EV Information for Cortes Islanders -- did you know?

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Fuel costs

- **Gasoline for average new car costs $40,000.**
  The average new Canadian passenger vehicle burns 8.3 L/100km and drives 320,000 km over its 18-year lifespan. That burns 27,000 litres (21 tonnes of gasoline) which would fill a stack of oil barrels 500 feet tall. At $1.50 per litre the gasoline costs $40,000 – an average of $2,250 per year.
- **Cortes electricity costs only 25 cents per "litre".**
  That's how much it costs to charge an all-electric vehicle at home on Cortes. That's six times cheaper than current gasoline prices of $1.50 per litre. Battery Electric Vehicles (BEVs) only need around 2 kWh to drive the same distance as one litre of gasoline (US EPA). BC Hydro charges around 12 cents per kWh.
- **Rough rule of thumb: driving a BEV saves a buck a "litre".**
  Charging a BEV at home on Cortes currently saves $1.25 per "litre equivalent" ($0.25 vs $1.50 for gasoline). Overall savings will be less depending on how much you charge away from home at high-speed chargers. Prices for these can range from free to as expensive as gasoline
- **Local energy vs imported.**
  Cortes electricity is produced in BC – keeping our energy dollars and jobs in the province. Cortes gasoline is imported from outside BC – transferring our money and jobs elsewhere.

FUEL COSTS FOR AVERAGE VEHICLE LIFESPAN – Based on average new Canadian passenger vehicle that burns 8.3 L/100km and lasts for 320,000 km. This requires 27,000 L of gasoline. At current price of $1.50/L that adds up to $40,000. Burning 27,000 L of gasoline emits 62 tCO2 out the tailpipe pluse another 16 tCO2 producing the gasoline. All-electric vehicles (BEVs) need around 2 kWh to drive the same distance as one litre of gasoline (US EPA). So an equivalent BEV would need 54,000 kWh. At current BC Hydro home rate of 12.5 cents per kWh that adds up to $6,700. BC Hydro emits 1 tCO2 producing that much electricity (18 gCO2/kWh). CHART by Barry Saxifrage at VisualCarbon.org and NationalObserver.com. This chart is licensed under CC BY 4.0. Oct 2025

Fuel pollution

- **Gasoline emits 78 times more climate pollution.**
  Gasoline for an average new Canadian passenger vehicle emits 78 tonnes of CO2. This is 62 tonnes from the tailpipe plus 16 tonnes from producing the gasoline. BC Hydro electricity to power a similar all-electric vehicle emits 1 tonne of CO2. Zero from the car -- no tailpipe -- plus 1 tonne from producing the electricity.
- **Canadians choose the world's most climate polluting vehicles.**
  Canadians buy the world's most climate polluting passenger vehicles, averaging 8.3 L/100km.
- **Gasoline engines are worse than coal power plants.**
  It is often incorrectly stated that coal powerplants are the most climate polluting form of energy. But gasoline and diesel vehicle engines emit 50% more climate pollution to generate the same energy. That's because vehicle engines are only half as efficient as coal powerplants -- wasting 80% of the energy in gasoline. Drivers must buy 5 times more energy than needed. Collectively Canada's tailpipes emit twice as much total climate pollution each year than all of Canada's coal powerplants.

