



Taking the Wheel

How Canada can cut carbon pollution
and revitalize its auto sector

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How Canada can cut carbon pollution and revitalize its auto sector

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MORRIS J. WOSK
CENTRE FOR DIALOGUE

Our Car Conundrum



Canada has a car conundrum. Our transportation emissions are up, and our auto manufacturing sector is down. And while these two challenges might sound only tangentially related, they share a common solution.

But let's start with the problem. According to the International Energy Agency, Canadians drive the most polluting cars in the world.¹ **Literally, when it comes to tailpipe emissions, we take the global top spot.** Over the past 20 years, carbon pollution from transportation has increased by nearly 30% thanks to a growing appetite for SUVs and trucks.²

Over that same two-decade period, vehicle manufacturing in Canada fell by 37%, or more than one-million vehicles a year.³ Once a global top-five vehicle manufacturer, Canada now doesn't even crack the top 10.⁴

So, that's the conundrum: **pollution from the vehicles we drive is increasing, while the auto sector has been shifting to other shores.** It's a bad news story for both our environment and our economy. But while various causes explain these challenges, a singular solution exists to overcome them both: zero-emission vehicles.

Already, most Canadians lean toward an electric car for their next vehicle purchase, according to a 2019 survey, and a majority see EVs becoming mainstream soon.⁵ The problem? Most car dealerships in the country don't have a single EV available to test drive or purchase. A 2020 Transport Canada study found that waitlists of three to six months are typical.⁶ And if you want to buy electric and Canadian, you're limited to a single option: the Chrysler Pacifica plug-in hybrid minivan.

But very recently, things have started shifting into gear. **An agreement between Ford Motor Company and Unifor, Canada's largest union, will see nearly \$2 billion go toward the production of five EV models in Oakville, Ontario.⁷ A separate \$1.5-billion deal between Unifor and Fiat Chrysler also targets EV production, creating 2,000 jobs at the latter's Windsor-based plant.⁸**

We may want to hold off on the confetti, however, as Canada still has a way to catch up. Prior to these fall 2020 funding announcements, an analysis of 29 global automakers had identified US\$300 billion flowing into EV development with not a single dollar destined for Canada.⁹

But building cars isn't the whole automotive story. Quebec's Lion Electric Company has been selling electric trucks to CN Rail and Amazon and is North America's largest producer of electric school buses. Warren-Buffett-backed BYD is manufacturing electric buses in Ontario and

delivering them to the Toronto Transit Commission. And Canada's auto parts manufacturers are leading the charge on a zero-emission concept car to showcase what Canada's supply chain can do.¹⁰

The opportunity also extends beyond building vehicles. **Canada is home to many of the metals and minerals needed to make EV batteries.**¹¹ What's more, Canadian miners can produce them with less pollution thanks to our nation's relatively clean power grid, a feature that's already caught the eye of Tesla.¹² Indeed, Canada has been cited as a potential competitor in the global EV battery industry.¹³

While Canada will ultimately chart its own course—leveraging its unique workforce and geographic strengths—there's another competitively positioned jurisdiction that might offer some inspiration. California has used regulations and rebates to become North America's EV leader while simultaneously supporting the development of an EV auto sector to meet growing demand. Today, the state is home to 275,600 EV-related jobs. Electric vehicles are its eighth most valuable export.¹⁴

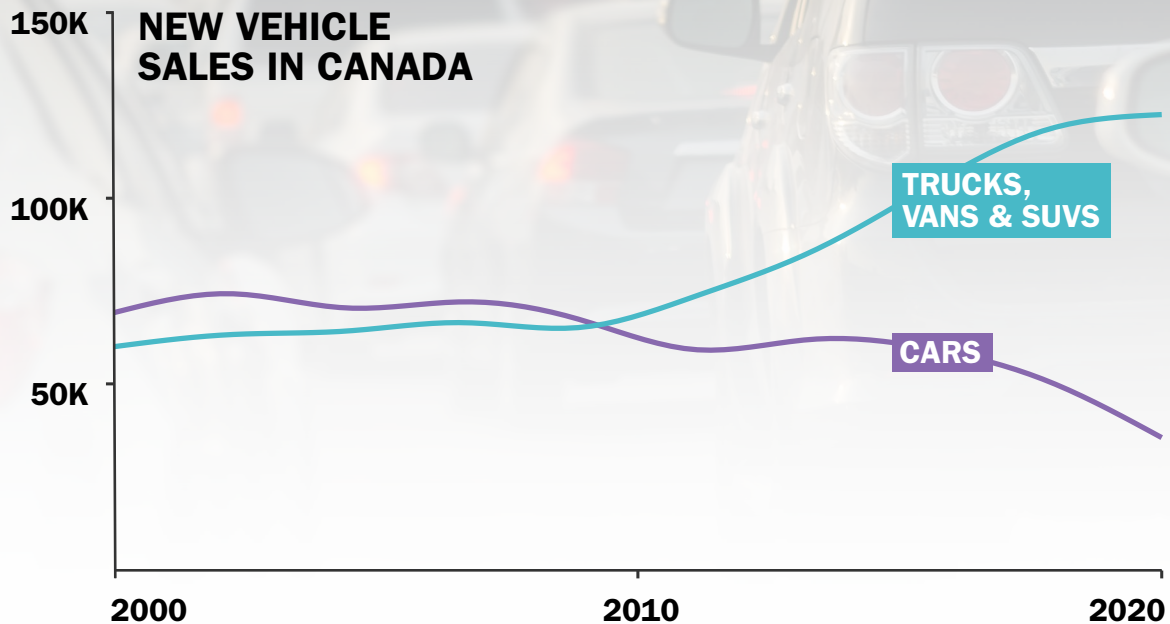
With a national EV rebate program, a growing network of charging stations, and a couple of promising EV production deals, Canada isn't starting at zero. But if governments are serious about reducing transportation pollution (responsible for a quarter of our national emissions) and building the cars of tomorrow, **we need an industrial strategy and a package of policies that drive long-term investment in and the adoption of zero-emission vehicles.**

