Commonwealth of Massachusetts

Executive Office of
Energy and Environmental Affairs

Electric Vehicle Infrastructure Coordinating Council (EVICC) Meeting

July 9, 2025

Agenda

Opening

- Roll call, vote on meeting minutes, meeting agenda, objectives
- Administrative Updates

Updates

- MassCEC Program Updates on On-Street and Mobile Charging Programs

Presentation and Discussion on Draft Second Assessment

Public Comment

Meeting Objectives

- Provide important updates on the Department of Public Utilities' joint investigation into utility pole attachments (D.P.U. 25-10) and on MassCEC's On-Street Charging and Mobile Charging Programs

- Review, discuss, and receive feedback on the draft EVICC Second Assessment

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 does not endorse any particular company or organization.*

Vote on June Minutes

Administrative Updates

- Second Assessment Public Comment Period
    - EVICC requests all comments by Friday, July 11th, after which the survey will be taken down. Written comments can be provided via email.
- DPU Pole Attachment Docket (D.P.U. 25-10)
    - The DPU invites interested parties to submit reply comments in D.P.U. 25-10 on matters related to pole attachments, including pole-mounted electric vehicle (EV) chargers, and right-of-way EV chargers until the close of business (5:00 p.m.) on Friday, August 8, 2025.

Updates

MassCEC EVICC Program Updates

ON-STREET & MHD MOBILE CHARGING SOLUTIONS

Devan DiLibero
Program Manager
Ddilibero@masscec.com

MASSACHUSETTS CLEAN ENERGY CENTER

On-Street Charging Solutions

PROGRAM OVERVIEW

- Access to charging is a significant barrier to EV adoption for renters, residents of multi-unit dwellings, residents of low-income housing, and residents without a dedicated garage, driveway, and/or parking space

PROGRAM GOALS

- Increase access to On-Street Charging and reduce barriers to EV adoption in Environmental Justice Communities (EJCs) throughout the Commonwealth;
- Pilot innovative On-Street Charging models (pole-mounted, streetlight, pedestal mounted) that can be replicated across MA; and
- Publish a guidebook to support municipalities deploying similar curbside charging programs

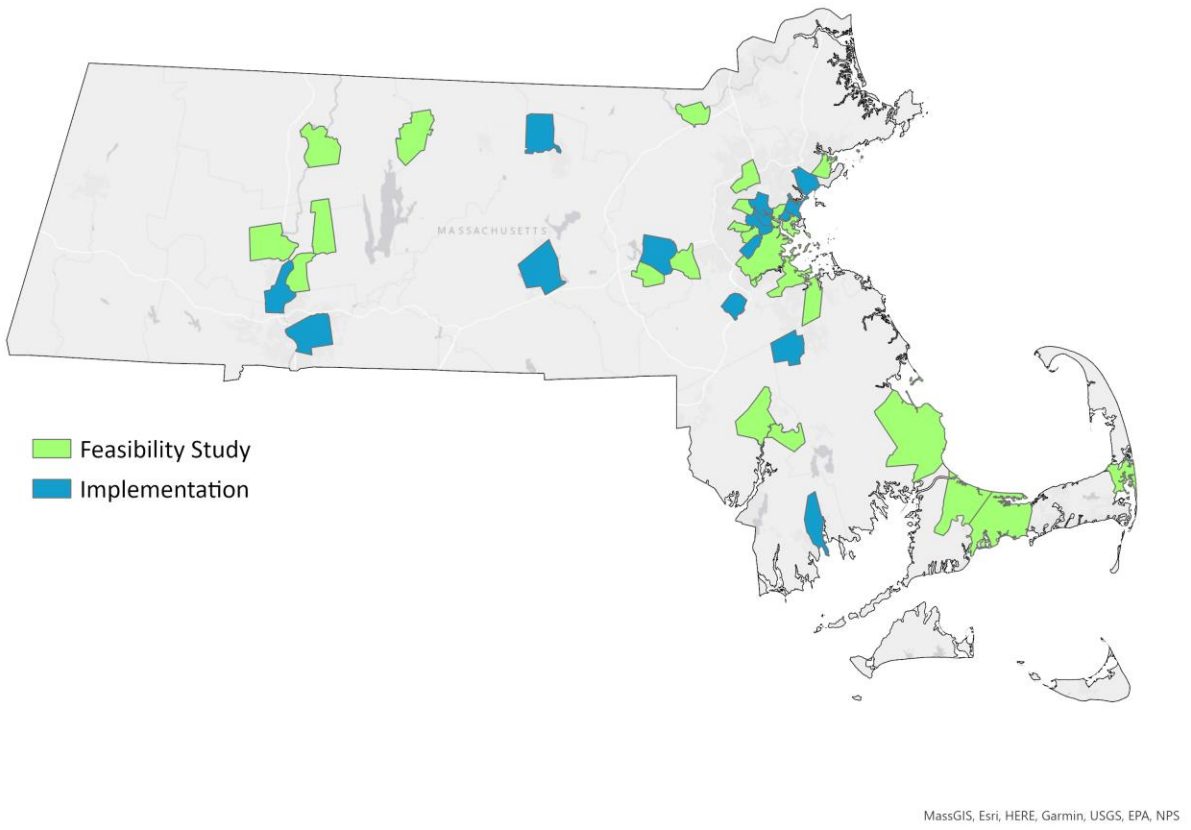
PROGRAM SERVICES

- **Pathway 1: Feasibility Studies**
  - **Up to 25* municipalities** will receive EV charging station planning support & feasibility studies ***at no cost***
    - Feasibility Studies will be delivered to participating municipalities by September 2025
- **Pathway 2: Implementation**
  - **15 municipalities** will receive EV charging station installation at up to three sites ***at no cost***
    - Charging stations will be installed and energized by January 2026

APPLICATION RESULTS

- **15%** of MA municipalities applied
  - **37** for Implementation
  - **16** for Feasibility

Participating Municipalities



- 57% of MA Gateway Cities
  - 34% Implementation
  - 23% Feasibility Study
- Regional Representation
  - Central: 2 munis
  - Greater Boston: 4 munis
  - Metro West: 11 munis
  - Southeast: 7 munis
  - Northeast: 5 munis
  - Western: 7 munis
- Utility Representation
  - Eversource: 19 munis
  - National Grid: 12 munis
  - MLP: 4 munis
  - Unitil: 1 muni

Participating Municipalities

FEASIBILITY STUDY (21/25)

- Amherst
- Arlington
- Ashland
- Athol
- Barnstable
- Boston
- Everett
- Lowell
- Montague
- Natick
- Northampton
- Orleans
- Plymouth
- Quincy
- Salem
- Sandwich
- South Hadley
- Taunton
- Watertown
- Weymouth
- Woburn

IMPLEMENTATION (15/15)

- Brockton
- Brookline
- Cambridge
- Chelsea
- Fitchburg
- Framingham
- Holyoke
- Lynn
- Medford
- New Bedford
- Norwood
- Revere
- Somerville
- Springfield
- Worcester

Medium and Heavy-Duty Mobile Charging Solutions

PROGRAM OVERVIEW

- 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 EJCs
  - "**Mobile charging**" refers to any type of semi-permanent, off-grid, grid-flexible charging station

PROGRAM GOALS

- Increase access to Mobile Charging and reduce barriers to EV adoption for MHD fleet owners and operators in MA;
- Pilot innovative Mobile Charging stations that can be scaled across the Commonwealth; and
- Develop resources for MHD fleet owners and operators in MA to implement Mobile Charging solutions independently

