Municipal & School Vehicle Electrification Webinar

Tuesday, August 6th, 2024, @10am

How can we optimize eligible incentives and rebates to meet our municipal and school Electric Vehicle (EV) needs?

CENTRAL MASSACHUSETTS
Regional Planning Commission

Central Massachusetts Regional Planning Commission (CMRPC)

Agenda

- CMRPC's Introduction and EV Services
- Zachary Jenkins, Program Director, Massachusetts Clean Cities Coalition, MA Department of Energy Resources
- Ian Fried, Lead Project Manager, CALSTART
- Ryan Bradley, EV Ambassador, National Grid
- Q&A

CMRPC's EV Resources

Green Communities Assistance

CMMPO EV Charging Stations Dashboard

CMRPC Emerging Technology Webpage

CMMPO EV Fact Sheets

CMMPO Air Quality Module

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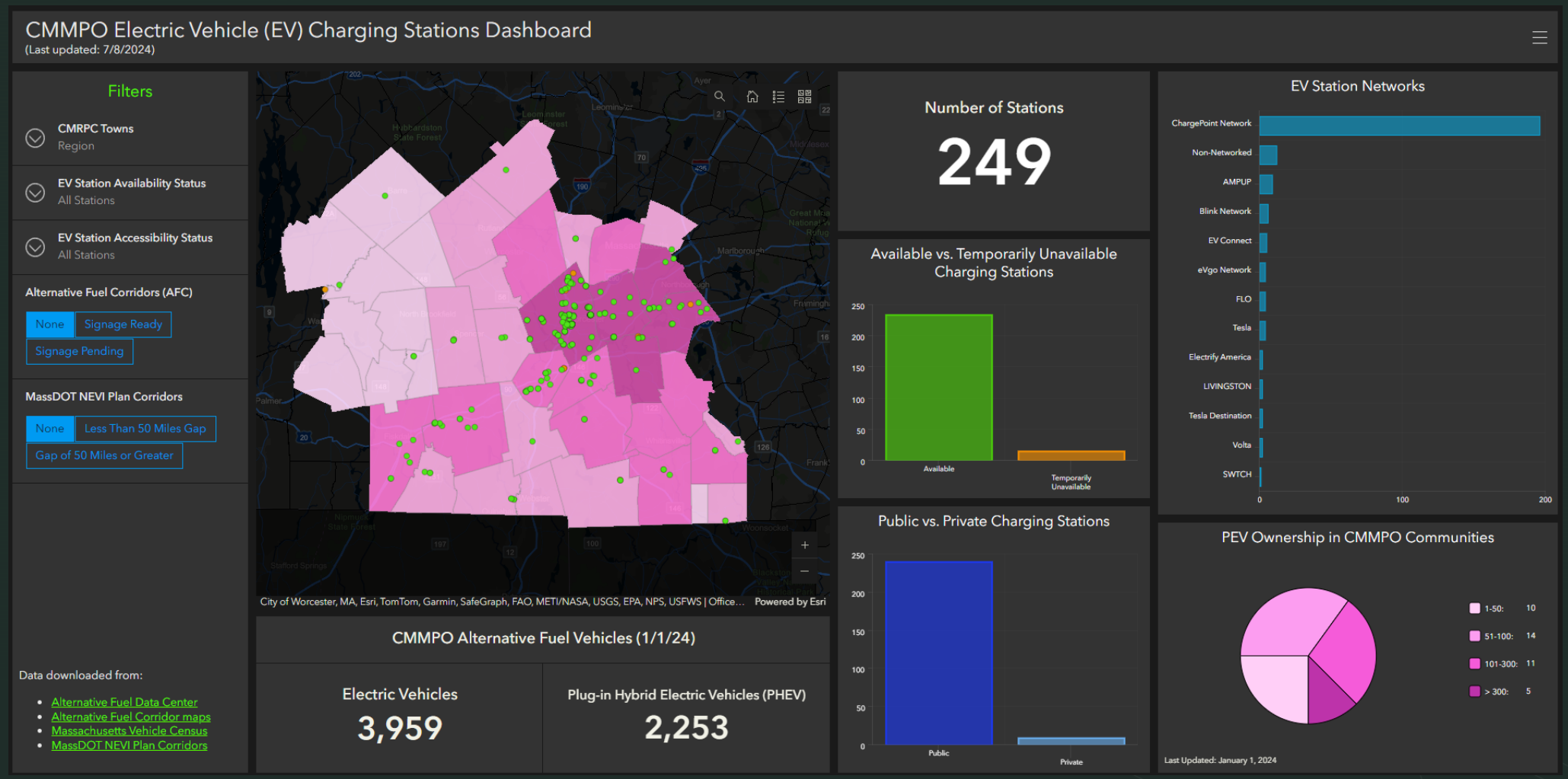
Regional Planning Commission

