

Drive An EV, And Kiss Your Gas Goodbye!



Croton Sustainability Committee
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Today's Presenters



Niall Kelleher, member of the Sustainability Committee, with his 2018 Nissan Leaf.



Lindsay Audin, chair of the Sustainability Committee, with his 2014 Chevy Volt.

We're not here to sell you anything. But we will show you how to save money – and protect the climate – just by choosing an EV next time you're in the market for a car.

EVs: Why Bother?

1. EVs cost less to drive and maintain. By using electricity (not gasoline) and a free program, you can save ~70% off the cost of fuel to run a car.
2. EVs greatly reduce emissions of the greenhouse gases (GHG) that are causing climate change. Depending on a car's present MPG and the EV you buy, vehicle GHG could also be cut by ~70%.

Right now, EV discounts have never been higher: get up to \$9,750 off the cost of a new EV.

Here's The Savings Math

Average car gets 25 MPG. At \$2.50/gal = 10¢/mile.

Typical EV gets ~3 mi/kWh. At 18¢/kWh (residential price), that's ~6¢/mile. But SmartCharge gives you back 10¢/kWh, cutting that to only ~2.7¢/mile.

That's a 73% \$ savings!

For that same car and EV, here's the GHG:

- gasoline @ 19.4 lbs/gal ÷ 25 MPG = .78 lb/mi

- electricity @ .667 lb/kWh ÷ 3 mi/kWh = .22 lb/mi

That's 72% less GHG!

Are All EVs the Same?

There are two types:

- Battery EVs (BEV) run on a rechargeable battery.
- Plug-in hybrid EVs (PHEV) have a smaller rechargeable battery, plus a gas engine that kicks in automatically when the battery runs down.

All come with a Level 1 charger (works on any 110V outlet), but are also chargeable on a Level 2 unit (~5X faster at 240v). Many homeowners install their own Level 2 chargers.



PHEVs vs. BEVs

Depending on model, PHEVs will go from 25 to 50 miles on a charge. U.S. DOE says ~80% of car trips fall in that range. That may be enough for commuting and around town, but gasoline is still needed for vacations and longer trips.

A gas engine takes up more space, needs an annual oil change and maybe a tune-up, plus occasional fuel fill-ups. Total PHEV range (battery + gas tank) is 280 to 340 miles.

BEVs go 140 to 240 miles on a charge. They may have more cabin and storage space, are mechanically simpler, and may accelerate faster. Rebates and discounts may be higher – and they never need tune-ups, oil changes, etc.

Pricing for BEVs and PHEVs is roughly comparable.

FAQs On EVs

Q: Don't we just get the same GHG emissions from Con Ed?

A: Unless a car gets over 85 MPG, EV power in NY is cleaner than burning gasoline, and it's getting cleaner every year.

Q: Isn't range too short for a long trip?

A: PHEV range is not limited, and BEVs now go ~200+ miles before needing to recharge. For much longer trips, consider using a gas-driven car until more chargers become available.

Q: Don't they take too long to charge?

A: Many owners charge overnight at home. Commuters do it while their cars are parked, often just topping off their batteries, which doesn't harm them. Level 3 charging takes under ~1 hr.

Q: Don't the batteries degrade quickly?

A: Experience shows degradation is less than 5%/year, and may impact capacity only on cold days. Tesla says a 5% loss occurs in the first 30,000 miles, and then levels off thereafter.

EV Dashboards

Below are partial views of two EV screens. On the left is the Nissan Leaf, on the right is the Chevy Volt. Each shows % (and/or miles) of charge remaining in its battery. Above the Volt battery indicator is an icon showing remaining gasoline miles. When running on gas, it replaces the battery icon.



Shopping For EVs

40+ models are available. Find one you like at these sites (they overlap, but some are updated more often):

- content.sierraclub.org/evguide/pick-a-plugin
- plugstar.com/
- www.drivegreenwestchester.org/learn/ (may also have local deals)
- <https://cars.coned.com/>
- driveelectricus.com/explore-electric-cars/

Choose a model and contact a local dealership to check out a sample. Ask the usual questions, plus: where to bring it for maintenance, warranty on the battery, how range is affected on very cold days, and any usage restrictions (e.g., pulling a trailer).

A Level 1 charger comes with an EV, but – if you like to bargain – see if the dealer might throw in a Level 2 unit (or a voucher for it), and/or give you X miles or years of free charging. Some may also offer a discount for a cash (not financed) purchase.

Getting Those Rebate/Discounts

State rebates and federal tax credits are for new EVs. Some used PHEVs are available for about ½ the price of a new one.

