

Enclosure

Government Response to the Third Report of the Standing Committee on Environment and Sustainable Development entitled: *The Road Ahead: Encouraging the Production and Purchase of Zero-emission Vehicles in Canada*

The Committee on Environment and Sustainable Development decided to undertake a study on additional measures that could be taken to incentivize the production and purchase of zero-emission vehicles (ZEVs) in Canada. The motion to conduct the study adopted by the Committee was motivated by the Government of Canada's ambitious 2030 and 2050 climate change goals and zero-emission vehicles will be an integral pathway towards achieving these goals.

The Government remains steadfast in its commitment to decarbonize the transportation sector, as evidenced by the various mandate letter commitments and the recent release of the Government's 2030 Emissions Reduction Plan referenced herein. This includes not only the electrification of the fleet of tomorrow, but also reducing emissions from the fleet of today.

As such, the Government of Canada concurs with the Committee's overall assessment of the main issues impacting the production and adoption of ZEVs in Canada. The Government of Canada supports all 13 recommendations, indicates general support for the Report, and signals the alignment of this Report with existing federal initiatives.

The government response addresses these recommendations under seven themes: 1) ZEV incentives; 2) ZEV production and supply; 3) a ZEV standard and regulations; 4) charging and refuelling infrastructure; 5) electricity production and metering; 6) consumer awareness; and 7) heavy-duty vehicles.

Theme 1: ZEV Incentives

Recommendation 1: *That the Government of Canada collect data about the means of users of the Incentive for Zero-Emission Vehicles (iZEV) Program, including household income and the number of other vehicles that the household owns or leases.*

The Government of Canada supports this recommendation. Transport Canada is currently reviewing the results of a questionnaire that was sent in the summer of 2021 to a sample of consumers who benefited from the iZEV Program. The intent of the questionnaire is to better understand the consumer's experience with the Program and with the purchase or lease of their zero-emission vehicle, as well as certain demographic characteristics. The questionnaire included questions on household income, the size of the community, highest level of education achieved, as well as number of vehicles owned or leased by the consumer. These findings could help Transport Canada assess to what extent the iZEV Program is continuing to meet its objective of helping middle-class Canadians to make the transition towards more affordable ZEVs.

Recommendation 2: *That the Government of Canada continue to fund ZEV incentive programs, such as the iZEV Program, while making the following adjustments to improve the accessibility of the Program:*

- *Allowing used ZEVs to be eligible for incentives;*
- *Adding a scrappage initiative;*
- *Scaling the incentive to income; and,*
- *Reviewing the price cap of the Program, in light of the pricing strategy adopted by automakers, including Tesla.*

The Government of Canada broadly supports the intent of this recommendation and is continually assessing potential changes to the iZEV Program to maximize its impact by both increasing uptake of affordable ZEVs and broadening access to more Canadians in a cost-effective manner. The Minister of Transport's mandate letter includes a commitment to improve the affordability and accelerate the adoption of zero-emission vehicles. The Government of Canada is also supporting business adoption of ZEVs by providing a 100% tax write-off on eligible ZEVs, which is also available for used zero-emission vehicles.

To date, the Government of Canada has allocated \$660 million towards the iZEV Program, and most recently, an additional \$1.7 billion was announced in Canada's [2030 Emissions Reduction Plan](#) to extend the program for an additional three years until March 31, 2025. Since its launch on May 1, 2019, the iZEV Program has benefitted over 136,000 Canadians and Canadian businesses and has helped grow Canada's ZEV market share of light-duty vehicles to 5.6 percent (%) in 2021, up from 3.8% in 2020, 3.1% in 2019, and 2.3% in 2018.

Theme 2: ZEV Production and Supply

Recommendation 3: *That the Government of Canada review and build on existing programs, such as the Strategic Innovation Fund, to facilitate the continued development of domestic supply chains for the full lifecycle of ZEV components, including batteries.*

The Government of Canada accepts this recommendation. The Department of Innovation, Science and Economic Development continues to review its existing programming on an ongoing basis, and has made significant investments into Canada's automotive sector, notably through the Strategic Innovation Fund (SIF), to ensure the sector is positioned for success today and into the future.