EV Dashboard



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Regional Planning Commission

Link to Dashboard or find it online at cmrpc.org

Zero Emission Vehicle Adoption: Massachusetts Policy and Program Approaches

Zachary Jenkins
Massachusetts Clean Cities Program Director
August 6, 2024

Statewide Targets for Electrification

- Massachusetts has committed to achieving a Net Zero Emissions economy by 2050, and adopted a statewide GHG emissions limit and sector-specific sub-limits
- The 2050 Clean Energy & Climate Plan (CECP) highlights a broad suite of specific goals, strategies, policies, and actions by sector
- Two of the CECP's key benchmarks:

TRANSPORTATION

97%
of light-duty vehicles (5 million) electrified

93%
of medium- and heavy-duty vehicles (over 350,000) electrified or non-emitting

- MA is orienting applicable policy and programmatic decisions around the CECP sub-limit for transportation

Electric Vehicles

1

Battery Electric Vehicle (BEV)

- Draws propulsion energy solely from on-board electrical energy storage, charged from an external source of electricity

Fuel Cell Electric Vehicle (FCEV)

- Energy stored as hydrogen is converted to electricity by a fuel cell

2

Plug-in Hybrid EV (PHEV)

- Internal combustion engine

+ On-board electrical energy storage that can be recharged from an external source of electricity

3

Hybrid Electric Vehicle (HEV)

- Internal combustion engine

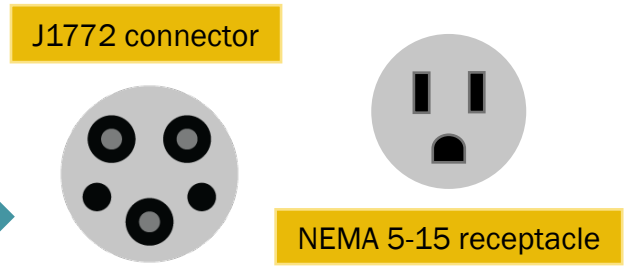
+ Small electric motor that uses energy stored in a battery to support a small portion of vehicle operations

Some of the BEVs available on VEH110

EV Charging

Level 1 Charging

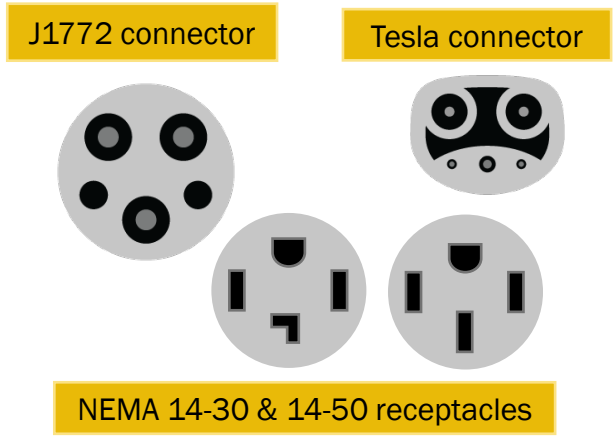
- 110-volt outlet (household plug)
- Approximately 3-5 miles of range per hour of charging



Most new EVs come with a mobile NEMA charging cord you can keep in the vehicle

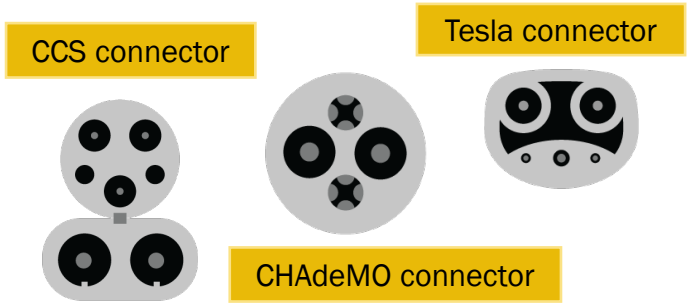
Level 2 Charging

- 240-volt outlet or charging station
- Approximately 20-25 miles of range per hour of charging



DC Fast Charging (DCFC)

- 208/480 three-phase input at station
- Approximately 100-200+ miles of range per 30 minutes of charging*



**Charging power varies by vehicle and battery state of charge; batteries should not be charged predominantly by DCFC*

Clean Cities Coalition

- The Massachusetts Clean Cities Coalition (MACCC) is part of a nationwide partnership with the U.S Department of Energy Clean Cities Program and is housed in the MA Department of Energy Resources.

- The coalitions mission is to advance the Commonwealth's environment, energy security, and economic prosperity through collaboration with communities by building partnerships with public and private stakeholders.

- The coalition assists public and private stakeholders in their efforts to adopt alternative fuel vehicles through incentive/rebate assistance, disseminating educational information, and event facilitation/participation.

