

# EV charging info for Lincoln School Committee

Equipment and services, costs, and incentive programs

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# Why expand EV charging?

Vehicles were the largest source (34%) of greenhouse gas emissions in Lincoln in 2017

- Source: "Community greenhouse gas emissions report" to Lincoln Green Energy Committee by consultant James Booth, January 2020

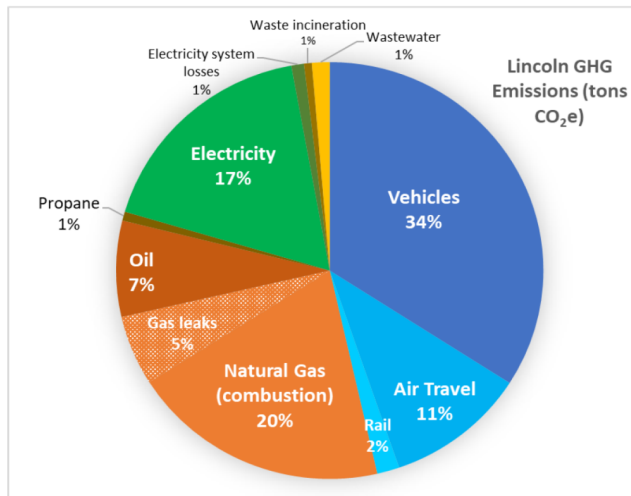
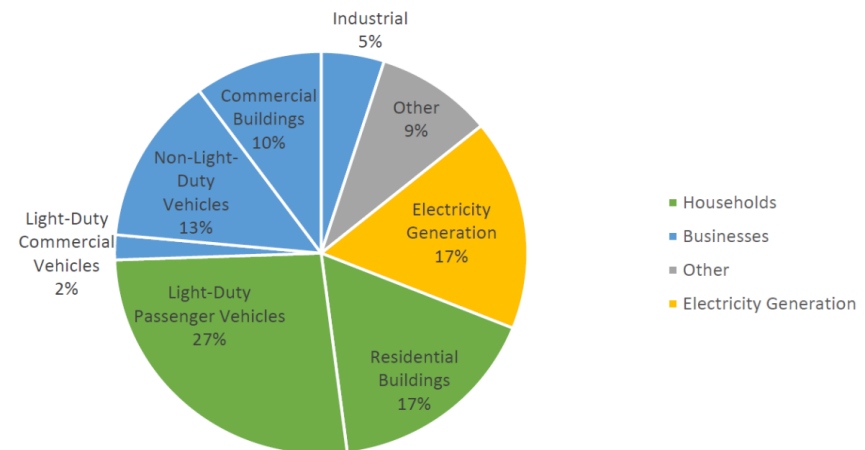


Figure 3 – Emissions Summary for 2017

Vehicles were the largest source (42%) of greenhouse gas emissions in Massachusetts in 2017

- Source: Draft Clean Energy and Climate Plan for 2030 by Massachusetts Executive Office of Energy & Environmental Affairs, December 2020

Figure 4: Distribution of 2017 GHG emission across households, businesses, and other categories.



MA, CA, USA, and GM have plans to make all new cars zero-emission by 2035. MA ~800k (~17%) ZEVs by 2030.<sub>2</sub>

# Charging station functions and features

## Equipment

- Two categories of charging speed
  - Charge for more than an hour vs. less than an hour
  - Level 2: ~ 5-10 kW (10-40 MPH), 240 VAC, ~\$1-4k
  - DCFC: 25-100 kW (75-400 MPH), 480 VAC, ~\$10-50k

## Software and services (vary by vendor)

- Identify individual user, eg, by phone app or RFID card
- Control access schedule per user group (eg, staff, visitors)
- Set pricing per user group
- Bill user's credit card, Apple Pay, etc
- Make charger status available to EV driver
- 24x7 EV driver support
- Remote monitoring and service dispatch
- Coordinate charging rates among stations (and building) to avoid/reduce Eversource demand charge
- Reporting dashboard: number of charging sessions, energy used, \$ revenue, etc.
- Annual fees for network/management and extended warranty total ~\$200-350 per Level 2 station



2-port Level 2 charging station with cable management system at Drumlin Farm

## What's needed for EV charging?

One-time costs	Incentive
Charging stations	MassEVIP
Mounting pedestals	MassEVIP
Equipment installation	MassEVIP
Mounting base	
Protective bollards, etc	
Electric infrastructure: transformer (if needed), trenching, conduit, cable, dedicated meter, permitting, etc	Eversource MakeReady
Planning	
Permitting of eqpt	
Signage incl pavement	
Accessibility	
Taxes	

Recurring costs	Incentive
Electricity	
Extended warranty	?
Network/management services	?

### Note:

- Equipment design life is ~7-10 years.
- Standard warranty is ~1-3 years.
- Maintenance is performed by vendor and can be included in warranty or management services above.

## Massachusetts EV Incentive Program (MassEVIP) excerpts

Program Parameter	DC Fast Charging: Non-residential	DC Fast Charging: Educational	Workplace (WPF)	Educational Campus (MUDC)	Public Access Charging (PAC)
Charging type	DCFC		Level 1 or Level 2		
Who may apply	Public, private or non-profit				
Location types	Non-residential site available for public use	Educational campus with ≥15 students on site	Workplace with ≥15 workers on site	Campus with ≥15 students on site	Non-residential site available for public use
Available funding	\$50k per station		\$50k per address		
Max funding % from MassEVIP	100% at gov't property	60%			100% at gov't property
Whose EVs can use	Anyone	All staff & students	All employees	All staff & students	Anyone
Min available hours	24 hours/day		N/A		24 hours/day or 12 h/day if restricted
Application deadline	19 March 2021		Rolling		
Time to complete: existing/new site	12/24 months		6/24 months		

