

## **How Railways Can Assist in Improving Canada's Environmental Performance**

### **I. INTRODUCTION**

Environmental policies in Canada, at federal and provincial levels of government, are being developed in response to public demands for improved air quality, reductions greenhouse gas emissions and increased energy efficiency. In response, the federal government issued, "Turning the Corner: Canada's plan to reduce greenhouse gas emissions and air pollution", in 2007. This action plan provides an outline of policies and programs to improve air quality and reduce greenhouse gas emissions, including a commitment to put in place regulations on locomotive emissions by 2011. Provinces are also proceeding with their own strategies and programs to mitigate the growth in GHG emissions and improve air quality. Overall, Canada is faced with the challenge of reducing emissions growth in a highly competitive global economy. At the same time, Canada's economic strength and community well-being must be assured.

A key component in an environmental strategy must the role of rail sector can play in reducing emissions associated with transportation activity. Currently, the transportation sector, the largest single source of GHGs, contributes 33 percent of GHGs produced in Canada. Rail is well positioned, and must be, a solution to reducing GHG emissions, as it is the most efficient mode of surface transportation. Canada's railways only produces 3 percent of the GHGs emitted through transportation activities while moving 75 percent of the surface freight on a tonne-kilometer basis. Canada's rail industry is in a unique position to meet the challenge in assisting Canadian communities and industries to an environmentally sustainable future.

### **II. RAILWAYS AND CANADA**

Railways are vital to Canada's economy and society. They are an extension of the nation's industry and resource base. They provide a seamless system linking the regions to national, North American and global markets through major centres, borders and trade gateways. They contribute \$10 billion annually to the economy, directly employ about 35,000 people and handle 75% of the nation's surface freight on a tonne-kilometer basis.

Freight railways are in a continual process of investing, modernizing and adapting to meet and support market demands and improve the efficiency of their operations. Major advances in locomotive technology, infrastructure, and communications systems have been introduced and widely implemented across the industry. System-wide, continuing improvements in operations have been undertaken to optimize capacity and fluidity. These include areas such as formal track-sharing arrangements between railways, expanded or new terminals, and efficient intermodal/container and bulk movements. In addition, since the mid-1990s, many short lines have been formed across Canada to maintain the links between the regions, mainlines and the global economy.

The rail passenger sector, now carrying 68 million passengers annually, has been responding to and adapting to the market and consumer needs. The sector is investing in modernization their rolling stock and expanding its facilities and is providing increasingly attractive travel options: for urban commuters, within high density population corridors, and through meeting increasing intercity travel demand.

Canada's freight railways pay their own way; they finance, build, operate, police and pay property tax on their right-of-ways. In 2008, Canada's railways invested more than \$2.5 billion in their infrastructure and rolling stock. When it is considered that Canada's transportation infrastructure deficit may be as high as \$100 billion, the railways' independent ability to efficiently serve Canadian industry and travelers becomes of very high value. Canada's railways, despite vast distances, rugged topography and climate extremes, are among the most efficient and well-managed in the world.

Importantly, Canada's railways are also making a major contribution environmentally. Utilizing a small footprint, they provide, through separate rights-of-way, a major capacity and mobility alternative to roads in crowded corridors and in urban areas. They utilize only 1/3 the land for capacity equivalent to roads, In addition, one train can move one tonne of freight 180 kms on a single litre of fuel. In all, railways relieve congestion pressure on roads, provide environmentally attractive options, and improve transportation safety.

The rail industry is ready to move forward and is attuned to the Canadian environmental imperative. Rail has a unique environmental effectiveness, with its fuel and emissions efficiency, its small footprint and its ability to move on rights-of-way separate from congested highways.

### **III. THE CHALLENGE**

For the Canadian transportation system, the growth in GHG emissions is no longer environmentally sustainable. Canada needs to encourage and enable an effective sustainable transportation system serving the nation and its regions. A system that enhances movement of freight and passengers and continually strengthens Canada's economic and international competitiveness is critical to our well-being as a nation.

