Electric Vehicle Infrastructure Coordinating Council (EVICC) Meeting

December 4, 2024

Agenda

Opening

- Roll call, approval of minutes, meeting agenda, objectives (10 min) – EEA

Updates

- EEA overview of EV provisions of 2024 Climate Bill (a/k/a 2024 Siting and Permitting Bill) (20 min) – EEA
- MassCEC EV charging program update (10 min) – MassCEC
- National Electric Vehicle Infrastructure (NEVI) Program update (5 min) – MassDOT

Educational Presentations / Discussions

- Anticipating power requirements for EV charging (15 min) – National Grid
  - Questions (5 min)
- Northeast Freight Corridors Charging Plan (15 min) – National Grid
  - Questions (5 min)
- Proactive planning for upgraded electric grid infrastructure in New York (15 min) – National Grid
  - Questions (5 min)

Public Comment

Meeting Objectives

- Update on EV provisions of the new Climate Bill, MassCEC's EV programs, and NEVI

- Learn about National Grid's work for planning EV charging infrastructure and associated grid upgrades in New York and New England

Disclaimer: *The EVICC team invites presenters to speak about topics of interest to EVICC members and to the development of the second assessment to the Legislature. The Commonwealth is not endorsing any particular company or organization.*

Rules for Presentations / Public Comment

Presentations

- Presenters should keep to the assigned time
- The EVICC Chair will allow questions from EVICC members first and then the public if time remains

Public Comments

- Use the “raise hand” function to indicate your desire to speak at the appropriate time
- Identify yourself and affiliation prior to commenting
- Limit comments and questions to 3 minutes
- Please engage in constructive and respectful dialogue
- Be able to substantiate assertions or claims in support of comments

Updates

EV Provisions of the 2024 Climate Bill

EVICC Provisions

- **Section 103: EV Charger Forecast in EVICC Assessments; Subsequent DCFC and Fleet Hubs and Grid Upgrade Identification Processes**
  - Requires EVICC to conduct a 10-year EV charger forecast in each of its biennial assessments to the General Court;
  - Requires EVICC to work with MassDOT and DOER to identify fast charging and fleet charging hubs along major corridors within 6 months, and;
  - Requires the electric utilities to file necessary grid upgrades to accommodate these hubs and the forecasted 10-year EV charging demand within 12 months of the assessment.
- **Sections 100-101: EVICC Membership Expansion**
  - Explicitly incorporates the Massachusetts Clean Energy Center and Department of Standards (DOS) as additional EVICC members.
- **Sections 102 and 104: Expanded EVICC Responsibilities**
  - Requires each EVICC assessment to include an estimate of MHDV chargers required to meet MA's climate requirements and adds: (1) monitoring the effectiveness of public and private EV charger initiatives; (2) achieving compliance with the NEVI Program; and (3) ensuring signage on highways and on streets adjacent to charging locations.

Technical Provisions

- **Sections 5 and 110: EV Charger Utilization, Reliability, and Data Sharing**
  - Requires EEA or an EEA agency appointed by EEA to develop regulations to (1) monitor EV charger utilization, (2) monitor EV charger reliability, and (3) require data sharing by public EV chargers.
  - Applies to chargers installed on / after June 1, 2026. Regulations must be promulgated by February 1, 2026.
- **Sections 42 and 110: EV Charger Inventory and Accuracy Standards**
  - Requires DOS to develop regulations to (1) inventory EV charging stations and (2) ensure the accuracy of pricing and volumes of electricity purchased at public EV chargers.
  - Applies to chargers installed on / after June 1, 2026. Regulations must be promulgated by February 1, 2026.
  - ***Relevant EVICC Recommendation:*** Recommended legislative action #1
- **Sections 24-25 and 27-30: EV Charger Appliance Efficiency Standards**
  - Adds EV-related definitions to the Massachusetts Appliance Efficiency Standards Act, provides the DOER the ability to amend certain appliance standards and to increased kilowatt per hour usage for EV chargers, and updates the ENERGY STAR standards applicable to EV chargers from Version 1.0 to Version 1.2.
  - ***Relevant EVICC Recommendation:*** Recommended legislative actions #3

Vehicle Provisions

- **Section 112: Increased MOR-EV Allocation from RGGI**
  - Increases funding to the MOR-EV program from RGGI to at least $27,000,000 per year through June 30, 2027.

- **Section 117: 2035 Light-Duty EV Sales Mandate Feasibility Study**
  - Requires EEA to conduct a feasibility study of light-duty EV only sales by 2035.
  - The report is due by July 31, 2025.

Other

- **Sections 85-86: Condo Association EV Charger Updates**
  - Clarifies provisions governing condo association installation of EV chargers and prohibits condo or homeowners' associations or similar entities from unreasonably restricting the ability of an individual to install EV chargers and related equipment.
  - ***Relevant EVICC Recommendation:*** Recommended legislative actions #2
- **Section 122: Health, Safety, and Environmental Impact Guidance**
  - Requires the Department of Environmental Protection (MassDEP) to issue guidance on the public health, safety, and environmental impacts of electric battery storage and EV chargers within 6 months of the effective date of the 2024 Siting/Permitting Act.
- **Section 134: Right-of-way and Pole-Mounted EV Charger Plans**
  - Requires DPU to open a proceeding on right-of-way or pole-mounted EV chargers, with proposals due to DPU by December 31, 2025, and a DPU Order on the proposals by July 31, 2026.

December 4, 2024

MassCEC EVICC Program Updates

MASSACHUSETTS CLEAN ENERGY CENTER

Curbside Charging Solutions

- The Program aims to increase access to EV charging for residents and renters without private parking in Low Income and Disadvantaged Communities (LIDACs) throughout the Commonwealth. The program also seeks to pilot innovative charging technologies like pole mounted and streetlight charging.
  - Consultant will provide planning support and feasibility studies to a cohort of 25 municipalities
  - Consultant will provide implementation and technical support for a cohort of 15 municipalities
  - Consultant will create a public On-Street Charging guidebook help navigate regulatory hurdles/ownership structures

- Consultant Team
  - Consultant – Commonwealth Electrical Technologies
  - Subcontractor – Leidos

- Next Steps for Engagement
  - Municipal Selection – Prioritizing municipalities with LIDAC populations, geographically and demographically diverse. Consultant will develop a community outreach plan to engage with LIDACs and other relevant community members.

Vehicles-for-Hire Charging Solutions

- The Program aims to increase availability of DCFC for Transportation Network Company (TNC) and taxi drivers in neighborhoods with high concentrations of VFH drivers
  - Consultant will identify and select 15 sites to install charging infrastructure
  - Consultant will develop a Comprehensive Charging Siting Strategy to identify charging station locations that are accessible to VFH drivers

- Contracting in progress.

- Next Steps for Engagement
  - Site Selection – Prioritizing locations with LIDAC populations, geographically and demographically diverse. Consultant will develop a community outreach plan to engage with VFH drivers and LIDAC residents.

Medium- and Heavy-Duty Mobile Charging Solutions

- The Program aims to accelerate the electrification of MHD fleets (class 3-8) through the deployment of mobile charging stations for MHD fleets located in and/or servicing LIDACs
  - Consultant will provide implementation support and technical assistance to a cohort of 4 MHD fleets interested in testing out/right sizing MHD EVs
  - Consultant will provide a maintenance and operations plan and recommendations for future charging solutions for cohort
  - Consultant will create public facing resources for MHD fleet owners and operators interested in mobile charging solution

- Contracting in progress.

- Next Steps for Engagement
  - Fleet Selection – Prioritizing MHD fleets located in or operating in LIDACs. Consultant will develop an approach for communications with LIDAC fleets and other interested fleets.

Vehicle-to-Everything Demonstration Projects

- The Program aims to increase the supply of V2X technologies with an emphasis on positive impacts for LIDACs
  - Consultant will deploy a total of 90-120 V2X stations across residential, commercial, and school sites
  - Consultant will create public facing resources to provide stakeholders with technical information needed to independently assess the technical and financial viability of V2X charging projects

- Contracting in progress.

- Next Steps for Engagement
  - Project Cohort Identification/Selection – Consultant will prioritize residential, commercial, and school sites with LIDAC populations, demographically and geographically diverse. Consultant will develop an approach for engaging with site hosts and LIDACs.

Inquiries? Contact Us via Email

Cleantransportation@masscec.com

MassDOT NEVI Update

massDOT
Massachusetts Department of Transportation
Leading the Nation in Transportation Excellence

NEVI – Where Are We In The Process?

1

NEVI Plan Developed, Submitted, Approved

2

Secure EV Charging Station Developers and Enter Agreements

3

Identify Sites, Design, and Permitting

4

Construction

5

Operations and Maintenance

WE ARE HERE

massDOT
Massachusetts Department of Transportation

NEVI Implementation Approach

- **Segment-Based Approach:**
  - AFCs have been divided into 25-mile segments.
  - Stations built anywhere within these segments will be at most 50 miles from stations in the adjacent segments.
  - Sites must be within 1 mile of an AFC.
  - There also must a station be within 25 miles of a state border.

- **Implementation Approach:**
  - Initial Prioritization of a small number projects that can be started quickly and carried out efficiently.
  - Additional sites awarded on a rolling basis in a competitive process.

NEVI: Status and on-going work

Green: Site is live

Yellow: Pre-development or SSTO proposal stages

Blue: Segments with potential sites available

Grey: Segment covered by site in another segment

massDOT
Massachusetts Department of Transportation

Informational Presentations

Anticipating Power Requirements for EV Charging

MA EVICC

December 4, 2024

nationalgrid

Contents page

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

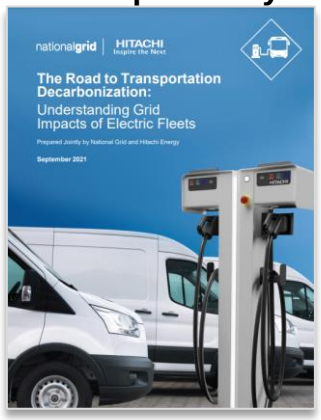
- **Studies & Analyses** - We conducted studies to understand the scope and magnitude of the problem:
  - *What* charging needs will we have to meet?
  - *Where* will they be?
  - *When* will they materialize?
  - *How* do we address quickly and at least cost?
- **Customer Engagement –** We are evolving 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.