Green Communities Program

Webpage

- The Green Communities Division provides grants, technical assistance, and local support from Regional Coordinators to help municipalities reduce energy use and costs by implementing clean energy projects in municipal buildings, facilities, and schools.

- Municipalities must meet 5 qualification criteria to be designated a Green Community.
    - Examples of criteria: Create an Energy Reduction Plan to reduce energy use by 20% over 5 years and Adopt a Fuel-Efficient Vehicle Purchase Policy.

- The program serves all 351 Massachusetts cities and towns with 291 municipalities across the state being designated as Green Communities.

State EV Programs

Light-Duty MOR-EV Rebates

MOR-EV Standard, Used, and Plus (link)

- $3,500 for eligible new battery electric (BEVs) or fuel cell electric vehicles (FCEVs)
- $3,500 rebate for used BEVs/FCEVs if income-qualifying resident
- $1,500 MOR-EV+ rebate adder if income-qualifying resident
- $1,000 rebate adder for trading in an eligible internal combustion vehicle
- Several rebates now available at point of purchase or lease through participating MA auto dealerships

PLEASE NOTE: MOR-EV IS A REBATE, NOT A TAX CREDIT

Pickup Truck and Class 2b-8 MOR-EV Rebates

MOR-EV Trucks (link) and Medium/Heavy-Duty Rebates (link)

- Post-purchase rebate for BEVs and FCEVs for individuals, corporations, and public entities
- Rebate amounts vary by vehicle weight:
  - Pickup trucks and Class 2b = $7,500
  - Class 3 = $15,000
  - Class 4-6 = $30,000-$60,000
  - Class 7-8 = $75,000-$90,000
- 10% rebate adder for vehicles operating in Environmental Justice Communities
- Can reserve a rebate for up to 12 months for heavier-duty vehicles upon placing a purchase order and apply for funding upon taking delivery

Light-Duty MassEVIP Fleets Rebates

MassEVIP Fleets (link)

- Rolling grant for municipalities, state agencies, and public higher education campuses; up to 25 vehicles per entity
- PHEVs and BEVs with a purchase price $60,000 or less and gross vehicle weight of 10,000 pounds or less
- Maximum incentives for public fleet vehicle purchases and leases:
  - BEVs = $5,000-$7,500 PHEVs = $3,000-$5,000
- Funding approval letter must be received prior to vehicle order
- If the applicant uses VEH110, MassDEP will pay the vendor on statewide contract directly after receiving the documentation
- MassEVIP Fleets grants cannot be combined with funds obtained through the MOR-EV or Green Communities programs for a single vehicle
- Applicant must commit to providing internal or external funds to cover remaining vehicle costs and upkeep for 3 years, and agree to help promote EVs

Green Communities Grants

Webpage

- Grant amounts vary by technology and whether a vehicle is purchased or leased
- Higher maximum grant funding for communities that meet special eligibility requirements

Prescriptive Measure*	Maximum Grant Amount	Maximum Grant Amount for Specially Eligible Communities
Light-duty fleet HEVs and PHEVs	$3,000 - $5,000	$6,000 - $10,000
Light-duty fleet BEVs	$5,000 - $7,5000	$10,000 - $15,000
Medium-/Heavy-duty fleet BEVs**	$10,000 - $15,000	$20,000 - $30,000

**Prescriptive grants are subject to change; sign up for the Green Communities newsletter for the latest updates*

***MD/HD rebates are only available for communities in certain Environmental Justice Communities*

State EVSE Infrastructure Programs

MassEVIP Charging Incentives

Public Access (link)

- Up to 100% of eligible costs at government-owned locations
- Site must allow practical public access at least 12 hours a day, 7 days per week
- Hardwired Level 1 or Level 2 charging
- ADA accessible design requirements

Workplace / Fleet (link)

- Up to 60% of eligible costs
- At least 15 employees on site (workplace) or where fleet vehicles are garaged
- Hardwired Level 1 or Level 2 charging
- ADA accessible design requirements for workplace charging
- Must get a fleet vehicle within 6 months (extensions may be requested)

Multi-Unit Dwellings (link)

- Up to 60% of eligible costs
- MUDs with 5+ units or campuses with at least 15 students onsite; site must have equal access
- Hardwired Level 1 or Level 2 charging
- ADA accessible design requirements

Green Communities Grants

Webpage

Prescriptive Measure*	Maximum Grant Amount
Public access or fleet EV charging	$7,500 per charging station