The Government of Canada's commitment towards the country's automotive manufacturing sector and its workers remains unwavering, and the Government of Canada will continue to seek solutions to help the industry grow. The Government of Canada recognizes that it can be a leader in ZEVs and ZEV parts manufacturing and is working to support the industry's move towards decarbonization. Over the past few years, the Government of Canada has contributed \$755 million to the automotive sector through the SIF, which has attracted over \$12 billion in automaker investments. This includes the recent \$1.8 billion investment made by Ford Motor Company of Canada to establish Oakville as its largest North American battery electric vehicle plant. It is expected that these investments will bring economic benefits to the wider automotive supply chain, including the development of a battery supply chain and related

critical mineral mining.

In December 2020, the strengthened climate plan, *A Healthy Environment and a Healthy Economy* outlined an ambitious set of actions to decarbonize the economy. Following closely on the heels of the plan's release, the Government of Canada announced the creation of the SIF's Net Zero Accelerator (NZA) to expedite decarbonization projects with large emitters, scale-up clean technology, and accelerate Canada's industrial transformation across all sectors. These measures will ultimately help to meaningfully accelerate domestic greenhouse gas emissions reductions by 2030. In total, the Government of Canada has allocated \$8 billion toward the NZA.

The NZA will have three focus areas to drive investment into large emissions-reducing and job-creating projects across every region of Canada: the development and adoption of clean technology solutions in all industrial sectors; clean technology development in Canada's aerospace and automobile manufacturing sectors; and the development of a Canadian battery innovation and industrial ecosystem, which will build on Canada's natural resources and leading expertise to develop an end-to-end battery ecosystem in Canada.

Beyond SIF, Canada's regional development agencies have funding programs in support of economic development, particularly in Ontario where the bulk of the automotive sector is located. As announced in Budget 2021, the Federal Economic Development Agency for Southern Ontario will deliver \$224 million over three years to support business financing and help position local economies for long-term growth. This is part of a national designated amount for regional development agencies totaling \$700 million.

As the automotive sector production and consumer preferences shift to low-carbon mobility, Canada has a competitive advantage and opportunity to invest in low carbon mining, battery manufacturing and vehicle production or '*Mines to Mobility*'. This advantage is more than just cars and trucks; electrification is gaining traction in a variety of transportation modes.

Building on several value chain studies, including the [From Mines to Mobility: Seizing Opportunities for Canada in the Global Battery Value Chain \(What We Heard Report\)](#), and extensive engagement with stakeholders, key departments continue to identify gaps in the ZEV value chain. Departments are assessing where Canada has a competitive advantage (e.g., automotive manufacturing, minerals for battery production) as well as how to seize on these advantages (e.g., by helping to scale-up domestic firms or attracting foreign direct investment or federal research and development supports).

Collaboration on the ZEV value chain also extends to the United States (U.S.), as exemplified by the recently announced [Roadmap for a Renewed US-Canada Partnership](#) where leaders agreed to work together to build the necessary supply chains to make Canada and the U.S. global leaders in all aspects of battery development and production. Leaders agreed to strengthen the Canada-U.S. critical minerals action plan, to target net-zero industrial transformation, batteries for ZEVs, and renewable energy storage.

Recommendation 4: *That the Government of Canada build on existing initiatives, like the Green Mining Innovation Program, to improve the environmental performance of Canadian minerals, including those used in battery and hydrogen fuel cell production.*

The Government of Canada supports this recommendation as it aligns with priorities under its federal battery initiative work. The Mines to Mobility initiative, which supports the development of a globally competitive battery innovation and industrial ecosystem in Canada, is inclusive of all segments of the value chain, from mining and mineral processing, to manufacturing of components such as anodes, cathodes and cells to support energy storage and electric vehicle (EV) production and recycling. This initiative supports Canada's climate change goals, industrial transformation through the adoption of green technologies (e.g. transportation electrification, clean energy and other clean technologies) and post-COVID-19 economic recovery.

Increasingly, jurisdictions interested in decarbonizing their transportation sectors are developing sustainability criteria for any electric vehicle batteries manufactured and/or deployed within their region. This creates an opportunity for Canada to provide the world with responsibly produced battery minerals/metals, batteries and electrified vehicles.

