



HEAVY-DUTY VEHICLE AND ENGINE GREENHOUSE GAS EMISSION REGULATIONS

June 2, 2021

Presented to: GRPE Workshop on Low- and zero-emission heavy duty
powertrain regulatory needs



50^e anniversaire d'Environnement et Changement climatique Canada
Environment and Climate Change Canada's 50th anniversary

150^e anniversaire du Service météorologique du Canada
Meteorological Service of Canada's 150th anniversary

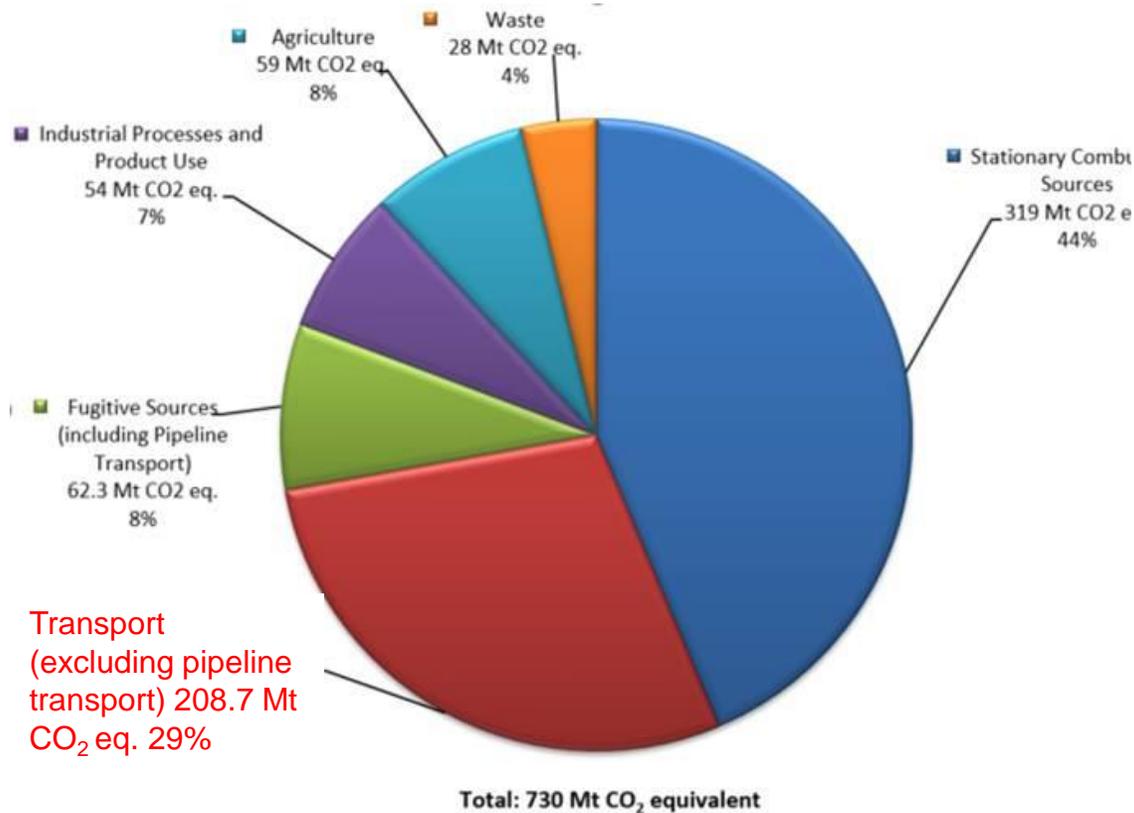


Canada 

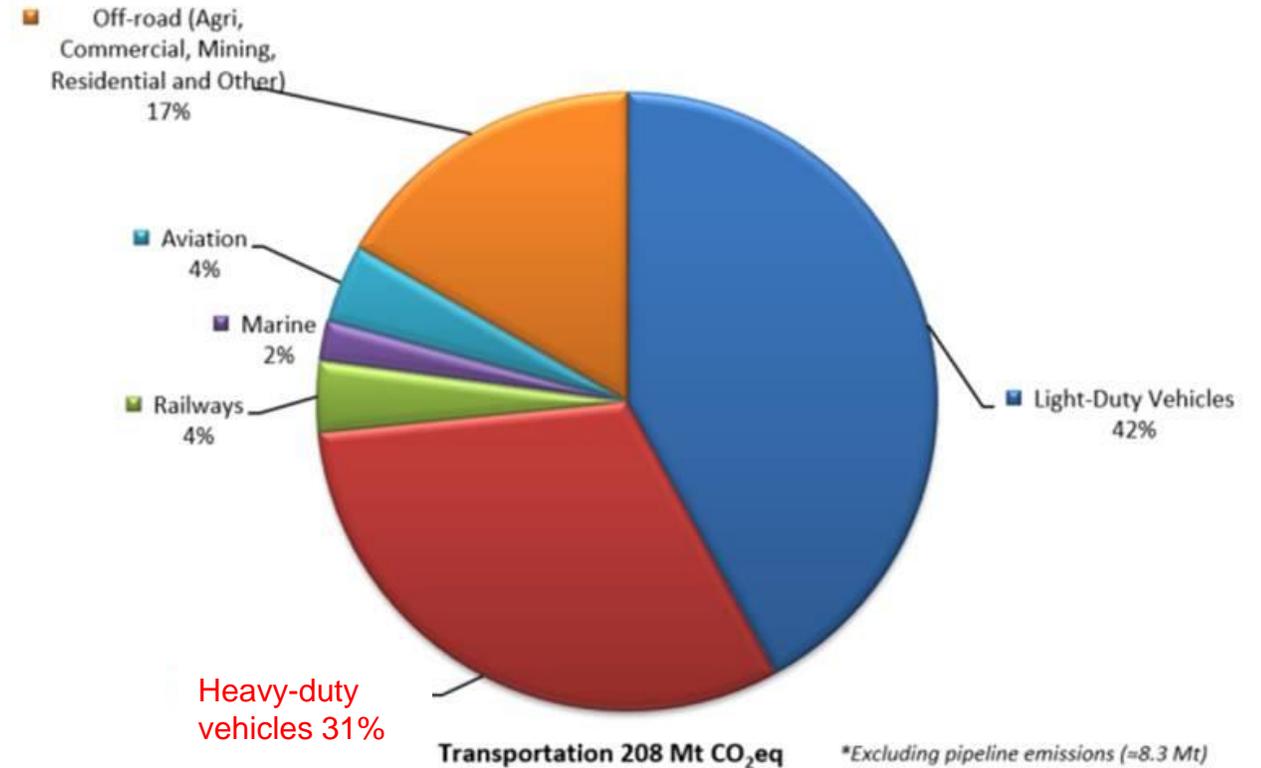
OUTLINE

- GHG emissions from transportation in Canada
 - *Heavy-duty Vehicle and Engine Greenhouse Gas Emissions Regulations*
 - ECCCC's Forward Regulatory Plan
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TRANSPORTATION GHG EMISSIONS IN CANADA



