



PEEL

People for Energy and
Environmental Literacy

How to Buy an Electric Vehicle

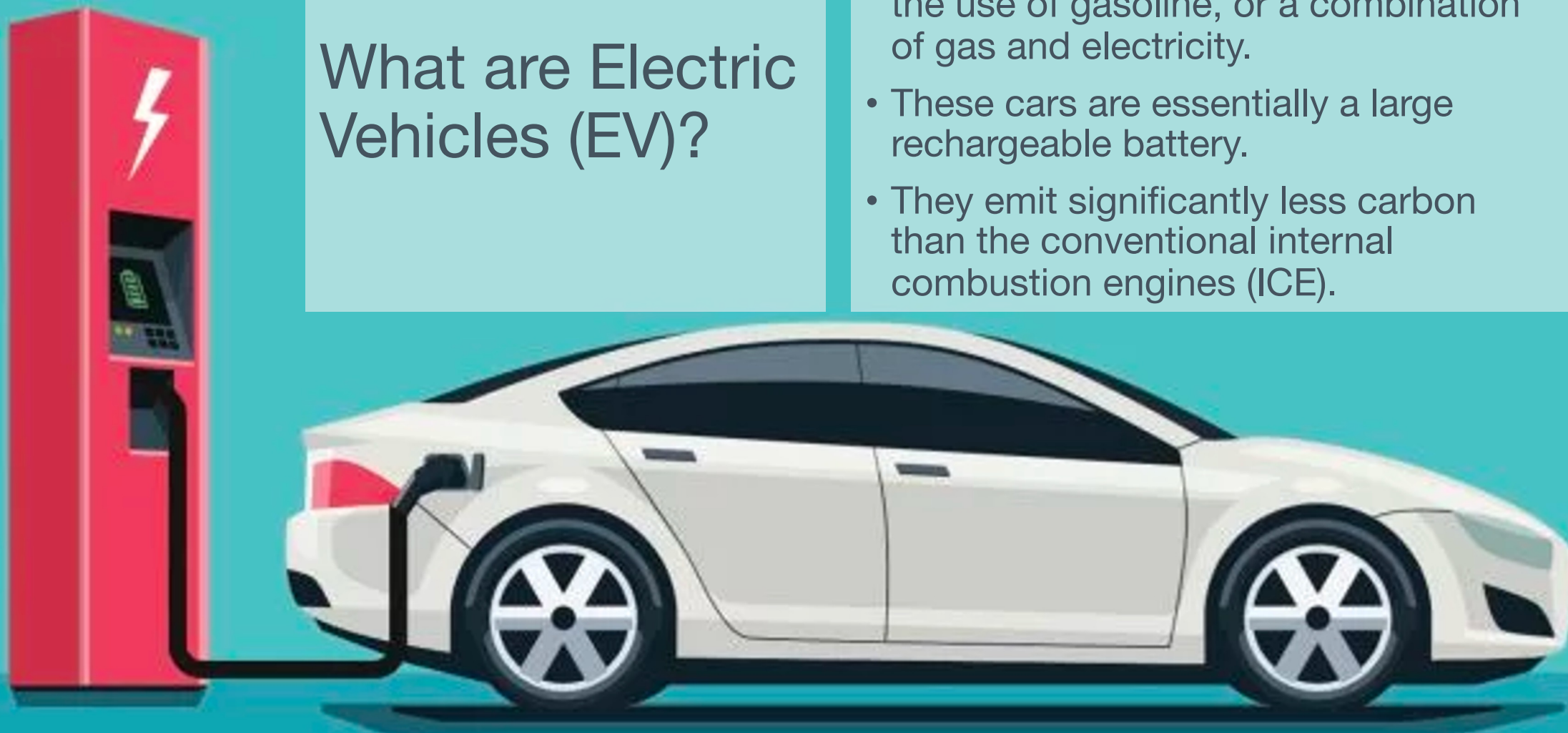
Everything you need to know! What to look for in a car, considerations, and more!