IRS Federal EV/EVSE Tax Credits

Individuals: New Vehicles

- Up to $7,500 on eligible models that meet battery and assembly requirements.
  - Final assembly point must be in North America
  - MSRP price cap of $80,000 for SUV's, vans, and pickup trucks; $55,000 for sedans and hatchbacks
  - Two sets of mineral and battery component requirements.
    - $3,750 credit amount of vehicle only meets one battery requirement
- Valid through 2032 for BEVs, PHEVs, and FCEVs.
- Credit can be claimed at the point of sale (through registered dealers) or when filing taxes
- Income Requirements:
  - < $300,000 for joint filers
  - < $225,000 for heads of household
  - < $150,000 for individual filers

Individuals: Used Vehicles

- Credit is for $4,000 or 30% of the sale price, whichever is lower for qualifying vehicles.
- Battery Requirements do not apply.
- Must be purchased from an IRS registered dealership.
- Must be at least 2 years old and cost less then $25,000.
- Credit applies at the first resale of the vehicle after August 16th, 2022 (only valid for the second owner of the vehicle).
- Lower income Threshold:
  - Joint Filers: < $150,000
  - Individual Filer: < $75,000

Commercial MD/HD Vehicles

- Instituted by the Inflation Reduction Act.
- Capped at $7,500 for vehicles weighing less than 14k lbs.
- Capped at $40,000 for vehicles weighing more than 14k lbs.
- Available to tax exempt entities via Direct Pay (municipalities and nonprofits).
- Full information on the commercial credit can be found here.

Federal Tax Credit for EV Charging

- For Individual consumers: 30% of cost, not to exceed $1,000

- For Commercial Entities (including Municipalities and tax-exempt organizations):
  - 30% of the cost or 6% in the case of property subject to depreciation.
  - Cannot exceed $100,000
  - Projects that meet the prevailing wage and apprenticeship requirements may be eligible to receive the full 30% tax credit, regardless of depreciation status.

- In all cases, the charger location must be in **rural** or **low-income** areas to qualify.
  - Link to check: Refueling Infrastructure Tax Credit

Program Websites & Contact Information

- Massachusetts Clean Cities
- Green Communities
- MOR-EV
- MOR-EV Pickup Trucks/Class 2b
- MOR-EV Class 3-8
- MassEVIP Fleets
- MassEVIP Charging: Public Access
- MassEVIP Charging: Workplace and Fleet
- MassEVIP Charging: MUDs and Educational Campuses
- MassCEC ACT School Bus Programs
- IRS Federal Tax Credits

DOER Staff Contacts

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Ian Fried

Lead Project Manager
School Bus Electrification
Ifried@CALSTART.org

Electrifying Your School Bus Fleet

There’s help available!

Agenda

1. EPA Clean School Bus Program
   a. Intro
   b. Rebate Round
   c. Grant Round
2. MassCEC Accelerating Clean Transportation Program

EPA Clean School Bus Program

In 2021, the US passed the Bipartisan Infrastructure Law, which gave the EPA $5 billion over five years (2022 – 2026) to transition the US fleet of school buses to electric school buses (ESBs)

EPA Clean School Bus Program

- **Cleaner air**. Clean school buses eliminate or reduce school bus exhaust, which is linked to asthma.
- **Reduced health risks**, especially for children whose lungs are still developing.
- **Reduced greenhouse gas emissions**, which contribute to climate change.
- **Cost savings** from reduced maintenance and fuel costs.
- **Resiliency**. Vehicle-to-Grid capable buses can provide power to the grid or buildings during power shutdowns

EPA Clean School Bus Program

So far…

- 2.7 billion dollars distributed to electrify the American school bus fleet
- 8,600 ESBs will be replaced with this money

