

National Grid - Clean Transportation

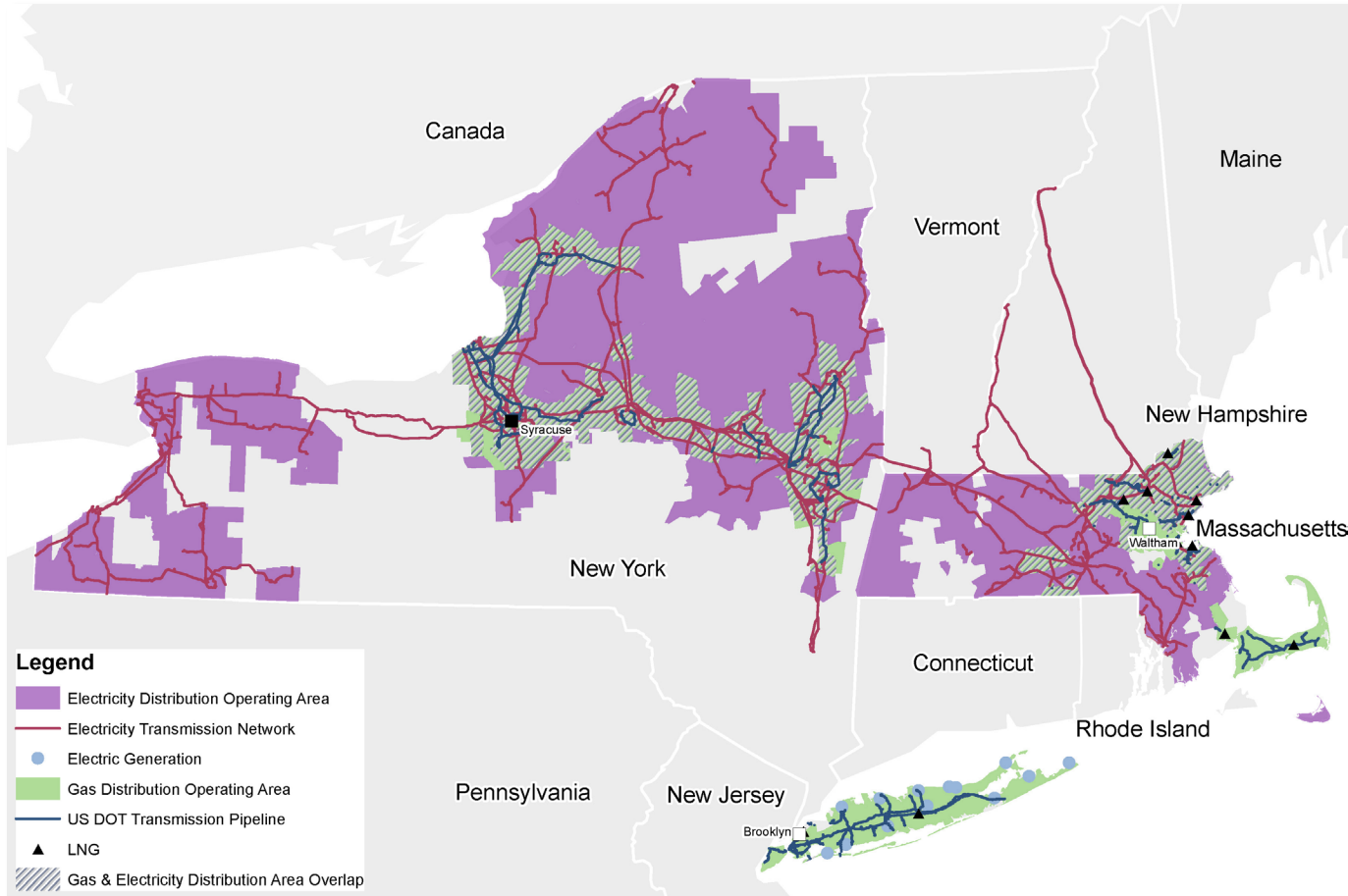
Planning for MHDV Fleet Charging, Programmatic Support and Helpful Resources

nationalgrid



About National Grid

We are one of the largest investor-owned energy companies in the US — serving more than 20 million people throughout New York and Massachusetts.



Serving 20 million people

- Nearly 16,000 employees
- 3.4 million gas customers
- 2.9 million electric customers

Customers by region:



2.2 million



UNY 2.2 million
LI 0.6 million
NYC 1.3 million

Why is it so important to plan for EV charging?

