REGIONAL EV STRATEGY

Charging Stations at Multi-Unit Dwellings

Thursday, August 11, 2022

MAPC
METROPOLITAN AREA PLANNING COUNCIL

Today's Agenda

1:10 – 1:30 PM	Forth Mobility - Vehicle Charging Innovations for Multi-Unit Dwellings (VCI-MUD) Project	Kevin Hachey, Whitaker Jamieson, Ralph Schweinfurth (Forth Mobility)
1:30 – 1:40 PM	Group Discussion/Q&A	All
1:40 – 1:50 PM	MassDEP's Multi-Unit Dwelling Program	Erin Bostwick (MassDEP)
1:50 – 2:00 PM	National Grid's Make Ready Program	Marie Raphael (National Grid)
2:00-2:10 PM	Eversource's Make Ready Program	Steve Conte (Eversource)
2:10 – 2:15 PM	ENE's MUD EV charging infrastructure support and advisory services	Mark Scribner (Energy New England)
2:15-2:25 PM	Group Discussion/Q&A	All

Forth Mobility

EV Charging at Multi-Unit Dwellings

Kevin Hachey
Program Associate | Forth

August 11th, 2022

FORTH VCi MUD

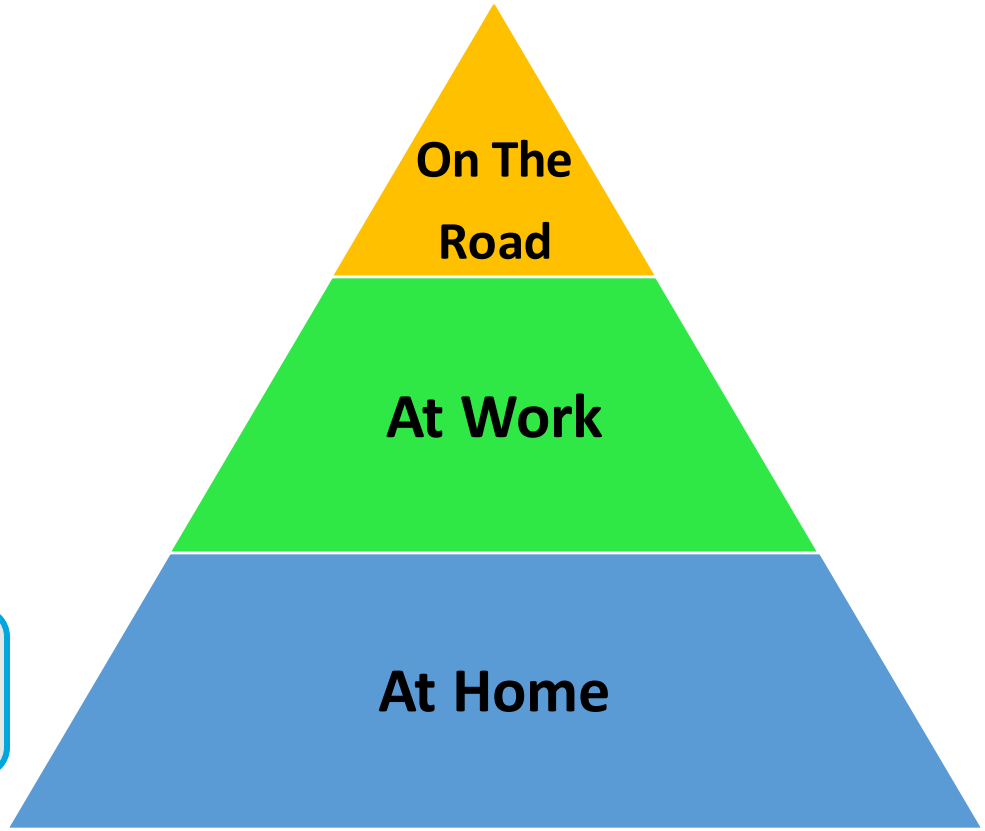
Charging at Home is Really Valuable to Residents

- Future EV adopters will increasingly live in multi-unit dwellings
- Residents will come to expect charging
- Home charging provides range security
- More than 30% people in US live in multi-unit dwellings (MUDs)

"The units with EV chargers installed were getting a $5k to $8k premium"

A representative from The Henry *(Portland, OR)*

Where Charging Happens



VCi MUD

Barriers Identified by Outreach Interviews

Barrier	Description
HOA Related	Decision-maker alignment and bylaw restrictions
Information and Education	Assumptions, misinformation, and lack of awareness limits interest in EV charger investment
Space Limitation	No excess parking spots and/or deeded spots
O&M Costs	Cellular networking, data subscription, and transaction fees
Installation Cost	Equipment acquisition, permits, engineering and planning, construction
Electrical Related	Adding electrical circuit and conduits, performing load studies, upgrading electrical panel or service, utility delays
Usage	Unsecured parking allows non-resident charger use No incentive to move after finished--no idle fees
Network Signal	Weak internet signal in garages