2021 | 2022 | 2023 | 2024 | 2025

Depot Charging

Fleet Depot Study #1

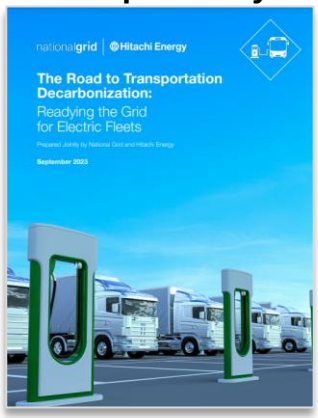


Load impacts from 51 fleets in one metro area

September 2021

*Available **here***

Fleet Depot Study #2



Grid impacts & upgrades needed on one power line

September 2023

*Available **here***

EVs2Scale 2030™

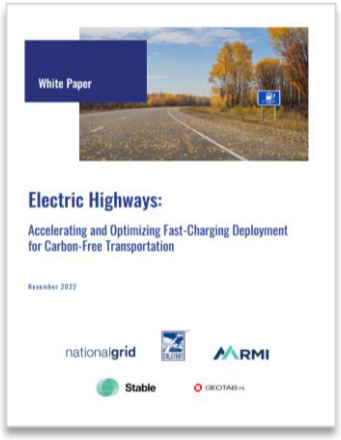
National Grid is one of the utility sponsors for this EPRI-led, multi-year effort to forecast charging demands and coordinate processes across utilities nationally

Ongoing

*eRoadMap available **here***

En-Route Charging

Electric Highways Study

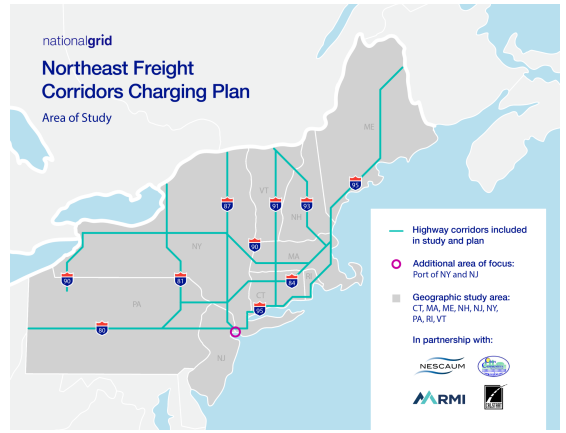


Fast-charging load estimates at 71 sites across MA & NY

Released November 2022

*Available **here***

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



Charging forecasts & recommendations along national freight corridors

*To be released in 2025, info **here***

The Electric Highways study demonstrated the significant power requirements at highway service plazas, leading to inclusion of upgrades in our initial ESMP.

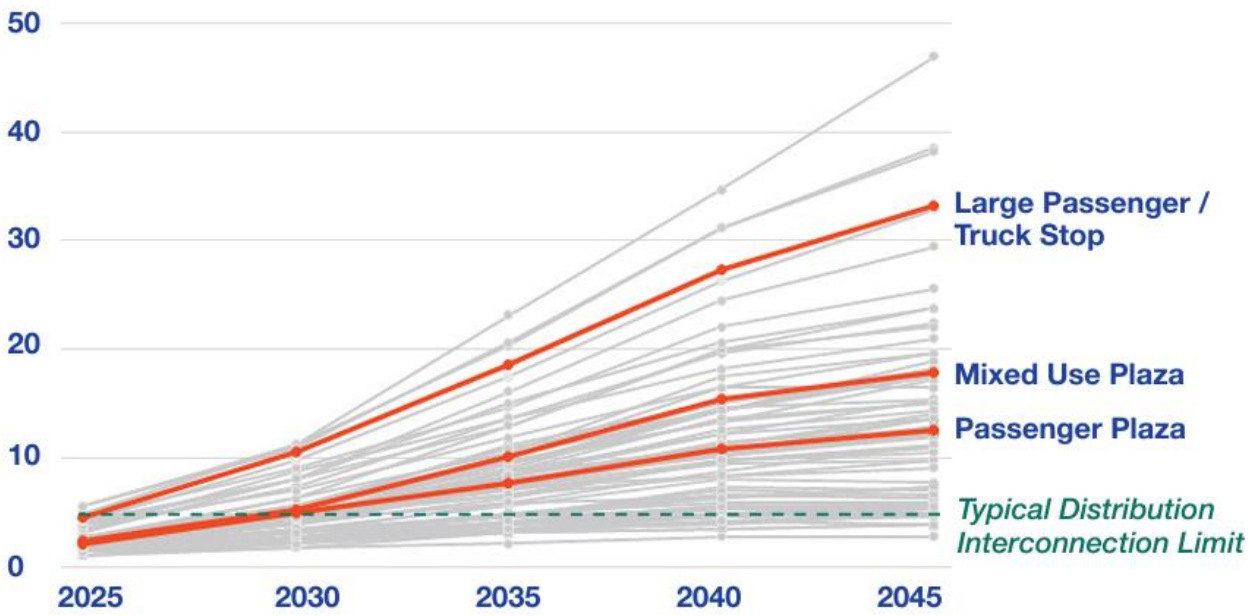
Electric Highways Study

Large Industrial Plant
(40+ Megawatts)

A Small Town
(20 Megawatts)

A Stadium
(5 Megawatts)

Projected charging capacity for 71 Northeastern highway sites
Megawatts of power to meet annual peak demand, over time



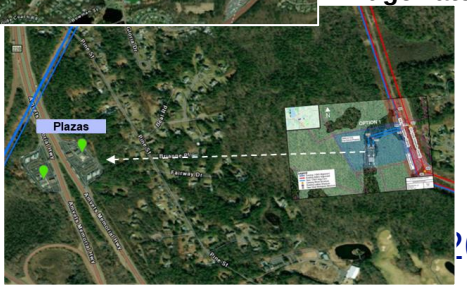
Note: Analysis seeks to match ZEV goals for New York + Massachusetts, makes simplifying assumption that all ZEVs are electric. See study for discussion of assumptions, including role of hydrogen fueling and impact on capacity. Comparisons are approximations.

