REGIONAL EV STRATEGY Medium- and Heavy-Duty EVs

April 25, 2024





Today's Agenda

1:00-1:05 p.m.	Welcome & Background on Medium- and Heavy-Duty Vehicles	Alison Felix, MAPC
1:05-1:20 p.m.	Overview of Massachusetts Climate Pollution Reduction Grant Application to Plan for and Adopt Medium- and Heavy-Duty Vehicles	Eric Friedman, MA Department of Energy Resources
1:20-1:25 p.m.	Q&A	Alison Felix, MAPC
1:25-1:35 p.m.	Relevant MAPC Contracts for Medium- and Heavy-Duty Electric Vehicles	Kelsi Champley, MAPC
1:35-1:45 p.m.	Relevant OSD Contracts for Medium- and Heavy-Duty Electric Vehicles	Kelly Clark Thompson, MA Operational Services Division
1:45-1:50 p.m.	Q&A	Emma Zehner, MAPC
1:50-2:15 p.m.	Municipal Experiences	Sam Downes, Town of Brookline Brenda Pike, City of Medford Elena Proakis Ellis, City of Melrose
2:15-2:30 p.m.	Q&A, Resources, and Next Steps	Emma Zehner, MAPC

Background

Medium and Heavy-Duty Vehicles

Gross Vehicle	Federal Highway Administration			
Weight Rating (lbs)	Vehicle Class	GVWR Catagory		
<6,000	Class 1: <6,000 lbs	Light Duty		
10,000	Class 2: 6,001-10,000lbs	<10,000 lbs		
14,000	Class 3: 10,001-14,000 lbs			
16,000	Class 4: 14,001-16,000 lbs	Medium Duty		
19,500	Class 5: 16,001-19,500 lbs	10,001-26,000 lbs		
26,000	Class 6: 19,501-26,000 lbs			
33,000	Class 7: 26,001-33,000 lbs	Heavy Duty		
>33,000	Class 8: >33,001 lbs	>26,001 lbs		

Source: https://afdc.energy.gov/data/10380

Overview of MA Climate Pollution Reduction Grant Application to Plan for and Adopt Mediumand Heavy-Duty Vehicles Comprehensive Fleet Electrification Initiative (CFEI) EPA CPRG Grant Application

Presentation to MAPC EV Working Group April 25, 2024 Eric Friedman Director, Leading by Example Division MA Dept. of Energy Resources

What is CPRG?

Climate Pollution Reduction Grants



Budgets

- ✓ Planning grants: \$250M (Climate Office submitted MA plan March 1st)
- Implementation grants: \$4.3 billion Applications due April 1st

CPRG Goals

- 1. Achieve significant cumulative GHG reductions by 2030 and beyond
- 2. Substantial community benefits (air quality, particularly disadvantaged communities)
- 3. Complement other funding to maximize benefits
- 4. Replicable/scalable across multiple jurisdictions

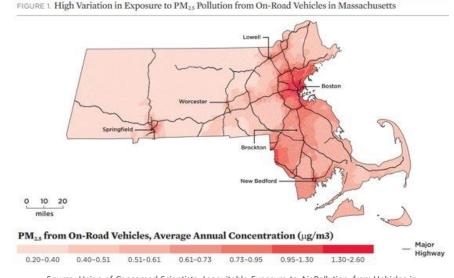
Number and amount of awards

- Approximately 30 to 115 grants
- Awards expected to range between \$2M and \$500M \rightarrow

Grant Ranges	Anticipated Number of Grants to be Awarded
\$200,000,000 - \$500,000,000	4-10
\$100,000,000 - \$199,999,999	6-13
<mark>\$50,000,000 – \$99,999,999</mark>	<mark>6-12</mark>
\$10,000,000 – \$49,999,999	6-30
\$2,000,000 – \$9,999,999	10-50

Why a MD/HD Fleet Focus for the CPRG Application?

