

MALCOLM CAIRNS RESEARCH AND CONSULTING
**A REVIEW OF CURRENT PUBLIC POLICY ISSUES RELATED TO THE
CANADIAN FREIGHT RAIL INDUSTRY**

Urban Canadians are fully aware of commuter trains in their cities, and more generally Canadians are aware of the rail lines that intersect their communities, crisscross the country, and are familiar with the sight of an occasional freight or inter-city passenger train. However, except for concern with the occurrence of train accidents, Canadians in general do not especially connect with freight rail, recognize its significant contribution to the national economy, or know that the industry is world class.

On June 25, 2014, the federal Minister of Transport launched a statutory review of the Canada Transportation Act. The Act is the umbrella economic legislation for Canada's national transportation system, and while it covers several modes of transport, freight rail was of central interest in the past several reviews, and this review will likely also focus to some extent on freight rail. It is therefore timely to provide a general review of current public policy issues related to the Canadian freight rail industry.

The freight rail industry in Canada operates in the private sector, but is circumscribed by a complex web of largely federal policy and regulation: economic, safety, environmental and workplace. The fundamental goal of such government intervention is to ensure that Canada can achieve the best value from the national rail assets. Beginning with a current overview of the freight rail industry and the policy and regulatory framework, this paper will develop six principal current issues in greater detail, and review specific policy implications.

I OVERVIEW

The rail freight industry in Canada has three segments: the two Class 1 carriers Canadian Pacific (CP) and Canadian National (CN); regional railways such as the Ontario Northland (ONR), ArcelorMittal Mines Canada (AMMC) and the Quebec North Shore and Labrador (QNSL); and a collection of some 50 privately-owned shortline railways that arose as CP and CN sold-off economically marginal branch lines over the past few decades, rather than move to discontinue rail service altogether. These shortlines now provide pick-up and delivery service on light-density lines to and from connections with the Class I carriers. In addition, several US Class 1 railroads make minor incursions across the border into Canada.

Both CP and CN, many of the shortlines, and the QNSL are subject to federal jurisdiction. Some of the shortlines that operate solely within one Province, and the regional ONR, are subject to the applicable Provincial jurisdiction. The review currently underway of the Canada Transportation Act applies only, in respect of rail, to railways under federal jurisdiction, and this paper will similarly limit its focus to federally-regulated railways, but will not consider passenger rail carriers such as commuters, tourist operators or VIA Rail.

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1.1 Profile of the Freight Rail Industry

Exhibit 1 presents various metrics associated with the three rail segments. The following points may be noted:

- CP and CN represent more than 80% of the freight rail industry by any of the metrics – road miles, equipment, fuel use, number of employees, traffic as measured by revenue ton-miles¹, and capital expenditures;
- The exception is tons originated, where CP and CN originate just 60%. This is due to the two regional railways AMMC and QNSL that handle iron ore from mines in Quebec and Labrador to the St. Lawrence River at Port Cartier and Sept-Iles respectively. These two railways are unusual in two ways: both are isolated and do not connect with the balance of the Canadian rail network; and each is owned by the shipper, so that issues related to competition, investment, capacity and service are internal matters and not generally matters for national policy. If the tons originated by these two regional is excluded from the comparison then CP and CN originate 84% of the remaining tons;
- The Hudson Bay Railway (HBRY) with over 600 miles of road is hardly a “short” line and so has been included in the regional segment. HBRY is also unusual in that it is basically a terminating railway, moving relatively small tonnages of western grain to the Port of Churchill, while most shortlines are principally originating railways.

EXHIBIT I 2012	CP and CN Canada only	Regionals including HBRY	Shortlines excluding HBRY	TOTAL FREIGHT	CP and CN as Percent of Total
Miles of Road operated	21,852	1,827	3,244	26,923	81.2%
Number of Locomotives	2,494	131	226	2,851	87.5%
Number of Freight Cars	61,024	2,386	1,075	64,485	94.6%
Fuel - imperial gallons (thousands)	423,750	13,737	11,662	449,149	94.3%
Average number of employees	28,185	1,623	1,495	31,303	90.0%
Tons Originated (thousands)	227,150	110,154	38,476	375,780	60.4%
RTMs (billions)	244.5	24.6	4.4	273.5	89.4%
Average length of haul - miles	868	264	48		
Capital Expenditures - (\$ millions)	\$1,474	\$84	\$52	\$1,611	81.2%

Source: Railway Association of Canada

¹ Note that railways continue to generally report in imperial rather than metric units, and to retain linkages with the sources this paper will use the units as reported.

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Given their dominant position, most of the balance of this paper will focus on national issues associated with CP and CN. These Class 1s are largely transcontinental carriers in Canada, with significant subsidiaries in the US. Their rail line networks are vertically integrated with their freight train operations, are privately-owned, for-profit businesses, are financially-successful, pay the regular panoply of sales taxes, property taxes, fuel taxes and corporate income taxes to the various levels of government, and do not depend upon government subsidies. CP and CN operate as part of an integrated North American freight rail industry, and are members of the American Association of Railroads: rail operating standards and practices are effectively identical across all of North America. While there are some customs and security constraints at the Canada-US border, nevertheless CP and CN operate virtually seamlessly across their entire networks.

These two Class 1 freight railways operate transcontinental rail networks over a combined distance in 2013 of more than 34,000 route miles. CP operates from Vancouver to Montreal in Canada, as well as in the US north-east to New York City and Philadelphia, and in the US mid-west to Chicago and Kansas City. CN operates from Vancouver and Prince Rupert to Montreal and Halifax in Canada, as well as in the US to Chicago and Memphis and as far south as the Gulf coast. Exhibit 2 presents a profile of the CP and CN traffic freight revenues by geographic region.

EXHIBIT 2	Percent of Freight Revenue		
	2013	CP	CN
Domestic Canada		16%	22%
Domestic US		18%	17%
Transborder, principally southbound		30%	29%
Global Asia, principally exports		31%	26%
Global Europe and Other		5%	6%
Source: CP and CN Investor Fact Books 2014			

It may come as a surprise that nearly 20% of their operations are entirely within the US. Note also the relative importance of freight rail for exports to Asia. Exhibit 3 presents further continent-wide metrics associated with each of CP and CN individually. The following points may be noted:

- CN is larger than CP by some 50% by revenues and some other metrics;
- The operating ratio – ratio of expense over revenue – for each railway has been improving, and CP is projected to join CN in the low 60% range in 2014;

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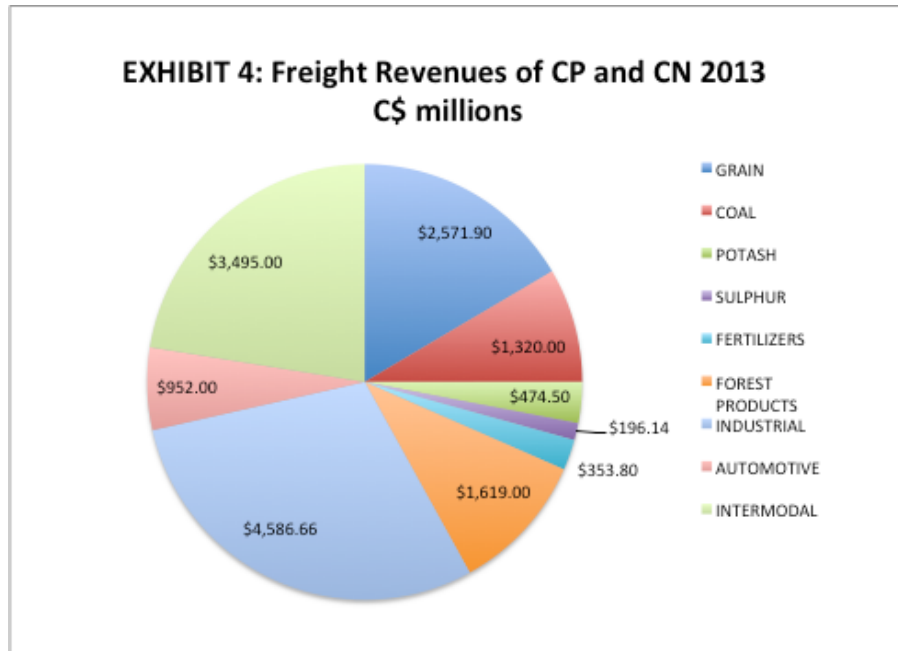
- The combined \$3.2 billion in capital expenditures on such items as rail infrastructure represent some 19% of revenues – rail is one of the most capital-intensive industries in Canada;

EXHIBIT 3	2013	
	CP	CN
	(CDNS\$ millions)	
Freight Revenues	\$5,982	\$9,587
Non-Freight Revenues	\$151	\$988
Total Revenues	\$6,133	\$10,575
Expenses	\$4,713	\$6,702
Operating Ratio	76.8%	63.4%
Capital Expenditures	\$1,236	\$2,017
Miles of Road	14,400	20,000
Locomotives	1,651	2,008
Freight Cars	47,600	67,560
Average Number of Employees	15,011	23,705
Fuel Use - US gallons millions	283.3	403.7
GTMs - millions	267,269	401,390
RTMs - millions	144,249	210,133
Carloads	2,688,000	5,190,000
Average length of haul - miles	844	681
Freight Revenue per carload - C\$	\$2,225	\$1,847
Freight Revenue per RTM - cents	4.15	4.56
Sources: CP and CN Annual Reports, Investor Fact Books and SEC 40Fs 2014		

- The combined workforce of CP and CN is nearly 40,000 and most of these employees are unionized. Over the past several decades the unions and management have moved away from employment security towards more flexible arrangements that include gain sharing – whereby unionized employees share in the profits based upon company performance;
- Freight revenues per carload are slightly higher at CP than CN due to differences in the their traffic mixes, but the freight revenues per revenue-ton-mile – the tonnages of revenue traffic multiplied by the distances moved – are slightly lower at CP than CN due to the longer lengths of haul.