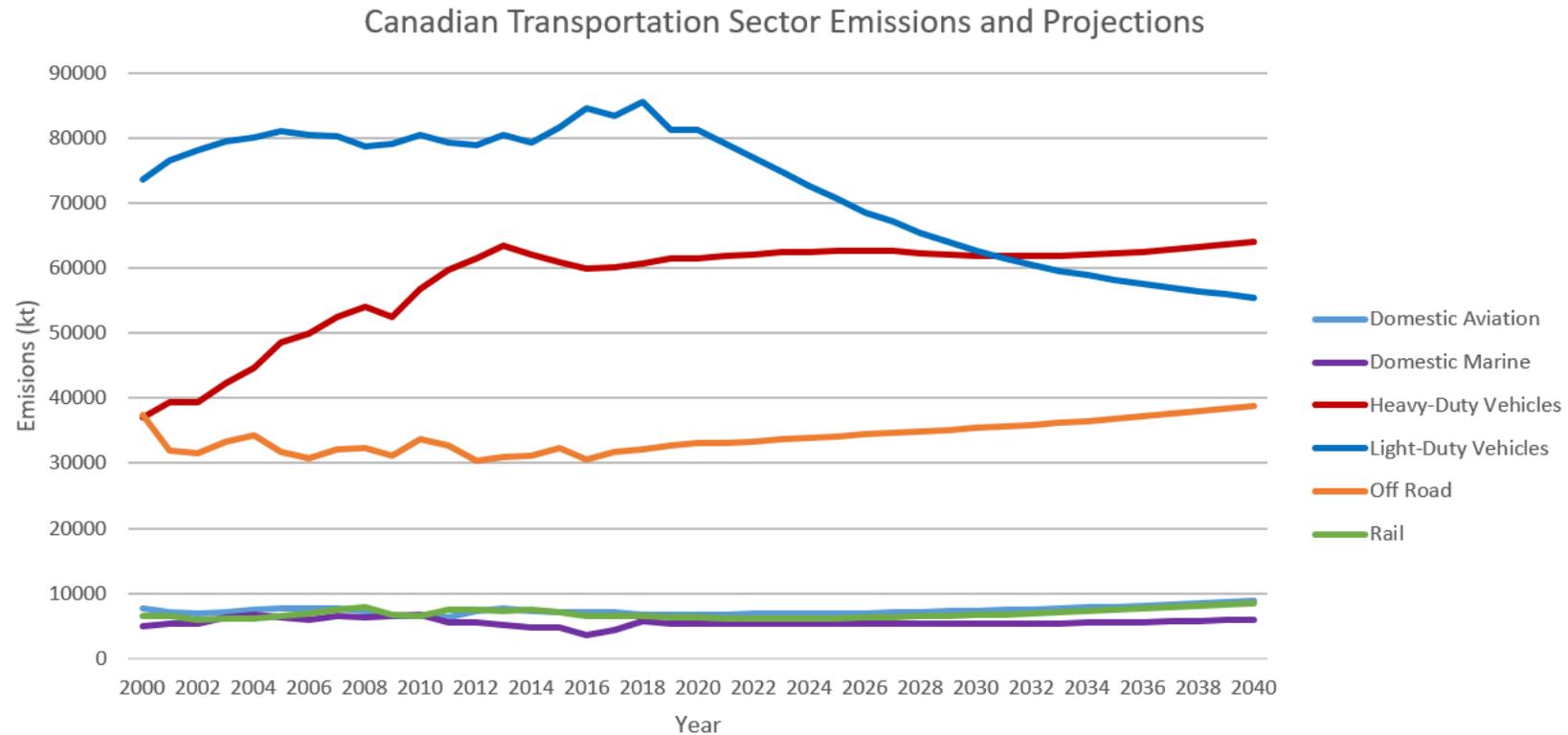
2019 Total GHG emissions in Canada



2019 Transportation GHG emissions in Canada

GHG EMISSIONS FROM TRANSPORT

Reported and projected GHG emissions (in kt) from transportation sector 2000-2040



Source: "Biennial Report on Climate Change", 2018

HEAVY-DUTY VEHICLE AND ENGINE GREENHOUSE GAS EMISSION REGULATIONS

- The [Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations](#) were finalized in 2013 (referred to as “Phase 1”) and set GHG standards for on-road heavy-duty vehicles and engines of model year (MY) 2014 and beyond
- These Regulations align with equivalent U.S. GHG emission requirements
- Amendments (referred to as “Phase 2”) were finalized in 2018 for MY 2021-2027 and regulated trailers for the first time
 - An *Interim Order Modifying the Operation of the Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations (Trailer Standards)* has been made to delay the GHG emission standards for trailers in Canada until May 3, 2022, following similar actions in the U.S.

Phase 2 regulations cover the broad regulatory categories of heavy-duty vehicles applications:

Class 2B and 3 Pick-up Trucks and Vans



Class 7 and 8 Combination Tractors (i.e. semi-trucks) and their engines



Class 2B through 8 Vocational Vehicles and their engines



Trailers pulled by tractors



REGULATORY INCENTIVES TO ENCOURAGE ELECTRIFICATION

- The Regulations contain a CO₂ emission credit system
 - Provide the option for companies to manufacture or import vehicles and engines with emission levels worse or better than standard, provided that their average emission level does not exceed the standard (“fleet averaging”)
 - Regulations contain multipliers provisions for the 2021 to 2027 model years to encourage the introduction of zero-emission technologies:
 - Plug-in Hybrid Vehicles x 4.0
 - Pure Electric Vehicles x 5.0
 - Fuel Cell Vehicles x 5.5
 - Canadian PHEV and PEV multipliers are slightly higher than the U.S. in recognition of cleaner mix of power generation sources in Canada than the U.S.
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ACCOUNTING FOR UNIQUE NATIONAL CIRCUMSTANCES