The Government of Canada has an important role to play in 'greening' Canada's contribution to global battery value chains, as evidenced by Budget 2021 support for federal research and development to advance critical battery mineral processing and refining expertise. The 2021 Federal Budget includes several measures to support the growth of a net zero economy and the development of critical mineral value chains. This included \$47.7 million over three years for federal research and development (R&D) to advance expertise in the processing and refining of critical minerals and will place emphasis on R&D initiatives related to battery minerals, mining value from waste and other critical minerals needed for clean technologies and advanced manufacturing.

Existing federal investments are unfolding through multiple organizations, including:

- the National Science and Engineering Research Council (NSERC) (e.g., through grants to individual researchers, via the NSERC Energy Storage Network, and support for industrial research chairs in battery fields, including that held by renowned battery researcher Dr. Jeff Dahn (Dalhousie University));
- the National Research Council (NRC) (including through the Industrial Research Assistance Program as well as its new Advanced Clean Energy Program, and the Lithium Ion Battery Technology collaboration network);
- Sustainable Development Technology Canada (with \$86 million of investments into battery related technologies as of 2018);
- Natural Resources Canada (NRCan) (through, for example, its *Charging the Future* Impact Canada battery related challenge; and the Clean Growth Program which is expected to sunset on March 31, 2022; the Rare Earth Elements R&D program, that has invested \$16 million in the past six years to support the sustainable development of rare earth elements through innovative processes to improve efficiency, competitiveness and resolving potential environmental challenges).

Future action in this area will be considered as part of the Minister of Natural Resources Canada's mandate letter commitment to develop a sustainable battery innovation and industrial ecosystem in Canada, including to establish Canada as a global leader in battery manufacturing, recycling and reuse. In support of these efforts, the Minister is to work with stakeholders to identify new strategic priorities, including future battery types, ways to optimize batteries for cold weather performance and long-duration storage, and applications in heavy-duty transportation, and launch a Canada-US Battery Alliance for stakeholders in both countries to identify shared priorities and create environmental requirements.

Recommendation 5: *That the Government of Canada work with provincial and territorial governments to develop recycling and end of life management strategies for ZEV batteries.*

The Government of Canada supports this recommendation. To enable circular economy in the ZEV battery supply chain, government and industry need to take a multi-faceted approach involving support for innovation, investments in infrastructure, fiscal policy, smart regulation, policy, and/or education, and awareness raising.

NRCan's Office of Energy Research and Development is actively working on strategies for end-of-life management of ZEV batteries through its Electric Vehicle Infrastructure Demonstration (EVID) Program and Energy Innovation Program, to support work for federal R&D on batteries, as well as supporting demonstrations of repurposing end-of-life ZEV batteries in different contexts such as for stationary storage purposes. NRCan, NSERC and NRC are also supporting the development and commercialization of new technologies that improve battery safety, performance, cost, reuse/recyclability and sustainability. Canadian technology companies have the opportunity to position themselves as providers of technology solutions to the global battery industry (e.g. related to thermal management, or battery manufacturing processes).

Recommendation 6: *That the Government of Canada study opportunities to support automotive sector workers while facilities are transitioning to produce ZEVs, and consider educated funding to retrain automotive sector workers for ZEV production.*

The Government of Canada accepts the recommendation. While the Government of Canada plays an active role in this space, it is also important to acknowledge industry's active role in workforce training as well as the provincial-territorial skill training programs and services.

Ensuring Canada's automotive sector is positioned for success today and into the future is critical given the sizable economic benefits the sector brings to Canada's overall economy. Training and skills development is a shared jurisdiction with provincial and territorial governments.

The Government of Canada, principally through Employment and Social Development Canada (ESDC), delivers direct skills development programming including some targeted at underrepresented groups such as persons with disabilities, Indigenous Peoples and youth.