Canada must do this in the face of growing international trade competition and declining economic growth. We must assure reliable, seamless capacity and "reach" for shippers nationally, in North American markets, and internationally. Any Canadian solution must recognize the need to better harmonize our transportation regulations and policies with those of the United States – to assure unhindered, fluid, movement of our goods and our country's future competitiveness.

For real progress to be made in reducing transportation's effects on climate change and air quality, more traffic must be shifted to freight and passenger rail and road/rail intermodal combinations that optimize the environmental and energy efficiency of each route or journey.

Because Canada's three levels of government share responsibility for transportation, this requires coordinated efforts.

A national environmental strategy will need different emphases in different parts of the nation for which rail could play an important role. Overall federal leadership in coordinating efforts to reduce emissions associated with transportation activity is essential to achieving national environmental objectives.

#### **IV. THE OPPORTUNITY: RAIL'S ENVIRONMENTAL EFFECTIVENESS**

While transportation as a whole is facing major challenges, rail has been realizing tremendous improvements in fuel efficiency and improving its environmental performance. For example, the 1995-2005 Memorandum of Understanding (MOU) between the RAC and Environment Canada demonstrated the great value of a voluntary soundly-based agreement between industry and government. The MOU allowed the railways to manage their fleet and operations, meet their customer's needs, and sharply reduce workload emissions.

This voluntary approach has proven very successful. In the period of the MOU, 1995-2005, freight rail revenue tonne-kilometers have increased by 22.5%, but aggregate fuel consumption was hardly affected as railways met the challenge and brought into service new equipment and operating practices. Further, emissions from rail operations of smog-forming oxides of nitrogen (NOx) have averaged below the 115 Kt despite the unprecedented traffic growth over this time period. Passenger railways realized similar improvements in emissions reductions on a passenger-km basis.

The current Environmental Performance Agreement between the railways, Environment Canada and Transport Canada for the years 2006 – 2010 builds upon the success of the 1995-2005 MOU. It recognizes for more fuel efficiency initiatives and also encourages partnerships among all railways to utilize research, development and assessments of other emissions reduction strategies.

The program includes agreed performance objectives to reduce GHG and criteria air contaminants (CACs) emissions, reporting accountability on locomotive emissions, consistent monitoring, a publicly available annual report, a progressive schedule of fleet modernization, and targeted continuous improvement in workload emissions, recognizing U.S. Environmental Protection Agency (EPA) standards. It also required the rail industry to develop and submit a 'GHG Reduction Action Plan' to the federal government within six months of signing the MOU. The rail industry was the first industry in Canada to formally submit a GHG Reduction Action Plan to the federal government.

The benefits of such an agreement and process are:

- Targets workload emissions, with annual reporting; is simple to administer
- Timely implementation for government with no regulatory overheads

- Voluntary / flexible options as a means to achieve reduced emissions
- Encourages new initiatives and operating practices
- Provides a multi-year industry commitment to the desired environmental result
- Promotes multi-stakeholder research and development

## **V. THE WAY AHEAD: GUIDING PRINCIPLES**

Given the excellent performance and the unique positive characteristics that Canada's rail industry brings to the country's environmental challenges, the industry believes it can make a significant contribution to future progress through a number of key actions. We believe strongly that these actions will be most effective if they are guided by the following strategic principles:

- Consultation and collaboration should underpin all initiatives
- Voluntary, flexible processes should be preferred to regulation
- Focused and cost-effective approaches should take precedence
- Market forces should be maximized in all initiatives
- Initiatives must have measurable objectives
- Initiatives should not erode Canada's competitiveness or regional economies
- Emphasis ought to be on leading edge technology and innovation to achieve results

## **VI. PROPOSED INITIATIVES**

The Canadian railway industry is investing in new environmentally advanced and energy-efficient locomotives and rolling stock and is modernizing and optimizing rail operations. Canadian railways are purchasing locomotives compliant with U.S. EPA emissions standards. In 2007, there were 1065 compliant locomotives operating in Canada, up from just 80 EPA compliant locomotives in year 2000.