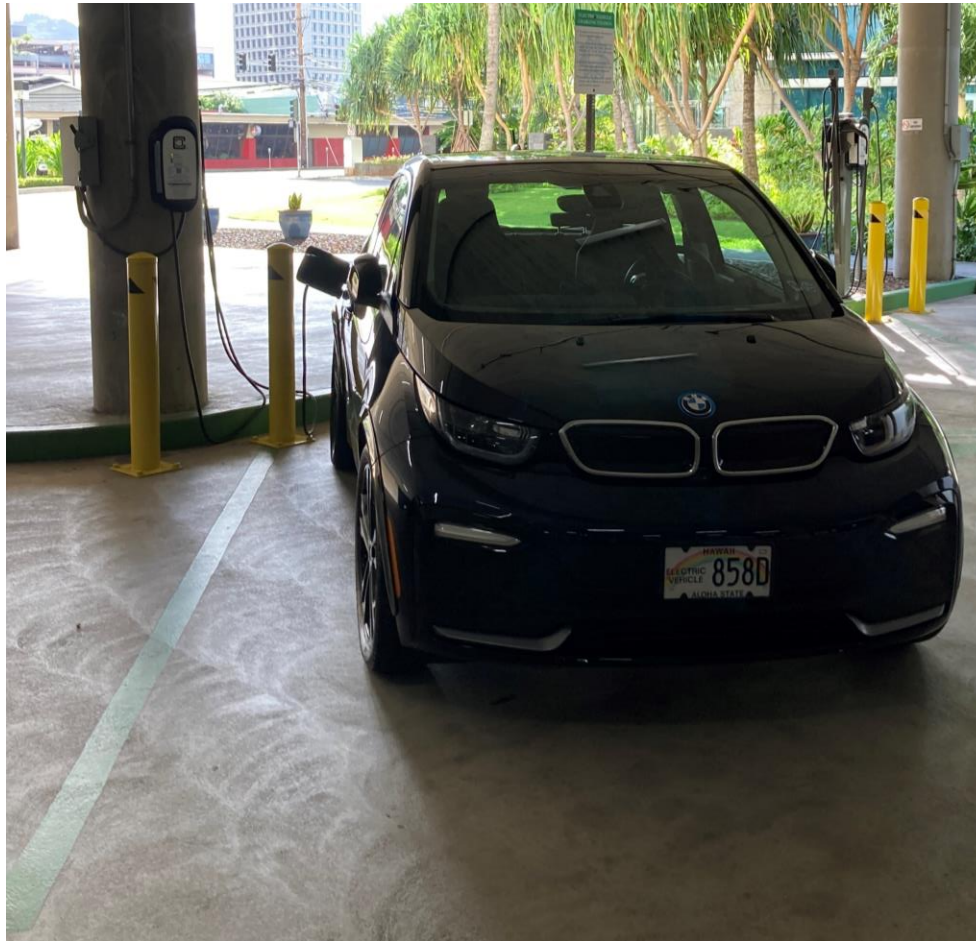
Technological Solutions Overview

- **Shared Charging Stations**
  - Extra parking spots available
  - Power-sharing option
  - Have to move after finished charging
- **Dedicated Charging Stations**
  - Homeowner/deeded parking spots-increase home value
  - Easiest for EV Driver, but often expensive
  - Connecting to individual meter not simple
- **Off-Site Charging (Independently funded)**
  - Proximity really matters
  - Amenities?

Shared Charging

Unreserved parking allows all residents access to charging but not owned by any one resident

- Energy use usually tracked and billed to residents by vendor
- Residents should move car when finished charging or time is up (notification systems help)
- Idle (over-stay) fees can dramatically incentivize turnover



OpConnect- Ko'olani, Honolulu

Shared Charging Technologies

Technology Feature	When Does This Make Sense?
External controls on non-networked stations	• Need management of “dumb” chargers
Reservations and access control	• Non-secure parking facility • High demand of charger use
Energy management	• Limited electrical capacity • High electricity rates

Dedicated Charging

Residents have reserved parking spaces

- Power must be run to each space
- Residents can leave car plugged in as long as wanted with no consequence
- Tying energy use to meters is dependent on location of meter
- Allocate upfront and ongoing costs carefully (esp. HOAs)
- Consider load management technologies

Dedicated Charging Technologies

Technology Feature	When Does This Make Sense?
Adaptive Load Management – Large Scale	• Limited Electrical Capacity
Rotational Charging	• Limited Electrical Capacity

Offsite Solutions-DC Charging Hubs

DC Charging hubs are groups of fast chargers often nearby amenities like shopping centers or downtown areas

Funding needed from independent entity:

- Utility
- City
- Developers
- Other large organization

EV Drivers living in MUDs will tend to choose the most economic option for charging (factoring in their time)

- Expensive/no home charging -> Offsite Charger

VCi MUD

Each MUD Situation is Different

- Consider the location's Parking and Electrical situation carefully and early
- Allocate installation costs to stakeholders appropriately
- Don't skip over stakeholder engagement
- Load- Management benefits become more apparent at scale

Want to Learn More?

Check out the recently launched website:

VCI-MUD.org

Center for Sustainable Energy®

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energetics
Clean Energy Consulting

Clean Cities

EV Charging Roadmap

Step 1 — Building and Electrical Considerations

Step 2 — Charging Programs and Incentives

Step 3 — Resident Engagement

Step 1:Building and Electrical Considerations for EV Charging

Conduct a building electrical evaluation

Tools and Resources

Empowerment Toolkit

Resident EV Demand Survey

Template Letter to Residents

Technology Selection Tool

Installation Checklist

MUD Self-Evaluation Survey

Curbside Charging Resources

FAQ coming September!!

Send us any questions and they could make it onto the FAQ

Thank you!

Any Questions?

You can reach me at: **kevinh@Forthmobility.org**

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Discussion

MassDEP

Massachusetts Electric Vehicle Incentive Program Multi-Unit Dwelling & Campus

Erin Bostwick

MassEVIP.MassDEP@mass.gov

Massachusetts Department of Environmental Protection

August 10, 2022

Massachusetts Electric Vehicle Incentive Program (MassEVIP) Charging Station Programs

	Direct Current Fast Charging (DCFC)		Workplace & Fleet (WPF)			Multi-Unit Dwelling & Educational Campus (MUDC)		Public Access Charging (PAC)
Amount available	$1.5 million Volkswagen (VW); $11,614,755 Climate Mitigation Trust (CMT); up to $50,000 per DCFC charging station		$3,259,664 VW; $3 million CMT; up to $50,000 per address			$1.5 million VW; $1 million CMT; up to $50,000 per address		$5 million VW; $10 million CMT; up to $50,000 per address
Application deadline	March 19, 2021; grantees announced February 3, 2022		Rolling			Rolling		Rolling
Who may apply	Private, public or non-profit		Private, public and non-profit workplaces	Private or non-profit light-duty fleet owners with at least 15 employees in MA	Municipal, public university and college or state agency light-duty fleet owners	Private, public or non-profit		Private, public or non-profit
Eligible Location Types	Non-residential site available for public use	Educational campus with at least 15 students on-site	Non-residential workplace with at least 15 employees on-site	Non-residential location where applicant garages fleet vehicle	Non-residential location where applicant garages fleet vehicle	Dwelling with 5 or more residential units	Educational campus with at least 15 students on-site	Non-residential site available for public use
Who must be allowed to use charging station?	Anyone who drives an EV	All students/staff who drive an EV	All employees who drive an EV	Applicant's EV fleet users	Applicant's EV fleet users	All residents who drive an EV	All students/staff who drive an EV	Anyone who drives an EV
Maximum level of funding	100% at government owned property; 80% at all other locations	60%	60%			60%		100% at government owned property; 80% at all other locations
Minimum required hours of availability	24 hours/day		N/A			N/A		24 hours/day unless location has restriction, then 12 hours/day
Charging station type	DCFC		Level 1 or Level 2			Level 1 or Level 2		Level 1 or Level 2
Time to complete project – existing locations/ new construction	12 months/ 24 months		6 months/ 24 months			6 months/ 24 months		6 months/ 24 months

For all programs:

- **For National Grid and Eversource program participants, funding covers equipment only; for all others, funding covers both equipment and Installation**
- **Charging station must be able to charge EVs produced by multiple manufacturers**
- **A parking spot must be clearly marked as EV-only with permanent signage for each port installed**
- **The applicant must own the location or provide written permission from the location owner to install charging stations**

MassEVIP: Multi-Unit Dwelling and Campus Program

- Level 1 & Level 2 charging at:
  - Educational campuses at any level with 15 or more students
  - Multi-Unit Dwellings of 5 or more units
- 60% of eligible costs covered
- Can receive funding towards hardware only, or for hardware and installation costs
- Basic requirements:
  - 5% of funded stations constructed to be accessible to those with disabilities
  - Stations must be equally available to all residents or students and staff

Learn More!