System forecasting and proactive planning **for the significant EV charging loads will be critical to ensure the electric grid can support EV adoption in the most cost effective, efficient, and timely manner.**

Context

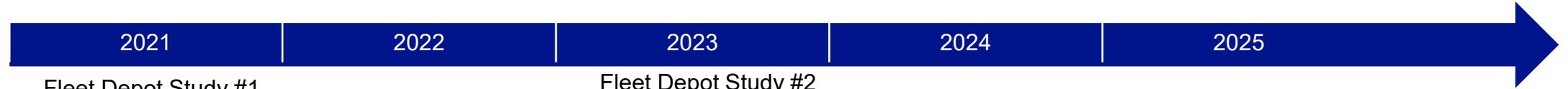
- Massachusetts has ambitious electric vehicle adoption targets.
- En-route fast-charging sites along highways and fleet depots will introduce significant new demands on the electric grid.
- Meeting these demands at the pace of market adoption and at lowest cost requires an understanding of location and peak demand.

These efforts will help us to develop partnerships, inform system planning, and propose projects that can meet future EV needs.

Approach

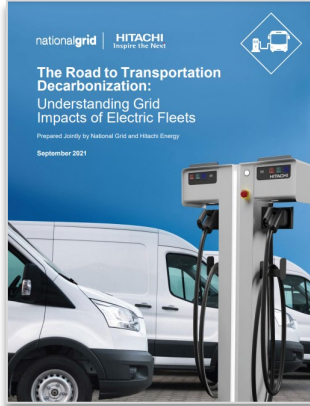
- Studies & Analyses - We conducted studies to understand the scope and magnitude of the problem:
 - What charging needs will we have to meet?
 - Where will they be?
 - When will they materialize?
 - How do we address quickly and at least cost?
- **Customer Engagement** – We are evolving our distribution planning approach to include a “Step 0” which facilitates early customer interaction and iteration.
- **Electric load forecasting** - We are continuing to evolve our capability to identify location-specific EV load growth and to refine the load forecast.

National Grid's studies estimate the magnitude, timing, and impact on the grid of large-scale EV charging at fleet depots and along highways.



Depot Charging

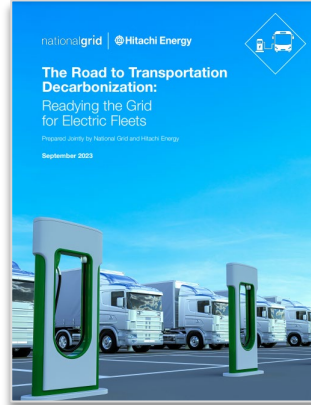
Fleet Depot Study #1



Load impacts from 51 fleets in one metro area
September 2021
Available [here](#)

Grid impacts & upgrades needed on one power line
September 2023
Available [here](#)

Fleet Depot Study #2

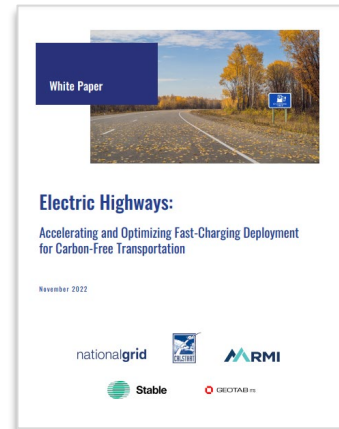


National Grid is one of the utility sponsors for this EPRI-led, multi-year effort to forecast charging demands and coordinate processes across utilities nationally

Ongoing
eRoadMap available [here](#)

