



Canadian Renewable Energy Alliance

promoting a transition to renewable energy

A National Green Transportation Strategy

Transportation supports the demands of people for accessibility to goods and services, work, and social activities. It is an integral part of our economy and quality of life. A variety of impacts on human health and the health of the environment result from transportation activity. The energy used for transportation is mainly derived from petrochemical fuels, which when burned to power vehicles, contributes to poor air quality, climate change, and acid deposition.

There are significant opportunities to reduce the environmental impact of transportation activity in Canada. A National Green Transportation Strategy should be introduced to achieve an overall reduction in energy used for transportation, and to increase the use of renewable fuels.

Reducing Transportation Energy Use

Petroleum fuels dominate the supply mix of energy for transportation. These fuels pack large amounts of energy into a compact liquid form. Energy in this form is easy to distribute and can be conveniently stored onboard vehicles. To use the energy in the fuel, however, the fuel must be burned. This generates emissions harmful to human health and the environment.

Reducing the amount of energy used for transportation directly reduces the amount of fuel burned and the associated emissions. Actions to reduce transportation energy use generally fall into three categories:

- i **Using energy more efficiently** – Through improved vehicle technology and design, people and goods can be moved with less energy.
- ii **Shifting transportation modes** – By providing people with options for less energy-intensive modes of transportation, such as commuting by public transit instead of by personal car, the demand for transportation energy can be reduced. The same can be true of shifting the mode of transportation of goods, such as from truck to rail, especially for longer hauls.
- iii **Urban design** – Urban areas can be designed so that people live, commute to work and access services with a minimum of travel, thus lowering the demand for transportation energy. The same can be true for goods transport within urban regions.

Some measures to reduce transportation energy use can have immediate impacts while others require longer-term vision and commitment from governments. For example, the Ontario Government's 'Places to Grow' Act supports denser, mixed-use development of urban land, which should lead to reduced demand for transportation energy over the long term. The federal government funds public transportation through the gas tax and has proposed a tax credit for transit pass holders, potentially increasing transit use over the short term and the long term. These policies are moving in the direction of improved sustainability, but much more is needed.

Increasing Use of Renewable Fuels

Canadians can improve air quality and reduce emissions of greenhouse gases (GHGs) by utilizing non-petroleum fuels. Ethanol is a gasoline fuel substitute manufactured from starch-based grains, such as wheat or corn, or from lignocellulose (plant fibres), such as straw, hay, or wood. Biodiesel is a diesel fuel substitute that can be produced from agricultural oils, recycled vegetable oils or animal fats. Both fuels can be used in conventional engines in low percentage blends without modification, and can reduce overall emissions.

Biodiesel and ethanol fuels, however, are not all created equal. The different feedstocks and technologies used can have a wide range of environmental impacts. To get maximum environmental benefits, it is important that petroleum fuels are not simply replaced by renewable fuels; rather, the fuels with the lowest life-cycle GHG and criteria air contaminant (CAC) emissions should be produced and utilized. For example, cellulose ethanol and biodiesel have lower overall GHG emissions than starch ethanol. As well, the environmental impacts vary depending on the agriculture and forestry practices used to produce the feedstocks, and the way in which co-products of the fuel production

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process are used. Government policies should provide targeted support to fuels with the lowest life-cycle environmental impacts.

Ethanol and biodiesel have considerable presence in international markets, but Canada is a relative newcomer in production of these fuels. Approximately half of the provinces have announced renewable fuel mandates or exempt biofuels from provincial fuels tax, while the federal government recently announced that a 5 per cent national renewable fuel standard will be in place by 2010. To meet this target, it is projected that Canada would need to produce 3.1 billion litres of renewable fuel - a volume that far exceeds the capacity of current and proposed domestic production facilities.

Recommendations for Provincial Enabling Policy

- 1 Increase resources for community-level initiatives to promote active living/active transportation (such as walking, biking), and the use of public transit.
- 2 Apply economic incentives to various transportation modes, consistent with their full economic, environmental and social cost, and base the funding of transportation systems on full-cost accounting.
- 3 Emphasize compact, mixed-use developments over urban sprawl and align major policy areas to support sustainable transportation (e.g., reorient housing and land use policies to support public transit use).
- 4 Develop new financial instruments to support sustainable transportation (road tolls, congestion charging, parking fees, etc.).
- 5 Provide exemptions from fuel taxes for distributors to bring renewable fuels pricing to a level more competitive with petroleum fuels in the marketplace.
- 6 Provide exemptions from property or sales taxes, or provide loan guarantees for the purchase of equipment as a catalyst for producers to establish production facilities.
- 7 Provide funding for research and development to bring the large volumes of "waste" feedstocks into commercial production, and maximize environmental benefits.
- 8 Add renewable fuels to all provincial renewable portfolio standards. To do so would provide a stable market for the upstart industry and reduce emissions from the public fleet.

Recommendations for Federal Enabling Policy

- 1 Formulate a common vision and strategy for sustainable transportation.
- 2 Develop metrics to provide indicators of sustainable transportation.
- 3 Financially support public transit, introduce incentives and regulations to shift freight to the most energy efficient mode, and support new innovations to minimize freight movement.
- 4 Implement standards to improve automobile fuel efficiency and reduce idling.
- 5 Implement tax shifting measures (i.e. 2 cents per litre of gasoline tax to fund public transit – a new element of the federal budget that should continue).
- 6 Research links between transportation and human health.
- 7 Introduce policies that will help secure a reliable supply of feedstocks, increase production capacity, and establish an integrated fuel distribution system.
- 8 Implement policies that will place preference upon renewable fuels with the lowest life-cycle GHG and CAC emissions.
- 9 Introduce policies requiring cropped sources of feedstocks to be produced using the best practices of sustainable agriculture.
- 10 Provide funding for Canadian researchers to identify opportunities for maximizing the environmental benefits of renewable fuels.
- 11 Establish national fuel quality standards to ensure that all renewable fuels sold in Canada meet accepted industry standards.

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