- All MassEVIP Programs: https://www.mass.gov/air-quality-energy-grants-loans
- Review requirements and apply online:
  - MUDC: https://www.mass.gov/how-to/apply-for-massevip-multi-unit-dwelling-educational-campus-charging-incentives
  - WPF: https://www.mass.gov/how-to/apply-for-massevip-workplace-fleet-charging-incentives
  - PAC: https://www.mass.gov/how-to/apply-for-massevip-public-access-charging-incentives
  - DCFC: https://www.mass.gov/how-to/apply-for-massevip-direct-current-fast-charging-incentives
  - Fleets: https://www.mass.gov/how-to/apply-for-massevip-fleets-incentives
- Contact us at: MassEVIP.MassDEP@mass.gov

National Grid

National Grid's EV Charging Station Program

August 11, 2022

nationalgrid

01

EV Charging Station
Program
Phase I

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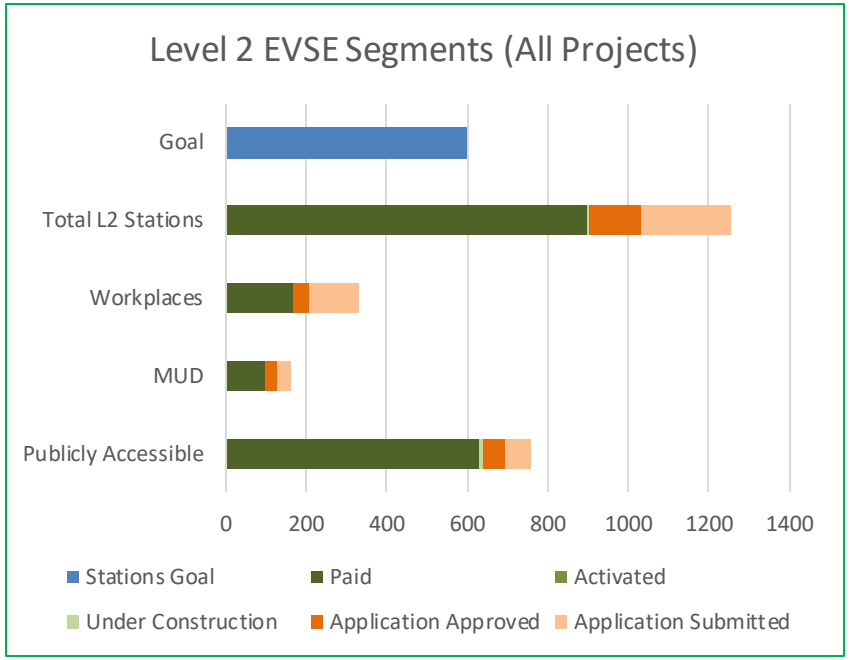
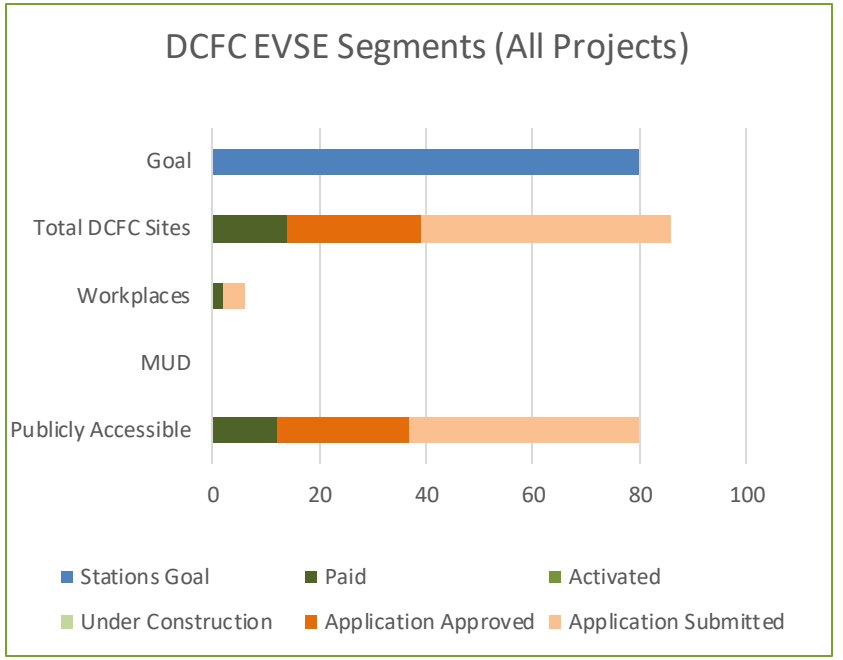
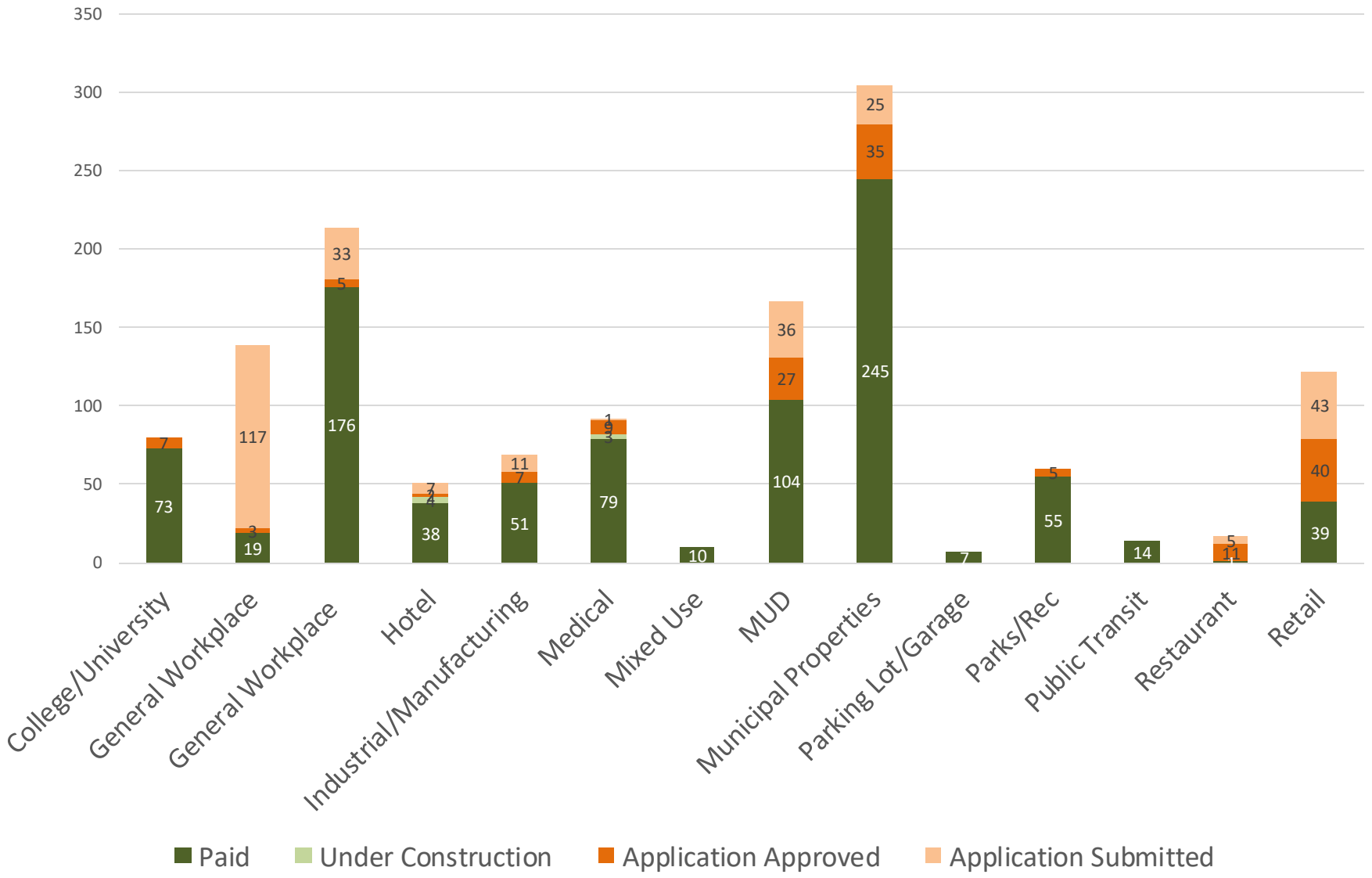
MA EV Charging Station Progress (Phase I)