As well, the industry has undertaken other emission-lowering initiatives, beyond those specifically related to locomotives and rolling stock. These have included track lubrication and friction modifiers, better training of staff to promote fuel efficiency, reduction in idling time in rail yards, and co-production agreements with other railways to ensure the most efficient train movements possible.

However, more can be accomplished if the industry is afforded the opportunity to form partnerships with governments. The following key initiatives, developed in accord with the guiding principles, could drive the process forward and reap an enhanced environmental benefit for the nation.

### **1. Infrastructure Support**

The improvement of rail infrastructure, particularly targeted on short line operations, will improve the energy efficiency, emissions and the transportation flows of the whole network. The current Building Canada Fund and the Infrastructure Stimulus Fund could be a useful

mechanisms to allow federal and provincial governments to partner with the rail industry to achieve improvements in infrastructure and network capacity and road fluidity through road/rail grade separations. It is proposed that rail infrastructure improvements would be eligible for funding in all provinces under the Building Canada Fund and the Infrastructure Stimulus Fund.

## **2. Development and Implementation of Sustainable Technologies**

Canada's railways and railway equipment suppliers recognize that new technologies will play a critical role in meeting our environmental performance goals. Railways are continually investing in new technologies and practices that improve efficiency and reduce emissions. However, more aggressive action is required to achieve necessary major improvements in the near and medium-term. A partnership with governments to focus incentives on the development, testing and deployment of new technologies would significantly accelerate the development and implementation of new technologies that will improve fuel efficiency and reduce emissions.

## **3. Emissions Offset Credits for Shippers**

Emissions credit programs are increasingly being used to assist shippers to achieve reductions in a number of targeted substances. If properly designed and implemented, this approach has the significant advantage of harnessing market forces to achieve environmental goals. Canada's rail industry believes that this approach would greatly increase the use of rail transportation services that, in turn, would reduce emissions associated with transportation activity. The government of Alberta recently approved a 'modal shift' protocol whereby shippers can earn credits associated with the GHG savings realized through shifting all or a portion of their freight from truck to rail. This program clearly provides shippers with an incentive to shift a portion of their freight movements from truck to rail. The industry would welcome the opportunity to work with government(s) to implement a 'modal shift' program throughout Canada.

## **VII. CONCLUSION**

Canada's rail industry has made a significant contribution to environmental sustainability in the past and it is well positioned to play an important role in the future. We are ready to work with governments, communities and other private sector partners to do our part in finding a sustainable future for Canadians. We have proposed a number of initiatives which we believe will make a significant, cost-effective contribution. At the same time, we will continue to assist Canadians with our ongoing efforts to ensure the nation's social and economic well being.

We hope this proposal will form the basis for further discussions and we look forward to contributing to this critical endeavour.



## RAIL- SAFER, CLEANER, GREENER

*Canada must give increased attention to sustainable forms of transportation. Rail delivers compelling benefits for the economy, environment, community- and the Canadian way of life.*

### Rail Should Be The Transportation Mode of Choice Because It:

- ◇ Is considerably more energy efficient than road transport. Freight movements by rail are at least three times more energy efficient than moving the same freight by truck;
- ◇ Is a smarter economic choice for freight haulage in a country with one of the highest levels of road freight used per capita in the world. One freight train between Montreal and Toronto replaces up to 250 trucks, saving 35,000 litres of fuel and 100 tonnes of GHG emissions. With freight demand expected to increase over the next 10 years, the choice is either to increase rail or have substantially more trucks on our highways;
- ◇ Is the safest and most environmentally-sustainable transport mode, and a healthier option for communities;
- ◇ Can provide relief from rising fuel costs, particularly for families in the suburbs of our major metropolitan areas that are negatively impacted by rising fuel prices;
- ◇ Is able to assist in relieving road congestion in our cities which is costing the economy billions of dollars a year; and
- ◇ Provides access and mobility. Rail can increase social inclusion for the significant number of people without access to a car, particularly the aged and disabled.