Budget 2021 proposes \$960 million over three years, beginning in 2021-22, to ESDC for a new Sectoral Workforce Solutions Program. The new program will fund sectoral projects and support solutions to address current and emerging workforce needs in key sectors of the

economy. Working primarily with sector associations and employers, funding would help design and deliver training that is relevant to the needs of businesses, especially small and medium-sized businesses, and to their employees. This funding would also help businesses recruit and retain a diverse and inclusive workforce. Budget 2021 also announced funding for ESDC to deliver new training programs, such as the Apprenticeship Service and the Community Workforce Development Program as well as incremental investments in youth-related skills investments (i.e., Student Work Placement Program, the Youth Employment and Skills Strategy, and the Canada Summer Jobs program).

Budget 2021 also proposes funding for Innovation, Science, and Economic Development Canada (ISED) to deliver an initiative to scale-up proven industry-led, third-party delivered approaches to upskill and redeploy workers to meet the needs of growing industries. This initiative will benefit approximately 15,500 Canadians by connecting them to new work opportunities.

The Government of Canada, through ESDC also supports individuals and employers to receive training and employment supports through the \$3 billion a year labour market transfers with provinces and territories.

The transition to ZEV manufacturing will be more acutely felt by the parts and suppliers industry, particularly those that currently produce parts solely for internal combustion engines (i.e., mufflers, transmissions, gas tanks, etc.). Many will diversify production, both within and outside the automotive sector, ensuring their employees have the skills and training necessary for the changing skills and labour market. The Government of Canada works with the Province of Ontario and industry via the Canadian Automotive Partnership Council (CAPC) on issues of skills and training to ensure as the industry pivots towards the production of ZEVs, workers have the necessary skills to succeed. Recognizing the importance of having a highly skilled workforce, CAPC has in place the Skills and Talent Committee, a standing committee that focuses discussion on identifying and filling the gap between demand for and supply of skilled talent and developing the capabilities to support current and future advancements in automotive and manufacturing technologies.

The Government of Canada also supports other training and workforce development initiatives such as recent funding provided to ISED to deliver a workers transition initiative to help upskill and redeploy workers to meet the needs of growing industries. This initiative will benefit 15,500 Canadians by helping them upgrade their skills to transition to new jobs and will benefit firms by providing access to a workforce trained in skills that are responsive to their needs.

Theme 3: ZEV Standard and Regulations

Recommendation 7: *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.*

The Government of Canada supports this recommendation in that the Government agrees that a rapid transition to ZEVs is critical to meeting our national climate change objectives. In June 2021, the Government set a mandatory target for all new light-duty cars and passenger trucks sales to be zero-emission by 2035, accelerating Canada's previous goal of 100 percent sales by 2040. In March 2022, the Government of Canada committed to implementing a regulated sales mandate of at least 20 per cent of all new light duty vehicle sales be zero emissions vehicles by 2026 and at least 60% by 2030 as interim steps toward achieving Canada's mandatory target of 100 per cent by 2035. In March 2022, the Government of Canada also committed to develop a ZEV regulation for medium and heavy-duty vehicles (MHDV) to require 100% MHDV sales to be ZEVs by 2040 for a subset of vehicle types based on feasibility, with interim 2030 regulated sales requirements that would vary for different vehicle categories based on feasibility, and explore interim targets for the mid-2020s. .

The Government of Canada also committed in the Strengthened Climate Plan to align Canada's light- and heavy-duty vehicle greenhouse gas regulations with the most stringent performance standards in North America post-2025, at the federal or state level.

Given the integrated nature of the road transport sector in North America, in Spring 2021, under the Roadmap for a Renewed U.S. - Canada Partnership, the President and Prime Minister agreed to take aligned and accelerated policy actions on efforts to achieve a zero-emission vehicle future.

Theme 4: Charging and Refuelling Infrastructure

Recommendation 8: *That the Government of Canada work with provinces and territories to revise building codes, including the forthcoming national model building codes, to encourage the installation of charging infrastructure in newly constructed commercial and multi-unit residential buildings (MURB), and encourage the voluntary installation of charging infrastructure in newly-constructed single-family residential dwelling.*

The Government of Canada supports this recommendation. For the last two years, NRCan has been working with the NRC to determine the best mechanism to have the model building code encourage the installation of ZEV charging infrastructure in new buildings.