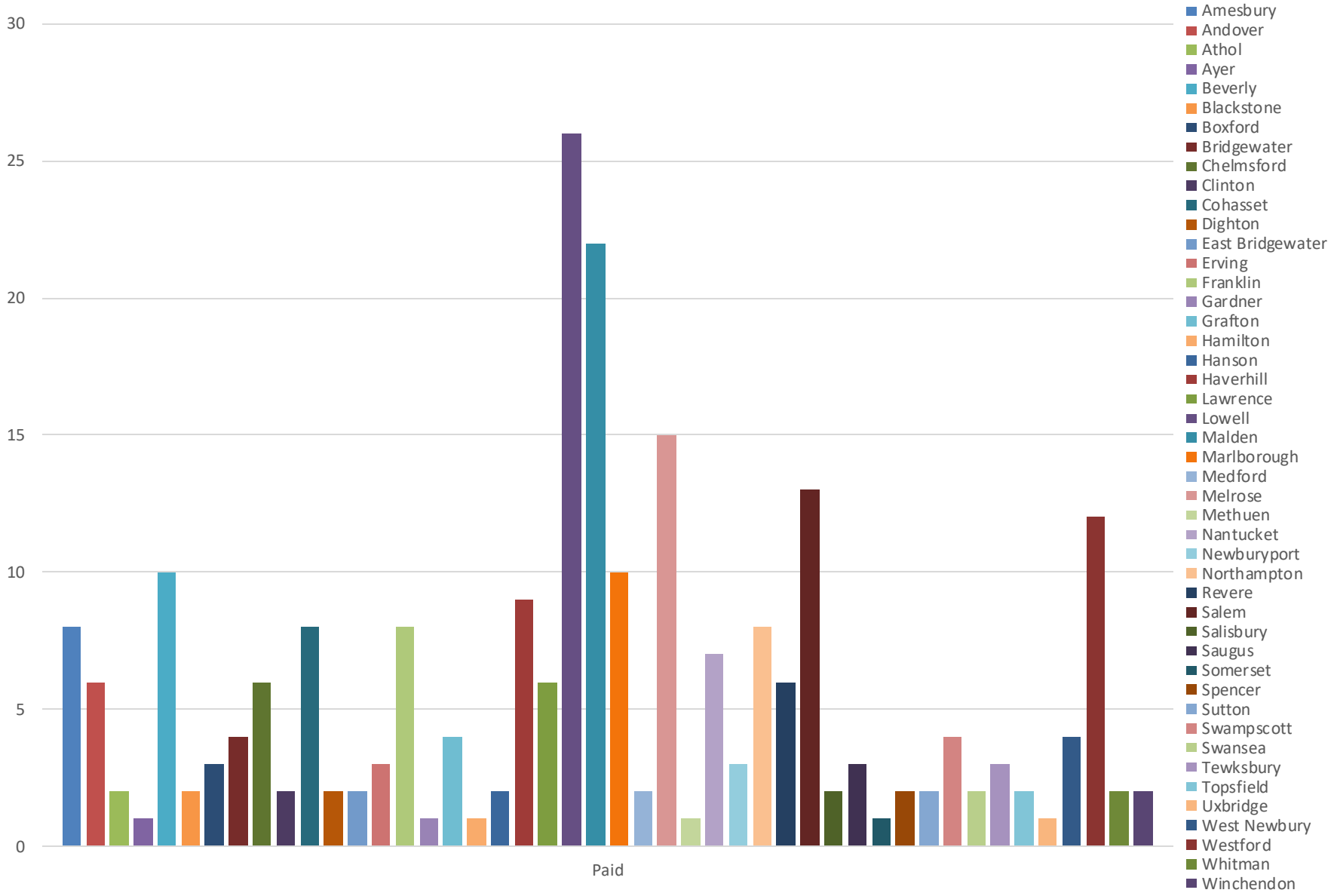


~900 stations activated and paid!!!