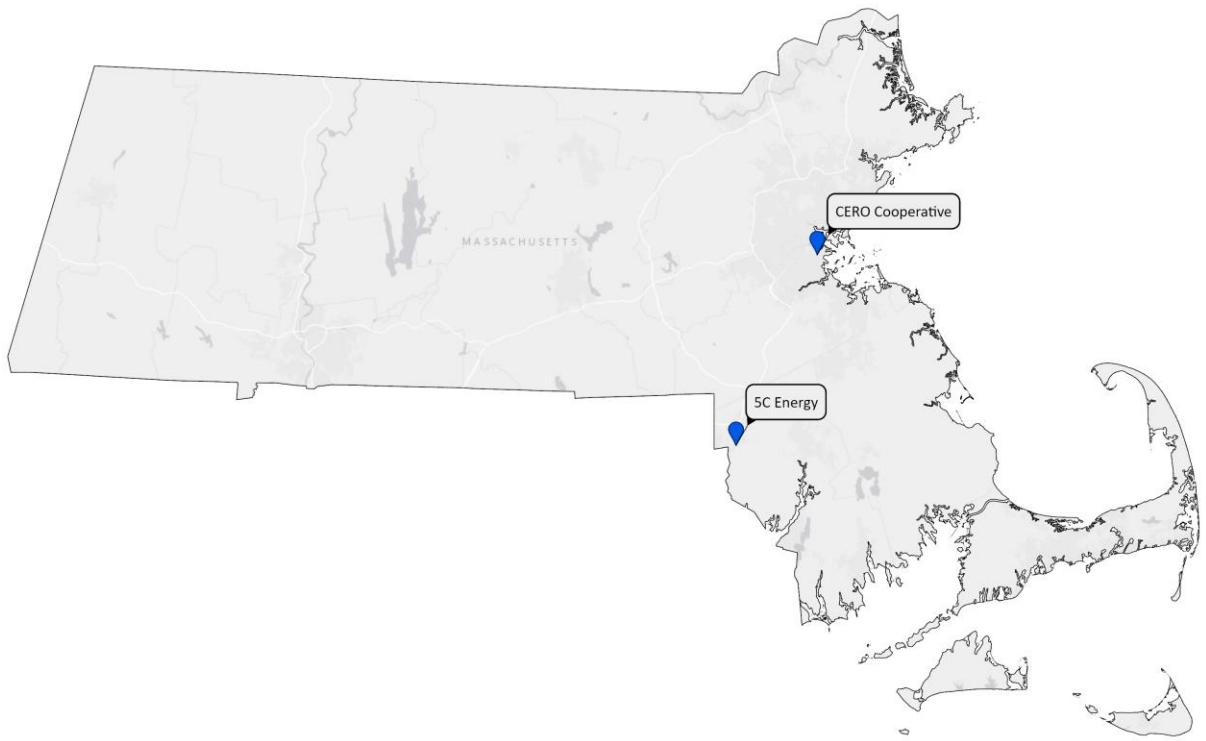
PROGRAM SERVICES

- **Mobile Charger Deployment**
  - Fund the deployment mobile charging stations for four participating fleets
    - Feasibility Studies will be delivered to participating municipalities by September 2025
- **Supplemental Funding**
  - Participating fleets are eligible for up to $200,000 to procure MHD ZEVs
    - Charging Station and MHD ZEVs will be deployed on a rolling basis no later than February 2026

APPLICATION RESULTS

- **18** applications total
  - **4** selected for participation
  - Applicants represented a variety of fleet types, duty cycles, and state of fleet electrification

Participating Fleets (2/4)



- **Cero Cooperative** (Cooperative Energy, Recycling, and Organics)
  - Business Type: Certified MWBE, worker-owned commercial composting company
  - Duty Cycle: CERO Cooperative's routes depart from an inner Boston location and terminate in more rural settings
  - Mobile Charging Use Case: CERO experiences space constraints and leases its property and cannot install permanent EVSE
- **5C Energy**
  - Business Type: Small business engaged in residential and commercial insulation & energization improvements
  - Duty Cycle: 5C operates dynamic duty cycles dependent upon client needs
  - Mobile Charging Use Case: 5C leases its property and cannot install permanent EVSE

Vehicle-to-Everything Demonstration Projects

PROGRAM OVERVIEW

- Deployment of up to 100 V2X charging systems across vehicle class and use-cases
  - Residential, Commercial, and School Bus Fleets

PROGRAM TIMELINE

- Participant Application Form is currently open!
  - School District applications closed on May 30th
  - **Residential and Commercial applications are open through July 31st, 2025**
- For more information, please visit MassCEC's V2X Program Webpage

CONTACT INFORMATION

- MassCECV2X@resource-innovations.com
- Cleantransportation@masscec.com

Commonwealth of Massachusetts

Executive Office of
Energy and Environmental Affairs

Draft Second EVICC Assessment

Stakeholder Discussion

What We Will Cover

Initial EVICC Assessment + Progress

- Initial EVICC Assessment
- EVICC Work + Progress Since 2023

Draft Second EVICC Assessment

- Overview
- EV Charging Programs + Initiatives - Ch. 3
- EV Charger Deployment - Ch. 4
- Electric Grid Impacts + Managed Charging - Ch. 5
- Consumer Charging Experience - Ch. 6
- EV Charging Technology + Business Models - Ch. 7

Strategic Plan + Next Steps

- Strategic Plan Overview
- Assessment Schedule

Initial EVICC Assessment + Recent EVICC Work

Initial EVICC Assessment

- Key takeaways from the initial EVICC Assessment:
  - Additional electric vehicle (EV) charging infrastructure is needed to meet the Commonwealth's climate goals
  - Customer charging experience needs improvement
  - Massachusetts should prioritize charger access for "garage orphans," renters, and rural communities
  - A lack of grid capacity poses challenges to deploying the needed amount of EV chargers
  - The state should better promote its EV charger incentive programs and availability of EV charging

- Actions that EVICC or EVICC member agencies have taken to address these takeaways are included in the Appendix of the draft Second EVICC Assessment

- The Second EVICC Assessment is due on August 11, 2025

EVICC Work Since the Initial Assessment

- In February 2024, EVICC allocated $50 million in ARPA funds to several EV charging programs:
  - $11 million to Leading By Example and DCAMM for EV charging for state fleet vehicles
  - $38 million to MassCEC for innovative charging programs to help scale new technology/business models
  - ~$500,000 to Division of Standards for EV charging testing equipment
  - The balance of funding has been used to support EVICC analysis

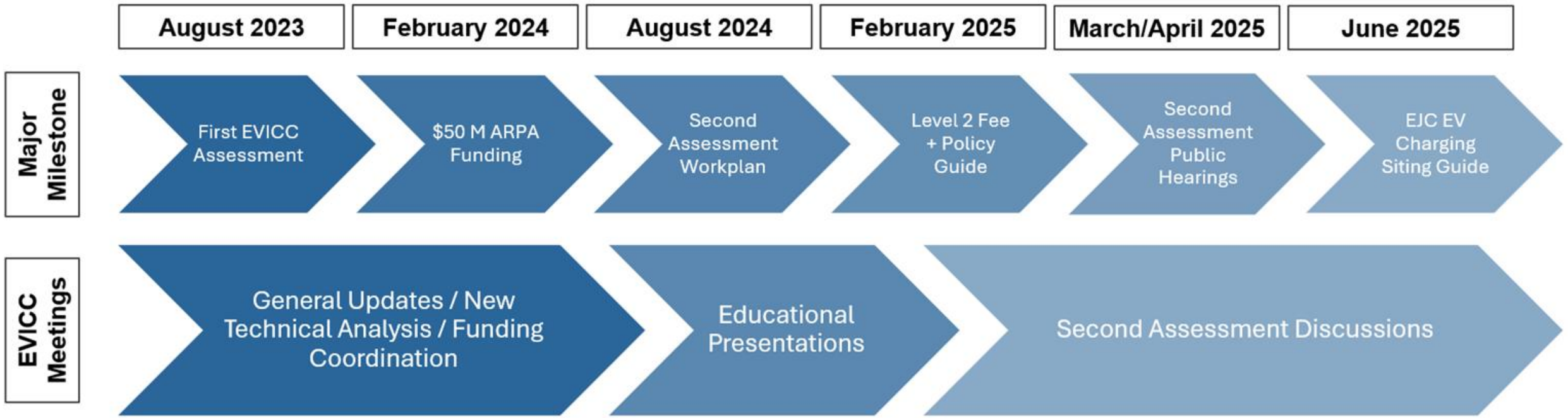
- In August 2024, EVICC proposed the Second Assessment workplan, which was adopted in September 2024

- The 2024 Climate Act, signed on November 21, 2024, included several provisions related to EVICC:
  - **Sections 102-104:** Requires a 10-year EV charging forecast, to include medium- and heavy-duty vehicle charging
  - **Section 5:** Requires regulations related to EV charger reliability and data sharing for public EV chargers
  - **Section 42:** Requires an inventory of EV charging stations and the Division of Standards to ensure pricing accuracy
  - **Sections 85-86:** Grants residents of condos and homeowners' associations the "right to charge"
  - **Section 134:** Requires utility plans to allow EV charging in the public right-of-way and on utility poles

- In March and April 2025, EVICC held four public hearings across the Commonwealth to gather input for the Second Assessment, as well as to share information about EVICC's work and the state's EV charging programs and initiatives

- EVICC released two public resources:
  - Public Level 2 Charging Station Fee and Policy Guide
  - A Guide to Equitable Siting of Electric Vehicle Charging Stations in EJ Populations

Progress Since Initial Assessment - Timeline



Draft Second EVICC Assessment

Draft Second Assessment Overview

Where We Are

- **Massachusetts has made considerable progress since the last EVICC Assessment.** Public EV charging increased by ~50% between August 2023 and December 2024.
- **Massachusetts is well situated compared with its peers.** Massachusetts ranks 4th in EV chargers per capita amongst all states, including ACC II and ZEV MOU states.
- However, EV charger deployment **currently faces significant headwinds**. Federal program and investment tax credit roll backs and market and cost uncertainties are the biggest challenges.