- Medium/heavy-duty diesel vehicles contribute heavily to air pollution
 - Represent 5% of the vehicles on the road
 - Contribute 20% of transportation GHGs
 - significant contributor of PM and NOx emissions
- Emissions from diesel vehicles are concentrated in urban areas and Environmental
 Justice / LIDAC communities
- Extremely low uptake among Class 3-8 ZEVs to date
- Primary challenges for electrification include:
 - upfront cost
 - charging infrastructure logistics and cost
 - understanding EV options and opportunities



Source: Union of Concerned Scientists, Inequitable Exposure to Air Pollution from Vehicles in Massachusetts, available at: <u>Inequitable-Exposure-to-Vehicle-Pollution-MA.pdf (ucsusa.org)</u>

Outreach

During grant development process, outreach* included:

- Regional Planning Associations
- Municipalities with EJ Populations
- Community Based Organizations
- Massachusetts Trucking Association
- Fleet Operators in Massachusetts

Highlights from conversations:

- Ensure training for existing fleet maintenance staff
- Increased incentives key to expanding EV adoption
- Looking for help to navigate available incentives
- Help fleets get ready for the EV transition
- Focus on fleets that are part of the community

*Fleet survey sent to 1,500 fleets with 102 responses

Broad presentations to large groups

Smaller group listening sessions with dozens of fleets, municipalities, community based organizations, etc

Overview of DOER Application for CPRG

<u>Goals</u>

- Accelerate adoption of medium- and heavy-duty zero emission fleet vehicles (ZEVs) in support of Advanced Clean Trucks rule requirements in early years
- 2. Prioritize emissions and criteria pollutant reduction impacts for low-income and disadvantaged communities (LIDACs)
- Seed initial electrification efforts across 200+ fleets and ~750 vehicles with at least 40% of rebate funding to LIDAC communities

<u>Details</u>

- Application Submitted : April 1, 2024
- Expected Award Announcement: July 2024
- Performance Period: 2025-2030
- Grant Request: \$95,100,619
- Primary Applicant: Massachusetts .Dept of Energy Resources

Key Proposal Components1) Fleet
Advisory
Services2) Vehicle
Rebates

5) Workforce

Development

3) Charging

Infrastructure

4) Outreach

and

Engagement

2) Proposed Vehicle Rebates



- CFEI to utilize existing MOR-EV MHD rebate program infrastructure
- Base rebates for Class 3-8 vehicles will be substantially increased to bridge the gap between ICEVs and ZEVs
- Stackable rebate adders:
 - Fleets with direct impact on LIDAC communities
 - Small business fleets OR Community-based fleets (hospitals, refuse, nonprofits, municipal, transit agencies, public entities)
 - Diesel vehicle scrappage
- Rebate subtractor for larger fleets
- Rebates can only cover 80% of total vehicle cost unless including scrappage adder, which increases max. cost coverage to 90%
- Per fleet limit of 10 vehicle rebates

1) Proposed Fleet Advisory Services 2.0



Funding through MassCEC, which will expand and enhance the Mass. Fleet Advisor Program

Current Offerings:

- Fleet Electrification Report (short- and longterm full fleet electrification considerations)
- Guidance on state, federal, and utility incentives and tax credits
- Procurement Assistance
- Public Resources
- Events
- Marketing



Proposed New Offerings:

- Information hotline
- One-stop-shop portal for cross-program applications
- Expanded instructions and resources for federal tax credits
- Charging infrastructure assistance postprocurement
- Creation of fleet communities or forums
- Dealer education and engagement

3) Proposed Charging Infrastructure Funding

- CPRG program will first rely on utility make-ready funding with supplemental CPRG funding through MassEVIP for:
 - Multiyear networking costs
 - Multiyear maintenance costs
 - Ancillary costs like signage, bollards, etc.
- For fleets without access to utility funding (e.g., MLP customers), program will provide funding to establish rebates equivalent to those in utility programs

national**grid** EVERS**=**URCE

> Program relies on continued utility EVSE funding beyond 2026

4) Proposed Community-Based Outreach & Education

- With DOER and EEA advisory oversight, the MOR-EV Program Administrator (CSE) will work with community-based organizations to identify and communicate effectively with fleets that operate within their communities
 - CSE currently manages the MOR-EV Culturally Competent Outreach Program
- Expanded outreach, marketing, and education
- Funding mechanism to directly reimburse CBOs and community stakeholders for time and resources



5) Proposed Workforce Development

- Training opportunities to establish a pipeline of automotive technicians skilled in MHD battery electric vehicle maintenance and repair
- Funding for Massasoit Community College (MCC), only state community college with a diesel automotive program:
 - a pre-apprenticeship program for students entering the field
 - an advanced fleet training program to support continuing education for current automotive technicians
 - chassis, equipment, curriculum development, and various administration costs
- Funding also provided to DESE for a grant program at 3-5 vocational schools to support initial equipment needs and necessary training development



Who Would be Involved?