Recommended for grades 7 – 12

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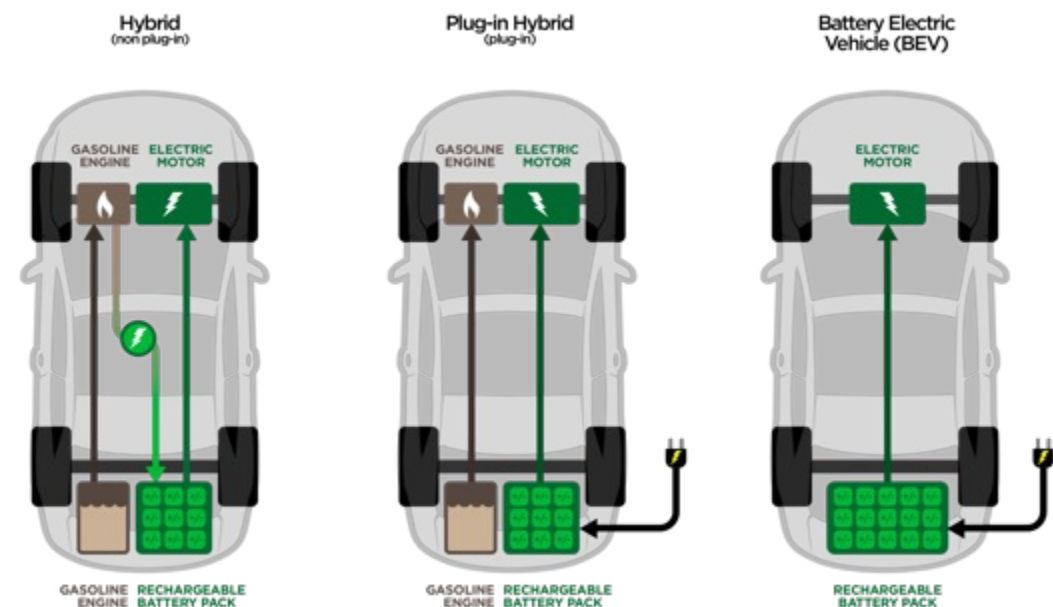
What are Electric Vehicles (EV)?

- An electric vehicle is a car that operates on an **electric motor** without the use of gasoline, or a combination of gas and electricity.
- These cars are essentially a large rechargeable battery.
- They emit significantly less carbon than the conventional internal combustion engines (ICE).



Types of electric vehicles

- **Hybrid:** Powered by gasoline and an electric motor. Battery is recharged while the vehicle is running on gas.
- **Plug-in hybrid Electric Vehicle (PHEV):** Similar to conventional hybrids, except they can be plugged in to recharge the battery.
- **Battery Electric Vehicle (BEV):** Powered 100% by an electric motor and battery. All-electric cars do not burn gasoline, have gears or a transmission, or require oil for the parts. On average, all-electric cars can travel 200 – 250 km on a single charge.