Where We Hope to Go

- The current pace of **EV charger deployment needs to triple** to meet the EV adoption benchmarks included in the state's Clean Energy and Climate Plans (CECP) by 2030.
- Given existing headwinds and the need to increase deployment, Massachusetts must:
  - **Be more strategic** in employing public funding, leveraging private funding, and utilizing the electric grid;
  - **Improve efficiencies** of existing program administration and coordination and by removing common barriers;
  - **Be proactive** in planning for future EV charging, grid infrastructure, and future funding sources; and,
  - **Significantly improve the EV charging experience.**

Chapter 3

Current EV Charging Programs and Initiatives

Existing EV Charging Programs

Massachusetts has **programs in place or under development to support nearly every aspect of EV charging**, including programs that:

i. Support EV charger deployment, both at scale and in targeted use cases;
ii. Test and scale novel business and technology models to unlock further private funding;
iii. Provide tailored customer support to reduce soft costs and address barriers; and,
iv. Other programs and initiatives to reduce the electric grid impacts of EV charging and proactively plan for future grid infrastructure to accommodate EVs.

EV charger incentive programs offset the costs of electrical infrastructure upgrades (called “make-ready” or “installation costs”), charging equipment (called “EVSE” for electric vehicle supply equipment), and / or other costs (e.g., operations and maintenance costs, networking costs, etc.). These programs are essential to support EV charger deployment.

Summary of Massachusetts EV Charger Programs

	Charger Types	Use Case	Inactive / Grant	Program Administrator
Scaling Deployment				
MassEVIP	Level 1 or 2	Public access, multi-unit dwellings, workplaces, and fleets	Y	MassDEP
Investor-Owned Utility Programs	Level 2 or fast charging	Public access, multi-unit dwellings, workplaces, and fleets	Y	National Grid, Eversource, and Unitil
Targeted Deployment				
Addressing Range Anxiety				
National Electric Vehicle Infrastructure (NEVI) Formula Program	Fast charging	Major transit corridors	Y	MassDOT
Service Plazas	Fast charging	Major transit corridors	N - contractual obligation for plaza operator(s)	MassDOT
Specific Use Cases				
Investor-Owned Utility Programs	Level 2	Single-family residential to address Level 2 cost barriers	Y	National Grid, Eversource, and Unitil
Green Communities	Level 2	Municipal charging	Y	DOER
Leading by Example Division (LBE) / Division of Capital Asset Management and Maintenance (DCAMM)	Level 2	State charging	Y	DOER/ANF
Charging and Fueling Infrastructure (CFI) Grant Program	Grant dependent	Grant dependent (e.g., state parks, MBTA park-and-rides, etc.)	Y	Grant dependent (e.g., DCR, MBTA, etc.)

Summary of Massachusetts EV Charger Programs (cont.)

	Charger Types	Use Case	Inactive / Grant	Program Administrator
Proving + Scaling New Models				
Creating Replicable Models				
On-Street Charging Solutions	Level 2	Residential charging for EV drivers without off-street charging	Y	MassCEC
Ride Clean Mass: Transportation Network Company (TNC) Charging Hubs Program	Level 2 or fast charging	Charging for rideshare drivers	Y	MassCEC
Vehicle-to-Everything	Level 2	Utilizing EVs as a grid resources	Y	MassCEC
Mobile Charging for Medium- and Heavy-Duty (MHD) Vehicles	Level 2 or fast charging	Novel charging solution for MHD fleets to address common barriers	Y	MassCEC
Accelerating Clean Transportation for All Round 2 (ACT4All 2)	Level 2	Multiple equity focused novel applications / business models	Y	MassCEC
Support Services				
Utility Fleet Advisory Services Program	N/A	Public fleets in Eversource and National Grid territory	N - provides technical assistance to help overcome common barriers	National Grid and Eversource
Mass Fleet Advisor	N/A	Private fleets in Eversource + National Grid territory, all other fleets	N - provides technical assistance to help overcome common barriers	MassCEC
Other Programs + Initiatives				
National Grid's Off-Peak Rebate Program (Minimizing Grid Impacts)	Level 2	Residential and fleet EVs	Y - monthly rebate for charging during certain hours	National Grid
Proposed Managed Charging Programs (Minimizing Grid Impacts)	Level 2	Residential EVs	Under review in D.P.U. 24-195 and 24-197 (Monthly rebates, if approved)	Eversource and Unitil
Section 103 Process (Proactive Planning)	Process authorized in Section 103 of the 2024 Climate Act to work with the investor-owned utilities to identify potential grid upgrades to accommodate future EV charging.			

Summary of EV Charger Incentive Program Details

	MassEVIP		Utility Programs			DCAMM / LBE	Green Communities
Use Case(s)	Workplace, fleet, multi-unit dwellings, and educational campuses	Public Access	Residential	Public Access & Workplace	Fleet	State fleets, including charging state vehicles at home	Publicly accessible and fleet charging stations on municipally owned land
Charger Type(s)	Level 1 or 2	Level 1 or 2	Level 2	Level 2 or DCFC; Level 1 (National Grid only and in certain cases)	Level 2 or DCFC	Level 2	Level 1 or 2
Covered Expenses	EVSE + make-ready costs (only for non-Eversource / National Grid customers)	EVSE + make-ready costs (only for non-Eversource / National Grid customers)	Make-ready; EVSE for low-income customers and multi-unit dwellings, networking and energy management systems for multi-unit dwellings depending on the utility	Make-ready, EVSE, networking for public access, and energy management systems depending on the utility	Make-ready and EVSE, depending on the fleet	EVSE + 3-5 years of O+M and networking costs	EVSE + make-ready not covered by Eversource and National Grid
Percentage of Expenses Covered	Up to 60%, to a maximum of $50,000 per address	Up to 80-100%, to a maximum of $50,000 per address	Up to 150% of average make-ready costs and, up to 100% of EVSE costs			Up to 100%	Up to $7,500 per charging station

Existing EV Charging Programs - Comments + Takeaways

Key themes from comments provided at EVICC public meetings and during public hearings regarding the state's existing programs include:

- Program offerings and eligibility requirements can be difficult to navigate, especially when trying to compare across state and utility programs.
- More funding for DCFC is necessary, along with increased transparency about the amount of funding allocated for other incentive programs.
- More resources and technical assistance are needed to help applicants navigate program applications; a centralized location for information about all of the incentive program offerings would be helpful.

Executive Office of Energy and Environmental Affairs (EEA) staff note:

- Significant customer segment overlap between EVIP and the investor-owned utility programs, specifically the Level 2 incentive offerings which almost completely overlap with the exception of utility-make ready incentives
- MassCEC's Clean Energy Lives Here, Electric Vehicle website provides a clearinghouse of information on Massachusetts' existing EV charging programs

Existing EV Charging Programs - Recommendations

- Better align MassEVIP and the utility EV charger incentive programs by coordinating customer eligibility and program requirements to improve the customer experience and efficient disbursement of available funding.
- Improve public information on the status and future of existing incentive programs and customer communication on application status and other relevant information, as necessary and appropriate, with the objective of improving transparency and helping stakeholders plan future EV charging infrastructure deployment more effectively.
- Build on the success of the existing innovative EV charging infrastructure programs and ACT4All, Round 2 innovative charging projects by providing resources and lessons learned to help further unlock the potential of these business and technology models and look for new opportunities to test and help scale other innovative business models.

Mentimeter Questions

- What are the most impactful ways to improve or enhance coordination between existing EV charging incentive programs?

- What is the most impactful information or other improvements existing programs could make to enhance customer communication to support timely deployment of EV charging infrastructure?

Chapter 4

EV Charger Deployment

EV Charger Deployment

Current Deployment: Understanding the current landscape of charger deployment is important for identifying infrastructure gaps and planning for needs across geographies and charger and vehicle types.

Charger Projections: Projections of future EV charger deployment to support the Commonwealth's climate requirements are helpful in understanding the scale of magnitude of future charger deployment. However, forecasts of future EV charging infrastructure rely on several highly variable inputs that may prove inaccurate.