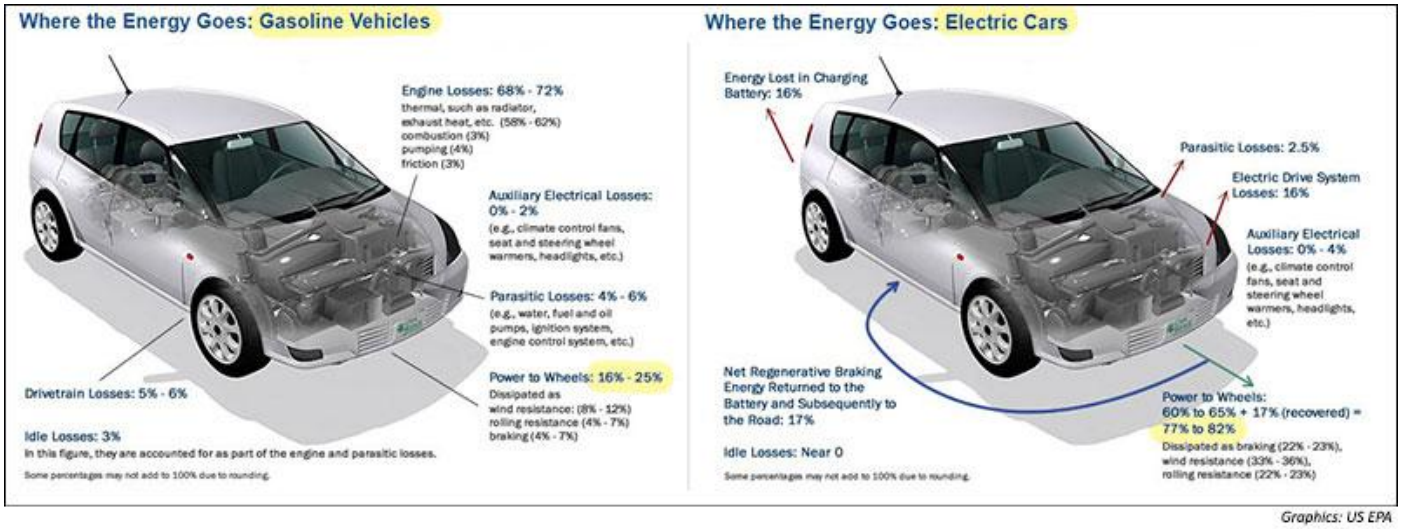
Vehicle facts

- **The few extra emissions to build an all-electric vehicle are tiny compared to what gasoline emits.**
  Building a typical EV currently emits an extra couple tonnes of CO2 compared to building a gasoline vehicle. That is quickly surpassed by the extra 77 tonnes of CO2 from gasoline compared to BC electricity. Also, BEV batteries can be recycled first for stationary storage (like with solar panels) and then broken down into component chemicals (currently ~98% recapture rate).
- **Plug-in hybrids yield little or no benefits for average drivers.**
  Gasoline burning (and the resulting emissions) are far higher on average for plug-in hybrids than advertised. Studies using fuel monitors installed on tens of thousands of plug-in hybrids show the gasoline engine kicks in far more often than automakers claim -- around one third of time when in supposedly in EV mode. This wipes out much of the expected gasoline and emissions reductions.

Fuel table: gasoline vs electricity

	Gasoline	EV Electricity	*Notes*
Driving equivalents	1 liter	----> 2 kWh	*Based on US EPA testing*
Fuel Efficiency (to wheels)	20% efficient	90% efficient	*US EPA testing shows (a) that 80% of gasoline energy is lost as waste heat, which also requires installing radiator and oil cooling systems; (b) that only 10% of electricity is lost in BEVs.*
	Gasoline on Cortes	BC Hydro home rate	
Cost per "litre"	$1.50 per litre	$0.25 per litre equivalent	*Gasoline costs 6x more.*
Fuel cost over vehicle lifespan	$40,000 for gasoline	$7,000 for electricity	*Lifespan calculations are for the average new Canadian car:* *8.3 L/100km* *320,000 km lifespan* *Gas required: 27,000 L = 21 tonnes = 500 ft high stack of barrels* *Electricity required: 54,000 kWh. (2 kWh = 1 litre)*
Average year	~$2,250	~$375	*For average Canadian car, which is driven 18,000 km per year.*
Full fuel emissions over vehicle lifespan	78 tonnes CO2 from gasoline	1 tonne of CO2 from electricity	*Full lifecycle emissions for energy include producing the energy and using it. This is sometimes referred to as "wells to wheels".* *Gasoline is around 60x more climate polluting per km* *Producing gasoline adds an extra ~25% emissions* *Producing BC electricity emits 18 gCO2/kWh (Canada NIR 2025).*
Average year	4.3 tCO2	0.05	
CO2 per "litre"	2.88 kgCO2	0.04	
Direct fuel emissions over vehicle lifespan	62 tCO2	zero	*This is what gets emitted directly by fuel once added to the vehicle*
Average year	3.5 tCO2	zero	
per "litre"	2.3 kgCO2	zero	