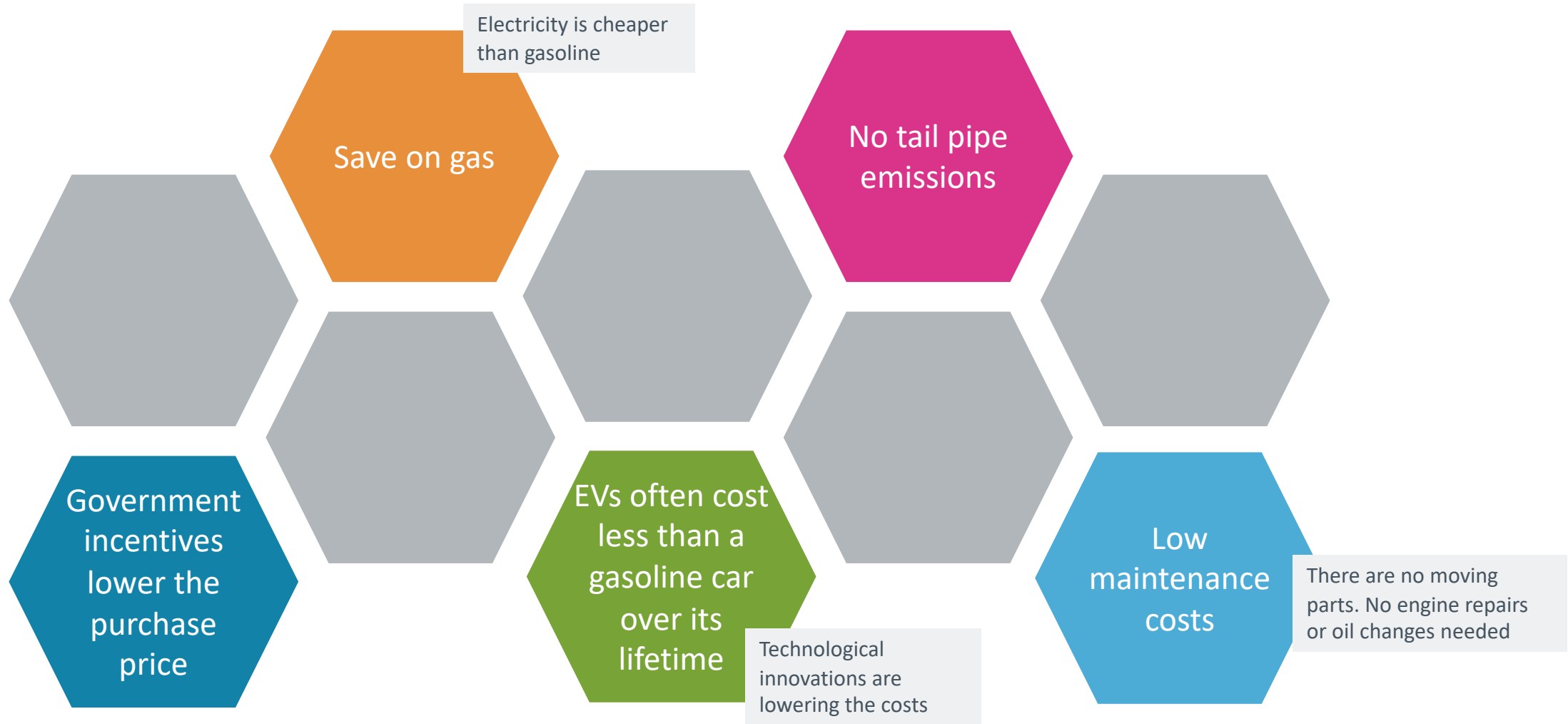
Source: www.nspower.ca



Considerations

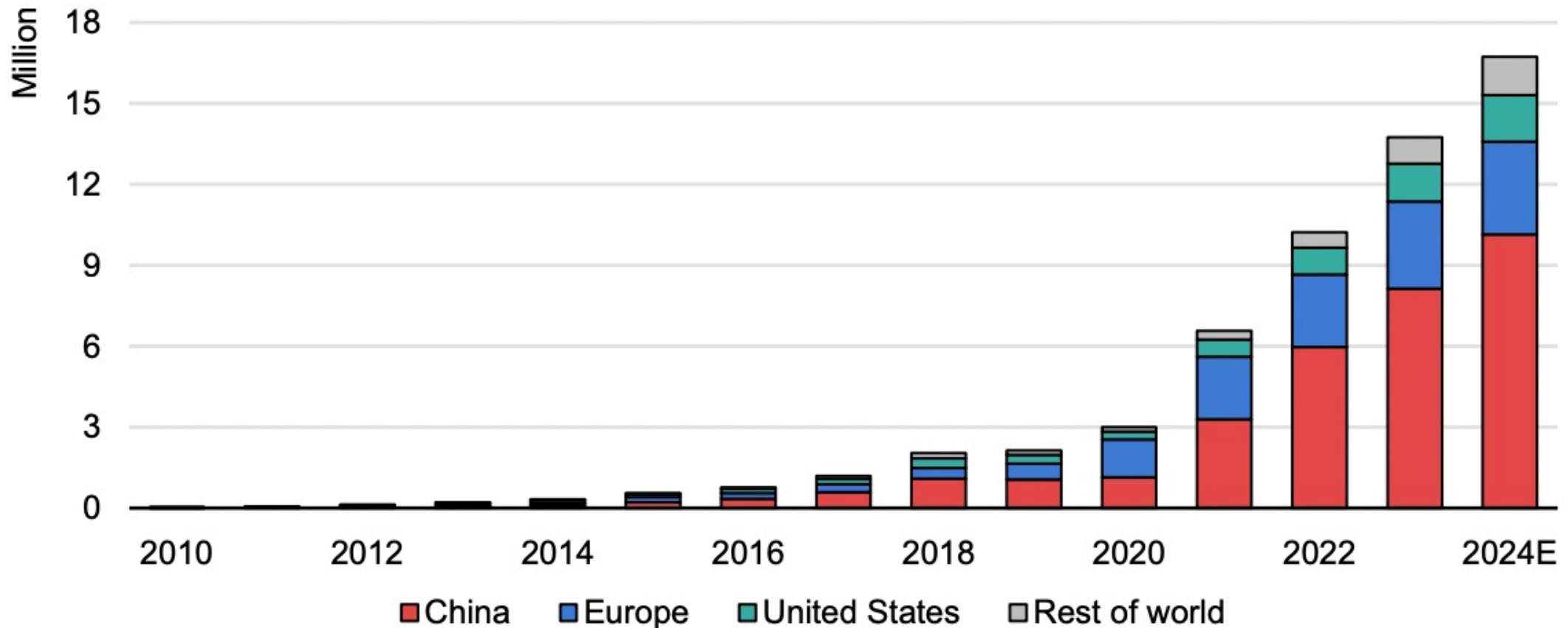
- There are many factors to consider when buying a battery electric, or plug-in electric vehicle.
- Some considerations are the same as a conventional car (i.e., cargo space, number of seats, etc.), but there are some differences.
