

TABLE OF CONTENT

LIST OF ACRONYMS, ABBREVIATIONS AND SYMBOLS	2
SUMMARY OF RECOMMENDATIONS.....	3
INTRODUCTION ACHIEVING A ZERO-EMISSION FUTURE FOR LIGHT-DUTY VEHICLES	5
NEW, MORE AMBITIOUS TARGETS AND MAJOR ANNOUNCEMENTS.....	5
NEW MODELING SHOWS CANADA HAS SOME CATCH-UP TO DO.....	6
1. MOVING AHEAD WITH STRONG AND AMBITIOUS MEASURES	7
1.1 ADDRESSING BOTH SUPPLY AND DEMAND: A COMPREHENSIVE APPROACH TO FULLY DECARBONIZE THE LIGHT-DUTY SEGMENT .	7
1.1.2 Now is the time for a ZEV standard.....	8
1.2 DESIGNING THE RIGHT ZEV MANDATE FOR CANADA	9
1.2.1 Supply issues	9
1.2.2 Avoiding traps.....	11
1.2.3 Towards a fully decarbonized light-duty vehicle segment.....	11
1.2.4 Interim targets: key for consistency and progress assessment	12
1.2.5 Other policy design considerations	13
2. A FEEBATE SYSTEM TO PROMOTE CLEAN VEHICLES IN CANADA	14
2.1 SUCCESS STORIES	15
3. GOING ALL THE WAY: MORE ACTIONS NEED TO BE TAKEN	16
3.1 VEHICLE EMISSION STANDARDS’ LOOPHOLES NEED TO BE FIXED	16
3.2 BAN THE SCALE OF ICE VEHICLES BY 2035	17
3.3 SCALING UP EXISTING EFFORTS.....	17
3.3.1 Scaling up charging infrastructure	17
3.3.2 Scaling up awareness-raising efforts.....	18
3.4 REGULATE CAR AND LIGHT-DUTY TRUCK ADVERTISING	19
4. MAKING IZEV MORE INCLUSIVE.....	19
5. SUSTAINABLE MANAGEMENT OF END-OF-LIFE EV BATTERIES.....	20
CONCLUSION	21

LIST OF ACRONYMS, ABREVIATIONS AND SYMBOLS

\$	Canadian dollar(s)
€	Euro(s)
BEV	Battery-electric vehicle
CAD	Canadian dollar(s)
CO ₂	Carbon dioxide
ECCC	Environment and Climate Change Canada
EPA	Environmental Protection Agency
EPR	Extended Producers Responsibility
EV	Electric vehicle
g CO ₂ /km	Grams of carbon dioxide per kilometer
GHG	Greenhouse gas
ICE	Internal combustion engine
LEV	Low-emission vehicle
NRCan	Natural Resources Canada
OEM	Original equipment manufacturer
PHEV	Plug-in hybrid electric vehicle
SFU	Simon Fraser University
START	Sustainable Transportation Action Research Team
SUV	Sport utility vehicle
USD	United States dollar(s)
ZEV	Zero-emission vehicle

LIST OF FIGURES

Figure 1. ZEVs available for purchase per 100,000 people, by province

9

SUMMARY OF RECOMMENDATIONS

Moving ahead with strong and ambitious measures

1. Adopt a comprehensive ZEV strategy that will quickly see the implementation of new regulations, programs, policies and measures aiming to increase the ZEV supply and demand and that will strengthen the ones already in place;
2. Adopt a ZEV standard by the end of 2023 and:
 - Ensure that the ZEV standard's stringency will achieve 65% ZEV sales by 2030 and 100% ZEV sales by 2035;
 - Allocate one credit per ZEV sold and avoid multipliers;
 - Ensure penalties for non-compliance incentivize investment in ZEV manufacturing by setting them between \$10,000 and \$20,000 per credit deficit;
 - Apply the ZEV standard as a "backstop" to provinces that do not have strong supply-side policies in place;
 - Withdraw PHEVs as compliant vehicle type to the ZEV standard starting in 2030;
 - Align Canada's ZEV standard interim targets with either the most ambitious in North America or at least 20% ZEV sales by 2025 and 25% by 2026;
 - Include mechanisms that reward material- and energy-efficient light-duty vehicles as part of the ZEV standard and/or the broader ZEV strategy.

A feebate system to promote clean vehicles in Canada

3. Modernize and expand or replace the Green Levy program with a comprehensive, emission-based fee on the purchase of gas passenger vehicles, aligned with Canada's climate and ZEV targets;
4. Coordinate the fee structure with the iZEV purchase incentive program to implement a revenue-neutral feebate system.

Going all the way: more actions need to be taken

5. Empower the minister of Environment and Climate Change to limit or prohibit use, advertisement for sale or lease, display for sale or lease, sale or lease of ICE light-duty cars and trucks by the end of 2022;
6. Enact the 2035 100% ZEV sales target into law by 2025;
7. Pursue a variety of measures to accelerate the build out of Canada's public charging network and increase access to home charging;
8. Fund and launch programs supporting sustainable mobility campaigns and ZEV awareness-raising efforts across the country;
9. Tighten the regulatory framework for automobile advertising, with a focus on the heaviest, and most energy-consuming and polluting vehicles;

10. Lead by example by collaborating with the Canadian Broadcasting Corporation to update its advertising policy and put an end to advertising for ICE vehicles.

Making iZEV more inclusive

11. Increase investments in public transit and active transportation alternatives;
12. Adopt a scrappage program that awards active transportation;
13. Scale ZEV purchase incentives to household income;
14. Put a cap incentive eligibility based on household income (i.e. 195,000\$).

Sustainable management of end-of-life batteries

15. Adopt targets to reduce the number of vehicles on the road;
16. Focus on source reduction when it comes to battery management;
17. Ensure that battery design research and development maximize reusability and recyclability of EV batteries.

INTRODUCTION

ACHIEVING A ZERO-EMISSION FUTURE FOR LIGHT-DUTY VEHICLES

Across the country, the need for quick action to mitigate the effects of the climate crisis is already widely felt. Natural disasters are becoming more frequent in Canada, and their cost is increasing at an even greater rate. In economic terms, the average cost per disaster increased from \$8.3 million in the 1970s to \$112 million between 2010 and 2019, representing a 1250% increase.¹

With a newly adopted climate target of 40% to 45% greenhouse gas (GHG) emission reductions by 2030 and the fact that Canada's emissions are still on the rise, in large part due to the transport sector, bold and ambitious action is needed. In Canada, since 1990, transportation has experienced a 49% increase in GHG emissions, while the other sectors have succeeded in reducing their emissions, with the exception of oil and gas². This rise is mainly attributable to light-duty vehicles and freight transport; the two sub-sectors whose emissions have increased the most. In 2019, transportation accounted for 25% of GHG emissions nationally³, making it a priority sector, especially as Canada stands as the second largest emitter of CO₂ per capita among G20 countries.⁴

New, more ambitious targets and major announcements

In 2021, the federal government made new zero-emission vehicle (ZEV) commitments, including the adoption of a regulated ZEV sales requirement of 50% by 2030 and 100% by 2035. ZEV mandates have been demonstrated to be an effective and efficient way to increase ZEV supply in various jurisdictions across North America and the world.