Done right, Canada can overcome its car conundrum while achieving a trifecta of outcomes: cutting transportation pollution, giving Canadians better access to the cars they want, and retooling our auto sector to compete in the 21st century.

It's time to take the wheel.

A handwritten signature in black ink, appearing to read 'Merran Smith'. The signature is fluid and cursive, with a large loop at the end.

Merran Smith, Executive Director,
Clean Energy Canada



Fitted line through monthly (seasonally unadjusted) data. Source: Statscan NDM Table 20-10-0001

Troubling Trends

#1 CARBON POLLUTION IS UP

TOO MANY SUVs

When it comes to the vehicles we drive, Canadian consumer habits have changed over the past decade. New registrations of trucks, vans, and SUVs rose 2% in 2019, while passenger cars declined 17%.¹⁵ This shift toward bigger vehicles is concerning for our climate, as large SUVs produce about a quarter more carbon pollution than smaller cars.¹⁶

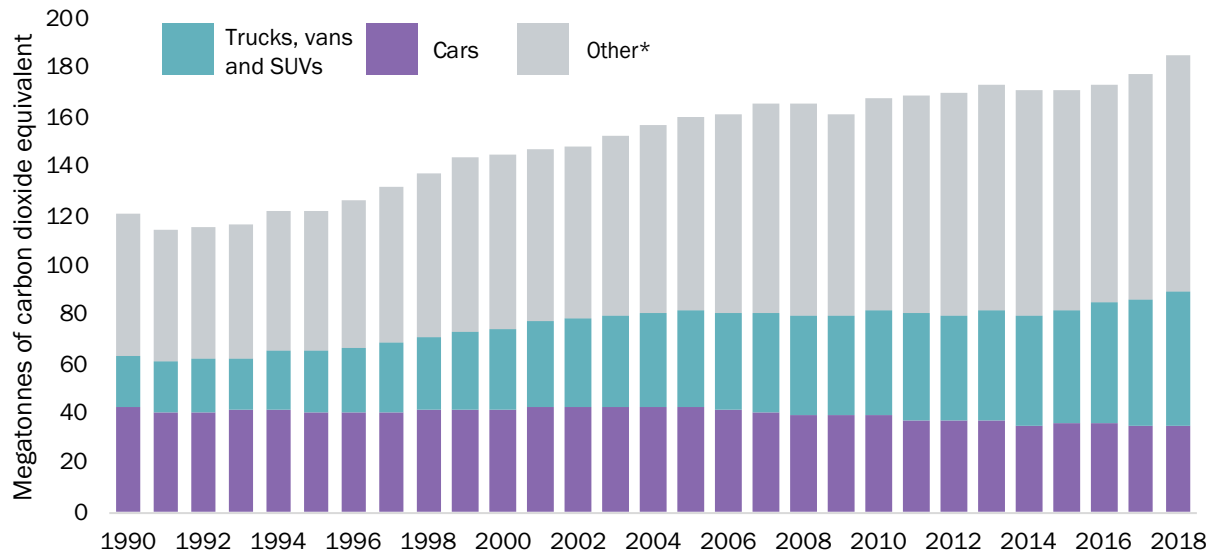
In 2019, the International Energy Agency found that SUVs were the second-largest source of new global emissions over the past decade.¹⁷ To put that in perspective, if all SUV drivers formed their own country, it would be the seventh-largest emitter in the world.¹⁸

Even as automakers produce more efficient cars, including EVs, emissions reductions are being cancelled out

by the booming SUV market. **Canada's carbon pollution from transportation has increased nearly 30% over the past 20 years.** Pickup trucks, vans, and SUVs were responsible for over half of those additional emissions.¹⁹ Conversely, carbon pollution from sedans fell by 15% over that same period, largely due to rules requiring that automakers improve the fuel efficiency of the cars they sell.²⁰

Unfortunately, those same policies face an uncertain future. The Trump administration's recent rollback of regulations requiring new vehicles to get cleaner and more efficient every year are automatically applied in Canada.²¹ Unless Canada breaks from the Trump-era rules or President-elect Joe Biden adopts his own approach (perhaps in consultation with Canada), our vehicles will become less fuel-efficient and more polluting.