Charger Deployment Priorities: Focusing on deployment of EV charging infrastructure that provides the greatest value to Massachusetts drivers is key to ensuring continued and sustained progress amid federal policy and market uncertainties.

To effectively serve increased EV adoption, Massachusetts' efforts to advance EV charging infrastructure **must become more targeted**, focusing on deployment of EV charging infrastructure that provides the greatest value to Massachusetts drivers. As such, the draft Second Assessment focuses primarily on: (1) EV charging infrastructure accessible to all members of the public (i.e., **"public" EV charging**), including on-street charging for residential customers; and (2) **EV charging for fleet vehicles**.

Current Status of EV Charging

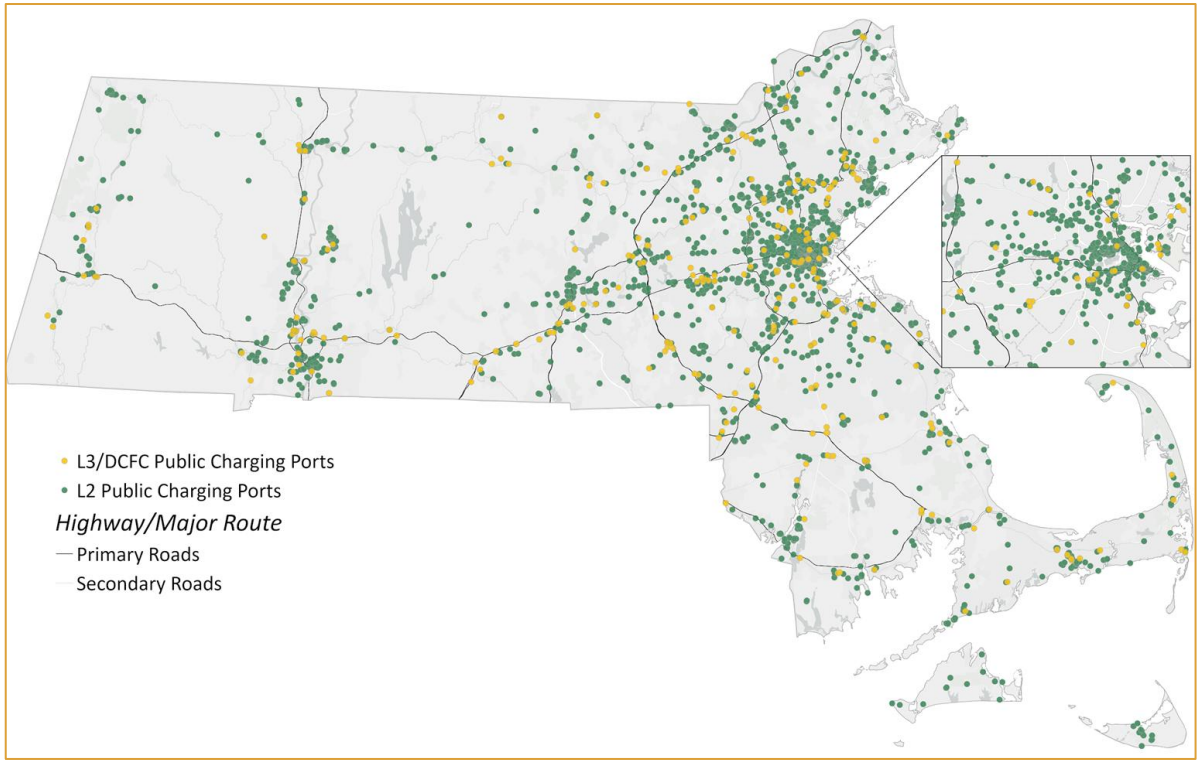
- The network of public charging stations in Massachusetts has grown significantly since the Initial Assessment was released in 2023.
- As of August 2023, there were 2,623 publicly accessible charging station locations, with 6,082 ports. Since then, the number has grown to at least 3,750 charging station locations, with 9,413 ports.
  - Massachusetts deployed nearly 50% more publicly accessible EV charging ports in 2024 than in 2023, with a 169% increase year-over-year in fast charging port deployment (382 versus 142).
  - If 2024 deployment rates continue, the number of publicly accessible fast charger and Level 2 ports in Massachusetts at the end of 2025 will closely mirror the 2025 CECP EV charger benchmarks (i.e., 1,300 and 9,500 publicly accessible fast chargers and Level 2 chargers, respectively).
- Alliance for Automotive Innovation Third Quarter 2024 report shows Massachusetts is the furthest along in deploying charging infrastructure amongst Advanced Clean Cars II states.
- Massachusetts ranks 4th in terms of EV charging ports per capita compared to other jurisdictions across the country, behind Vermont, Washington D.C., and California (see next slide).

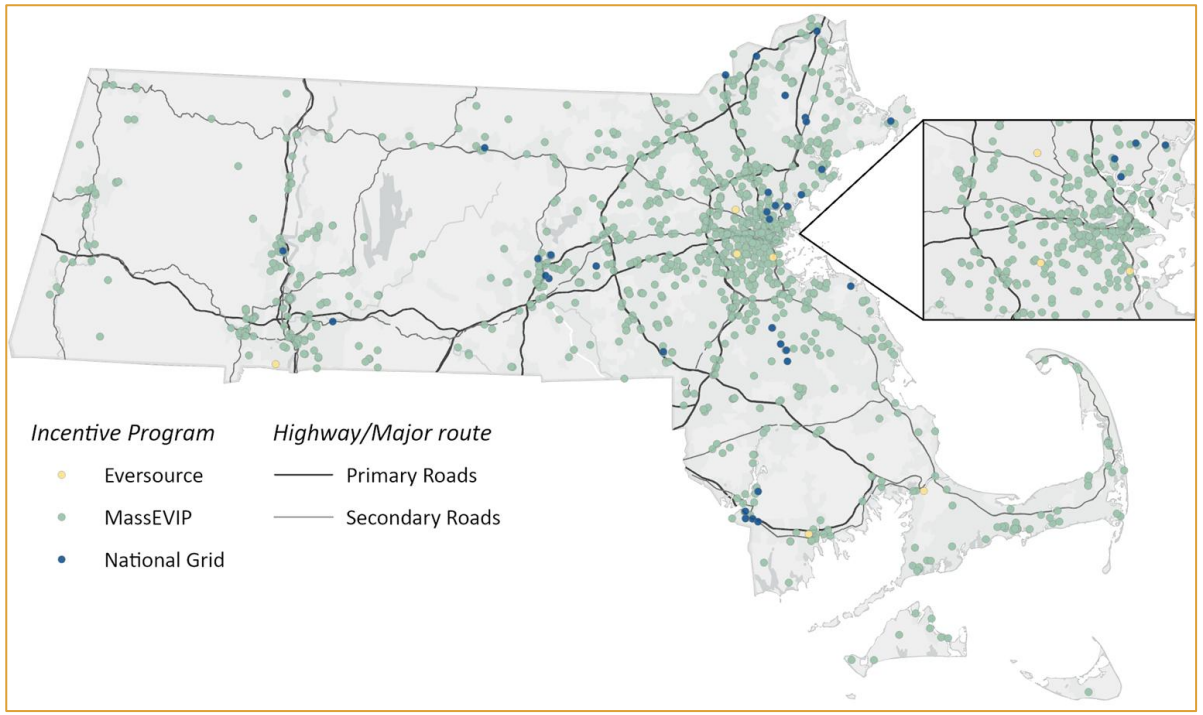
Current Status of EV Charging (cont.)

State	Population	Registered EVs	Count of EV Ports	Ports Per Capita (per 10,000)	Ports per Registered EV	EV Registration Data Date	EV Registration Data Source
Vermont	647,464	18,790	1,284	19.83	6.83	2025	Open Vehicle Registration Initiative
District of Columbia	678,972	11,800	1,275	18.78	10.81	2023	U.S. Department of Energy Alternative Fuels Data Center
California	38,965,193	1,892,731	56,055	14.39	2.96	12/2024	California Energy Commission
Massachusetts	**7,001,399**	**145,627**	**9,413**	**13.44**	**6.46**	**4/2025**	Massachusetts Vehicle Census
Colorado	5,877,610	183,376	6,532	11.11	3.56	2025	Open Vehicle Registration Initiative
Connecticut	3,617,176	59,893	3,957	10.94	6.61	12/2024	Open Vehicle Registration Initiative
Washington	7,812,880	246,137	7,622	9.76	3.10	5/2025	Washington State Department of Licensing
Maine	1,395,722	19,448	1,344	9.63	6.91	2025	Open Vehicle Registration Initiative
Oregon	4,233,358	118,004	4,022	9.50	3.41	2025	Open Vehicle Registration Initiative
New York	19,571,216	292,641	18,460	9.43	6.31	2025	Open Vehicle Registration Initiative

Current Status of EV Charging (cont.)

