

The True Cost

New analysis from Clean Energy Canada finds that electric vehicles are in fact cheaper, often much cheaper, than their gas counterparts



March 2022

 CLEAN ENERGY CANADA

OVERVIEW

If one were to pick two top issues on the minds of Canadians in 2022, climate change and the cost of living would surely be obvious contenders.

Indeed, “climate change” was ranked the most pressing issue facing Canada over the next decade by every age group in the country in a late 2021 public opinion survey.¹ Meanwhile, skyrocketing housing and gas prices are driving inflation fears among Canadians, a majority of whom don’t believe the latter are coming down any time soon.²

Enter electric vehicles.

While EVs aren’t the only solution to high gas prices—just as they aren’t the only solution to climate change—in both cases, they’re a big help.

The True Cost

March 2022 | © 2022 Clean Energy Canada

ISBN: 978-1-989692-06-6

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SFU

MORRIS J. WOSK
CENTRE FOR DIALOGUE



Without exception, the electric version of every car we analyzed was cheaper, usually significantly so.

For this report, Clean Energy Canada analyzed a number of popular electric car models, comparing their total ownership costs with that of gas equivalents. Our assumptions were relatively conservative: we assumed eight years of ownership, driving 20,000 kilometers a year.

And without exception, the electric version of every car we analyzed was cheaper, usually significantly so.

The Hyundai Kona provides a useful case study: it was Canada's second best-selling EV in 2021 (after the Tesla Model 3), and it has a modestly priced gas version that makes for an easy comparison.³

Yet despite the lower sticker price of the conventional car, the Kona's EV model is a lot cheaper when all is said and done, with a \$56,000 lifetime cost compared to \$71,100 for the gas version.

And lest one think stratospheric gas prices are the primary culprit, our calculation uses average gas prices from 2021 (\$1.35 per litre). Calculated with \$2-per-litre gas, as we've seen in parts of Canada this past month, the fossil-fuel-powered Kona costs \$79,700 over eight years. That's a price difference of roughly \$24,000—nearly enough to buy another car.

The only electric car that had close competition on cost was the electric Ford F-150 Lightning, which was only \$2,700 cheaper than a gas F-150 (assuming 2021 gas prices) in part due to its high upfront cost and because the truck isn't eligible for government rebates. If the electric pickup's eligibility changes, which we could see happen federally in the forthcoming budget, the EV version would end up being \$12,000 cheaper.

In other words, even for higher priced vehicles like the Ford F-150, gas versions can't compete on cost. **If you own your car for longer than eight years, if you drive it more than 20,000 kilometres annually, or if gas prices typically remain above 2021 levels, the savings from going electric are greater still.**

A common refrain, however, is that even if the electric version does net out cheaper, the sticker price of an EV is a real barrier for many buyers. The first step is to calculate that cost carefully: the larger monthly car loan of an EV against the higher fuelling and maintenance costs of a gas car.

But the point is a fair one. Not everyone has equal access to good credit. While analysis from BloombergNEF has concluded that EVs should be cheaper to buy upfront in five years (without subsidies), governments can help even the playing field in the meantime.⁴

One way is by offering provincial rebates that stack with the federal government's. Roughly half the country has access to additional subsidies, but notably, drivers in Ontario and the prairie provinces receive no additional help.

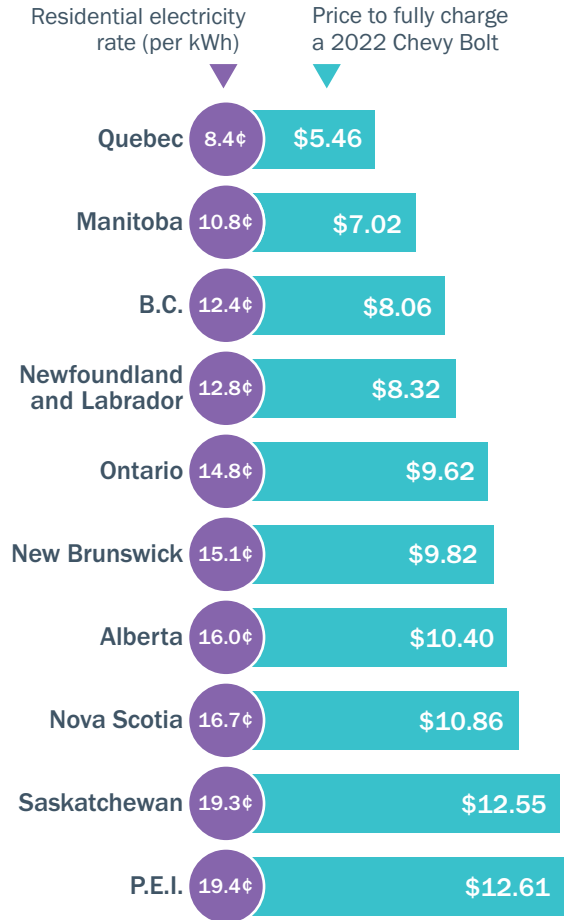
Secondly, as federal rebates do not currently extend to used EVs, governments can introduce other measures to make second-hand zero-emission vehicles even more affordable. In B.C.'s latest budget, Canada's westernmost province introduced a provincial sales tax exemption for the sale of used EVs.