TRANSPORTATION SECTOR EMISSIONS IN CANADA



*Includes freight (rail, domestic aviation, maritime, heavy-duty trucks) and other passenger transport (motorcycles, bus, rail, and domestic aviation). Source: Government of Canada, 2020

TOO FEW EVS

Already, most Canadians are eyeing an electric car for their next vehicle purchase, according to a 2019 survey from Abacus Data and Clean Energy Canada. In fact, 64% say they would like to see EVs become the majority of vehicles sold, while even more say it's bound to happen at some point.²²

The reason why there aren't more electric cars on the road isn't that Canadians don't want them. It's that many Canadians can't find an EV to test drive, buy, and take home. **A study conducted for Transport Canada found that nearly 70% of over 1,000 Canadian dealerships didn't have a single EV available for purchase in February of 2020.** Only one in 10 dealerships had four or more on their lots, while waitlists of three to six months were the norm.²³

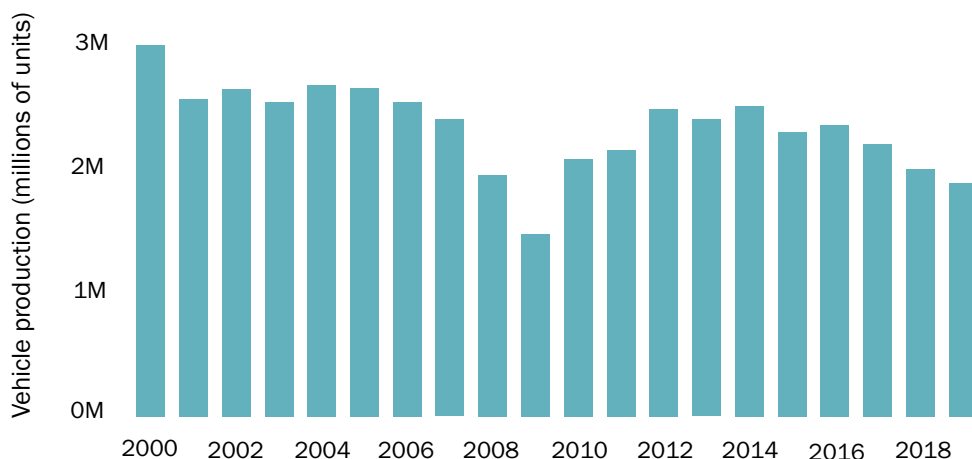
Canadians also have fewer makes and models to choose from. While 49 and 45 EV models were available in the U.S. and the EU in 2019,²⁴ only about 40 can be bought in Canada.²⁵ Meanwhile, there were over 250 gas models available in Canada last year.²⁶ With plenty of new EV makes and models coming to market in the next few years, we should ensure they'll be made available for Canadians as well.

To make matters worse, the picture is starkly different depending on where you live, as EV supply is unevenly distributed across the country. Potential buyers in B.C. and Quebec have access to more electric cars and a greater range of models. The two provinces are home to 76% of Canada's new EV inventory, meaning the rest of Canada is left to fight over the remaining quarter. **As of February, there were 23 EVs available for sale for every 100,000 Quebec residents compared to just four for every 100,000 Albertans and Ontarians.**²⁷

In other words, Canadians want to go electric, but supply isn't keeping up with demand.



CANADIAN MOTOR VEHICLE PRODUCTION



Source: Trillium Network, 2020 / Automotive News, various years

#2 THE AUTO SECTOR IS DOWN

The Canadian auto sector has played a significant role in Canada's export-driven economy, but in recent decades it has struggled to stay competitive. After growing throughout the '90s and early 2000s, the auto sector's economic contribution peaked in 2005 before falling and then dropping precipitously with the great recession of 2008. The sector has yet to regain its historic growth and stature.²⁸

While auto parts manufacturing has stabilized at about \$9 billion per year, vehicle manufacturing fell to just \$6.5 billion in 2019, due in part to the closure of General Motors' Oshawa assembly plant.²⁹ Canadian vehicle production, meanwhile, peaked at more than three-million units in 1999 before entering a period of decline. After a short spurt of growth between 2010 and 2014, production once again steadily decreased to a "new normal" of roughly 1.8 million vehicles a year.³⁰ Similarly, **there are currently 133,000 jobs in the sector, mostly in auto parts, compared to 172,000 in 2000.**³¹

The past two decades have also seen a structural shift, with Japanese-owned manufacturers increasing their share of production and employment in Canada. Toyota and Honda accounted for 22% of vehicle production in 2002, but by 2019 that had risen to 47%.²⁸

Recent events suggest there could be yet another seismic structural shift: whether and when automakers pivot to

producing EVs in Canada. Both Toyota and Honda have placed greater emphasis on hybrid vehicles over fully electric ones.³³ While Honda is releasing its first all-electric car this fall, it won't be available in Canada.³⁴ Only the Honda Clarity and Toyota's Prius Prime and RAV4 (all plug-in hybrids) are available in Canada, all of which are assembled in Japan.³⁵

At the same time, recent investments from federal and Ontario governments alongside Ford Motor Company and Fiat Chrysler could shift the landscape once more. **Up to five fully electric vehicles will be built at Ford's Oakville plant starting in 2025,³⁶ and at least one new electrified model will be assembled at Chrysler's Windsor plant.**³⁷

Car makers know they need to go electric, in part because investors are telling them so. But they're operating on different timelines and developing region-specific strategies. The first is in the near-term, when automakers are doubling down on higher profit gas-powered trucks and SUVs.³⁸ While EVs could be as cheap to manufacture as gas cars within the next few years (by 2024, according to one recent analysis³⁹), in the interim most of these EVs are destined for China, where government policies push for them. Thus, North Americans—the target market for high-polluting, inefficient vehicles—are stuck in the slow lane.⁴⁰

But that need not be the case.