In its climate plan released in December 2020, the government committed, among other ZEV-related engagements, to “work with partners in the year ahead on supply-side policy options to achieve additional reductions from Canada's light-duty vehicle fleet, including regulations and investments to accelerate and expand the consumer availability of ZEVs in Canada as demand grows.”⁵ More recently, in December 2021, mandate letters to federal ministers revealed the importance that the new government would give to zero-emission vehicles by including electrification and clean technology development in most responsibilities. The minister of Environment and Climate Change's mandate letter directed him to elaborate a regulatory ZEV mandate that would include both 2030 and 2035 ZEV sales targets. In short, momentum for ZEV action has never been this strong.

With a newly adopted 100% ZEV sales target and a publicly announced desire to reach 50% ZEV sales by 2030, renewed interim targets have yet to be determined. Like its climate targets, Canada is not on track to meet them: EVs represented only 5.3% of the light-duty vehicle market in the first three quarters of 2021.⁶

¹ Environment et Climate Change Canada [ECCC], [Greenhouse Gas Emissions](#), 2019

² ECCC, [National Inventory Report 1990-2019: Greenhouse gas sources and sinks in Canada](#), 2019

³ ECCC, [National Inventory Report 1990-2019: Greenhouse gas sources and sinks in Canada](#), 2019

⁴ ECCC, [National Inventory Report 1990-2019: Greenhouse gas sources and sinks in Canada](#), 2019

⁵ Government of Canada, [A Healthy Environment and a Healthy Economy](#), 2020

⁶ Jarrat, Emma, [Canadian auto registration data for Q3 2021 shows power of provincial incentives to drive EV adoption](#), *Electric Autonomy*, 2021

New modeling shows Canada has some catch-up to do

Recent analysis conducted by Dr. Jonn Axsen from the Sustainable Transportation Action Research Team (START) at Simon Fraser University (SFU)⁷ found that **Canada's current policies aiming to decarbonize light-duty vehicles will bring the country nowhere near where it needs to be to achieve its GHG emission reduction targets nor its ZEV sales targets.** The analysis modeled Canada's existing policies as of September 2021 and looked at Canada's 2030 and 2035 EV sales targets, as well as its economy-wide 2030 GHG reduction target applied to the portion of national emissions passenger vehicles are responsible for. Even in the most optimistic scenarios (i.e. assuming low battery prices, high gasoline prices, positive consumer preferences, and full deployment of charging infrastructure), these policies will bring a ZEV market share that does not exceed 43% by 2035. Other conclusions from this key modeling research project are discussed in upcoming sections.

Équiterre, the David Suzuki Foundation and Environmental Defence remain optimistic relating to key learnings from Environment and Climate Change Canada's Spring 2021 consultations on ZEVs, particularly the continued need for a holistic approach combining regulations with complementary measures aimed at boosting demand, such as incentives, infrastructure and consumer awareness and education. Among other key conclusions, we emphasize the following:

- A ZEV standard can drive transformational change and create the market certainty necessary to accelerate the transition to ZEVs and to make decisions and long-term investments required (e.g., electricity generation and distributors);
- A ZEV standard can drive electrification while providing a strong long-term investment signal;
- Accelerated ZEV uptake can be supported by aligning with the most ambitious ZEV standards in the United States (i.e. California) and a consistent national approach within Canada.

We also recognize that the federal government is under a lot of pressure from vehicle manufacturers, knowing that their main business and source of profits remain selling fossil fuel powered vehicles. These manufacturers have argued that instead of a ZEV standard, the federal government should rely on existing policies, voluntary efforts by industry, evolving consumer preferences and technological trends to gradually achieve a market shift to ZEVs. This submission, supported by new modeling, makes it clear that a voluntary approach would result in lagging ZEV sales, missed targets and higher levels of emissions, leaving Canada lagging far behind other advanced economies.

Another argument advanced by legacy auto manufacturers is that they cannot pivot their production to ZEVs in time to meet credit requirements or that doing so will be uneconomic. We argue that experience shows otherwise. OEMs were able to comply with British Columbia and Québec's standards, despite their objections as these regulations were being formulated. Furthermore, we see that between unveiling its F-150 Lightning in May 2021, Ford has twice announced a doubling in production capacity.⁸ Other OEMs have accelerated their timelines for ending ICE vehicle sales and have announced ambitious investments in ZEV manufacturing. In the European Union, 2021 ZEV sales were already around 20% in many member countries.

⁷ Axsen, John & Chandan Bhardwaj, Analysis and Research on Policy Pathways to 100% Zero-Emission Vehicles by 2035 in Canada, *START*, 2022 (attached).

⁸ Klayman, Ben and Joseph White, [Ford doubles Lightning production target on strong pre-launch demand - sources](#), *Reuters*, 2021; Ford, [Full speed ahead: Ford planning to nearly double all-electric F-150 Lightning production to 150,000 units annually; first wave of reservation holders invited to order](#), 2022

At the core of the comprehensive strategy that Équiterre, the David Suzuki Foundation and Environmental Defence support, is an ambitious ZEV standard, accompanied by more stringent vehicle emission standards and a new feebate system, which could get Canada where it needs to be by 2030 and by 2035.

1. MOVING AHEAD WITH STRONG AND AMBITIOUS MEASURES

In addition to exploring policy pathways to reach ZEV sales targets, ECCC's current consultations on the decarbonization of the Canadian car and light truck fleet offer the opportunity to discuss the issue of vehicle size and weight. While adopting policies and regulations aiming to decrease fossil fuel reliance are key to achieving our climate targets, another important issue is how the light duty vehicle fleet continues to grow both in number and size. Large vehicles in large numbers, even if zero emission, worsen congestion, make city streets less safe, erode livability and undermine public health. This calls for a broader rethink of our long-term vision for transportation and mobility across the country to ensure that it is compatible with the ideals of an ecologically sustainable transition that will contribute to Canada's fair share of emissions reductions and reduced material demands on a global scale.