ESMP

Charlton

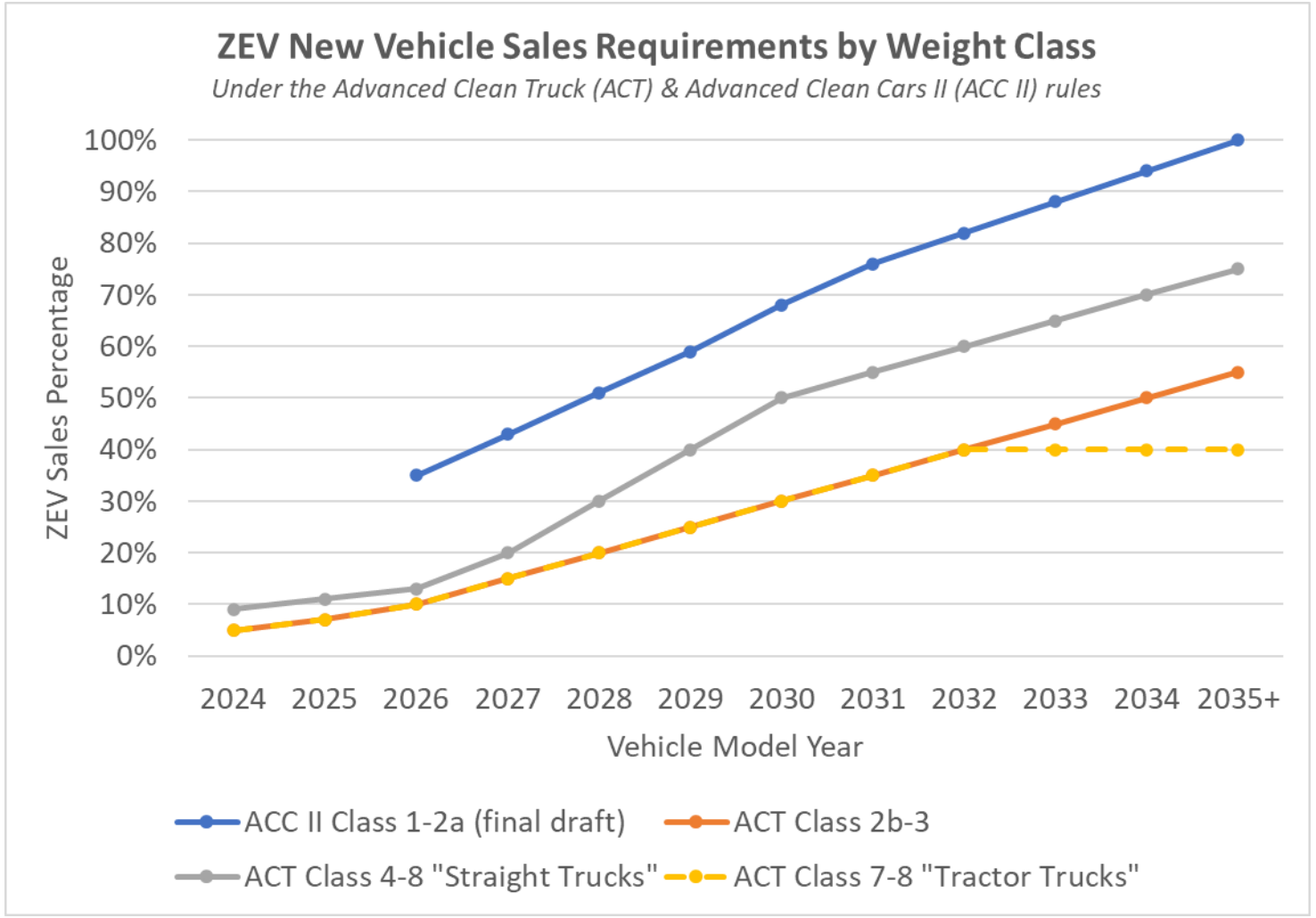
Westborough

Bridgewater

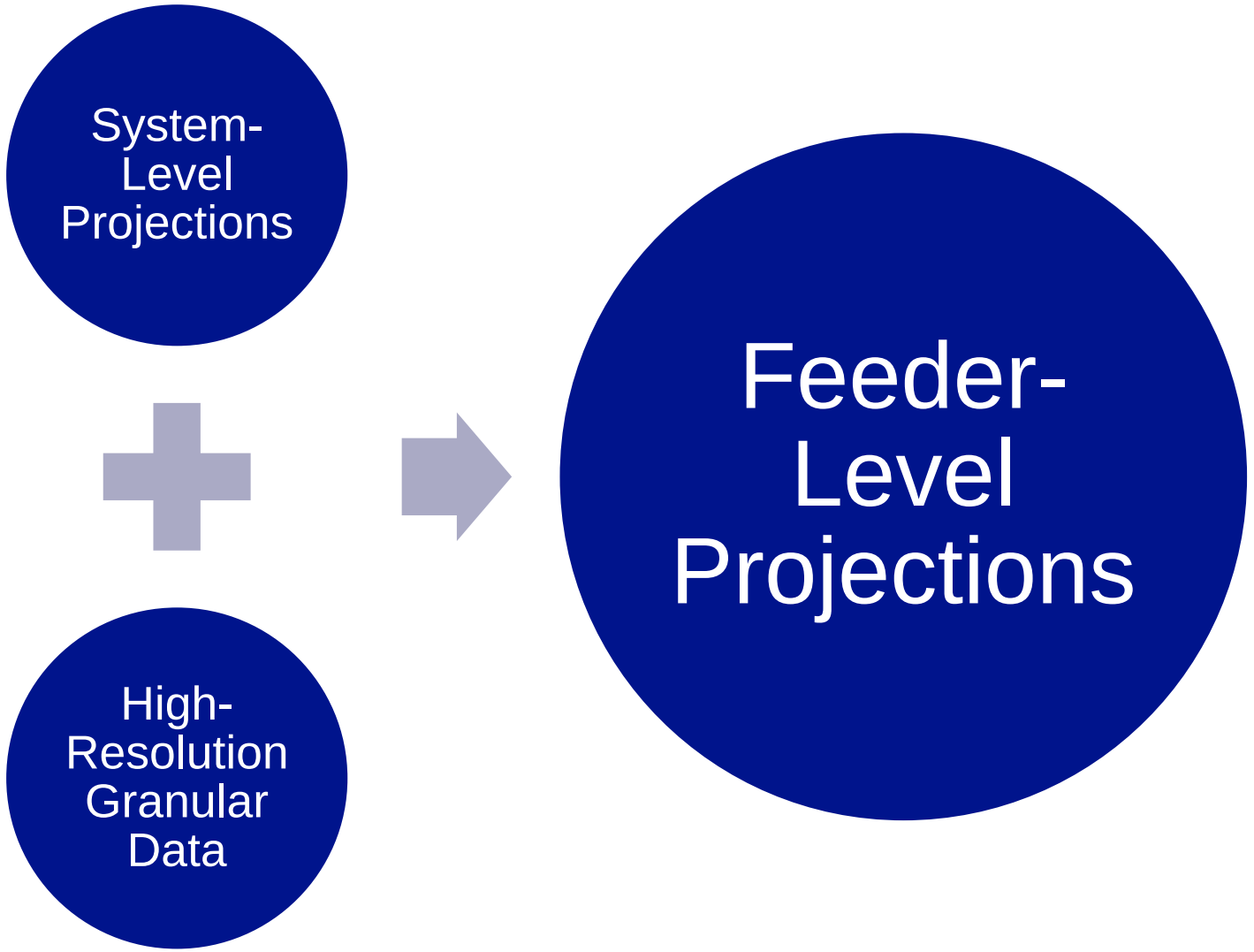


The results of these studies and customer engagement will contribute to our system-level electric vehicle forecast as it is refined over time.

- Project system-level policy-compliant electric vehicle adoption
  - Advanced Clean Cars II (ACC-II) rules
  - Advanced Clean Trucks (ACT) rules
- Adoption projections combined with charging load profiles to generate load impacts
- Light-duty, medium-duty, heavy-duty, school bus, and transit bus included



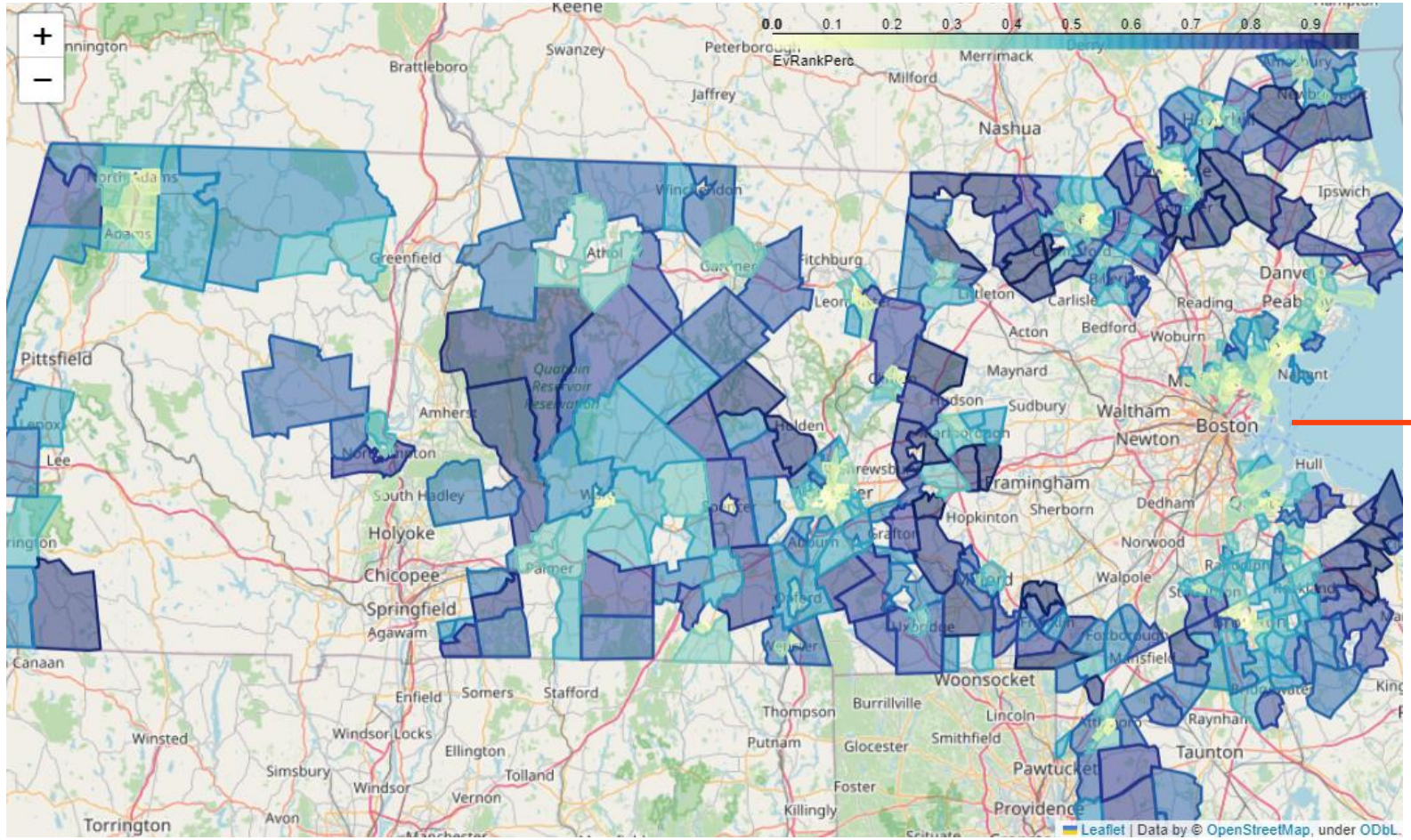
Feeder-Level Electric Vehicle Forecasting Overview

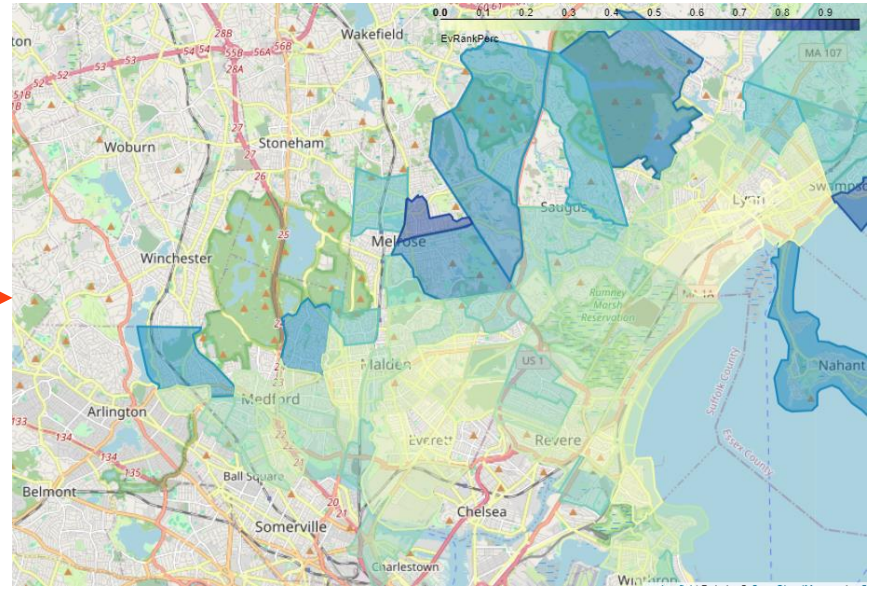


- Hybrid approach for allocating vehicles in operation (VIO)
- Approach varies by vehicle type subject to maturation of segment and available data

