



Voluntary Commitment by the Motor Vehicle Industry to Reduce GHG Emissions in Canada – part of Canada’s Climate Change Plan

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Canada's Climate Change Plan

April 2005

- Large Final Emitters – GHG allocation to companies - 45 Mt
- Climate Fund - \$1 billion/year to purchase credits
- Partnership Fund - \$50 million/year for government to government projects
- Wind Power Production Incentive - \$200 million for 4,000 Mw increase
- Renewable Power Production Incentive - \$97 million for small hydro, biomass, other renewable power
- **Transportation**
 - **MOU with Vehicle Manufacturers – 5.3 Mt**
 - **Ethanol Expansion Program - \$100 million equity in ethanol plants**



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Voluntary Agreement for a reduction in GHG emissions from light duty vehicles through 2010

- The Agreement, signed in April 2005, is between the Canadian Automotive Industry and the Government of Canada
- The 19 automobile manufacturers signing the MOU agree to collectively meet an emissions reduction target of 5.3 Mt in 2010, plus interim targets
- The Agreement covers cars and light duty trucks up to 8500lb GVW





Voluntary Agreement Signatories

- **BMW Canada Inc.**
- **DaimlerChrysler Canada Inc.**
- **Ford Motor Company of Canada, Limited**
- **General Motors of Canada Limited**
- **Honda Canada Inc.**
- **Hyundai Auto Canada**
- **Jaguar Canada, a Division of Ford Motor Company of Canada, Limited**
- **Kia Motors Canada Inc.**
- **Land Rover Canada, Division of Ford Motor Company of Canada, Limited**
- **Mazda Canada Inc.**
- **Mercedes-Benz Canada Inc.**
- **Mitsubishi Motor Sales of Canada Inc.**
- **Nissan Canada Inc.**
- **Porsche Cars Canada Ltd.**
- **Subaru Canada, Inc.**
- **Suzuki Canada Inc.**
- **Toyota Canada Inc.**
- **Volkswagen Canada Inc.**
- **Volvo Cars of Canada Ltd.**





Voluntary Agreement for a reduction in GHG emissions from light duty vehicles through 2010

- **COMMITMENT:** This MOU voluntarily commits the Canadian Automotive Industry to achieving a 5.3 Mt reduction in GHG emissions from the light duty vehicle sector (cars and light duty trucks) in 2010 relative to the reference case, which will be the benchmark against which GHG emission reductions will be counted. The reference case is based on the 2010 forecast in the 1999 Transportation Table Report (Study 3) on Climate Change, which drew its assumptions on vehicle emissions from NRCan's 1999 emissions forecast *Canada's Emissions Outlook*. The reference case shall be updated in accord with the principles and procedures described in Annex 2.





Details of the Agreement

- The agreement commits the automobile manufacturers to a 5.3 Mt per year reduction in GHG emissions from the reference case by 2010:
 - Reference Case GHG emissions for 2010 are based on the forecast used in Canada's Climate Change Consultation Process in 1999
 - GHG emissions Included are:
 - direct tailpipe emissions of carbon dioxide (CO₂),
 - methane (CH₄),
 - nitrous oxide (N₂O)
 - CO₂ from the combustion of lubricants and
 - hydrofluorocarbon (HFC) losses from vehicle air conditioning units
 - The Reference Case forecast of BAU vehicle emissions already includes reductions in fuel consumption and reductions in nitrous oxide emissions from the introduction of Tier II standards and low sulphur fuels





LEGAL LIABILITY

Excerpts from the Agreement:

- “While this MOU does not constitute or establish a legally binding agreement, the Parties confirm that this MOU reflects their mutual desire to work cooperatively to address the challenges posed by climate change.
- For greater clarity, the Government of Canada has the right to regulate any and all subjects within the government’s purview, and will do so if it deems necessary.
- The parties agree that the taking effect of any legislation and its regulatory standards related to a subject covered by this MOU may result in the termination of this MOU without compensation or delay.”