1.1 Addressing both supply and demand: a comprehensive approach to fully decarbonize the light-duty segment

First, voluntary approaches have obviously failed. Automakers in North America have come out in support of vehicle electrification publicly, but their actions suggest that many firms believe that the slower this transition comes about, the better for their bottom line. Car makers aggressively market SUVs and trucks while doing comparatively little to promote EVs. According to a study by Équiterre evaluating automobile advertising in Canadian daily newspapers and magazines, 79% of them exclusively or mainly promoted light trucks⁹, thus slowing the electrification of light-duty vehicles by fueling demand for these vehicles. Their business plans are predicated on selling more SUVs and trucks and few EVs, and they make little effort to disguise the financial rationale underlying this approach. Ford's annual report from 2019 laid it out quite clearly in saying "[a] shift in consumer preferences away from larger, more profitable vehicles (including trucks and utilities) [...] could result in an immediate and substantial adverse effect on our financial condition." In plain terms, if Ford doesn't keep selling lots of SUVs and trucks, they will make less money.¹⁰

Faced with the constant increase in GHG emissions in transportation, in particular due to the rise of light-duty trucks, it is obvious that voluntary approaches do not work. Moreover, despite the adoption of light-duty vehicle GHG emission regulations in 2012, Canada now has the reputation of having the most polluting vehicles in the world.¹¹

⁹ Équiterre, Limitless – Car advertising in Canada : Practices, regulatory framework and recommendations, 2021

¹⁰ Environmental Defence, Car Wars: EVs versus SUVs and the battle for a cleaner future, 2021

¹¹ Équiterre, Limitless – Car advertising in Canada : Practices, regulatory framework and recommendations, 2021

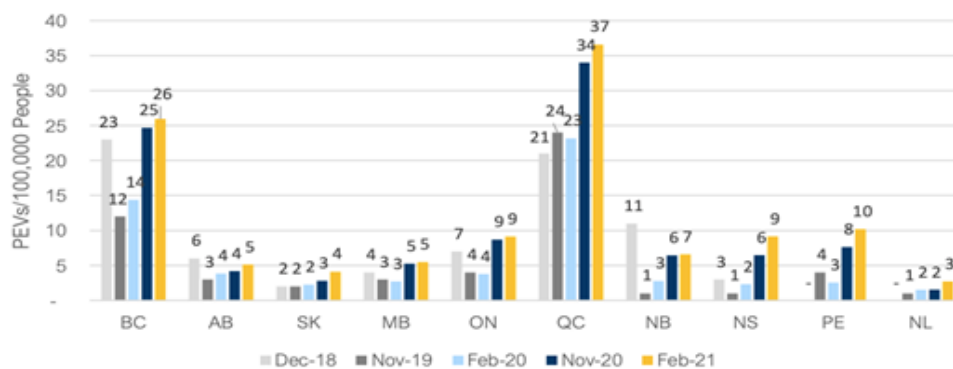
Recommendation

Adopt a comprehensive ZEV strategy that will quickly see the implementation of new regulations, programs, policies and measures aiming to increase the ZEV supply and demand and that will strengthen the ones already in place.

1.1.2 Now is the time for a ZEV standard

Clearly, a voluntary approach in Canada would result in the status quo of the imbalance seen between provinces (see Figure 1), where a ZEV standard and other policies favoring ZEVs are in place and those where this is not the case. **Logically, automakers prioritize selling their ZEVs in jurisdictions where a certain percentage of ZEV sales is required to avoid penalties.**

Figure 1. ZEVs available for purchase per 100,000 people, by province



Source: Dunsky Energy + Climate, 2021

Moreover, according to a study by Équiterre, the absence of a ZEV standard would lead to heavy dependence on subsidies from the iZEV program from consumers in the foreseeable future¹², highlighting the interrelation between supply and demand and the need to act ambitiously on both fronts.

As a quick reminder, ZEV standards are beneficial on many fronts. According to START, they are among the top three types of national policies to have a significant impact on ZEV sales, while remaining reasonably acceptable to the public¹³. Their adoption also sends a “clear transformational signal”¹⁴ to both automakers and consumers.

A national ZEV standard would accelerate the transition to ZEVs across the continent; automakers ask to operate with a minimum level of certainty that such a policy tool can provide. According to the International Council on Clean Transportation, they’d rather “sell the same vehicle models in Canada and in the United States.”

We are concerned that relying on emissions standards in the near term will leave Canada at a high risk of missing its 2030 target. The U.S. EPA released its final Revised 2023 and Later Model Year Light-

¹² Équiterre, Accelerating the transition to electric mobility in Canada: The case for a zero-emission vehicle mandate, 2017

¹³ Sustainable Transportation Action Research Team [START], Canada’s ZEV Policy Handbook, 2017

¹⁴ START, Canada’s ZEV Policy Handbook, 2017

Duty Vehicle GHG Emissions Standards released in December 2021.¹⁵ These rules automatically apply in Canada, and while they will support emissions reductions, these reductions will largely be met through improvements to conventional powertrains and at best will deliver about 17% ZEV sales by 2026. Given that the 50% target comes a mere four years later, a ZEV standard is needed to ensure 2026 sales are considerably higher.

Modeling by SFU’s START team shows that a ZEV mandate is cost-effective: “the ZEV mandate’s cost-effectiveness stems from its direct focus on the ZEV sales goal and the range of strategies it allows automakers to use to comply (e.g. R&D investment, cross-price subsidies, increased vehicle variety, and increased charging availability).”¹⁶ Shown in START’s report, Figure 12 is clear about the potential of a ZEV standard and stronger vehicle emission standards (VES)¹⁷ combination to bring Canada to its 2035 ZEV sales target.¹⁸ With regards to GHG emission reductions, Figure 15 shows that this same combination can exceed the 2035 target¹⁹. **In short, a strong and ambitious policy mix that includes a ZEV standard can bring Canada where it needs to be by the end of a decade.** What’s more, the modeling also shows that scenarios that include ZEV standards are the most cost-effective.

Lastly, the ZEV standard also acts as a protection for Canada’s GHG emission reduction efforts, with whatever scenario unfolds in the United States. According to recent history, tailpipe emission regulation rollbacks are always a possibility. In the opposite scenario, which would see Biden pass the Build Back Better Plan and its proposed \$12,000 EV tax credit, a ZEV standard would ensure that EV supply continues to grow in Canada.

Recommendation

Adopt a ZEV standard by the end of 2023.