Exhibit 4 presents the combined freight revenues of CP and CN by class of traffic. There are significant quantities of bulk traffic – coal, potash, sulphur and fertilizers – but the largest classes of traffic are as follows:

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- Industrial products such as chemicals and plastics, mining products and energy – this class includes crude oil which has grown significantly in the past few years but crude oil shipments still only represent some 2% of total rail traffic;
- Grain is primarily regulated western Canadian grain that is moved to export position, but does also include US grain moved within the US;
- Rail intermodal involves the movement of containers on flat cars. Some 45% of this traffic is moved in domestic containers around the continent, while the balance of 55% of this traffic is moved in marine containers and, in particular, is imported into Canada from Asia and Europe – some of which is destined directly for US markets.

Overall, the industries – as classified according to the North American Industry Classification System – that are directly served by the railways, and that are dependent to some extent upon rail, represented some 37% of the goods-producing GDP and 11% of the total Canadian GDP in 2013².

² Statistics Canada 379-0031 chained 2007 dollars annual rates for Canada.

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1.2 Public Policy and Regulation

Federal legislation, policy and regulation of the freight rail industry has been in place for many decades, and has evolved from a position of strict regulatory control as recently as the 1960s to a more sophisticated and relaxed regulatory system during the course of a number of legislative changes during the subsequent decades. The current system will be described briefly³.

Economics

The principal federal economic legislation for freight rail is the Canada Transportation Act (CTA) and it has a number of interrelated components:

- The CTA specifies the National Transportation Policy – and it declares, in part, that competition and market forces are the prime agents in providing viable and effective transportation;
- The CTA establishes the Canadian Transportation Agency (Agency) as an independent quasi-judicial regulator, in part, of matters and disputes related to freight rail;
- Discontinuance of rail lines and the construction of new lines and facilities are subject to review and approval by the Agency;
- All rail carriers must receive a certificate of fitness from the Agency – which includes proof of adequate liability insurance coverage – before commencing operations;
- The CTA gives railways pricing freedom – freedom to set freight rates – and provides for confidential contracts between railways and shippers, the terms of which may include freight rates;
- The CTA specifies the level of services that must be furnished by a rail carrier, and a shipper may complain to the Agency if it deems service is inadequate;
- The CTA makes specific provisions for the movement of western grain to export position – in particular, it establishes an annual maximum revenue entitlement that each of CP and CN may earn on the movement of this traffic.

³ For more details see “Evolution of Canadian Railway Economic Regulation and Industry Performance under Commercial Freedom” prepared by CPCS for the Railway Association of Canada, November 14, 2014.

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In addition, the CTA includes several provisions that have the effect of curbing any potential for the abuse of market power in circumstances when competition may be inadequate:

- Regulated interswitching requires, in general, that railways interswitch traffic in either direction at an interchange between their lines, at a regulated price, provided the interchange is within 30 kilometres. This limit has recently been extended to 160 kilometres for traffic originating in the three Prairie provinces;
- A shipper may apply to the Agency to administer a Final Offer Arbitration (FOA) if it considers a freight rate inappropriate. Upon a specified process and review, the Arbitrator must choose one or other of the two final offers;
- A railway may apply for running rights – the right to run trains over the lines of another railway, and the Agency may grant such a right, including the compensation to be paid, if parties cannot agree;
- Under specific circumstances, the Agency may mediate or arbitrate a dispute relating to railway matters.

Finally, a Canadian railway merger requires a review and approval from the Competition Bureau, and if it involves US subsidiaries will also require approval from the Surface Transportation Board in Washington DC.

Safety, Environment and Workplace

The overall responsibility for the safety of federally regulated railways lies with the Minister of Transport and Transport Canada, while some specific regulatory authority is vested with the Agency and the Transportation Safety Board of Canada. The principal legislation concerned with the safety of the rail industry is the Railway Safety Act – this is complemented by several other Acts, and there are numerous rail safety regulations, standards and rules, including the Railway Safety Management System Regulations.

It should also be noted that the rail industry in North America is highly integrated, and that many operating and equipment standards in North America are researched and managed by the American Association of Railroads based in Washington DC. The Transportation of Dangerous Goods Act is also of particular note: it applies to all modes of transport, not just rail, and addresses the means of containment and packaging of dangerous goods, the uniform marking of dangerous goods (placarding) and the need for emergency response assistance plans in order to import, offer for transport or handle and transport dangerous goods. Much of this framework has been the subject of recent review as a consequence of the 2013 tragedy in the town of Lac-Mégantic, Quebec, when a unit train of crude oil exploded killing 47 people.

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In addition to safety, freight rail is subject to environmental impact assessment when proposing changes to, or constructing new, rail line infrastructure or facilities. The Agency has a responsibility to evaluate such projects in accordance with the Canadian Environmental Assessment Act. Freight rail operations are also subject to review by the Agency when there are complaints concerning noise and vibration in proximity to residential and commercial activities.

Freight rail is also subject to the Canada Labour Code concerned with industrial relations, the encouragement of free collective bargaining, and the constructive settlement of disputes. In the event of a rail strike, the ensuing harm to a large segment of the national economy has usually been swiftly recognized by the federal government with the passage of back-to-work legislation and a process to resolve the dispute.

With this brief overview of the complex regulatory framework, the balance of the paper will develop in turn six principal current issues in greater detail, and review their policy implications, specifically:

- Productivity and Capital Investment;
- Freight Rail Capacity;
- Competition and pricing
- Rail Service;
- Regulated Western Grain; and
- Transportation of Dangerous Goods.

II PRODUCTIVITY AND CAPITAL INVESTMENT

There has been general concern expressed in Canada that the recent productivity growth in the private sector is inadequate – for example, Canada’s 0.7% annualized labour productivity growth (2001–2009) puts us in the bottom quartile of the Organization for Economic Co-operation and Development. By way of contrast, CP and CN have accomplished average annual total factor productivity growth of 3% in Canada between 1981 and 2012⁴.

How was this performance accomplished? The sources of this productivity growth, which resulted from a combination of a benign regulatory framework and innovation by the railways themselves, were varied:

- The size of the less productive rail line network of CP and CN was reduced by a combination of sales of marginal lines to shortline operators, and the discontinuance of uneconomic branch lines;

⁴ Data compiled by Transport Canada.

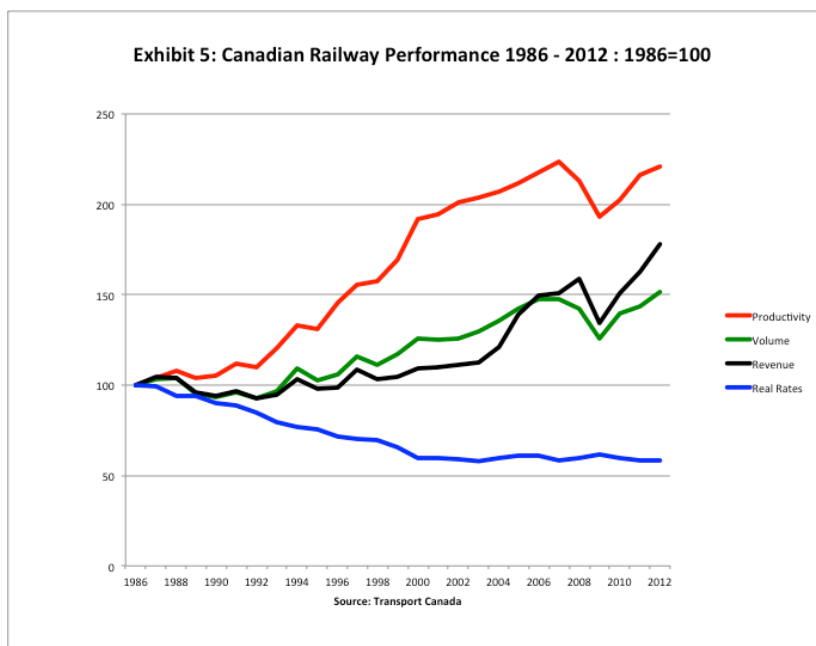
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- The size of the rail labour force was reduced while introducing new labour agreements that provided for gain sharing arrangements together with improvements in workplace practices;
- The locomotive fleets have been renewed with high horse-power and more fuel efficient, locomotives. In addition, locomotives are now more operationally efficient with the use of dynamic braking and onboard micro-chip technology such as track and axle sensors that enable repairs to be made before there is a failure;
- New freight cars have been introduced, as the older fleet has been retired, constructed of lighter-weight materials that allow for less tare weight and more content carrying capacity per car. These new cars also have more reliable wheel assemblies and use stronger micro-alloy metals for wheels;
- Rail line infrastructure has been significantly improved with continuous welded rail, improved elastic track fastening systems, and advanced track geometry cars that perform joint bar and rail tie inspections that enable repair before failure. Systems for wayside detection have also been established to reduce problems associated with track and equipment interactions: over heated wheel bearings, train hunting, faulty wheel profiles that damage track;
- Signals and communication systems have been modernized with the expansion of centralized traffic control, and switch position indicators to alert train crews;
- Train operations have been improved with the introduction of new practices: longer trains with the placement of locomotives in the middle of trains to reduce excessive lateral forces; end of train devices to replace cabooses; and scheduled operations to improve throughput. Remote control devices are now used in rail yards to reduce safety occurrences that would otherwise impede throughput;
- Rail management has also been improved through information technology enhancements: equipment maintenance systems have reduced equipment failure during operations; fatigue management systems have improved the performance of train crews; and safety management systems have reduced overall human errors and improved the safety performance.

Overall, through innovation and technology, CP and CN have been able to generate significant productivity growth over several decades. Exhibit 5 illustrates this annual performance between 1981 and 2012 as estimated by Transport Canada. How has that productivity benefitted the rail industry as a whole?

