



Policies that Contribute to Success for Natural Gas as a Transportation Fuel

Pacific NorthWest Economic Region Conference
Portland, OR - July 22, 2011

Presentation Overview

1. Transportation as a market
2. Barriers to alternatives
3. Policies to lower barriers
 - a) End user considerations
 - b) Policy maker considerations
4. Key market opportunities for natural gas in PNWER

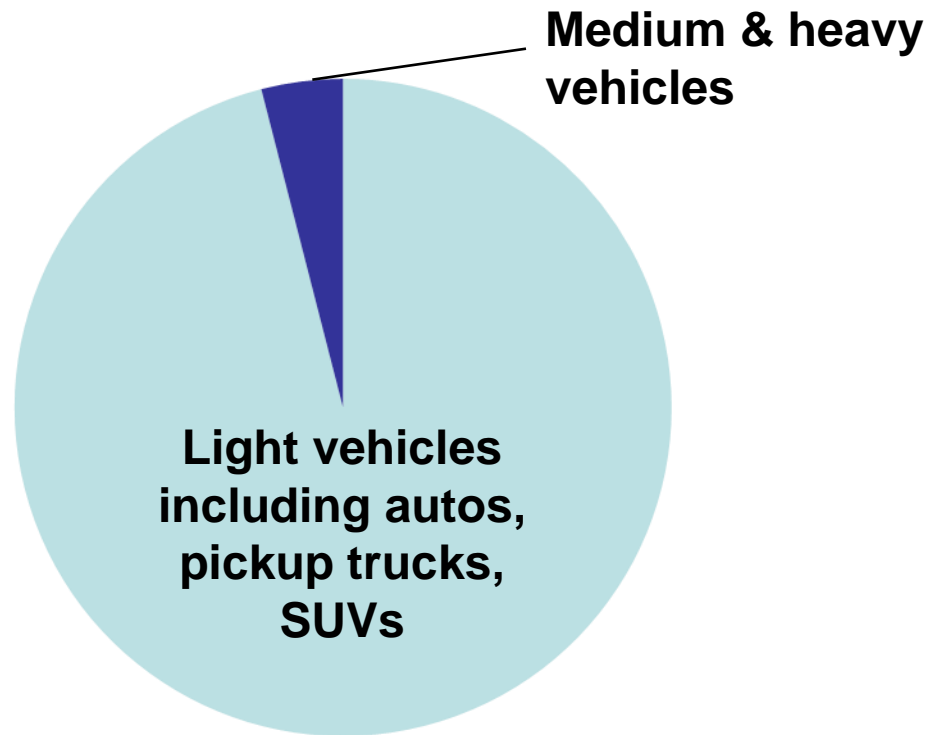


Energy Use in Transportation

- Significant energy demand that typically comprises about 29% of energy use
- Disproportionate share of energy used by medium and heavy vehicles:
 - 4% of on-road vehicles use 28% of energy
- Growth in energy demand since 1990 in Canada:
 - Passenger + 18%
 - Freight + 71%
- Changing landscape
 - New regulations – carbon; fuel efficiency
 - Renewable fuel standards
 - Emerging technologies