1.2 Designing the right ZEV mandate for Canada

The urgency of establishing a federal ZEV standard has only grown over the years. The success in increasing ZEV sales noted in Quebec and British Columbia demonstrates **the need to act on the ZEV supply**, because in the rest of the country, **it remains insufficient and unbalanced**. In the spring of 2021, the ENVI Committee, in its report on ZEVs, recommended “that the Government of Canada work with industry and the provinces and territories to establish a national ZEV standard, while respecting constitutional responsibilities and the deep integration of the North American automotive market”.²⁰

1.2.1 Supply issues

EV supply is a major issue everywhere in Canada, even in jurisdictions where there is a ZEV standard in place. For example, in Québec, the ZEV mandate (currently under review) lacks stringency and is therefore no longer sufficient to provide supply that is able to meet the demand. Recent polling data

¹⁵ Unites States Environmental Protection Agency [EPA], Final Rule to Revise Existing National GHG Emissions Standards for Passenger Cars and Light Trucks Through Model Year 2026, 2021

¹⁶ Axsen, John & Chandan Bhardwaj, Analysis and Research on Policy Pathways to 100% Zero-Emission Vehicles by 2035 in Canada, *START*, 2022 (attached)

¹⁷ Based on those in place during Summer 2021.

¹⁸ Axsen & Bhardwaj, Analysis and Research on Policy Pathways to 100% Zero-Emission Vehicles by 2035 in Canada, *START*, 2022 (attached)

¹⁹ Or ZEV standard + feebate, ZEV standard + VES + feebate

²⁰ ENVI Committee, Report 3 – The Road Ahead: Encouraging the Production and Purchase of Zero-Emission Vehicles in Canada, 2021

from Équiterre gathered as part of its Running Electric campaign shows that limited supply is an increasingly important reason for consumers not to buy EVs while high prices are decreasing.²¹

A new report by Dunsy Energy + Climate commissioned by Transport Canada notes key information that confirms the need for a ZEV standard, despite the fact that progress was made in the past year. Indeed, the report notes that inventory levels increased significantly compared to previous reports, but “a majority of dealerships in Canada still have no ZEVs in stock” and long waiting periods remain a barrier to ZEV adoption. 64% of Canadian dealerships surveyed reported wait times between 3 to 6 months or more before a consumer can drive their new EV home.²²

What’s more, 92% of Canada’s light-duty ZEV inventory was located in Québec, British Columbia and, to a lesser extent, in Ontario in 2021 (compared to 93% in 2020). Québec alone had 50% of inventory in both 2021 and 2020. More balanced supply is key to working effectively towards our climate and electrification targets.

Supply needs to meet the needs of Canadians and offer various makes and models. Uneven distribution is likely to widen the gap between British Columbia and Québec, and the other provinces. As of February 2021, a shopper in Québec, “would have had up to 36 ZEV models to choose from, whereas shoppers in Prince Edward Island and Newfoundland and Labrador would only have seen 7 models in dealership inventories.”²³

Long wait times and lack of variety in inventory are two issues that can be solved by a strong ZEV mandate. In sum, the status quo in terms of public policy is unlikely to lead to nationwide electrification in the face of provinces that are making rapid progress in this sector.²⁴

2018-2020 report on the implementation of the Act to increase the number of zero-emission vehicles in Québec in order to reduce greenhouse gas and other pollutant emissions (ZEV Act)

“One of the targets of the ZEV standard is to ensure broader model availability and a greater number of vehicles at car dealerships so as to meet the needs of consumers and shorten waiting lists.

When the ZEV Act was adopted in 2016 only 66% of models available in California were also marketed in Québec. Today, that figure is close to 85%. Some motor vehicle manufacturers have clearly stated that they are prioritizing Québec within the Canadian market due to the ZEV standard. Not only does Québec have regulatory requirements, but the ability to alienate surplus credits provides manufacturers with business opportunities to incentivize making more vehicles and models available.”²⁵

²¹ These poll results can be shared on demand.

²² Ekos Research Associate, Canadians’ Awareness, Knowledge and Attitudes Related to Zero Emission Vehicles (ZEVs), commissioned by *Natural Resources Canada (NRCan)*, 2021

²³ *Dunsy Energy + Climate*, Plug-In Electric Vehicle Availability, 2021

²⁴ *Dunsy Energy + Climate*, Plug-In Electric Vehicle Availability, 2021

²⁵ *Ministère de l’Environnement et de la Lutte contre les changements climatiques du Québec*, Act to increase the number of zero-emission vehicles in Québec in order to reduce greenhouse gas and other pollutant – 2018-2020 Implementation Report, 2021

Recommendations

- Ensure that the ZEV standard's stringency will achieve 65% ZEV sales by 2030, 100% ZEV sales by 2035.
- Allocate one credit per ZEV sold and avoid multipliers.
- Ensure penalties for non-compliance incentivize investment in ZEV manufacturing by setting them between \$10,000 and \$20,000 per credit deficit.
- Apply the ZEV standard as a "backstop" in provinces that do not have strong supply-side policies in place.

1.2.2 Avoiding traps

Given the popularity of SUVs and other light-duty trucks, which are currently canceling out the GHG emission reductions gained through electrification, the stringency of Canada's ZEV standard must reflect the climate emergency and be aligned with government electrification targets. In this regard, the Québec case is instructive. According to the ZEV Act compliance report, "the credits earned to date by the industry as a whole (including bonus credits for the first compliance period) would suffice to meet the requirements of compliance period 2019-2021, even if motor vehicle manufacturers sold no more electric vehicles between now [January 2021] and September 1, 2022, on condition that credits continue to be exchanged or sold between motor vehicle manufacturers."²⁶ This situation shows that motor vehicle manufacturers are able to comply with the standard in advance. It also indicates that demand still outpaces supply for certain vehicle models and waiting lists can therefore be very long. We note that the Québec government had no choice but to tighten its ZEV standard and increase credit requirements, although the new versions have not yet been published. With Canada's new 2025 target, policy design that is based on strong data allows the federal government to avoid this issue.²⁷

It is therefore recommended that the federal government establish a stringent ZEV standard from the start to avoid situations that persist for several more years whereby many consumers will continue to show up at dealerships that do not have any ZEVs for sale on their lot.

Finally, a federal ZEV standard will serve as an insurance policy against provincial inaction on the problem of transportation sector emissions.

1.2.3 Towards a fully decarbonized light-duty vehicle segment

Équiterre, the David Suzuki Foundation and Environmental Defence are concerned with the amount of credits granted to BEVs and low-emission vehicles (LEVs). To ensure that North American jurisdictions where a ZEV standard is in place do not capture the majority of BEVs, it is crucial to standardize regulations across the country, in particular in close collaboration with British Columbia and Québec, to maintain balance and promote an equitable distribution of ZEVs, as well as to guarantee the eventual phaseout of PHEVs in the post-fossil world. Logically, **automakers send their ZEVs to jurisdictions where a mandate is in place**. The same principle applies for places where the

²⁶ *Ministère de l'Environnement et de la Lutte contre les changements climatiques du Québec, Act to increase the number of zero-emission vehicles in Québec in order to reduce greenhouse gas and other pollutant – 2018-2020 Implementation Report, 2021*

²⁷ *Ibid.*

credits offered for PHEVs have a similar value to those offered for fully electric vehicles, favoring the former, since they currently remain easier to sell.