- Considerations include:
 - What are your goals in a car? Do you want to lower your carbon footprint?
 - What do you use a car for? (Errands, commuting, road trips)
 - How much range do you need?
- Let's take a deeper dive into each

Benefits of buying an EV



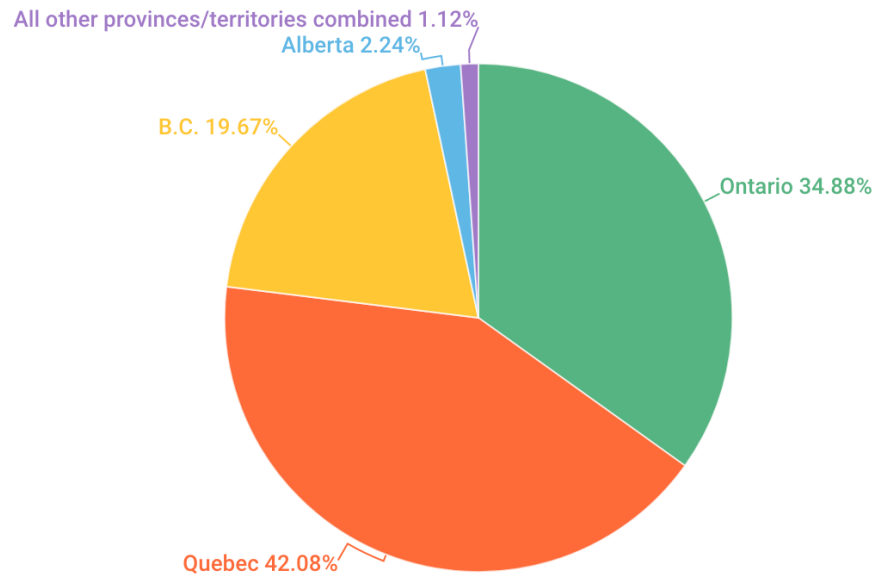
EV market share is growing year over year.