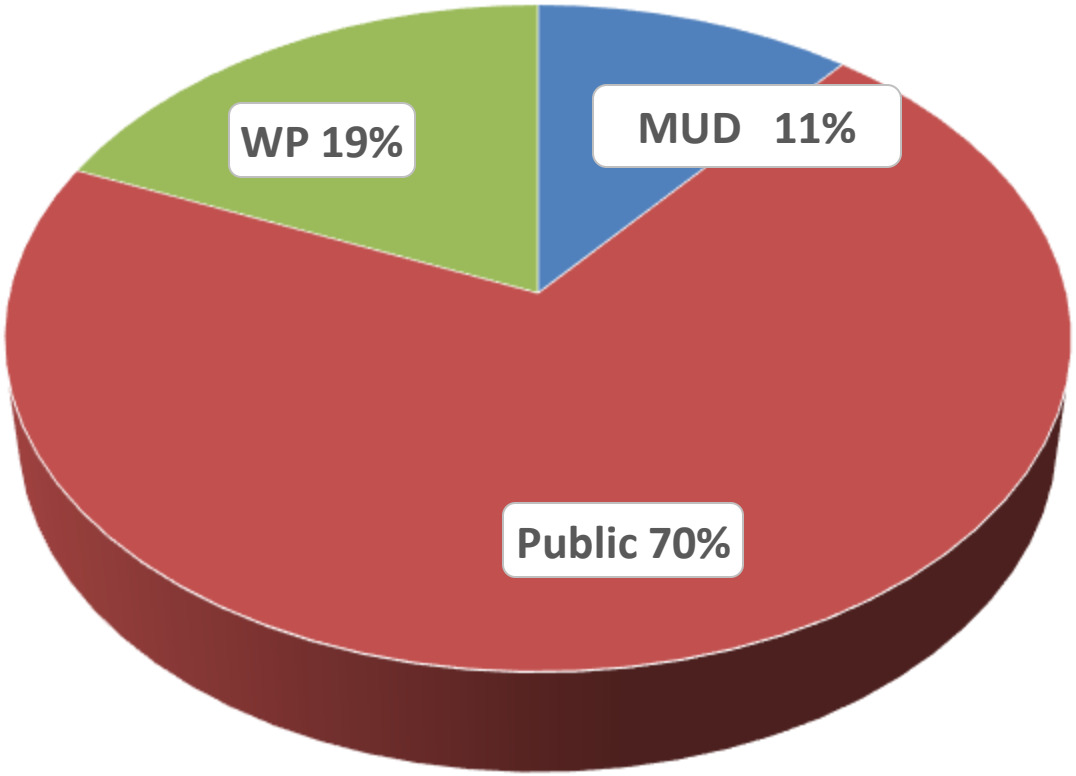
Market Segments



MA Municipal Stations Installed by Cities and Towns



Charging Station Use



Multi-Unit Dwelling Projects that Met Environmental Justice Criteria

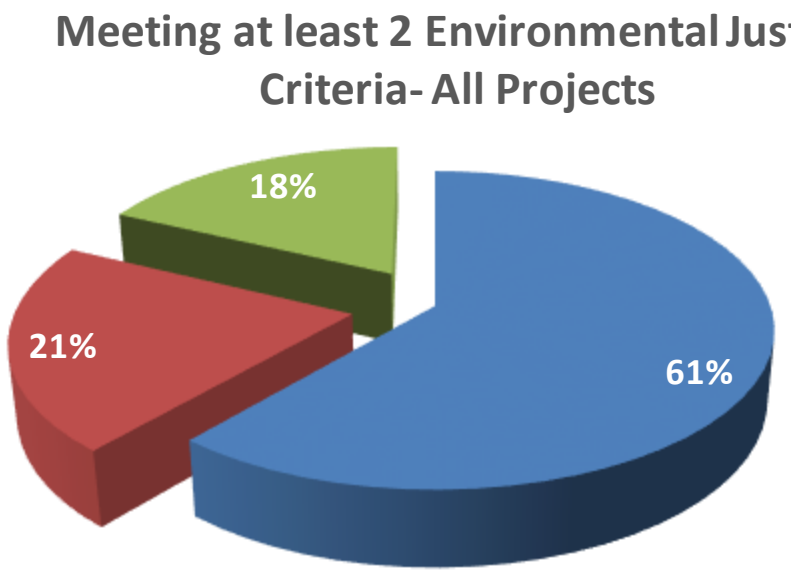
EJC Criteria	Ports	Stations	Projects
Level 2	Grand Total	Grand Total	31
Income	4	2	1
Minority	53	27	12
Minority and Income	20	10	3
Minority, Income, and English Isolation	4	2	1
None	104	59	14
DC Fast Charge	0	0	0
Grand Total	185	100	31

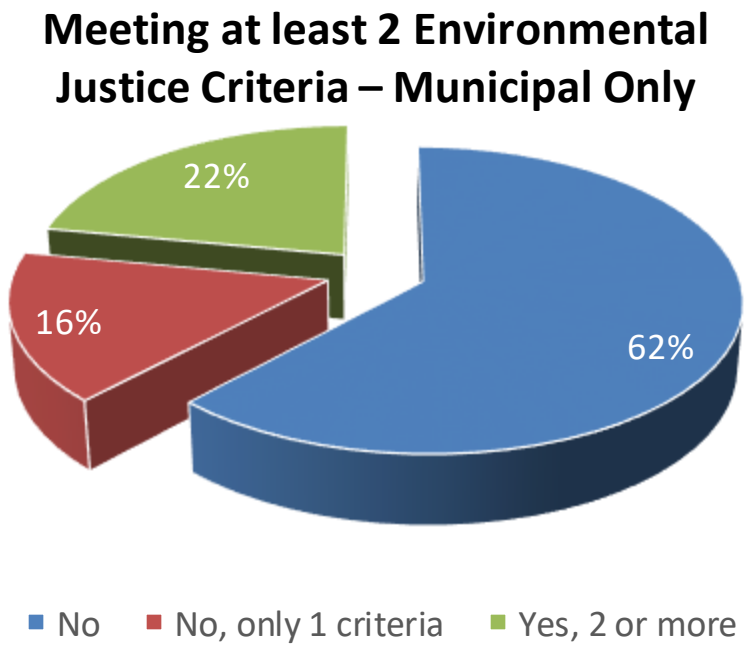
02

EV Charging Station
Program
Phase III - Proposed

nationalgrid

All and Municipal Projects that Met Environmental Justice Criteria





MECO Phase III Proposal – Workplace and Public

Public & Workplace Program: Multi-Pronged Approach to Solve Market Challenges

Program Incentive Level	Workplace	Public	EJC
L2 Utility-Side Make-Ready	100%		
L2 Customer-Side Make-Ready	100%		
L2 EVSE	Municipal: 50% of installed costs for ports 3 - 10 Non-municipal: 50% of installed costs for ports 5 -10		100% of installed costs for up to 10 ports
DCFC Utility-Side Make-Ready	N/A	100%	
DCFC Customer-Side Make-Ready	N/A	100%	
DCFC EVSE	N/A	Up to $40,000/port for up to 150 kW	

