Railway Association of Canada | Association des chemins de fer du Canada

Canada Transportation Act Review

Railway Association of Canada Submission #1

February 26, 2015

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February 26, 2015

The Honourable David L. Emerson P.C
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RE: Grain Policy in Canada

The Railway Association of Canada (RAC) is pleased to provide this submission to the *Canada Transportation Act* Review Chair, Advisors and supporting Secretariat. This submission is intended to inform the Chair's position about grain policy in Canada, and to underline that market forces drive the development of Canada's modern rail system. This submission has been filed on behalf of RAC's freight railway members (**Appendix A**).

This submission is supported by two documents which are appended for review:

- **Appendix B** - "Winter's Impact on Railroad Operations: Fact and Fantasy" provides an overview of the negative impacts that Canadian winter has on railroad operations in Canada; and
- **Appendix C** - "Freedom in Western Grain Movement" presents an assessment of the effect of the Maximum Grain Revenue Entitlement provision on railway efficiency, growth, and productivity in the Grain Handling and Transportation System (GHTS).

The RAC will file an additional submission before the consultation period ends this year.

About the Railway Association of Canada
RAC represents more than 50 freight and passenger railway companies that move 75 million people and $280 billion (B) worth of goods in Canada each year. As the voice of Canada's railway industry, RAC advocates on behalf of its members and associate members to ensure that the rail sector remains safe, globally competitive and sustainable.

The Canadian Railway Network
Canadian railways provide multiple services to more than 10,000 customers each year by using limited resources, including track infrastructure, right of ways, yards, locomotives, and crews. More than 4 million carloads of freight are moved by approximately 3,000 locomotives and 33,200 dedicated railroaders across 43,000 kilometers of track that spans nine provinces, one territory and several points throughout the continental United States (U.S).

Figure 1: Canadian Railway Network in 2014

This impressive network consists largely of two Canadian owned and operated Class I railways, U.S. Class I carriers and more than 30 local and regional railways that intersect with multiple transportation service providers including ports, terminal operators, truckers and other logistics providers.

As part of this complex network, Canadian railways strive to operate as efficiently as possible by operating 24/7 and 365 days a year. This involves maximizing long-haul movements and train lengths, and consolidating traffic flow, as well as minimizing car handlings, switching and the number of times a car must be handled in a yard.

Management of this network results in immediate benefits for all customers who are served by it. These benefits include: competitive rail rates, quality service and access to a continental network that enables global competitiveness each and every day of the year.

In addition to allowing Canada to achieve its economic objectives and compete internationally, railways are also an emission-friendly mode of transportation. On average, one tonne of freight can travel more than190 kilometres on one litre of fuel.

Key finding: Ensuring that railways maintain their ability to manage their network freely and through a commercial framework is of critical importance to Canada's national transportation system, and its ability to foster and promote economic competitiveness in the future

Regulatory Frameworks and Railway Productivity

Railway productivity is fundamentally correlated with the evolution of railway economic regulation in Canada. The past two and a half decades can be characterized as the era where the basic regulatory principle has been to rely on market and commercial forces as the prime agent directing the industry, as opposed to control by regulatory authorities. When observing railway performance over this span, productivity has been remarkable.

Prior to the enactment of the *National Transportation Act* in 1967, the evolution of railway economic regulation in Canada involved increasingly restrictive regulation, starting with the first *Railway Act* in 1851. From 1967 through 2000, a succession of regulatory reforms moving toward increasing reliance on market and commercial forces (e.g. revisions to the *National Transportation Act* in 1987 and the *Canada Transportation Act* in 1996) guided railway services while maintaining a number of shipper protections.

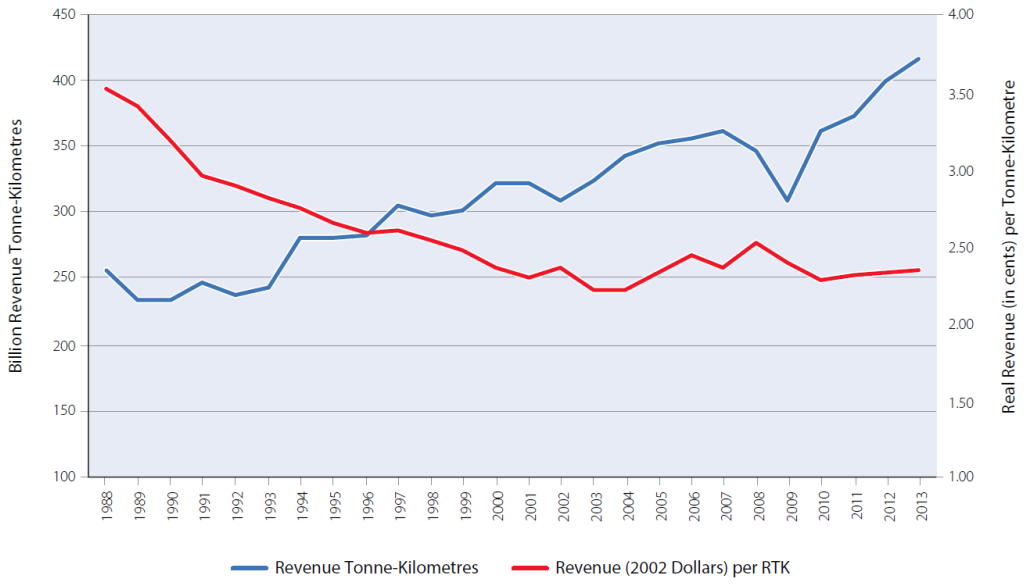
With the birth of the Canadian shortline industry in 1987 and the privatization of CN in 1995, Canadian railways were provided with a regulatory framework that allowed them to evolve into productive companies capable of providing low-cost service to shippers and generating the appropriate revenues to reinvest into their respective networks.

As a result, Canadian railway industry performance, in terms of rates charged, productivity, profitability, and capital investment, has greatly improved under the regulatory freedoms introduced in 1987 and 1996.

For example:

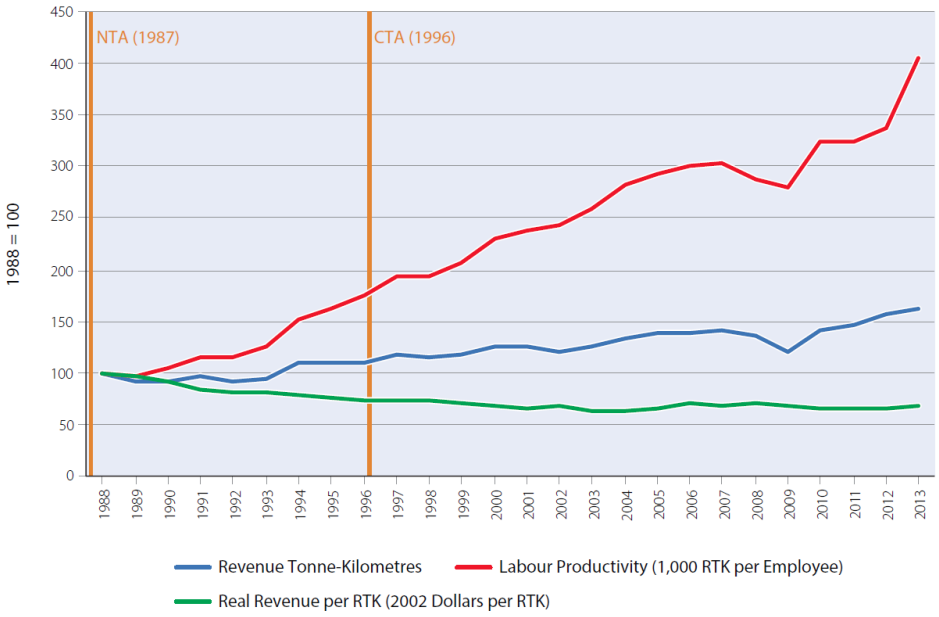
- Since enactment of the *Canada Transportation Act* in 1987 and privatization of CN in 1995, the Canadian railway industry average operating ratio has been generally under 80%, well below the average prior to 1996 which exceeded 90%;
- Between 1988 and 2013, average freight rates charged, as measured by real revenue per revenue tonne-kilometre (RTK), have declined by 33%, while railway RTKs have increased by 62% (Figure 2).