**Rail is a safe, healthy, environmentally and socially sound choice. It is the smart option for surface transportation in Canada that makes dollars and cents.**

# Rail - Safer, Cleaner, Greener

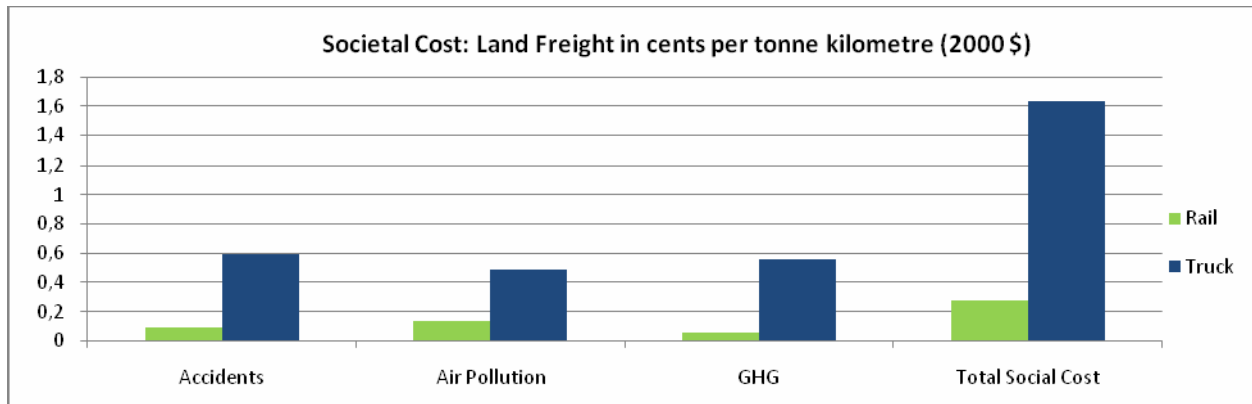


## THE FACTS

### GREENHOUSE GAS EMISSIONS

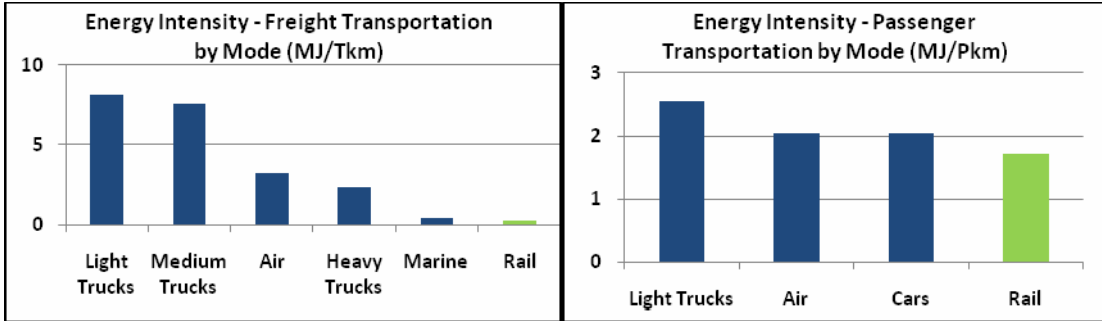
- ◇ Transportation accounts for 27 per cent of Canada's GHG emissions-at 200,000 kilo-tonnes per year this one of the highest emissions for transport per capita in the world.
- ◇ 84 per cent of transportation GHG emissions are attributed to road.
- ◇ Only 3 per cent of transportation GHG emissions are attributed to freight and passenger rail.
- ◇ Going forward, if 20 per cent of current truck freight is shifted to rail, it will result in an annual reduction of 5.75 million tonnes of GHG emissions.

### EXTERNAL SOCIETAL COSTS



### ENERGY EFFICIENCY

- ◇ Canada has among the highest levels of road freight per capita in the world. It uses 9 billion litres of diesel annually.
- ◇ Rail moves more freight on a tonne-km basis than road yet uses only 2.2 billion litres of diesel annually.



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