When buying a new (not used) EV, go to:

U.S.: www.energy.gov/eere/electricvehicles/electric-vehicles-tax-credits-and-other-incentives (up to a \$7,500 tax credit)

NY State: www.nyserda.ny.gov/All-Programs/Programs/Drive-Clean-Rebate (up to a \$2,000 rebate)

Con Edison: <https://cars.coned.com/ev-reward/> (up to \$250).

For any EV, get a 10¢/kWh night charging rebate (via gift cards):
<https://smartchargerewards.fleetcarma.com/apply>

Find all those web links at our web page: sustain-croton.org
(look for “EV flyer” under “News and Announcements”).

Getting The 10¢/kWh Rewards

For any EV, get a 10¢/kWh night charging rebate (via gift cards):
<https://smartchargerewards.fleetcarma.com/apply>



This is a FleetCarma box. Plug it into your car's diagnostic port under the dashboard. Set your car's scheduling software to charge between midnight and 8 AM. Get 10¢/kWh back when doing so.

When Did Croton Get Chargers?

Last spring, we won a \$24,000 State grant for the Village to install 3 dual port chargers. Each can charge 2 EVs at the same time.

All are Level 2 units that deliver about 20 miles of power each hour. Croton charges \$.22/kWh, ~30% less than commercial chargers.

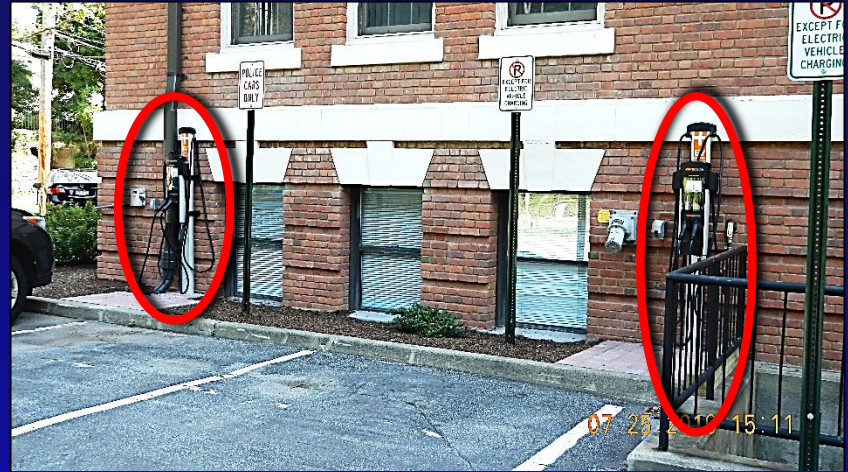
Level 3 chargers (e.g., EVgo and Tesla) are ~7 times faster than Level 2, but cost far more to buy and install. As of 11/19, the nearest ones are at Ossining's Stop & Shop and Yorktown's BJ store.

Many homeowners with EVs install their own Level 2 units. Total cost is ~\$1,000+, of which \$400-\$700 (depending on features) is the charger. Installation cost with an electrician varies based on a home's existing electric service, panels, distance to the charger, etc. Always get two estimates.



Where Are Croton's Chargers?

On the north side of the Municipal Building by the handicapped entrance, the charger on the right is for public use by 2 EVs. The one on the left is for police cars (1 of which is a PHEV).



In the Croton-Harmon train station, find the charger between spaces 027 and 028. As you descend the hill on Veterans Plaza, take the first left into the parking lot on your left. Find the charger just south of a large grey transformer box.



How To Use A Croton Charger

- Go to: chargepoint.com/drivers/activate Open an account by depositing \$10 into it using your credit card.
- It's like EZ Pass: any time your charging uses up the \$10 (~150 miles), another \$10 is charged to your credit card.
- Got a smart phone? Download ChargePoint's free app. Tap your phone on the charger's front panel to release a connector from a charger socket. Insert it into your car's charge port. Charging starts right away.*

No smart phone? Log in, go to "My Account", and "Manage Cards". Follow the instructions to get a free keychain card that works the same way.

- Done charging? Return the connector to the charger socket. Your account is charged automatically.



*If you previously set your EV to only charge overnight, reset it via its temporary "override" command.

How To Find Other Chargers

Use the ChargePoint app, or the map on its web page. Zoom into your area and/or destination. Your ChargePoint account also works at Electrify America charging stations.



To see all public chargers, go to **googlemaps.com** and enter ev charging stations. Then zoom in and around your area and/or destination.

***Save yourself money while
saving our planet's climate.
Make your next car an EV,
and kiss your gas goodbye!***

**Thank you for your time
and attention.**