

SUBMISSION

The mid-term evaluation of the Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations

INTRODUCTION

Clean Energy Canada is an independent think tank based at the Morris J. Wosk Centre for Dialogue at Simon Fraser University. We work to accelerate Canada's transition to a clean and renewable energy system. We are pleased to submit comments and recommendations on the Discussion Paper released by Environment and Climate Change Canada (ECCC) on the mid-term evaluation of the *Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations*.

Our comments will focus on the direct and indirect benefits associated with removing the automatic reference to the U.S. Environmental Protection Agency's (EPA) Corporate Average Fuel Economy (CAFE) and greenhouse gas emissions programs—as well as maintaining, or even strengthening, Canada's current vehicle emissions trajectory for model years 2022-2025

Under the Paris Agreement, Canada has committed to reducing greenhouse gas (GHG) emissions by 30% below 2005 levels by 2030. However, by ECCC's own estimates, Canada's Pan-Canadian Framework on Clean Growth and Climate Change (PCF) and other measures will only yield a net reduction of 21% below 2005 levels (583 Mt CO₂ eq),¹ leaving a notable gap. These emission projections include the current Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations; if weakened—as the EPA has proposed—Canada's emissions gap would further increase.

As noted in section 3.1 of the discussion paper, light-duty vehicles account for 11% of Canada's total GHG emissions. Based on ECCC's calculations in S 3.1 Table 1, the current regulations will net an overall reduction of 18 Mt CO₂ eq by 2030, or 3.1% of Canada's predicted total emissions reductions.

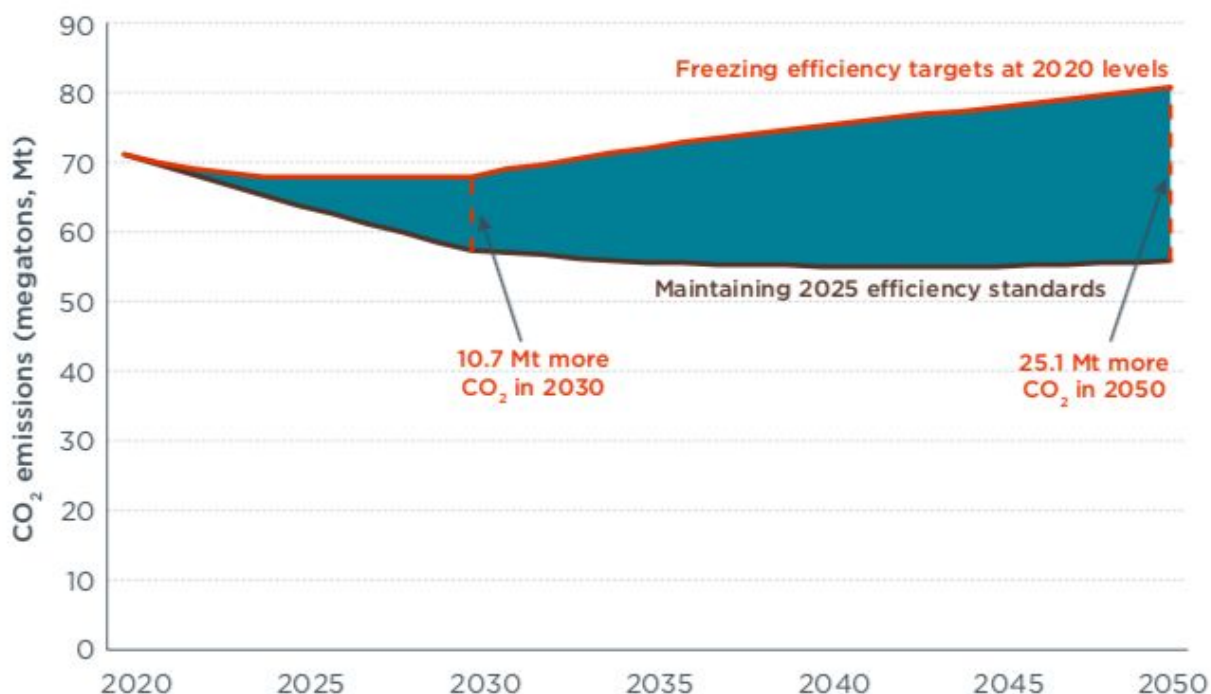
¹ Environment and Climate Change Canada. Canadian Environmental Sustainability Indicators: Progress towards Canada's Greenhouse Gas Emissions Reduction Target. 2018, pg. 5
www.canada.ca/en/environment-climate-change/services/environmentalindicators/progress-towards-canada-greenhouse-gas-emissions-reduction-target.html.