Figure 2: Canadian Railways – Revenue Tonne-Kilometres (RTK) vs. Revenue per RTK



- Railway productivity has grown impressively since competitive market-based forces were introduced in 1987 and again in 1996. Labour productivity has been strong over the entire period and the accelerations in fixed plant and fuel productivity since the enactment of the *Canada Transportation Act* have been exceptional (Figure 3).

Figure 3: Canadian Railways – Productivity Indices (Canadian Operations)



With improved operating ratios, capital expenditures by Canadian railways have increased rapidly since the early 2000s. Last year alone, Canadian Class 1 railways invested more than $3 billion in their continental networks, representing approximately 20% of their revenues. These investments are critical to maintaining the safety, velocity, capacity and service of the network, and ensuring that this network is well positioned to meet traffic demands in the future.

<u>Key Finding:</u>
A stable regulatory environment that is anchored in the application of commercial frameworks and recognizes a railway's need to generate adequate revenues is a prerequisite for ensuring that railways have the capital to expand and grow their railway network in conjunction with their customers.

Winter impacts on Canadian railway operations
Steel wheels running on steel rails and harmonized braking systems allows trains and rail cars to be routed seamlessly between railways across North America. This technology allows railways to provide a low-cost and efficient service to shippers while enabling access to Canadian, U.S., and international markets.

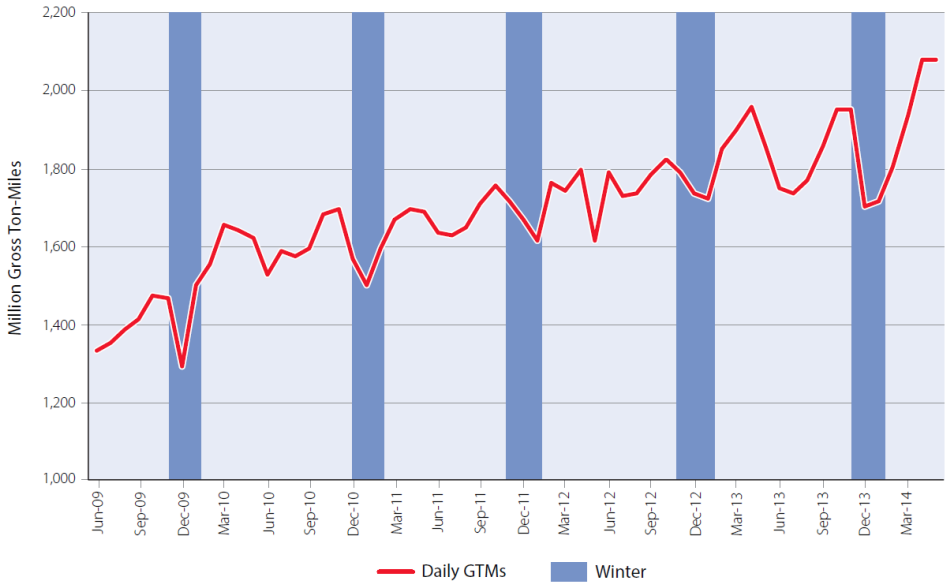
However, this technology is negatively affected when the temperature drops below -25 C. At that temperature, railway operations and its supporting infrastructure can experience adverse effects. For example:

- train lengths are restricted, leading to increased traffic and congestion throughout the network and at critical points such as terminals;
- air brakes are subject to failure and longer re-charge times, e.g. frozen gaskets leak air at brake-hose couplings, causing braking systems to lose pressure; and
- steel becomes less ductile, making rail more susceptible to breakage and wheels more prone to tread damage, which in turn applies greater forces to the rail, adding to the likelihood of rail breaks.

Any of these factors can create a downward spiral of delays and performance issues at times when shippers lose other options to move their products to market (e.g. closure of the St. Lawrence Seaway).

Figure 4 highlights how railway throughput, as a measure of daily million gross ton-miles moved by Canadian Class I railways, is affected during core winter months (e.g. December, January, February) from June 2009 – March 2014.

Figure 4: Canadian Class I Railways – Daily Million Gross Ton-Miles (North American Operations)



It is important to note that railway throughput typically recovers quickly in the spring, underlining that there is sufficient network capacity in place to meet demand, and that railway volumes have been increasing steadily, though the system is vulnerable to winter's effects.

A summary of recently completed research about winter's impact on railroad operations is included in **Appendix B**.

Grain Policy in Canada

Agricultural and export grain development have been mainstays of the Canadian economy since Confederation. Western Canada's history and export economy is closely tied to its GHTS. Settlement of the Prairies, building of the railways, connecting the new settler-farmers to distant agricultural markets and annually moving a grain crop to market became a foundation of Canada's national economy.

Into the 21st century, agricultural exports continue to play a major role in Canada's economic growth. Grain exports more than doubled from the 17.5 million metric tonnes (MMT) in 1966/67 to more than 40 MMT by 2013/14, while domestic consumption has remained relatively flat, highlighting that increased production will have to be exported. Looking ahead, the future for Canadian agricultural expansion in production and world exports looks promising. The growing world population will require food, fertilizer and energy resources from the western Canadian natural resource economy. Federal and provincial policy for agriculture should aim to support the expansion and diversification of Canadian grain.

Grain movement is no longer built around wheat alone, but also includes barley, oats, flaxseed, oilseeds and pulses, and other special crops. These crops require an efficient and competitive GHTS to move them from the farm and into global markets, underlining the importance of a financially strong and resilient grain transportation system. In this way, it is important to understand the critical role railways play within one of the longest and most complex grain movements in the world.

Grain Performance

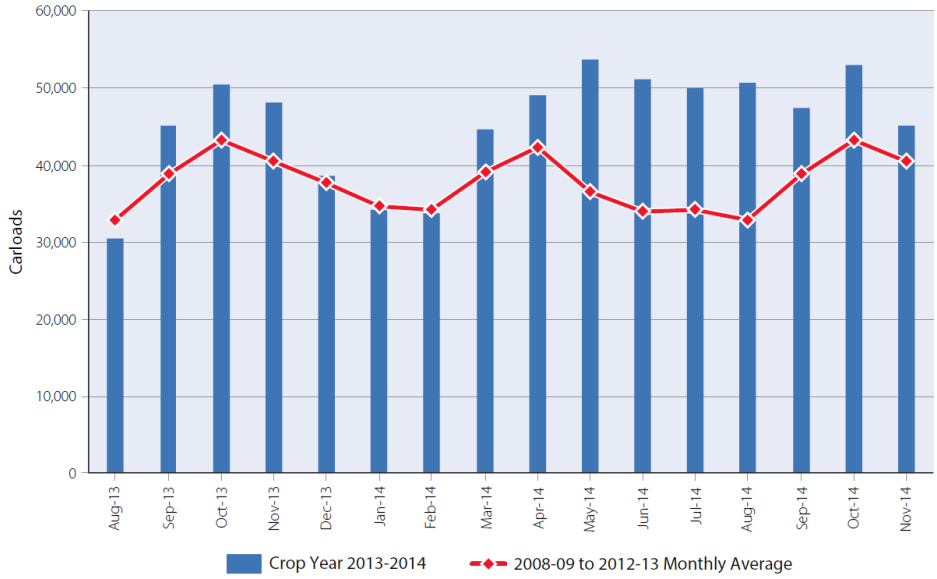
Canadian railways continue to move high volumes of grain on behalf of their customers and over very long distances. For example, a grain shipment originating in Portage La Prairie, MB and travelling to Vancouver, BC travels over 1,400 miles on CP or CN track. Eastern movements are even more challenging with shipments originating in Alberta travelling more than 2,300 miles to the Port of Montreal[1].

Moving record amounts of grain over exceptionally long distances is not new to railways; however, the 2013/14 harvest was an exceptional year that yielded the largest harvest in Canadian history at 76.7 MMT. This crop was 34% greater than the five-year average of 57.3 MMT and approximately 22% greater than the previous crop record set in 2008/09 at 63.1 MMT.