**L1 will follow the same % incentive levels for utility-side and customer-side make-ready, no EVSE rebate*
***Proprietary plugs will receive 50% customer make-ready (65% for mixed-plug sites) and 100% utility side make-ready, no EVSE rebate*

EVSE Incentives

- Align with Eversource on L2 incentives, requiring purchase of initial ports for some Public and Workplace customers
- EJC DCFC Incentives for 150-kW (and above) goes up to $80,000/port
- Networking required for all ports (with $480/port networking rebate for public L2, EJC L2, and MUD L2)

DCFC Commitment in EJCs (with National Grid Ownership)

- up to 20 DCFC in 10 EJCs

Co-located Energy Storage Incentives

- Small scale program to avoid lengthy system upgrades and enable DCFC in areas with grid constraints.

MECO Phase III Proposal – Residential and MUDs

Residential Programs: Comprehensive support for at-home charging, tailored by housing/parking and customer segment. Ambitious multi-family EVSE goals are a ~15x increase from Phase 1.



	1-unit (SFH)	2-4 units ("Duplexes")	5+ units (MFDs)
MA Resi. Customers	750K / ~63%	228K / ~20%	202K / ~17%
EVSE financial support (participation in managed charging programs required*)	Up to $700 for 240V upgrades	Up to $1,400 for 240V upgrades	Make-ready program: NG covers service upgrade + 100% make-ready + EVSE rebate up to $2K/port *(aligned w/ public & workplace make-ready)*
	Up to $300 for qualifying EVSE		
EVSE support for LI/EJC customers	100% cost coverage for EVSE + 240V upgrades (up to $1,700)	100% cost coverage for EVSE + 240V upgrades (up to $2,700)	*If equity group**, EVSE rebate up to $4K/port
Est. # of customers supported	~15,000 customers (+2% of segment)	~5,000 customers (~2.5% of segment)	~3,800 L2 ports enabled, plus 200 EV Ready Site Plans

* There will be good cause exceptions for customers in 2-4-unit properties. For example, if they have shared parking or do not own or lease an EV.

✓ LI/EJC eligibility for 1-4 units: 1. account enrolled in discount rate or 2. reside in a property that meets at least one of the EJC criteria outlined by the State. If in a 1-unit property, must own or lease a new or used EV with a purchase price of less than $50,000.

✓ Equity group eligibility for multi-family dwellings: bldgs. in state-defined EJCs, with 50% or more residents on discount rate, or designated public/low-income housing.

MECO Phase III - EJCs

Targeted Low-Income/Environmental Justice Community (LI/EJC) Offerings

Segment	Increased Incentives	Unique Offerings
Public & Workplace	• 100% make-ready costs and up to $4,000 rebate for EVSE (compared to $2,000 for non-EJC) installed in EJCs	• Commitment of 20 DCFC in 10 EJCs (with option for National Grid ownership) • Utility-owned pole-mounted EVSE installed in at least 5 EJCs
Residential	• Make-ready and EVSE support of up to $1,700 for 1-unit properties (compared to $700 for non-EJCs) and up to $2,700 for 2-4-unit properties (compared to $1,400 for non-EJCs) • 100% make-ready costs and $4,000 rebate for EVSE (compared to $2,000 for non-EJCs) installed at MUDs in EJCs	• Turnkey installation and increased financial support for LI/EJCs to cover costs of residential make-ready and managed-charging capable L2 EVSE • EV Site Plans will help large MUDs (most of which are in EJCs) develop a plan for EVSE
Fleet	• 100% make-ready costs and & up to $4,000 L2 rebate for EVSE (compared to $2,000 for non-EJC)	• 300 EJC school bus incremental cost rebates (~$175k / bus)

Massachusetts 2020 Environmental Justice Populations (arcgis.com)

03

Customer Reasons to Install EV Charging Stations

nationalgrid

Motivation to install an EVSE?

Moral obligation

Incentives

Sustainability targets

Encourage residents to make their next vehicle purchase an EV

Incentivize reduced emissions trips

Growing demand for EVSE charging

Benefits EV owners and promotes adoption

To teach/model energy uses that have environmental benefits to our vocational students

Strong campus EV community

Favorable grant funding

Next Steps and Available Resources

Next Steps – Preparing for Phase III

- Submit Completed Application
- Site map (proposed location)
- Electric service cost proposal
- Charging station quote

Resources

www.ngrid.com/ma-evcharging

- Program Materials
- Program Overview
- Qualified Charging Station List
- Application Form