INTERIM GOALS

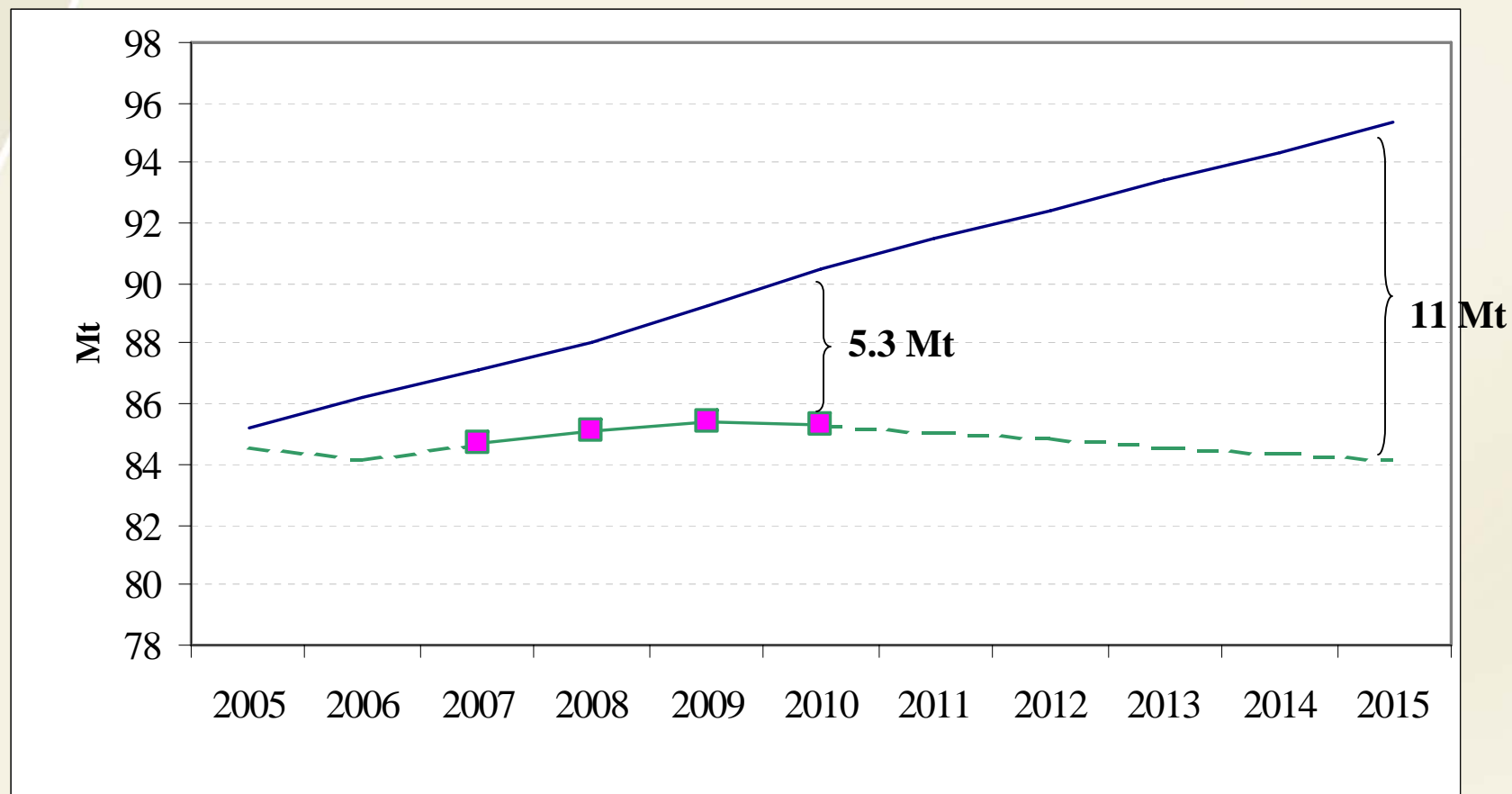
- “The Parties agree to interim GHG emission reduction goals of 2.4 Mt in 2007, 3.0 Mt in 2008 and 3.9 Mt in 2009, to be measured against the Reference Case for the subject year. Commencing in 2005, the Canadian Automotive Industry will report its projections for GHG emissions for the coming model year by November 30. Actual performance shall be reported for each model year by May 31 following the model year. The Committee will use these forecasts and reports to track progress towards the 2010 objective.”





