



Achieving Greenhouse Gas Emissions
Reductions in Canada's Transportation and
Energy Systems: Pollution Probe Submission to
the Federal Climate Change Portal

June 2016

TRANSFORMING CANADA'S TRANSPORTATION SYSTEM

Pollution Probe is pleased to submit to the portal its report on the outputs of a workshop it conducted in March of this year, which was the formal kick-off event of a multi-year initiative focused on charting out pathways to the deep decarbonization of Canada's transportation sector. This initiative, appropriately called the *Pathways Initiative*, arose in response to the GHG emissions reduction challenge faced by Canada's transportation sector.

Transportation is a leading source of GHG emissions in Canada. Responsible for 23% of national GHG emissions, it is second only to oil and gas production (26%). Within the transportation sector, light-duty vehicles (passenger cars and light trucks) account for roughly 50% of emissions, while the on-road heavy-duty freight sector accounts for 30% and is the fastest growing source of transportation-related emissions. Lower-carbon mobility options are becoming increasingly viable in Canada and the rest of the world. As many of these options are just beginning to mature, Pollution Probe feels that in order to achieve significant GHG reductions in the long term, policies and actions must be introduced in the near term to lay the groundwork for future successes.

The Pathways Workshop Report is included as an attachment to this submission, and is also available for download at: www.pollutionprobe.org/pathways-initiative. Technology pathways that were found to have substantial potential to reduce GHG emissions from transportation and which are highlighted in the report include:

- Aggressive efficiency enhancements in conventional light- and heavy-duty vehicles which could include improved powertrain efficiency, hybridization, vehicle lightweighting and enhanced aerodynamics.
- The deployment of electric vehicles and the development of hydrogen fuel cell vehicles.
- The use of autonomous vehicles for both human and freight movement as well as in resource sectors.
- The development and use of low-carbon advanced biofuels including renewable natural gas.
- Emissions reduction opportunities in the rail sector including improvements to operational efficiencies and the adoption of low-carbon technologies and fuels.

Within these low-carbon pathways, there are a number of options which offer great potential for reducing the environmental impacts of Canada's transportation system, including:

Light-duty Vehicles

- Continue to enhance the stringency of federal emissions standards within the light-duty vehicle sector for vehicles produced in the 2017-2025 model years.
- Develop a national policy framework to incorporate electric vehicle deployment into national and provincial policy. This framework should include the allocation of resources related to

electric vehicle charging infrastructure, public education and awareness and incentives for auto-makers to increase electric vehicle sales.

Freight Transport

- Building on the federal government's recent announcement of proposed regulations to reduce air pollutants from the rail sector, measures need to be developed to reduce GHG emissions from rail operations. Because the sector operates throughout the continent, a harmonized and collaborative approach with U.S. EPA rules is necessary.
- Support the deployment of natural gas and renewable natural gas vehicles in the on-road and marine freight transport sectors.
- Work through the International Maritime Organization to implement a ban on the use of bunker fuel in Canada's Arctic waterways to minimize climate forcing black carbon emissions and improve air quality.
- Develop a National Freight Strategy that would establish integrated multi-modal freight movement supply chains that prioritize and maximize the use of modes of transport that have the smallest carbon footprints.
- Establish a national program harmonized with the U.S. EPA's SmartWay Program. This initiative would encourage the on-road freight transport sector to work with governments to reduce GHG emissions and air pollutants. A Canadian SmartWay initiative would explore and test advanced fuel-saving technologies as well as ways to optimize supply chain operations.
- Include standards for long-haul box trailers in the upcoming second phase of heavy-duty vehicle emissions regulations, as emerging trailer technologies currently offer the potential for significant emissions reductions and improved fuel economy, while offering trucking fleets cost savings via reduced fuel demand.
- In addition to forthcoming emissions regulations on heavy-duty trucks manufactured in post-2020 model years, the federal government should take actions to reduce emissions from existing heavy-duty fleets, including mandating driver training programs and providing practical educational information on fuel-saving technologies and practices.

Off-road Vehicles

- The off-road vehicle sector includes vehicles used in agriculture, forestry, mining and construction, and accounted for 5% of Canada's transportation-related GHG emissions in 2014. The share of emissions from off-road vehicles represents a growing contribution to the country's air pollutant inventory. The federal government should support research and development on off-road vehicle technologies such as hybridization, electrification and emissions control devices, as well as improving standards related to emissions compliance testing.
- Explore opportunities for the utilization of renewable natural gas as a low-carbon transportation fuel in the off-road sector. High horsepower and high emissions applications common in the mining, agricultural and construction sectors could realize significant GHG emission and air

pollutant reductions through a shift to vehicles powered by fuels blended with renewable natural gas.

Active and Public Transportation

- Support the development of extensive active transportation infrastructure in municipalities across the country to make it a viable mobility option for the majority of Canadians. Safety is paramount with respect to bicycling infrastructure, and must be given priority by policy-makers and planners. Incidences in which cyclists are forced to share lanes with motor vehicles must be minimized.
- Provide enhanced support to municipalities working to deploy accessible low-carbon public transit systems, and encourage increased collaboration between neighbouring municipalities to facilitate the pooling of public transit research and development capacity, the harmonization of technologies and practices, and the sharing of knowledge and data.
- Encourage the adoption of work culture practice that supports more widespread use of telecommuting and teleconferencing to mitigate transportation-related emissions and traffic congestion while enhancing job satisfaction.

TRANSFORMING CANADA'S ENERGY SYSTEM

As energy systems are so integral to every aspect of life in Canada, Pollution Probe has been working to develop low-impact solutions to energy-related issues for decades. To catalyze better-informed energy dialogues and enhance energy literacy levels in Canada, several years ago Pollution Probe established Energy Exchange, which is now a leading provider of energy-related information and resources in the country. Energy Exchange sees energy and climate literacy as the core of a sustainable future for Canada.

The following high-level ideas touch upon many aspects of the Canadian energy system, with a unifying focus of reducing the environmental impact of the energy we all want and need:

- Support the development of renewable natural gas through research and development funding for gasification and anaerobic digestion technologies that make use of locally-sourced organic waste streams and residues.
- Support research and development efforts on the use of biomass as a substitute for coal and petroleum coke in cement, steel and lime manufacturing.
- Support and incentivize the development of offshore wind power.
- Support and incentivize the development of commercial-scale geothermal energy to provide renewable baseload power and take advantage of Canadian expertise in drilling and extraction technologies, especially in B.C. and the Prairie Provinces.

- Expand on the Canadian Industry Program for Energy Conservation to create a national energy auditing methodology (to include assessments of eligibility for subsidies) for all building types, and a government-accredited energy auditing body to train and employ young Canadians.
- Increase investments in energy storage technology research, development, demonstration and commercialization to facilitate the enhanced integration of low-cost renewable energy resources.
- Retrofit community housing projects across the country with efficiency-enhancing components reducing the environmental impacts of the communities while training and employing community members.
- Supplant the use of diesel generators in supplying power to remote and northern communities with renewable energy technologies.
- Update the National Building Code to ensure the highest conservation, efficiency, and GHG mitigation potential for newly constructed buildings.

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ABOUT POLLUTION PROBE

Pollution Probe is a national, not-for-profit, charitable organization that exists to improve the health and well-being of Canadians by advancing policy that achieves positive, tangible environmental change. Pollution Probe has a proven track record of working in successful partnership with industry and government to develop practical solutions for shared environmental challenges.