Federal ZEV policy—be it in the form of a mandate supported by a feebate scheme or not—should prefer BEVs over PHEVs.²⁸ To earn compliance credits, the minimum all electric range should be set at 80 kilometers to ensure that most commuting can be powered by electricity. Certainly, after 2030, PHEVs should not count towards compliance with a ZEV mandate. Recent modeling from START, which assumes that consumers will continue to prefer PHEVs over BEVs out to 2035 and that the upcoming federal ZEV mandate is technology neutral, shows that between 57 to 64% of vehicles sold in 2035 would be PHEVs—and have a tailpipe.²⁹ Such an outcome would be highly undesirable, given how it would lock in future fossil fuel demand and emissions until those PHEVs are retired. Indeed, we are optimistic that, with the right policy support, many Canadians will skip over PHEVs and choose BEVs, especially as 2030 approaches.

Out of the three ZEV standard scenarios, the BEV-only mandate starting in 2030 would bring the BEV share of new vehicles sold to 100% by 2035.³⁰ Figure 20 of START’s report shows that the two policy mixes that lead to the most important GHG emission reductions by 2035 are the combination of a BEV-only ZEV standard (starting in 2030) with strong VES, and the combination of BEV-only ZEV standard with strong VES and a feebate system.³¹ The modeling also concludes that, among three different types of ZEV standards, the BEV-only scenario³² leads to 33% GHG emission reductions by 2035 and is relatively cost-effective (\$295/tonne) compared to a ZEV standard that is neutral towards BEVs and PHEVs (25% GHG emission reductions at \$268/tonne) and to a ZEV standard that limits PHEVs to 50% in 2030 (31% GHG emission reductions at \$277/tonne).

Since emissions from the transport sector are still on the rise, we recommend that PHEVs no longer be eligible under the national ZEV standard by 2030. Getting to net zero by 2050 will remain wishful thinking as long as individual travel remains dependent on fossil fuels, and the cost of delaying these GHG emission reductions is expected to be much higher (see section Introduction).

Recommendation

Withdraw PHEVs as an eligible vehicle type under the ZEV standard starting in 2030.

1.2.4 Interim targets: key for consistency and progress assessment

Équiterre, the David Suzuki Foundation and Environmental Defence strongly advocate for interim targets. Given Canada’s poor track record at bringing down transportation sector emissions, and the fact that the more emissions reductions are front loaded, the better from a climate stability point of view, we note that a decision to forgo putting interim targets in place would increase the risk that the sector’s emissions will remain unacceptably high. In June 2021, the federal government committed to revisiting its 2025 target (now set at 10%). With more ambitious 2030 and 2035 targets, there is no

²⁸ We recognize that until price parity is met, PHEVs can play an important role in allowing lower income families to forgo a conventional ICE vehicle and thereby lower emissions.

²⁹ Axsen & Bhardwaj, Analysis and Research on Policy Pathways to 100% Zero-Emission Vehicles by 2035 in Canada, *START*, 2022 (attached)

³⁰ *Ibid.*

³¹ *Ibid.*

³² Starting in 2030.

way this target is still relevant today. Indeed, vehicle emission standards are expected to result in 14% ZEV sales in the U.S.³³, so a 2025 target of at least 20% is warranted.

The massive supply problem underlined in previous subsections needs to be addressed, and interim targets will do just that. Every year we delay, tens of thousands of new gas-powered cars and trucks appear on Canadian roads for at least a decade, while ZEVs multiply on foreign roads. Waiting until 2030 would be a waste of precious time. In fact, it would also mean giving up on potential course correction, as well as on earlier increases in fuel efficiency.

Let's compare the ZEV standard to federal carbon pricing, which has a key attribute: its predictability. The market is able to adjust to future conditions in anticipation of them. An incremental approach, as seen in Québec and in British Columbia, is what will force the automobile industry to comply and to increase fuel efficiency over time, without mentioning more actors who also need certainty to operate: charging station suppliers, battery recyclers, electricity and grid managers, distributors, etc.

Finally, with the right policies in place, Canada will eventually get to a point where new megatons of GHG emission reductions will be hard to identify. With their efficiency having been proven in various jurisdictions across the continent, it makes no sense to skip these interim targets.

And these incremental targets should come soon. Reflecting on Québec's experience, which adopted a ZEV standard in 2016 and the first compliance period having started in 2018, if a national mandate was adopted by the end of 2022, compliance could start as soon as 2024.

Back in 2016, Québec chose to align with California, the jurisdiction that had the most ambitious ZEV targets on the continent back then. Following the same logic, Canada should now follow suit. With both British Columbia's and Québec's interim targets currently under review, the federal government will have to assess which jurisdiction it should align with in order to ensure that the 2030 and 2035 targets are achieved.

We also advocate for a more ambitious 2030 target. The 2030 target in California is 61%, in Quebec it is 65% and in British Columbia. it is 90%. We recommend a 2030 target of 65%, and note that it will better support achievement of Canada's climate targets.

Recommendation

Align Canada's ZEV standard interim targets with either the most ambitious in North America or at least 20% ZEV sales by 2025 and 25% by 2026.

1.2.5 Other policy design considerations

As mentioned, the growing preference of Canadians for larger vehicles—whether ICEs or ZEVs—is not sustainable and is undermining health and livability in Canadian cities. The transition away from ICE vehicles must also serve as an opportunity to optimize resource extraction and energy efficiency. As such, the design of Canada's ZEV standard and broader ZEV and sustainable transportation strategy should include, as much as possible, mechanisms that reward material, energy and carbon efficiency (i.e. through weight, height or length criteria).

³³ The EPA's Regulatory Impact Analysis indicates that the final standards are expected to deliver 10% ZEV sales by 2023, 12% by 2024, 16% by 2025, and 17% by 2026. Source: EPA, [Final Rule to Revise Existing National GHG Emissions Standards for Passenger Cars and Light Trucks Through Model Year 2026](#), 2021

Furthermore, to reduce collisions and to improve pedestrian and cyclist safety, consideration should be given to limiting vehicle speed and acceleration, and more attention is needed to such issues as a vehicle height on mortality in instances of impact. A [Fall 2021 report](#) by Équiterre shows that, in Québec, SUVs are involved in collisions with pedestrians 2.5 times more often than other types of light-duty vehicles.

The same report explores additional consequences associated with the transformation of the Canadian vehicle fleet: climate and environment, electrification, natural resources exploitation, public health, traffic, economy and household finances. And the portrait doesn't look good.

Recommendation

Include mechanisms that reward material- and energy-efficient light-duty vehicles as part of the ZEV standard and/or the broader ZEV strategy.