Public DC fast charging and Level 2 charging stations





Workplace and fleet charging stations deployed through state-funded programs*

*"State-funded programs" refers to programs administered by a state agency or the state's investor-owned utilities. The primary sources of funding for these programs are legal settlements, the state budget, and revenue collected from electric utility customers.

Percentage of EV Charging Receiving Public Funding

- **Approximately 68%** of all public EV chargers have received funding from MassEVIP, an Eversource/National Grid program, or NEVI.
  - This figure includes chargers located in Municipal Light Plant (i.e., municipally owned/operated utility) territory and does not include federal tax incentives.

Program	Public Charging Ports Funded	% of Total Public Chargers in MA
MassEVIP	2,681	28.48%
Eversource	1,996	21.20%
National Grid	1,706	18.12%
NEVI/CFI	8	0.08%
TOTAL	**6,391**	**67.90%**

- EEA plans to update the above table for the Final EVICC Assessment, including, but not limited to, separating out Level 2 and DCFC chargers.

Charger Projections - CECP 2030/2035 Estimates

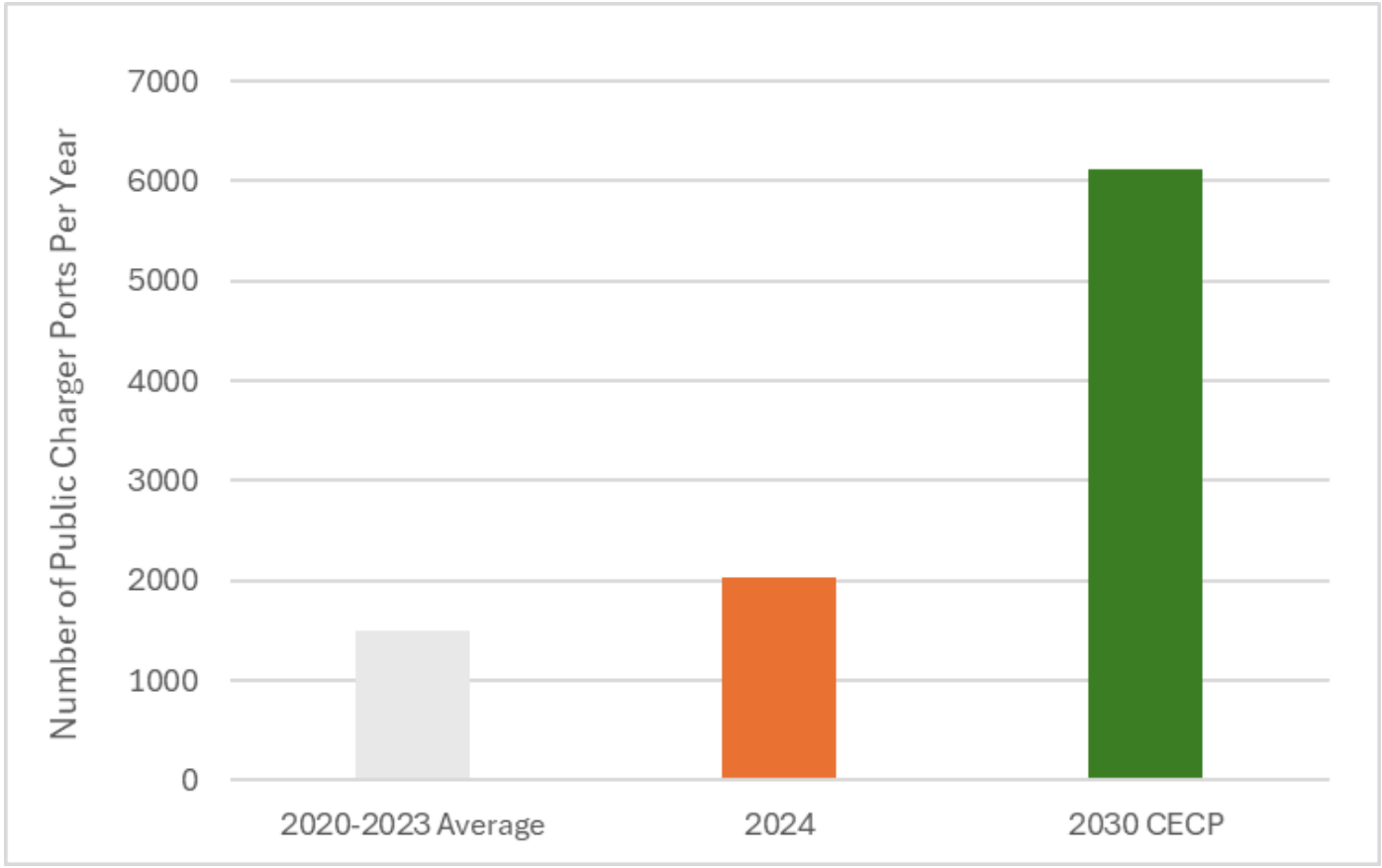
The EV charger estimates below rely on the EV adoption assumptions in the Clean Energy and Climate Plan (CECP) for 2050.

Category	Charger Type	Port Count		2035 EV/Port Ratio
		2030	2035	
Single-Family	Level 1	216,000	373,000	5.4
	Level 2	482,000	945,000	2.1
Multi-Family	Level 1	8,000	18,000	22.5
	Level 2	18,000	45,000	8.9
Workplace	Level 2	18,000	47,000	51.7
Public	Level 2	40,000	92,000	26.4
	DCFC	5,500	10,500	230.4
Medium- and Heavy-Duty	Level 2	6,500	17,000	1.9
	DCFC	800	2,500	13.9
Total		**795,000**	**1,550,000**	

It is important to view EV charging infrastructure estimates by charger category (e.g., single-family, multi-family, public, etc.) in the context of whether and how much the state or other actors can influence deployment within that category. For example, public EV charging infrastructure likely requires greater support to deploy than single-family chargers.

Charger Projections - CECP 2030/2035 Estimates (cont.)

The average annual deployment rate of public EV charging infrastructure will need to increase 3x through 2030 to meet the CECP EV charger port benchmarks included on the previous slide.



Charger Deployment Priorities

Current/existing programs should focus on opportunities within the below “high-value” use cases where:

- Funding/state intervention would significantly impact the outcome
- There are gaps in the current programs/offerings
- Multiple “high-value” use cases are served
- Equitable deployment is advanced, particularly for (i) rural areas, (ii) EJCs, (iii) “garage orphans”, and (iv) fleets

Light-Duty Passenger Vehicles

The two most important EV charging deployment use cases are:

- At- or near-home charging, as roughly 80% of charging occurs at home
- Supporting charging for longer distance travel and longer daily commutes, i.e. to address range anxiety

As charging is built out, the next set of priority EV charging deployment use cases are:

- Charging infrastructure to support common / local trips
- Rural or remote destinations that are unlikely to have utilization rates to justify investment in EV chargers

Fleet Vehicles

- Fast charging or Level 2 charging where fleet vehicles are housed
- Fast charging in areas highly trafficked by multiple fleet vehicles
- Fast charging along major corridors for longer haul trips

Charger Deployment Priorities - Gaps

Massachusetts' existing programs broadly covers the identified high-value use cases. However, the draft Second Assessment determines that the following gaps exists within the current programs.

Light-Duty Passenger Vehicles

- **At- or near-home charging:** Scaling on-street charging, particularly in towns without existing on-street programs.
- **Addressing range anxiety:** Fast charging along secondary travel corridors.
- **At- or near-home charging:** Fast charging near dense housing where on-street charging will be insufficient.
- **Common daily trips:** Proliferation of charging at convenient locations such as grocery stores and box stores.storage
- **Destinations:** Proliferation of charging at popular destinations (e.g., hotels in the Berkshires and on Cape Cod).

Fleets Vehicles

- **Near where fleets are housed:** Building MHD fleet charging at or near where fleet vehicles are housed, both for individual fleets and at depots to serve multiple fleets.

Highest Priority Gaps to Address: The Second EVICC Assessment finds that *fast charging along secondary travel corridors*, *scaling on-street charging* at the conclusion of the MassCEC program, and *MHD charging at/near fleet depots* are the highest priorities to address. The first two support the highest impact charging opportunities for light-duty passenger vehicles and third opportunity supports MHD fleet charging, which is further behind light-duty EV charging.