	MA DOER (Primary Applicant & Project Manager)					
Rebates	Charging Infrastructure	Fleet Advisory Services	Outreach & Engagement	Workforce Development		
 Center for Sustainable Energy 	 Electric utilities MassDEP 	• MassCEC	 Center for Sustainable Energy EEA EJ Office MAPC CBOs 	 Massasoit Community College DESE Career & Technical Educational Schools 		

Bold = CPRG Application Coalition Partner; MOU to be signed by July 1st



Relevant MAPC Contracts for Medium- and Heavy-Duty Electric Vehicles

Kelsi Champley Procurement Service Manager Municipal Collaboration, MAPC <u>kchampley@mapc.org</u>, (617) 933-0766

<u>MAPC EV – Purchasing Infrastructure and</u> <u>Resources</u>

MAPC/GBPC Purchasing

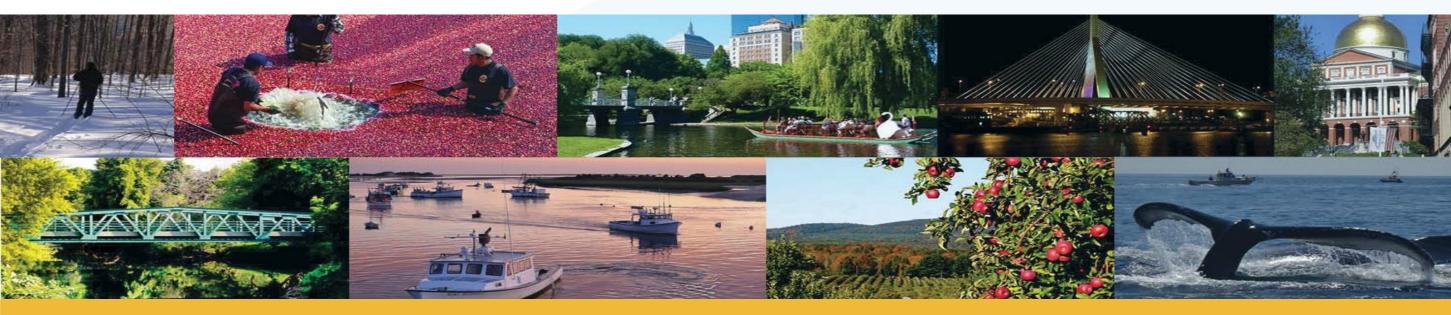


Relevant OSD Contracts for Medium- and Heavy-Duty Electric Vehicles



VEH Statewide Contracts: EV Options for Mediumto Heavy-Duty Vehicles & Equipment

April 25, 2024 Kelly Thompson Clark kelly.thompsonclark@mass.gov



mass.gov/osd

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Eligible Entities

OPERATIONAL SERVICES DIVISION

Organizations Eligible to use Statewide Contracts:

Cities, towns, districts, counties, and other political subdivisions	Public institutions of higher education
Executive, Legislative, and Judicial Branches, including all departments and elected offices therein	Public purchasing cooperatives
Independent public authorities, commissions, and quasi-public agencies	Non-profit, UFR-certified organizations that are doing business with the Commonwealth
Local public libraries, public school districts, and charter schools	Other states and territories with no prior approval by the State Purchasing Agent
Public hospitals owned by the Commonwealth of Massachusetts	Other entities when designated in writing by the State Purchasing Agent

Find this list on our website.

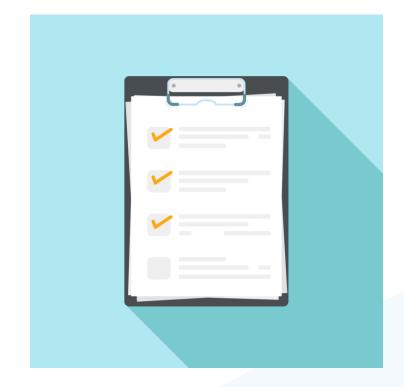




VEH110 Contract Overview



mass.gov/osd



- Light- to Medium-Duty Vehicles
- Thirteen Vendors
- Twelve Categories
- Three categories that must be hybrid (HEV); plug-in hybrid (PHEV); battery electric (BEV), or fuel cell electric (FCEV)
 - Sedans
 - Minivans (not wheelchair accessible)
 - SUVs (not wheelchair accessible)
- Medium-Duty Trucks (10,000 26,000 lbs. GVW)
- Police Pursuit Vehicles (PPV)
- School Buses & 7D Vehicles (municipal leases available)
- Upfitting offered through dealers



VEH111 Contract Overview



mass.gov/osd

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- Heavy-Duty Vehicles
 - Road Maintenance
 - Construction Equipment
- Nine Vendors
- Seven Categories
 - Trucks, Paving, Utility, Buses, Snow Removal, Trailers + More!
- EVs are available but no current mandatory EV specification
- Medium- to Heavy-Duty Trucks (26,000 lbs.+ GVW)
- School Buses & Transit (coach) Buses



How do I get a quote?