2. A FEEBATE SYSTEM TO PROMOTE CLEAN VEHICLES IN CANADA

Between 1990 and 2019, the number of SUVs and pickups on Canadian roads increased by 296%³⁴, and now make up more than four of five new vehicles sold.³⁵ With transportation GHG emissions still on the rise, it is clear that this shift in vehicle choice is not compatible with Canada's climate targets.

And as the number of ZEVs on the road increases, the amount of money spent by the federal government to maintain the iZEV program is meant to increase substantially in the next couple of years. Fortunately, a feebate system is the right policy tool to reduce pressure on the federal budget—especially if it focuses on promoting small, energy-efficient vehicles.

In the absence of a ZEV mandate, recent investments to boost demand for ZEVs, which included replenishment of the iZEV program, were applauded by environmental organizations. As of November 30, 2021, this program has supported the purchase of almost 126,000 ZEVs³⁶ and likely contributed to the uptake in ZEV sales during this period. However, even taking the \$5,000 iZEV rebate into account, a price differential remains between most ZEVs and gas vehicles in the same class, especially with the arrival of light-duty trucks on the market, and this reality influences consumer choices. A recent poll sponsored by Natural Resources Canada (NRCan) shows that a clear majority of Canadians (63%) believe that ZEVs are too expensive.³⁷

To both increase the effectiveness and reduce the costs of the federal government's existing iZEV and Green Levy programs, Équiterre, the David Suzuki Foundation and Environmental Defence recommend introducing an environmental fee, which would rise with a vehicle's fuel consumption and emissions, on sales of all ICE vehicles, phased in over time. Revenues would then be recycled to offset federal support for ZEV purchases.

³⁴ Équiterre, [Comprendre la hausse des camions légers au Canada afin de renverser la tendance : Synthèse](#), 2021

³⁵ ECCC, [National Inventory Report 1990-2019: Greenhouse gas sources and sinks in Canada](#), 2019

³⁶ Transport Canada, [Zero-emission vehicles - Program statistics](#), 2022

³⁷ Ekos Research Associate, [Canadians' Awareness, Knowledge and Attitudes Related to Zero Emission Vehicles \(ZEVs\)](#), commissioned by NRCan, 2021

The proposed fee would modernize and expand or replace the Green Levy program, which applies primarily to large SUVs and luxury vehicles, and the recently added luxury vehicle tax announced in the 2021 federal budget for vehicles over \$100,000. These existing initiatives cover only a small portion of the passenger vehicle market, involve weak disincentives, and are inefficient in driving GHG emission reductions.³⁸ An expanded environmental fee on sales of ICE vehicles must be more than symbolic and the revenues recycled by reducing the cost of ZEVs, thereby replacing the iZEV program.³⁹

Recent analysis by SFU's START demonstrates the viability of a feebate scheme and the range of fees and incentives needed to increase ZEV market share.⁴⁰ Figure 22 is particularly clear about the potential of a feebate to reduce government expenditures. The fees and rebates should be incrementally adjusted over time as the market adapts. Equity considerations should be considered in the design of the program, as discussed in an Équiterre-commissioned report published in late 2020.⁴¹

The federal government should consider consolidating administration of the environmental fee and iZEV programs. A consolidated "feebate" system would ensure alignment of policy objectives and allow the government to review and adjust both measures in parallel against a shared set of indicators. In addition to influencing demand, a well-designed feebate system is expected to support other supply-side measures and send a strong market signal to accelerate the decarbonization of light-duty vehicles, while also encouraging investment in domestic ZEV manufacturing.⁴²

2.1 Success stories

The United Kingdom, the Netherlands, and France all set 2035 as the year by which ICE vehicles will be banned, while also having a bonus-malus scheme. Partly because of its feebate system, introduced in 2008, France exceeded its targets ahead of schedule, achieving a reduction in average emissions from its light-duty vehicle fleet of 126 g CO₂/km in 2017, and an increase in the market share of new ZEVs to about 10% in 2019.⁴³

In France, a combo combining a ban on the sale of internal combustion engine (ICE) vehicles with a tax on higher-polluting vehicles, in addition to generous subsidies for the purchase of EVs, has tripled ZEV sales between 2019 and 2020.⁴⁴ In January 2021, a new weight tax was introduced: vehicles that weigh more than 1,800kg are taxed at a rate of €10 for every additional kilogram.

Sweden, which set 2030 as the year by which it will have phased out ICE vehicles, also has a feebate system and has seen ZEV uptake increase from just above 5% at the end of 2017 to over 25% by the end of 2019.⁴⁵

³⁸ Asadollahi, Amin & Trevor Rous, *The Road Ahead to Low-Carbon Mobility: A Feebate System for Canada's Light-Duty Vehicle Segment*, Horizon Advisors, commissioned by Équiterre, 2020

³⁹ Bubbers, Matt, *The federal budget's new tax on luxury cars is just a smokescreen*, 2021

⁴⁰ Axsen & Bhardwaj, Analysis and Research on Policy Pathways to 100% Zero-Emission Vehicles by 2035 in Canada, START, 2022 (attached)

⁴¹ Asadollahi, Amin & Trevor Rous, *The Road Ahead to Low-Carbon Mobility: A Feebate System for Canada's Light-Duty Vehicle Segment*, Horizon Advisors, commissioned by Équiterre, 2020

⁴² Ibid.

⁴³ Ibid.

⁴⁴ Clean Energy Canada, *Taking the Wheel : How Canada can cut carbon pollution and revitalize its auto sector*, 2020

⁴⁵ Ibid.

Recommendation

Modernize and expand or replace the Green Levy program with a comprehensive, emission-based fee on the purchase of gas passenger vehicles, aligned with Canada's climate and ZEV targets.

Coordinate the fee structure with the iZEV purchase incentive program to implement a revenue-neutral feebate system.

3. GOING ALL THE WAY: MORE ACTIONS NEED TO BE TAKEN

In addition to an adequate ZEV standard, other policies can support the transition to clean vehicles. This section explores complementary measures that will contribute to accelerating ZEV uptake across the country. Let's not forget that the quicker we decarbonize the transportation, the quicker all Canadians benefit from improved air quality. Health Canada estimates that more than 15 300 premature deaths are related to air pollution every year, with a total economic value of 120 billion dollars.⁴⁶

3.1 Vehicle emission standards' loopholes need to be fixed

The Canadian light-duty vehicle emission standards currently have major flaws that favor oversized vehicles. These must be fixed to speed up the decarbonization of road transport. These loopholes are detrimental to the effectiveness of the standards and must be urgently addressed in preparation for the development of post-2025 standards.