CANADA'S AUTO SECTOR IN DECLINE

\$18.9 billion



\$15.4 billion

the sector's economic
contribution in 2005

the sector's economic
contribution in 2019

172,000 jobs



133,000 jobs

in 2000

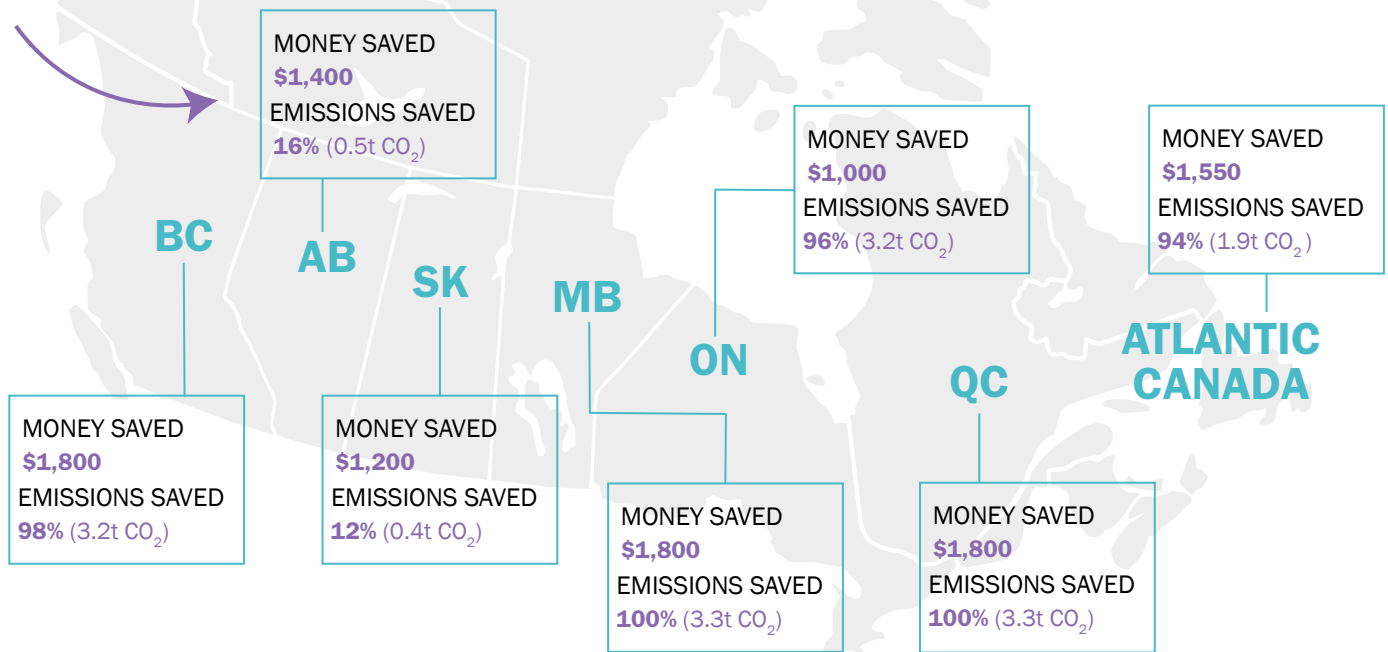
in 2019

Figures in 2012 dollars. Source: Trillium Network, 2020; Statistics Canada, Payroll employment, automotive industries, 1991 to 2012

*Based on driving typical cars such as a 2019 Nissan Leaf EV instead of a gas-powered Honda Civic. Assumes 20,000 kilometres of driving per year with 55% city and 45% highway driving. Cost savings include ongoing expenses like fuel and maintenance but not the cost of purchasing the vehicle

THE SAVINGS BY PROVINCE

Money and carbon emissions saved annually by driving an EV instead of a gas car*



Data source: Market Snapshot: Levelized costs of driving EVs and conventional vehicles, The Canadian Energy Regulator, 2020; The official greenhouse gas inventory, the Government of Canada, 2020; Fuel consumption ratings by model year, Natural Resources Canada, 2020

The Electric Opportunity

CUTTING CARBON

With transportation responsible for roughly a quarter of emissions in Canada, a solution for the vehicles we drive is not a nice-to-have—it’s a must-have. And **no matter which province you live in, an EV will emit less carbon pollution than a gas-powered equivalent.** Because Canada already has one of the cleanest grids in the world (82% of our electricity comes from non-emitting sources), plugging in an EV is particularly effective.⁴¹

Switching from a gas car to an electric vehicle today would cut the carbon footprint of your car by 34% to

98%, depending on where in Canada you live, factoring in both the pollution from a gas car’s tailpipe and from the electricity grid that charges an EV.⁴²

Even when the emissions from manufacturing the cars are included, EVs are still the lower polluters, with lifecycle emission savings ranging from 25% in Alberta to 85% in Quebec.⁴³ And as Canada’s grid gets even cleaner, so too will its electric cars. Alberta, for instance—currently the province most reliant on coal power—is set to almost completely phase out coal by 2029.⁴⁴

HONDA CIVIC
(GAS)
\$25,185
sticker price



HYUNDAI IONIQ
(ELECTRIC)
\$41,499
sticker price



VS.