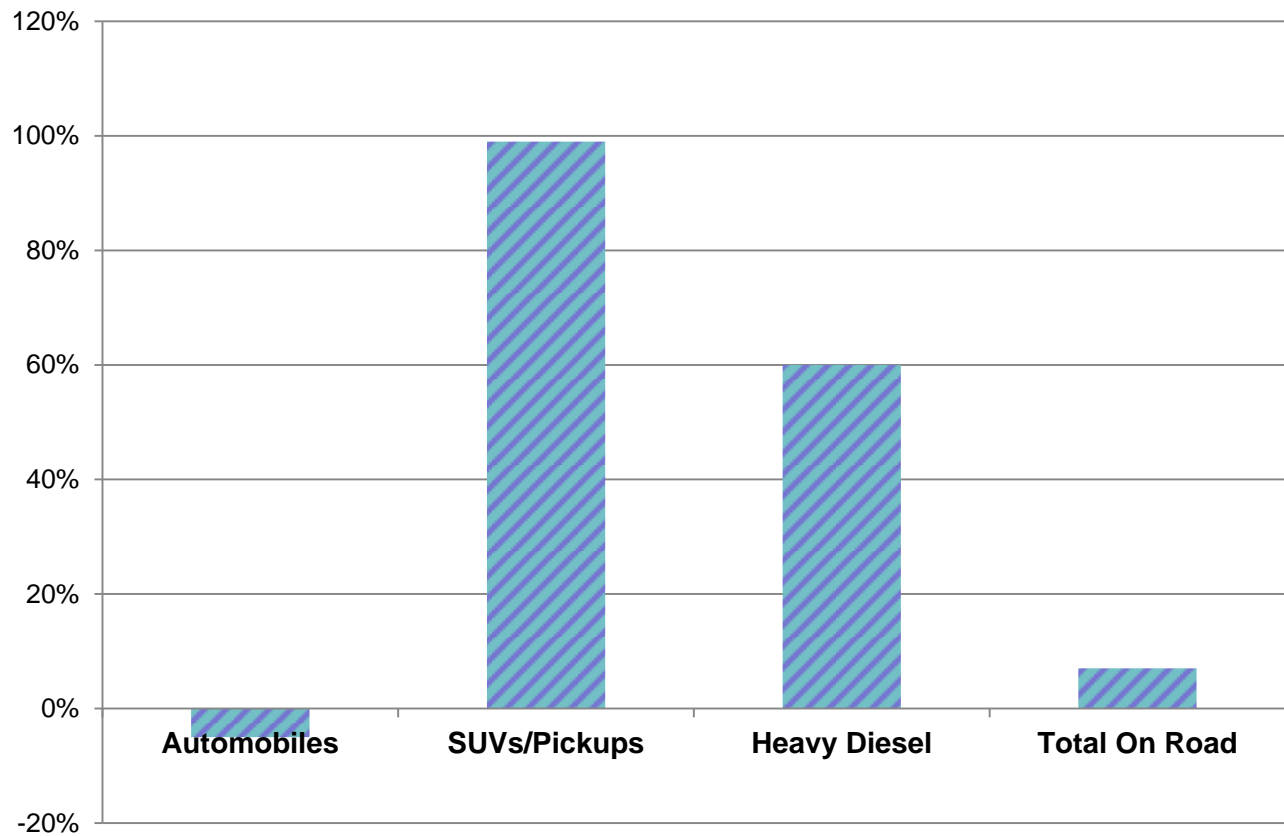


Vehicle Population

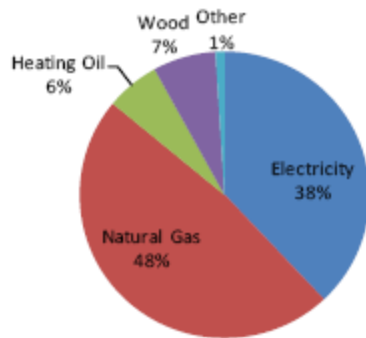
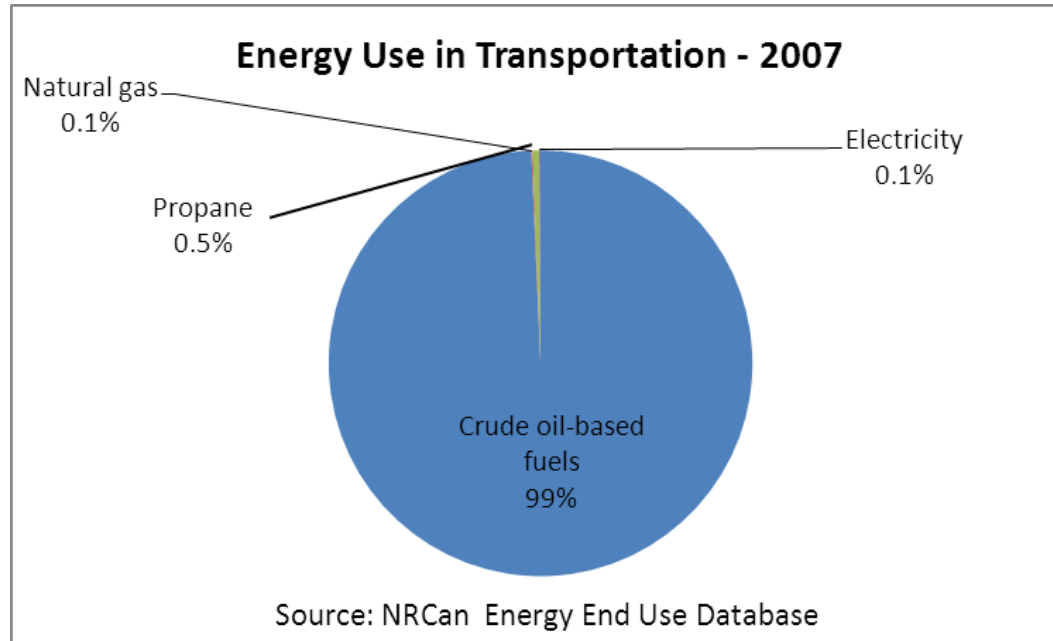


- North America had > 265 million vehicles in 2009
- Medium & heavy vehicles are 4% of vehicles, but contributed 24% of greenhouse gas emissions from onroad sources in 2009 in United States and 29% from onroad sources in Canada