Fuel efficiency: US EPA graphic shows huge energy losses in ICEVs and tiny losses in BEVs



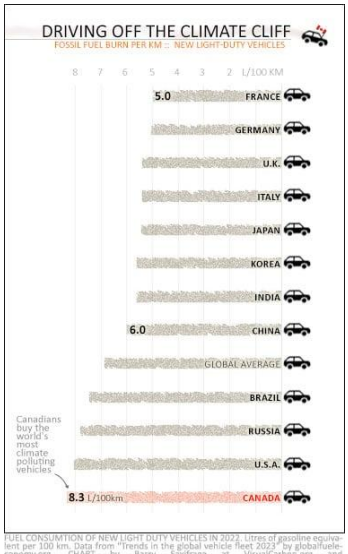
Graphics: US EPA

More charts from Barry Saxifrage's articles at Canada's National Observer

www.nationalobserver.com/u/barry-saxifrage

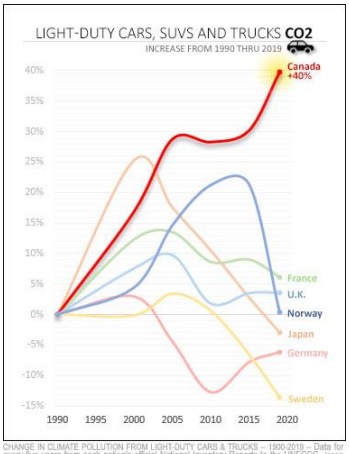
BEV = battery electric vehicle (all-electric, no tailpipe).
ICEV = internal combustion engine vehicle (burns gas, emits CO2 out tailpipe).

Canadians buy the world's worst gas guzzlers



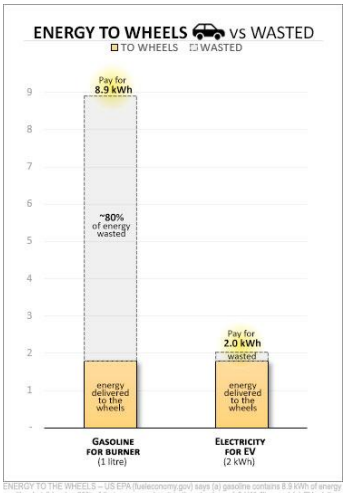
FUEL CONSUMPTION OF NEW LIGHT DUTY VEHICLES IN 2022. Litres of gasoline equivalent per 100 km. Data from "Trends in the global vehicle fleet 2023" by globalfueleconomy.org. CHART by Barry Saxifrage at VisualCarbon.org and NationalObserver.com. Dec 2023.

Tailpipe pollution: Canadians up; peers down



CHANGE IN CLIMATE POLLUTION FROM LIGHT-DUTY CARS & TRUCKS – 1990-2019. – Data for every five years from each nation's official National Inventory Reports to the UNFCCC. Japan line shows all road transport emissions because they don't break out light-duty trucks separately. CHART by Barry Saxifrage at VisualCarbon.org and NationalObserver.com. Dec 2022.

Fuel efficiency of ICEV is much worse than BEV

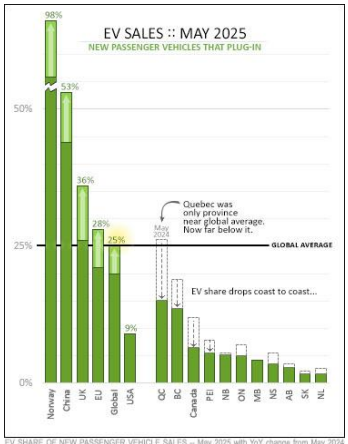


ENERGY TO THE WHEELS – US EPA (fueleconomy.gov) says (a) gasoline contains 8.9 kWh of energy per litre, but (b) only ~20% of that energy makes it to the wheels = ~1.8 kWh/litre; and (c) EVs deliver ~88% of electricity from charging them to the wheels. That means ~2 kWh of charging is needed to deliver a similar 1.8 kWh to the wheels. CHART by Barry Saxifrage at VisualCarbon.org and NationalObserver.com. July 2024.