Reference Case and Performance Case

showing interim goals and 2010 target



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How will the 5.3 Mt target be monitored?

The Reference Case may be adjusted, based on three broad categories of factors:

- Technical Parameters – such as those relating to global warming potential for different greenhouse gases under consideration or emission factors for different fuels. While these factors could change they would normally not affect industry's performance under this agreement
- Exogenous Factors - that the industry cannot control directly, but which, nonetheless, have a direct or indirect impact on the industry's emissions-reduction performance, including:
 - New vehicle sales;
 - The rate at which older vehicles are scrapped;
 - Kilometers driven by vehicles of different ages; and
 - New vehicle sales mix (car vs. light truck)
- Periodic review of Exogenous factors will be used to update the reference case.





The 5.3 Mt target is fixed but the reference is not

- Endogenous Factors – that affect vehicle emissions over which the industry can exercise direct control
 - Choice of fuel and level of fuel consumption;
 - Adjustments for on-road fuel consumption (that is, improving technical factors that are not reflected in the current fuel consumption test procedure, but that affect ‘real world’ fuel consumption); and
 - Rates of GHG emissions from vehicle components including Emission control equipment (N_2O), Engine combustion products (CH_4), Air conditioners (HFCs) and Lubricants (CO_2)





Emissions of Nitrous Oxides (N₂O)

- Emission control catalysts give rise to small amounts of N₂O
- N₂O emissions are mainly generated during the catalyst warm-up period
- New emission control systems designed to meet Tier 2 standards, plus the new low sulphur gasoline from 2005, will reduce N₂O emissions
- Reduction in N₂O from these changes in technology and fuels is already built into the Reference Case
- The N₂O emissions inventory (all vehicles in the stock) in 2000 is 4.39 Mt (CO₂ equivalent); this declines to 2.78 Mt by 2010
- If auto companies can reduce N₂O emissions below this amount in 2010, they can count this towards the 5.3 Mt commitment





Reference Case Emission Inventory

Canada's Emissions Outlook: An Update 2010 Light Duty Vehicle GHG Emissions

	Megatonnes Mt			Mt
	CO2	CH4 CO2E x21	N2O CO2E x310	Total
2000	77.74	0.20	4.39	82.33
2010	87.56	0.18	2.78	90.51

Note: the table shows CO₂ equivalent emissions for the whole stock of LDVs in 2000 and 2010





Emissions of HFCs from Air Conditioners

- Hydrofluorocarbons, or HFCs, are refrigerants that are used for air conditioning systems in automobiles
- The main HFC, R-134a, is a powerful greenhouse gas with a warming potential 1,300 times greater than carbon dioxide
- Losses occurring during servicing and repair, as well as running losses in vehicle operation,
- HFC emissions were not included in the 1999 Reference Case. The Agreement allows for counting reductions in HFCs
- HFC emissions from vehicles represent about 1-2% of GHG emissions from automobiles
- If auto companies can reduce HFC emissions below this amount in 2010, they can count this towards the 5.3 Mt commitment





Monitoring the Agreement

- A government/industry monitoring committee has been established to track the auto industry's performance
 - Emission reductions will be monitored year by year against interim goals for 2007, 2008 and 2009
- If the industry fails to meet these targets, other options, including regulation, will be considered
 - The government's right to regulate is explicitly referenced in the agreement





What actions do we expect companies to take?