Charger Deployment Priorities - Comments + Takeaways

Key themes from comments provided at EVICC public meetings and during public hearings regarding the state's existing programs include:

- Additional fast charging is needed in Central and Western Massachusetts.
- More Level 2 charging is needed in dense residential areas, at local, vacation, and recreational travel destinations, including at commuter parking areas and town centers.

Executive Office of Energy and Environmental Affairs (EEA) staff also note:

- Continued support for public, multi-unit dwelling, workplace, and fleets through existing programs is necessary to ensure that all high-value EV charging opportunities are supported; however, strategic adjustments may be necessary to ensure that existing programs as as targeted as possible (i.e., utilizing public funds for the highest value opportunities ensures that funding is leveraged to the greatest extent possible)

EV Charger Deployment - Recommendations

- Explore an initiative to deploy DCFC and fast-charging hubs along secondary travel corridors.
- Develop an initiative to support MHD charging, including hubs near fleet depots and industrial zones.
- Establish partnerships to tailor incentive program outreach to high-value EV charging locations.
- Explore ways to standardize local EV charger permitting.
- Create a Municipality Resource Committee to develop materials to reduce barriers for municipalities, site hosts, and other stakeholders.
- Create and maintain a public inventory of EV chargers in Massachusetts to inform the bi-annual Assessment.

Mentimeter Questions

- Are there any gaps in charging needs that you feel were not identified?

- How would you prioritize deployment of chargers for the following segments? (ranking question) (options: scaling on-street charging, fast charging along secondary travel corridors, fast charger near dense residential areas, proliferation of charging at convenient locations such as grocery stores, town centers, or big box stores, proliferation of charging at popular destinations, charging at MHD fleet depots)

Chapter 5

Electric Grid Impacts and Managed Charging

Impacts and Alternatives

- Growing demand for EV charging presents a range of grid-related challenges, including the localized and often unpredictable nature of new EV charging development which can outpace traditional utility planning and investment timelines.

- The most notable alternative solutions to building new grid infrastructure to accommodate EV charging load are load management mechanisms, including:
    - Active managed charging programs (i.e., utility directly controls EV charging);
    - Passive managed charging (i.e., an incentive is provided for not charging at certain times);
    - Advanced rate designs; and,
    - Demand response programs.

- Long-term, some combination of active and passive managed charging and whole home time-of-use rates, along with opportunities for Vehicle-to Everything (V2X) and other programs that can leverage the ability of EV to provide power back to the grid, represent a comprehensive framework for minimizing the grid impacts of EV charging and maximizing its value.

Electric Grid Implications of EV Charging

- Understanding the impacts of EV charging on the grid and alternative solutions to building new grid infrastructure is critical to ensuring affordability.
- The Second Assessment models four scenarios to estimate the potential peak electricity demand impact of EV charging infrastructure deployment in 2030 and 2035.
- This analysis is a starting point to engage with the utilities and stakeholders on subsequent processes, such as the process required by Section 103 of the 2024 Climate Act, to better understand the potential electric distribution system impacts of transportation electrification.

Table 1. 2030 and 2035 demand from EVs during peak hours

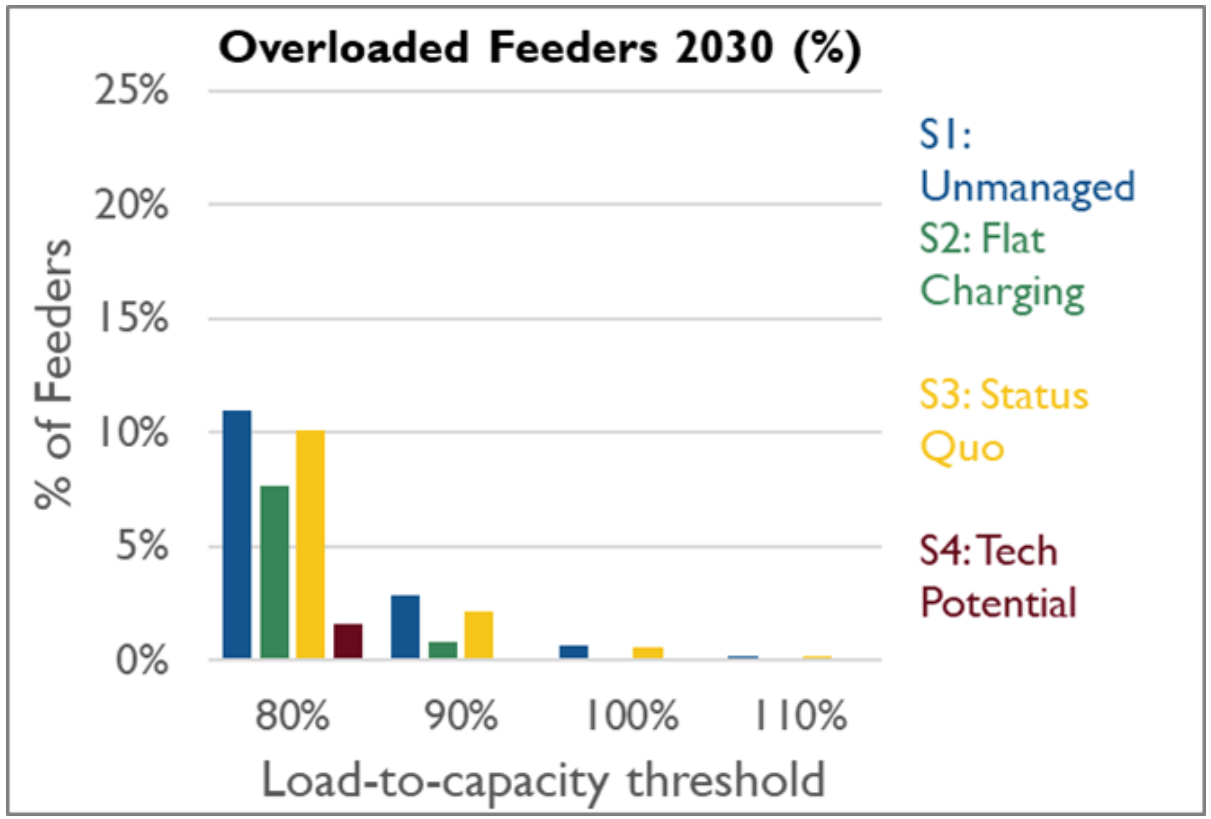
Year	Scenario 1 – Unmanaged (MW)	Scenario 2 – Flat Charging (MW)	Scenario 3 – Status Quo (MW)	Scenario 4 – Technical Potential* (MW)
2030	1,535	1,027	1,429	239
2035	3,967	2,677	3,228	473

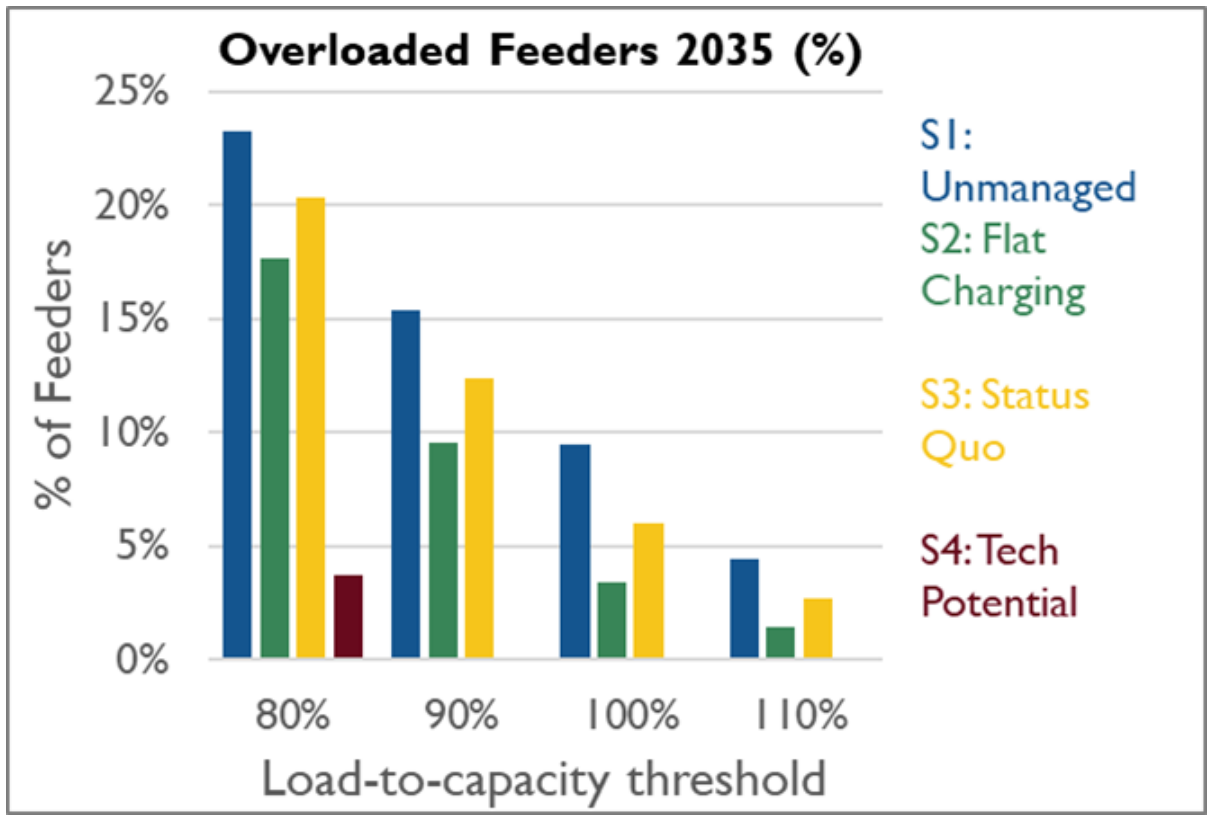
Table 2. Overloaded Feeders in 2030 and 2035