Canadian railways moved a record volume of grain and grain products in 2013/14 (Figure 5). On a month-to-month basis, Canadian railways maintained or exceeded the volumes moved on average and over the last five years. Pre-winter, carload movements were exceptional yet performance was hampered during the winter months by the coldest winter in decades.

[1] RAC, 2014. Internal calculation using CN and CP track mileage data.

Figure 5: Canadian Class I Railways – Western Region Grain Throughput (crop year 2013/14 vs. 2008-2013 average)



Since 2008 grain production in Canada has grown approximately 2% per year, with the exception of the extraordinary 2013/14 crop year. Looking forward, the 2014/15 harvest is predicted to be 60 MMT, more in line with the five-year average before last year's record harvest.

New service delivery models (e.g. dedicated train program for grain at CP, commercial fleet integration program at CN), operations that run 24/7 and 365 days a year, and continued investments into the GHTS underscore that Canadian railways are well positioned to meet projected grain traffic volumes in the years to come.

Yet the end-to-end nature of the GHTS is complex and there continues to be major operational differences and limitations to this supply chain. Divergent crew shifts and working hours at terminal operations in Vancouver are just some examples of the challenges that Canada faces in its ability to manage grain volumes above the current five-year average. Furthermore, other areas of the supply chain are suffering from a lack of investment. Strategic investments into on-farm storage and port capacity are critical to ensuring that the collective supply chain can grow into the future.

Volume Requirements and the Fair Rail for Grain Farmers Act

Government decisions to introduce volume requirements designed to move last year's and this year's crop threaten to jeopardize the efficiency of the Canadian railway network and undermine the progress achieved under a largely deregulated and commercially free era that began in 1987 and that is briefly described above.

This type of regulatory intervention failed to establish a long-term supply chain-focused solution by unilaterally targeting railways to move specific amounts of grain until March 28, 2015. In the short-term, the *Fair Rail for Grain Farmers Act* has negatively affected the railway industry by:

- setting preferential treatment to one customer group and interfering with the railways' ability to manage their networks to the benefit of all customers; and
- ignoring the fact that railways moved an exceptional amount of grain and were able to surge during the most challenging winter in decades.

In the short-term, the expanded interswitching provisions will introduce more short-haul movements to a complex supply chain and do not provide a mechanism for moving grain to the market place more efficiently. Moreover, the provisions have the potential to: reduce railway revenues; increase operating costs; and produce an uneven commercial playing field by creating autonomous market conditions for U.S. railways.

In the long-term, the potential is more severe. Modifications to the *Canada Transportation Act* to expand its interswitching provisions from 30 to 160 kilometres threatens to impose a reregulation of railway operations in Canada, while offsetting the productivity gains created under the commercial framework era as described in the sections above.

Furthermore, these new provisions contradict recommendations put forward by the *Canada Transportation Act* Review Panel in 2001[2], as well as policy positions put forward by the Canadian Transportation Agency in 2004[3] and 2010[4]. Collectively, these positions stated that expanding the interswitching distance limits can create repercussions by interfering with railway operations and the commercial relationships between railways and their customers.

The Maximum Revenue Entitlement Program

Railway grain rates have a long and complicated history in Canada. From 1897 to 1983 rates were prescribed under the Crow's Nest Pass Agreement. By the late 1970s, it became clear that these rates were generating large losses for Canada's railways. As a result, railways were not generating the levels of capital required to re-invest into their networks.

The passing of the *Western Grain Transportation Act* (WGTA) in 1983 maintained a legislated rate regime for grain, but shifted the burden of the costs from producers to the federal government. Over time, this led to increasing constraints on government finances and the WGTA was repealed in 1995 and replaced with a new rate regime. In 2000, legislated grain rates were replaced by the current Maximum Revenue Entitlement (MRE) program. This legislation contemplated the eventual sun-setting of a special regulatory regime for grain[5].

This provision places a ceiling on the total revenue to be earned from moving grain by rail in any crop year, based on volume and length of haul. At its time, this provision was positioned as a significant step towards placing grain on a more commercial footing by allowing for rate flexibility and enabling efficiency incentives.

However, after nearly 15 years of implementation, there is reason to believe that the MRE has produced negative outcomes, namely by acting as an investment disincentive for railways and the broader grain network, as well as creating a barrier to identifying innovative solutions to export grain efficiently[6].

Additionally, under the MRE regime, rates for regulated grain have been lower than the average freight rates for other commodities moved by rail, and have grown less than inflation as measured by the Consumer Price Index. In 2013, rail rates for regulated grain were nearly half a cent (or 18%) lower on a revenue per tonne-kilometre basis.

[2] *Canada Transportation Act* Review Panel, 2001. op. cit., p. 64. Recommendation 5.3.
[3] Canadian Transportation Agency, 2004. Regulatory Impact Analysis Statement, September 23, 2004.
[4] Canadian Transportation Agency, 2010. Review of the Railway Interswitching Regulations, April 21, 2010. File No. 7360-6.
[5] *Budget Implementation Act*, 1995. Subsection 181.18 (2).
[6] The Conference Board of Canada, 2011. From Earth to Berth–Improving the Efficiency of Canada's Grain Supply Chain, p. 13.

Investments

Hopper cars provide a prime example of where additional investment is required immediately. Between 1972 and 1994, the government purchased 13,500 hopper cars to support the movement of Western Canadian grain for export from the Prairies to the ports of Vancouver, Prince Rupert, Churchill and Thunder Bay.

In 2007, new operating agreements for the federal grain hopper car fleet were signed between CN, CP, and Transport Canada. This effectively transferred the responsibility to manage, maintain and operate hopper cars to railways. As part of this agreement, CN and CP implemented an extensive hopper car inspection and refurbishment program over a five-year period. The program included replacement of poor-performing discharge gates with technologically superior units, as well as a general refurbishment program for the other gates on these cars to ensure a quality fleet. It effectively provided benefits in the short term.

Today the context is different. There are approximately 8,300 government-owned hopper cars in service by CN and CP with nearly 45% of these cars purchased between 1972 - 1979. Under the Association of American Railroads Interchange Rules, rail cars built before 1974 have a 40-year life and cars built after 1975 have a 50-year life. It is also well understood that the cost to build a new hopper car ranges between $75,000-$90,000 per car and that new car orders will not be delivered until 2017.

New hopper cars provide a throughput and carrying capacity advantage over older hopper cars. They are shorter, have an improved load capacity, and allow for more cars to be added to a unit train, which in turn leads to more grain being moved through the supply chain. Current estimates indicate that unit trains consisting of new hopper cars can move 20-30% more grain, providing the supply chain can accommodate higher throughput by making the necessary investments at the farm gate and at ports and terminals.

This example highlights a demonstrable need for additional investment to modernize the hopper car fleet and introduce new rail cars into the GHTS. Investments are required, and as time has proven, the MRE does not provide railways and their customers with the incentive to invest capital in new hopper cars. As a result, fluidity and capacity are sacrificed.

Innovation

The MRE also poses challenges for identifying innovative solutions to efficiently move Canadian grain to the marketplace.

History has proven that grain production in the Canadian Prairies is highly volatile. Climate variability, extreme weather events and evolving market conditions pose barriers to producing consistent amounts of grain. Despite advances in agricultural growing practices and year-over-year crop carryover, grain production and the corresponding grain shipments can fluctuate.

For example, an analysis of Prairie production volumes from 1908 – 2012 highlights an average annual increase of 2%. However within this average, production has fluctuated around the trend by an average of 20% a year.

Variability in grain shipments can also arise from farmers responding to price expectations in the marketplace. As a result, the export demands for grain can swing rapidly in any given year. This volatility underlines the need to have strategies in place to manage excessive amounts of grain for export purposes when grain production years are at their highest.

The increased use of containers to move high-value grain and oilseed to market presents an innovative opportunity for moving grain to the marketplace, especially in years when the bulk supply chain is at capacity or affected by abnormal weather. To date, moving grain by containers has been largely underused. For example, approximately 15% of grain traffic moved through the Port of Vancouver by container in 2013. This is consistent with the five-year average from 2008 – 2012.