- Contract User Guide
- Reference Vendor Table in back
- Contact Vendors directly (No COMMBUYS)
 - Provide specs to dealer
 - ✓ What is Mandatory vs Desired
 - \checkmark Lead time on vehicles
 - ✓ How long is your quote good for?
 - ✓ Upfitting available for special accessories
 - ✓ Questions/Issues? Contact Kelly at OSD.





Contract User Guide for VEH110



VEH110: Light and Medium-Duty Vehicles



Vendor	Master Blanket Purchase Order #	Contact Person	Phone #	Email	Prompt Payment Discounts	SDP Commitment Percentage	Maximum % above Cost for Vehicle	Maximum % above Cost for Upfitting
*Master Contract Record	PO-22-1080-OSD03- SRC3-23886	Kelly Thompson Clark	617-720-3184	kelly.thompsonclark@mass.gov	N/A	N/A	N/A	N/A
***Solicitation Enabled MBPO	PO-22-1080-OSD03- SRC3-23885	Kelly Thompson Clark	617-720-3184	kelly.thompsonclark@mass.gov	N/A	N/A	N/A	N/A
ANDCO Inc dba Anderson Motors, Inc.	PO-22-1080-OSD03- SRC3-23879	Jim Anderson	401-434- 5900	jim@andersonmotors.com	2% - 10 Days 1.5% - 15 Days 1% - 20 Days 0.5% - 30 Days	1%	36% Category 11	40%
DATTCO Inc dba DeVivo Bus Sales	PO-22-1080-OSD03- SRC3-31225	Kevin DeVivo	860-356- 0252 x5996	kevin.devivo@devivobus.co m	1% for 10; 15; 20; and 30 days	1%	5% above all direct costs. Category 11	5% above all direct costs
Central Dodge Inc dba CENTRAL CDJR OF RAYNHAM	PO-22-1080-OSD03- SRC3-23920	Deborah Emery	508-828- 2134	<u>demery@central.us</u>	0.05% - 10 Days 0.025% - 15 Days	1%	Category 2 = 6%; Categories 4 & 5 refer to price file in vendor MBPO; Categories 8, 10, 11 and 12 = 8%	10%
Colonial Ford, Inc.	PO-22-1080-OSD03- SRC3-23918	John Welch	774-283- 6400	jwelch@buycmg.com	1% - 10 Days 0.5% - 15 Days	1%	4%	15%
Colonial Imports South, Inc. dba COLONIAL HONDA OF DARTMOUTH	PO-22-1080-OSD03- SRC3-23922	John Welch	774-283- 6400	jwelch@buycmg.com	1% - 10 Days 0.5% - 15 Days	1%	6.5%	14%
Colonial Nissan of Medford, Inc.	PO-22-1080-OSD03- SRC3-23921	John Welch	774-283- 6400	jwelch@buycmg.com	1% - 10 Days 0.5% - 15 Days	1%	6%	14%



Local Government Enablement Team





Local Government Enablement Eric Murphy - Manager 781-375-5637

eric.murphy@mass.gov

Jennifer Forsey – <u>jennifer.forsey@mass.gov</u> Jackie Needham – <u>jackie.needham@mass.gov</u> Trish Burke – <u>patricia.burke@mass.gov</u>





Questions



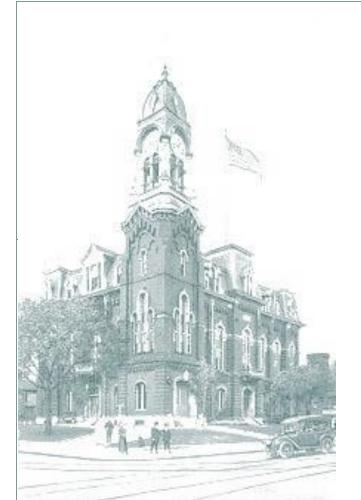








Municipal Experiences









City of Melrose ELECTRIC REFUSE TRUCK AND CHARGING INFRASTRUCTURE



- Truck purchase: \$452,300
- Charging infrastructure: \$298,370
- Soils management for electrical conduit installation: approx. \$15,000
- Total project cost: \$765,670