Contacts

National Grid Programs Manager - MA

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nationalgrid

Eversource

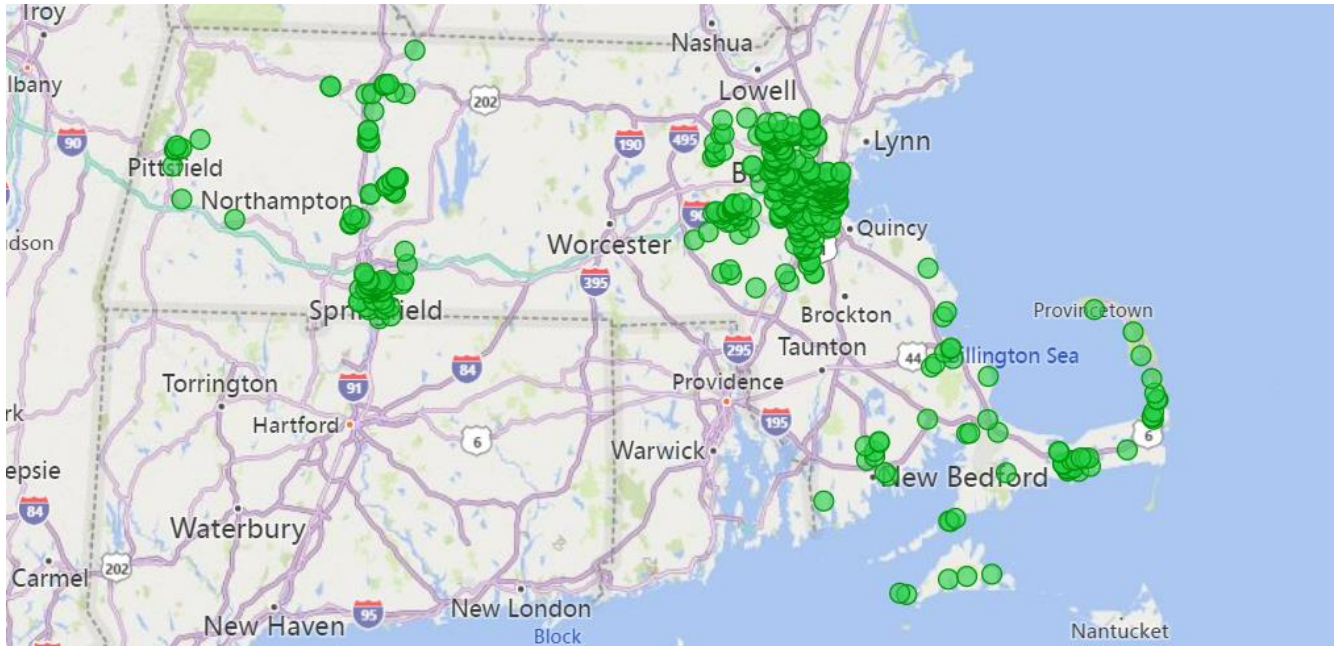
Eversource MA EV Program

Regional EV Strategy Call

8/11/22

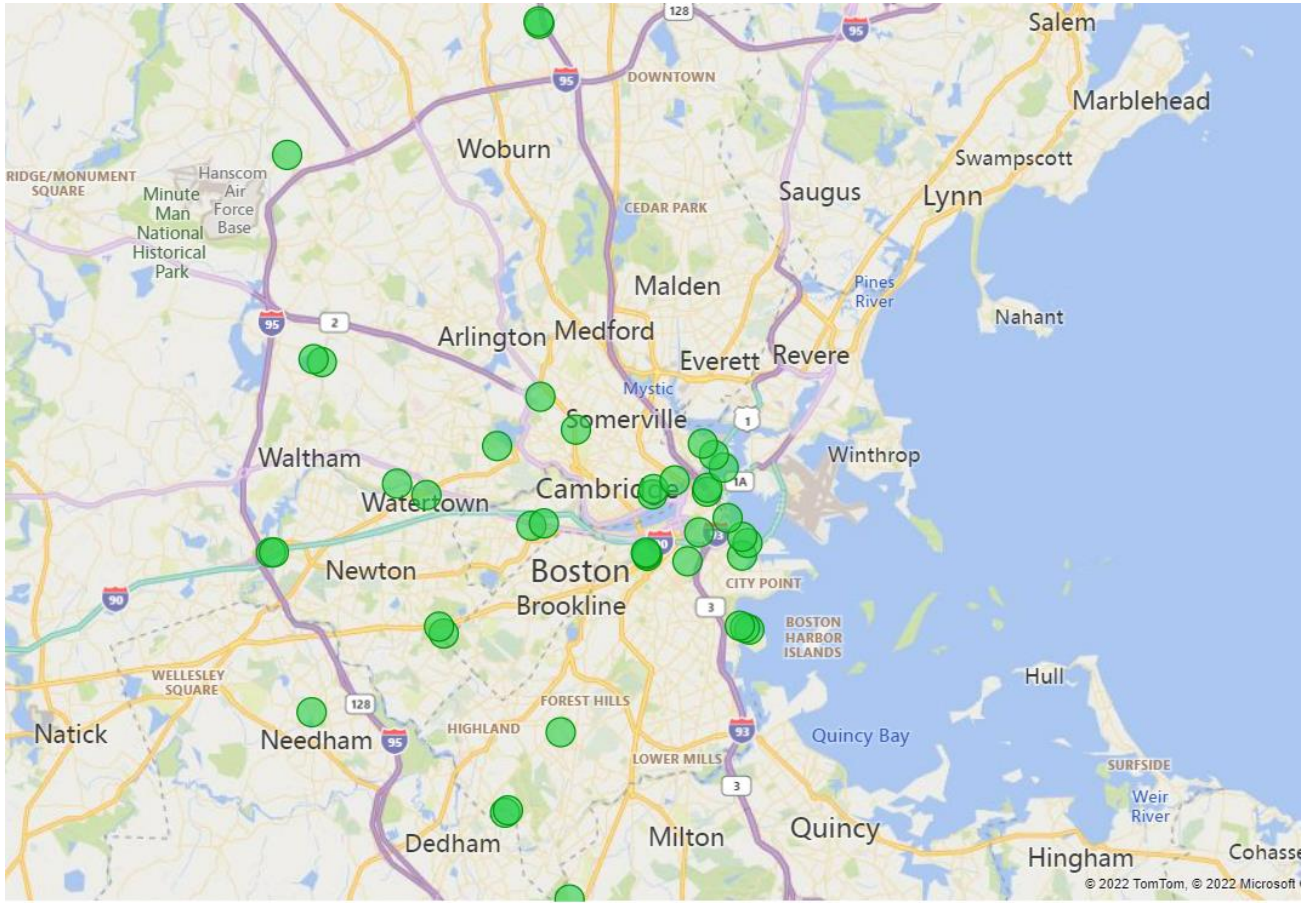
Phase 1 Program Success

- Incentives included:
  - Make Ready: 100% of EV infrastructure cost
  - EJC EVSE Rebate: 100% of EVSE cost in Environmental Justice Communities
- 424 Unique Sites, 2100 Charging Ports Energized



Phase 1 Program Success- MUDs

- 55 Sites, 279 Ports were at Multi-Unit Dwellings
  - 41 Sites in Metro Boston area



Phase 2 Program

- Currently being reviewed by MA Department of Public Utilities
- Proposed incentives include:
  - Make Ready: up to 100% of EV infrastructure cost
  - EVSE Rebate: up to $4000/port for EJC, $2000/port for non-EJC
- EV Ready Site Plan: Infrastructure, EVSE, and charging practices to provide EV charging to all parking spaces
- Residential Program: Individual residents who install a home charger at their parking space
  - Up to $1700 for wiring and EVSE for EJC, $1000 for non-EJC

Thanks!

- Any questions, please reach out to:
  - Steve Conte: steven.conte@eversource.com
  - EV Inbox: MAEVcharging@eversource.com

Energy New England

ENE's Commercial EV Support, Advisory & Rebate Programs

Empowering Multi-Unit Dwellings to Implement EV Charging

Mark Scribner

Associate Director, Transportation Electrification

Eric Desrosiers

Program Support Specialist, EV Charging Infrastructure

ENE's Municipal Utility EV Programs

- Education, support & incentive programs serving 12 MLP* territories
- EV Advisor "Help Desk", including support for MUD resident inquiries
- Commercial charging infrastructure advisory and support services
- Commercial charging station equipment and installation rebates

ENE Drives Electric

*MLP: Municipal Light Plant. There are 41 municipally-owned electric companies in Massachusetts.