Should Canada continue to align its light-duty vehicle emission standards with the U.S.'s, the EPA's proposed rollback will have a negative impact on Canada's emission reduction goals.

The extent of the impact has been modelled by the International Council on Clean Transportation (ICCT)², which concluded:

- On a fleet-wide basis, maintaining the existing 2025 LDV emissions standards leads to 54.1 Mt CO₂ (million tons of CO₂) saved over the lifetime of model year (MY) 2021–2025 vehicles.
- By 2030, maintaining the 2025 GHG standards leads to an annual reduction in CO₂ emissions of 10.7 Mt.

Figure 1: CO₂ emissions from Canada's light duty vehicle (LDV) fleet under scenarios that freeze standards to 2020 levels or maintain the 2025 standards currently in place.³



Therefore, at minimum, Canada should maintain the existing standards, and should consider the feasibility of more stringent standards that would help Canada meet its 2030 reduction target.

² International Council on Clean Transportation, *Assessing Canada's 2025 passenger vehicle greenhouse gas standards: Benefits analysis*. 2018. <https://www.theicct.org/publications/canada-2025-cafe-standards-benefits>

³ *Ibid.*

The following comments and recommendations are meant to address the key consultation questions that align with Clean Energy Canada’s areas of expertise. Specifically we will be addressing:

- *What levels of vehicle technology costs and payback timelines are reasonable for compliance with the existing 2022 to 2025 standards?*
- *Is the projected greenhouse gas emission reduction contribution of the light-duty vehicle sector towards meeting the government’s emission reduction goals reasonable?*
- *Would compliance with the existing standards for the 2022 to 2025 model years be achievable while maintaining the competitiveness of the Canadian auto industry considering the integrated nature of vehicle manufacturing and trade in the North American market?*
- *Would the existing standards for the 2022 to 2025 model years provide benefits to consumers and to the public?*
- *Are there any safety-related considerations that should be taken into account?*
- *Are there any other factors that the department should take into account in considering the outcome of the U.S. mid-term evaluation and the appropriateness of the existing 2022 to 2025 model year standards in Canada?*

SAFETY COMES WITH BETTER EMISSIONS STANDARDS

The EPA has provided several reasons for the rollback of the 2012 CAFE standards, including concerns over vehicle safety as more fuel-efficient vehicles are often lighter than less efficient vehicles.⁴ These concerns are unfounded as several recent scientific papers have concluded that the practice of down-weighting (removing vehicle weight to improve efficiency) will not increase fatalities.⁵

Professor David Green of the University of Tennessee, a member of the National Academies of Fuel Economy Committee, stated that the down-weighting concerns “didn't take into account that all of the light-duty vehicles would be made lighter”—he also noted that lighter vehicles didn’t necessarily mean smaller vehicles.⁶

The general down-weighting of the North American vehicle fleet might even have a net positive effect on the number of traffic fatalities (i.e. reducing the number). A recent study jointly carried out by professors at the University of Southern California and Yale showed that the CAFE standards’ encouragement of down-weighting would actually lead to between 393

⁴ Waldman, Scott, and Zach Coleman. “Trump’s Effort to Roll Back Auto Efficiency Rules Could Hinge on Debate over Safety.” E&E News - Climate Wire, 1 Aug. 2018.