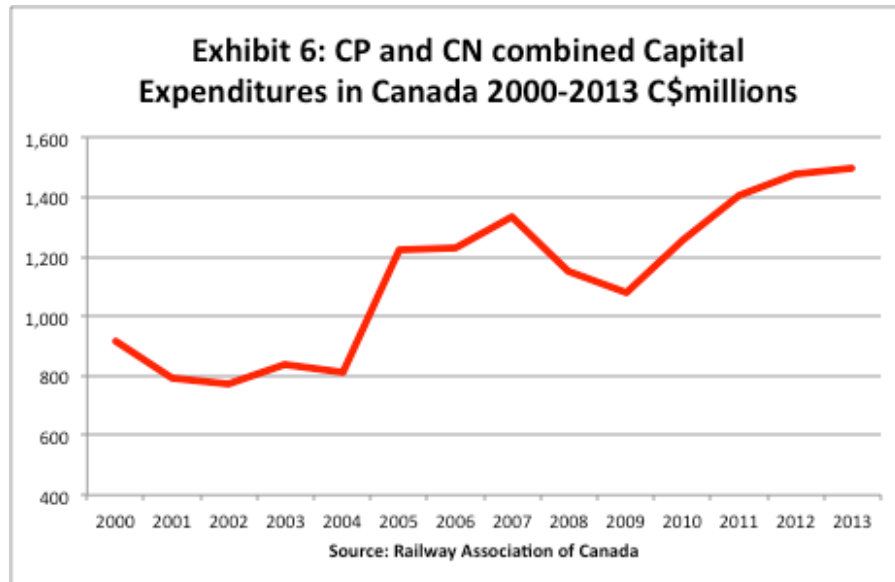
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In the final report of the 2000 Canada Transportation Act Review panel it was indicated that 75% of the productivity gains made by the railways were shared with the shippers in the form of lower freight rates – see again Exhibit 5 up to 2000. A more recent report⁵ has indicated that the extent to which this has occurred has declined in recent years – the latest Transport Canada figures indicate that between 2009 and 2012 some 45% of the productivity gains were shared with shippers. Nevertheless, continued low freight rates in real terms has led to a significant increase in rail traffic volumes and rail revenues. The overall lesson from Exhibit 5 is that a benign regulatory framework has led to high productivity, lower prices, and increased traffic all of which are signals of a competitive world class rail industry.



The recent decline in the sharing of productivity gains with shippers in the form of lower real freight rates is likely attributable to the retention of earnings in order to increase necessary capital expenditures – this is confirmed in Exhibit 6 with the increase in capital expenditures since 2009.

⁵ “Assessing the forms of Competition that Class 1 Rail Freight Carriers Face”, Conference Board of Canada, March 2013.



In 2013 the components of the combined capital expenditures were: track and roadway 68%, equipment 14%, information technology 7%, buildings 5%, and the balance was for other projects. The significance of the track and roadway component is related to the size of the CP and CN rail networks in Canada and the need to increase capacity – capital expenditures do not include ongoing maintenance expenses.

From a policy perspective, it is vital to ensure that any changes to the regulatory framework do not upset the incentives for freight rail to continue to invest to make the necessary productivity gains and capacity expansion that will maintain low freight rates and further traffic growth.

III FREIGHT RAIL CAPACITY

The capacity of CP and CN to handle the ever increasing volumes of freight traffic is a vitally important factor in ensuring that Canada can achieve the best value from the national rail assets that serve the expanding domestic and trade economies.

Before addressing this issue generally, there is one development that has occurred over the past several years that has enabled CP and CN **jointly** to make more efficient use of existing rail assets – co-production. Co-production is a form of commercial access in the railway industry that covers various types of commercially-negotiated agreements between railways to improve efficiency and service without impacting rail labour. Agreements include components such as:

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- Directional running: when two railways have parallel routes each being used in both directions, an agreement can be negotiated to run the trains of both railways in one direction on one route and in the other direction on the other route;
- Reciprocal access to two different bottleneck locations; and
- Reciprocal access over linehaul segments on a corridor: this refers to joint use of segments of line over a given corridor when there is more than one route.

Ultimately the overall effect of these co-production agreements is: increased line capacity; improved equipment utilization; increased efficiency of operations; elimination of redundant infrastructure or facilities; and provision for alternative operations at times of accidents or weather incidents. Most of these agreements provide direct access to one of the two railways over the rail lines of the other railway – but the important points to note are, that this form of access is negotiated commercially, and that it does not generally provide for the right to solicit traffic. Notable examples include directional running in the Fraser Canyon in BC, and the interchange agreement in effect to optimize rail traffic flows in the greater Vancouver region of BC.

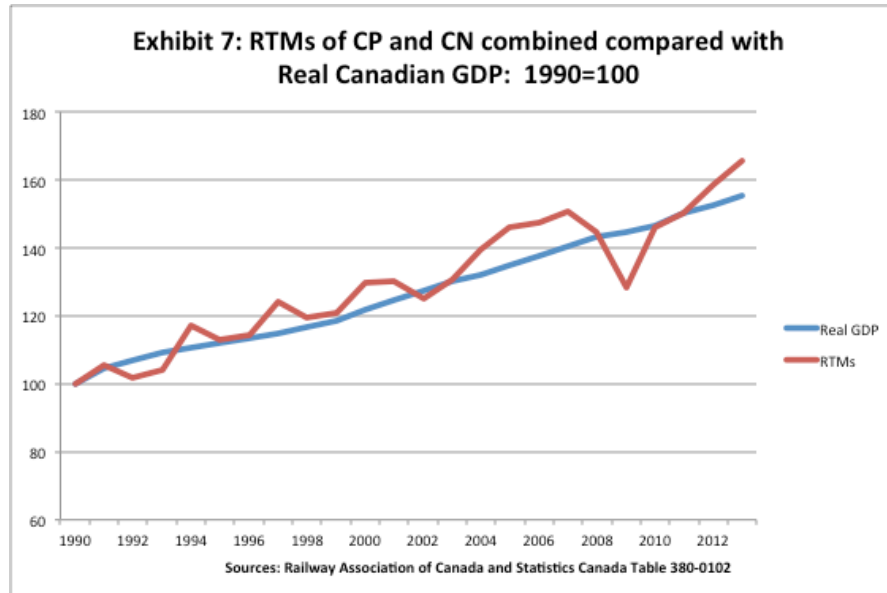
Returning to the issue of rail capacity more generally, capacity is more properly defined with respect to a given transportation market – the movement by rail of a specified commodity from a particular origin to a particular destination. Capacity will then depend upon a number of factors, such as:

- Infrastructure capacity – the frequency, size and speed of trains in the corridor;
- Equipment capacity – the availability of freight cars and their content volume;
- Loading and unloading capacity – the time taken for shippers to load and unload cars at their facilities and their storage capacities;
- Yard capacity – the time taken to connect and/or disconnect unrelated cars at rail yards in a mixed train consist.

Factors such as these will also vary over time due to other factors such as traffic congestion or incidents such as strikes, accidents, delays by other parties in the supply chain, or bad weather. With such a range of factors and possibilities, an assessment of the capacity of CP and CN is a complicated matter. However, a broad assessment can be reached in general terms.

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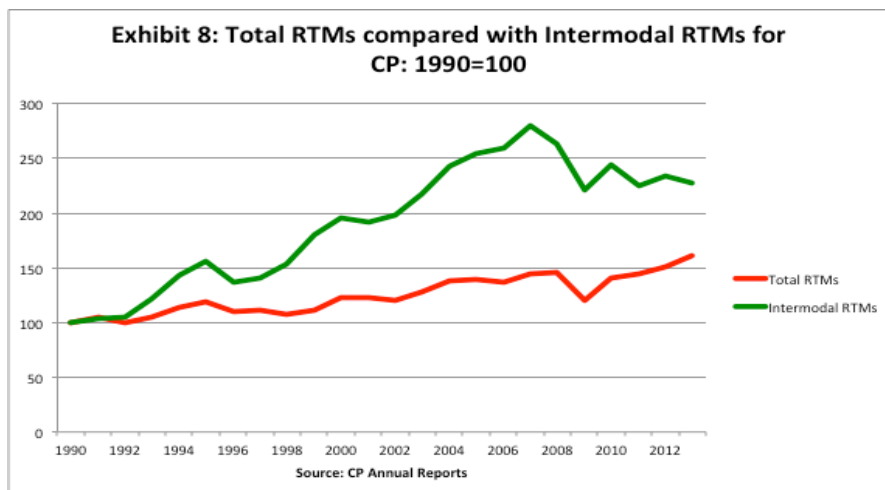
In Exhibit 7 is presented a comparison of the combined traffic of CP and CN, in terms of revenue-ton-miles (RTMs), with real Canadian GDP⁶ from 1990 to 2013.



It is apparent that rail traffic growth has kept pace with the national economy for several decades – while real GDP grew by an annual average over the period of 1.9%, rail traffic grew by an annual average 2.2%. Note the downturn in rail traffic during the financial crisis of 2008/2009 and the subsequent strong recovery.

Exhibit 7 presents the RTMs of all rail traffic, but it is also of interest to examine the performance of rail intermodal traffic over the same period – see Exhibit 8. Rail intermodal traffic is more closely aligned with the trade sector, and it is apparent that rail intermodal traffic has grown at a faster pace than traffic overall which reflects increased globalization over the period. It is clear that the financial crisis negatively affected rail intermodal traffic, and that it has not yet recovered, but the annual average growth rate between 1990 and 2007 was 6.2% which is in line with the growth in international trade. This paper will not attempt to forecast or project the trajectory of the future Canadian economy, but it is clear that CP and CN have met the challenge to date in serving overall demand.

⁶ Annual real GDP indices as estimated by Statistics Canada in 2007 dollars of final consumption expenditures Table 380-0102.



With future economic growth, there is no reason to suppose that CP and CN will not continue to rise to the challenges and provide the necessary rail capacity – as illustrated by its recent rising capital expenditures to meet future demand. There are however two localized current public policy matters that have a tendency to restrain rail capacity and that may need to be reviewed.