However, under the existing MRE regime, there is little incentive for railways and their customers to pursue this option further. When the MRE was established, the costs were based largely on a system that had very few containerized grain movements. Consequently, containerized grain was simply lumped in with bulk grain volumes and revenues.

As a result, the adjustment for input costs does not consider the higher costs associated with moving grain by container versus bulk. Grain shippers that want or need to use containers to reach export markets are forced to move their product to the ports by other means and transload at the coast rather than in the country. As a result, the opportunity to utilize containers as a means to creating surge capacity is minimized.

Key Finding: Time has proven that the MRE maintains a low-rate transportation system, one that minimizes investment and innovation and does not position the GHTS well for growth. As a result, there is demonstrable need to evolve the movement of grain by rail towards a fully functioning commercial framework, one that provides the right incentives to drive productivity and innovation. An unfettered commercial framework provides greater assurance that the GHTS supply chain partners will invest in innovative supply chain solutions to move grain efficiently in the years to come.

Canadian government policies should aim to promote efficiency in the grain handling and transportation system and ensure that there are adequate incentives for railways to invest in an effective grain transportation system network.

Conclusion

This submission and its accompanying attachments underlines that the future of Canada's rail-based transportation supply chain for grain and other commodities needs to be driven by a commercially-focused and market-driven policy framework.

Do not hesitate to contact me directly if you have any additional questions or comments.

Regards,

Michael Bourque
President, C.E.O.
Railway Association of Canada

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Appendix A: RAC Freight Railway Membership

Organization Name	Code	Organization Name	Code
6970184 Canada Ltd	6CL	Kettle Falls International Railway, LLC	KFR
ArcelorMittal Infrastructure Canada s.e.n.c.	AMIC	Last Mountain Railway	LMRY
Arnaud Railway Company	CFA	New Brunswick Southern Railway Company Ltd.	NBSR
Barrie-Collingwood Railway	BCRY	Nipissing Central Railway Company	NCRC
Battle River Railway, NGC Inc.	BRRY	Norfolk Southern Railway	NS
BCR Properties Ltd.	BCRP	Ontario Northland Transportation Commission	ONTC
Big Sky Rail Corp.	BSRY	Ontario Southland Railway Inc.	OSR
BNSF Railway Company	BNSF	Orangeville Brampton Railway	OBRY
Canadian Pacific	CP	Ottawa Valley Railway	OVRR
Cape Breton & Central Nova Scotia Railway	CBNS	Prairie Dog Central Railway - Vintage Locomotive Society Inc.	PDCR
Carlton Trail Railway	CTRW	Québec Gatineau Railway Inc.	CFQG
Central Maine & Québec Railway Canada Inc.	CMQRC	Québec North Shore and Labrador Railway Company Inc.	QNSL
Central Manitoba Railway Inc.	CEMR	The Roberval and Saguenay Railway Company	RS
CN	CN	Romaine River Railway Company	CFRR
Compagnie du Chemin de Fer Lanaudière Inc.	CFL	Société du chemin de fer de la Gaspésie	SFG
CSX Transportation Inc.	CSXT	Southern Ontario Railway	SORR
Eastern Maine Railway Company	EMRC	Southern Railway of British Columbia Ltd.	SRY
Essex Terminal Railway Company	ETR	St. Lawrence & Atlantic Railroad (Québec) Inc.	SLQ
Goderich-Exeter Railway Company Limited	GEXR	Stewart Southern Railway	SSR
Great Sandhills Railway Ltd.	GSR	Sydney Coal Railway	SCR
Great Western Railway Ltd.	GWR	Trillium Railway Co. Ltd.	TRC
Hudson Bay Railway	HBRY	Tshiuetin Rail Transportation Inc.	TRT
Huron Central Railway Inc.	HCRY		

Appendix B and **C** are saved under separate cover.

CANADA'S RAILWAYS

Winter's Impact on Railroad Operations Fact and Fantasy

Prepared by:

Paul Miller
Adjunct Professor and Railroader in Residence, University of Alberta

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In winter….

- Railroads affected along with other outdoor operators
- However, beyond a tipping point:
  - Certain railroad technologies additionally, uniquely impacted
  - These are fundamental to railroad efficiency
- Tough, structural issues
  - Significant technological improvements over time
  - Efforts, investment continue
  - Impacts limited in geography, duration
- Expect technological gains, but not breakthroughs
- Supply chain collaboration, innovation, optionality

Snow is an issue…

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…but cold is the main concern

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Fundamental, Structural Technologies

What makes railroads efficient?

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- Steel wheel on steel rail
  - High adhesion, low rolling resistance
- North America-wide interchange
  - Interoperable air brake system
- Long trains of heavy cars

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A Picture of Winters Past

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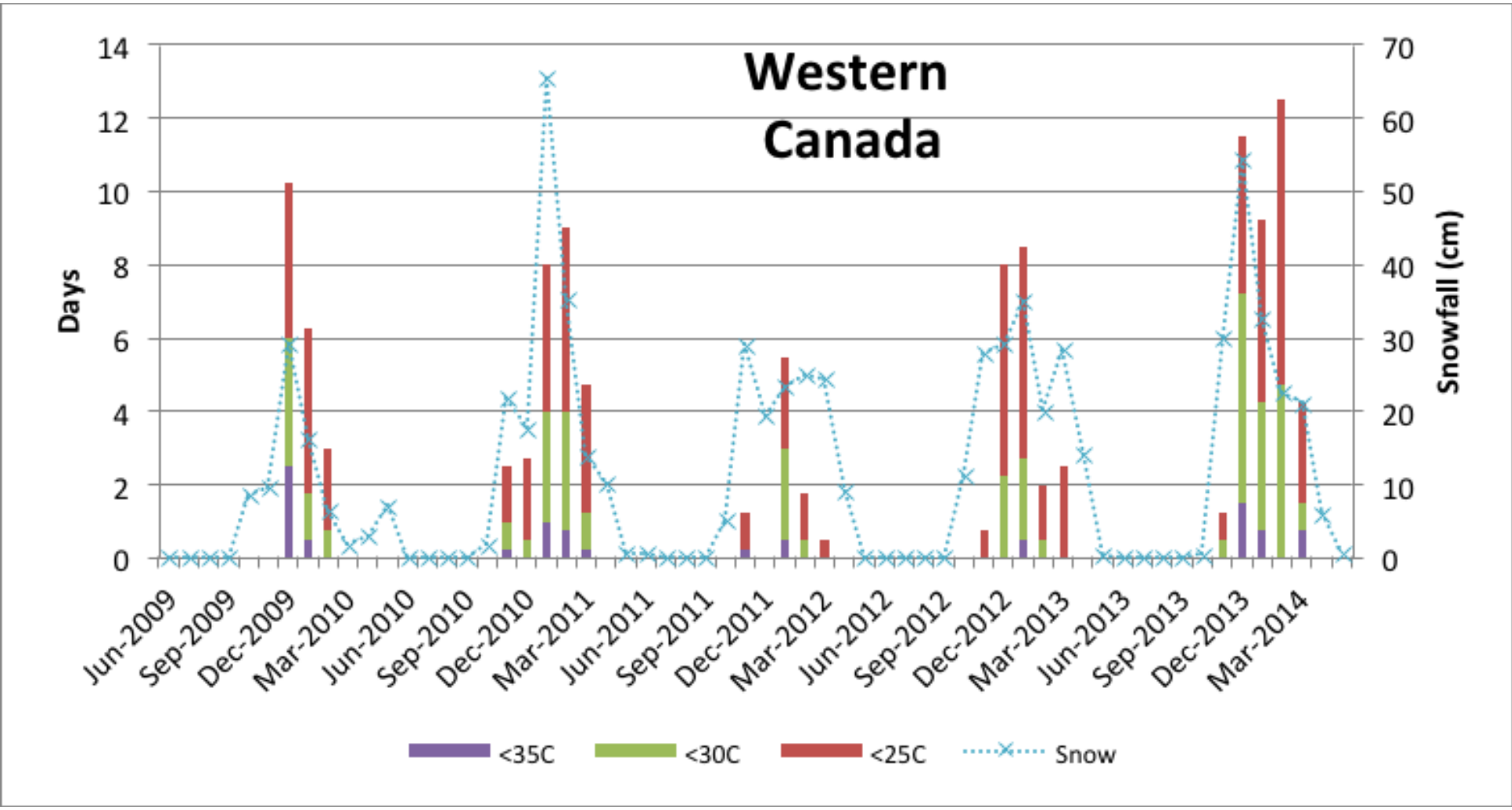