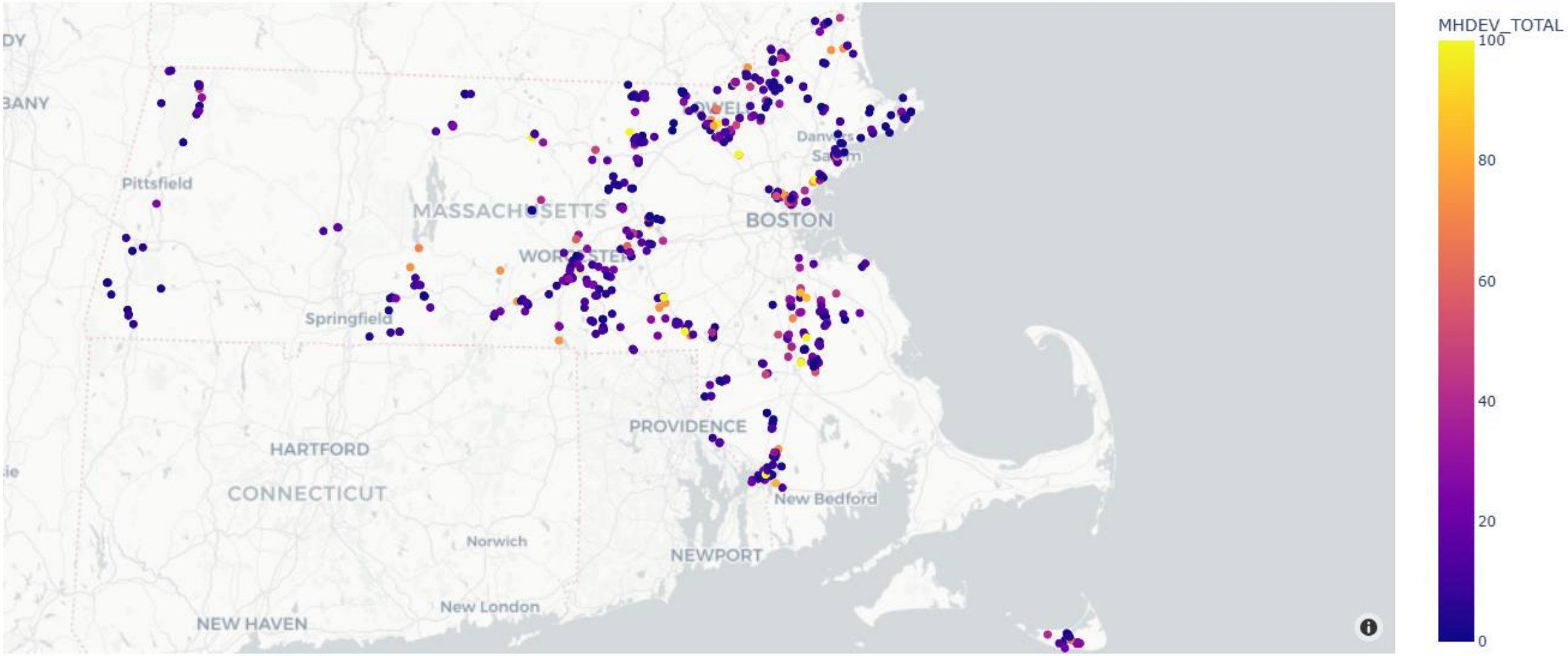
Light-Duty Electric Vehicle (LDEV) Feeder Allocation Overview

Census tract-level propensity models built to capture impact of sociodemographic factors underpinning relative adoption trends while maintaining consistency with system-level projections





Medium- and Heavy-Duty Electric Vehicle (MHDEV) Feeder Allocation Overview

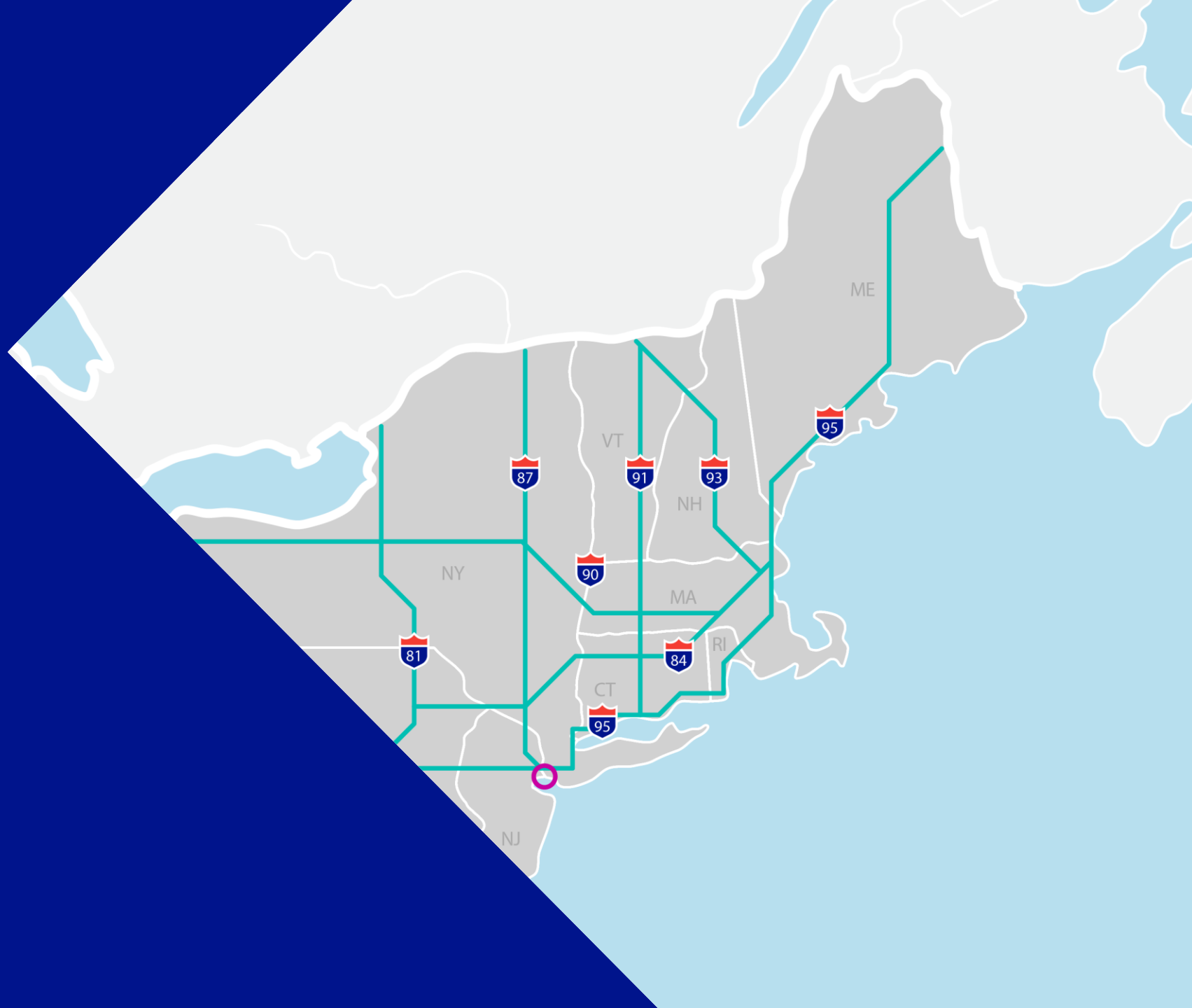


We are continuing to evolve our capability to identify location-specific EV load growth, which traditional forecasts were not designed to capture.