Commercial charging infrastructure advisory and support services

Guide the customer through the EV charging infrastructure journey

- Evaluate and advise clients on suitability of proposed projects
- Provide virtual and in-person charging station site assessments
- Facilitate equipment and installation cost estimates from vendors
- Liaison for the utility to ensure projects align with expectations
- Provide rebate application support (Incl. MassEVIP, MLP's, etc.)

Commercial charging station equipment and installation rebates

- Several MA MLPs are offering or piloting commercial EV rebates
- Requirements closely mirror MassEVIP with some exceptions per MLP
- Help to close the gap of some costs not funded by MassEVIP
- Up to $6,000 per dual port station ($3k equipment / $3k installation)
- MLP may require commercial EV rate enrollment for rebate eligibility

Braintree Drives Electric

Concord Drives Electric


ENE
CONSERVE

Discussion

MA Legislation Updates

SIGNED – Transportation Bond Bill

An Act Relative to Massachusetts's Transportation Resources and Climate (Transportation Bond Bill) - Bill H.5151

$175 million for EV charging infrastructure, e-bike incentive programs, replacement of high-emissions vehicles, electric vehicles for hire and carsharing, electric school buses, electric short-haul freight and delivery trucks.

MassEVIP

$50 million for grants under the MassEVIP Direct Current Fast Charging program.

MOR-EV Trucks

$5 million for MOR-EV Trucks.

E-Bikes

- $1 million to set up a fund at DOER for e-bike rebates, $500 for general consumers and $750 for low-and moderate-income consumers, authorizes rebate at point of sale.
- Includes E-Bike classification definitions for Class 1 (pedal assisted, up to 20mph) and Class 2 (equipped with motor, up to 20mph). Cities and towns retain the right to restrict, regulate, or prohibit the use of e-bikes in parks, paths, and trails.

Commuter Rail Electrification

- $50 million for the Fairmount commuter rail line
- $50 million for the Framingham/Worcester commuter rail line
- $50 million for the Newburyport/Rockport commuter rail line

Regional Transit Authorities

$25 million to regional transit authorities for creation or expansion of electric vehicle fleet charging stations.

Greater Attleboro-Taunton Regional Transit Authority (GATRA)

$6.3 million to GATRA for purchase of electric buses, vans, and mini-vans.

PENDING – Clean Energy & Climate Bill (1)

An Act Advancing Offshore Wind and Clean Energy (Clean Energy and Climate Plan) - Bill H. 4515

MBTA

- Requires all new **MBTA bus purchases** to be electric by 2030 and the entire bus fleet to be all-electric by 2040. Prioritizes deployment on routes that go through underserved communities.

MassDOT

- Directs MassDOT in collaboration with Department of Elementary and Secondary Education (DESE) and DOER to study the opportunities and challenges ahead for **electrifying school bus fleets.**
- Requires MassDOT to provide **Regional Transportation Authorities (RTAs)** with technical and funding assistance to electrify their fleet.
- Requires MassDOT to **install EV charging stations** at all service plazas on the MA Turnpike, at least five commuter rail stations, at least five subway stations, and at least one ferry terminal.

MOR-EV Rebate

- Increases the MOR-EV rebate by $1,000 (to $3,500) for the purchase or lease of new and used electric passenger cars and light duty trucks less than $55,000.
- Offers an additional $1,500 MOR-EV rebate for low-income individuals.
- Provides MOR-EV rebates of not less than $4,500 for medium and heavy-duty electric vehicles. Offers an additional $1,000 for those trading in their internal combustion engine vehicle.
- Requires DOER to provide MOR-EV program data, including data on participation on low- and moderate-income households.
- Authorizes MOR-EV program to offer rebate at point-of-sale and directs creation of a new outreach program for underserved and low-income communities, as well as communities with high proportions of high-emission vehicles.

PENDING – Clean Energy & Climate Bill (2)

Other

- Mandates all new passenger cars and light-duty trucks sold in the state be zero-emission by 2035.
- Creates an Electric Vehicle Adoption Incentive Trust Fund.
- Establishes an Electric Vehicle Charging Infrastructure Deployment Plan, and establishes a Charging Infrastructure Deployment Fund.
- Creates an interagency coordinating Council to develop and implement a plan for deploying EV charging infrastructure in an equitable and accessible manner.
- Requires DPU to promulgate vehicle electrification and GHG emission regulations for transportation network companies (TNC).
- Requires distribution companies to submit proposals for time-of-use rates for charging EVs .
- Instructs MassCEC to develop a guide and website detailing the costs and availability of electric vehicles.
- Requires each EDC (Electric Distribution Company) to develop and electric-sector modernization plan to upgrade the distribution and, where applicable, transmission systems. Establishes a Grid Modernization Advisory Council to review and provide recommendations on the electric-sector modernization plans to maximize net customer benefits and demonstrate cost-effective investments to the distribution grid.
- Establishes a Clean Energy Transmission Working Group to provide a comprehensive cost analysis of major transmission infrastructure upgrades that may be needed to deliver clean energy generation procured.

Stretch Code Development – Comment by 8/12

MA DOER Draft regulations on Stretch Energy Code and Specialized Opt-in Code

New stretch building code proposal requires new residential and commercial construction & parking lots to have 10% of parking spaces be EV-ready.

All details & documents available here:

https://www.mass.gov/info-details/stretch-energy-code-development-2022

Written comments due by Friday Aug 12, 5:00 PM.

PENDING – Federal "Inflation Reduction Act"

Inflation Reduction Act of 2022 - H.R. 5376

Status: Approved by Senate on August 7, 2022. House is scheduled to convene on August 12, 2022.

Provides $7+ billion for transportation electrification and individual incentives for clean vehicles.

- Creates and amends several clean vehicle tax credit programs, including personal vehicles, commercial vehicles, and charging stations. Includes new and used vehicles.
- Would increase maximum tax credits from $30,000 to $100,000 for property owners that house refueling stations for low- or zero-emission vehicles

2022 Schedule

Thursday October 27th
1:00 – 2:30
Tentative Topics:

- Successes & Challenges Discussion
- Good2Go program in Boston
- Deep Dive into MA and Federal legislation on EVs

Thursday December 15th
1:00 – 2:30
Topics TBD

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METROPOLITAN AREA PLANNING COUNCIL