Firstly, since 2007 the CTA authorizes the Agency to resolve complaints regarding noise and vibration caused by the construction and operation of railways under its jurisdiction. The Agency has issues guidelines designed to: encourage collaboration among the parties to a railway noise or vibration issue; and ensure transparency and consistency in the Agency's decision-making process for complaints. Agency decisions are legally binding on the parties involved, subject to rights of appeal.

These complaints frequently occur in respect of urban areas where new residential or commercial development has been built in close proximity to rail infrastructure or facilities. In most instances the railway infrastructure or facility was built first, and new development authorized in close proximity despite the obvious risk from noise and vibration. Measures to alleviate the nuisance such as sound barriers will often encroach on the railway right-of-way, and this in turn will restrict future rail capacity expansion in such locations. For example, future capacity expansion will likely involve double-tracking segments of corridors that are presently single-track, and encroachment on railway property may make this impossible. Assuming that public policy is concerned with the rail capacity to meet future demand, the practice of approving new development too close to rail may need review.

Secondly, road authorities, municipalities, landowners or utility companies may wish to cross railway property. If the parties are unable to reach an agreement respecting a crossing, the party proposing a crossing may apply to the Agency. The Agency may

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authorize the construction of a suitable road or utility crossing or related work, and may rule on any disputed issue within its jurisdiction. It has become common for the Agency to approve such crossings, even though more frequent crossings have a negative impact on the flow of rail traffic thereby reducing capacity. Once again, assuming that public policy is concerned with the rail capacity to meet future demand, the practice of approving an increasing number of rail crossings may also need review.

At a more strategic level, the federal government may be concerned with the prospect that future transportation capacity – including freight rail – in specific corridors may be inadequate to meet the anticipated demands of the national economy.

This was the situation in 2006 when the federal government announced the Asia-Pacific Gateway and Corridor Initiative. The purpose of this ongoing initiative is to strengthen Canada's competitive position in international commerce by more effectively linking Asia and North America. The initiative is an integrated set of investment and policy measures seeking to:

- Boost Canada's commerce with the Asia-Pacific region;
- Increase the share of North America bound container imports from Asia; and
- Improve the reliability of the Gateway and Corridor for Canadian and North American exports.

The Asia-Pacific Gateway and Corridor is a network of transportation infrastructure including British Columbia's Lower Mainland and Prince Rupert ports and their principal road and rail connections stretching across Western Canada. One component is the Robert's Bank Rail Corridor with combined funding of more than \$300 million from a range of partners including the federal, BC and municipal governments, the Port of Metro Vancouver and the railways. The funding was used to build a number of road-rail grade separations, road detours, and rail and port capacity improvements. This was a highly successful partnership whereby railways funded rail improvements, governments funded road improvements and overpasses, and the port funded improved port-related facilities – all in a coordinated manner to improve the transportation systems as a whole.

This Gateway infrastructure investment approach has been a model used elsewhere in Canada, and as a strategic policy framework to strengthen transportation infrastructure it has been very effective. A similar approach recommends itself to meet future strategic needs if and when they arise.

On the other hand, in May 2014 the federal government amended the CTA with the Fair Rail for Grain Farmers Act and expressly identified the purpose of the amendments was

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“to help deal with the current backlog in the grain handling and transportation system” and to “facilitate the movement of grain by rail”. The background to this legislative initiative was as follows:

- The 2013 Fall crop of western grain at 76 million tonnes was 50% or some 25 million tonnes higher than average;
- CP and CN moved significant volumes of western grain during the Fall and there was some spare capacity at that time – however some producers held back forwarding their grain, in the expectation of higher grain prices in the near future;
- When higher prices occurred, demand for increased grain transportation by rail occurred during the 2013/14 winter, which was one of the worst winters on record. All three western rail carriers CP, CN and BNSF were forced to reduce train frequency, speed and size in the face of the adverse weather conditions in the Rocky Mountains;
- While railways already have equipment, materials and labour prepositioned and on call to deal with a wide range of eventualities – rock, earth and debris landslides, hydraulic erosion, subsidence, avalanche, frost, and snow fall – the speed of recovery is dependent on the severity of the conditions: see Figure 1;

Figure 1



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- The temporary reduction in rail capacity affected all rail shippers, but led to an especially large backlog in grain shipments due to the earlier bumper crop.

Faced with a clamour from western agriculture interests, the federal government announced in March 2013 it was:

“taking steps to address the medium and long-term implications of higher crop yields and extreme cold weather. Going forward, railways will be required to deliver more timely data on grain movements to better monitor the overall performance of the supply chain. The Canadian Transportation Agency will also gather information from all grain supply chain partners on shipping capacities and plans prior to each new crop year, and will advise the Minister of Transport whether specific grain volumes should be mandated for the coming year”.

The concept of mandating grain volumes in the face of adverse weather brings to mind the legendary King Canute who commanded a halt to the incoming tide in the North Sea. Nevertheless, the subsequent Fair Rail for Grain Farmers Act made legislative amendments that, among other matters that will be addressed later in this paper⁷, gives the Governor-in-Council the authority to order the minimum amount of grain that CP and CN must move in a given crop year.

A public policy to order railways to move minimum volumes of any given commodity is a deeply disturbing development for several reasons:

- Railways already have a strong financial incentive to move western grain traffic – and instead of issuing Orders the federal government should consider instead eliminating the Maximum Revenue Entitlement (MRE) to establish a fully commercial system – for more detail see Section V;
- Favouring western grain traffic means disadvantaging other western traffic – coal, potash, sulphur, energy, containers. It also hurts shortlines who have been unable to receive freight cars for the movement of other traffic from CP and CN, who are otherwise focused on western grain;
- Government’s efforts to meddle in the commercial decisions of railways has a long and inglorious history – it has usually led to the eventual need for government subsidies or even bankruptcy;

⁷ For changes in interswitching regulations see sub-section 4.1, and for new operational terms regulations associated with the arbitration of Service Level Agreements see sub-section 5.3.

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- Government meddling will lead to less capital investment by the railways over the medium and longer term which will be a setback to the need for rail capacity expansion;
- One of the key issues is the variability and seasonality of western grain production. This cannot be “solved” by government diktat and requires a balancing of interests that only the private sector can effectively and efficiently deliver.

The implications of this public policy are harmful to the expansion of capacity by the railways and consideration should be given to repealing these changes, now that the grain backlog has been eliminated.

IV COMPETITION AND PRICING

As with all industries, there is a public interest in the degree of competition, pricing, and the potential for any market failure. This section will highlight the economics of the largely duopolistic freight rail industry in Canada, and explore aspects that require public policy attention to ensure that rail assets best serve the Canadian economy.

On the matter of surface freight competition, the first point to note is that some 40% of rail freight traffic in Canada has direct rail competition between CP and CN: that is both railways can carry the traffic between origin and destination without one route being significantly disadvantaged by distance or terrain. Of the balance of traffic served directly by only one carrier, a further 20% has competitive access to the other carrier through the use of a transload facility. For example, a short haul truck movement from an origin will take it to a loading facility on the other carrier for furtherance to destination: this combination is particularly applicable to forest products, and industrial products such as steel. A further 20% is subject to geographic or product competition. For example, CP moves metallurgical coal traffic from British Columbia to Vancouver for shipment to Asia, in competition with Australian coal destined for the same markets. The freight rates in Canada are constrained by this competition. Countervailing shipper power from large corporations can also ensure competition for some 5% of traffic. For example, a new plant location can be made conditional on the right of access to the other rail carrier.

Modal competition to freight rail is also provided by truck and marine transportation. Despite the long distances involved in much of transportation in Canada, the trucking of high-value, time-sensitive retail traffic does occur across the continent from Vancouver to Toronto, for example, in competition with intermodal rail services. Rail also competes with trucks to handle shorter-haul traffic in markets such as Montreal to Toronto. On the marine side, the two principal sources of marine competition for CP and CN are the Great Lakes St Lawrence System, and the Mississippi River System. For example, western Canadian grain traffic moves east to Thunder Bay by rail, and then can continue to

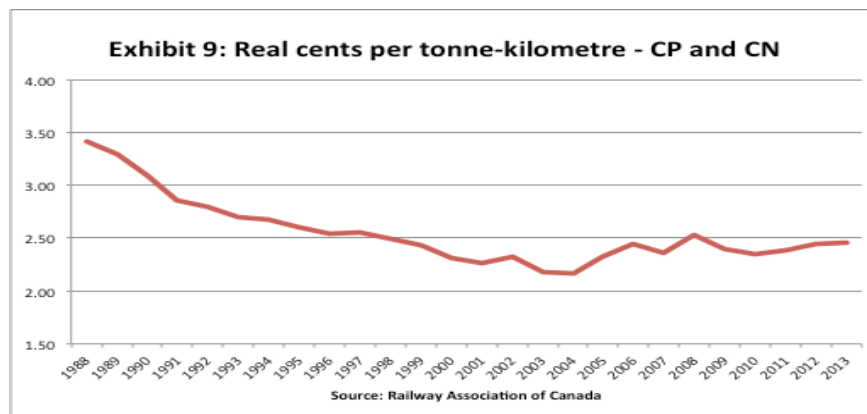
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terminal port facilities in Montreal and Quebec City for furtherance offshore, either by rail or by shipping over the Great Lakes and the St Lawrence river. Similarly, western Canadian grain moves south-east to Minneapolis or other river ports on the Mississippi, and then can continue south to terminal facilities in the Gulf either by rail (directly by CN, or through interchange with a US carrier by CP) or by river barge. Some 5% of Canadian rail traffic is subject to such direct competition from truck/marine transport⁸.

Despite all of these competitive alternatives, there remain selected areas in Canada that are effectively served by only one railway. Therefore, over the course of the evolution of the rail freight industry it has been considered necessary to impose economic regulation to require common carrier obligations and to constrain the railways' potential ability to abuse a position of market dominance with excessive freight rates and lower levels of service.