The national building codes are revised and updated on a five-year cycle, and the process to have any new requirements incorporated into the codes, even those for ZEV charging, can take this long, given they must be developed, vetted, and fully agreed upon by a committee of federal and provincial subject area experts and stakeholders.

Work on revisions to the 2020 Model Building Code (which was released on March 29, 2022) began in 2015, therefore it was not possible to have EV charger specific requirements

incorporated into this iteration. NRCan will continue to work with the NRC, provinces and territories, and the private sector to work towards integrating minimum requirements into the next iteration of the model building codes, expected in 2024.

Recommendation 9: *That the Government of Canada review its charging station incentive programs to encourage the installation of smart charging infrastructure, and to expand access to vehicle chargers in MURBs and remote and rural areas.*

The Government of Canada supports this recommendation. Infrastructure is a critical enabler to ZEV uptake and while investments to date have contributed to an increased uptake of ZEVs, accelerated mass deployment of ZEVs will require significantly more infrastructure to meet the needs of drivers. Since 2016, the Government of Canada has been investing over \$460 million in zero-emission and alternative refuelling infrastructure, demonstration of next-generation charging technologies and the development of enabling codes and standards.

The [Electric Vehicle and Alternative Fuel Infrastructure Deployment Initiative](#) is supporting the establishment of a coast-to-coast network of fast-charging stations along the national highway systems, natural gas refuelling stations along key freight corridors and hydrogen refuelling stations in major metropolitan areas. While the Initiative ended on March 31, 2022, it met or exceeded all of its targets. As of March 2022, projects selected across 11 jurisdictions, will deliver 1,096 EV fast-chargers, 21 natural gas stations and 15 hydrogen stations.

The [Zero Emissions Vehicle Infrastructure Program](#) (ZEVIP) increases the densification and coverage of charging opportunities by supporting the deployment of charging and hydrogen refuelling stations in more localized areas where Canadians live, work and play, including MURBs, workplaces, commercial spaces, street charging and public parking spots, as well as remote areas. The Program has a target of 33,500 chargers and 10 hydrogen stations. As of March 2022, projects selected across 11 jurisdictions will deliver 24,356 EV chargers and 4 hydrogen stations. A final request for proposals is planned for spring 2022, to ensure all program targets are met.

As announced in Canada's 2030 Emissions Reduction Plan, Natural Resources Canada was provided with additional funding of \$400 million to add 50,000 new electric vehicle charging stations to Canada's network. An additional \$500 million was provided to the Canada Infrastructure Bank to invest in large-scale ZEV charging and refuelling infrastructure.

The Government is aware of the unique challenges to installing chargers in MURBs which is why ZEVIP supports the installation of EV chargers in MURBs. To further address these challenges and overcome barriers, NRCan has supported the development of a [guide to electric vehicle charging in MURBs which](#) is intended to inform stakeholders on best practices for EV charger installations in MURBs.

Both of NRCan's infrastructure programs require that projects meet set technical requirements, including smart charging technology. This includes the requirement that all new EV chargers have the ability to communicate to other chargers, a server or the cloud through cellular/wireless signals or directly connected vehicle communications. This connection must be

able to report on usage and/or other capabilities, such as providing the real-time status of chargers.

As the market for new charging technologies continues to evolve, NRCan's [Electric Vehicle Infrastructure Demonstration \(EVID\)](#) Program supports the demonstration of innovative next generation electric vehicle charging and hydrogen refuelling technologies. The demonstration program supports innovative smart charging infrastructure as well as novel business models in MURBs and at workplaces. The program is also demonstrating technologies for remote locations, where a combination of renewable energy and energy storage can decrease the requirement on the grid.

Theme 5: Electricity Production and Metering

Recommendation 10: *That the Government of Canada consider revising the Electricity and Gas Inspection Act, the Weights and Measures Act, and their associated regulations to remove barriers to innovative vehicle charging technologies and to improve transparency for electricity providers and users.*

The Government of Canada accepts this recommendation. The [Weights and Measures Act](#) and the [Electricity and Gas Inspection Act](#) are the two pieces of legislation that govern Measurement Canada's ability to regulate and oversee measurement in Canada, both for pre- and post-market trading activities. However, the Government of Canada recognizes that this legislation is out of date and designed to provide oversight of technologies at the time that the legislation was drafted, such as traditional fossil fuels like crude oil and gasoline. This hinders Measurement Canada's ability to effectively regulate and oversee new and emerging technologies.