	Scenario 1 – Unmanaged	Scenario 2 – Flat Charging	Scenario 3 – Status Quo	Scenario 4 – Technical Potential
2030 count	287	199	264	41
% of Total Feeders*	11%	8%	10%	2%
2035 count	608	463	533	96
% of Total Feeders*	24%	18%	21%	4%

*Scenario 4 **is not practically possible**; however, it serves as an illustration of the importance of managed charging. The types of locations where managed changing is most likely to help avoid grid upgrades is the most impactful output of the managed charging analysis included in the draft Second EVICC Assessment.

Overloading on Feeders under Managed Charging Scenarios





In the next five years, 14-24% of Massachusetts feeders could overload. Similarly, about 10 percent of all substations could be overloaded from EV load by 2030 and 28 percent by 2035.

Grid Impacts and Managed Charging - Recommendations

- Explore novel incentive and engagement strategies (like active managed charging) to leverage EV charging load management to avoid grid upgrades in residential areas.
- Develop a long-term managed charging strategy.
- Incorporate anticipated load reductions from managed charging programs into distribution system planning.
- Continue coordinating next steps in EV load management planning and V2X capabilities.
- Create a planning framework for integrating EV infrastructure projections into electric distribution system planning through the process required by Section 103 of the 2024 Climate Act.
- Assess grid resilience and infrastructure needs for EVs before, during, and after major weather events and other emergencies, identifying key reliability gaps and backup power solutions to inform future planning.
- Continue coordination to identify and execute next steps related to EV charger interconnection processes and transportation electrification inputs and strategies for the next Clean Energy and Climate Plan (CECP).

Mentimeter Questions

- How can the state and utilities ensure that impacts on the electric grid, including costs, are minimized?

- What types of customers and program designs are most important / impactful?

Chapter 6

Consumer Charging Experience

Key Consumer Experience Considerations

Reliability

A charger's hardware and software components must all be working correctly for a smooth charging experience.

Best Practices:

- Real time status reporting
- Uptime requirements
- Open Charge Point Protocol (OCPP)

Charger Registration

Establishing registration requirements allows for charging station inspection and allows for better oversight of consumer protection measures.

Examples:

- Division of Standards EV Charger Testing Program
- 2024 Climate Act EV consumer protection measures

Data Sharing

Data sharing across charging networks and interoperability requirements help streamline consumer charging experiences.

Best Practices:

- Data aggregation on platforms like Google, Apple Maps, and PlugShare
- Data sharing through Application Programming Interfaces (APIs)

Consumer Disclosure and Payment

Generally, each charging station operator has their own payment system, which which often causes consumer frustration.

Best Practices:

- Plug & Charge (see next slide)
- EVICC Owner-Operator Resource on fee and policy guidance

Key Consumer Experience Considerations

Operational Standards

Clear operational standards is key to addressing ongoing challenges with charger interoperability.

Key Considerations:

- Charging speed based on electrical capacity
- Connector types and vehicle compatibility
- Charger-to-charger network communication and charging network-to-charging network communication

Other Consumer Protections

- Americans with Disabilities Act (ADA) space considerations
- Roadway and wayfinding signage
- Pricing signage

Plug & Charge

Technology that allows seamless authentication and billing so that drivers can charge simply by plugging in their vehicle.

Benefits:

- Reduces friction at the point of use
- Greater convenience and trust for drivers
- Reduced support costs and stronger customer retention for operators
- Current network is fragmented

Consumer Charging Experience - Recommendations

- Renew efforts to pass comprehensive “right-to-charge” legislation by expanding on the 2024 Climate Act to include renters and incorporating implementation tools and financial supports.
- Expand consumer protection regulations for EV chargers by building on the 2024 Climate Act to allow the Division of Standards to enforce such regulations and to inspect the accuracy of pricing information through charger registration.
- Implement a phased approach to regulating the reliability of fast and Level 2 charging, setting minimum uptime standards for fast chargers installed on or after June 1, 2026 and other chargers installed on or after June 1, 2027. Implementation of such regulations should seek to balance the dual objectives of improving the customer EV charging experience and making any new requirements as easy to understand and implement as possible.
- Develop guidance on EV charging station and wayfinding signage.
- Explore development of model local ordinances and other approaches that allow municipalities, property owners, and other government entities to fine internal combustion engine vehicles for parking in EV charging parking spots, consistent with state law.

Mentimeter Questions

- What are the most impactful long-term measures to improve customer charging experience?

- How would you rank the following solutions in terms of their impact on improving customer experience? (ranking question) (options: reliability regulations, plug-and-charge, ensuring the accuracy of pricing information, addressing ICE vehicles parking in EV-only spaces, EV charging signage, “right-to-charge” legislation for renters, EV charging education campaigns)

Chapter 7

EV Charging Technology and Business Models

Novel EV Charging Business Models

Model	Description	Key Attributes	Real-World Example
Turnkey Solutions	Comprehensive services covering design, installation, operation, and maintenance of charging stations.	Single point of contact for all services; Minimal upfront investment for site hosts; Scalable solutions tailored to specific needs	**Matcha** provides end-to-end EV charging solutions, including site evaluation, permitting, installation, and ongoing maintenance.
Dynamic Pricing Strategies	Flexible pricing models that adjust rates based on demand, time of day, or energy costs.	Encourages off-peak charging; Optimizes grid usage; Potentially lowers costs for consumers	**EVgo** employs dynamic pricing to manage demand charges and optimize energy usage across its network. The Town of Concord does this for their utility-owned and operated network managed by **Concord Municipal Light Plant** (CMLP).
Mobile Charging Services	On-demand charging services delivered to vehicles at their location.	Provides charging solutions for users without fixed infrastructure; Enhances convenience for urban dwellers- Reduces range anxiety	**SparkCharge** offers mobile EV charging services in urban areas, delivering energy directly to parked vehicles.
Energy-as-a-Service (EaaS)	Subscription-based model providing energy solutions, including charging infrastructure and management.	Predictable monthly costs; Includes hardware, software, and maintenance- Aligns energy supply with demand through integrated services	**SWTCH** offers an energy-as-a-service (EaaS) model, also known as **Charging-as-a-Service** (CaaS), where they handle the hardware, installation, and maintenance of EV charging infrastructure in exchange for a monthly subscription fee.

Emerging EV Charging Technologies

Technology Category	Specific Technologies	Real-World Example
Battery Innovations	High-density, fast-charging batteries	CATL's Shenxing LFP battery (charges to 80% in 10 minutes)
Charging Technology Advances	Ultra-fast chargers, bidirectional charging, wireless charging	Tesla Supercharger V4, Wallbox Quasar (bidirectional), WiTricity
Customer Experience Enhancements	Mobile apps with station location, availability, and reservations	ChargePoint and Electrify America mobile apps
Smart Charging Solutions	Load balancing, demand response, AI optimization	Wevo Energy's AI-powered platform optimizes energy usage, reduces costs, and integrates with solar energy to provide smart charging solutions.
Storage Integration	Battery storage paired with charging stations	Tesla Megapack used in EV charging hubs
Renewable Energy Integration	Solar-powered EV charging stations	Electrify America's solar-powered stations in California and elsewhere, including using Beam solar-powered stations

Concerns and Solutions

Ensuring sustainable, scalable EV charging requires addressing key business model challenges.