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BUT WAIT, there's more…

- 2.3 billion dollars more

EPA Clean School Bus Program

So far…

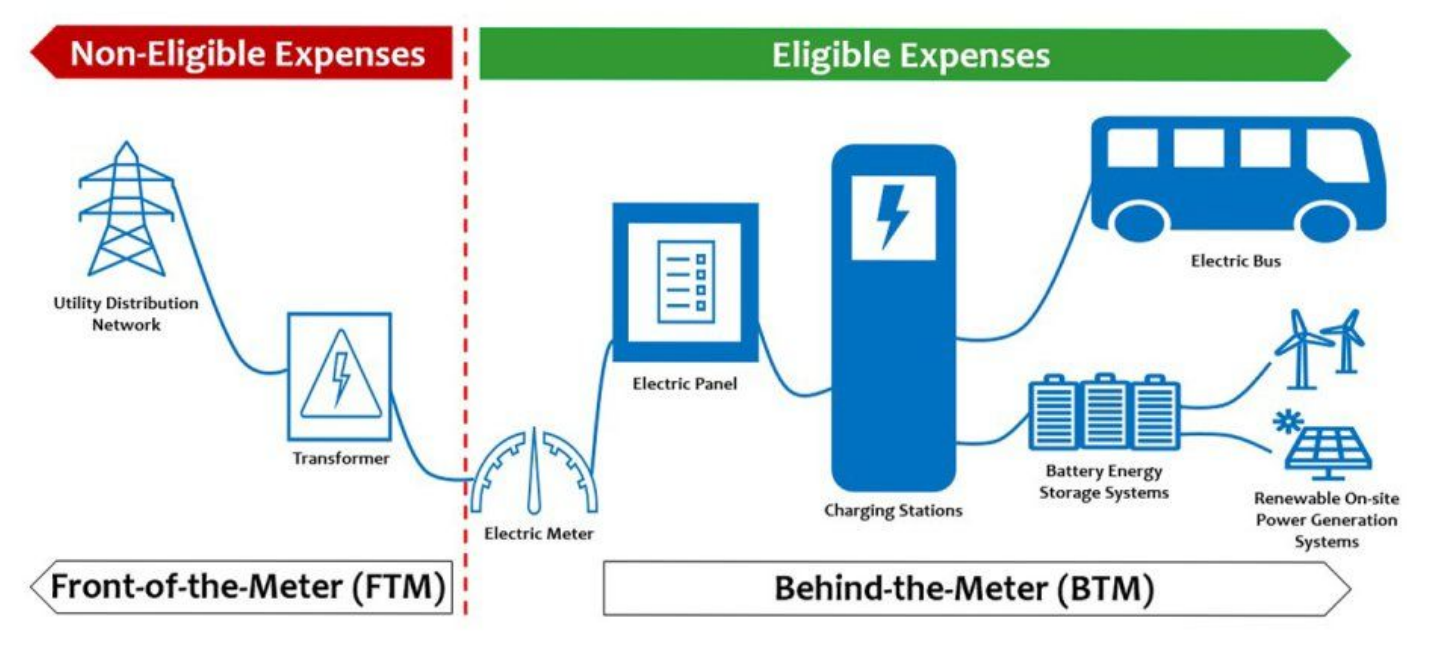
- 2.7 billion dollars distributed to electrify school buses
- 8,600 ESBs will be replaced with this money

BUT WAIT, there's more…

- 2.3 billion dollars more

*This is where **you** come in*

EPA Clean School Bus Program



EPA Clean School Bus Program

There are two different ways to get money through the EPA CSBP

EPA Clean School Bus **Rebate** Round

- 1 x per year
- No minimum bus order
- School districts, operator, or dealer
- Replace 2010 or older ICE vehicles with ESBs
- Sept. - Feb. accepting apps, May notific.
- Lottery system

EPA Clean School Bus **Grant** Round

- 1 x per year
- Min. 15 bus order, More challenging app.
- School district, operator, or dealer
- Replace 2010 or older ICE vehicles with ESBs
- Apr. - Aug. accepting apps, Nov. notific.
- Competitive funding

MassCEC Accelerating Clean Transportation (ACT)

Providing planning, technical support, and gap funding to Massachusetts public school districts.

ACT School Bus supports electric school bus deployment, leveraging other funding sources such as the federal Environmental Protection Agency's Clean School Bus Program.

MassCEC offers two program opportunities: **Advisory Services** and **Fleet Deployment**.

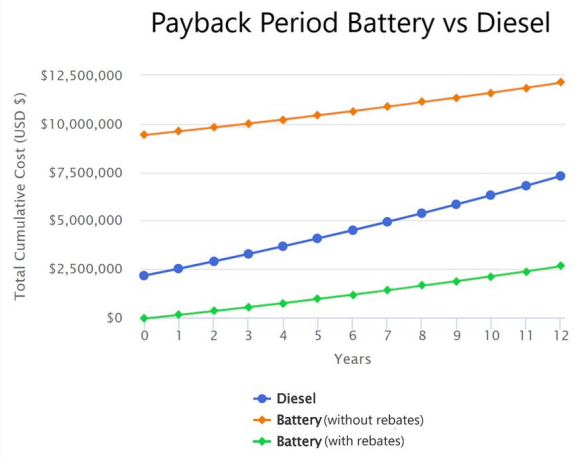
MassCEC Accelerating Clean Transportation (ACT)

Advisory Services

Up to 25 school bus fleets will receive free electrification planning services

- NO FUNDING, but…
- Preparing for future funding opportunities
- Identifying internal approval procedures
- Feasibility designs
- Financial modeling
- Vehicle and charging station procurement plans
- Educational materials

This program is open on a rolling basis



MassCEC Accelerating Clean Transportation (ACT)

Fleet Deployment

Up to $2.5 million in flexible funding per fleet for electric school buses, associated infrastructure, construction, and staff time. Additionally, technical services including

- Assistance with the electric school bus procurement process
- Electric vehicle supply equipment (EVSE) charging infrastructure selection, procurement, and installation
- Recommendations for depot upgrades
- Data collection on electric school bus performance
- Plans for future electrification

Applications due in July 2025

EPA Clean School Bus Program = FREE MONEY FOR ELECTRIFYING YOUR FLEET

EPA CLEAN SCHOOL BUS

MassCEC Accelerating Clean Transportation = FREE ADVICE (AND MAYBE MONEY) FOR ELECTRIFYING YOUR FLEET

MASSACHUSETTS CLEAN ENERGY CENTER®

Thanks!