En-Route Charging

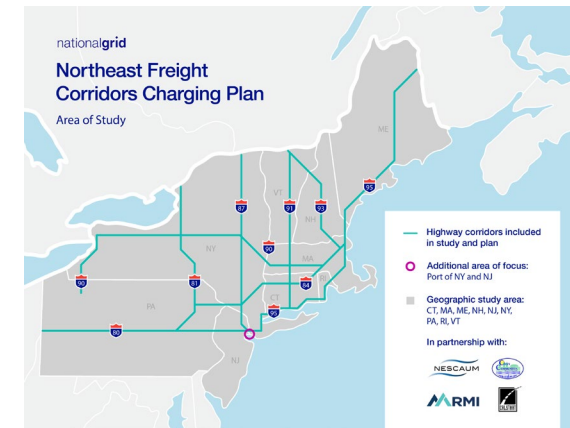
Electric Highways Study



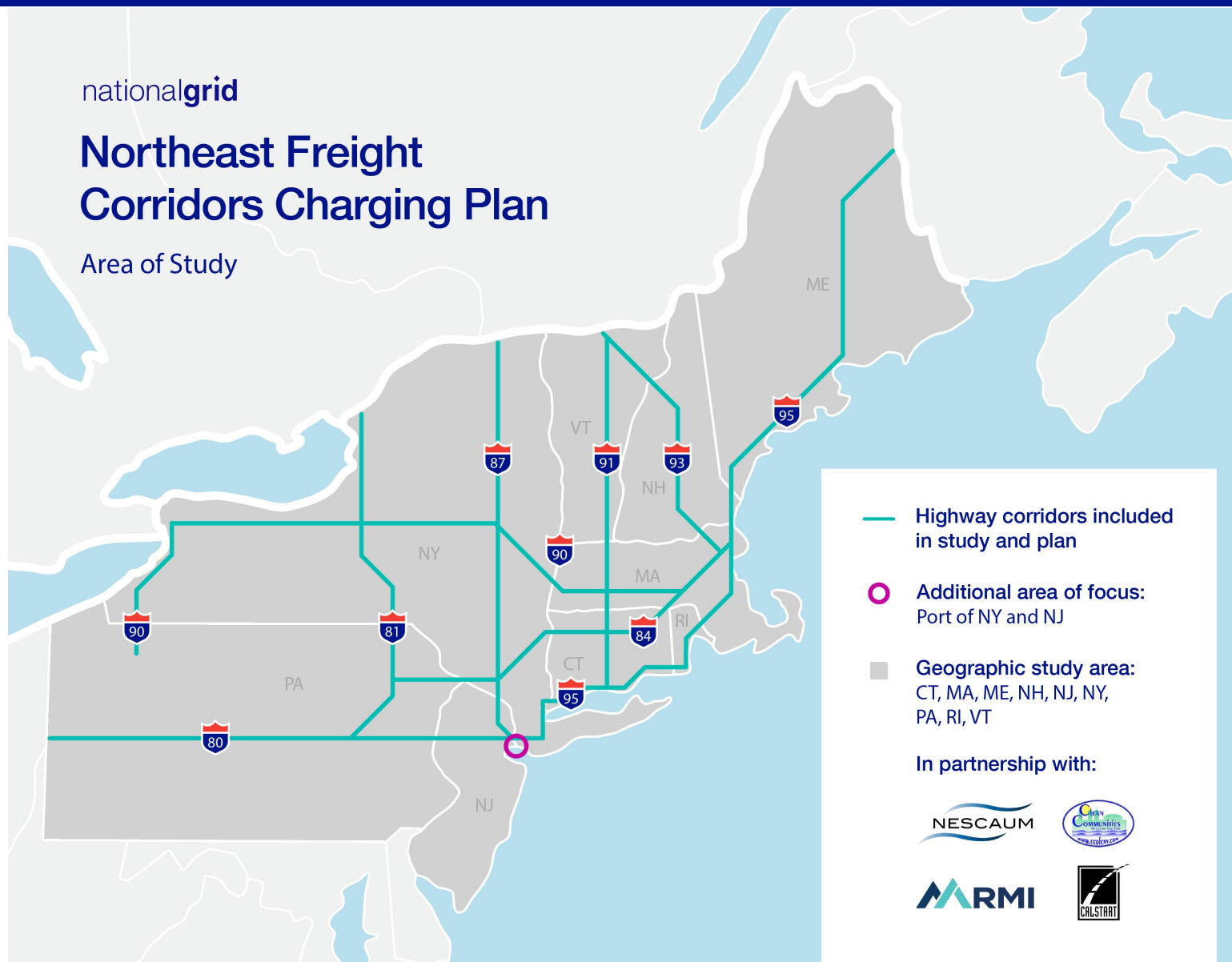
Fast-charging load estimates at 71 sites across MA & NY
Released November 2022
Available [here](#)

Charging forecasts & recommendations along national freight corridors

Northeast Freight Corridor Charging Plan (with grant from U.S. DOE)



Northeast Freight Corridors Charging Plan – Overview



The Northeast Freight Corridors Charging Plan is a \$1.2M, 2-year long study and Regional MHDV Charging Plan funded by the Department of Energy Vehicle Technologies Office.

This study covers nearly **3,000 miles of freight corridors in the Northeast** through studying 100+ sites along those corridors, as well as the electrification needs of the Port of New York and New Jersey.