Funding Sources

- DERA grant
- National Grid incentives
- Tax incentive
- City of Melrose free cash/capital stabilization funds

Approval Process

- DERA application submitted in August 2022
- April 2023 City Council meeting approved grant acceptance but denied City share
- DERA contract signed May 2023
- September 2023 Council approved \$298,000 for City share

Refuse Truck – Battle Motors (Boston Freightliner)



Refuse Truck



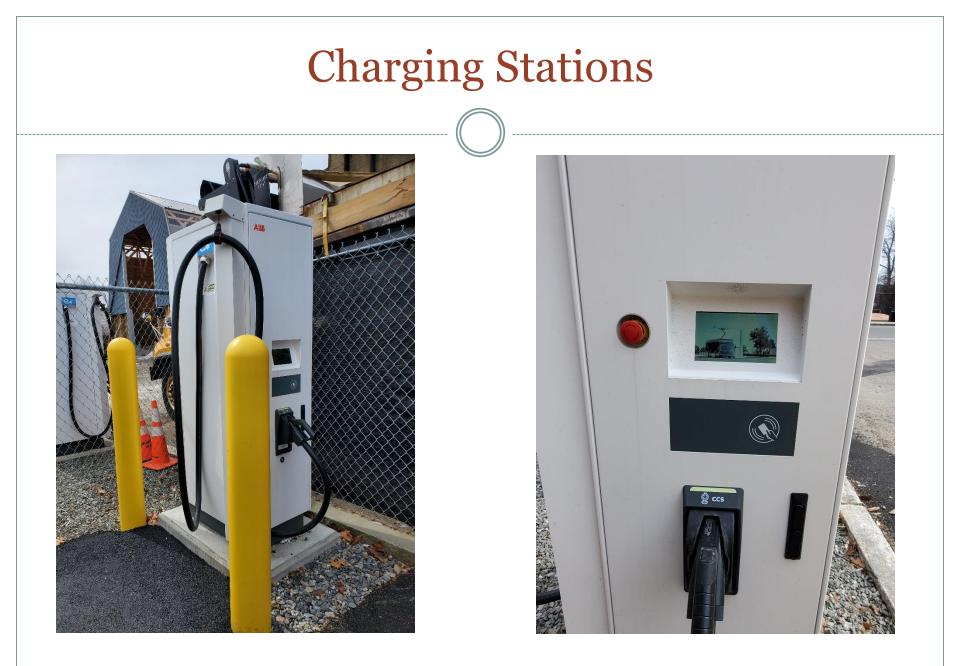
- Used for:
 - Municipal barrels
 - School dumpsters
 - Small residential streets where vendor has access issues

Refuse Truck – 11 yd Curbtender Body

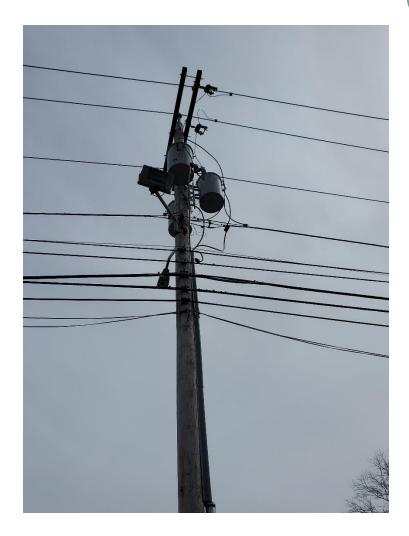


Charging Stations – 3 ABB Level 3 Chargers





Pole-mounted Transformers



- Three new transformers with dedicated service for charging stations
- Stations are for City personnel use only
- Two are within the DPW fence and one outside for admin. vehicles

Medford Electric Street Sweeper

April 25, 2024



Global M3EV

- 9-11 hours of operational time
- 3 tons per minute with heavy duty sweeping package
- Sweeping speed 3-11 mph, travel speed 25 mph
- 12.5' turning radius
- Recommended through National Grid fleet assessment – replaced a diesel powered 2013 Elgin Pelican



Financials

- Total cost \$661,369
 - Includes 80 amp level 2 Clipper Creek charger, installed by DPW
- MassDEP DERA grant \$282,915
 - Applied August 2022, awarded January 2023
 - 7-month extension because of supply chain issues received sweeper January 2024

Grant documentation

- Application
 - Hours operated
 - Fuel usage reports
 - Sweeping schedule
- Reimbursement
 - Certificate of registration to show that it's in service
 - Pictures to prove that the previous sweeper was scrapped.