Ian Fried
Lead Project Manager
School Bus Electrification
ifried@CALSTART.org

CALSTART

National Grid EV Charging Programs

Ryan Bradley
National Grid, EV Ambassador

August 6, 2024

nationalgrid

Introduction

The Massachusetts department of Public Utilities approved our phase III EV proposal on December 30, 2022. This Approval is among the first of its kind in the Northeast and will provide extensive EV infrastructure support to our customers, along with other unique program offerings.

Community Electrification

Multi-Unit Dwellings

EV charging provides greater value to residents and improves property values

Public / Workplace

Limited public charging is one of the biggest barriers to EV adoption

Fleets

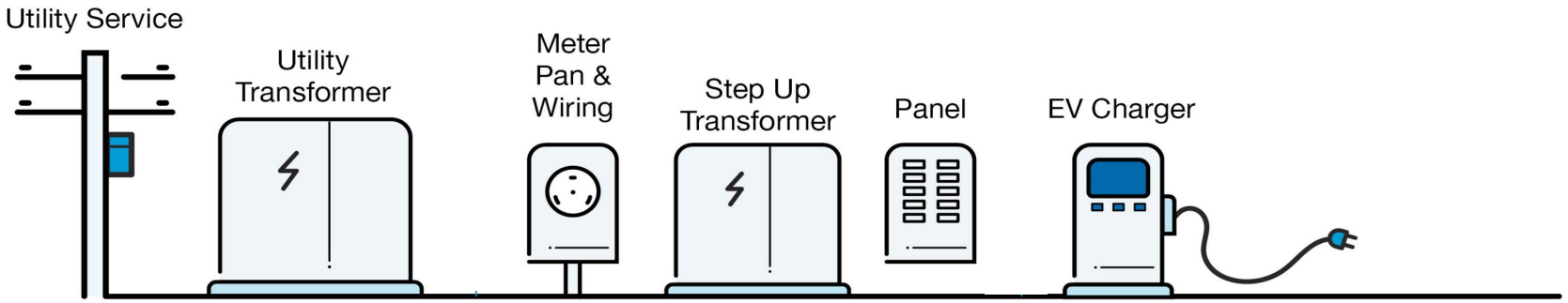
One MHDV EV truck or bus can reduce >8x more CO_2 and >30x $PM_{2.5}$ than a passenger vehicle

Residential

>80% of charging at home today, but barriers exist for >50% of drivers

Commercial Charging Infrastructure (Make-Ready)

What's Eligible?



Eligible for EV Charging Program Incentives

Not eligible

Utility Constructs

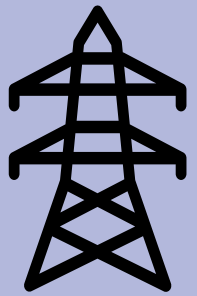
- Customers may be required to pay for grid upgrades in excess of utility's design requirements

Customer Constructs

- Panel
- Conduit
- Trenching
- Design
- Permitting
- Step Up Transformers
- Wiring
- Customer Switchgear
- Charging Station (public only)
- Networking (comm. & MUD - public only)

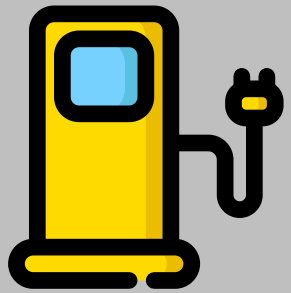
- Signage
- Maintenance

Public and Workplace Incentives



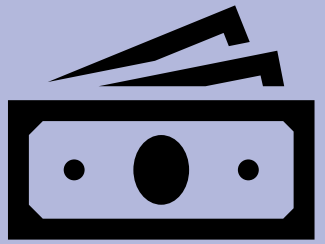
Electrical Infrastructure

Funding for up to 100% of the electrical infrastructure costs associated with installing Electric Vehicle Charging



Charging Stations

Rebates on Charging Station Equipment Costs and Networking Fees



Demand Charge

Demand Charge Alternative Program assists with unforeseen high costs

Demand Charge Alternative

The Demand Charge Alternative Program supports customers in reducing their operating costs of EV chargers by providing a tiered load factor-based discount on their demand charges.

The Demand Charge Program is approved and currently available for 10 years starting in 2023 with new enrollments accepted through 2032.

