House Time of Use rate</td>
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<td>unlimited</td>
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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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