Panel 5: Utility Roles in Providing EVSE & Infrastructure Ownership Models

Niagara Mohawk Power Corporation dba National Grid Technical Conference in Case 18-E-0138
July 18-19, 2018
We are serious about customer-driven climate solutions

- **Achieving our states’ 2030 GHG targets** implies light-duty vehicle (LDV) adoption of about 50% by 2030, far exceeding forecasts.

- This **effectively requires 100% EV sales of LDV by 2028**.

- Market transformation of this scale and speed requires rapid establishment of charging ports across a range of charging segments/locations.
We want to enable, develop & operate the charging required to reach our share of NY’s transportation climate targets

- There are currently 519 L2 ports and 59 DCFC ports in our territory. National Grid operates 24% of the Level 2 ports (see next slide).
- JU conceptual scenario shown below suggests ~28,000 Level 2 ports and ~500 DCFC could be needed by 2025 in our major population centers.
- We need many types of solutions to bridge this gap, working together with customers, market participants, and stakeholders.

Source: JU presentation EVI Pro Lite Scenario Results for NYS and Urban Areas for 850,000 EVs
In 2013-2014, we developed 66 public Level 2 locations (126 ports) working with NYSERDA, Chargepoint & site host customers

- To date, these stations have served 2,750 unique drivers from 1,283 postal codes.
- In 2017, these stations served 20,157 charging sessions with 129,417 kWh.

Deployment and Operation Detail
- NYSERDA & Chargepoint paid for EVSE hardware which is served by site hosts electric accounts
- National Grid funded and owns the premise “make-ready” infrastructure under a lease agreement
- National Grid operates the stations, pays network O&M, and replacement costs

Look for them on www.Plugshare.com
We have experience developing & operating charging, leveraging customer & market contributions

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<tr>
<th>Site Development</th>
<th>Design &amp; Installation</th>
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<tr>
<td>- Host recruitment is time-consuming</td>
<td>- Site costs are sensitive to micro-design choices; moving 20 feet can require completely new electrical design</td>
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<td>- Hosts are still discovering the value proposition; many question benefit and cost</td>
<td>- Close consultation with site host, their electrician, and utility is key</td>
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<td>- Corporate / major account relationships help expedite</td>
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<th>Operation &amp; Maintenance</th>
<th>Customer (Driver) Service</th>
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<tr>
<td>- Snowplows are bad for EV stations</td>
<td>- Drivers expect high reliability and 24x7 customer support</td>
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<td>- Parts break &amp; repairs cost money</td>
<td>- Parking enforcement and snow shoveling are barriers; drivers can’t charge if they are ICE’d</td>
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<td>- Technology evolves, requiring upgrades to network technology</td>
<td>- Reservations/waitlist are valuable</td>
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<td>- Electrical infrastructure should be planned for future EVSE growth</td>
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<th>UtilityCapabilities</th>
<th>Customer &amp; Market Contributions</th>
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<tr>
<td>- Low cost of capital</td>
<td>Outside sources of investment, such as customer (site host) contribution, and state incentives/investment</td>
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<td>- Long-lived asset base</td>
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<td>- Regulatory oversight</td>
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<tr>
<td>- Operations &amp; maintenance</td>
<td>Third-party technology expertise, especially network management and driver services</td>
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Site hosts for charging are VERY diverse. Multiple pathways and models should be pursued at this time.

Charging locations represent widely-varying types:
- Corporate office parks (property management companies)
- Apartment building owners / managers
- City & town parking
- Retail property managers (stores & malls; restaurants)
- State highway authorities
- Etc.

And site host “segments”
- Engaged Eco-Conscious
- Constrained Aspirationals (Cost Conscious)
- Independent Pragmatics
- Bottom Liners
- Sidelined Pessimists

One model could work for the most motivated “early adopter” segments, but then lack key attributes required to scale to the larger market.
With rapid technology evolution, customers and station owners require interoperability & open platforms

Sources:
https://www.carswithcords.net/2016/03/the-jungle-of-charge-cards.html
http://www.thedrive.com/sheetmetal/14767/chargepoint-creates-app-to-help-users-pay-for-electric-car-charging-more-easily
https://www.wired.com/2016/11/tesla-grows-gives-free-charging/
https://insideevs.com/heres-how-paid-tesla-supercharging-works-video
https://www.consumerreports.org/cro/smartphones/iphone-upgrade-program
All our customers can benefit in a highly-electrified future, through lower-cost fueling and increased utilization of our assets.

Avoided Gasoline Cost (in gray)

Increased Utility Asset Utilization (in green)

Thank you

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