The potential for excessive freight rates arises from the pricing freedom that legislation has provided railways in Canada for decades. Given the impracticality of marginal cost pricing, due to the very significant fixed rail infrastructure and other costs, with that pricing freedom Canadian railways adopt differential pricing to approximate Ramsey pricing which relates pricing to the elasticity of demand. The success of this deregulation of overall pricing is demonstrated by the yearly trend in average CP and CN freight rates for operations in Canada in real 2003 cents per tonne-kilometre over the past 25 years towards lower prices – see Exhibit 9.

Returning to the economic regulation to constrain the railways' potential ability to abuse a position of market dominance – which relates to less than 10% of traffic – the CTA does legislate in three areas that impact competition and pricing.



⁸ Freight rail has also recently begun to compete with pipelines for the movement of crude oil. Much of this traffic from North Dakota to eastern refineries moves to Albany, New York, where furtherance can be by rail, or barge down the Hudson River. Another recent example of marine competition.

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4.1 Interswitching Regulations

There are numerous interchange points across Canada between the rail networks of CP and CN. The interswitching regulations give CP and CN indirect access to shippers at stations within a 30-kilometre radius of an interchange point on the network of the other railway. To illustrate, the principal or line-haul rail carrier will negotiate with the shipper at the originating station to move the traffic to final destination, and the other railway is then required to move the traffic from the origin to the nearest interchange point at a regulated fee that covers the variable costs of the move together with a contribution to fixed costs. In the many instances in which the other railway could have handled the traffic all the way from origin to destination, this provides for direct rail competition that would not otherwise have existed.

Regulated interswitching can occur at both origin and destination, applies to federally-regulated shortlines, and the line-haul carrier must supply the freight cars. The interswitching regulations are used by both CP and CN at numerous locations, and also put downward pressure on freight rates whenever regulated interswitching is an option. A further 5% of Canadian traffic is therefore subject to rail competition by the application of the interswitching regulations imposed by the CTA.

In a surprise move, as part of the 2014 Fair Rail for Grain Farmers Act, the federal government extended regulated interswitching. As indicated by the Agency⁹, the amendments empower the Agency:

“...to prescribe new interswitching rates for customers at distances for specific regions, and for commodities as the Agency sees appropriate. The Government indicated that this amendment would be used to permit the interswitching of all commodities within a limit of 160 kilometres, in the Prairie Provinces, extending the limit from the existing limit of 30 kilometres to ensure maximum opportunity for competition and for additional railway service to support grain farmers in the Prairie Provinces.

Forty-eight primary grain elevators currently have access to more than one railway, including American railways, with the interswitching distance limit of 30 kilometres provided for in the Railway Interswitching Regulations. With this amendment, the number of primary grain elevators located across the Prairie Provinces with the potential to be served by interswitching will increase to 261. This is a more than a fivefold increase in elevator accessibility to more than one railway. Eligibility to take advantage of the extended interswitching limit is also being extended to shippers of other commodities so they can take advantage of access to more than one carrier.”

These amendments contain a number of disturbing elements and upon examination do not reflect sound public policy or public policy-making:

⁹ Regulatory Impact Assessment Statement associated with the Regulations Amending the Railway Switching Regulations, July 2014.

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- As indicated earlier, the federal government expressly identified the purpose of the amendments was “to help deal with the current backlog in the grain handling and transportation system” and to “facilitate the movement of grain by rail”. Extending regulated interswitching does not accomplish this. The backlog was a direct result of the earlier bumper crop and the weather in the Rocky Mountains during the winter of 2013/14 that was one of the worst winters on record. Having greater choice of rail carrier through extended interswitching would have had absolutely no impact - all westbound rail routes were affected;
- The issue of rail capacity was addressed in Section III in greater detail, but what of extending regulated interswitching on its own merits? In a 2008 study¹⁰ of competition in freight rail in the US it concluded in part that for more radical proposals such as “bottleneck rates” – which is the US equivalent of extended regulated interswitching:

“...the findings suggest potentially large losses in vertical economies, and large negative effects on railroad investment and profitability” and that “...there is little room to provide significant “rate relief” to certain groups of shippers without requiring increases in rates for other shippers or threatening railroad financial viability”

Moreover the Agency has also recognized that:

“the new interswitching rates could potentially reduce the revenues of the carriers in serving captive shippers”

but singularly failed to acknowledge that the impact extends to all shippers on the Prairies. Overall there is no economic or competition foundation for upsetting the regulatory framework with such a broad amendment;

- The impact of the extension may be financially significant when noting that the actual rates for the extended distance to 160 kilometres and a load of 100 tons are 5.8 cents per RTM for a single carload and 3.1 cents per RTM for a carload in a car block. Given that rail freight rates exhibit a rape taper as distance increases, these rates appear low when compared with the system average freight rates of 4.2 cents and 4.6 cents per RTM for CP and CN respectively, for average distances over 1,000 kilometres – see Exhibit 3;
- An additional feature of the extension is that it will allow BNSF to draw traffic on the Canadian Prairies from up to 160 kilometres from the border, that must be delivered by CP or CN to BNSF at interswitching rates. This provides a distinct competitive advantage to a US railroad over Canadian railways, with no offsetting

¹⁰ Christensen, L. R. and Associates, 2008. A Study of Competition in the US Freight Railroad Industry and Analysis of Proposals that Might Enhance Competition. A report prepared for the US Surface Transportation Board.

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- reciprocity. Since when does Canadian public policy expressly favour US companies over Canadian companies?
- Another feature of the extension is that it will be repealed by August 1, 2016, but the repeal may be postponed by the federal government for any specified further period, and postponements may be repeated indefinitely. This acts like the Sword of Damocles over CP and CN and creates a climate of uncertainty that will adversely affect rail investment.

The mandate of the current Canada Transportation Act Review includes:

“The Review will consider the provisions of the Act that are relevant to the transportation of grain by rail, some of which could apply more broadly to the rail-based supply chain for all commodities, taking into account the broader goal of a commercially based, market-driven, multi-modal transportation system that delivers the best possible service in support of economic growth and prosperity.”

It is to be hoped that the Panel will encourage the repeal of extended regulated interswitching on the appointed date, and discourage any expansion of distance, region or commodity which would undermine pricing freedom and differential pricing.

4.2 Final Offer Arbitration

Any shipper dissatisfied with a freight rate offered by CP or CN may apply to the Agency for Final Offer Arbitration (FOA). The requirement for, and the procedural rules of, an FOA are set out in the CTA, and the arbitrator selected must eventually choose between one or other of the final offers made by the shipper and the railway – the arbitrator cannot choose a compromise. This feature tends to limit extreme positions, and the final offer chosen takes effect for one year. FOA has been used on more than 30 occasions, has involved both CP and CN, and continues in use at the present time – twice in the past year. It has the effect of chilling freight rate negotiations and puts downward pressure on freight rates where the railway might otherwise be thought to have the potential to abuse market dominance.

The decisions regarding FOAs are confidential, but it is known that some were won by the railway, some by the shipper, and some were settled before a final decision was rendered. An amendment in 2007 extended the regulations to an arbitration brought by a group of shippers but this process has been little utilized. The matters involved in an FOA are usually concerning freight rates, and the railways have incurred substantial financial losses in some cases. However, FOAs are not generally requested year-after-year by the same shipper – eventually long-term compromises are made by both parties.

A number of areas of concern have been expressed about FOAs in general:

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- Since the outcomes of an FOA process are confidential there are no precedents to follow, and the outcomes are therefore unpredictable. The process is made even more uncertain because there is no requirement for an arbitrator to have any railway business or pricing experience;
- While the substantive issue of available and effective competitive transportation alternatives for the traffic in question is a matter to be considered by the arbitrator, a shipper can have competitive alternatives and can still use FOA to lever down freight rates that are not excessive.

Moreover while the principal issue is generally the rail freight rate, the importance of the transportation costs as a proportion of the delivered price of the commodity in question, is not specifically addressed in the CTA. A 2013 examination of rail freight rates as a percentage of delivered product prices indicates that there is a wide variation, varying from a low of 5% for some high-value products to a high of 20% of some low value bulk products. Even an increase in freight rates of as much as 10% would frequently represents less than 2% of product prices – a much smaller change that is routinely seen in product markets themselves.

While there are some small improvements that might be contemplated, and the process does not have any basis in economic theory unlike its US counterpart legislation concerning constrained market pricing and stand alone cost tests, overall FOA as now constituted seems to be meeting its objective of curbing any abuse of market dominance without excessive burdens to the participants, and it would appear the present public policy is appropriate and is not in need of change.

4.3 Running Rights and Joint Track Usage

Any federal railway may apply to the Agency for the right to operate its trains over the lines of another federal railway. The CTA gives the authority to the Agency to grant the right under just and reasonable terms and conditions, having regard to the public interest. The tenant railway must pay financial compensation to the landlord for the right granted, and if they do not agree on the compensation the Agency may determine the amount to be paid. Furthermore, the federal government may order under the CTA two or more railways to provide joint or common use of railway right-of-way if it would result in significant efficiencies and cost savings without unduly impairing the commercial interests of the railways concerned. If the railways do not agree on the amount of the compensation, the federal government may determine the amount to be paid. Neither of these provisions to provide regulated access have been used to any significant degree¹¹.

¹¹ The negotiation of co-production agreements between CP and CN, whereby commercial agreements are reached to improve efficiency and service without adversely impacting competition, has made the joint track usage provision largely redundant.

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The issue of expanded regulated running rights – or regulated access – to increase competition between CP and CN was a major subject at issue in the 2000 Canada Transportation Act Review, and after a comprehensive examination the panel did recommend some changes. Despite the recommendation, and Agency decisions that made the existing provision dependent on a demonstration of market failure or abuse of market power, the then federal government considered these recommendations and in its policy statement¹² declined to amend the running rights provision:

“Given a lack of evidence of a systemic problem in the rail industry; the significant productivity gains achieved from a less interventionist approach; practical concerns about access fees; the substantial regulatory burden involving regulated running rights; the availability of a number of other regulatory remedies to address specific problems; and possible adverse impacts on system efficiency; the government believes the current running rights provisions should be retained”

In the subsequent amendments to the CTA there were no changes to the running rights provision and this is the situation today.