Currently, standards are set based on the "footprint" of vehicles and are therefore less stringent for vehicles with larger footprints. In doing so, as the manufacture of larger vehicles increases, the overall CO₂ emission limit also increases, as it is set as the average of these size-based limits. This design creates perverse incentives.⁴⁷ The continued rise of light-duty trucks, including crossovers at the expense of sedans, is a notable consequence of this gap, as it becomes less constraining to manufacture larger, more polluting vehicles. This is also a reminder of the ineffectiveness of the voluntary approaches proposed by the auto industry to meet Canada's electrification goals. Inevitably, these standards must be reviewed to slow the increase in average vehicle size and reverse the trend.

Establishing an overall threshold on average CO₂ emissions from light-duty vehicles is thus essential. This limit would be applied to all manufacturers, regardless of the size and weight of light-duty vehicles sold.

Additionally, addressing the binary division of light-duty vehicles is also key, with SUVs - even the smaller ones - and pickup trucks being put into the same category as commercial and fleet vehicles and therefore being submitted to less stringent emission standards.

⁴⁶ Health Canada, [Outdoor air pollution and health: Overview](#), 2022

⁴⁷ Rhodes, Ekaterina, William A. Scott, and Mark Jaccard. 2021. "Designing Flexible Regulations to Mitigate Climate Change: A Cross-Country Comparative Policy Analysis." *Energy Policy* 156 (September): 112419. <https://doi.org/10.1016/j.enpol.2021.112419>.

Recommendations

- Collaborate with the United States' Environmental Protection Agency to fix existing loopholes in vehicle emission standards and adopt a new light-duty vehicle classification system that reflects the current vehicle supply.
- Limit compliance flexibilities in the pre-2025 U.S-Canada vehicle emission standards, including by eliminating EV multiplier credits.

3.2 Enact the 2035 ICE vehicle ban

Combined with a federal ZEV standard that meets the urgency of the climate crisis, this measure has the advantage of sending a clear signal to the automobile industry, as well as providing the certainty it seeks to operate in the medium term. The ban on the sale of ICE vehicles requires the implementation of complementary measures, including sufficiently ambitious interim targets, to enable its achievement and thus plays an incubator role in light-duty vehicle decarbonization. This vast discussion also feeds into the public debate on the future mobility of Canadians: land use planning, public transit offer, active transportation infrastructures, advertising of gas-powered vehicles, public education and support for consumers, etc. are all angles to explore.

In this regard, in Québec, the ban on the sale of ICE vehicles in 2035, announced in the Plan for a Green Economy 2030, has led to the review of its ZEV standard: "To ensure adequate supply and availability of electric vehicles on the market, in both numbers and variety, the government also intends to strengthen its standard on zero-emission vehicles - the ZEV standard - which encourages manufacturers to offer such vehicles." Incorporating the ban into the legislative and regulatory framework is therefore helpful in driving ZEV ambition. Québec is now in the process of empowering the Minister of the Environment and Climate Change to ban the sale and lease of certain classes of vehicles or engines through Bill 102. Canada should follow suit.

From a communication standpoint, one of the benefits of announcing a formal ban on ICE is that it reduces the social acceptability of the most fuel-inefficient vehicles well before the year 2035. This sure represents a major step forward in the current Canadian context.

Recommendations

- Empower the minister of Environment and Climate Change to limit or prohibit use, sale or lease offer, advertisement for sale or lease, display for sale or lease, sale or lease of all categories of light-duty cars and trucks by the end of 2022.
- Enact the 2035 100% ZEV sales target into law by 2025.

3.3 Scaling up existing efforts

As part of the broader ZEV strategy the federal government needs to adopt, two sectors are key in locking in growth demand for ZEVs in addition to an increase in ZEV subsidies within a new feebate system.

3.3.1 Scaling up charging infrastructure

Automakers like to say that charging infrastructure is insufficient in relation to the ZEV deployment that Canada is targeting. However, it's rather the opposite: private investments in charging

infrastructure follow the EV adoption curve. In other words, **charging infrastructure and grid readiness will be best served by the regulatory certainty a ZEV standard and its various interim targets provide since they will ensure growth in ZEV uptake.**

It is worth mentioning that, according to a recent NRCan poll, more than half of Canadians (53%) agree that there are too few, if any, publicly available charging stations where they drive, fewer than half agree that they can charge a ZEV at their home (47%), and even fewer agree they can charge a ZEV at their workplace (18%).⁴⁸ To address this, Équiterre, the David Suzuki Foundation and Environmental Defence recommend to deploy the following measures:

- Conduct modeling to better understand Canada’s precise charging needs to support ZEV sales targets, and target public investments most effectively;
- Re-fund the Zero Emission Vehicle Infrastructure Program (ZEVIP) and Electric Vehicle and Alternative Fuel Infrastructure Deployment Initiative (EVAFIDI) programs with \$700 million over 5 years, limit eligibility to EV infrastructure (i.e., natural gas and hydrogen refueling should be ineligible) and continue relying on third party administrators to accelerate deployment;
- Include EV-readiness requirements in the National Model Building Code;
- Allocate \$1 billion over five years to a new EV Ready Incentive Program that supports upgrades to existing multifamily buildings, workplaces and fleet facilities;
- Expand the greener homes grant to include electrical panel upgrades and EV chargers.

Lastly, the federal government should lead by example. This could be done in various ways, including by ensuring that all crown societies across the country are equipped with charging stations.

Recommendations

- Pursue a variety of measures to accelerate the build out of Canada’s public charging network and increase access to home charging.
- Ensure that all crown societies’ parking lots across the country are equipped with charging stations.

3.3.2 Scaling up awareness-raising efforts

Public education is another essential element of the transition. The ENVI Committee recommends “that the Government of Canada explore ways, in partnership with industry, provinces and territories, to better inform the public and dealerships about ZEVs.”⁴⁹

Additionally, according to a new report published by NRCan, 66% of Canadians have no direct experience with ZEVs, and 43% of those who do not own an EV said that they did not consider purchasing one. The poll says a lot about the giant ahead of the federal government: ensuring quick and adequate public awareness relating to ZEVs. Among other notable results, Équiterre, the David Suzuki Foundation and Environmental Defence note that:

- 46% of respondents are unsure whether the repair and maintenance costs for a ZEV are lower than for a gas or diesel-powered vehicle;

⁴⁸ Ekos Research Associate, Canadians’ Awareness, Knowledge and Attitudes Related to Zero Emission Vehicles (ZEVs), commissioned by NRCan, 2021

⁴⁹ ENVI Committee, Report 3 – The Road Ahead: Encouraging the Production and Purchase of Zero-Emission Vehicles in Canada, 2021

- Fewer than half say they are familiar with the potential to charge (“fuel up”) the battery at their home (49%), how far a ZEV can go on a fully charged battery (46%) or how the “fueling up” process works when electricity powers a vehicle (43%).⁵⁰

For attitudinal questions about ZEVs, from 14 to 52% of Canadians could not provide a response to the questions asked. These results are quite revealing: they show a general lack of knowledge about ZEVs and confirm the need for more public education and, more broadly, on sustainable mobility.