Troubleshooting

- Issues with sweeper
 - Brooms needed adjustment on spring tension, dirt shoe was bent manufacturer repaired
 - Regular battery draining when left plugged in for long periods of time during cold weather

Benefits

- Operator was skeptical, but he likes using it more than the diesel one
- No snail trail of dirt left behind that he has to make a second pass for
- Significantly quieter than diesel sweeper almost silent in transport mode

Questions?

Brenda Pike Climate Policy Planner bpike@medford-ma.gov

781-393-2484



Medium & Heavy Duty Electric Vehicles

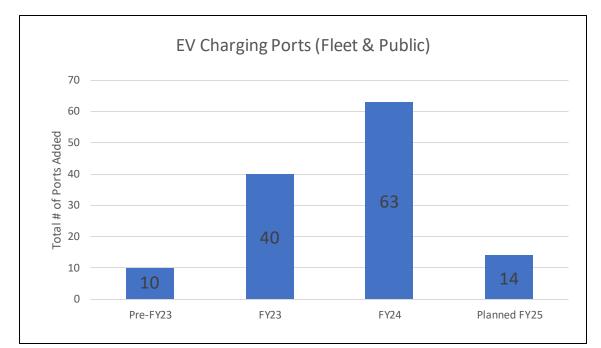
April 2024 MAPC Meeting Sam Downes, P.E.

Project Engineer, Town of Brookline Engineering & Transportation Division – Department of Public Works



Overview of EV Program

- 63 ports (Level 2 and 3) installed in FY24
 - (Fleet: 43 Level 2, 3 Level 3 ports)
- Collaborating with Eversource's Make Ready and MassEVIP Programs
- \$1.4 million in construction and station funding
- \$225k cost to Town (ARPA funding)



Public Charging*	Fleet Charging*
Town Hall Upper Lot (2017, 2023)	Town Hall Upper Lot (2023)
Babcock, Fuller, and Kent/Webster Street Parking Lots (2018, 2021, 2023)	Town Hall Lower Garage (2024)
1361 Beacon Street (2023)	Municipal Service Center (2023)
Centre Street East Lot (2020)	Public Safety (2023)
Driscoll School	Public Health Building (2023)
Webster Street Lot	Transfer Station
Recreation Center	Recreation Center
Larz Anderson, Fisher Hill Reservoir, Skyline, and Soule Parks	Water & Sewer Garage

*completed in black, to be completed in FY24/25 in red

Overview of Fleet EV Network

- The Town is replacing almost all new light-duty vehicles with EVs
 - 7 of 15 inspector/survey vehicles, equating to 3 tons of CO₂ removed/year
- From the VW Settlement, a \$364,511 grant was received from MassDEP for the purchase of an all-electric trash truck
- Grant submitted in October 2023 with an anticipated award notice in January 2024. The award notice was send April 2024.
- May 2024 the truck will be introduced into service

EV Trash Truck

Beautiful, right?

- Mack LR Electric Demo model \$641k, normally \$890k, \$500k for equivalent diesel model
- Extensive testing conducted in the Summer of 2023
- Avg route is 17 miles, max is 24 miles.
- Advertised as up-to 100 'onthe-job' miles and 25,500lb payload
- Saw battery go from 100% to 45%
- Level 3 charging only



Charging Woes

- Construction began October, 2023 and is still not completed.
 - \$174k Infrastructure Costs
 - \$25k equipment & networking incentive
 - Less \$15k from EVIP
 - \$76k for CPE250 (Level 3) and 4 CPF50 (Level 2) stations
 - Total Town cost = \$51k
- Fast DC 50 Charger
 - Came with purchase of truck
 - \$13k for survey and installation





Questions?