As set out in Budget 2021, Measurement Canada will receive funding to begin building capacity to regulate measurement in clean technologies including developing codes and standards for ZEV electricity and hydrogen charging, investment in capital equipment to work on these clean technologies, as well as funding to recruit subject matter experts. This includes regulatory experts who will work towards modernizing this legislation so that it no longer poses barriers to innovation.

Measurement Canada has already begun work to modernize its legislation and regulations by including amendments in both the most recent regulatory roadmap on clean technology and the Annual Regulatory Modernization Bill. With Budget 2021 funding, the organization will begin to concentrate efforts on legislative modernization by holding internal and external consultations, engaging in comprehensive legislative and regulatory analysis, and developing proposals for targeted legislative and regulatory amendments.

The objective of the legislative and regulatory modernization project is to provide Measurement Canada with a suite of modern and flexible authorities that will allow the organization to be more agile in meeting the regulatory demands of new technologies. As part of these modernization efforts, Measurement Canada plans to develop an innovation space where the organization could work with manufacturers and others to transfer knowledge on new measurement technologies.

Recommendation 11: *That the Government of Canada identify additional opportunities for collaboration with provinces and territories, industry, and Indigenous Peoples to facilitate the interprovincial trade of electricity, with a view to:*

- *Reducing overall GHG emissions from the electricity sector; and,*
- *Ensuring that the electricity sector is prepared to meet the anticipated electricity demand associated with a rising number of ZEVs.*

The Government of Canada supports this recommendation though it is important to recognize that decisions on electricity infrastructure rest primarily with provincial and territorial governments and their respective electric utilities. The recommendation aligns with a priority outlined in the Strengthened Climate Plan to “continue to invest in reducing emissions from the power Canada generates and connecting more places to non-emitting sources of power.”

NRCan has a history of collaborating with provinces and territories to facilitate the interprovincial trade of electricity. NRCan’s Regional Electricity Cooperation and Strategic Infrastructure (RECSI) Initiative filled a role to facilitate cooperation between provinces/territories, particularly in natural resource regional planning exercises, and that RECSI effectively facilitated regional collaboration and agreement on regional electricity planning, while increasing the knowledge base.

NRCan will continue to facilitate interprovincial dialogue through the recently funded Strategic Interties Predevelopment Program which will invest \$25 million to help provincial electric utilities conduct the necessary predevelopment needed to seek final investment decision approval from their economic regulator.

To bring clean power to more Canadians and accelerate Canada’s coal phase-out, the Government of Canada committed to working with the provinces and territories to help build new electricity transmission infrastructure with support from the Canada Infrastructure Bank (CIB). As part of its \$10 billion Growth Plan, the CIB earmarked \$2.5 billion for clean power and is currently working in collaboration with provincial and regional partners to connect Canadians to clean electricity through projects such as the Atlantic Loop and other regional interties projects.

Interprovincial electricity transmission will support the transition away from coal-fired power in provinces currently reliant on this source of energy. As affirmed by the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), Indigenous Peoples will play an important role in the development of clean energy projects across Canada that can facilitate these objectives.

Theme 6: Consumer Awareness

Recommendation 12: *The Committee recommends that the Government of Canada seek opportunities, in partnership with industry and the provinces and territories, to better inform consumers and dealers about ZEVs.*

The Government of Canada supports this recommendation. The importance of awareness and education as a key enabling measure to increased ZEV uptake is well documented and a position consistently held by all key ZEV stakeholders. Canadians continue to question whether these vehicles fit their lifestyle and lack basic understanding on what ZEVs are, how they operate, and how they charge. This continues to be a key barrier to mass consumer adoption. Recent public opinion research led by NRCan showed that fully two thirds of Canadians say they've still never ridden in nor driven a ZEV, reinforcing the strong need for projects that increase consumer exposure to these vehicles.