Electric car sales, 2010-2024

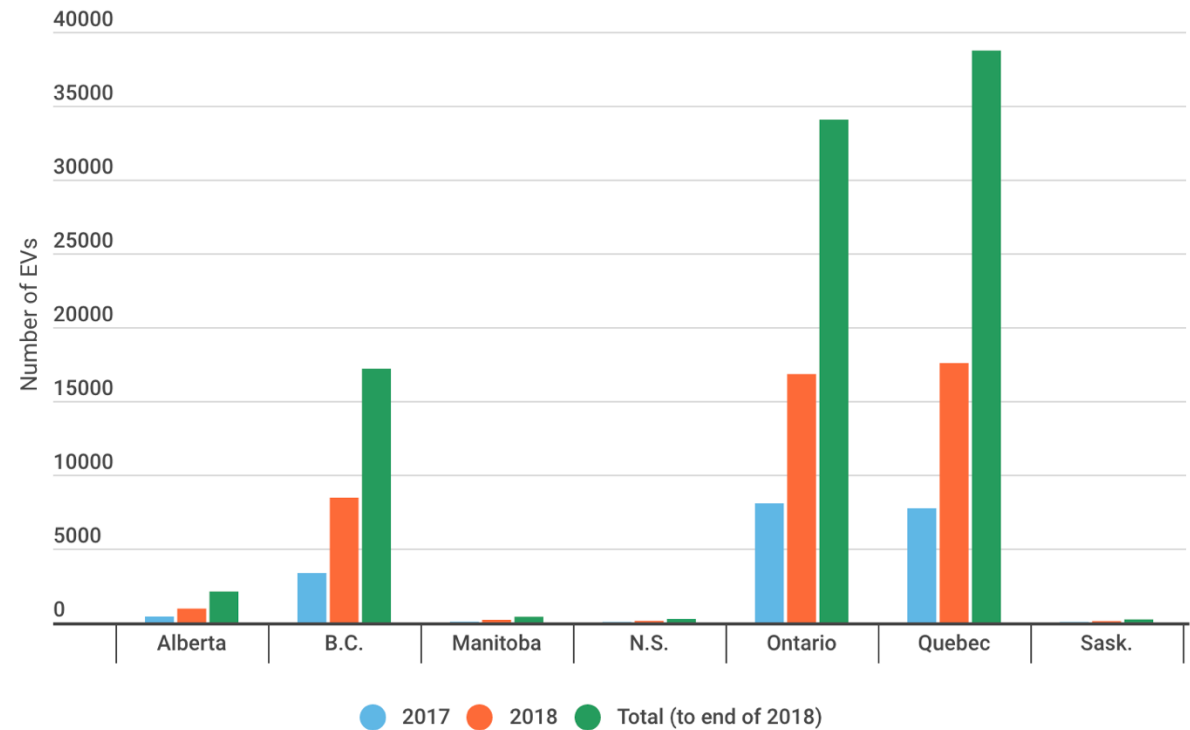


Ontario and Quebec dominate the EV market, followed by BC. Alberta shows emerging trend of EV sales.

Approx. total Canadian EV ownership by province



EV sales by province



Download data

Data source: Electric Mobility Canada/IHS

Data source: Electric Mobility Canada/IHS

MYTH

TRUTH



The purchase price is too high

The cost has significantly decreased! With Canadian incentives, it is competitive with gasoline vehicles