- Greater weights are permitted on Canadian roads by provincial and territorial jurisdictions compared to the weights allowed on U.S. Interstate highway system that are generally limited to a Gross Combined Weight Rating (GCWR) of 80,000 lbs
 - Phase 2 introduced standards for vehicles typically found on Canadian highways that take into consideration powertrain characteristics required for tractors with higher payload capacities while reflecting technology improvements to reduce GHGs appropriate for highway hauling applications
 - The standard stringencies were set based on the technology adoption rates and specifications that were more representative of these weight categories
 - Canada and the U.S. collaborated on the development of standards for tractors with a GCWR above 120,000 lbs that are used on Canada's highways
 - These “heavy line-haul” standards are optional in the U.S., but mandatory in Canada
 - Canada and U.S. also developed standards for tractors from 97,000 – 120,000 lbs which are also more common on Canadian highways
 - Only vehicles destined for Canada can use these standards
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ECCC'S FORWARD REGULATORY PLAN (2021-2023)

- Environment and Climate Change Canada's forward regulatory plan indicates the Department's intention to introduce post-2025 regulatory requirements for HDV manufacturers and importers:
 - Amendments to the existing *Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations* that would increase the stringency of Canada's GHG emissions standards for HDVs and increase zero emission vehicles, in alignment with the most stringent standards at the U.S. federal or state level
<https://www.canada.ca/en/environment-climate-change/corporate/transparency/acts-regulations/forward-regulatory-plan/2021-2023.html>
 - This plan is consistent with the Roadmap for a Renewed U.S.-Canada Partnership announced on February 23 in which President Biden and Prime Minister Trudeau stated that:
 - *“Given the integrated nature of the road transport, maritime, and aviation sectors, the President and Prime Minister agreed to take aligned and accelerated policy actions, including efforts to achieve a zero-emissions vehicle future.”*
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QUESTIONS