DRIVERS SAVE

A Canadian EV driver will save \$800 to \$2,000 dollars a year in “fuel” costs compared to a gas car driver, depending on which provincial grid they plug into.⁴⁵ They can also expect to save a few hundred dollars per year on maintenance, since EVs have far fewer parts and need less frequent repair.⁴⁶ A calculator developed by a University of Calgary economist computes the total ownership cost of an EV versus a gas vehicle,⁴⁷ taking into account government rebates and annual maintenance savings of \$500 for EV owners⁴⁸ (an assumption in line with other estimates⁴⁹). Here, we consider four drivers in two cities, Toronto and Vancouver, who all drive 20,000 kilometres a year. Two drive the gas-powered Honda Civic (Canada’s most popular sedan⁵⁰), while the others commute with a comparable electric model, the Hyundai Ioniq EV. In both locations, the EV drivers come out ahead within a few years.

With fuel and maintenance savings, the Hyundai Ioniq is cheaper than the Honda Civic within ...

4.8 years in Toronto // 1.6 years in Vancouver

Calculated using the following costs:
Average gas price as of October 2020⁵¹ (per litre)
\$1.02 (Toronto)
\$1.26 (Vancouver)
Electricity price (per kilowatt hour)
¢12.8 (Toronto)⁵²
¢9.5 (Vancouver)⁵³

THE CANADIAN ADVANTAGE

In many ways, Canada is perfectly positioned to capitalize on the EV opportunity. The country boasts a strong and rapidly growing clean energy sector and is rich in the resources needed to manufacture its technologies. In fact, according to modelling by Navius Research and Clean Energy Canada, the GDP of Canada’s clean transportation industry is projected to grow by 28% annually over the next decade, creating 14 times the number of jobs in 2030 than in 2020.⁵⁴

INNOVATION

With electric cars comes the need for new technology, such as Tesla’s autopilot. The World Manufacturing Forum lists “digital literacy” and familiarity with “new digital manufacturing systems, technologies, applications and

tools” as in-demand skills for the future of manufacturing.⁵⁵ EVs are thus an opportunity for Canada’s leading automation and robotics companies, of which there are 350 in the Toronto-Waterloo corridor alone.⁵⁶ The **University of Toronto** even has its own EV research centre, which specializes in autonomous EV development as well as designing new battery technology.⁵⁷

MANUFACTURING

While the recent deals with **Ford** and **Chrysler** will bolster Canada’s EV manufacturing credentials considerably, they represent just one part of a bigger picture. Canada is already home to at least six electric bus manufacturers, five of which are Canadian-owned. **New Flyer Industries, Nova Bus,**



Photo: Lion Electric Company

the **Lion Electric Company**, the **GreenPower Motor Company**, **Grande West**, and **BYD** make zero-emission buses that are taking kids to school and commuters to work across the continent.⁵⁸ B.C.-based **Electra Meccanica**, meanwhile, designs and builds single-person electric cars.⁵⁹ As for Ontario's major auto parts companies, **Linamar** creates parts for EVs,⁶⁰ while **Magna International** has agreements to build electric vehicles in China and Europe.^{61,62} Meanwhile, members of the **Automotive Parts Manufacturers' Association** have joined forces to showcase Canada's EV prowess through an all-Canadian concept car called Project Arrow.⁶³

BATTERIES

Canada is already a leader when it comes to battery technology: **Tesla's** battery research lab is in Kitchener, Ontario,⁶⁴ while one of the world's pioneers of lithium-ion battery technology, Professor Jeffrey Dahn, is based at **Dalhousie University** in Nova Scotia. There are also many Canadian companies leading the way. **Hydro-Quebec** has branched into EV batteries via a research institute that recently teamed up with **Mercedes-Benz**.^{65,66} Ontario-based **Hibar Systems** specializes in lithium-ion battery technology and was acquired by Tesla last year.⁶⁷ Mississauga's **Electrovaya** creates batteries and battery systems for a range of EVs. The company is struggling to keep up with demand,⁶⁸ recently landing a large order from **Walmart** to provide battery systems for electric forklifts.⁶⁹ And, of course, there's B.C.-based **Corvus Energy**, creating batteries for the marine industry that can be found aboard ferries around the world—including in Canada.^{70,71}

