DOE Electric Advisory Council: Utility Perspective on Accelerating Fleet Electrification

March 9, 2022
Our Vision
A future where clean transportation is universal and the environmental and public health benefits are shared by all our customers and communities.

Our Guiding Principles
- Our programs support a cleaner environment and reduce GHG emissions
- Our customers and communities have equitable and affordable access to clean transportation
- Smart integration for grid optimization, customer savings, and a clean energy future

Transportation is >45% of GHG emissions in the Northeast and a leading cause of air pollution.
Programs Offered Today
We focus on three main customer segments

Public & Workplace Programs
Support customers to deploy publicly-available chargers and install & operate the stations more cost-effectively.

Why?
Limited public charging is one of the biggest barriers to EV adoption.

Residential Programs
Provide grid-optimized charging access and enable EV ownership for all residential customers.

Why?
Necessary to enable EV adoption, but barriers exist for >40% of customers.

Fleet Programs
Includes support for public & private fleets. Provides customers with a transition plan, guidance, & funding.

Why?
One MHDV EV truck or bus can reduce >8x more CO₂ and >30x PM₂.₅ than a passenger vehicle.

>10k
Upfront cost prohibitive for most customers

>80%
of charging is at home

~20%
LMI customers don’t own vehicles

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Fleet Electrification: Challenges and Opportunities

Grid Constraints

- Distribution Line, >1.5 MW Avail. Capacity
- Distribution Line, 600 kW - 1.5 MW Avail. Capacity
- Distribution Line, <600 kW Avail. Capacity
- Distribution Substation

DAC Geographies

- Disadvantaged Community

Fleet & Site Info

Note: Sites based on a first review and subject to change
Assessing impacts of clustered fleets: 100% electrification area study example

Area Study: Clustered Fleets Example

Fleets (Circles), Distribution Grid (Light Blue), and Transmission (Dark Blue)

Impact of Fleet Electrification on Feeders: Full Charging Strategy

Distribution Grid: 13 of 19 feeders would eventually be overloaded or at risk

Impact at One “Fleet Cluster” Substation: Winter – Full Charging Strategy

Substation: 100% fleet electrification can substantially increase loads

## Fleet Customer Support: Utilities Can Support the Electrification Journey

**Navigating the Utility**
- Finding POC
- New tech. for fleet managers

**Planning EV Adoption**
- Site analysis
- Bill impact
- Business operations impact

**Utility Infra.**
- Distribution Network
- Transformer
- Meter
- Conductor

**Customer Infra.**
- Panel
- Conductor
- Boring
- Trenching
- Conduit

**EV Charger (EVSE)**
- Charging station

**Vehicle Costs**
- EV option can be >2x more than ICE option

**Other Soft Costs**
- Signs
- Landscaping
- Maintenance
- Networking

**Bill Impact**
- Uncertain costs
- Managed charging

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<tr>
<th>Single Points of Contact (SPOC)</th>
<th>Fleet Assessment Services</th>
<th>Infrastructure Make-Ready Programs</th>
<th>State, Federal, and Utility Rebates</th>
<th>State, Federal, and Utility Funding Available</th>
<th>Fleet Operator Responsible, Utility Designs Rates and Advises</th>
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Utility can directly support with planning, infrastructure, and funding

Utility can support journey with Single Point of Contact (SPOC)

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National Grid

*Note: Graphic for example purposes only – utility support models can vary significantly nationally. Graphic is not to scale nor exhaustive and contents are subject to change.*
**Case Studies: Accelerating fleet conversions with dedicated resources and support**

<table>
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<th>Case Study</th>
<th>Details</th>
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<tr>
<td><strong>MA: Electric School Buses</strong></td>
<td>Highland Electric, Proterra and National Grid partnering to bring electric school buses to Beverly, MA</td>
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<td><strong>Goals:</strong></td>
<td>Showcasing bus capabilities in 1st year, V2G testing in 2nd year</td>
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<tr>
<td><strong>NY: Transit Buses &amp; MHDV</strong></td>
<td>Make-ready infrastructure and fleet assessments for heavy-duty public transit and fleets in upstate NY</td>
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<td><strong>Goals:</strong></td>
<td>Electrify 25% of transit fleets by '25, and 30% of MHDV sales by '30</td>
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<tr>
<td><strong>Fleet Assessments</strong></td>
<td>100 fleet program in MA to provide customers with an electric transition plan</td>
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<td><strong>Goals:</strong></td>
<td>Accelerate transition to electric for all fleets (muni, private, non-profits)</td>
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<td><strong>Highway Charging</strong></td>
<td>Charging corridors across JDx alongside highways – electric road trip is possible</td>
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<td><strong>Goals:</strong></td>
<td>Provide &quot;gas station/rest stop&quot; experience for EV drivers and alleviate range anxiety</td>
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**GHG emissions savings**

- >70% GHG emissions savings

**Electric Buses & MHDV**

- >150 buses electrified by ‘25

**Highway Charging**

- >10 NG-enabled DCFC

**Road Trip**

- >100 fleets assessed through ‘24
Three Potential Opportunities

1. A nationwide data source for fleet electrification roadmaps

2. National standards for granularity/accuracy of the data charging companies are able to provide

3. Centralized planning/info-sharing for highway/fleet EV charging locations