Recommendation

Fund and launch programs supporting sustainable mobility campaigns and ZEV awareness-raising efforts across the country.

3.4 Regulate car and light-duty truck advertising

More stringent regulation of automobile advertising must be deployed. As of January 2022, no regulation exists to restrict the amount of ICE vehicle ads, the share of large vehicles promoted, the content of light-duty vehicle ads, such as the representation of nature, or to require a certain ZEV advertisement quota and the display of information relating to fuel consumption. Such measures currently exist in several European countries, as well as Australia and New Zealand notably.⁵¹

While light-duty vehicles are used between 10 and 15 years on average, we suggest that the promotion and advertising of gas-powered vehicles be monitored more closely and limited. It is a matter of consistency: it is inconceivable to maintain the status quo, or self-regulation within the marketing industry through Ad Standards Canada, leave advertising practices as they are while Canada aims for the complete electrification of its automobile fleet in the medium term. It is also counterproductive when data shows that the increase in SUVs and pickup trucks is one of the two causes of the rise in GHG emissions from the transportation sector. An ideal scenario would see the prohibition of ICE vehicle ads in 2025 or before.

Recommendations

- Tighten the regulatory framework for automobile advertising, with a focus on the heaviest and most energy-consuming vehicles.
- Lead by example by collaborating with the Canadian Broadcasting Corporation to update its advertising policy and put an end to advertising for ICE vehicles.

4. MAKING IZEV MORE INCLUSIVE

For a fair transition to low-emission, energy-efficient mobility, the focus needs to move away from personal vehicles and towards collective and active modes of transport. A powerful way to promote such a shift is through a scrappage program, such as the one seen in France. To increase ZEV accessibility among Canadians, the ENVI Committee recommends that the Government of Canada

⁵⁰ Ekos Research Associate, Canadians’ Awareness, Knowledge and Attitudes Related to Zero Emission Vehicles (ZEVs), commissioned by *NRCan*, 2021

⁵¹ Read Equiterre’s Limitless – Car advertising in Canada report (2021) to learn more.

allow used ZEVs to be eligible for incentives, add a scrappage initiative and scale the incentive to income.⁵²

Income considerations can play an important role in broadening ZEV uptake by targeting lower-income individuals. In contexts in which alternatives to automobile ownership are not viable, low-income households must not be left behind; they should be able to afford a ZEV that is adapted to their needs. In that regard, California’s approach shows great promise: it has set an income cap for rebate eligibility at USD\$150,000 (CAD\$195,000) per year for single filers. Its system also offers higher incentives to lower-income individuals, including USD\$4,500 (CAD\$5,850) for BEVs, and USD\$3,500 (CAD\$4,550) for PHEVs.⁵³

The same NRCan poll results reveal that many Canadians would only buy a ZEV if the price were about the same as an equivalent conventional vehicle (47%), and a majority of them (74%) thinks that rebates/incentives to cover the price difference between ZEVs and gas- or diesel-powered vehicles are effective in encouraging Canadians to make the switch. However, the poll also tells us that “Canadians have limited awareness of government rebates for ZEVs”⁵⁴ with 53% of them indicating that they have never seen, read or heard about them.

Recommendations

- Increase investments in public transit and active transportation alternatives.
- Adopt a scrappage program that awards active transportation.
- Scale ZEV purchase incentives to household income.
- Put a cap incentive eligibility based on household income (i.e. 195,000\$).

5. SUSTAINABLE MANAGEMENT OF END-OF-LIFE EV BATTERIES

Source reduction should be the main focus when it comes to EV batteries. As such, it is recommended to focus on solutions that will reduce the number of vehicles on the road, as well as their size, in order to limit resource exploitation.

Recommendation

Adopt targets to reduce the number of vehicles on the road.

The majority of Canadian provinces don't have Extended Producers Responsibility (EPR) systems for EV batteries. Although EPR is a provincial matter, the federal government should ensure that minimum

⁵² ENVI Committee, Report 3 – The Road Ahead: Encouraging the Production and Purchase of Zero-Emission Vehicles in Canada, 2021

⁵³ Asadollahi & Rous, The Road Ahead to Low-Carbon Mobility: A Feebate System for Canada’s Light-Duty Vehicle Segment, Horizon Advisors, commissioned by Équiterre, 2020

⁵⁴ Ekos Research Associate, Canadians’ Awareness, Knowledge and Attitudes Related to Zero Emission Vehicles (ZEVs), commissioned by NRCan, 2021

standards are adopted throughout Canada. EPR on EV batteries should respond to the following criteria:

- Avoid the pitfall of making them obsolete before their time to favor source reduction. The lifespan of electric vehicle batteries is tending to increase and this reality must be considered in the regulatory framework.
- Integrate reuse targets to support and promote the emergence and development of a local market for reconditioning batteries.
- Ensure traceability of reused or recycled batteries.

While battery design currently considers ways to maximize energy density, range, and performance, all the while minimizing cost, the ease and efficiency with which a battery can be reused and recycled should also be optimized during the battery design stage.

Recommendations

- Focus on source reduction when it comes to battery management.
- Ensure that battery design research and development maximize reusability and recyclability of EV batteries.

CONCLUSION NO MORE DELAY

According to the International Energy Agency, if the world is to reach net zero by 2050, 64% of all new cars sold need to be zero emission by 2030.⁵⁵ And in the context of a global crisis, Canada must ramp up its action and ambition if it is to do its fair share. There is no silver lining to quickly decarbonizing the transport sector. In the short term, adopting a ZEV standard is key to ensuring that ZEV supply lives up to the demand. Recent modeling commissioned by Équiterre and the David Suzuki Foundation shows that pairing vehicle emission standards with a ZEV standard is the right way to go.

To reverse the trend towards ever larger vehicles, a feebate system will act as the right policy tool. Its effectiveness has been demonstrated around the world. In the context of a climate crisis and as government's expenditures on ZEV incentives will increase in the upcoming years, this policy solution shows great potential. Complementary measures to decarbonize road transportation must focus on more than ZEVs. We have to work towards downsizing of the Canadian vehicle fleet—in every way.

In ECCC's upcoming Emission Reduction Plan, Équiterre, the David Suzuki Foundation and Environmental Defence expect nothing less than bold solutions that will put Canada on track to meet its climate targets.

⁵⁵ International Energy Agency, *Net Zero by 2050 – A Roadmap for the Global Energy Sector*, 2021