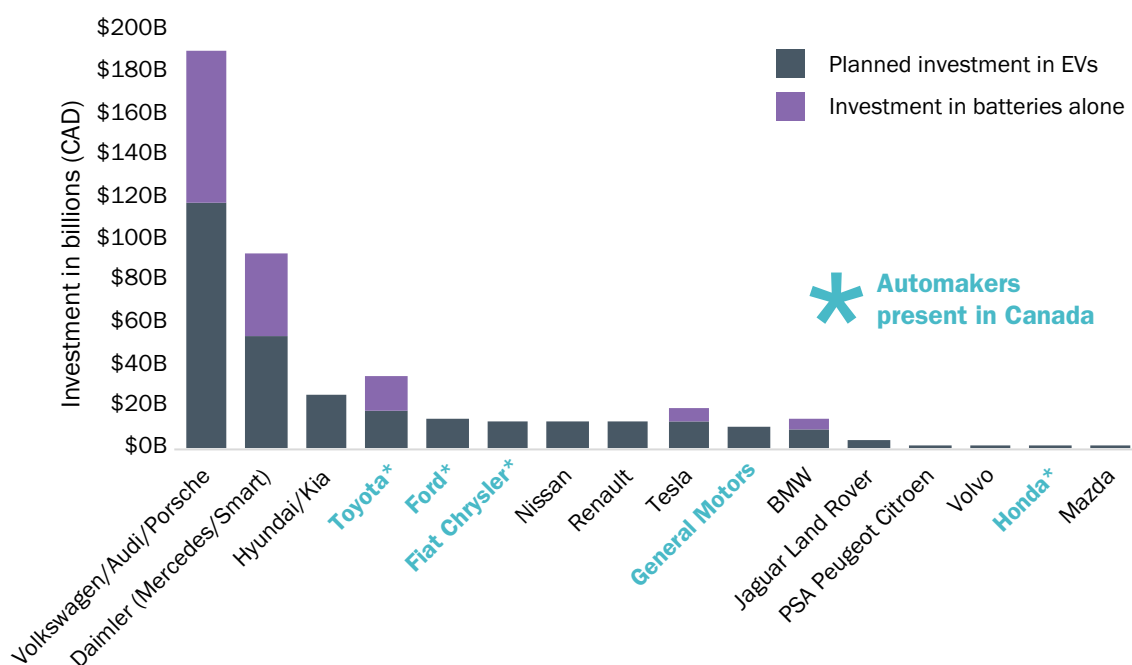
RESOURCES

Mining giant Glencore estimates that each new EV will require 84 kilograms of copper, 30 kilograms of nickel, and eight kilograms of cobalt.⁷² All three elements can be found in Canada. Already, companies are seizing the opportunity. **Vale** and Canada's **First Cobalt** are just two of the names rumoured to be in talks with manufacturers, as automakers like Tesla and Volkswagen look to not only secure supply chains but do so in an environmentally sustainable way.^{73,74} Calgary's **E3 Metals**, meanwhile, extracts lithium from Alberta's wastewater oilfield brines. The firm's technology has the double benefit of using waste to create a valuable resource.⁷⁵ Opportunity exists further down the supply chain too: B.C.-based **Nano One Materials** processes lithium into powders for use in batteries.⁷⁶

METALS AND MINERALS USED IN EVS

Metal / Mineral	Production in Canada
Cobalt	Canada is the world's sixth-largest producer of cobalt. ⁷⁷
Lithium	Canada has a number of lithium projects. ⁷⁸ Its first lithium mine started production in 2018. ⁷⁹
Aluminum	Canada is the world's fourth-largest primary aluminum producer. Its producers have the lowest carbon footprint of any country. ⁸⁰
Graphite	Canada is the world's third-largest producer of graphite. ⁸¹
Nickel	Canada is the world's sixth-largest producer of nickel. ⁸²
Copper	Canada is the world's 10th-largest producer of copper. ⁸³

AUTOMAKERS INVESTING IN EVS



Source: Reuters, 2019

A Global Race to Electrify

THE SHIFT TO EVS

The world is moving toward electric vehicles. In 2019, there were over seven-million EVs on the road—an increase of 40% from the previous year.⁸⁴ Nearly half of those were in China, 25% were in Europe, and 20% were in the U.S.⁸⁵ Globally, EVs made up 2.6% of all new car sales—an all-time high.⁸⁶ **BloombergNEF estimates that EVs will capture nearly three-quarters of all vehicle sales by 2050.**⁸⁷

Today, Canada sits squarely in the middle of the pack, with EVs making up 3% of new car sales in 2019.⁸⁸ We still have many miles to go to meet our first national zero-emission vehicle sales target: 10% by 2025.

In terms of investment, Reuters estimates that **\$400 billion (US\$300 billion) of automaker dollars are now destined for EVs and batteries.**⁸⁹ The Volkswagen group is leading the charge, accounting for almost half of global investment. Among the automakers with manufacturing operations in Canada, Toyota has earmarked the most with \$18 billion for batteries and the same amount for EVs. That investment is destined for China, however, where the company hopes to electrify all of its models by 2025.

Up until a few months ago, Canada's electric vehicle manufacturing industry was virtually non-existent, but recent investments are starting to turn things around. Ford Motor Company has said it will put over \$1 billion into its Oakville manufacturing plant to produce five EVs, as part of a global plan to launch 40 new EV models with \$14.5 billion of investment.⁹⁰ Meanwhile, Fiat Chrysler is spending up to \$1.5 billion to retool its Windsor plant, which will build at least one new EV model starting in 2025.⁹¹ The company has said it will launch a total of 34 new EV models globally with \$13 billion of investment by 2022.^{92,93}

But while another recent investment from General Motors to manufacture gas-powered pickup trucks will create 2,000 jobs in the short term, it's less than ideal for Canada's longer term auto prospects. After all, the company's Canada president labelled the investment as helping to “fund our transition to the electric, autonomous and highly connected future we see ahead.”⁹⁴ **It's key that Canada's auto sector is included in this vision—and not just left to fund it.**

WORLD-LEADING POLICIES

Over the past few years, the global auto landscape has been changing fast, and EV adoption is accelerating, even in the shadow of the coronavirus pandemic—in part driven by strong policies.