⁵ Shepardson, David. “EPA Staff Disputed Claim Fuel Efficiency Plan Would Save Lives.” Reuters, 4 Aug. 2018, www.reuters.com/article/us-autos-emissions/epa-staff-disputed-claim-fuel-efficiency-plan-would-save-lives-idUSKBN1KZ2CS.

⁶ Waldman, Scott, and Zach Coleman. “Trump’s Effort to Roll Back Auto Efficiency Rules Could Hinge on Debate over Safety.” E&E News - Climate Wire, 1 Aug. 2018.

and 439 fewer traffic fatalities a year in the U.S. This decrease was attributed to a general lightening of the total U.S. vehicle fleet.⁷

MORE THAN JUST EMISSIONS

Canada's current LDV emissions standards will do more than reduce the country's overall emissions; they also keep money in the pockets of Canadians thanks to lower fuel consumption over the lifetime of the vehicle. The ICCT predicts that the average car built to comply with 2025 standards will see an average annual fuel expenditure saving of \$383 (all figures are in 2015\$CAD), and light-duty trucks will see an annual saving of \$662.⁸

Critics will argue that any increase in vehicle efficiency will increase vehicle costs, but ICCT's analysis (Figure 2) shows this is only true over the short-term. Any additional costs as a result of vehicle efficiency drops off after 2020, resulting in a significant cost-to-benefit ratio impact for consumers. It is estimated that the cost of compliance in 2025 will drop by more than 40%.⁹ As illustrated in Figure 2, the base technology costs are far outweighed by the lifetime fuel savings offered by a vehicle built to the current 2025 LDV emissions standards.

⁷ Bento, Antonio, et al. "The Effect of Fuel Economy Standards on Vehicle Weight Dispersion and Accident Fatalities." 10 Apr. 2017, doi:10.3386/w23340.

⁸ International Council on Clean Transportation, *Assessing Canada's 2025 passenger vehicle greenhouse gas standards: Benefits analysis*. 2018. <https://www.theicct.org/publications/canada-2025-cafe-standards-benefits>

⁹ *Ibid.*

Figure 2: Summary of lifetime costs and benefits of the average model year 2025 Canadian vehicle, assuming a 3% discount rate (unless otherwise noted), when compared to an average vehicle manufactured to LDV 2020 emissions standards. (All values in 2015 CAD and rounded to two significant digits.)¹⁰

2020 Rollback Scenario	Fuel price assumption	Technology cost	Other costs	Lifetime fuel savings	Net lifetime benefit	Benefit-to-cost ratio
EPA 2025	Reference	1400	460	5500	3600	3.0
	Technology	1400	460	5300	3500	2.9
	Higher Carbon Price	1300	460	5300	3500	3.0
	Reference (7%)	1300	370	4300	2600	2.5
ICCT 2025	Reference	870	380	5500	4200	4.4
	Technology	850	370	5300	4100	4.4
	Higher Carbon Price	850	370	5300	4100	4.4
	Reference (7%)	850	290	4300	3100	3.7

Overall, ICCT found that a vehicle technology payback time of a vehicle built to the current 2025 LDV standards was only one year, whereas a vehicle built to the 2020 standard had a payback time of two to four years.¹¹

In addition to saving consumers money, the 2022-2025 LDV emissions standards will also reduce cost increases in healthcare¹² by further curbing the amount of vehicle-related air pollutants such as sulphur oxides, nitrogen oxides, carbon monoxide, volatile organic compounds, and particulate matter (PM₁₀ and PM_{2.5}).¹³ These compounds, particularly PM_{2.5}, have been linked to a number of severe health problems including reduced lung function and heart attacks.¹⁴

In its report, *The Economic Consequences of Outdoor Air Pollution* (2016), the Organisation for Economic Co-operation and Development (OECD) estimated that 7,712 premature deaths

¹⁰ *Ibid*

¹¹ *Ibid*.

¹² Smith, Robert, and Kieran McDougal. Costs of Pollution in Canada: Measuring the Impacts on Families, Businesses and Governments. 2017., www.iisd.org/library/cost-pollution-canada.