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Efficient but Winter Susceptible Technologies:
Steel Rail

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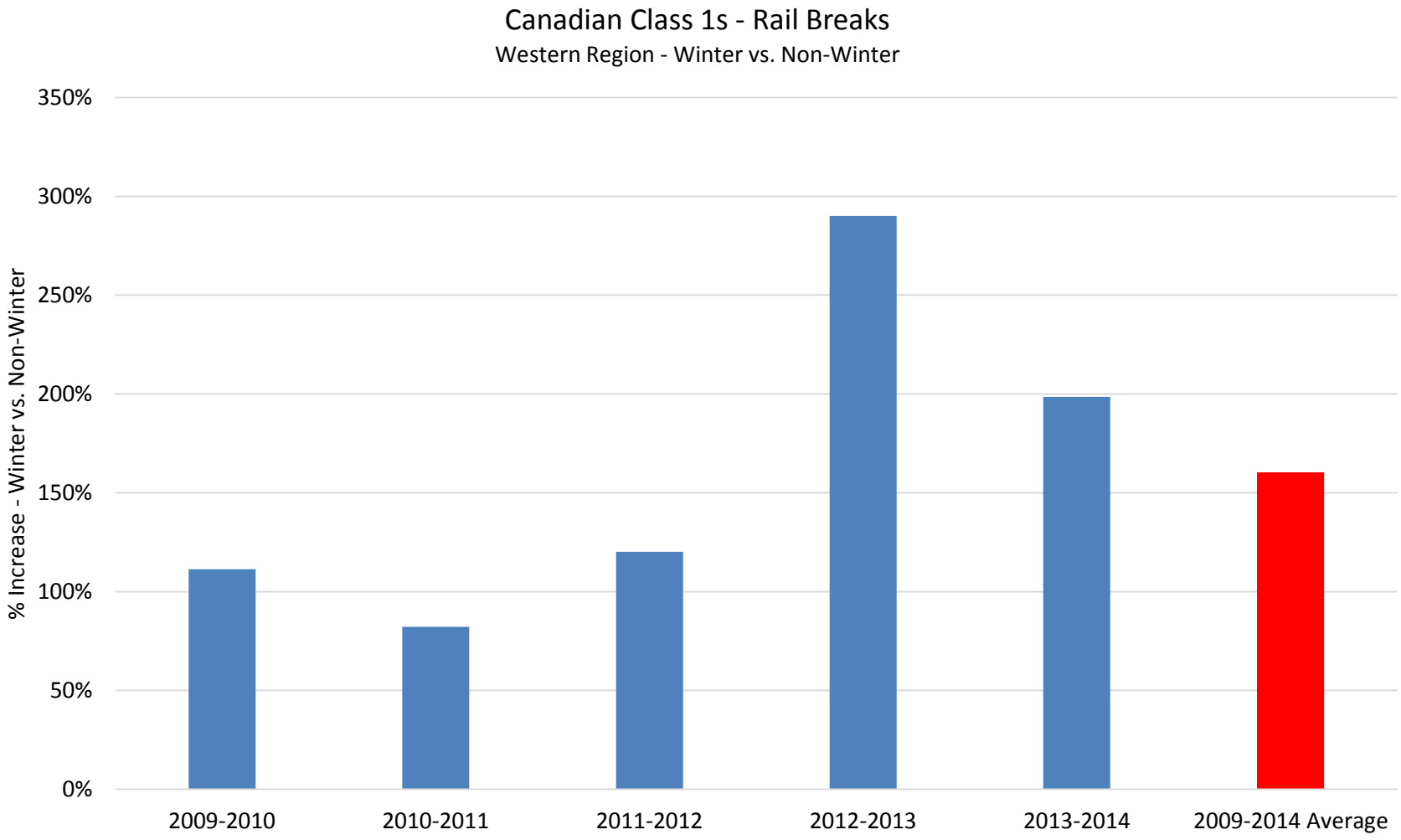

Source: RAC

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Efficient but Winter Susceptible Technologies:
Steel Wheels and Air Brakes

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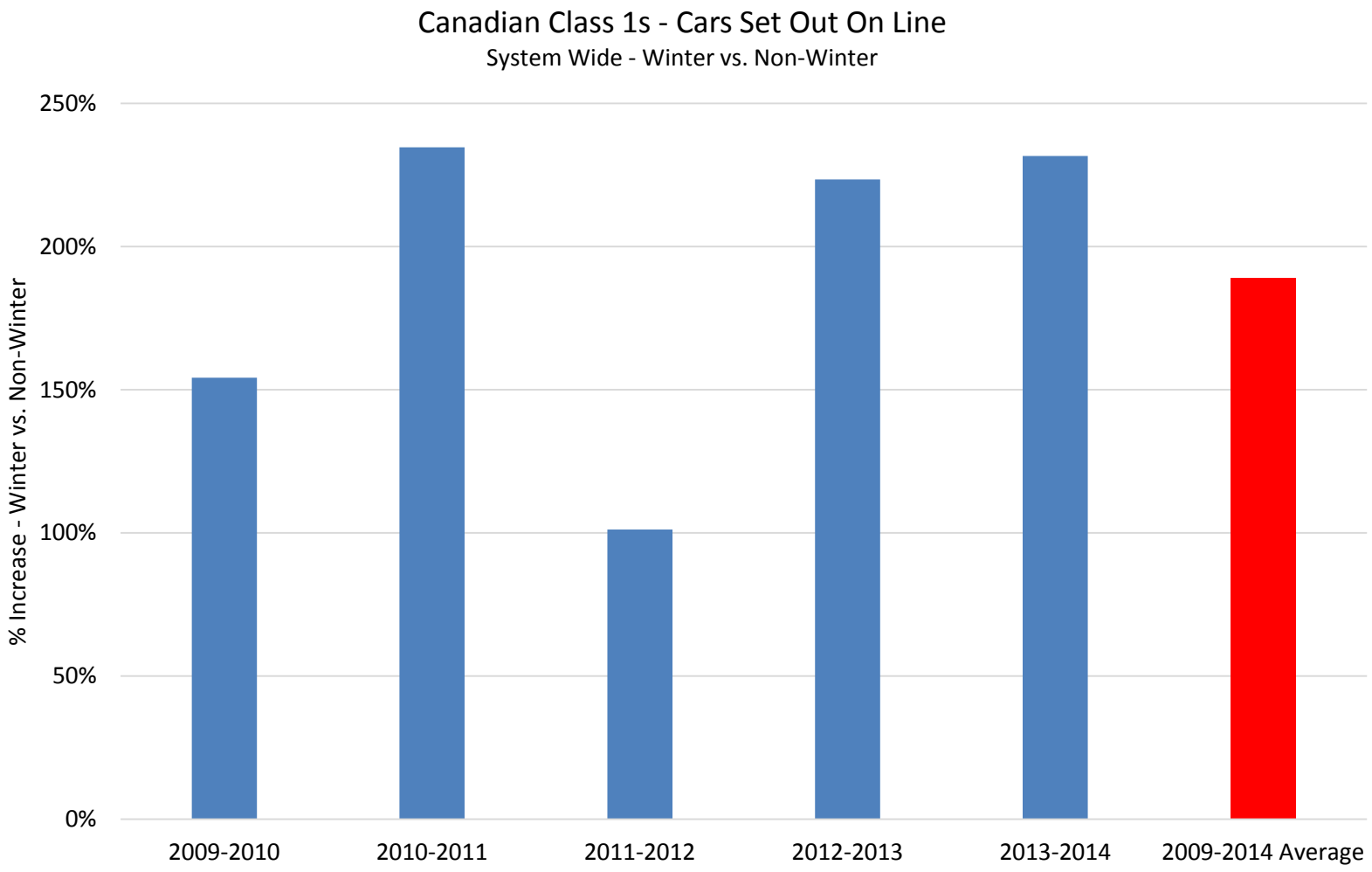