Building off several decades of consumer awareness experience, NRCan was able to leverage its existing expertise when it launched a micro-initiative, the [Zero-Emission Vehicle Awareness Initiative \(ZEVAI\)](#) in 2019. ZEVAI supports projects to increase awareness of ZEVs, and public charging and refuelling infrastructure, through education and capacity-building activities.

ZEVAI's recent (2021) request for proposals yielded 28 projects. Of the 28 projects selected for funding, eight are national in scope, while 20 are focused on specific regions and jurisdictions, 13 of which are located in either Atlantic Canada, the Prairies or the North. Five of the 28 projects are being led by, or directly engaging, Indigenous organizations and audiences.

Some key success stories include:

- New Brunswick Power's awareness and education campaign that delivered content on the actual total cost of electric vehicle ownership.
- Newfoundland Power's Plug-in to the Future project raised awareness and encouraged greater adoption of electric vehicles in Newfoundland and Labrador by addressing customer knowledge and education needs on electric vehicles.
- Recharge Véhicule Électrique (RVE) has implemented a project that will support EV adoption by informing different stakeholders in the feasibility, accessibility, and opportunity for residential EV charging in MURBs through an online portal.
- Mobile Technologies created a personalized, white-labelled auto dealer website add-on, a tool for both auto-dealer staff and clients, ensuring that both dealership staff and prospective buyers have access to personalized and up-to-date information on electric vehicles.
- The Pollution Probe Foundation will receive funding to establish an online platform which will engage municipal governments and their collaborators, socialize the range of solutions which are presented in internal and external resources, and establish a dialogue to provide an opportunity for knowledge-sharing on ZEV-related topics across municipalities.
- The Canadian Hydrogen and Fuel Cell Association developed an education and outreach program to increase public awareness about fuel cell electric vehicles and their benefits, promoting the adoption of fuel cell electric vehicles in government and corporate fleets.

NRCan is also partaking in the Program of Applied Research on Climate Action and with the help of PCO Behavioural Science Fellow, will undertake new studies and experiments (online and in the field) to gain further understanding of Canadian consumer and fleet perceptions, motivations and behaviours related to ZEV purchases and ownership.

Theme 7: Heavy-Duty Vehicles

Recommendation 13: *That the Government of Canada convene a working group bringing together representatives from government, industry and other relevant groups to study how the heavy-duty vehicle sector will transition to a net-zero future.*

The Government of Canada supports this recommendation. Under the Strengthened Climate Plan, the Government of Canada committed to take a number of steps to help the heavy-duty vehicle sector transition to a net-zero future. In particular, the Government of Canada has committed to work with partners on measures to increase the supply of, and demand for medium- and heavy-duty ZEVs in Canada, to ensure that businesses have access to the types of zero-emission vehicles that meet their needs.

The Strengthened Climate Plan also committed to examine options to enhance green freight programs to accelerate decarbonization of medium- and heavy-duty vehicle transportation through electrification, fuel switching to low-carbon fuels, and energy efficiency actions. The Government of Canada will also work with industry, provincial/territorial regulators, and academics to explore options which can help advance zero-emission long-haul trucking.

The Government of Canada's targeted actions to reduce emissions from heavy-duty vehicles, includes a commitment in the Strengthened Climate Plan to further improve the efficiency of heavy-duty vehicles standards for post-2025 by aligning with the most stringent standards in North America – whether at the U.S. federal or state level. Furthermore, in Canada's 2030 Emissions Reduction Plan, the Government committed to launch an integrated strategy with the aim of reaching 35% of total new medium- and heavy-duty vehicle sales to be zero-emission vehicles by 2030. The Government will also develop zero-emission vehicle regulations to require 100% new medium- and heavy-duty vehicle sales to be zero-emissions vehicles by 2040 for a subset of vehicle types based on feasibility, with interim 2030 regulated sales requirements that would vary for different vehicle categories based on feasibility and explore interim targets for the mid-2020s.