Sam Downes, P.E. sdownes@brooklinema.gov





Fleet Assessment Resources

No-cost Fleet Advisory Services for publicly owned fleets

national**grid**

National Grid Fleet Advisory Services Program

EVERSURCE

Eversource Fleet Assessment and Guidance for Public Fleets



Mass Fleet Advisor



MOR-EV Trucks

Pick-Ups and Class 2b Vehicles

Offers \$7,500 rebates for Class 2 pick-up trucks with a GVWR (Gross Vehicle Weight Rating) between 6,000 and 10,000 pounds or other vehicles with a GVWR between 8,501 – 10,000 pounds.

Vehicles with a gross vehicle weight rating exceeding 10,000 pounds (Class 3-8) Incentive values are designated by vehicle class (determined by GVWR) and follow a declining value as rebate blocks are exhausted. Rebates for eligible vehicles are reserved by applicants prior to purchase or lease through a voucher system.

Program Website – <u>https://mor-ev.org/</u> Eligible Vehicles - <u>https://mor-ev.org/eligible-vehicles-trucks</u>

New! EPA Heavy Duty Vehicles Program

- New grant program to support deployment of clean heavy-duty vehicles.
- Eligible Funding Uses:
 - replacement of conventional Class 6 and 7 heavy-duty vehicles with zeroemission Class 6 and 7 heavy-duty vehicles
 - construction of charging infrastructure
 - establishment of workforce development and training programs
 - project implementation costs
- **Eligible Applicants**: Municipalities (including public school districts), States, Indian Tribes, Nonprofit school transportation associations
- Deadline: Thursday, July 25
- Information Session Webinar: Tuesday, April 30 at 3pm

To register: https://usepa.zoomgov.com/webinar/register/WN_gqABIJRCTca3A0uU OLdYsw#/registration

New! EPA Heavy Duty Vehicles Program (continued)

Sub-program competitions:

- The **School Bus Sub-Program** for applicants replacing school buses.
- The Vocational Vehicles Sub-Program for applicants replacing non-school bus Class 6 and 7 vehicles – including box trucks, refuse haulers, dump trucks, street sweepers, delivery trucks, bucket trucks, and utility trucks.
- More Information: https://www.epa.gov/clean-heavy-duty-vehicles-grant-duty-vehicles-grant-duty-vehicles-grant-program
- NOFO: <u>https://www.epa.gov/system/files/documents/2</u> 024-04/2024-chdv-grants-nofo-2024-04.pdf

Federal Technical Assistance and Resources Related to EVs

Clean Energy to Communities Program Peer Learning Cohorts

- DOE C2C program is accepting applications for its next round of Peer Learning Cohorts (**Due April 30**)
- Cohorts convene regularly for 6 months to share best practices
- Open to local and regional governments, tribes, municipal and cooperative utilities, and CBOs
- One of Three Upcoming Cohorts to Focus on "Charting a Path to Municipal Fleet Electrification."
- Learn more: https://www.nrel.gov/state-local-tribal/c2c-peer-learning-cohorts.html?utm medium=print&utm_source=state-local-tribal&utm_campaign=cohorts



Webinar: Navigating the IRA's EV Tax Credits

- May 2 at 2 pm ET
- Focus: How private and public organizations can benefit from IRA incentives for EV procurement and charging equipment
- Learn more: <u>https://events.teams.micro</u> <u>soft.com/event/b1e5e096-d059-</u> <u>4113-ab9f-</u> <u>c6ea0b4d8921@d59bd993-4eb2-</u> <u>4fe7-991f-853317c1ed19</u>

Updated EPA Emissions Standards for Light-, Medium-, and Heavy-Duty Vehicles



Heavy Duty Vehicles:

- Applies to model years 2027-2032
- 1 billion tons of GHG emissions avoided
- \$13 billion in annualized net public health, climate, and operations benefits
- Manufacturers choose what set of emissions control technologies to use
- Learn

more: <u>https://www.epa.gov/newsreleases/</u> <u>biden-harris-administration-finalizes-</u> <u>strongest-ever-greenhouse-gas-standards-</u> <u>heavy</u>



Light-Duty and Medium-Duty Vehicles:

- Applies to model years 2027-2032
- 7 billion tons of GHG emissions avoided
- \$100 billion in annualized net benefits (\$13 billion in public health benefits related to improved air quality)
- Learn

more: <u>https://www.epa.gov/newsrelease</u> s/biden-harris-administration-finalizesstrongest-ever-pollution-standards-carsposition

Wrap Up & Next Steps

Next Meeting June – date and agenda TBD



If you aren't already on our invite list, please email **ezehner@mapc.org** to be added for future meetings.