Ultimately, the road to clean energy was always the road to affordable energy. And there really is no time like the present to accelerate into that future as fast as possible, even if it means overcoming a few speed bumps.

THE COST OF A CHARGE

How does a lower lifetime cost translate to dollars spent today?

We calculated how much it would cost to charge the 416-kilometre Chevy Bolt from zero to full in every province in Canada. While the cost ranges from \$5.46 in Quebec to \$12.61 in P.E.I., one similarity is universal: **no matter where you live in the country, it's a lot cheaper than filling a tank of gas.**



Sources: Residential electricity prices from *Underneath It All* (Clean Energy Canada, 2021). Bolt range and battery capacity from *Chevrolet Bolt EV - 2022* (Chevrolet, 2022).

WHAT DIFFERENCE DOES \$2/L GAS MAKE?

While this report assumes average 2021 gas prices (\$1.35 per litre), the price at the pump has skyrocketed this spring. A recent poll found that 56% of Canadians believe these high gas costs are here to stay—and could even go higher.² In a \$2-per-litre scenario, even the electric Ford F-150 is significantly cheaper than its gas counterpart (precisely \$16,200 to \$25,600 cheaper, depending on rebate eligibility).

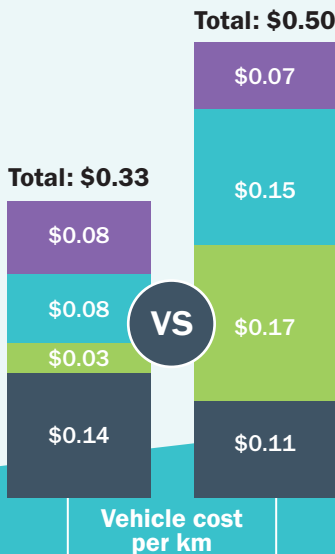
Below, we compare Canada's most affordable long-range EV, the Chevy Bolt, with Canada's most popular budget-friendly car, the Toyota Corolla, if gas prices averaged \$2 per litre.

\$2/L

ELECTRIC 2022 Chevrolet Bolt

Retail price: **\$38,198**
 Battery range: 416 kilometres
 Eligible for rebates: yes

Total ownership cost: \$51,848



■ Cost of car (depreciation) ■ Fuel □ Maintenance and repairs ■ Taxes, insurance, and other costs

GAS 2022 Toyota Corolla Hatchback

Retail price: **\$21,450**

Total ownership cost: \$80,058

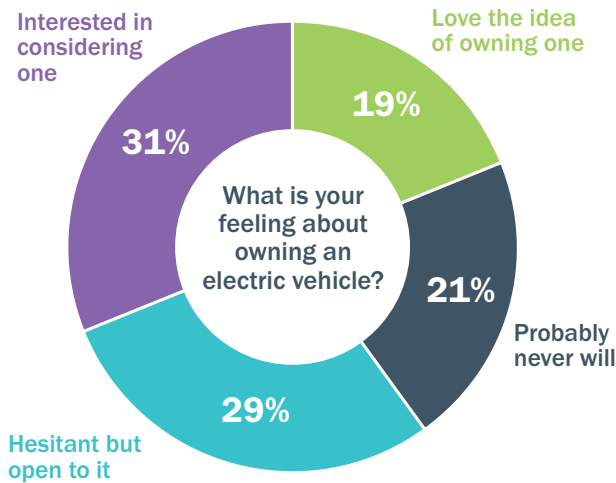
↑ \$ 54% more expensive for the gas vehicle



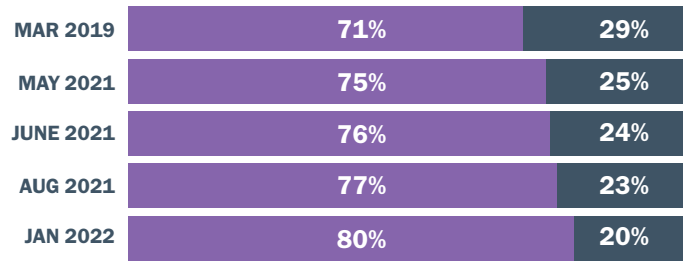
A POPULAR SOLUTION

Today, roughly 80% of Canadians are open to buying an EV for their next vehicle.