Northeast Freight Corridors Charging Plan – Advisory Committees

Advisory committees play a key role in ensuring our project is equitable and representative of different viewpoints of key stakeholders in freight electrification

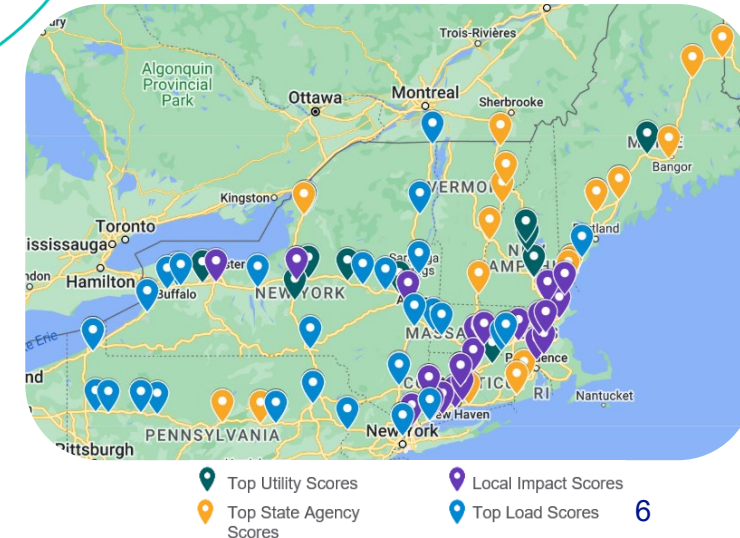
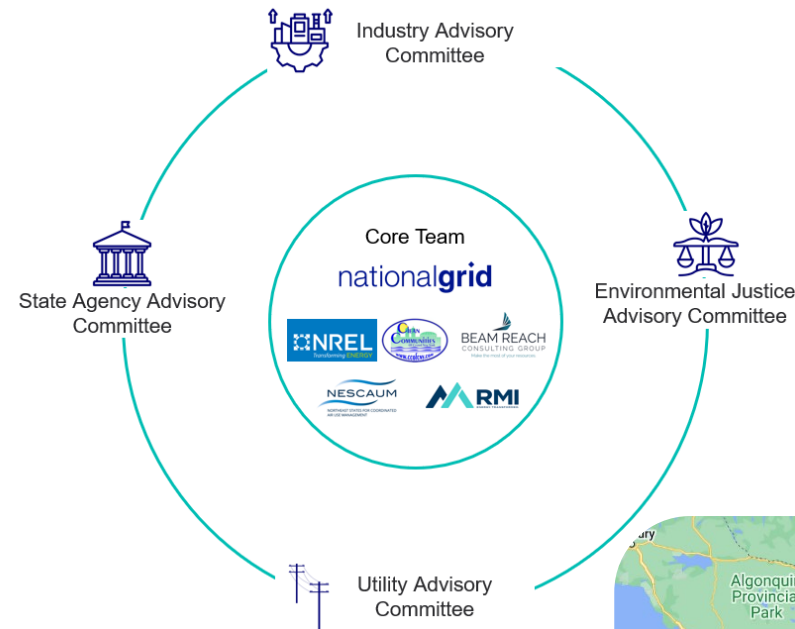
Advisory Committee members include:

Utility: Avangrid, Eversource, Green Mountain Power, PSEG, First Energy, PPL, Versant, Con Edison, NYPA, RI Energy.




State: Representatives from multiple agencies in PA, NJ, NY, CT, RI, MA, VT, NH, ME

Environmental Justice: Clean Communities of Central New York
Central New York Regional Planning and Development Authority
Vermont Clean Cities;
Greater New Haven/CT Clean Cities; New Jersey Clean Cities;
Eastern PA Advanced Clean Transportation Agency

Industry: Cummins, DHL, Nikola, XOS, Applegreen, ChargePoint, General Motors, Pilot Flying J, Zeem, BP Pulse, Daimler, Ikea, Voltera