A 2012 survey of findings regarding regulated access in the US, the UK, several other European countries, and Australia¹³, highlighted a number of significant problems and provides lessons for policy makers in Canada that warrant a serious degree of caution before making changes to rail access. Based upon those findings, any change to the regulatory process to expand regulated rail access in Canada would need to address four questions.

How to determine when an application of regulated access should be granted?

Unlike in most overseas jurisdictions, in Canada regulated access is not likely to be of general applicability. What therefore is the public interest? Since regulated access would keep rail traffic on rail, there are no public benefits from modal shift. In particular, there are no public benefits from a reduction in environmental concerns – in fact, with a fragmentation of rail traffic among carriers there may be an increase in fuel consumption and a reduction in rail safety. Any legitimate public interest in correcting abuse of market power by an incumbent must be established, to avoid simply the private wealth transfer from railways to shippers.

¹² Straight Ahead, 2003. Straight Ahead: A vision for transportation in Canada. Available at <http://publications.gc.ca/site/eng/241015/publication.html>

¹³ For details see “Expansion of Regulated Access to Railway Infrastructure in North America”, Research in Transportation Business and Management, 2012

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How to determine the contribution to fixed costs to be included in access charges?

The access pricing deliberations overseas include consideration of the extent of non-rail competition that would not be applicable in the Canadian context. The use of the efficient component pricing rule – whereby a landlord is compensated for the full opportunity costs of the business lost to the tenant, including any forgone profits – would likely lead to few, if any, new entrants. How can the specific recommendation of the 2000 Canada Transportation Act Review Panel to “approach” the implicit contribution the incumbent is earning, or a US legislative proposal to provide a “reasonable” contribution, be turned into a practical methodology?

How to ensure that regulated access does not lead to a decline in investment by the incumbent?

The lessons from overseas research and experience is that such an outcome is probable, and its extent dependent upon the level of access charges. It should also be noted that any frequent resort to regulated access with low access charges would likely lead to a significant reduction in incumbent traffic and profitability, a general cessation of investment, and a long term requirement for government subsidy, or even eventual merger or vertical separation of incumbent carriers¹⁴.

How to ensure that regulated access does not lead to operational inefficiencies?

The lessons from overseas practices and experiences seem to strongly suggest that such operational inefficiencies arise. How should rail operations be managed at ports of Vancouver and Montreal in the presence of new entrants under regulated access? What would be the implications for existing commercially negotiated co-production agreements? What might be the adverse impacts on main line rail capacity with the movement of shorter and more frequent trains?

While the above questions are largely addressed to policy makers considering changes to regulated access, it is also apparent that regulated access would also have implications for the managerial practices of incumbent railway operations alongside competing rail operators. The lessons from overseas do not suggest that the coordination and efficiency of such operations is any small matter.

Overall, despite the current limited regulated running rights provision, it must be emphasized that the proportion of rail freight traffic that has no competitive

¹⁴ In case this seems extreme, the historical record in North America is instructive. Heavy handed economic and rate regulation led to the bankruptcy of the Penn Central in the US in the 1970s: and the perpetuation of the fixed Crow Rates for the movement of western Canadian grain since the 1920s, in Canada led to the eventual government subsidy of branch lines and the government acquisition of grain rail cars – see Section VI for more details.

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transportation alternative is in the low single digits, and this traffic has access to FOA to remedy any competitive pricing concerns.

V RAIL SERVICE

Together with pricing, the quality of service is an important factor in any regulated industry. The CTA contains provisions that allows shippers: to complain to the Agency about a railway's level of services or unreasonable charges or terms; to avail themselves of voluntary alternative dispute resolution through the Agency; to obtain Service Agreements from railways, and provides for binding arbitration in the event of disagreements. This paper will provide further details on each item in turn.

5.1 Complaints about Level of Services or Unreasonable Charges or Terms

The CTA prescribes the Level of Services (LOS) to be provided by a federally-regulated railway including:

- Adequate and suitable accommodation for the receiving, loading, carriage, unloading and delivery of all traffic offered;
- Receive, carry and deliver traffic with due care and diligence and without delay;
- Furnish all proper appliances and any other service incidental to rail transportation that is customary;
- Traffic must be taken on payment of the lawfully payable rate;
- Reasonable compensation to be paid to a shipper providing rolling stock; and
- Other matters related to facilities, through traffic, and railway connections.

Shippers may complain to the Agency that a railway is not fulfilling its LOS obligations, and the Agency must investigate and determine the matter within 120 days. If the railway is determined not to be fulfilling its LOS obligations then the Agency may Order:

- Works to be constructed
- Property to be acquired
- Rolling stock to be allocated
- Maximum charges for matters ordered
- Time frames and particulars of the obligations

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A shipper may apply to the courts if the railway does not comply with an Agency Order. LOS complaints are principally concerned with absence of service or inadequate car supply, and as may be seen from Exhibit 10 they break fairly evenly between shippers and railways.

EXHIBIT 10	CP and CN 1988 - 2011	
	Level of Services	Unreasonable Charges or terms
Dismissed	17	10
Upheld	20	7
Other	4	1
Total	41	18

Shippers may also complain to the Agency that a railway is requiring unreasonable charges, or associated terms and conditions for the movement of traffic or for the provision of incidental services that are found in a tariff. These apply to incidental or ancillary charges such as demurrage or fuel surcharges, but not to rates for the movement of traffic. Again these complaints break fairly evenly between shippers and railways as indicated in Exhibit 10.

Overall, the number of these complaints average only two or three a year.

5.2 Voluntary Alternative Dispute Resolution

In recognition of the efficacy of alternative dispute resolution processes, the CTA has provisions that authorize the Agency to conduct mediation or and/or arbitration of matters within the jurisdiction of the Agency, if requested by all parties to the dispute. Alternative dispute resolution may be conducted, for example, on the application of any rate or charge for the movement of goods by railways or for the provision of incidental services. The Agency also provides facilitation whereby an Agency case officer assesses an issue that may lead to an informal exchange between the parties, usually by phone or email, prior to a more formal process.

Over the past five years in respect of freight rail there were on average 15 disputes resolved by facilitation and 6 by mediation per year – frequently concerned with railway noise and vibration.

5.3 Regulated Service Agreements and Binding Agency Arbitration

In September 2009, Transport Canada assembled a panel to conduct a review of Canada's rail-based logistics system, focusing on rail service provided to Canadian shippers and customers. Following reports from the panel, and the subsequent work of a facilitator, the federal government made amendments to the CTA in June 2013.

At the outset it should be noted that the focus was only on rail service, and not on the other participants in the logistic system or supply chain. This was a rather blinkered approach and largely ignored the roles of others in the supply chain – such as shippers themselves, terminal operators, ports, and maritime shipping. One small example illustrates the point – while concern was expressed about the timeliness and reliability of rail service for marine containers across Canada and into the US, where transit times are measured in hours, international maritime shipping was instituting extra slow steaming adding days to transit times in order to conserve fuel during the financial crisis.

The amendments passed require railways in Canada to offer a Service Agreement to companies shipping goods by rail, if the shipper requests one. In the event that railways and shippers cannot reach an agreement through commercial negotiations, shippers can use a new legislated binding arbitration process to establish the terms and conditions of the Service Agreement.

A shipper may request binding arbitration on the following service issues – but not freight rates or incidental charges:

- Operational terms of a railway – receiving, loading, carrying, unloading delivering, including performance standards and communication protocols;
- Operational terms a railway must meet if it fails to comply with the above;
- Operational terms required of shipper related to the above;
- Incidental services customary to rail transport; and
- Whether a railway may charge for operational terms.

The phrase “operational terms” has recently been exhaustively clarified in new Agency regulations required by the Fair Rail for Farmers Act.

The result of arbitration, following a process outlined in legislation that must be completed within 45-65 days according to rules of procedure made by the Agency, is a confidential contract. In the event of failure to comply by a railway the Agency may apply an administrative penalty of up to \$100,000.

There have been few requests for binding arbitration to date – but the new legislative and regulatory amendments have not been in effect for any length of time – and while the overall effect is to impose more regulatory burden on the railways, it is probably

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appropriate to give more time to see how the amendments play out, while also monitoring the performances of other parties in the logistics systems or supply chains.

VI REGULATED WESTERN GRAIN

Prior to 1980, the railway freight rates to move western grain were frozen at levels established in the early part of the century and, by 1980, several government-commissioned reports had established that these so-called “Crow Rates” were completely non-compensatory – the freight rates generated revenues that were less than one-quarter of the costs.

This situation had already required the federal government to invest in rail line rehabilitation, acquire hopper cars to move the traffic, and pay grain branch line subsidies. It now became apparent that the railways would be unable to afford to invest in increased rail line capacity in western Canada to serve the expanding Asian demands for Canadian resource commodities such as coal, sulphur, potash as well as anticipated volumes of container traffic from Asia to North America.

During the 1980s and 1990s the federal government took two significant policy steps to put the western Canadian grain industry on a more commercial footing. The first of the policy steps was passage of the Western Grain Transportation Act (WGTA) which legislated that grain freight rates be increased to become compensatory, based upon railway costs, and closer to commercial levels. The WGTA also authorized that the federal government pay the railways the difference between the old and new freight rates – a payment that exceeded \$650 million annually to CP and CN – in order that the western grain industry would essentially not experience the financial impact of this very significant change. This step immediately enabled CP to invest some \$800 million in increasing western rail line capacity by the building of the Beaver Tunnel in the Rockies that was completed in 1987.

