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# 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  
New Delhi, India  
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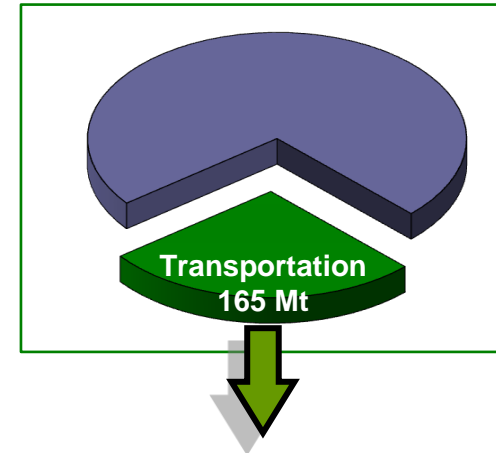


# *Canada Regulatory Context and Process*

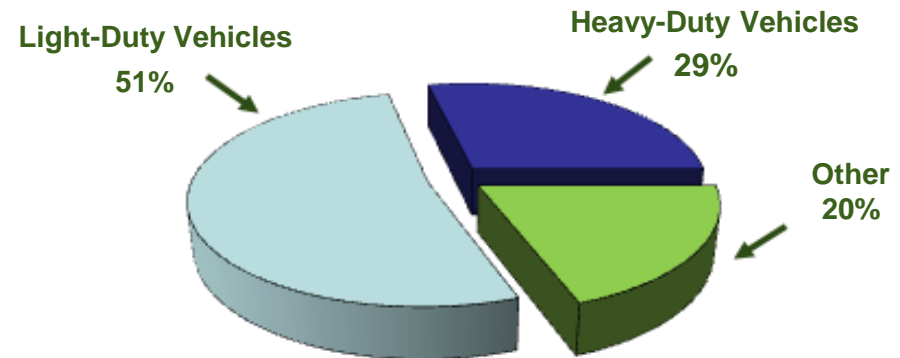


# Transportation – GHG Emissions Profile and Policy Context

- 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



Canada's GHG Emissions – 2012  
Transportation



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

# Responsibilities in Canada

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- 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<sub>2</sub>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

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- 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

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- 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. CO<sub>2</sub> emission credit system, additional credits for advanced and innovative technologies



# Canada-Specific Considerations

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- 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*

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- 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



Chassis dynamometer testing, EC's test facilities

Coastdown testing, Arizona

Wind tunnel testing, NRC



*“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*



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# 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

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



*"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



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# Questions and Contact Information

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