

Leveraging Transit Innovation to Future-Proof Canada's Transportation Network

Five-Point Plan for Building Innovative & Resilient Public Transit Systems

Canada has set ambitious targets to reduce its greenhouse gas emissions, while committing to sweeping – and necessary – sales mandates for all types of zero emission vehicles. The path to decarbonizing Canada's public transit systems will be a complex, challenging undertaking, requiring many stakeholders to come to the table together, united by a common goal of creating a green, secure, and autonomous fleet.

Public transit offers one of the highest impact and scalable use-cases for deploying new low-carbon and smart technologies. Like many novel and emerging technologies, initial support from the federal government is essential to reducing the many complications that come with establishing new supply chains and scaling production to make price-points more economically viable for traditional market forces. Providing the necessary support to the transit sector – from buses, to rail, and medium-duty vehicles – offers the federal government an efficient and outsized return on investment in creating a **low-carbon** and **smart** transportation system that Canadians will enjoy well into the 21st century and beyond. Our recommendations follow below.

1. Help all fleets make the right decarbonization choices: expanding ZETF planning services to non-transit public fleets in a parallel sister program

The Government of Canada should expand ZEB planning services offered under the Zero Emission Transit Fund to non-transit heavy-duty public fleets, such as public utility vehicles and service vehicles for crown corporations.

Like transit, governments and third-party public operators (or private operators that operate on behalf of a public entity) perform a public good and possess and deploy large, high-emitting heavy-duty fleets. Those fleet operators need the same planning and feasibility work that transit agencies require today to know what the most effective electrification plan for their route needs would be.

The government should create a parallel ZEMHDVF (“Zero emissions medium and heavy duty vehicle funding”) feasibility program for heavy-duty **public** fleets using the same 80:20 offset rule for funding of public fleets (such as government and utility heavy-duty fleet vehicles). And, it should create a parallel (“Zero emissions medium and heavy duty vehicle funding”) feasibility program for heavy-duty **private** fleets using a modified 50:50 offset rule for funding for private fleets (such as waste management vehicles).

CUTRIC members recommend creating a \$10 million program for public fleets and a \$5 million program for private fleets (2023-2026).



2. Achieving price parity between green hydrogen and diesel: leveraging Infrastructure Canada's ZETF offset program to support green hydrogen scaling in transit

The price gap between green hydrogen and diesel makes the business case impossible for the Canada Infrastructure Bank (CIB) to play a meaningful role in supporting the deployment of fuel cell electric buses (FCEBs) in Canada, because there are no current savings over diesel expenditures in hydrogen-propelled transit vehicles.

After three years, i.e. 2026 and beyond, the offset rate should be brought back down to 50%. CUTRIC will continue to support the MiWay FCEB project through advocacy with the Ontario government.

CUTRIC members recommend Infrastructure Canada should create a temporary, three-year 75% offset program for "green hydrogen" supplied zero-emission fuel cell buses to help stimulate the deployment of hydrogen fuel cell buses in the short-term while national green hydrogen production hubs are established and become operational.

3. Identify Renewable Natural Gas (RNG) as a potential "third solution" in zero emissions transit programming: defining RNG as a zero-emissions transit solution under the Clean Fuel Standard to align with the ZETF Capital Funding Program

RNG is a viable option in transit decarbonization efforts as operational savings are possible at neutral or negative emissions. Compressed natural gas (CNG) buses powered by RNG are an impressive option to reduce carbon emissions in jurisdictions where the electricity grid is carbon intensive and provides an economical alternative to the recent diesel fuel price escalation.

CUTRIC members recommend defining RNG as an eligible clean fuel and propulsion option in alignment with the federal Clean Fuel Standard in an expanded Zero Emissions Transit Fund program and/or as part of Permanent Transit Funding in the future.

4. Finding smart and innovative solutions for a safe return to transit post-pandemic: investing in research to identify ongoing pandemic-related challenges to transit ridership and creating solutions to get riders back into safer and healthier transit

A clean, safe and healthy public transit system is part of Canada's decarbonized future. In a globalized world where zoonotic illnesses and pandemics may become part of regular life, ongoing research into materials, designs and data-driven mechanisms that make buses, trains, shuttles, materials, and stations healthier, safer and less prone to bacterial or virus loads is critical to the future of low-carbon and zero-emissions mobility nation-wide.

Research funding is needed in industry-transit-academic partnerships to understand what problems and solutions need to be identified to ensure a safe and robust return to public transit.

CUTRIC members recommend the federal government should utilize the Canadian Research Council network (Tri-Council of NSERC, SSHRC and CIHR) to fund a federal "Return to Transit" research initiative through CUTRIC, as a non-profit clearinghouse that connects academia,



transit agencies and Canadian manufacturers to address immediate, mid-term and long-term pandemic-related transit challenges to build back better, providing safer transit systems for all.

5. Expanding access to an emissions reduction market: enhancing Canada's Greenhouse Gas Offset Credit System

Canada's GHG Offset Credit System currently privileges only the producer of the emissions savings, which is the only party that can participate in the program.

However, to motivate zero emissions transit and heavy-duty vehicular procurement, deployments and applications, the users of emissions reducing fuel types should also have a stake in the carbon credit market to support a whole-of-system approach.

CUTRIC members recommend the federal government explore integrating users of emissions reducing fuels into the overall carbon credit market to incentivize adoption (demand-side) rather than just production (supply side) in the transition to a decarbonized transportation marketplace.

About CUTRIC

The Canadian Urban Transit Research Innovation Consortium (CUTRIC) is a socially responsible non-profit organization that focuses on low-carbon and smart mobility. Their members span across the entire transit innovation supply chain – including the largest municipal transit agencies, post-secondary institutions, manufacturers, and utilities providers in Canada.

CUTRIC designs and launches technology and commercialization projects that advance next-generation zero-carbon mobility and transportation solutions across the country. We develop low-cost simulation tools that help transit agencies across Canada and the United States predict how their electric buses, hydrogen fuel cell buses and autonomous smart vehicles (for first kilometre/last kilometre solutions) will operate in real-time on roads and in service.

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