Northeast Regional Electric Vehicle Corridor Planning

New Hampshire EV Charging Stations Infrastructure Commission

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Presentation Agenda

• Introduction to Georgetown Climate Center and the Transportation & Climate Initiative

• Challenges and importance of EV fast charging

• Electric Vehicle corridor analysis and regional planning

• Questions and discussion
Georgetown Climate Center: A Resource for State and Federal Climate Policy

- Launched in 2009 as a resource to states
- Works at the nexus of federal-state policies
- Supports states and other stakeholders through research, facilitation and convening
• 12 Northeast and mid-Atlantic states and D.C.

• State energy, environment, and transportation agencies

• Clean vehicles & fuels, regional emissions transportation policies, sustainable communities, freight, and resilience
Regional Coordination on Electric Vehicle Charging Infrastructure
Opportunity for EV Corridors to Accelerate Widespread Deployment

- Inflection point for vehicles and charging technology
- Improve EV driver convenience and public awareness
- Opportunity to promote tourism and economic growth
- Access to charging for those without home parking
New Vehicles & EV Fast Charging Technology

- Long-range electric vehicles becoming more affordable
- Fast charging technology makes long-distance travel more convenient
EV Corridors Enable Tourism and Economic Development

- Canadian Provinces and Northeast States have set bold EV adoption goals
  - Quebec – 100,000 EVs by 2020  1,000,000 by 2030
  - Massachusetts – 300,000 EVs by 2025

- More drivers on the roads will look for fast charging availability

- Corridors enable vacation travelers along with local residents

Image credit (Circuit Electrique): Hydro Quebec
Challenges of EV Corridor Development

- Significant additional fast charging infrastructure investment is needed
- Poor business case for private investment in DC Fast Charging
- Utility/grid infrastructure and rate design challenges
Investments in EV Corridor Charging by Utilities, Automakers, and States

Image credit (Circuit Electrique): Hydro Quebec
Image credit (Tesla Superchargers): Tesla
Image credit: Oregon Dept of Transportation, CC BY 2.0
Volkswagen Settlement
Electrify America Corridor Investment

Image credit: Electrify America, reproduced with permission
Utility Investment in EV Charging Infrastructure

EVERSOURCE

BGE

PEPCO

National Grid

PSEG

NY Power Authority

GEORGETOWN CLIMATE CENTER
A Leading Resource for State and Federal Policy
Multi-state Collaboration on Regional EV Corridor Planning

TRANSPORTATION & CLIMATE INITIATIVE
Of the Northeast and Mid-Atlantic States

MEMORANDUM OF UNDERSTANDING
Between
Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah and Wyoming
Regional Electric Vehicle Plan for the West

Image credit (EV charger plugs): Kecko - CC BY 2.0
Regional Corridor Planning: West Coast Electric Highway
Regional Electric Vehicle Plan for the West

MEMORANDUM OF UNDERSTANDING
Between
Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah and Wyoming
Regional Electric Vehicle Plan for the West

Intermountain West EV Corridor

GEORGETOWN CLIMATE CENTER
A Leading Resource for State and Federal Policy
Northeast Regional Coordination on Electric Vehicle Corridors

- Close geographic and economic connections
- Create a consistent and reliable experience for drivers
- Opportunity to collaboration to promote efficient build-out of EV charging network
Transportation and Climate Initiative
Regional EV Corridor Planning & Analysis

• Analysis to inform EV Fast Charging infrastructure planning along corridors

• Share best practices and technical expertise

• Engage with other jurisdictions and key stakeholders

• Identify opportunities for regional planning and coordination
TCI Regional EV Corridor Analysis

- **Scope of analysis:**
  DC Fast Charging (DCFC) along designated federal corridors plus additional state priority corridors

- **Charging Stations:**
  Public, non-proprietary fast chargers within 5 miles of freeway corridors

- **Interstate Exits:**
  Focused on interstate exits and other key intersections as potential sites for corridor fast charging
Existing Public Fast Charging Along Corridors
TCI Regional EV Corridor Analysis Metrics

Traffic Volume (AADT)

Population Density (census tract)
TCI Corridor Analysis Results – Demand

Highway exits ranked using “Through Traffic” method of assessment
Highway exits ranked using “Through Traffic” method of assessment
TCI Corridor Analysis Results – ‘Gaps’

Highway exits ranked using “Fill Gaps” method of assessment
Infrastructure Location Identification Tool

Identification Tool Options

- **Region**: compare exits for northeast region, state, or county

- **Exit Group**: Ability to filter to include/exclude service plazas and to specific corridor

- **Weighting method**: one of six preloaded methods or custom
TCI EV Corridor Analysis Availability

Tools are available for free from M.J. Bradley & Associates and Georgetown Climate Center websites

www.mjbradley.com  www.georgetownclimate.org
Next Steps for Regional EV Corridor Planning

- Engagement with EV charging providers, electric utilities, state and local agencies
- Additional analysis and coordination to inform infrastructure planning
- Coordination on corridor signing
Questions and Discussion

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Appendix: New Hampshire EV Charging

All charging stations (NH)

DC fast charging stations (NH)
Appendix: Regional Corridor Analysis Methodology

- Each exit is compared to all other selected exits within each metric

- Each exit is scored between 1 and 10 for each metric: an exit could be a 1 for population density (i.e., very low population) but a 10 for proximity (i.e., there are no existing DCFC nearby)

- Metrics are then combined through a range of ranking methods to assign each exit one cumulative score; all scores are then ranked

- Tools allow a user to adjust the weighting of metrics and design a ranking method that reflects personalized priorities

<table>
<thead>
<tr>
<th></th>
<th>Nearest existing infrastructure very close</th>
<th>Nearest existing infrastructure very far</th>
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<tbody>
<tr>
<td>Proximity (Nearest)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proximity (Density)</td>
<td>Many charging ports nearby</td>
<td>No charging ports nearby</td>
</tr>
<tr>
<td>Traffic Volume</td>
<td>Low traffic volume on freeway near exit</td>
<td>Very high traffic volume on freeway near exit</td>
</tr>
<tr>
<td>Pop. Density</td>
<td>Low population density near exit</td>
<td>Very high population density near exit</td>
</tr>
<tr>
<td>Comm. Activity</td>
<td>No points of interest within 1 mile of exit</td>
<td>Many points of interest within 1 mile of exit</td>
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Appendix: Federal EV Corridor Designations

**Electric Vehicle Corridors**

**Signage-Ready**
- Fast Charging Stations
- At least every 50 mi.
- <5 miles from highway
- Public stations

**Signage-Pending**
- Additional infrastructure needed to meet criteria