Source: RAC

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Efficient but Winter Susceptible Technologies

Long Trains

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Maximum Train Length Based on Ambient Temperature

	Above -25C	-25C to -30C		-30C to -35C		Colder than <35C	
Head End Power							
Bulk	10,000	8,800	-12%	6,000	-40%	4,500	-55%
Manifest	10,000	7,000	-30%	6,000	-40%	4,500	-55%
Intermodal	12,000	8,000	-33%	6,000	-50%	4,500	-63%
With Distributed Power							
Bulk	11,300	11,000	-3%	9,000	-20%	7,500	-34%
Manifest	11,300	10,000	-12%	8,500	-25%	7,000	-38%
Intermodal	14,000	12,000	-14%	10,500	-25%	8,500	-39%

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The Downward Spirals
Compounding Effects

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On Line of Road

In Terminals

Across Supply Chains

Across North American Network

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The Downward Spirals
In Terminals

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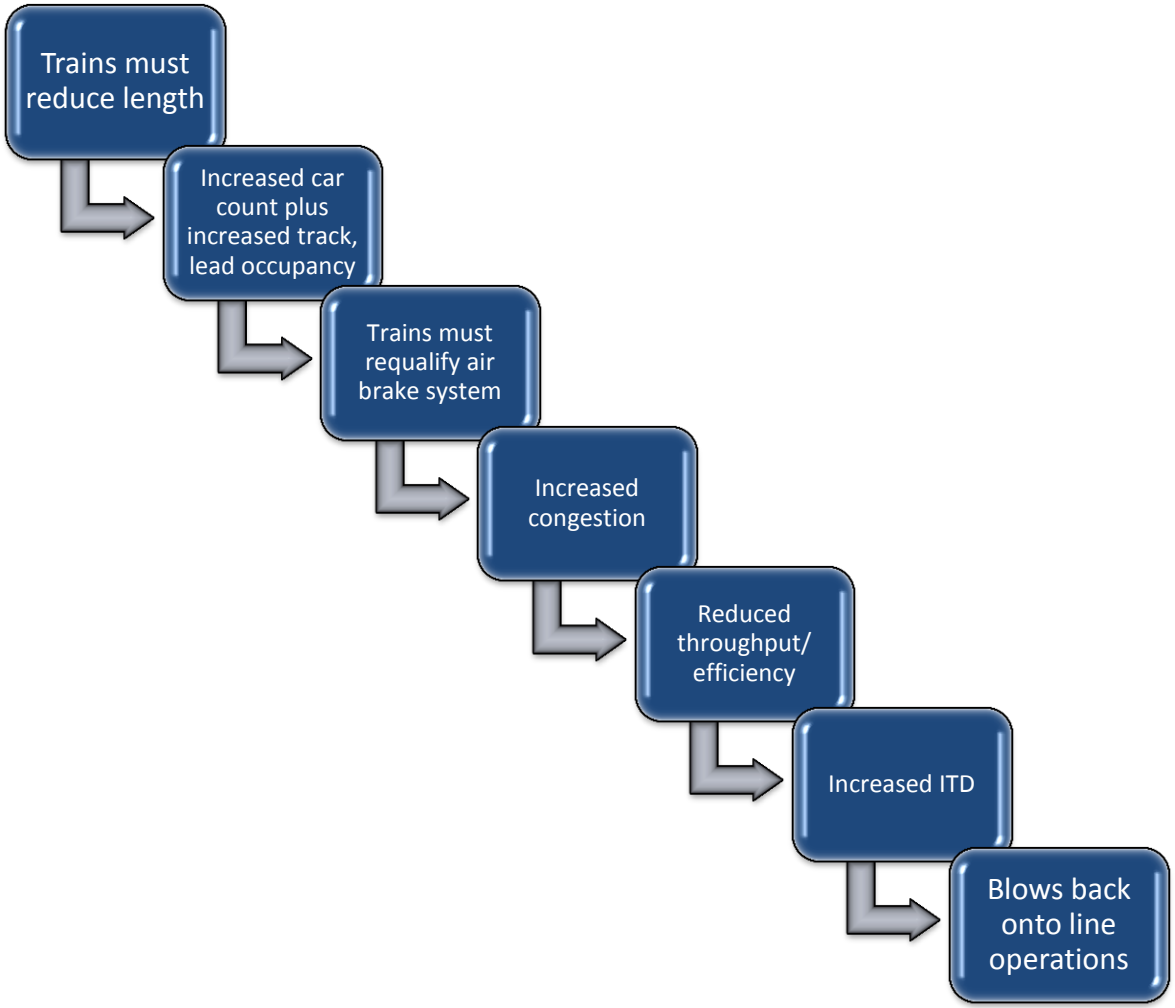

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The Downward Spirals
On Line of Road

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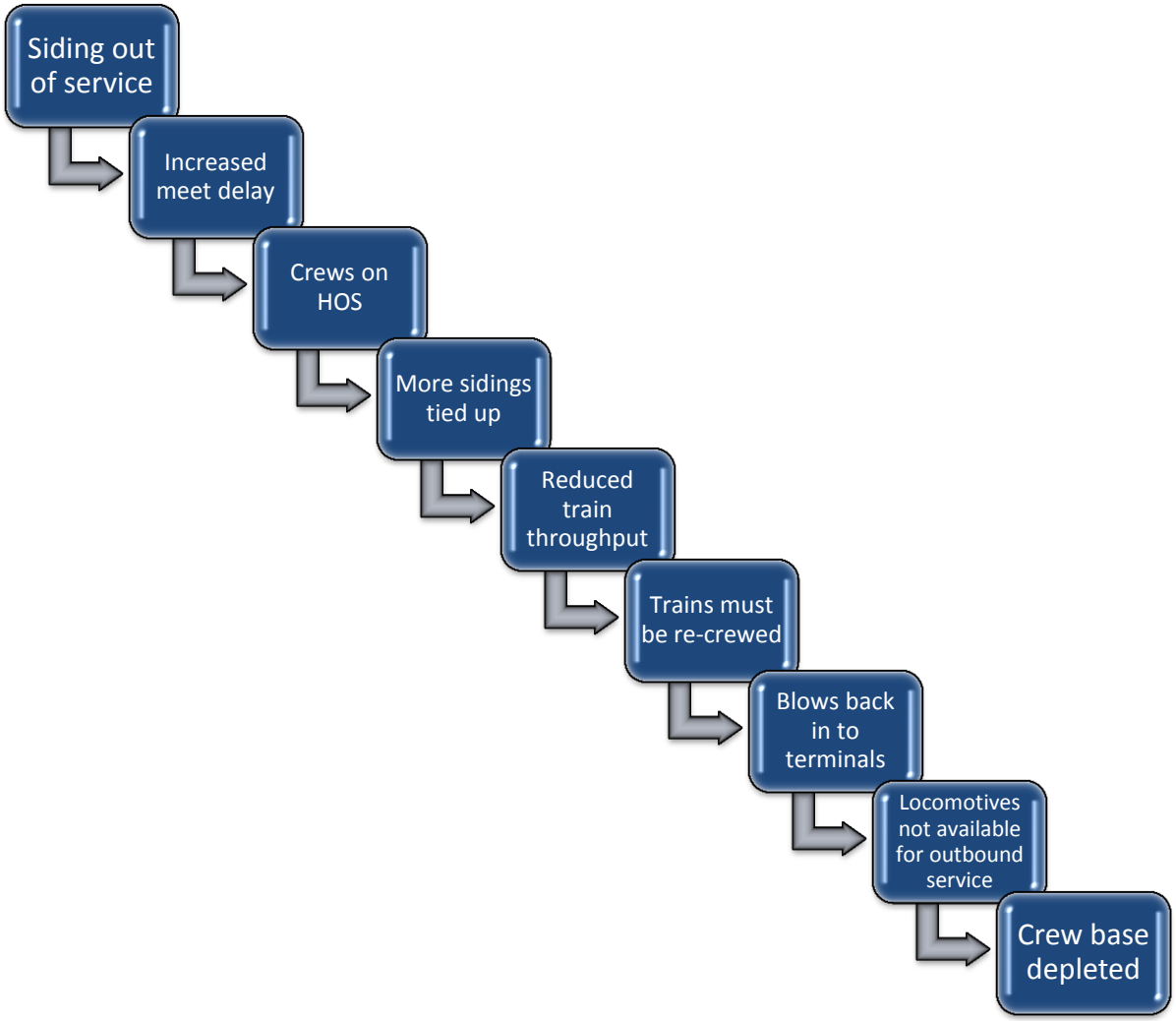