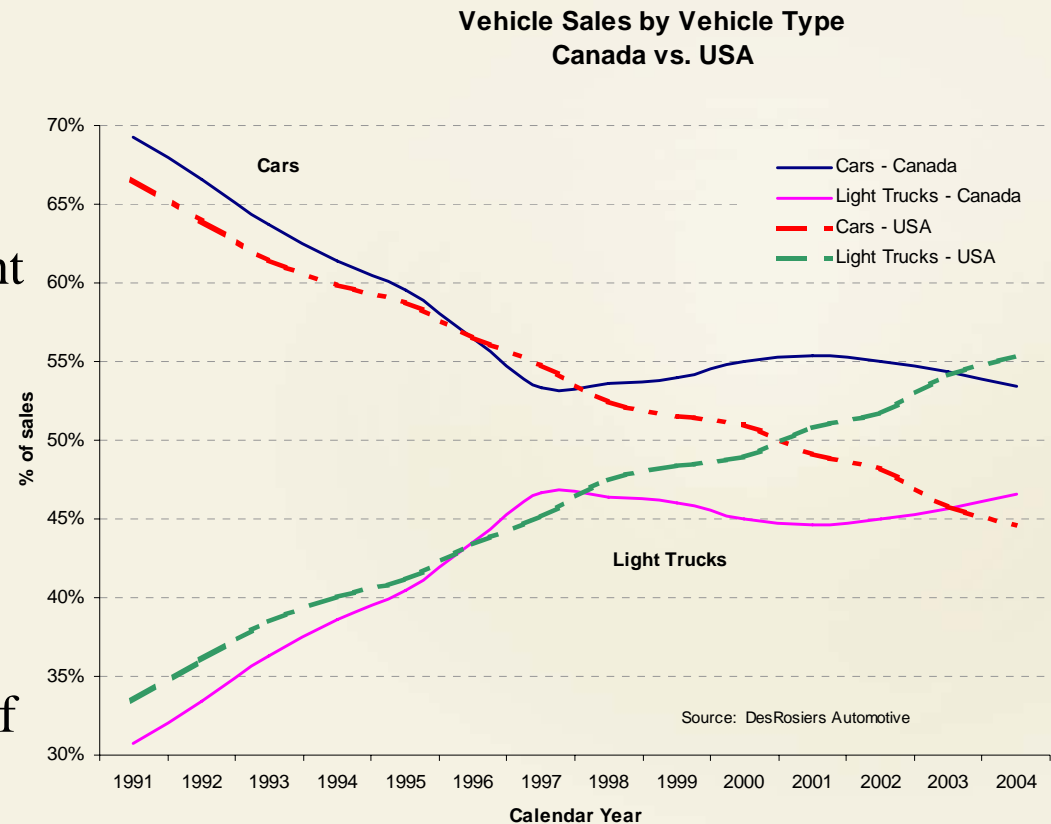
- Technology deployment
 - List of technologies included in the Agreement
- Some companies may optimize some high volume models for Canadian market or introduce models from other markets – this is already occurring
- Companies expected to promote sales of technology options such as cylinder shut-off as they become available
- Propensity of Canadians for diesels
 - 100% road diesel will be below 15ppm sulphur by July 2005 – no phase-in period