In early 2022, Clean Energy Canada commissioned Abacus Data to survey Canadians regarding their personal and political preferences when it comes to both electric and gas cars.⁵ Here's what we found.



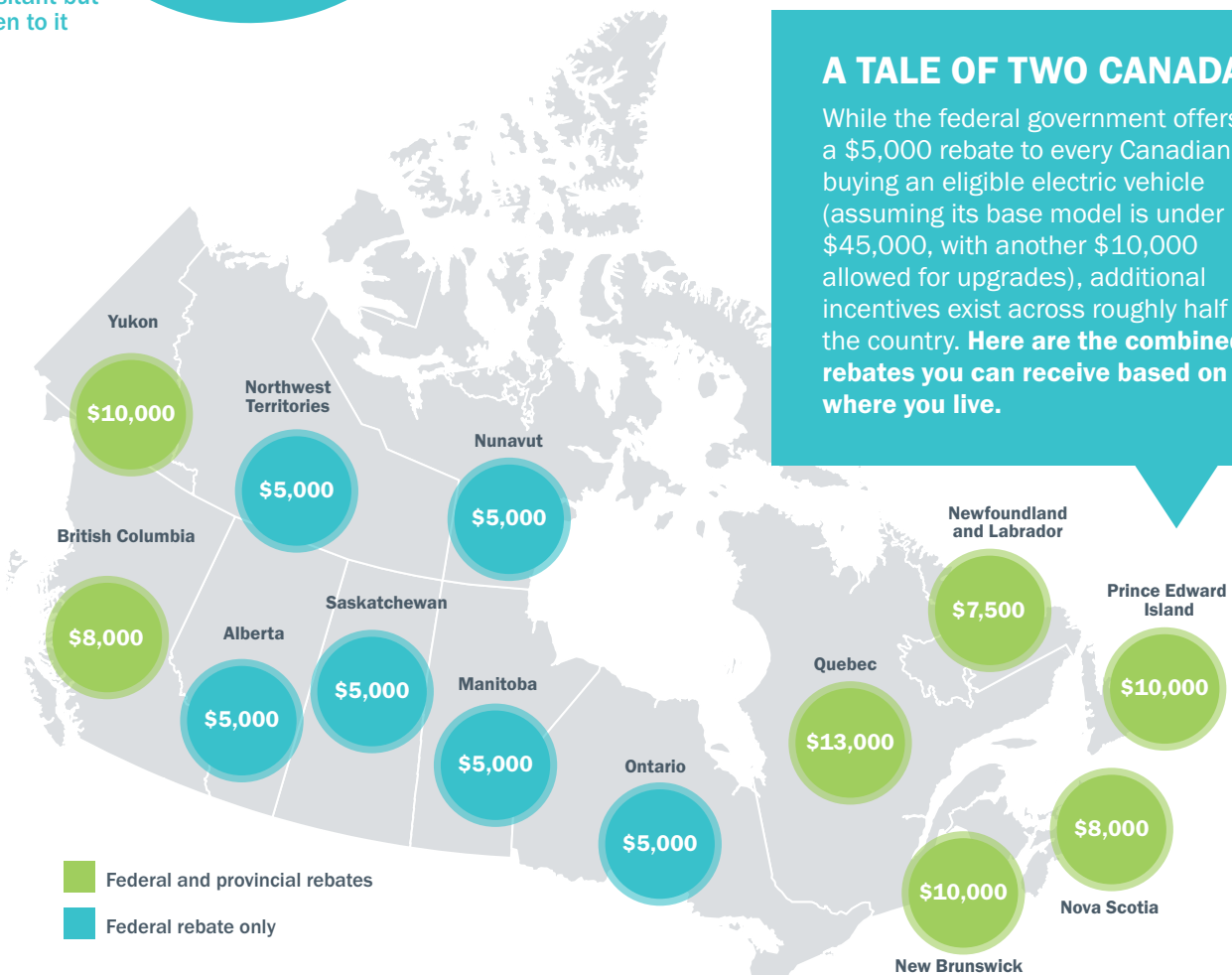
Do you think it's likely that electric vehicles will become the majority of vehicles that consumers drive at some point in the future?