The draft Second EVICC Assessment identified **the following areas of concern**: Infrastructure Costs, Energy Pricing, Utilization Rates, Revenue Streams, Consumer Convenience, Interoperability, Grid Dependency, Government Incentives, Technology Evolution, Battery Advancements, Sustainability, Cybersecurity and Supply Chains.

The draft Second EVICC Assessment also identified **potential solutions** for these concerns:

- **High Costs:** Infrastructure and grid upgrade support via grants, modular design, and partnerships.
- **Uncertain Profitability:** Stabilize revenue via collaborations (subscriptions, ads, etc.) and dynamic pricing.
- **Low Utilization:** Improve demand through better siting, off-peak incentives, and higher power chargers.
- **Consumer Friction:** Expand access, enhance user experience, and ensure payment + network compatibility.
- **Grid & Tech Pressure:** Mitigate demand with solar, storage, and future-proof modular systems.
- **Policy & Supply Risks:** Target stable incentives and diversify tech sourcing and manufacturing.

EV Charging Technology and Business Models - Recommendations

- Prioritize and facilitate public-private partnerships, including supporting incentives and facilitating permitting processes for joint ventures.
- Encourage utilities and charging providers to adopt flexible pricing models by setting clear regulatory guidance, piloting pricing experiments, and educating consumers on rate benefits.
- Support improved and interoperable data standards with accurate, real-time data to track station usage, identify gaps, and respond to technical issues quickly.
- Support siting efforts to identify high-potential locations, prioritize funding for these locations.
- Align policies and technical standards with neighboring states and federal guidelines to promote interoperability and attract investment.
- Support legislation promoting tools such as green bonds, revolving loan funds, and community low-interest financing models to unlock capital from institutional and grassroots sources.
- Explore ways to further unlock the Charging-as-a-Service business model for publicly accessible charging to unlock the potential of this business model.

Mentimeter Questions

- What are the most impactful ways to unlock additional private funding and to ensure the long-term sustainability of EV charging business models?

- What can the state due to help unlock the potential of the Charging-as-a-Service business model?

Strategic Plan

Strategic Actions for Sustained Success

Massachusetts has made significant progress towards an equitable, interconnected, accessible, and reliable EV charging network. However, **it is imperative that EV charger deployment continue to grow** despite federal and market headwinds, that the customer experience is improved, and that private funding is further leveraged.

The Second Assessment outlines a set of strategic actions to shape future EV charging initiatives in the Commonwealth. **These actions will ensure that Massachusetts is well-positioned to continue its progress** in deploying EV charging and provide the flexibility to effectively adapt to changing circumstances. The strategic actions are organized into eight focus areas and grouped by theme.

Recommendations for municipalities and private actors are not included in the Second Assessment. However, these groups are equally, if not more, important in realizing Massachusetts' EV charging goals as they will be responsible for deploying the charging infrastructure needed by the public.

Strategic Plan Overview

Be More Strategic

1. **Prioritizing Value:** New and existing incentive programs and initiatives designed to mitigate the electric grid impacts of EV charging will target the highest value charging opportunities.
2. **Unlocking Private Funding:** Massachusetts will leverage private industry and funding to a greater degree by, among other efforts, enabling new EV charging business models.
3. **Minimizing Grid Impact:** EVICC will work with the utilities to ensure that programs and technologies are deployed to minimize the need for electric grid upgrades to accommodate EV charging.

Improve Efficiencies

4. **Enhancing Current Programs:** Existing programs will improve the efficiency of and coordination between programs to enhance the customer experience and stretch current funding.
5. **Reducing Barriers:** EVICC will develop additional resources, among other efforts, for municipalities and potential site hosts to address deployment barriers.

Be Proactive

6. **Proactive Planning:** EVICC will work with state agencies and stakeholders to execute on strategic planning, including implementing Section 103 of An Act Promoting a Clean Energy Grid, Advancing Equity, and Protecting Ratepayers (2024 Climate Act).
7. **Sustainable Funding:** EEA will work with EVICC members and stakeholders to explore new models to fund EV charging initiatives that leverage existing funding pathways and reduce the reliance on electric ratepayer funding.

Significantly Improve Charging Experience

8. **Improving Customer Experience:** Massachusetts will implement solutions to improve the customer experience with EV charging, including by establishing minimum reliability standards and requiring consumer price transparency.

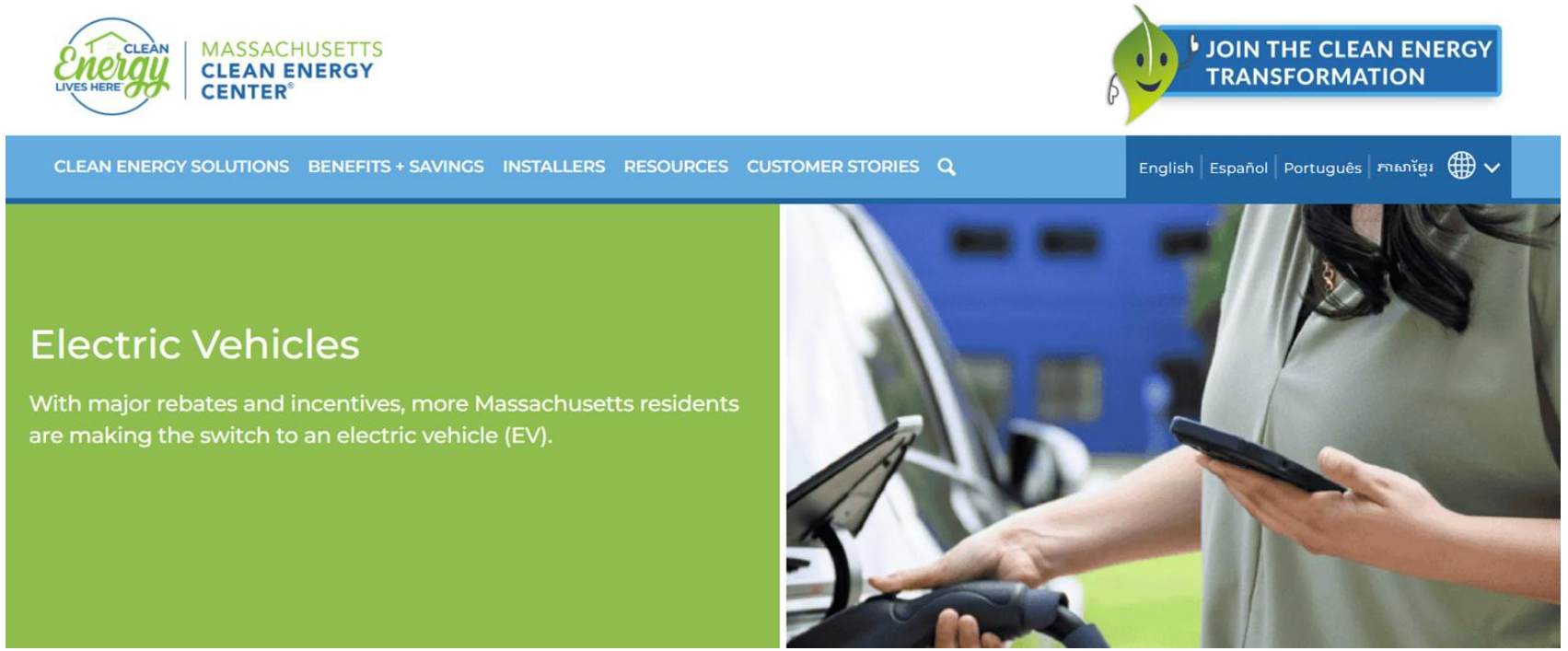
Public Comment

Next Steps

Second Assessment Next Steps

- **July 11th:** Public Comments deadline
- **August 6th:** August EVICC Public Meeting:
  - EVICC to vote on recommendations
  - EEA to provide an overview of Section 103 process
- **August 11th:** Second EVICC Assessment submitted to the General Court
- **TBD (likely week of August 11th or 25th):** Second Assessment overview webinar

MassCEC's Clean Energy Lives Here Website



Visit the MassCEC's Clean Energy Lives Here, Electric Vehicle website for more information about Massachusetts' EV + EV charging programs.

https://goclean.masscec.com/clean-energy-solutions/electric-vehicle/