Market Share Trends: US vs. Canada

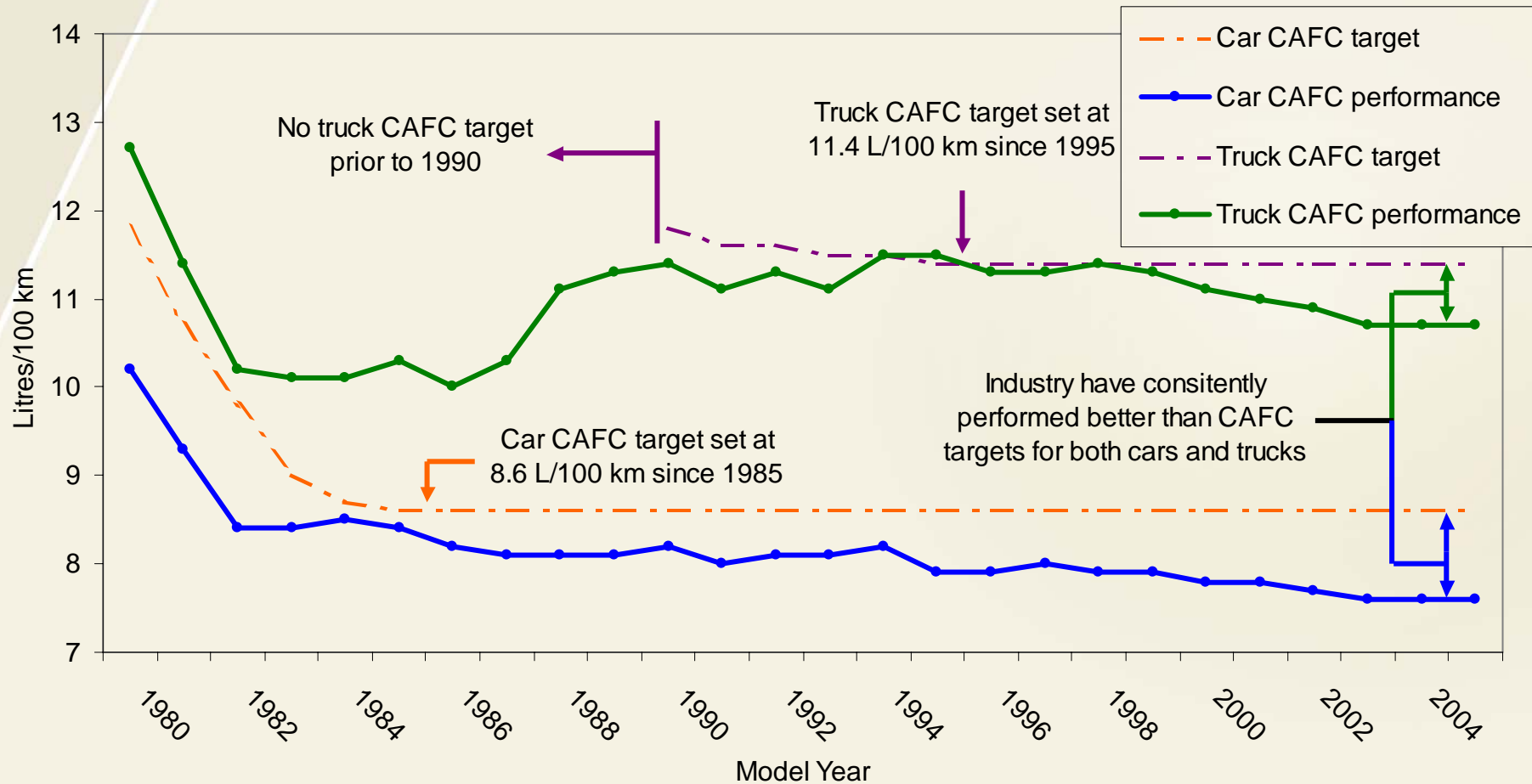
- Canadians have so far not followed US continuing trend to light trucks
- Canadian preference is for lower price entry level vehicles, in both car and light truck segments
- Demographics, incomes and fuel taxes are main influences in vehicle size choice
- Largest market segment is compact cars - a reflection of the continuing decline in household size