This policy step while critically important for the rail industry, predictably did not lead to significant changes in the western grain industry. Under the increasing burden of the payments to the railways, pressure from required changes to international trade agreements, and the necessity to put the federal fiscal house in order during the 1990s, the federal government cancelled the payments in 1995 and made legislative changes to the CTA, which rescinded the WGTA and its freight rate regime and eventually replaced it in 2000 with a railway maximum revenue entitlement or revenue cap. This new legislative regime, which essentially still exists today, requires the revenue cap to be indexed annually for railway input price inflation but no longer provides a direct link with railway costs. It also provides the railways the relative freedom to set specific western grain freight rates subject to the overall revenue cap.

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What were the impacts of these changes? At a Conference convened in 2003 at the University of Manitoba¹⁵, some seven years after the imposition of commercial-type freight rates, industry experts reviewed the measurable impacts: they may be summarized as follows:

- Consolidation of the Prairie grain elevators and the associated grain companies – mergers and new entrants;
- Completion of Prairie branch line rationalization – new shortlines and some discontinuance;
- A significant change in the mix of crops planted – less wheat, an increase in barley and feed grains, and more specialty crops;
- An increase in livestock production;
- The introduction of incentive freight rates to grain companies to pick up large blocks of rail cars at high throughput elevators to improve rail efficiency. This was accompanied by financial incentives to producers to draw grain from more distant farms – such as the paying of truck premiums

Moreover, the anticipated decline in farmland values, which was widely expected, did not actually occur for a number of reasons. Overall, the adaptation of the western grain and agriculture industries to more commercial realities improved efficiency and competitiveness. With ongoing changes to the present day – including the removal of the Canadian Wheat Board constraints in 2011 – the changes are generally recognized as resulting in world-class industries fully capable of competing in global markets.

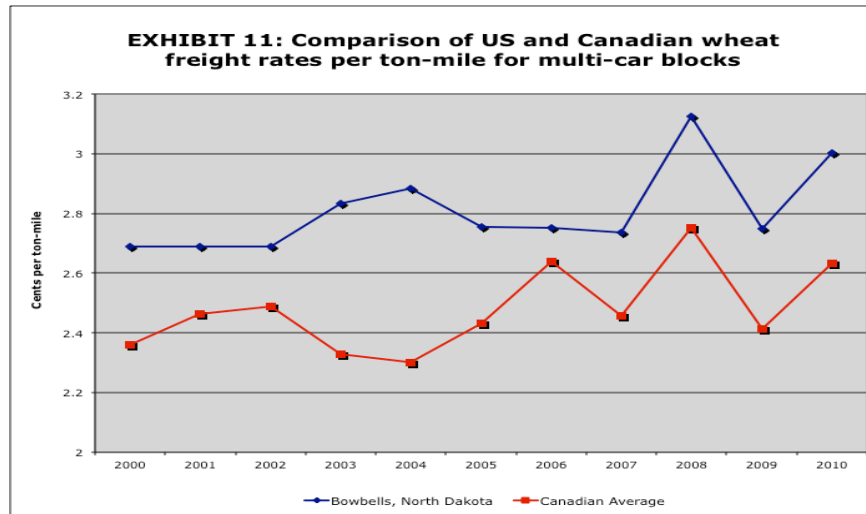
However, one remnant of the old command and control regulatory framework for the movement of western grain by rail remains – the maximum revenue entitlement or revenue cap. Current western grain freight rates are still not fully commercial due to the presence of the revenue cap. A comparison of Canadian grain freight rates with those under similar conditions in the US where there are no regulatory constraints indicates that rates are still some 14% below fully commercial levels.

In Exhibit 10 a comparison is made between the freight rates from a typical station in North Dakota just south of the border with Saskatchewan, with the Canadian average freight rates of CP. The rates are in US and Canadian dollars respectively – converting to a common currency would take into account changes in exchange rates and actually

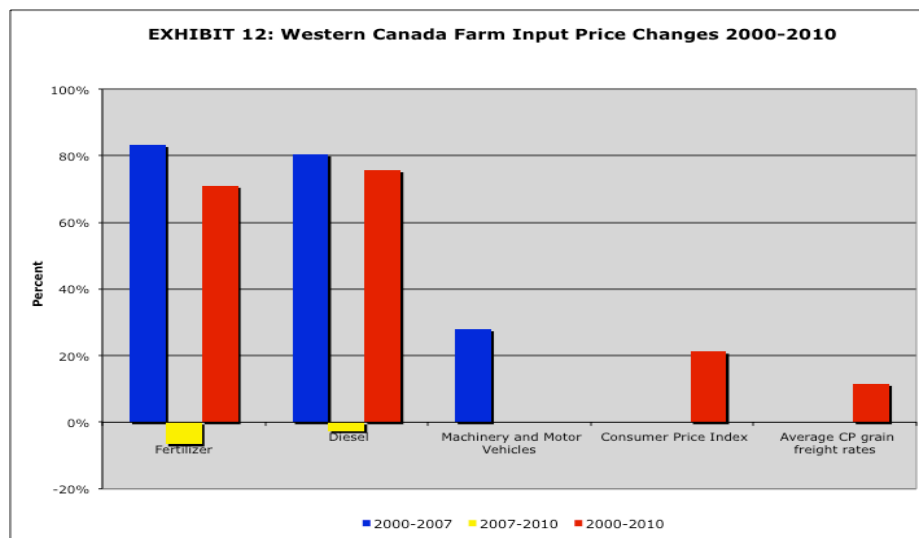
¹⁵ “The Agricultural Industry After Western Grain Transportation Reform: The Good, the Bad, and the Unexpected”, October 23 and 24, 2003, Department of Agribusiness and Agricultural Economics, University of Manitoba.

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significantly widen the disparity in earlier years. Overall, it is apparent that there is a persistent gap between commercial-type rates in Canada subject to a revenue cap, and market-based rates in the US.



The significance of transportation costs as a component of the overall input costs of the western grain industry has been declining during recent years, and they no longer represent such a significant component. In Exhibit 11 are presented the percent changes in farm inputs – fertilizer, diesel fuel and machinery¹⁶.



¹⁶ Statistics Canada and Industry sources..

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It is apparent that prices for farm inputs have been increasing over the past decade in excess of the consumer price index, which in turn has been increasing at a faster pace than average CP grain freight rates¹⁷.

Overall, as indicated in a recent report¹⁸ the revenue cap is seen as limiting:

- Investment in the capacity that will be required throughout the grain handling and transportation system (GHTS) to accommodate the growth in grain and agricultural exports;
- The financial ability to replace the hopper car fleet that is now reaching the end of its economic life;
- Maintenance of transit capacity required to meet peak demand surges created from growth, production and market variations;
- The further evolution of market based incentives to efficiently allocate resources across the GHTS;
- Multi-modal competition throughout the GHTS; and
- Innovation to improve the efficiency and productivity of the GHTS and increase storage and carrying capacity.

This policy of regulating railway revenues forces railways to cross-subsidize grain movements from other rail shippers and fails to allocate scarce resources in the face of volatile shipment demands, raising costs, discouraging investment and leading to chronic customer service complaints. It is to be hoped that the current review of the CTA will lead to the required legislative changes to remove this remaining deterrent to a fully commercial system.

VI TRANSPORTATION OF DANGEROUS GOODS

While rail safety trends in general have been steadily improving according to the annual statistics published by the Transportation Safety Board of Canada, the public has a legitimate concern whether dangerous goods handled by freight rail pose an undue threat to their communities, and whether more should be done to ensure rail safety. Current

¹⁷ There continues to be a campaign by agricultural interests to conduct a railway costing review, which is a thinly-disguised effort to further reduce western grain freight rates and increase the existing implicit subsidy to the western grain industry. This should be avoided.

¹⁸ “An Assessment of the Effect of the Maximum Revenue Entitlement on Railway efficiency, Growth and Productivity in the Western Canadian Grain Handling and Transportation System”, draft report for the Railway Association of Canada by Prentice and Parsons, October, 2014.

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interest in this issue arises particularly as a result of the tragedy that occurred in Lac-Mégantic, Quebec, in July 2013 when a unit train of Bakken crude oil en route to Saint John, New Brunswick, became a runaway and derailed, exploded, and killed 47 people. It was the worst rail accident in North America in some 100 years. So how safe is the movement of dangerous goods by rail and how does rail compare with pipeline?

Since crude oil has only recently been moved by rail, historical comparisons must be made with care. In an analysis conducted by the AAR to compare rail and pipeline safety, comparison was made over a 20-year period in the movement in the US of rail products that are hazardous liquid pipeline commodities – crude oil, gasoline, diesel fuel, petroleum liquids, propane, kerosene, etc. The results are summarized in Exhibit 12 and the findings are likely similar to those for Canada given the integrated nature of the industry.