It's no coincidence that many of the countries taking action on EVs are also the ones that build cars. To ensure their domestic auto companies are capturing a piece of the growing global market, governments are making strategic investments in supply chains and offering relief packages with green strings attached. Below is a summary of what some key car-building jurisdictions are doing to speed the transition to electric vehicles.

EUROPEAN UNION

The EU has the world's strongest vehicle emission standards, which have been maintained throughout the pandemic.⁹⁵ As a result, European automakers are setting even more ambitious clean car goals and have rolled out an unprecedented number of new EV models—42 in the first quarter of 2020 alone.⁹⁶

GERMANY

Germany recently doubled purchase incentives for electric vehicles as part of its coronavirus economic recovery program and will require all petrol stations to offer EV charging.⁹⁷ The country is also set to approve a €2-billion package to help its automakers and suppliers meet growing demand for cleaner vehicles,⁹⁸ putting it on track to nearly quadruple its 2019 EV market share by the end of 2020.⁹⁹

FRANCE

France has a 2040 ban on the sale of new gas cars as well as a system that imposes fees on higher-polluting vehicles.¹⁰⁰ As part of its coronavirus recovery package, the country also increased its electric vehicle rebates from €6,000 to €7,000 and announced an €8-billion plan to maintain France's position as Europe's top producer of clean vehicles.¹⁰¹ EVs are expected to make up 10% of new car sales in 2020—triple that of 2019.¹⁰²

UNITED KINGDOM

Over the last two years, the U.K. has introduced a set of policies designed to reduce emissions, drive zero-emission vehicle adoption, and support domestic manufacturing—including a commitment to end the sale of new gas and diesel cars by 2030 (moved up from 2035 in November 2020).¹⁰³ EVs are now on track to represent 10% of all new car sales in the U.K. by year's end—over three times 2019's market share of 2.8%.¹⁰⁴ The country is also contemplating a zero-emission vehicle sales standard to help reach its 2030 target.

SHARE OF VEHICLE SALES FOR ELECTRIC CARS (2019)

1. Norway **55.9%**
2. Netherlands **15.1%**
3. Sweden **11.4%**
4. Finland **6.9%**
5. Portugal **5.7%**
6. China **4.9%**
- =7. Germany **3.0%**
- =7. Canada **3.0%**
- =8. France **2.8%**
- =8. United Kingdom **2.8%**
- =9. United States **2.1%**
- =9. South Korea **2.1%**

Source: International Energy Agency, 2020

CHINA

China has been betting on EVs for years, with purchase subsidies, strong vehicle emission regulations, and a “new energy vehicle” standard in place that pushes automakers to sell more low-emission cars. As part of its post-COVID recovery package, China put more than US\$1.4 billion toward a massive charging station buildout.¹⁰⁵ As a result, the country has attracted huge investments from global automakers and has a flourishing zero-emission vehicle industry with many of its own electric car companies.¹⁰⁶ The China Society of Automotive Engineers expects EVs to account for 20% of new car sales by 2025 and 50% by 2035.¹⁰⁷

UNITED STATES

While the U.S. has become a laggard on clean cars under Trump, it's poised to be a leader under Biden, who plans to pursue ambitious fuel economy standards and retool auto plants to make EVs and their parts. **California**, the fifth-largest economy in the world, offers an incentive program that targets low-income buyers and a zero-emission vehicle standard that has been adopted by 10 other states. These are combined with strong fuel efficiency regulations, a low-carbon fuel standard and support for zero-emission manufacturing.¹⁰⁸ EV industry growth has positioned the state as a global leader on exports of transportation-related products, services, and technologies.¹⁰⁹

SOUTH KOREA AND JAPAN

Japan and South Korea are among the biggest auto manufacturing countries in the world. While electric vehicle uptake has been slower in these markets, both have invested in industrial policy measures to maintain their edge on battery technologies, boost their EV export capacity and capitalize on the huge global EV opportunity.




GLOBAL BATTERY POWER

With batteries comprising about 40% of an EV's value, Europe is waking up to the realization that whoever controls a region's lithium-ion battery supply chain also wields significant influence over its lucrative car industry and the hundreds of thousands of jobs that go with it.¹¹⁰

Today, China, Japan, and South Korea together account for more than 80% of the world's production of EV batteries, and Asian companies like CATL, LG Chem, and Samsung SDI control Europe's biggest battery factories.¹¹¹

Europe's share of this market is a mere 3%.¹¹² Which is why the European Commission recently approved almost €3.2 billion in funding to build out Europe's EV battery supply chain, with a number of nations participating in the program.¹¹³ The project is scheduled to run until 2031 and is expected to unlock a further €5 billion in private investment.¹¹⁴ As for the automaking behemoth that is Germany, the country was already planning to spend €1.5 billion commercializing battery technology through 2023. Now, as part of Germany's post-COVID-19 stimulus package, it will spend another €2.5 billion expanding EV charging infrastructure and battery cell production.¹¹⁵

The challenge for Germany and the EU is that many of the metals and minerals needed to build batteries simply aren't found there. They are, however, found in Canada, a country that has been cited as a potential competitor in the global EV battery industry.¹¹⁶



Canadian Auto: The Next Generation

So far, Canada has lacked the national effort needed to fully harness the EV opportunity. There are signs of progress: national electric vehicle purchase incentives and a growing network of charging stations are two examples. But such efforts are being hampered by weakening vehicle pollution standards and zero-emission vehicle sales targets that are aspirational instead of mandatory. If Canada is serious about reducing transportation emissions and building the cars of tomorrow, this needs to change, and quickly.