The range is not large enough

Ranges today are comparable to gasoline vehicles



There are not enough charging stations

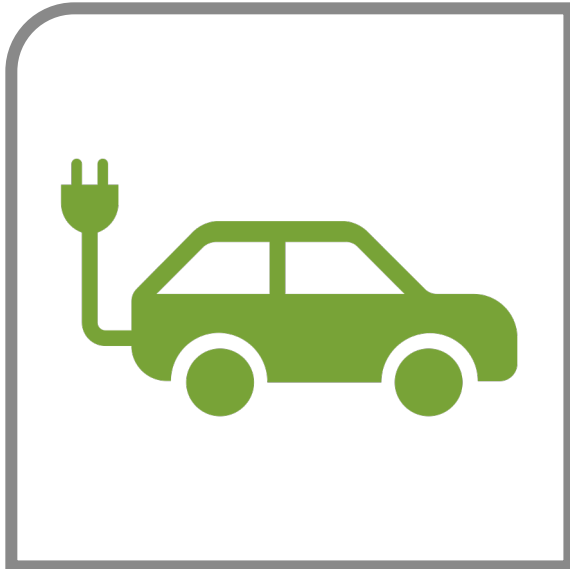
The federal Government has invested in building infrastructure

Common Fears About Buying an EV

Like your phone, charge your EV each night, or at work

- City of Edmonton (Renewable) - Electric Vehicle Association of Alberta (EVAA)
 - 6.5 minutes
 - <https://youtu.be/BFHtx7il1uQ>
- This video is produced by the City of Edmonton. It showcases the different aspects of electric cars and how they can be integrated into everyday lives.
- Plugging in your EV each night can become routine like plugging in your phone each night.





Dos and Don'ts

1. **Consider leasing** – Trade in every 2-3 years.
2. **Do your research of the battery first** – look into the warranty. Some things may not be covered with the battery.
3. **Check the condition of the battery in a used EV**– Batteries are the transmission of an EV and therefore the most expensive part. Check if a warranty is in place, and if the battery is in good condition

BUYING A CAR VS. LEASING A CAR

Lease or Buy?

	BUY	LEASE
<p>THE MONEY</p>	Requires more money up front , and each month.	Costs less up front and each month, so you can afford a more expensive car.
<p>THE BILLS</p>	Can pay off your auto loan , which eliminates a monthly cost.	If you always lease, you'll make car payments for life .
<p>THE COMMITMENT</p>	Have the freedom to sell or trade it in whenever.	A lease contract is difficult and expensive to break.
<p>THE DOLLARS AND CENTS</p>	Usually costs less than leasing overall, over time.	You can get a tax break if you use the car for business purposes.
<p>THE TIME</p>	It's yours to sell, total, or drive for 20 years .	Can upgrade to the newest model every couple of years .
<p>AND KEEP IN MIND...</p>	The car's value depreciates as soon as you drive it off the lot.	You'll owe fees for exceeding annual mileage limits or any damage to the car.

SOURCE: Edmunds.com

BUSINESS INSIDER

New or Used?

- The largest determining factor between new and used is dependent on the technology
- Battery technology is evolving and improving quickly

May require repairs

Lower upfront cost

Lower insurance cost

Guaranteed warranty

Rapid depreciation in value

Higher upfront cost

Less upkeep



USED

NEW

Price Comparison – EV and ICE

Fuel Costs

Cost of electricity is **lower** than the cost of gas

Maintenance Costs

Maintenance cost of EVs are **lower** than ICE vehicles

- ICEs require oil, coolant, transmission fluid and belt changes.
- EVs do not have any moving parts or an internal combustion engine and do not require the maintenance
- EVs only require tire and battery changes

Rebates

Federal and provincial governments offer rebates and incentives for EVs.

EV Savings

- BC Hydro has a tool showing how much you will save per year with an EV
- Make sure you uncheck BC's Provincial incentive to reflect AB's purchase price
- <https://electricvehicles.bchydro.com/learn/fuel-savings-calculator>

You could save \$3,346*
in annual fuel costs if you switch from a gas-powered car to a Volkswagen e-Golf