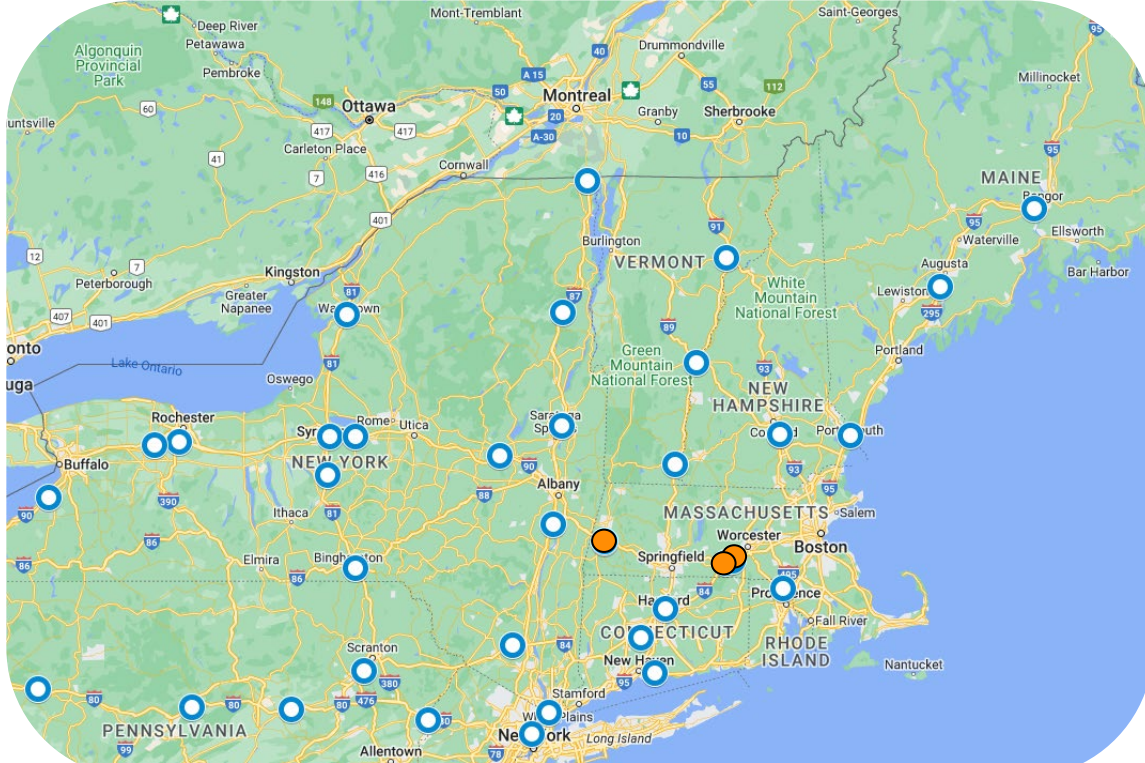


Northeast Freight Corridors Charging Plan – Process and Outputs

Corridor Charging Needs	
Process	Output
Utility and State Agencies work together to select Sites 	Forecast MHDV EV Charging needs for 120+ Sites 
Stakeholder Advisory Committees provide input on assumptions used in charging forecasts	Forecast method reviewed by Stakeholder Advisory Committees and iterated on by RMI
<hr/>	
Sites prioritized based on 4 metrics: <ol style="list-style-type: none">1. Estimated Load2. Proximity to Infrastructure3. State Priorities (defined by State Agency Advisory Committee)4. EJ Impact (Defined by EJ Advisory Committee)	30-40 Prioritized Sites for Regional Plan
<hr/>	
 Utilities perform desktop analysis for prioritized sites – basic conceptual engineering and cost estimates	Regional coverage for MHDV Charging Sties including estimated load, solutions to serve load, cost estimate of solutions

Northeast Freight Corridors Charging Plan – Final Site List

Final Site list creates a regional network plan to address MHD Charging that is actionable, economic and equitable.



The Final Site List :

- Prioritizes state, utility, and local impact priorities.
- Sites are approx. 100 miles apart.
- Ensure North/South and East/West coverage.
- Every participating state is represented.
- MA Locations: Bridgewater, Charlestown, Westborough

Programmatic Support and Helpful Resources

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MA: National Grid Fleet Offerings Summary

Fleet EV Charging Program:

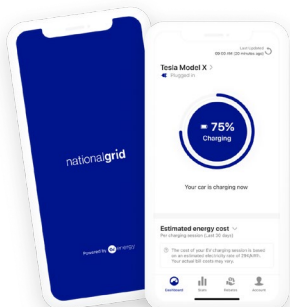
~\$30M
for fleets



- Supports fleet electrification by providing utility and customer-side EV infrastructure rebates for private and publicly owned fleets
- Tiered charger rebates for eligible public fleets

EV Off-Peak Charging Program:

\$0.03-\$0.05
per kWh rebate

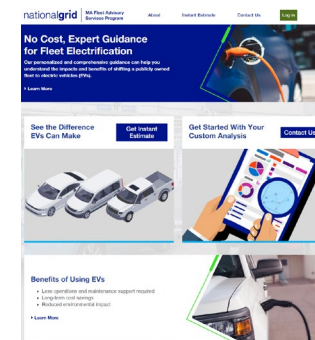


- Allows up to 1,000 fleet vehicles to earn rebates when they charge EV during off-peak times
- \$0.03/kWh in the winter / \$0.05/kWh in the summer

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Fleet Advisory Services:

275
studies



- No-cost, expert analysis to help 275 publicly-owned fleet customers in electrifying their fleet vehicles
- Private Fleets can leverage MA Fleet Advisor

Demand Charge Alternative:

\$0
demand charge
in 1st year

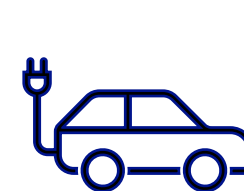
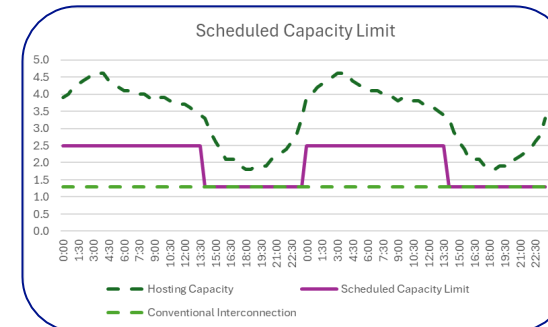
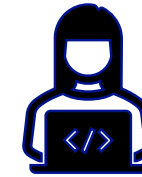
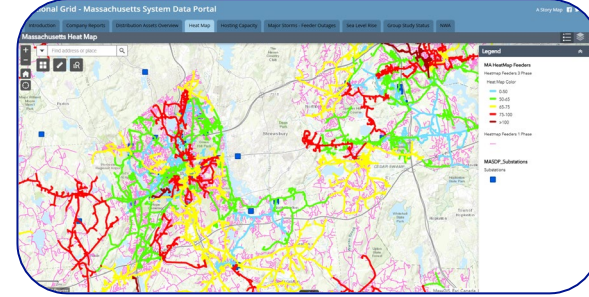
Load Factor Threshold	Enrollment Years	Demand Charge Discount
None	1	100%
LF <= 5%	2 to 9	100%
5% < LF <= 10%	2 to 9	75%
10% < LF <= 15%	2 to 9	50%
LF > 15%	2 to 9	0%

$$\text{Load Factor} = \frac{\text{Billed Energy in kWh}}{\text{Billed Demand in kW} * \text{Hours in Billing Period}}$$

- 100% discount on demand charges in 1st year of operation
- Up to 100% discount for years 2-9, for load factors (i.e. EVSE utilization) below 15%

National Grid – Planning Resources

- **National Grid System Data Portal** - provides a high-level overview of available capacity for given geographies
- **National Grid Step 0** - formal process to confirm a location's capacity via engineering desktop review
- **Flexible Connections** – NGRID can serve new customer's desired load during most hours without requiring system upgrades (that would typically be required)
- **Charging Station Installers** – NGRID maintains a list of qualified installers who are experts in EV charging planning, deployment, and applying for incentives on behalf of customers





Current Programs

Through 2026*

Comprehensive EV Support:

- ~\$206M EV Make-Ready program
- ~\$30M Fleet Incentives
- No-Cost Fleet Advisory Services for Public Fleets

Next Phases

2027*-2030

Planning for a Dec '25 filing:

- ~\$195M EV Program
- Continue to prioritize EJC & public fleets
- Continue fleet off-peak charging rebates

National Grid – Program Success Stories

Brockton Area Transit (BAT)



- 5 electric Transit Buses
- Received >\$700k from National Grid for make-ready infrastructure
- >\$5k in '25 Off-Peak Rebates

Beacon Mobility (Lawrence Public Schools)



- 35 electric School Buses
- Received ~\$400k from National Grid for make-ready infrastructure
- Combined with EPA, MA CEC funding grants

Highland Electric Fleet (Beverly, MA)



- 5 electric School Buses
- Participate in ConnectedSolutions, earning up to \$200 / kW in revenue
- Provide ~3 MWh per bus per summer back to the grid

National Grid's Fleet Customers are showing the value of electrified transportation

Thank you!

For more information, please reach out:

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[National Grid EV Fleet Hub](#)