In short, **Canada needs a clean cars policy package that deals with both the supply and demand barriers to EV uptake.** This would help ensure Canada's auto sector captures the economic benefits of the domestic and global shift to EVs. In other words, Canada can join the likes of Europe and Asia—or we can keep spinning our wheels.

First, we need to keep growing demand. Purchase incentives lower the upfront cost of electric vehicles and stimulate consumer interest—something Canada has already seen with the high uptake of its popular Incentives for Zero-Emission Vehicles program. **Canada should amend its existing program by expanding rebates for lower-income families and offering rebates for used EVs.** Electric versions of Canada's best-selling trucks and SUVs are coming to market in the next few years. Given how much these can reduce pollution and increase cost savings for buyers compared to the gas guzzlers dominating new car sales today, programs should allow Canadians who

want to drive these vehicles to access incentives too.

Access to charging is another important demand-side policy. Canadians need to know they'll have a place to charge before they're willing to make the switch. **Canada should align charging station requirements and investments with its EV sales targets.** And it's not just about how far apart stations are from each other but also how often they're used. Canadians shouldn't be deterred by long lines in busy areas. All the while, programs must help Canadians living in apartments find charging solutions and that commercial fleets have the charging infrastructure they need too.

But as demand for electric vehicles increases, so must supply. **A national zero-emission vehicle standard will encourage automakers to prioritize the Canadian market when selling their EVs,** ensuring Canadians have more makes and models to choose from regardless of where they live. It's a policy measure supported by 84% Canadians, according to a poll by Clean Energy Canada and Abacus Data from February of 2020.¹¹⁷ Done right, a national standard can give automakers the lead time and flexibility they need, while also providing certainty that Canada will meet its goal of selling 100% zero-emission vehicles by 2040.

We also need to make sure that as long as we're still selling and buying gas-powered vehicles, they're getting cleaner over time. **Strong standards that limit tailpipe emissions will cut pollution and go a long way toward ensuring Canada meets its 2030 climate target.**

While some Canadian companies are seizing the EV

Vancouver's **Electra Meccanica** builds a one-person EV, the Solo



opportunity, by most measures our auto sector is falling behind, including when it comes to jobs: 172,000 Canadians were employed in the sector two decades ago compared to 133,000 today.¹¹⁸ To reverse that trend, Canada must align its automotive industry with the direction the world is going in.

Canada begins this journey from a position of strength. Already, we produce the Chrysler Pacifica plug-in hybrid, conventional hybrid models from Toyota and Lexus, and a number of electric buses and delivery trucks. Recent agreements with Ford and Chrysler to bring EV production to Canada will build on this foundation. And then there's our talented workforce, robust parts manufacturing, world-class research facilities, and valuable minerals—a checklist recently put forward by the federal government.¹¹⁹

But setting up Canada's auto sector to compete is going to take more than just producing EVs in existing assembly plants. **It's going to mean attracting investment from new and different EV manufacturers as well as for the development of EV components and systems, like batteries.** This will require a nimble, aggressive, and innovative approach to government policies and programs. **Canada needs a comprehensive auto sector industrial strategy with a roadmap for securing new manufacturing and investment opportunities while building out our battery supply chain.**

We have the ideas, and we must now put them into action. It's time for Canada to take the wheel and solve its car conundrum. ■

A CLEAN CARS PACKAGE FOR CANADA

DEMAND-SIDE

- ● **Carbon pricing:** Increases the price of fuel that generates carbon pollution
- ● **Financial incentives for new and used zero-emission vehicles, targeting lower- and middle-income Canadians:** Reduces the upfront cost of EVs
- ● **Public charging:** Increases access for charging away from home
- ● **EV-ready building code requirements:** Requires charging in new buildings
- **Right-to-charge requirements:** Provinces should ensure residents of multi-unit buildings have the right to install their own EV charging stations

SUPPLY-SIDE

- ● **Zero-emission vehicle standard:** Requires automakers to sell a minimum number of EVs
- **Vehicle emission standards:** Requires improvements in fuel efficiency and reductions in vehicle emissions for each model year
- ● **Clean fuel standard:** Requires fuel suppliers to reduce the carbon intensity of the fuels they sell and provides credits for alternative fuels such as electricity and hydrogen
- ● **Incentives for existing manufacturers and new zero-emission manufacturers:** Attracts EV manufacturing through direct funding, tax breaks, or other measures
- ● **Incentives to attract new manufacturers in the supply chain:** Attracts battery and other supply chain manufacturing through direct funding, tax breaks, or other measures

● Federal policy

● Provincial policy

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