The Emissions Reduction Plan also announced \$547.5 million for a purchase incentive program for medium- and heavy-duty zero-emission vehicles and \$33.8 million for hydrogen trucking demonstration projects that address barriers to long-haul zero-emission trucking commercialization – including technical, regulatory and standards challenges. Additionally, the Emissions Reduction Plan announced the recapitalization of NRCan's Green Freight Assessment Program with an additional investment of \$199.6 million to retrofit large trucks currently on the road, which delivers on the Minister of Natural Resources's mandate letter commitment to "Reduce pollution from transportation by [...] making investments to retrofit large trucks currently on the road [...]".

The Government will engage industry and other relevant groups on these initiatives and continue to explore ways to collaborate on the heavy-duty vehicle sector's transition to a net-zero future.

While the Government of Canada's 2030 Emissions Reduction Plan has put forth a series of important steps to reduce emissions from medium- and heavy-duty vehicles, there are a

number of federal programs underway that are already supporting this transition. NRCan has decades of experience in supporting freight companies, shippers and carriers in their efforts to drive down emissions and reduce fuel costs. This includes working with the U.S. Environmental Protection Agency through the SmartWay Transport Partnership to help carriers and shippers benchmark their operations to industry best practices, track fuel consumption, and improve their overall performance.

Through NRCan's SmartDriver Program free, practical training is provided to help Canada's commercial and institutional fleets lower their fuel consumption, operating costs, and harmful vehicle emissions. Through NRCan's Green Freight Assessment Program (GFAP) fleets across Canada have been supported to make data-driven investment decisions through truck retrofits and fuel switching.

NRCan's Electric Vehicle and Alternative Fuel Infrastructure Deployment Initiative and Zero-Emission Vehicle Infrastructure Programs provide support for hydrogen refuelling stations as well as charging opportunities for commercial fleet vehicles, including medium- and heavy-duty vehicles (MHDV). In this way, the programs are working to ensure that new lower-carbon MHDV have access to the fuels they need, where and when required.

Given there are more than 2.5M MHDVs on the road, with approximately 100,000 purchased each year, and the fact that these vehicles stay on the road for 15 to 18 years and that for the foreseeable future diesel trucks will continue to dominate new purchases, it is important to take steps to decarbonize the fleet of today as well as pave the way to electrify the fleet of tomorrow.

Through NRCan's Electric Vehicle Infrastructure Demonstration (EVID) Program, NRCan supports the demonstration of innovative charging technologies and solutions for both light-duty to heavy-duty vehicles and innovative refueling infrastructure for medium and heavy-duty vehicles. This includes return-to-base (including last mile delivery) and long-haul freight applications. The program is interested in urban and highway applications, and in demonstrating the use of overnight chargers or high-power chargers depending on the use case, as well as high flow-rate H2 refueling and improved low-temperature refueling systems.

NRCan's Office of Energy Research & Development also supports federal research projects in low-carbon fuel combustion development as well as emissions control technologies for heavy-duty vehicles.

Infrastructure Canada's programming, including the \$33 billion, *Investing in Canada Infrastructure Program*, has supported the purchase of over 300 electric transit and school buses and public charging infrastructure since 2016. To support the electrification of heavy-duty vehicles further, the Government also announced an investment of \$2.75 billion over five years, starting in 2021, to support the purchase of zero-emission public transit and school buses. This funding is part of a \$14.9 billion commitment towards public transit projects announced in February 2021.

This new funding for zero-emission transit and school buses will be coordinated with the CIB, who has committed to invest \$1.5 billion in zero-emission buses as part of its three-year

Growth Plan. Together, these initiatives will support the government's commitment to help purchase 5,000 zero-emission buses over the next five years and demonstrate leadership in transitioning the heavy-duty vehicle sector to a net-zero future.

Conclusion

The Government of Canada extends its gratitude to the members of the Standing Committee, and all the witnesses who appeared before it, for their work to identify ways to address challenges and opportunities facing the Canadian transportation sector.

The Report's recommendations align with the Government of Canada's vision on ZEVs: to make these vehicles more accessible and affordable, and to ensure Canada is positioned to meet its ZEV sales requirements for light-duty and medium- and heavy-duty vehicles, and benefit from economic opportunities as global demand for these vehicles grows. We see ZEVs playing an important role in meeting our 2030 and 2050 climate change objectives, and the Government of Canada will continue to assess ways to increase adoption and production of ZEVs to ensure those objectives are met.