¹³ United States Department of Transportation, Federal Highway Administration, Office of Natural Environment, "Transportation Air Quality: Selected Facts and Figures." Transportation Air Quality: Selected Facts and Figures, 2016.

¹⁴ Smith, Robert, and Kieran McDougal. Costs of Pollution in Canada: Measuring the Impacts on Families, Businesses and Governments. 2017, Costs of Pollution in Canada: Measuring the Impacts on Families, Businesses and Governments, www.iisd.org/library/cost-pollution-canada.

were attributable to PM_{2.5} in Canada in 2015.¹⁵ In addition, the International Institute for Sustainable Development (IISD) estimates that PM_{2.5} and ground-level ozone had an associated morbidity cost of \$3.6 billion (CAD) in 2015.¹⁶ These costs can be reduced or avoided by stringent vehicle emissions standards.

THE SIZE OF THE PRIZE

California has announced its intent to defend the current emissions standards in the face of the EPA's plan to roll them back.¹⁷ California has launched a lawsuit with 15 other states and the District of Columbia to demand judicial review of the policy.¹⁸ These states' opposition has been joined by 400-plus cities across the U.S. who are part of the Clean Car Mayors organization and are signatories of the Local Leaders' Clean Cars Declaration¹⁹.

While it is true that in the U.S. individual cities cannot set their own emissions standards, 13 states and the District of Columbia have directly followed California's emissions standards representing 43% of the U.S. auto market,²⁰ and when these are combined with the Canadian auto market they represent 51.5% of the total Canada-U.S. auto market—a significant enough market to compel automakers to produce a variety of models in adequate numbers to meet the demand.

This market is the prize that Canadian manufacturers are well-positioned to capture. Currently, California and the 13 states following its lead purchase 38%²¹ of Canadian-produced vehicles. Canadian parts manufacturers are critical players in the vehicle supply chain, both in North America and globally, feeding a significant portion of the foreign-produced vehicles in those markets.²²

These markets will demand innovation in order to comply with increasingly stringent GHG emissions standards—innovation that is happening in Canada. Big players such as Magna

¹⁵ The Economic Consequences of Outdoor Air Pollution. OECD Publishing, 2016, The Economic Consequences of Outdoor Air Pollution.

¹⁶ Smith, Robert, and Kieran McDougal. Costs of Pollution in Canada: Measuring the Impacts on Families, Businesses and Governments. 2017, www.iisd.org/library/cost-pollution-canada.

¹⁷ Lutsey, Nic. *States and Cities Seek to Keep Clean Car Standards*. International Council on Clean Transportation, 2018,

¹⁸ UNITED STATES COURT OF APPEALS FOR THE DISTRICT OF COLUMBIA CIRCUIT. *STATE OF CALIFORNIA by and through Its GOVERNOR EDMUND G. BROWN JR., ATTORNEY GENERAL XAVIER BECERRA and CALIFORNIA AIR RESOURCES BOARD, STATE OF CONNECTICUT, STATE OF DELAWARE, DISTRICT OF COLUMBIA, STATE OF ILLINOIS, STATE OF IOWA, STATE OF MAINE, STATE OF MARYLAND, COMMONWEALTH OF MASSACHUSETTS, STATE OF MINNESOTA by and through Its MINNESOTA POLLUTION CONTROL AGENCY and MINNESOTA DEPARTMENT OF TRANSPORTATION, STATE OF NEW JERSEY, STATE OF NEW YORK, STATE OF OREGON, COMMONWEALTH OF PENNSYLVANIA by and through Its DEPARTMENT OF ENVIRONMENTAL PROTECTION and ATTORNEY GENERAL JOSH SHAPIRO, STATE OF RHODE ISLAND, STATE OF VERMONT, COMMONWEALTH OF VIRGINIA and STATE OF WASHINGTON, V. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, and E. SCOTT PRUITT, as Administrator of the United States Environmental Protection Agency*. 1 May 2018.

¹⁹ Local Leader's Clean Cars Declaration." 3 Apr. 2018.