Eligibility:

- **All new and existing separately metered DCFC and L2 EVSE customers on General Service Demand Rates (G-2 or G-3)**
- **Eligible customers can enroll** anytime during the first 9 years of the program

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

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

Public Customer Example

We can support the essential parts of an EV project:

Infrastructure:
Make-Ready incentives fund up to 100% of both grid- and customer-side infrastructure

EVSE:
Rebates up to 50% for non-EJC 150+ kW ports and up to 100% for EJC 150+ kW port and all 50-149 kW ports (40k-80k per port rebate)

Operations & Management:
Demand Charge Alternative gives up to a 100% discount on demand charges through June 31, 2033 (load factor)

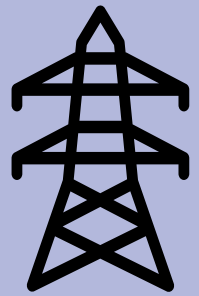
Public DCFC Example:
MA G-3 Rate, EJC Income location, 4 x 150 kW chargers, ~5% Load Factor

	Infra.	EVSE	O&M
EV Program Support[1]	✓	✓	✓
Cost w/o EV Program[2]	~$250k	~$300k	~$0.44 per kWh
Cost w/ EV Program[3]	~$10k	$0	~$0.27 per kWh
Savings[4]	**~$240k**	**~$300k**	**~$2k per month *(~$24K per year)***

Potentially up to
~$540k
Upfront Savings

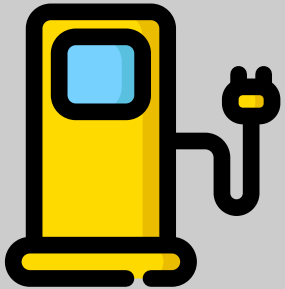
~40%
Electricity Savings

Fleet Incentives



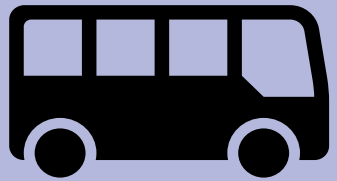
Electrical Infrastructure

Funding for up to 100% of the electrical infrastructure costs associated with installing Electric Vehicle Charging



Charging Stations

Rebates on Charging Station Equipment Costs and Networking Fees



Fleet Advisory

No Cost Fleet Advisory

Fleet Advisory Services Program

Comprehensive Fleet Electrification Planning

Eligible Fleets: Includes School Buses and Government fleets

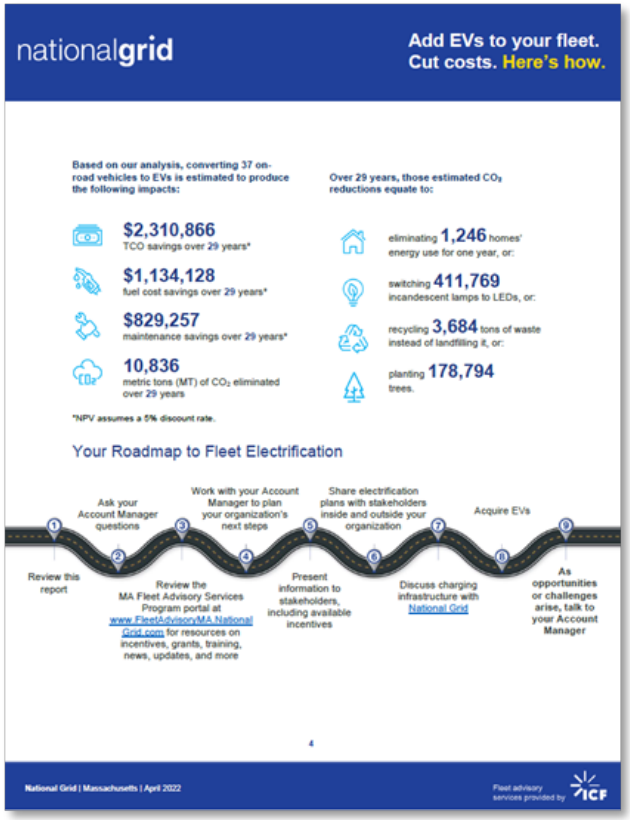
Available through 12/31/2026

No Cost to Participants

Overview and Metrics

Participants receive:

- Customized Fleet Assessments
  - TCO comparisons of ICE VS EV
  - Like for Like Vehicles
  - EV's impacts on overall fleets
- Supplementary Recommendations File
  - Interactive dashboard to assist with planning vehicle purchases
- Additional Benefits:
  - (2) Report Refreshes per year
  - 1:1 Technical Assistance
  - Monthly newsletters and online resources
  - Office Hours



Fleet Customer Example

We can support the essential parts of an EV project:

Planning:
Fleet Advisory Services (for public fleets) provide a full assessment of EV options, infrastructure, and costs

Infrastructure:
Make-Ready incentives fund up to 100% of both grid- and customer-side infrastructure