Legend: Certain/Likely (Purple), Unlikely/Certain Not (Dark Blue)

Note: Clean Energy Canada and Abacus Data have polled this question a number of times to gauge shifting public opinion.

In general, do you support or oppose governments using policy measures to encourage more people to choose electric vehicles instead of gas vehicles?



Note: plug-in hybrids like the popular Toyota Prius Prime are also eligible for reduced rebates.

THE FACEOFF

LIVING THAT EV LIFE

Skip the gas station

Considering most charging is done at home, EV owners get to skip trips to the gas station altogether. That's one less errand to run for working families.



Save on fuel prices

Owning an EV also means never having to dread the sign outside that gas station. Insulate your wallet from the global geopolitics driving up fossil fuel prices.



Save on maintenance

EVs require less maintenance than gas cars. You'll never need another oil change again, while other components, like brakes, last longer due to the technology they use.



Stretch your legs in style

With rest stops racing to reimagine themselves for EV owners, an all-electric road trip could soon involve charging breaks complete with dog parks, log fires, and fitness centres. **Though you won't be waiting long: with fast-chargers, some EVs can charge to 80% in 20 minutes.**



Sedans and Hatchbacks

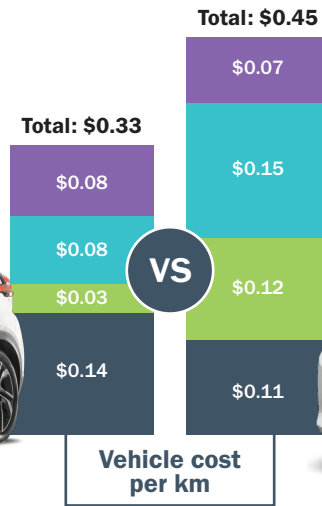
ELECTRIC

GAS

2022 Chevrolet Bolt

Retail price: **\$38,198**
 Battery range: 416 kilometres
 Eligible for rebates: yes

Total ownership cost: \$51,848



2022 Toyota Corolla Hatchback

Retail price: **\$21,450**
Total ownership cost: \$71,162

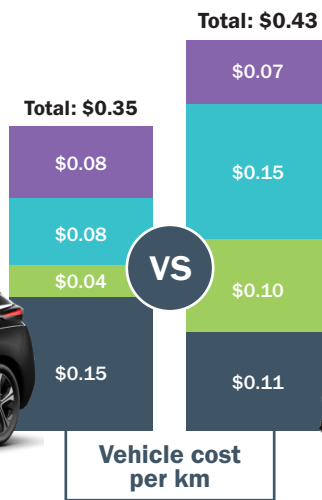


\$ 37% more expensive for the gas vehicle

2022 Nissan Leaf S Plus

Retail price: **\$40,098**
 Battery range: 363 kilometres
 Eligible for rebates: yes

Total ownership cost: \$54,623



2022 Honda Civic

Retail price: **\$24,465**
Total ownership cost: \$70,080



\$ 24% more expensive for the gas vehicle

SUVs and Crossovers

ELECTRIC

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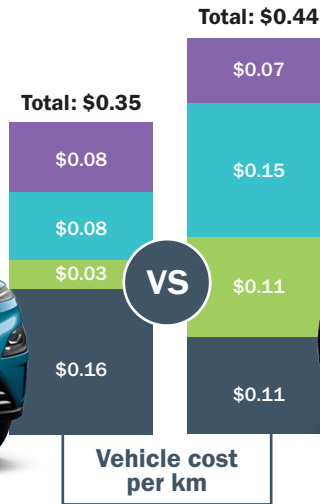
2022 Hyundai Kona Electric

Retail price: **\$45,851**

Battery range: 415 kilometres

Eligible for rebates: yes

Total ownership cost: \$56,038



2022 Hyundai Kona (gas)

Retail price: **\$24,055**

Total ownership cost: \$71,131



\$ 27% more expensive for the gas vehicle

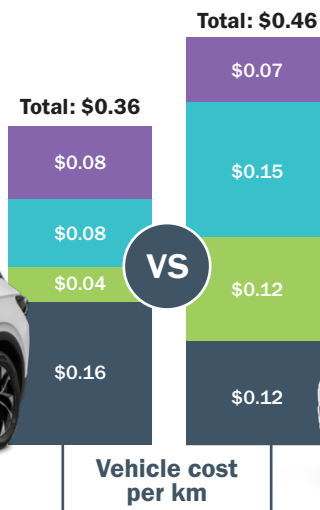
2021 Volkswagen ID.4 Pro

Retail price: **\$44,995**

Battery range: 400 kilometres

Eligible for rebates: yes

Total ownership cost: \$57,266



2021 Honda CR-V

Retail price: **\$29,970**

Total ownership cost: \$73,221



\$ 28% more expensive for the gas vehicle

Note: The 2022 Volkswagen ID.4 Pro is not currently available in Canada, and thus 2021 models were used for comparison.