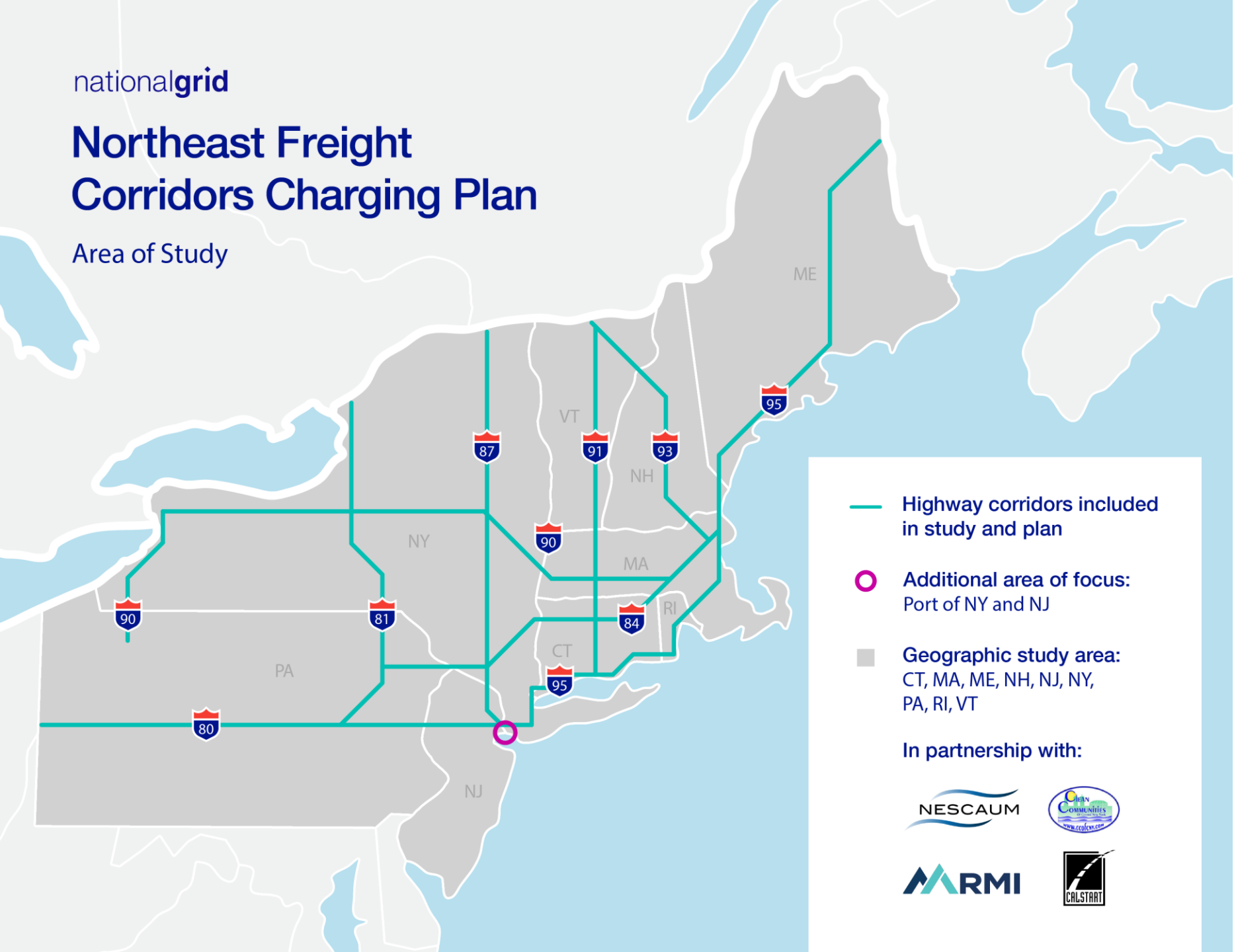
- Site Identification
- Fleet Characteristics
- Fleet Behavior

Northeast Freight Corridors Charging Plan

Planning the Future of Medium- and Heavy-Duty Infrastructure



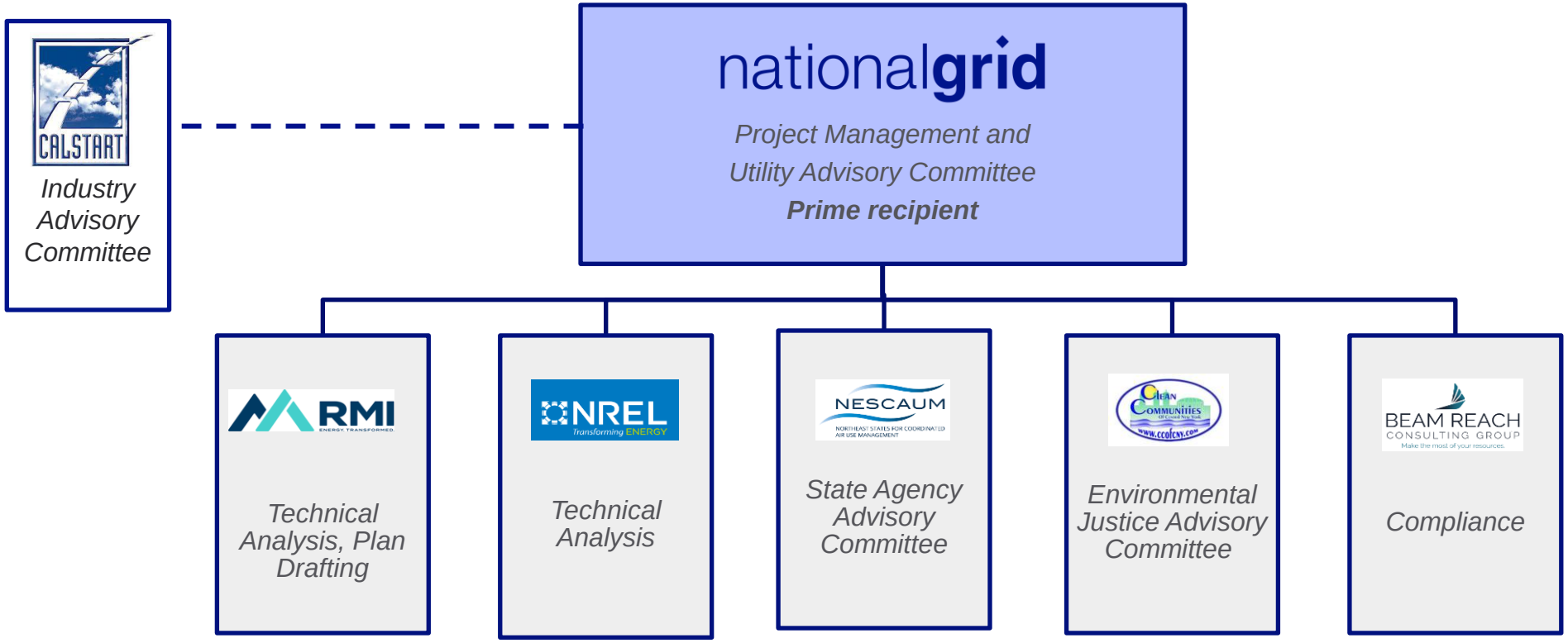
nationalgrid



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 will cover 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.

Collaboration and coordination – Project team structure



National Grid leads a standing monthly meeting with the project team. In addition, National Grid has monthly one-on-ones with each organization and hosts weekly “office hours”.

Each organization that leads an Advisory Committee organizes meetings as necessary to meet project objectives and milestones.

Collaboration and coordination – 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

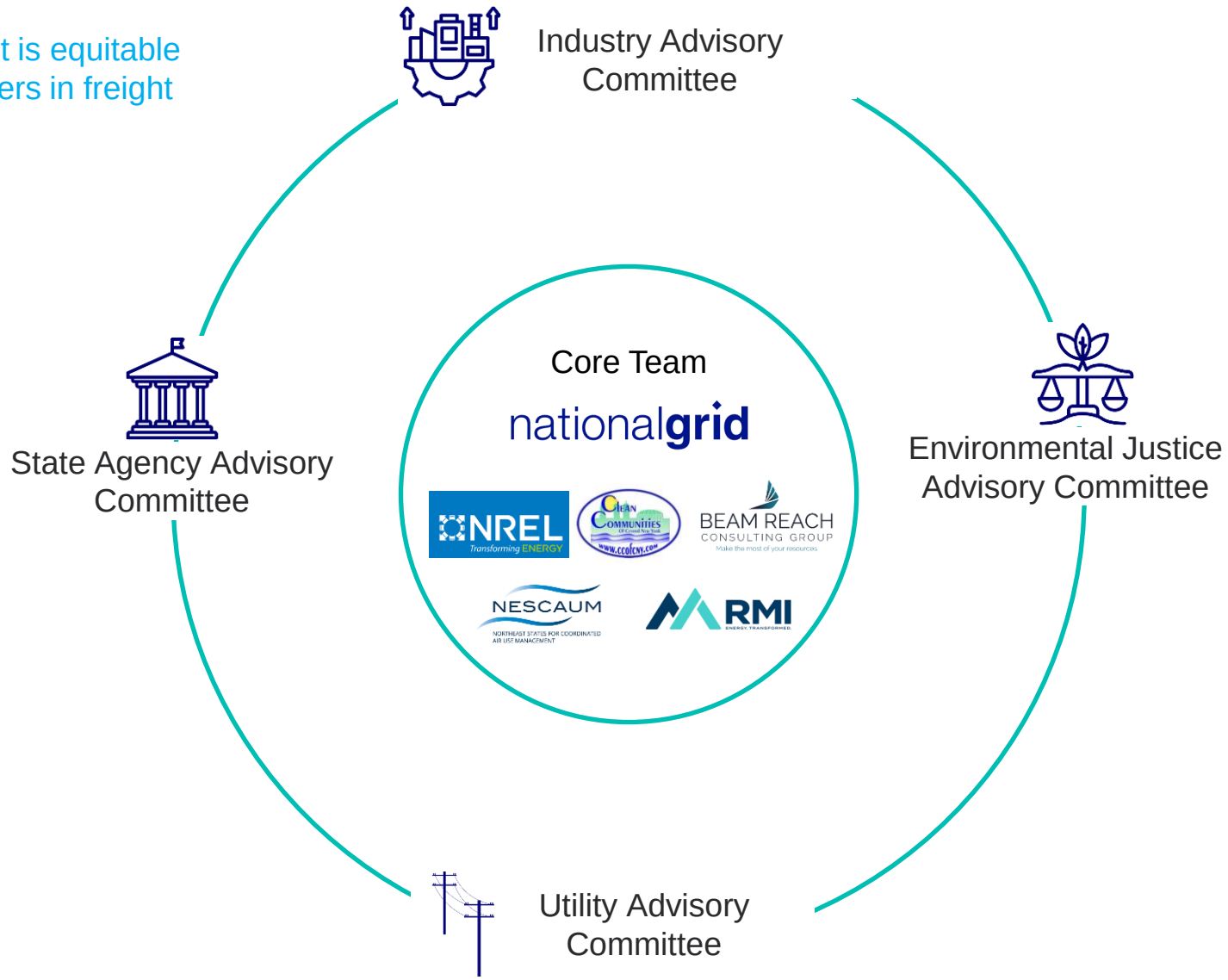
Advisory Committee members include:

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

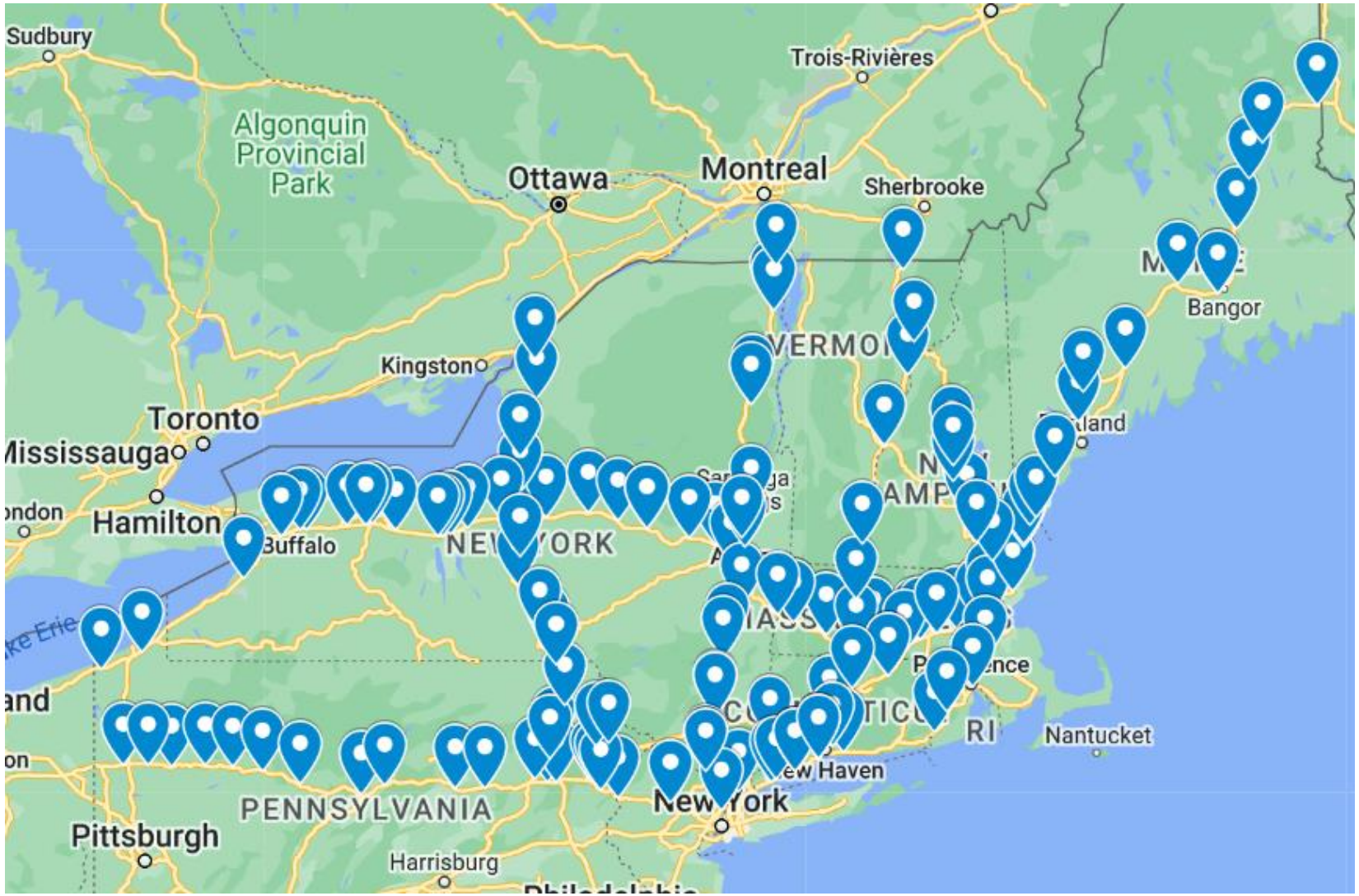
Industry: Cummins, DHL, Nikola, XOS, Applegreen, ChargePoint, General Motors, Pilot Flying J, Zeem, BP Pulse, Daimler, Ikea, Voltera



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
Sites prioritized based on 4 metrics: 1. Estimated Load 2. Proximity to Infrastructure 3. State Priorities (defined by State Agency Advisory Committee) 4. EJ Impact (Defined by EJ Advisory Committee)	30-40 Prioritized Sites for Regional Plan
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**

Sites selected for study



We developed **load profiles for 120+ sites**

This informs a **regional plan for MHDV charging with 30-40 prioritized sites**, including desktop engineering for grid upgrades

Stakeholder Input on How to Prioritize Sites

Defined Scoring Rubric

State Agency Committee criteria:

- Number of truck parking sites
- Site proximity to highway and serve both directions of traffic
- Proximity to other fleets or depots

Load, 25% Metric based on the load figures in 2030 and 2050	**Equity, 25%** Metric based on how sites contribute to furthering equity and/or mitigating environmental disparities
State, 25% Metric based on how sites align with states' priorities for MHDV highway charging	**Utility, 25%** Metric based on the ease and cost of building utility upgrades needed to serve load at sites

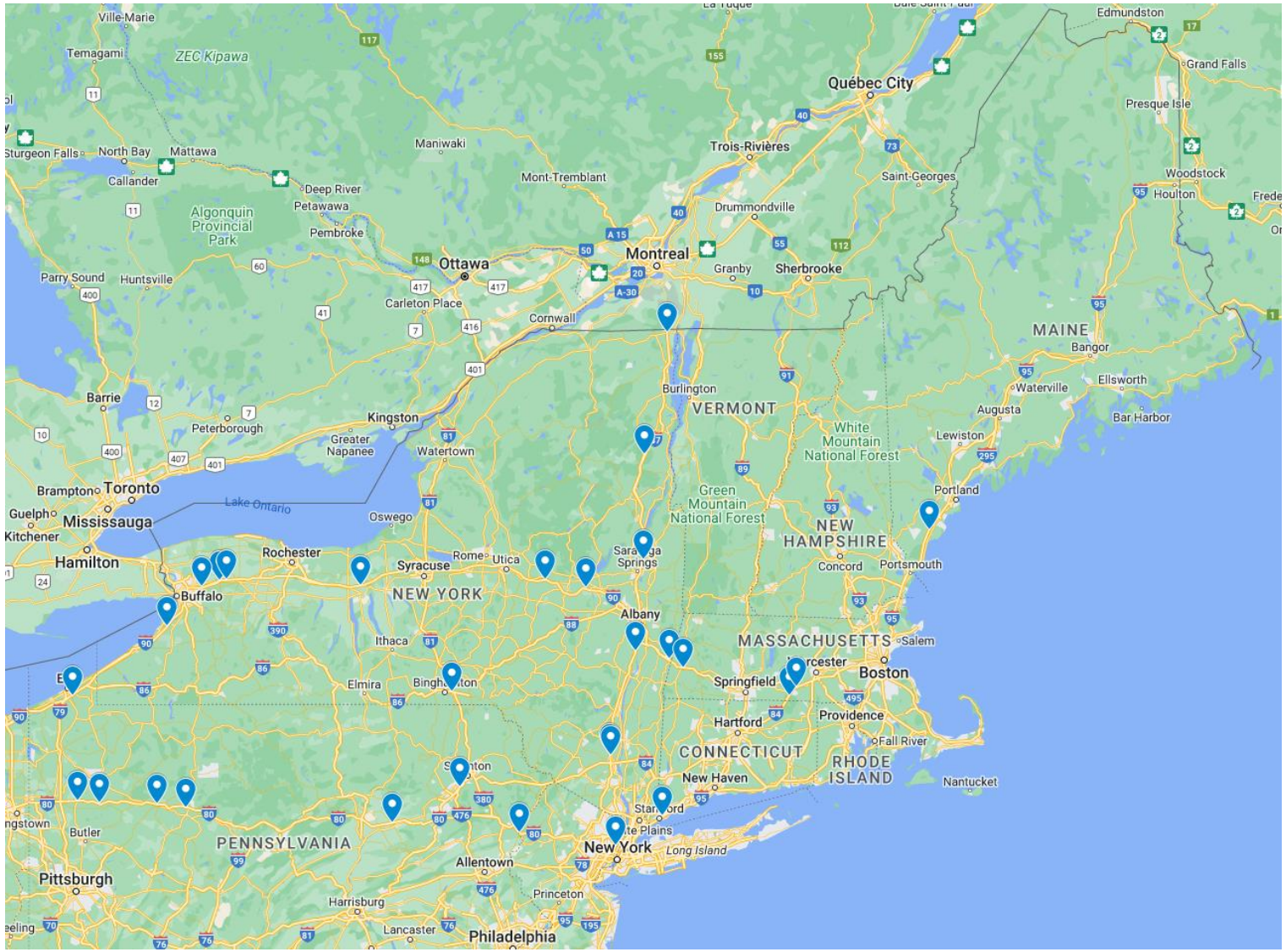
EJ Committee:

- Asthma rates
- Air pollution
- Disadvantage Community designation

Utility Committee criteria:

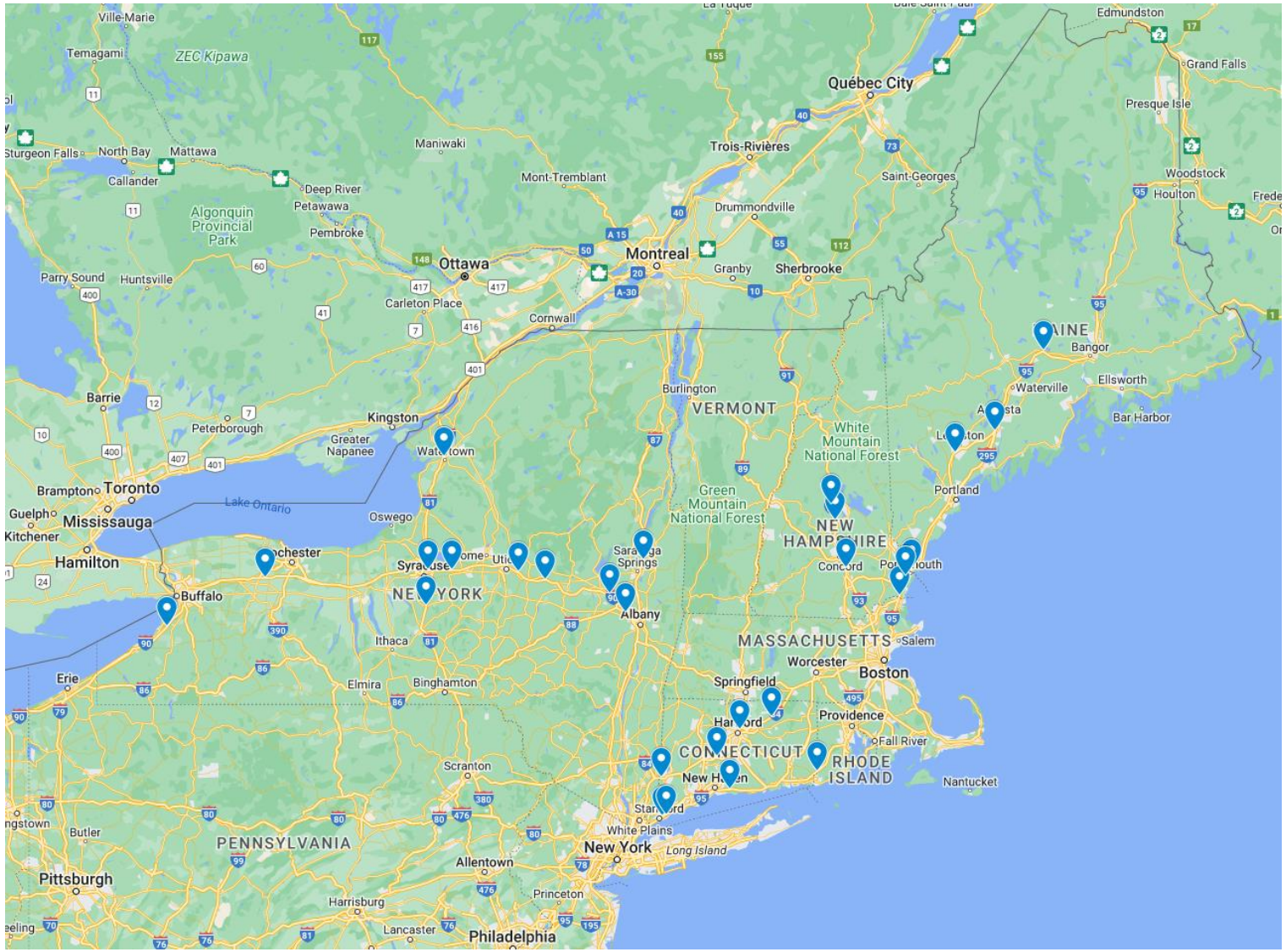
- Investment costs (low/med/high)
- Area plans (short / med / long term)

Top Sites based on Load Criteria



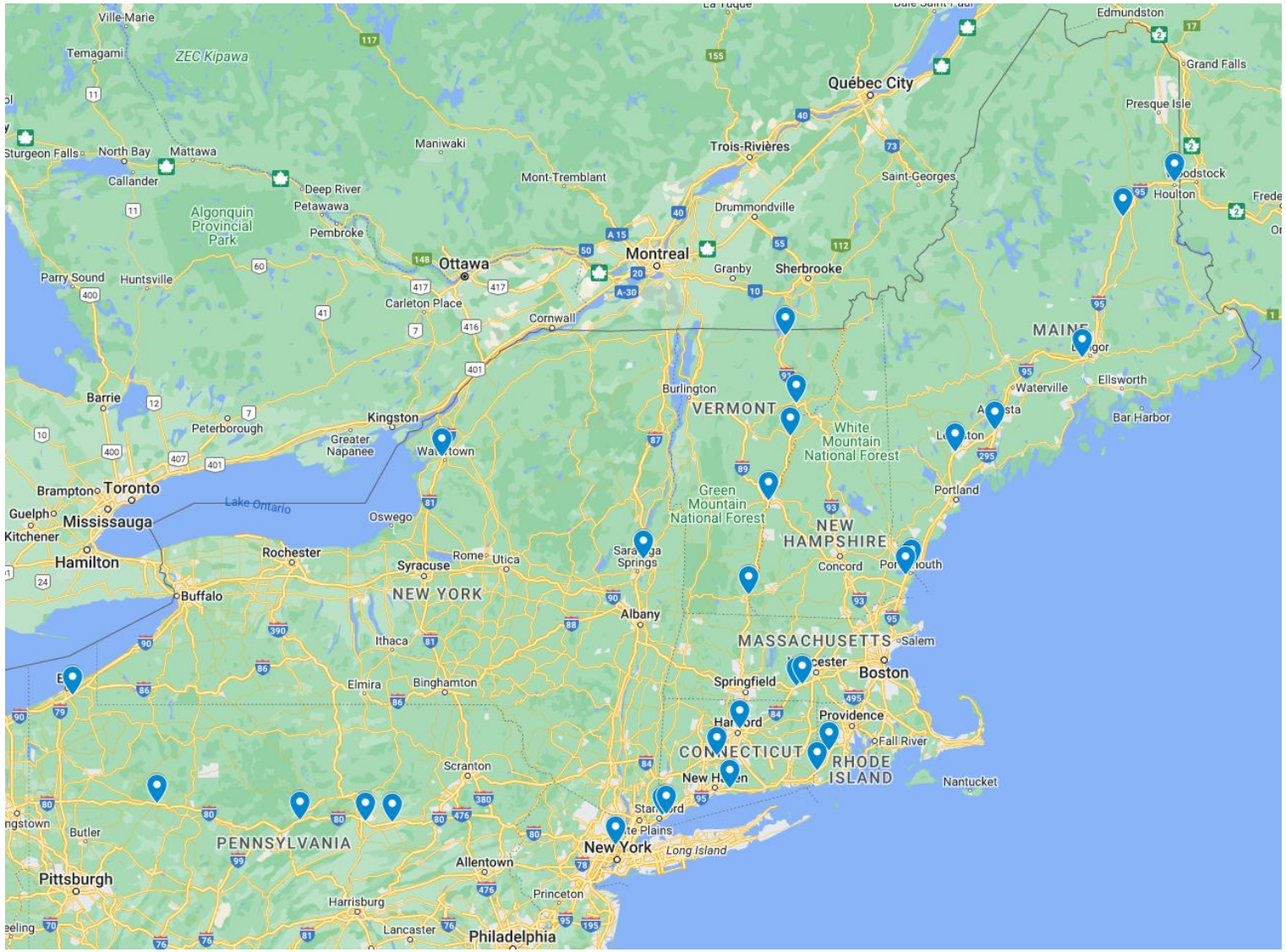
- *East-West routes have the most traffic and biggest load.*
- *Largest North-South load is from I-87, from ports of NY and NJ up to Canada*
- *Gaps in NH, VT, CT, and RI*

Top Sites based on Utility Criteria



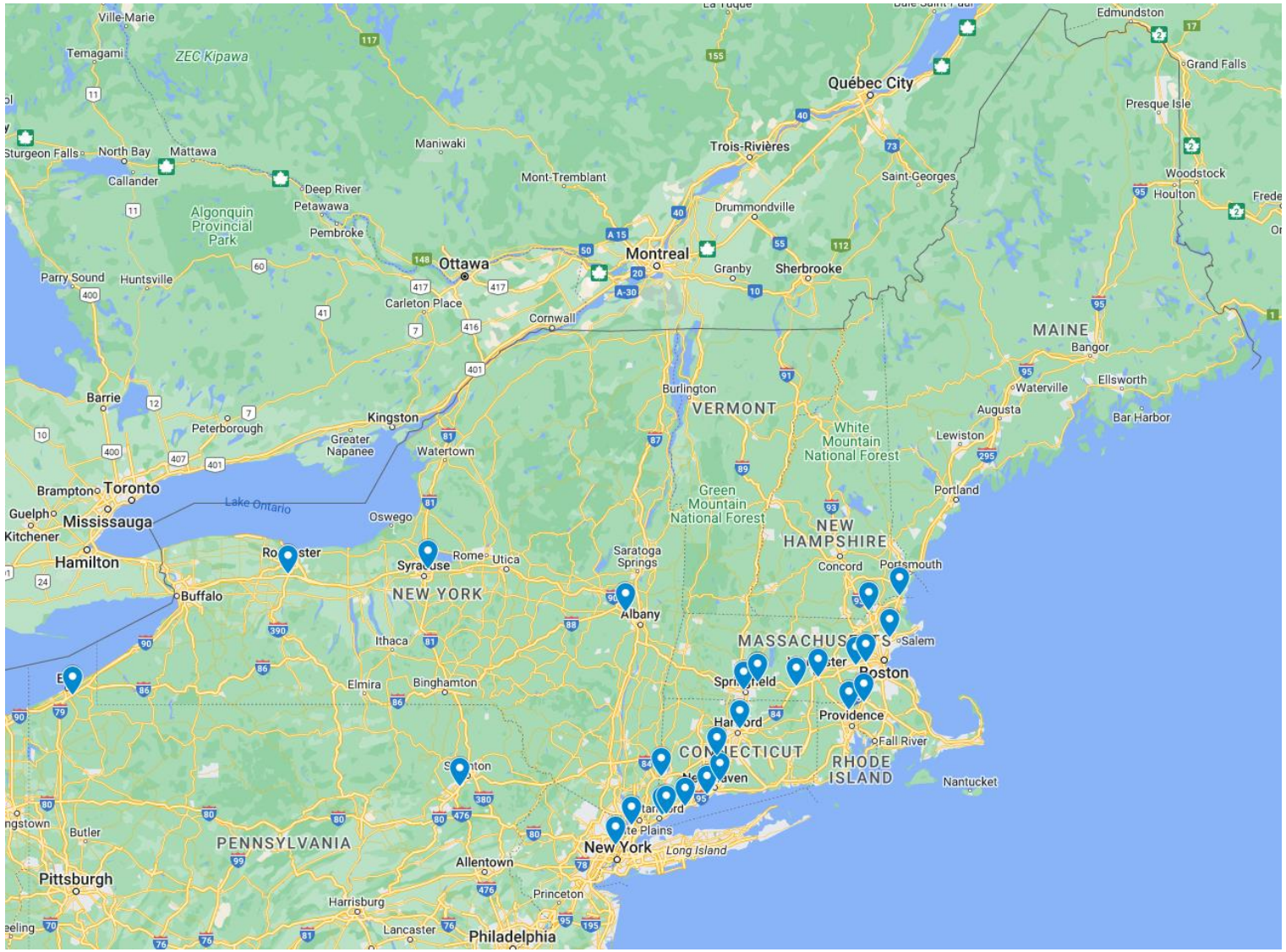
- *All had a perfect score – low investment cost, projects in flight*
- *Gaps in MA and PA*