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The Downward Spirals
In Supply Chains

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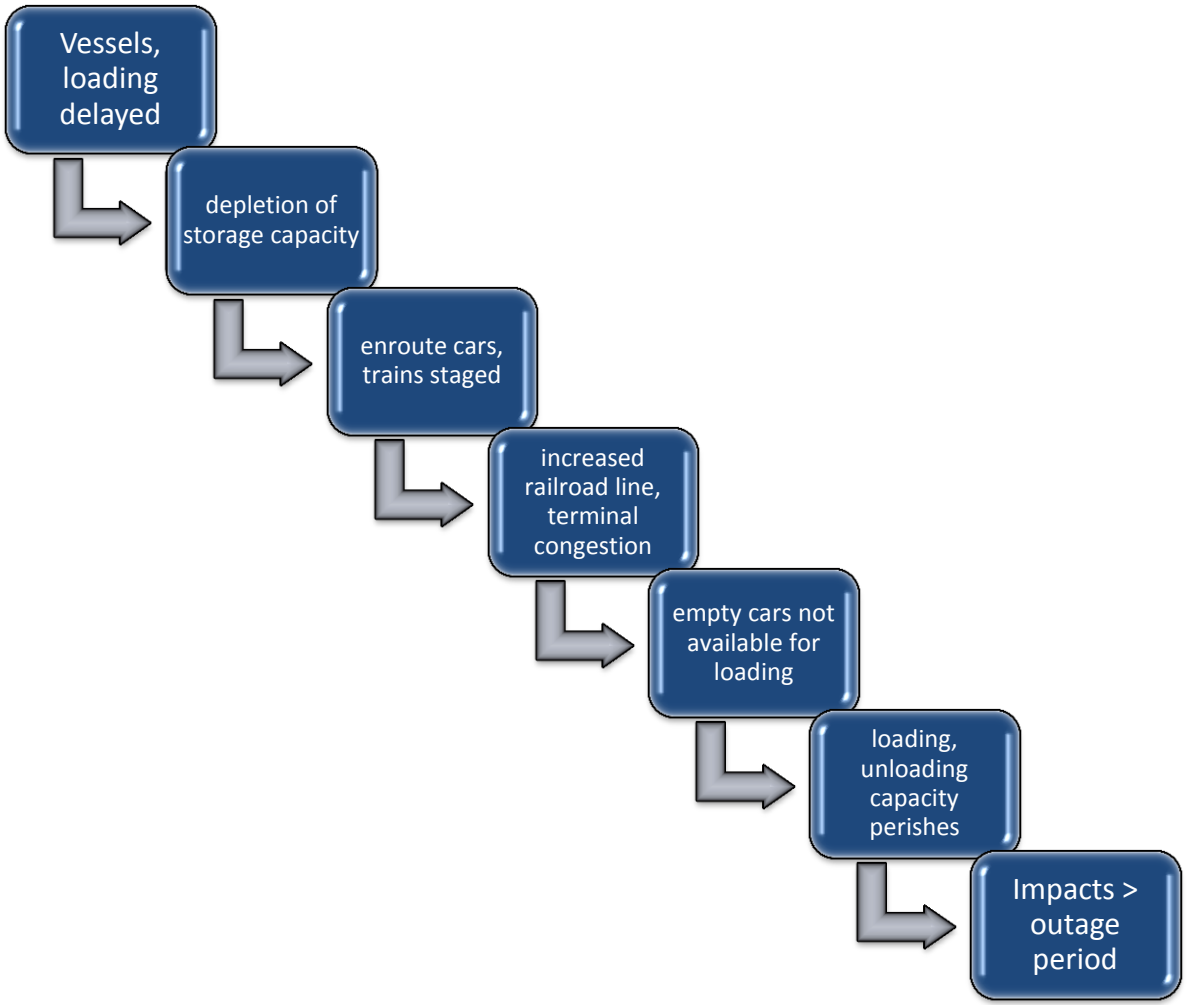

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The Downward Spirals
In the North American Network

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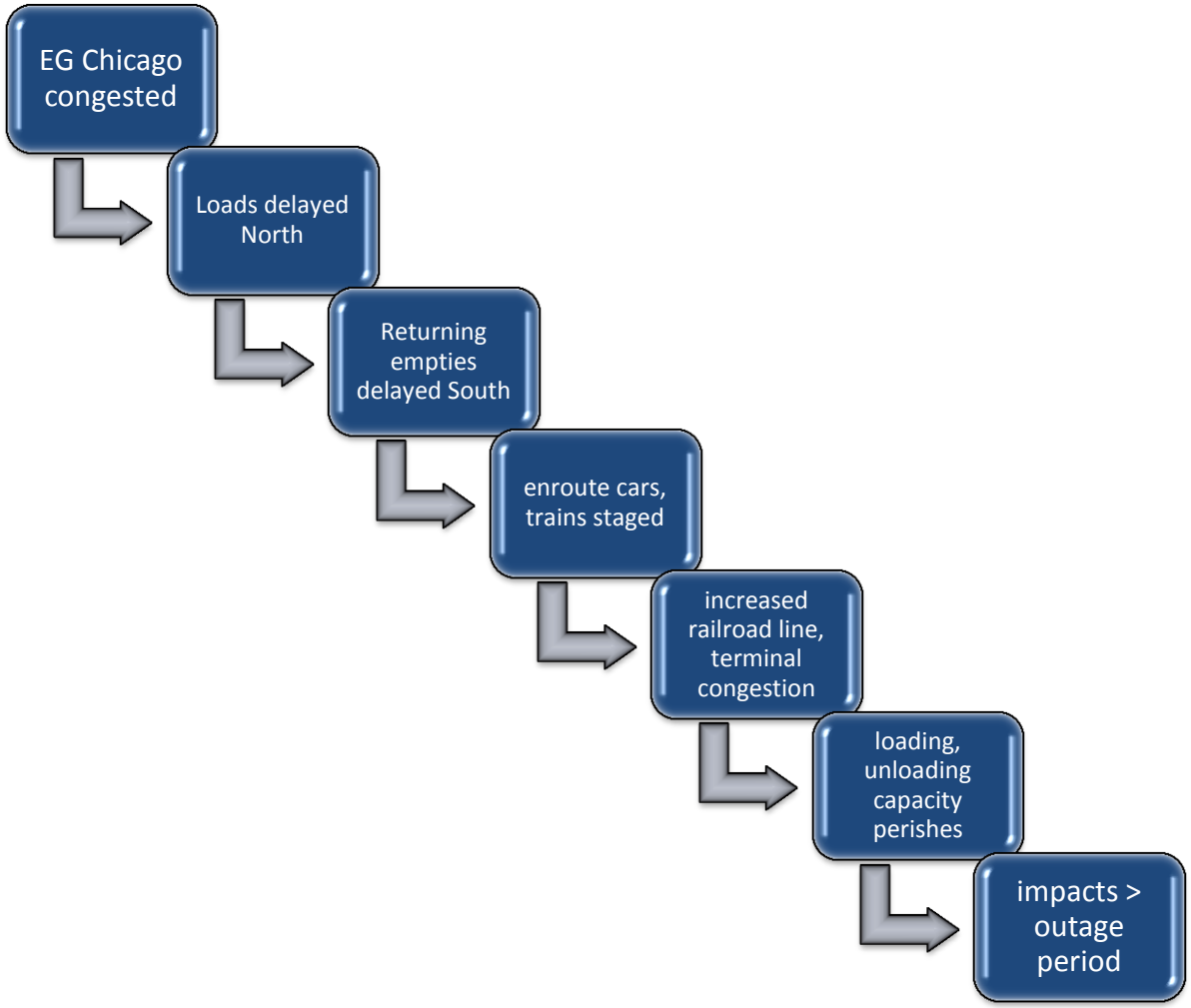