²⁰ "California and States Representing Over 40 Percent of U.S. Car Market Sue to Defend National Clean Car Rules." *Office of the Attorney General of California*, 1 May 2018, oag.ca.gov/news/press-releases/california-and-states-representing-over-40-percent-us-car-market-sue-defend.

²¹ Luria, Dan, et al. *Automobile Production in Canada and Implications for Canada's 2025 Passenger Vehicle Greenhouse Gas Standards*. International Council on Clean Transportation, 2018,

²² Boothe, Paul. *The Future of Canadian Manufacturing: Learning from Leading Firms*. Canadian Manufacturing: Canadian Auto-Parts Manufacturing, 2013, *The Future of Canadian Manufacturing: Learning from Leading Firms*.

International are allocating significant funds in research and development spending (Magna has committed \$300 Million)²³ in order to capture this market demand.

Magna is not the only Canadian auto-parts manufacturer investing in innovation in order to capture a greater part of the growing global demand for low- or no-emissions vehicles. Linamar Corp., Canada's second-largest auto-parts maker, just opened a new innovation and research centre in Guelph, Ontario. The company is expected to invest more than \$500 million in advanced manufacturing techniques and the development of cleaner auto technologies at this facility.²⁴

This level of investment by Canada's auto-parts manufacturers in innovative technology means that should Canada continue to align its LDV emissions standards with the U.S. EPA, Canadian manufacturing would be put at risk. According to Flavio Volpe, president of the Automotive Parts Manufacturers' Association, "(auto-parts manufacturers) have been investing hundreds of billions of dollars in lightweighting and also alternative propulsion.... If that standard is lowered, at this late stage, in some cases, it threatens to strand some of that advanced research and development spending."²⁵

In addition to Canada's parts manufacturers, the major original equipment manufacturers (OEMs) assembling LDVs in Canada are taking big steps to reduce the emissions of the vehicles they produce.²⁶ General Motors, which operates a number of manufacturing, research and development, and administrative centres in Alberta and Ontario,²⁷ has recently restructured its senior leadership in order to accelerate its goal of having 20 electric vehicle (EVs) models in full production by 2023.²⁸

This EV goal represents a significant investment by GM and is a clear signal that even the auto industry's incumbents do not see stringent vehicle emissions standards as a barrier and instead realize they are an opportunity.

These investments in innovation are being driven by the clear mandate that the current LDV regulations provide and are allowing Canadian companies to take the technologies they develop here and export them around the world.

THE DIVORCE

With California and its co-appellants taking the EPA and the rest of the U.S. federal government to court in order to defend the waiver it has to set more stringent emissions standards, there is a possibility that Canada could join those jurisdictions in maintaining the

²³ Chappell, Lindsay. "Magna Spending Big on New Technology." *Automotive News Canada*, 21 May 2018, canada.autonews.com/article/20180521/CANADA01/305219996/magna-spending-big-on-new-technology.

²⁴ Keenan, Greg. "Linamar Corp. to Create 1,500 Jobs at New Innovation, Research Centre." *The Globe and Mail*, 15 Jan. 2018

²⁵ Munson, James. "Canada Watching EPA Vehicle Rule Changes Closely." *Bloomberg*, 3 Apr. 2018.

²⁶ Wayland, Michael. "GM Restructures Global Strategy, EV Executives." *Automotive News*, 21 Sept. 2018,

²⁷ Our Company | Operations | General Motors of Canada." *Media.gm.com*, General Motors Canada, 2018, www.gm.ca/en/company/operations.html.

²⁸ Naughton, Nora. "GM Shuffles EV, Global Strategy Leaders Ahead of EV Push." *The Detroit News*, 21 Sept. 2018.

the 2022-2025 CAFE standards.²⁹ To ensure this option is available, should California be successful in its challenge, the Government of Canada will need to remove the reference to the EPA CAFE standards in its regulations and develop its own regulations.

The *Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations*, Canada's regulations establishing GHG emission standards for new LDVs offered for sale in Canada, are made pursuant to sections 160 and 162 of the *Canadian Environmental Protection Act, 1999*.