Cost per "litre" for BEV drivers across Canada

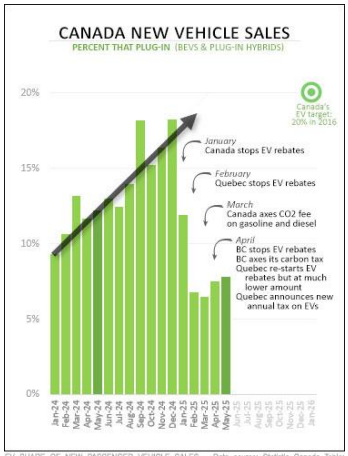
COST PER LITRE EQUIVALENT – The electricity equivalent of a litre of gasoline is ~2 kWh for an EV. The average cost of gasoline in Canada over the last year was $1.55 according to GasBuddy.com. The average residential electricity prices used in this chart come from Hydro Quebec's "Comparison of Electricity Prices in Major North American Cities". US EPA (fueleconomy.gov) says (a) that ~20% of energy in gasoline makes it to the wheels = 1.8 kWh/litre; and (b) that EVs need ~2 kWh of charging to deliver the same 1.8 kWh to the wheels. CHART by Barry Saxifrage at VisualCarbon.org and NationalObserver.com. July 2024.

Current EV sales in Canada vs some peer nations



EV SHARE OF NEW PASSENGER VEHICLE SALES – May 2025 with YoY change from May 2024 shown in light green (up) or white (down). Data sources: Canada from Statistic Canada Table: 20-10-0085-01. USA from Argonne National Lab at anl.gov. Global, EU, UK, China and Norway from Jose Pontes at cleantechnica.com. CHART by Barry Saxifrage at VisualCarbon.org and NationalObserver.com. July 2025.

Axing policies crushed Canada EV sales & target

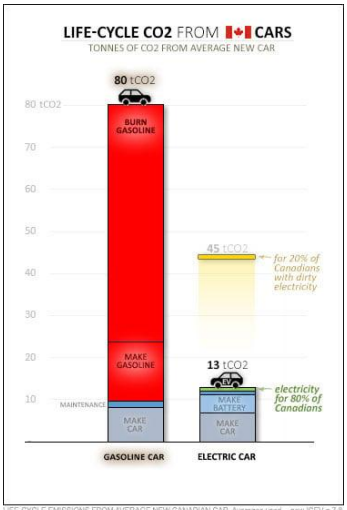


EV SHARE OF NEW PASSENGER VEHICLE SALES – Data source: Statistic Canada Table: 20-10-0085-01. Canada's Zero-Emission vehicle sales target is 100% by 2035 with the first interim target of 20% by 2026. CHART by Barry Saxifrage at VisualCarbon.org and NationalObserver.com. July 2025.

Visualizing tailpipe pollution as plastic litter

CO2 POLLUTION FROM AVERAGE NEW CANADIAN CAR AT HIGHWAY SPEEDS: Average new car in Canada emits 206 gCO2/km (IEA 2019 report). At highway speed that ~7 gCO2/second. A typical plastic straw weight less than half a gram, so it would take 15 of them to equal the weight of CO2 per second. Graphic created by Barry Saxifrage at NationalObserver.com and VisualCarbon.org. March 2021.

Lifecycle CO2 from making and driving ICEV vs BEV



LIFE-CYCLE EMISSIONS FROM AVERAGE NEW CANADIAN CAR. Averages used – new ICEV = 7.8 L/100km. New BEV car has 70 KWh battery and uses 16 kWh/100km. DATA SOURCES – GHG data for making car, BEV battery and car maintenance comes from "Global Comparison of the life-cycle GHG emissions of combustion engine and electric passenger cars" by ICCT (www.theicct.org). GHG data for gasoline from US EPA. GHG data for Canadian electricity from Canada National Inventory Report. CHART by Barry Saxifrage at VisualCarbon.org and NationalObserver.com. Feb 2023.

More information and links to articles

1. **BEV** = battery electric vehicle (all-electric, no tailpipe).
   ICEV = internal combustion engine vehicle (burns gas, emits CO2 out tailpipe).
2. Average new Canadian ICEV burns 8.3 L/100km and has a lifespan of 320,000 km over 18 years.