All programs have limited funding, \$1.5 M to \$2.5 M each. More details at [www.mass.gov/doc/matrix-of-massevip-grant-programs/download](http://www.mass.gov/doc/matrix-of-massevip-grant-programs/download)

# MassEVIP additional info

Table A: Eligible Costs - National Grid and Eversource Program Participants

Costs <b>COVERED</b> include:	Costs <b>NOT COVERED</b> include:
<ul style="list-style-type: none"> <li>• A console wired into the electrical supply</li> <li>• A cable and connector to plug into the EV</li> <li>• Cable management strategy (e.g., coil, retractable, etc.)</li> <li>• Mounting, either pedestal or wall. Pedestal: hard-wired to a permanent pole or box. Wall: hard-wired to a wall and typically includes a mounting plate.</li> <li>• Separate payment module</li> <li>• Shipping/Freight for "Costs Covered"</li> </ul>	<ul style="list-style-type: none"> <li>• Upgrading electric supply</li> <li>• Land/parking space purchase or lease</li> <li>• Software subscription</li> <li>• Warranty</li> <li>• Taxes</li> <li>• Internet connection or cell signal</li> <li>• Planning or permitting for the project</li> <li>• Construction costs related to installation (including ADA EV parking space)</li> <li>• Signage and pavement painting</li> <li>• Shipping/Freight for "Costs Not Covered"</li> <li>• Bollards, curbs, wheel stops, setbacks, bumper guards</li> <li>• Electricity consumption and demand charges</li> <li>• Preventative and corrective maintenance on EV charging station</li> <li>• Others as determined by MassDEP</li> </ul>

This table is from the Public Access Charging requirements; other MassEVIP programs are similar

- 5% of spaces (round up) must be accessible; description in program requirements
- 100% funding level requires access by all and signage at entrance of parking area to direct drivers to charging stations

Program requirements are here:

- [www.mass.gov/doc/massevip-direct-current-fast-charging-requirements/download](http://www.mass.gov/doc/massevip-direct-current-fast-charging-requirements/download)
- [www.mass.gov/doc/massevip-workplace-charging-requirements/download](http://www.mass.gov/doc/massevip-workplace-charging-requirements/download)
- [www.mass.gov/doc/massevip-multi-unit-dwelling-educational-campus-charging-requirements/download](http://www.mass.gov/doc/massevip-multi-unit-dwelling-educational-campus-charging-requirements/download)
- [www.mass.gov/doc/massevip-public-access-charging-requirements/download](http://www.mass.gov/doc/massevip-public-access-charging-requirements/download)

## Eversource MakeReady program process

1. The process starts with filling out and submitting an application to be a site host. The application can be submitted to: [evmakeready@eversource.com](mailto:evmakeready@eversource.com). Once your application is approved, we will work with your team on the optimal location for your EV charging stations.
2. Next, we arrange a site visit with your team and our qualified contractor, who will perform the construction work for the EV charge station infrastructure. The contractor will go over the plans, expectations and timelines with you. Once a plan is approved, an agreement will be signed.
3. You will be required to purchase your EV stations from a qualified vendor and send us proof-of-purchase within 30 days of signing the agreement before construction can begin.
4. Our contractor can then begin laying down the necessary electrical infrastructure that will connect to your charging stations. This will include the trenching, conduits, wires, meter, and if necessary, a transformer, all at no cost to you.
5. Once the electrical infrastructure is in place, we will coordinate with your charging station vendor to install your charging stations.
6. After a final inspection, you will be ready to use your new EV charging stations.

Above info from [www.eversource.com/content/ema-c/residential/save-money-energy/explore-alternatives/electric-vehicles/charging-stations/enrollment-process](https://www.eversource.com/content/ema-c/residential/save-money-energy/explore-alternatives/electric-vehicles/charging-stations/enrollment-process)

Application form: [www.eversource.com/content/docs/default-source/save-money-energy/electric-vehicle-make-ready-application.pdf?sfvrsn=85cdcd62\\_4](https://www.eversource.com/content/docs/default-source/save-money-energy/electric-vehicle-make-ready-application.pdf?sfvrsn=85cdcd62_4)

FAQs: [www.eversource.com/content/ema-c/residential/save-money-energy/explore-alternatives/electric-vehicles/charging-stations/frequently-asked-questions](https://www.eversource.com/content/ema-c/residential/save-money-energy/explore-alternatives/electric-vehicles/charging-stations/frequently-asked-questions)

Preferred vendors: [www.eversource.com/content/ema-c/residential/save-money-energy/explore-alternatives/electric-vehicles/charging-stations/preferred-vendor-list](https://www.eversource.com/content/ema-c/residential/save-money-energy/explore-alternatives/electric-vehicles/charging-stations/preferred-vendor-list)

## Timing considerations

- All MassEVIP programs and Eversource program have limited funding
- Deadline to apply for MassEVIP DCFC program is March 19; others are rolling
- Leadtime for Level 2 equipment is ~0-4 weeks (in parallel with Eversource project)
- Eversource project time is ~3 months
- Charging station installation time is ~1-5 days
- Note: All above time estimates are subject to change!

## Possible next steps

- Decide on whether to apply for funding
  - Decide on whether to apply for 60% and/or 100% funding program(s)
- Confirm that school is able and willing to meet program eligibility criteria
- Interview vendors and solicit RFQs
- Determine number of charging stations that will fit under \$50k caps, likely eight Level 2 stations or one DCFC
  - Eversource MakeReady program *minimum* is two Level 2 chargers or one DCFC
- Apply to MassEVIP program(s) and Eversource MakeReady program
- Determine which parking spaces to designate for EVs, including one accessible space
- Coordinate trenching and conduits of EV charging stations and PV systems

[End]