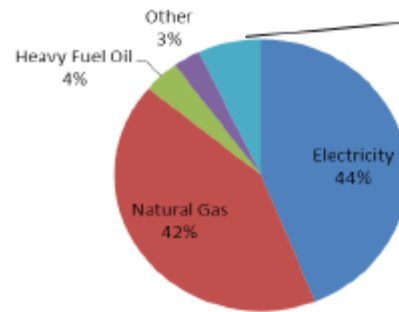
North America - GHG Growth On Road Sources 1990-2009



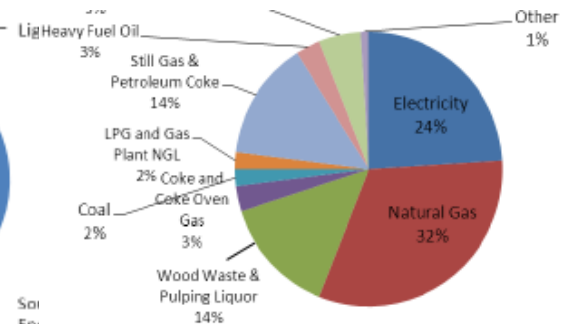
Energy Use Diversification - Canada



Residential



Commercial



Industrial

Barriers to Adoption

- *Deployment Roadmap* finding: Good internal rate of return for right scale and type of fleet, but market not acting due to barriers
- End users cited 5 key barriers:
 1. Vehicle acquisition cost & payback
 2. Perceived performance risk
 3. A lack of up-to-date information
 4. A lack of access to infrastructure
 5. Implementation support



Effective Policies to Lower Barriers

- Must consider two sets of needs:
 - Deployment needs of end users
 - Public interest needs which policy must serve

End Users

- Create confidence
- Accessible
- Material

Policy Makers

- Targeted
- Time-limited
- Cost effective



PNWER Opportunity #1 - Trucking

- Fuel savings can lower cost of goods movement , improve competitiveness, green the supply chain
- Target return-to-base urban delivery, port drayage, and regional corridors
- Early stage incentives can:
 - Lower acquisition cost/capital risk
 - Create confidence re performance
 - Build capacity in supply and service chain to support uptake



PNWER Opportunity #2 - Refuse

- Fleets can reduce urban noise, lower fuel costs, avoid the need for exhaust aftertreatment, and lessen their emissions impact
- Refuse trucks go home to the yard and can be refuelled overnight
- Public sector procurement policies requiring lower emission collection vehicles can level playing field
- Biogas-related assets can be leveraged to produce renewable, near zero emission fuel



PNWER Opportunity #3 - Marine

- Reduced sulphur oxide (SOx) and carbon emissions from vessels
- Reduced operating costs based on projected increases in cost to comply with new regulatory standards
- Commercially-available engine technologies that have not, to date, been used in North America
- CNG or LNG depending on routes



Seizing Market Opportunities

- Not all costs and benefits are captured in current price structures
- Supportive, time-limited policies are needed if the benefits of natural gas are to be captured for transportation

End Users

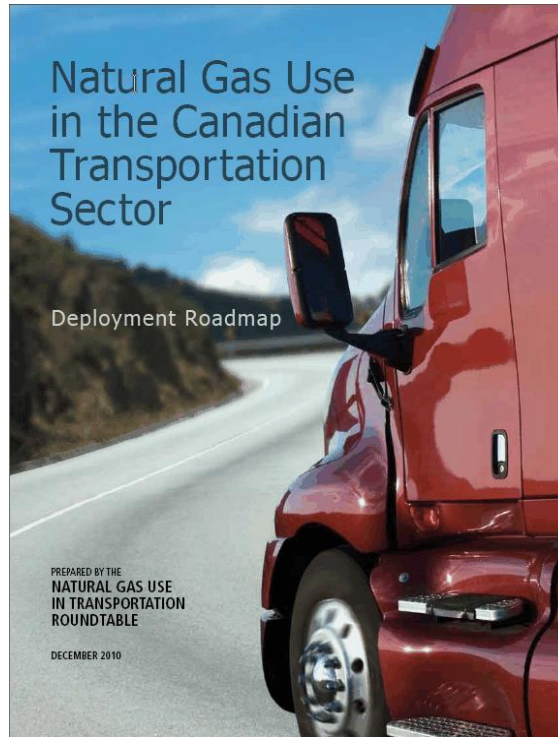
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A Deployment Focus is Critical



- Sound policy rationale is foundation, but a focus on technology only is not enough
- Any public or private sector investment needs to consider deployment

Roadmap can be downloaded at:

www.alternativefuels.gc.ca





Thank You & Questions

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