Top Sites based on State Criteria



- *States took different approaches to grading sites*
- *Gaps in the map in PA and NY*

Top Sites based on Equity Criteria



- *Large urban and highly trafficked parts of highways have highest results*
- *Demonstrates difficulty of environmental justice work in urban vs rural divide*
- *Gaps in most states*

Top sites selected for additional analysis

The prioritized list includes 2 sites in MA: one in western MA (Eversource territory) and one in central MA (National Grid territory). The National Grid site aligns with our initial ESMP filing.

Prioritized Site List Criteria

- **Combined Score:** Highest scoring sites per corridor
- **Coverage:** Goal of ~100 miles between sites, allowing for up to 125 miles between sites if needed.
- **Traffic Direction:** Ensured each direction N/S or E/W were served by selected sites.
- **State Coverage:** Made sure every State represented had at least 1 site.

Next Steps

- **Conceptual Solutions:** Working with utilities to develop conceptual solutions and high-level cost estimates for sites
- **Community Resource Maps:** Working with the Environmental Justice Committee to create community resource maps for priority site areas
- **Finalize Roadmap:** Bring outlines and drafts to committees for feedback and input on final roadmap recommendations
- **Share Results:** Conduct a roadshow of the final plan to advocate for states to incorporate the findings into their own plans

Analysis of the Charging Needs for the Port of New York and New Jersey

In addition to the corridor sites, we are working with NREL and PANYNJ to analyze the charging needs of the port.

PANYNJ described that one their challenges to enabling transportation electrification is understanding charging needs *outside* of the Port's property.

NREL and RMI have collaborated on how to use the same Geotab data to look at how trucks move in and out of the port to understand off-port charging needs.

NY Proactive Planning for Upgraded Electric Grid Infrastructure

nationalgrid

Context: New York's Proactive Planning Order for Electrification

What's the Proactive Planning Proceeding?

Our electric grid needs to be ready ahead of time to meet the wave of demand from electric heating, electric vehicles, and economic development. That's why New York's Public Service Commission started the **Proactive Planning Proceeding**.

The Proactive Planning Proceeding brings utilities, state agencies, and stakeholders together to rethink how we ready our grid infrastructure for electrification, so that together we can:

- Ensure the electric grid is an enabler—and not a roadblock—to beneficial electrification
- Enable the state to meet its policy objectives
- Empower customers to electrify their homes, businesses, or vehicles

What are Urgent Upgrade Projects?

Over the next year, utilities and other stakeholders will be developing a new framework to plan for electrification growth.

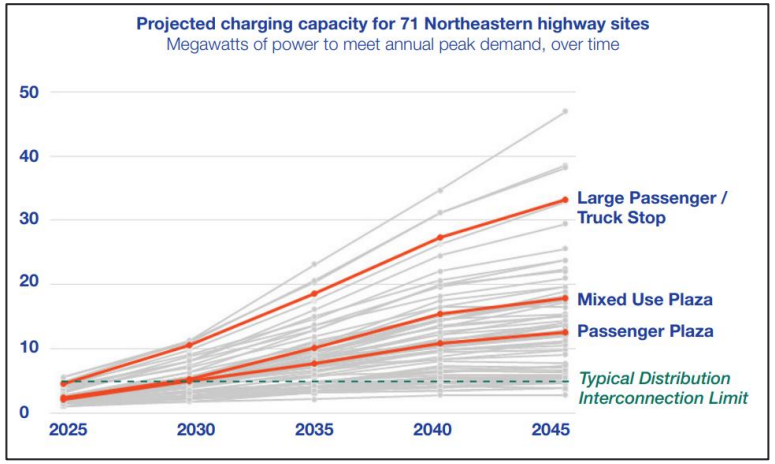
However, the state recognized there are some areas where constraints on aging grid infrastructure are already preventing customers from electrifying their vehicles or heating. Utilities were directed to file **"Urgent Upgrade Projects"** to address high-priority hotspots.

National Grid filed our "Urgent Upgrade Projects" proposal in November 2024.

Today, we'll take you through our project proposal, how we identified these urgent needs, and how we can work together to make electrification a reality.

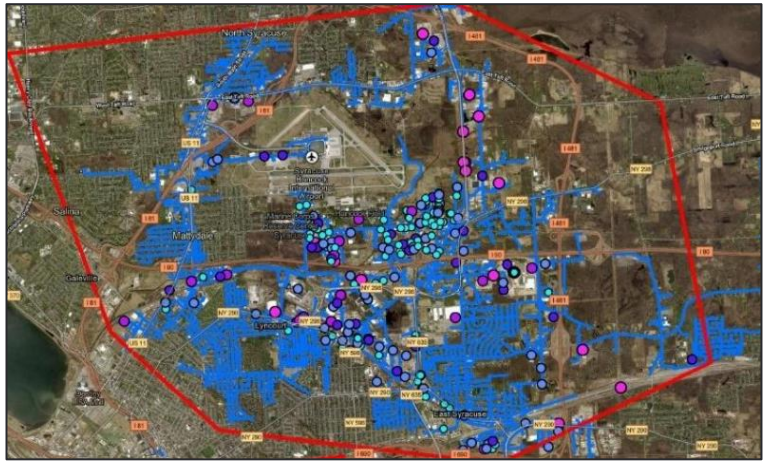
Urgent Upgrade Projects: Transportation Electrification

Highway fast-charging study



- **Electric Highways Study published in 2022 with CALSTART, RMI, Geotab, Stable Auto**
- **Won DOE grant to expand study across Northeast for MHDV charging (“Northeast Freight Corridors Charging Plan”)**

Granular fleet charging studies

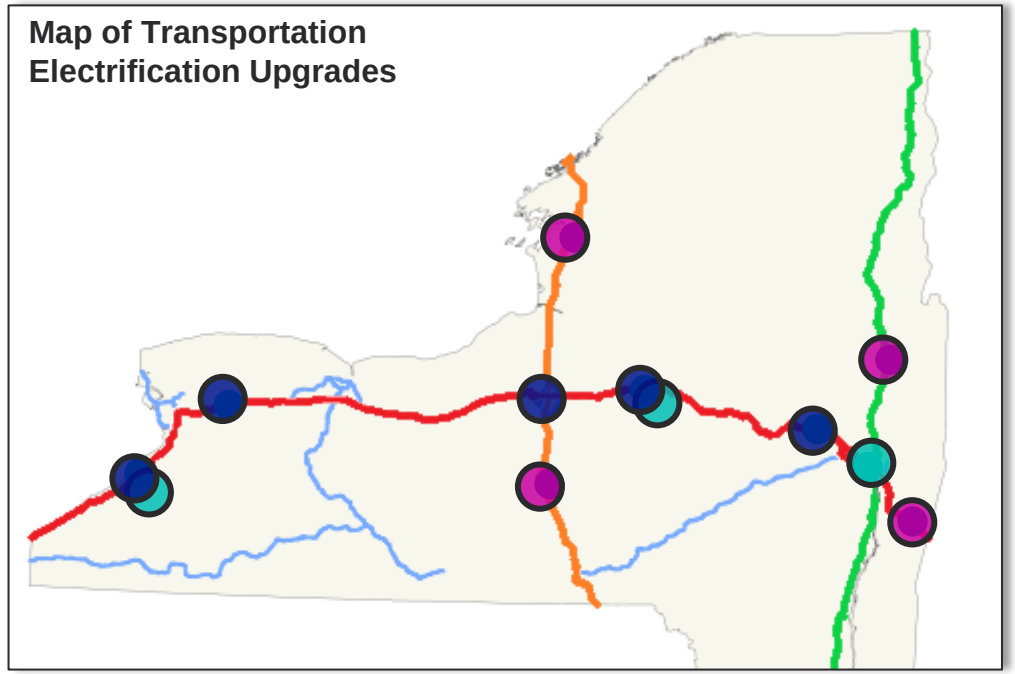


- **Process based on series of public studies on fleet electrification published in partnership with Hitachi Energy**

Customer input and requests

- **Including school districts receiving funding for electric school buses**

Urgent Upgrade Projects: Transportation Electrification



I-90 System Capacity Upgrades

- *Creates 100-200 MW of capacity for fast-charging on I-90*

Mobile Battery Energy Storage

- *Delivers "bridge-to-wires" for constrained areas*

Off-Thruway, I-81, and I-87 System Capacity Projects

- *Creates 50+ MW of capacity for corridor/fleet charging*

School Bus and Customer-Driven Projects

- *Near-term upgrades at locations throughout state – not on map*

Proposal includes letters of support from:

ACE Hardware, bp pulse, Chateau Energy Solutions, Daimler Truck North America, FirstStudent, Ford, International, Trillium, Pilot Company, STA, Wilton Travel Plaza / Scotty's Restaurant, Terawatt, Tesla, truCurrent, Zeem, Volvo

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Public Comment