Fuel Consumption, 1980-2005

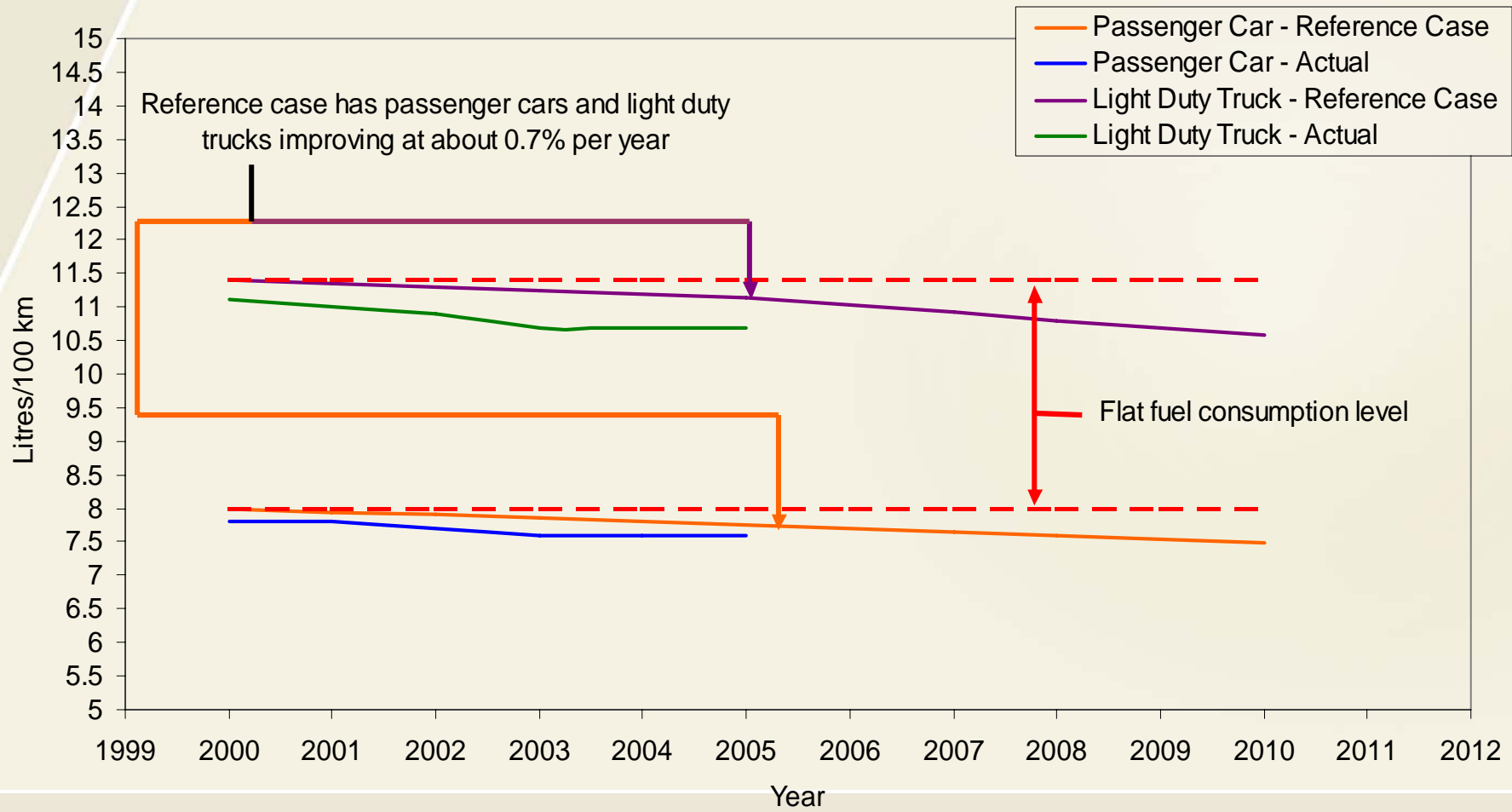
Company Average Fuel Consumption Performance vs. Targets





Fuel Consumption in Canada, 2000-10

Reference Case Fuel Consumption, 2000-2010





Supporting Activities

- The government is expanding current consumer programs
 - developing a new vehicle ranking system
 - coordination with the one tonne challenge
- The National Round Table on Energy and the Environment is considering the feasibility of a feebate system in Canada
- Current world oil prices make technology-based fuel efficiency improvements even more cost-effective



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In Conclusion

- Canada's government and auto manufacturers succeeded in establishing a voluntary agreement
- This agreement seeks to reverse the trend of GHG emissions growth from light duty vehicles
- While this and many other initiatives are underway, it is clearly the beginning of a long term effort in reducing GHG emissions from transportation





Thank-you

Questions?



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