The *Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations* require importers and manufacturers of new vehicles to meet fleet average GHG emission standards. The Regulations were amended in 2014 to establish GHG emission standards for the 2017 through 2025 model years. Regulatory alignment is, at present, required by the Regulations. This policy should be altered by a regulatory amendment to the *Canadian Environmental Protection Act, 1999*.

The *Agreement between the Government of Canada and the Government of the United States of America on Air Quality* (the AQA) is the primary basis for regulatory cooperation between Canada and the U.S. on LDV emission standards. However, it does not require mandatory cooperation or regulatory alignment between Canada and the U.S. on LDV emission standards.³⁰

The AQA was signed in 1991 to address and control transboundary air pollution leading to acid rain, to help "both countries attain their respective air quality goals."

The rationale for regulatory cooperation is threefold, according to a 2014 government presentation. Cooperation is founded on the premises that Canada and the U.S. have: (i) common policy objectives on reducing emissions from the transportation sector; (ii) highly integrated transportation sectors; and (iii) similar performance monitoring and verification priorities. Environment Canada and the U.S. EPA have, in recent years, broadened regulatory cooperation between the two jurisdictions to include GHG emission regulations for on-road vehicles, including LDVs.

The threefold rationale for regulatory cooperation that existed in 2014 no longer applies as it is clear the current U.S. administration no longer shares "common policy objectives on reducing emissions" from any sector. President Donald Trump's decision to withdraw the U.S. from the Paris Agreement on Climate Change³¹ illustrates this lack of a shared commitment to reducing emissions.

²⁹ Carlson, Ann. "Will Pruitt Join Sessions In Expanding the Federal Government's Attack on California?" Legal Planet, Berkley Law - UCLA Law, 18 Mar. 2018, legal-planet.org/2018/03/16/will-pruitt-join-sessions-in-expanding-the-attack-on-california/.

³⁰ Legal Brief from DeMarco Allan, commissioned by Clean Energy Canada. Canada-United States regulatory alignment on light-duty vehicle greenhouse gas emission standards, 2018.

³¹ Meyer, Robinson. "Did Donald Trump Just Make the Planet Hotter?" The Atlantic, 1 June 2017.

While the U.S. is stepping back from the Paris Agreement and is actively removing emissions reduction measures,³² Canada is working to meet its Paris Agreement targets by implementing the PCF.

The current U.S. administration is also clearly interested in severely damaging the integrated nature of the Canadian and U.S. transportation sector as it has routinely threatened to impose tariffs on Canadian-made LDVs³³.

As it is clear that the U.S. and Canada are no longer aligned, Canada should remove the reference to the EPA's CAFE standards so as to leave itself available for harmonization with a large share of the U.S. auto market, and to make the best environmental and economic choices for Canadians, reducing emissions and strengthening Canada's auto sector.

CONCLUSION

In order to meet commitments to combat climate change and build an economy based on clean growth, Canada should maintain the current 2022-2025 LDV emissions standards and remove the automatic reference to the U.S. EPA CAFE and greenhouse gas emissions programs, maintaining Canada's current vehicle emissions trajectory for model years 2022-2025.

Should Canada uphold the 2022-2025 LDV emissions standards, the country stands to gain more than just reduced GHG emissions; consumers will see more money in their pockets, and innovative Canadian companies will be able to continue to grow and export their technology, vehicles, and parts around the world.

The mid-term evaluation of the Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations represents an opportunity for Canada to continue showing global leadership in the fight against climate change while creating economic opportunity at home. **We strongly encourage ECCC to seize this opportunity and maintain, or strengthen, Canada's 2022-2025 LDV emissions standards.**

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³² DiCristopher, Tom. "Trump Administration to Replace Obama's Clean Power Plan with Weaker Greenhouse Gas Rules for Power Plants." *CNBC*, 21 Aug. 2018.

³³ Blatchford, Andy. "Trump Threatens Auto Tariffs against Canada If Trade Talks Fail." *The Canadian Press*, 11 Aug. 2018.