EXHIBIT 13 : The Incidents in the US concerning the movement of Hazardous Liquid Pipeline Commodities by Rail and Pipeline 1990-

	RAIL				PIPELINE			
	Total Transport	Gross Quantity Released	Fatalities	Injuries	Total Transport	Gross Quantity Released	Fatalities	Injuries
	Barrel-miles Billions	Barrels	Number	Number	Barrel-miles Billions	Barrels	Number	Number
1990-1999	1,135.096	41,825	1	13	42,851.300	1,525,930	23	126
Barrels Released per billion barrel-miles		36.8				35.6		
2000-2009	1,583.074	26,147	2	27	41,900.158	1,002,679	19	55
Barrels Released per billion barrel-miles		16.5				23.9		
Total: 1990-2009	2,718.170	67,972	3	40	84,751.458	2,528,609	42	181
Barrels Released per billion barrel-miles		25.0				29.8		

Source: AAR, 2013

The following point may be noted:

- Separating the total period into two decades, it is apparent that rail has seen a 40% increase in the total of the commodities moved between 1990-1999 and 2000-2009, while pipelines have remained essentially flat. It should also be noted however that overall the pipelines move some 30-times more product than rail – pipelines are by far the dominant mode;
- While pipelines release significantly more product, as indicated above they move significantly more product, and when the release rate is determined as barrels released per billion barrel-miles, then rail and pipelines had very similar release rates over the period 1990-1999;

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- When release rates are examined over the second period 2000-2009 it becomes apparent that both rail and pipelines have made significant progress in reducing release rates, but rail has made better progress – 16.5 barrels per barrel-miles for rail compared with 23.9 barrels per barrel-mile for pipelines, a 30% better performance;
- To put this into more readily understood terms, if it is arbitrarily assumed that each mode moves the product an average 3,000 miles, then over the 20-year period rail would have moved a little under one billion barrels and pipelines would have moved a little under 30 billion barrels. The quantities released over that period would then have been less than one-hundredth of one percent of the total moved for both modes¹⁹. It is apparent that, given the inherent risks associated with any large-scale industrial activity, both modes are safe when viewed from the perspective of quantities of product released accidentally;
- Similarly, fatalities and injuries over the 20-year period are low and both modes are relatively safe when compared with other modes of transport and the slaughter on the highways. In particular, the three rail fatalities over twenty years throughout all of the US puts the extraordinary single event at Lac-Mégantic in perspective.

More recently, according to AAR statistics²⁰, hazmat – dangerous goods – accidents rates have continued to decline and in 2012 the rate on US railroads was 0.013 train accidents with a release per thousand hazmat carloads – down by 38% from the corresponding figure in 2000. If the 2012 rate is applied to the 500,000 crude oil carloads moved in 2013, then it would suggest there would have been some 6 or 7 train accidents involving a release of crude oil. A list of the North American crude oil by rail derailments in 2013 and into 2014, compiled by the Congressional Research Service²¹ indicates there were 6 accidents and two incidents, which conforms in general to the current annual accident rate.

Despite the improving performance and relative safety of moving dangerous goods by rail, there is a legitimate public concern about such movements in light of the Lac-Mégantic tragedy. In the immediate aftermath, government agencies in Canada and the US issued emergency orders to tighten operating rules to prevent runaways of trains handling dangerous goods. The circumstances surrounding the event raised four further issues: the safety of unit train operations, particularly in the vicinity of built-up areas; the propensity of the tank cars involved – DOT 111s – to rupture releasing product; the

¹⁹ Since the average hauls for both modes are likely to be less than 3,000 miles, the actual percentage release rates would be lower than indicated here.

²⁰ Hazardous Materials Transportation, AAR website at www.aar.org/safety

²¹ US Rail Transportation of Crude Oil: Background and Issues for Congress, May 5, 2014, Congressional Research Service.

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correct labelling of the product – at Lac-Mégantic the shale oil was mislabelled; and the information and resources available to communities and first responders. Overall, governments and their agencies in both Canada and the US are addressing these issues, and along similar lines. We summarise developments at time of writing on each issue in turn.

Train Operations

Trains comprised of 20 or more carloads of a Class 3 flammable liquid (crude oil or ethanol) will be referred to as high-hazard flammable trains (HHFT) and these trains will be subject to increased oversight: routing safety and security assessments; wheel defect detectors; rail inspections; speed restrictions; and enhanced braking. While these changes are being implemented it is to be hoped that the overall impacts will not be significantly reduced operational efficiency.

Tank Cars

Responding to earlier recommendations from the Transportation Safety Board (TSB) in Canada and the National Transportation Safety Board (NTSB) in the US, regarding DOT-111 tank cars as a result of their vulnerability to rupture during accidents, government agencies are in the process of establishing: enhanced standards for new tank cars to be moved in HHFT; retrofitting of existing cars to be moved in HHFT; those not retrofitted would be retired, repurposed, or operated under speed restrictions for up to five years. It is anticipated that the US and Canada will harmonize their regulations to prevent constraints on trans-border rail traffic in what is otherwise an integrated North American freight rail industry.

Hazardous Product Labelling

Shippers will be required to better classify and characterize mined gases and liquids, such as crude oil, by conducting an enhanced sampling and testing program. Shippers must certify that the program is in place, document the testing and sampling program, and make program information available upon request.

Information to Communities and First Responders

US railroads – including CP and CN – will be required to notify State Emergency Response Commissions (SERCs) or other appropriate state delegated entities about the operation of HHFT through their States. Railroads will actively work with state and local emergency response officials to ensure those who need to know what is moving through their area are informed and trained to respond to an emergency situation, and railroads are providing \$5 million to develop specialized crude-by-rail training and tuition assistance program for local first responders. Similar changes are underway in Canada.

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Overall, these enhancements are anticipated²² to reduce the frequency of derailments, environmental damage, and monetized injury and fatality costs leading to benefits exceeding \$400 million over 20 years in any of the scenarios examined.

There is one further policy issue that has not yet been resolved. The CTA requires a person proposing to construct or operate a freight railway under federal jurisdiction to apply to the Agency for a certificate of fitness. The Agency issues such certificates if it is satisfied that there will be adequate third party liability insurance coverage for the proposed construction or operation.

Railway operations can vary a great deal in terms of the volume of traffic, commodity mix, scope of operations, whether in rural or urban areas, number of crossings etc. Because of this, the Railway Third-Party Liability Insurance Coverage Regulations do not set definite amounts, neither minimum nor maximum.

On a case-by-case basis, the Agency determines whether the third party liability insurance is adequate by confirming that the:

- Risks have been fully disclosed by the railway company to the insurance broker and the amounts and nature of the coverage have been specified, based on the Agency's application form;
- Financial capability of the railway company to sustain its self-insurance portion;
- Financial strength of the insurance company to pay its contractual coverage; and
- Proposed coverage is not out of line with similar railway operations.

Legislation places the onus on the railway to notify the Agency in writing, without delay, whenever it cancels or alters its third party liability insurance coverage, or whenever a change in construction or operation may mean that its coverage is no longer adequate. The Agency may suspend or cancel a certificate of fitness if it determines that the railway's insurance coverage is no longer adequate for its operations.

A review of railway third-party liability insurance coverage became necessary because the Montreal, Maine and Atlantic (MMA) railway – the shortline involved in the Lac-Mégantic accident – had only \$25 million in third party liability insurance and the environmental clean-up costs alone are expected to cost more than \$200 million. MMA subsequently declared bankruptcy.

²² Draft Regulatory Impact Analysis Hazardous Materials - Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains: Notice of Proposed Rulemaking, US Department of Transportation, Pipeline and Hazardous Materials Safety Administration, July 2014.

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The Agency has begun such a review of how to determine minimum insurance amounts with consultations in late 2013. Both CP and CN have in excess of \$1 billion in liability insurance and do not want more. Instead, they would prefer to see dangerous goods shippers assume more responsibility for the risks posed by their products. A key issue will likely be, that if shortlines were required to carry sufficient insurance to cover such catastrophic events as the Lac-Mégantic accident, then they would likely not be able to remain in business. Moreover railways are subject to common carrier obligations that require that they handle traffic that is offered, so they cannot simply refuse to handle particular dangerous goods with potentially high risk.

Faced with this situation in other contexts, US railroads have suggested that potential losses from a catastrophic rail accident be capped and that governments assume the balance of risk – this is the approach that has been adopted in the Canadian Nuclear and Marine Liability Acts – but governments are naturally wary of such an approach.

In August 2014 the Minister of Transport launched a second stage of consultations with a view to strengthen the liability and compensation regime and ensure railways and shippers are held accountable in the event of an incident. This second stage of consultations will involve discussions with key stakeholders to help define specifics of the new regime. Once finalized, the new regime will ensure that sufficient funds are available to compensate potential victims and pay for clean-up costs in the event of a catastrophic incident.

In late September 2014 media reported that a government official indicated that “The Canadian government is looking at extending the insurance burden for crude-by-rail disasters beyond just railways and is weighing the idea of a special fund similar to one once set up for maritime oil spills”.

This is a welcome development but at time of writing no public policy change has been announced.

VI CONCLUSIONS

The overarching conclusion to be drawn from the previous narrative is that the complex web of federal legislation, policy and regulation is working well, and has provided the incentives for railways to invest. This has enabled the Canadian freight rail industry to generate significant productivity growth through innovation and technology, which in turn has been shared with shippers through lower freight rates and stimulated an increase in freight traffic. The result has been a competitive world-class industry.

There will be critics of this point of view – especially from shipper associations – whose function it is to lobby for better terms from the rail industry in respect of freight rates and

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rail service, but it is the role of policy makers to weight the factual evidence and provide a balance in their deliberations between competing interests. From the six principal current issues addressed in this paper in some detail, the following is a summary of the policy implications in order of priority:

- Allow extended interswitching to lapse in 2016 as it undermines pricing freedom and differential pricing for the Canadian railways, distorts competition in favour of US railroads, and will deter future investment;
- Attempts to micro-manage western grain traffic should be resisted as they harm shippers of other commodities and again will deter future investment;
- Expanding running rights is unnecessary and should be avoided, as it would be very difficult to implement and would upset the competitive balance in the regulatory framework;
- Consideration should be given to eliminating the maximum revenue entitlement for western grain as a further step towards a fully commercial grain transportation system;
- If and when there appears to be a strategic need for greater transportation investment, consideration should be given to an approach similar to the Asia-Pacific Gateway model;
- The regulatory approach to noise and vibration complaints and requests for rail crossings should be reviewed in light of the need to preserve railway property for future capacity expansion;
- The regulatory changes regarding the transportation of dangerous goods currently underway should be harmonized with those being made in the US to avoid disruption of the integrated North American freight rail industry;
- Changes to railway liability in the event of catastrophic accidents currently under consideration – such as establishing a fund to cover liabilities beyond a cap – should be implemented;
- Existing FOA provisions to address the issue of potential abuse of market power are working well and are not in need of amendment;
- Recent changes to the regulations concerning rail service should be given time to see how they are working, while also monitoring the full supply chains to provide a more system-wide approach.