FUEL COSTS

3. Rule of thumb -- 2 kWh for BEVs drives same distance as 1 litre of gasoline for ICEVs. To learn more about this see: www.nationalobserver.com/2024/07/31/analysis/save-gasoline-electricity-litre-canadian-ev-drivers-charging
4. Charging a BEV at home can save a buck a litre-equivalent in Canada. To learn more charging costs across Canada, see: www.nationalobserver.com/2024/07/31/analysis/save-gasoline-electricity-litre-canadian-ev-drivers-charging

TOTAL COST OF OWNERSHIP

5. IEA: "Today, electric cars often have a lower total cost of ownership than ICE cars over the vehicle lifetime, due to reduced fuel and maintenance expenses." And a growing number of BEVs now have a lower purchase price than comparible ICEVs – ex: 65% of BEVs sold in China and 30% of BEVs sold in Germany. www.iea.org/reports/global-ev-outlook-2025/trends-in-electric-car-affordability?pubDate=20250803

POLLUTION

6. ICEVs emit more CO2 per unit of usable energy than coal powerplants. For details, see: www.nationalobserver.com/2022/12/15/analysis/coal-extremely-co2-intensive-gasoline-far-worse
7. Plug-in hybrids burn more gasoline than advertised in real world testing. To learn why this is, see: cleantechnica.com/2025/10/16/plug-in-hybrids-pollute-almost-as-much-as-petrol-cars-eu-data/
8. Making a BEV battery creates emissions and waste. These are tiny compared to gasoline emissions and waste. For a comparison see: www.nationalobserver.com/2023/02/08/analysis/weighing-harm-gasoline-against-lithium
9. BEV batteries are now up to 99% recyclable. With increasing battery efficiency, recycling an old BEV battery can recapture enough material to make more than one new BEV battery with the same range: https://electrek.co/2025/10/28/forget-the-myths-ev-batteries-are-now-more-than-99-recyclable/
10. Making a BEV emits more than making an ICEV. But this extra BEV CO2 is quickly over-taken by ICEV gasoline CO2. See: www.nationalobserver.com/2023/02/24/analysis/gasoline-versus-electric-cars-life-cycle-emissions-compared-canada
11. 15 plastic straws littered per second – That's the weight of CO2 emitted by average Canadian ICEV at highway speeds. Like plastic, gasoline CO2 is a fossil oil pollutant that can persist for centuries, harming humans and the environment. For more on plastic vs CO2: https://www.nationalobserver.com/2021/04/01/opinion/picture-your-carbon-emissions-plastic-straws
12. HEALTH IMPACTS – Noxious pollution from burning gasoline is a leading cause of illness and early death, especially in children. https://en.wikipedia.org/wiki/Fossil_fuel#Illness_and_deaths and https://pmc.ncbi.nlm.nih.gov/articles/PMC5800116/
13. LOCAL HEALTH IMPACT EXAMPLE -- UBC study says "cyclists and walkers who want to get the optimal benefits of their exercise also need to control their breathing in a way that minimizes pollution from motor vehicles" www.cbc.ca/news/canada/british-columbia/cycling-speed-walking-1.3825207

GOVT POLICIES

14. For a summary of recent Canadian EV policy retreats and how they impact EV sales targets, see: www.nationalobserver.com/2025/08/04/analysis/ev-policy-sales-slump-canada
15. Anti-EV rebates – Axing the Canada's carbon tax on tailpipe CO2 made it $5,000 cheaper to climate pollute with average ICEV: www.nationalobserver.com/2025/03/31/analysis/canada-carbon-pollution-fee-tax-emissions
16. The primary reason Canadians buy super-emitting vehicles is because govts here keep gasoline taxes far below what most OECD countries charge. Our ultra-low gasoline taxes act as a massive reverse carbon tax that enables the sale of the world's worst gas guzzlers. For charts comparing gasoline in all OECD nations – and the equivalent carbon tax these represent -- see: www.nationalobserver.com/2024/06/07/analysis/wacko-gasoline-carbon-taxes-Conservatives-Poilievre