↓

Summary

Volkswagen e-Golf
After incentives, pricing starts at \$28,720

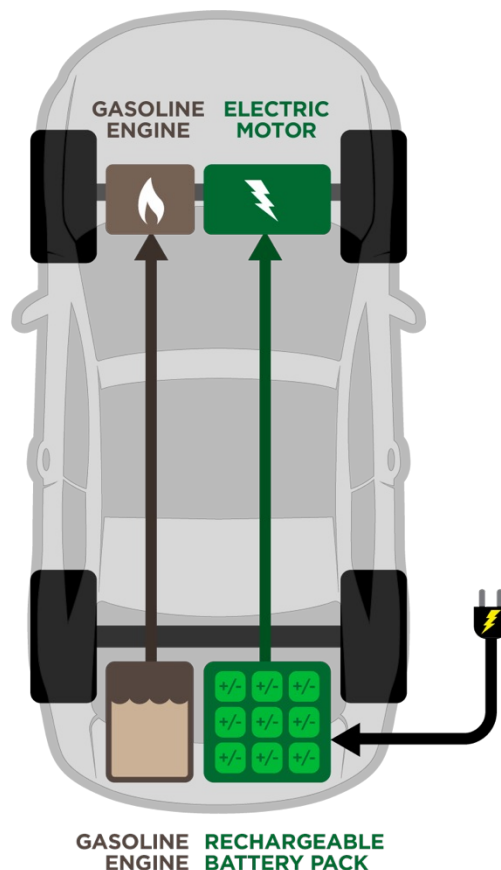
Potential fuel savings \$2,900/year	Charge cost \$0/100 km
Vehicle range 201 km	The carbon reduction is... Like planting 237 trees every year

[Compare another vehicle →](#)

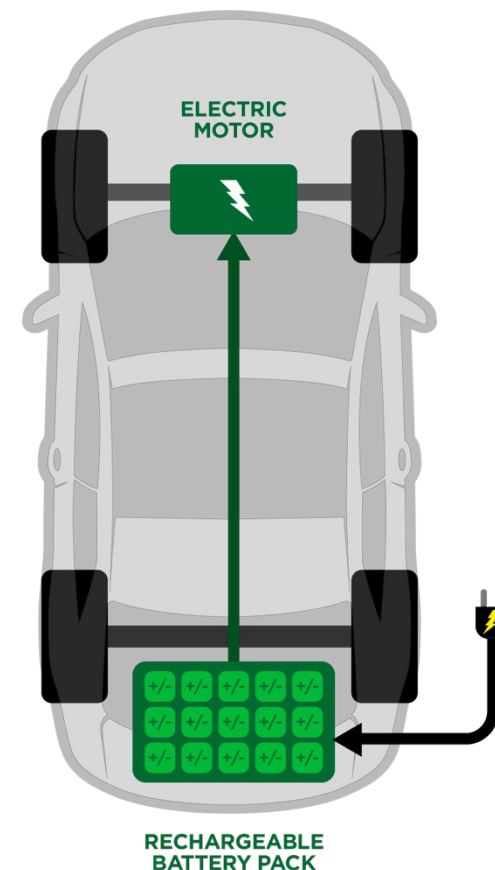
BEV or PHEV?

- For some, relying on solely a battery to get from point A to point B can be unsettling.
- If this is the case, consider the following alternatives:
 - Range-extended EV
 - PHEV
 - Hybrid
- These options still allow you to reduce your carbon footprint, while providing more comfort during your travels.

Plug-in Hybrid
(plug-in)



Battery Electric
Vehicle (BEV)



- BEVs are a good fit if:
 - 🍃 You have access to a power source overnight, or a public charger
 - 🍃 You have access to a second vehicle that can travel farther and instantly
 - 🍃 Your day-to-day commutes are typically short and are less than the rated range of the EV of interest
 - 🍃 You want to be more green



Is a BEV the Right Car for You?

Is a PHEV or Range-Extended EV Right for You?

