Regulating Greenhouse Gas Emissions from New On-Road Heavy-duty Vehicles and Engines in Canada

Presentation slides prepared for IEA-PCRA Workshop on HDV GHG Regulations
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Canada Regulatory Context and Process
Transportation – GHG Emissions Profile and Policy Context

• Transportation is one of the largest sources of GHG emissions in Canada, accounting for 24% of total emissions in 2012.

• Canada is committed to reducing GHGs by implementing a sector-by-sector approach, and has already published GHG regulations for Canada’s transportation sector for light- and heavy-duty vehicles.

Source: NIR, 2014. Note: emissions from pipelines were not included in the transportation sector.
Responsibilities in Canada

• In the transportation sector, under the *Canadian Environmental Protection Act, 1999* (CEPA 1999), the Government of Canada regulates the manufacturers and importers of new vehicles and engines sold in Canada
  – Regulations address air pollutants and GHG emissions

• Provinces and territories have jurisdiction to regulate the use and operation of vehicles and engines, once sold
  – Registrations and licences
  – Weight, dimensions and speed limits on roadways
  – Anti-tampering requirements
Policy of Alignment and Canadian Market Structure

• Through initiatives such as the *Regulatory Cooperation Council* and the *Canada-U.S.A. Air Quality Agreement*, Canada has a policy of alignment with emission standards and test procedures of the U.S. Environmental Protection Agency (EPA) for the transportation sector.

• The policy of alignment is designed to recognize the highly integrated nature of the vehicle and engine industry in North America.

• Most vehicles and engines offered for sale in Canada are imported and most vehicles manufactured in Canada are exported to the U.S.
Canadian Federal Regulatory Process

• Canadian Publications:
  – Proposed regulations and notices are published in the *Canada Gazette, Part I* with statutory consultation periods of 30 to 75-days
    ▪ Pre-publication gives all Canadians a chance to submit comments on proposed regulations before they are finalized
  – Final regulations are published in the *Canada Gazette, Part II*

• Requirement to conduct analysis and develop a Regulatory Impact Analysis Statement (RIAS) i.e. cost-benefit analysis
  – RIAS is published with proposed and final regulations in the *Canada Gazette, Parts I and II*

• Consultation requirements at all stages of the regulatory process (*Cabinet Directive on Streamlining Regulation*)

• Processes for implementation, compliance, and enforcement of regulatory requirements
Heavy-Duty Vehicle and Engine Greenhouse Gas Emission Regulatory Initiatives
Phase I - Heavy-Duty Vehicle and Engine Greenhouse Gas Emission Regulations

• The Heavy-Duty Vehicle and Engine Greenhouse Gas Emission Regulations were published in Canada Gazette, Part II on March 13, 2013
  – Apply to manufacturers and importers of heavy-duty vehicles or engines in Canada for the purpose of sale
  – Establish GHG emission standards for on-road heavy-duty vehicles and engines for model years 2014 and later

• Estimated environmental gains of the HDV GHG Regulations (Phase I):
  – Reductions of 19.1Mt of carbon dioxide equivalent (CO$_2$e) in GHG emissions over the lifetime of vehicles of MY 2014-2018
  – Payback period less than one year
  – The total benefits to total costs ratio is more than 6:1
Phase I Regulatory Development - Key Milestones

• May 2010 - Ministerial announcement (same day as U.S. Presidential announcement)
• August 2010 – HDV GHG Stakeholder Working Group Meeting
• October 25, 2010 - Publication of a Regulatory Framework Consultation Document with a 30-day consultation period - same timeframe as release of NPRM by U.S. EPA
• November 2010 - HDV GHG Stakeholder Working Group Meeting
• August 9, 2011 - Consultation Document publication with a 30-day consultation period - same timeframe as release of Final Rule by U.S. EPA
• September 2011 - HDV GHG Stakeholder Working Group Meeting
• April 14, 2012 - Canada Gazette, Part I publication with 60-day consultation period
• May 2012 – Consultation session
• March 13, 2013 - Canada Gazette, Part II publication
• On-going technical Working Group meetings for implementation and administration of the regulations
Alignment with the U.S. Final Rule