Premium Vehicles

ELECTRIC

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2022 Tesla Model 3 Rear-Wheel Drive

Retail price: **\$61,380**

Battery range: 438 kilometres

Eligible for rebates: no*

Total ownership cost: \$73,340

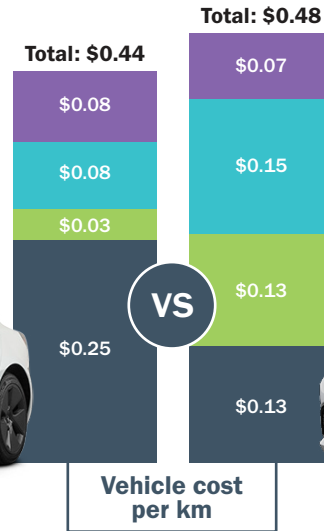
If eligible for rebates: \$64,339



2022 Lexus ES 250

Retail price: **\$46,200**

Total ownership cost: \$77,262



*A car that was recently \$52,990 (before rebates) in Canada is now, only a few months later, \$61,380. As a result of this higher cost, the Model 3 is for now no longer eligible to receive subsidies (with the exception of Quebec's). That said, all Model 3s ordered before November 23, 2021, will still receive federal discounts.⁶ An increase to the rebate program's cost cap, a decrease in the Model 3's retail price, or a combination of these factors could restore the Model 3's inclusion in the program. Tesla CEO Elon Musk has on multiple occasions cited the rising cost of raw materials as a primary reason for recent price hikes.^{7,8}

2022 Ford F-150 Lightning XLT

Retail price: **\$68,000**

Battery range: 370 kilometres

Eligible for rebates: no

Total ownership cost: \$83,746

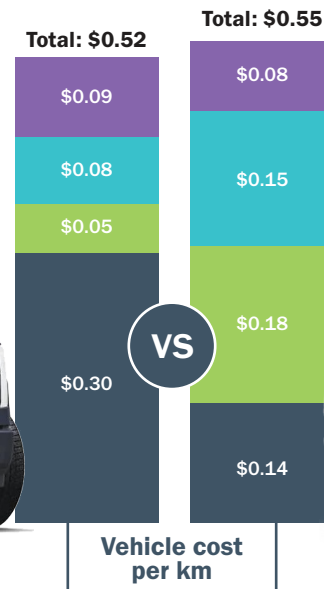
If eligible for rebates: \$74,322



2022 Ford F-150 XLT SuperCrew 4x4

Retail price: **\$50,684**

Total ownership cost: \$86,401



Note: The gas F-150 was configured to match the base F-150 Lightning model as closely as possible in terms of trim, cab size, box size, and four-wheel drive.

Cost of car (depreciation)
 Fuel
 Maintenance and repairs
 Taxes, insurance, and other costs

Methodology

The total cost of ownership for the vehicles shown in this report was calculated using the [Fleet Procurement Analysis Tool](#) by Atlas Public Policy. The vehicles were selected based on their popularity in the Canadian market. The vehicle performance data was taken from [Natural Resources Canada](#). The analysis is based on the following data and assumptions:

- Average retail prices for regular gasoline in 2021 as provided by [Natural Resources Canada](#) (Canadian average: \$1.35/l).
- Average prices for residential electricity in 2021 from [Hydro-Québec's](#) cross-Canada comparison with the Canadian average (13.9¢/kWh) calculated as a population-based weighted average.
- Annual vehicle mileage of 20,000 kilometres based on the number used in Natural Resources Canada's [2021 Fuel Consumption Guide](#).
- Combined fuel/electricity consumption ratings that reflect 55% city and 45% highway driving.
- Expected vehicle ownership of eight years in alignment with the recent total cost of ownership [analysis](#) by Atlas Public Policy for the U.S. market.
- Canadian average EV purchase incentives based on EV-sales-weighted provincial rebates plus federal incentive as of March 21, 2022.
- A carbon price of \$50 per tonne in 2022 that rises in accordance with the new schedule announced in the federal government's December 2020 [climate plan](#).
- 88% home charging of EVs based on the midpoint of a range provided in a report from the [U.S. National Renewable Energy Laboratory](#).

Note that the affordability of EVs increases even further with higher gasoline prices, lower electricity rates, longer vehicle use, and more annual mileage.

Endnotes

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