- If you said no to any of the points on the last slide, then a range-extended BEV or PHEV might be an option.
- Consider a range-extended or PHEV if:
 - 🌿 Day-to-day journeys are more than the car's range
 - 🌿 Don't have easy access to a charger
 - 🌿 Want a backup option (gasoline) for commutes larger than electric range

Audi A3 Sportback e-tron (PHEV)



What to Look For (Top Three)

Charging:

Time to charge to full should be considered

Range:

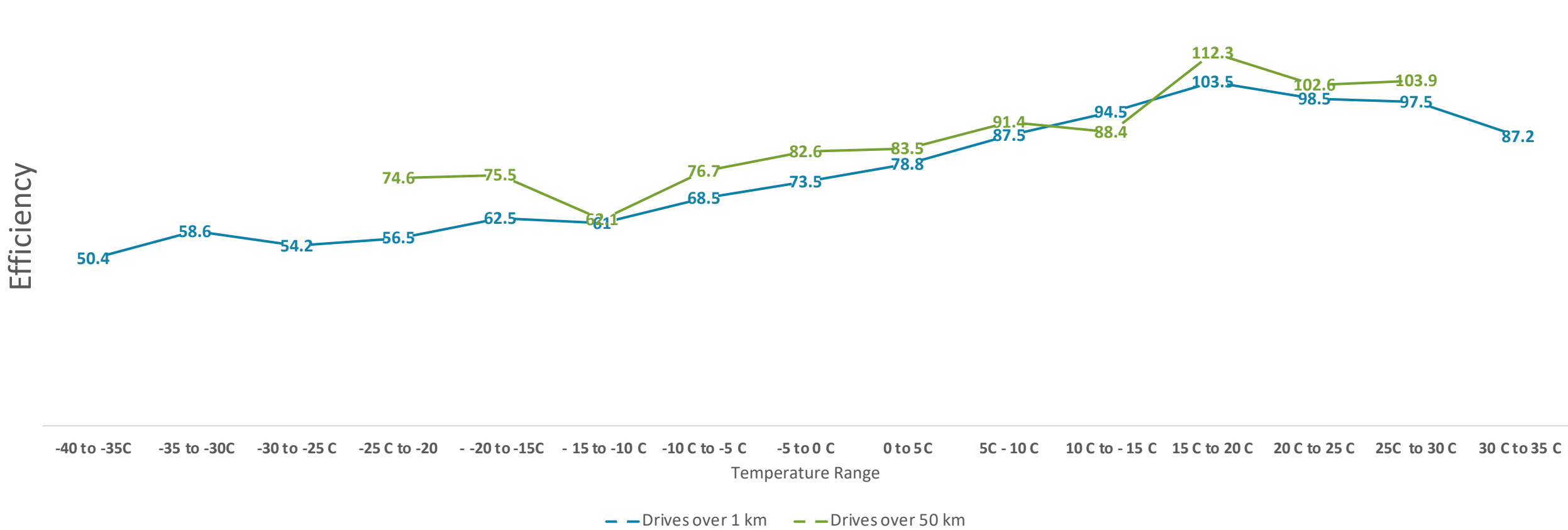
How far you can travel on one full battery.

Battery Life and Warranty:

A battery is similar to the transmission. The longer the warranty, the better

EV efficiency is impacted by temperature. Colder temperatures can reduce efficiencies and shorten range by 20-50%.

EV EFFICIENCY WITH AMBIENT TEMPERATURE - SOURCE - TESLA



EV Companies and Organizations in Alberta

- Go Electric
 - A company that sells used EVs and hybrids
 - Located in SW Calgary
 - Calgary has a small EV resale market, so most of Go Electric's cars are imported from California
 - Go Electric brings EV accessibility to customers who may not be able to afford a new EV
 - They also welcome trade-ins of your ICE cars
- Electric Vehicle Association of Alberta (EVAA)
 - EVAA is a non-profit organization that started as a Facebook group in 2014
 - The group aims to *“spread awareness, instill excitement, and promote adoption of electric vehicles and charging infrastructure in Alberta”*





Thank you!

This is a project of GreenLearning offered in partnership with PEEL thanks to funding support from the Alberta Energy Efficiency Education Grant Program.