- The HDV GHG Regulations are aligned with the U.S.
  - Aligned prescribed classes of vehicles and engines
  - Aligned emissions standards
  - Aligned test procedures
  - EPA Certificates accepted to demonstrate compliance with the emissions standards
  - Compliance flexibilities aligned with the U.S.
    - e.g. CO₂ emission credit system, additional credits for advanced and innovative technologies
Canada-Specific Considerations

• Factors such as authorities granted by Canadian legislation and timelines can sometimes require Canada-specific details in certain regulations
  – *e.g.* Some of the administrative requirements of the HDV GHG Regulations are different than the U.S. in order to meet Canada-specific needs to administer the regulations and given CEPA authorities related to administrative requirements
  – *e.g.* Due to differences in timing of publication, the regulations include phase-in flexibilities for vocational vehicles and tractors with U.S. EPA Certificates and enhanced flexibilities for engines with U.S. EPA Certificates
    ▪ Allows manufacturers and importers time to adjust their product mix if necessary and develop appropriate tools to track and report sales
  – *e.g.* Thresholds in Canadian regulations may be different than the U.S. because of differences in fleet mixes and sales volumes
Phase II - Heavy-Duty Vehicle and Engine Greenhouse Gas Emission Regulations

• The U.S. is planning to release second phase of proposed regulations in spring 2015
  – Pursuant to President Obama’s “Climate Action Plan” announced in June 2013, and subsequent announcement in February 2014
  – U.S. final regulations are targeted for March 2016

• In September 2014, Environment Canada’s Minister officially announced at the Climate Change Summit in NY that Canada intends to develop proposed regulations for post -2018 model years
  – Notice of Intent was published in the Canada Gazette, Part I on October 4, 2014 initiating formal consultation process
  – The regulations would build on the current regulations and continue the long history of regulatory alignment between the Canada and the U.S. on vehicle emissions

• Canada intends to hold consultation sessions to discuss proposed regulations to provide opportunities for stakeholders to comment on potential elements of the Canadian regulations and alignment with the U.S.
  – A first Webinar session was held in November 2014 to present an overview of the general approach and discuss with stakeholders at an early stage of the regulatory development

• A statutory consultation period will follow publication of proposed regulations in the Canada Gazette, Part I
Collaborative Work
Working Together

• Collaboration is key to a successful regulatory development process; collaboration with others includes:
  – Canadian federal departments, provinces and territories
  – International regulators (U.S. EPA, UNECE working groups)
  – Manufacturers and other industry representatives
  – Non-governmental organizations (ICCT, PP)

• This collaboration allows Canada to:
  – Support the development of standards in other jurisdictions (U.S. EPA, UNECE) which will affect vehicles in Canada
  – Publish regulations in timelines which more closely resemble U.S. timelines
  – Identify and address any Canada-specific considerations as early as possible
Phase I - Collaborative Efforts with U.S. EPA

“The Government of Canada’s Department of the Environment (Environment Canada) assisted EPA's development of this rulemaking by conducting emissions testing of heavy-duty vehicles at their test facilities to gather data on a range of possible test cycles, and to evaluate the impact of certain emissions reduction technologies. Environment Canada also facilitated the evaluation of heavy-duty vehicle aerodynamic properties at Canada’s National Research Council wind tunnel, and during coastdown testing.”

U.S. EPA and NHTSA Final Rule
Phase II- Continued Collaboration

• Environment Canada is continuing to collaborate with the U.S. EPA to support and inform the development of more stringent standards for post-2018 model year heavy-duty vehicles and engines

“We expect the technical collaboration with Environment Canada to continue […]. We may also begin to develop a knowledge base enabling improvement upon this regulatory framework for model years beyond 2018 […].”

U.S. EPA and NHTSA Final Rule

Engine dynamometer, EC’s test facilities
Coastdown and constant speed at SwRI, Texas
Chassis dynamometer, EC’s test facilities
Scale model wind tunnel, eTV program and NRC
Questions and Contact Information

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