EVSE:
Rebates for (public fleets) up to 50% of non-EJC ports and 100% of EJC ports

Operations & Management:
Demand Charge Alternative gives up to a 100% discount on demand charges through June 31, 2033 (load factor)

Off-Peak Rebates provide $0.03-$0.05 / kWh discounts for charging fleet vehicles overnight

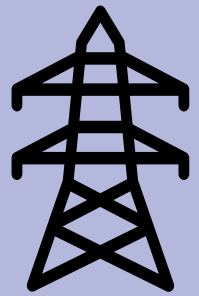
Electric Bus Fleet Example:
MA G-3 Rate, EJC Income location, 4 x 150 kW chargers, charging 500 kWh per day per vehicle, ~14% Load Factor

	Plans	Infra.	EVSE	O&M
EV Program Support[1]	✓	✓	✓	✓
Cost w/o EV Program[2]	Internal (~$20k)	Up to $400k or more	$40k-$80k+ per port	~$0.25-$0.30 per kWh
Cost w/ EV Program[3]	$0 for Public Fleets	$0 for Public Fleets	$0 for Public EJC Income	~$0.20-$0.25 per kWh
Fleet Savings[4]	**~$20K *(entire fleet)***	**~$400k**	**~$320k**	**~$3k per month *(~$36k / yr.)***

Potentially up to
~$740k
Upfront Savings

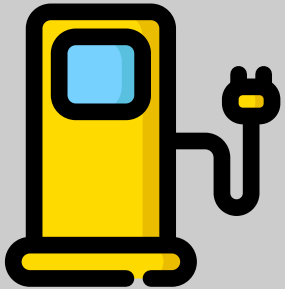
~20%
Electricity Savings

Multi-Unit Dwelling



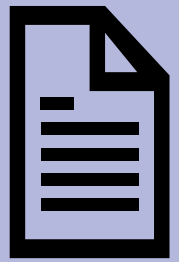
Electrical Infrastructure

Funding for up to 100% of the electrical infrastructure costs associated with installing Electric Vehicle Charging



Charging Stations

Rebates on Charging Station Equipment Costs and Networking Fees



EV-Ready Site Plans

Complimentary EV-Ready Site Plans for qualifying 20+ unit residential buildings

Multi-Unit Dwelling

We can support the essential parts of an EV project:

Planning:
EV Ready Site plans support MUDs with 20+ units plan for the infrastructure, EVSE, and management practices required to provide EV charging to residents

Infrastructure:
Make-Ready incentives fund up to 100% of both grid- and customer-side infrastructure

EVSE:
Rebates up to 50% for non-EJC ports, up to 75% for non-income EJC ports

Operations & Management:
Rebates up to $120 per year, per port for networking

Multi-Unit Dwelling Level 2 Example:
EJC Income location, 20 x 7.2 kW chargers, with new service

	Plans	Infra.	EVSE	O&M
EV Program Support[1]	✓	✓	✓	✓
Cost w/o EV Program[2]	$6K	$120k	$100k	$5,000/ year
Cost w/ EV Program[3]	$0	$0	$28k	$2,600/ year
MUD Savings[4]	**$6k**	**~$120k**	**~$72k**	**~$2,400/ year**

Potentially up to
~$198k
Upfront Savings

$2,400
per year electricity savings

Footnotes

- **Public Example Slide:** **1)** Summary only – see program website for additional details and eligibility: ngrid.com/ma-evcharging**; 2)** Costs are estimates only – local conditions, supplier variability, and installation costs will vary; **3)** Program incentives are subject to caps per port – for 150 kW DCFC, customer-side infrastructure is capped at $60k, and EVSE rebates are capped at $80k for an EJC Income project. See following pages for more detail; **4)** Savings are estimates for illustrative purposes only, and final costs may vary.
- **Fleet Example Slide:** **1)** Summary only – see program website for additional details and eligibility: ngrid.com/ma-evcharging**; 2)** Costs are estimates only – local conditions, supplier variability, and installation costs will vary; **3)** Program incentives are subject to caps per port – for 150 kW DCFC, customer-side infrastructure is capped at $60k, and EVSE rebates are capped at $80k for an EJC Income project. See following pages for more detail; **4)** Savings are estimates for illustrative purposes only, and final costs may vary.
- **MUD Example Slide:** **1)** Summary only – see program website for additional details and eligibility: ngrid.com/ma-evcharging; **2)** Costs are estimates only – local conditions, supplier variability, and installation costs will vary; **3)** Program incentives are subject to caps per port – for Level 2 EVSE, customer-side infrastructure is capped at $6700 w/ new service, and EVSE rebates are capped at $3600 for an EJC Income project. See following pages for more detail; **4)** Savings are estimates for illustrative purposes only, and final costs may vary.

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Questions & Answers