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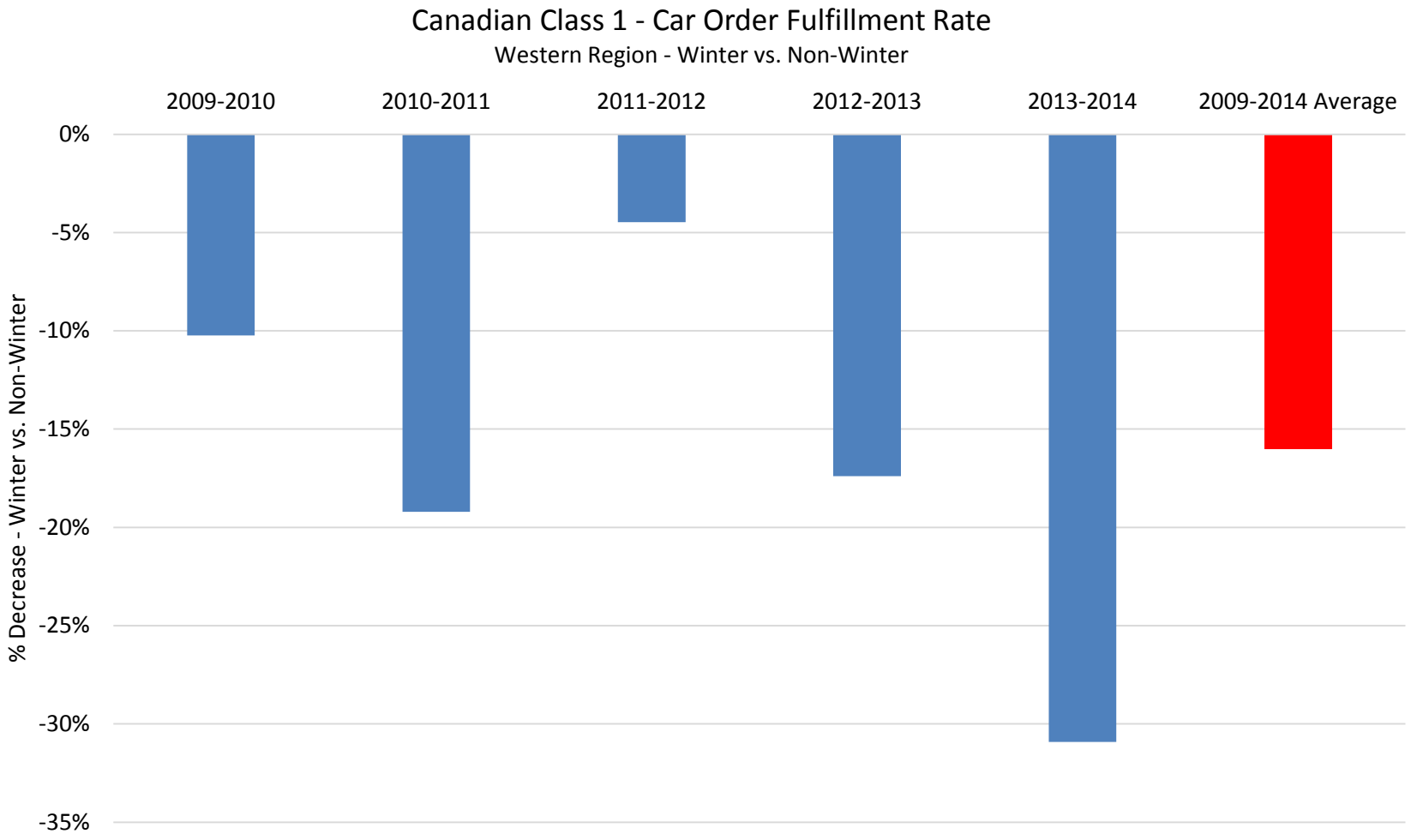
Service Outputs

Empty equipment supply

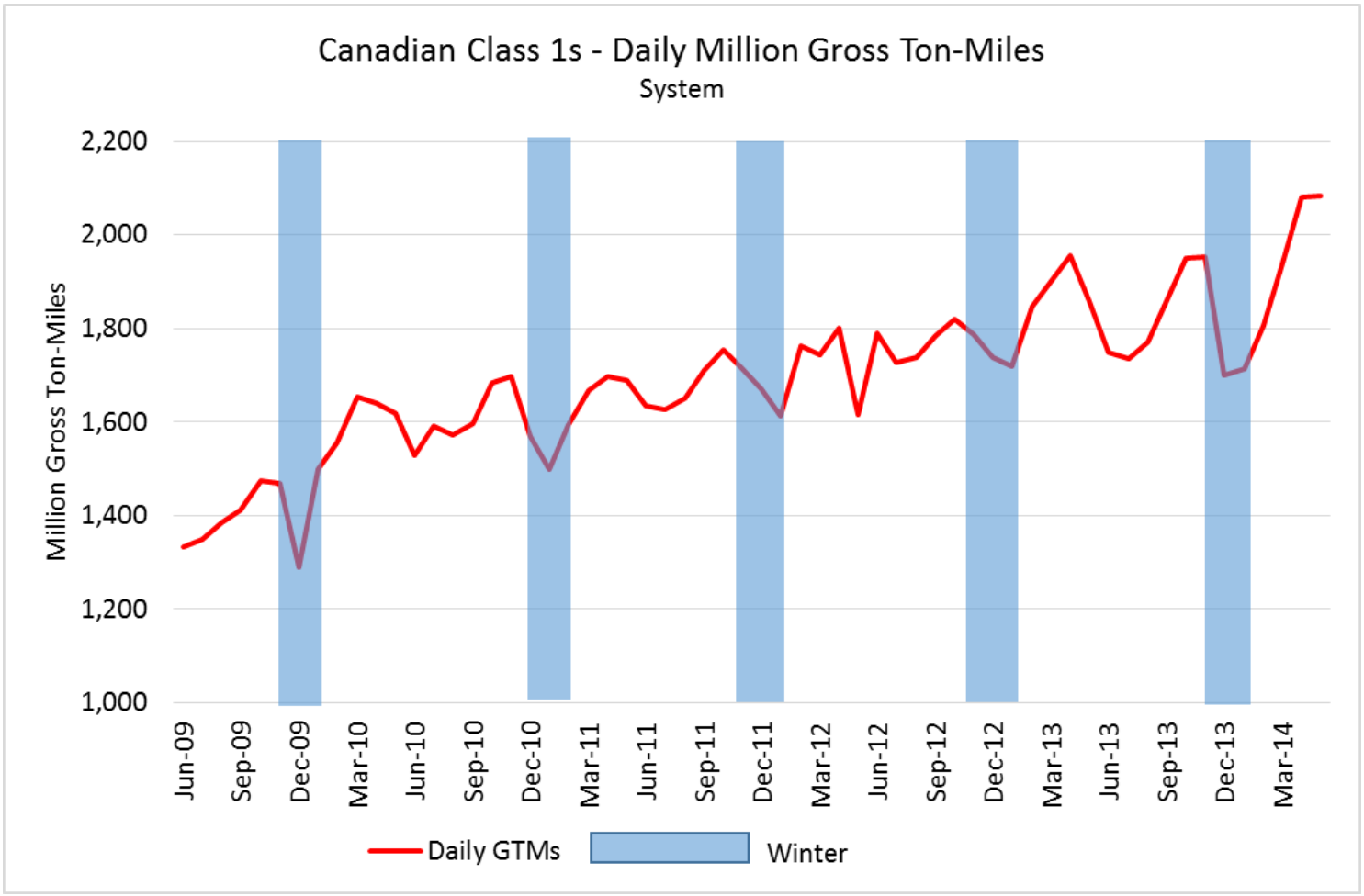


Source: RAC

PULLING for CANADA

Service Outputs

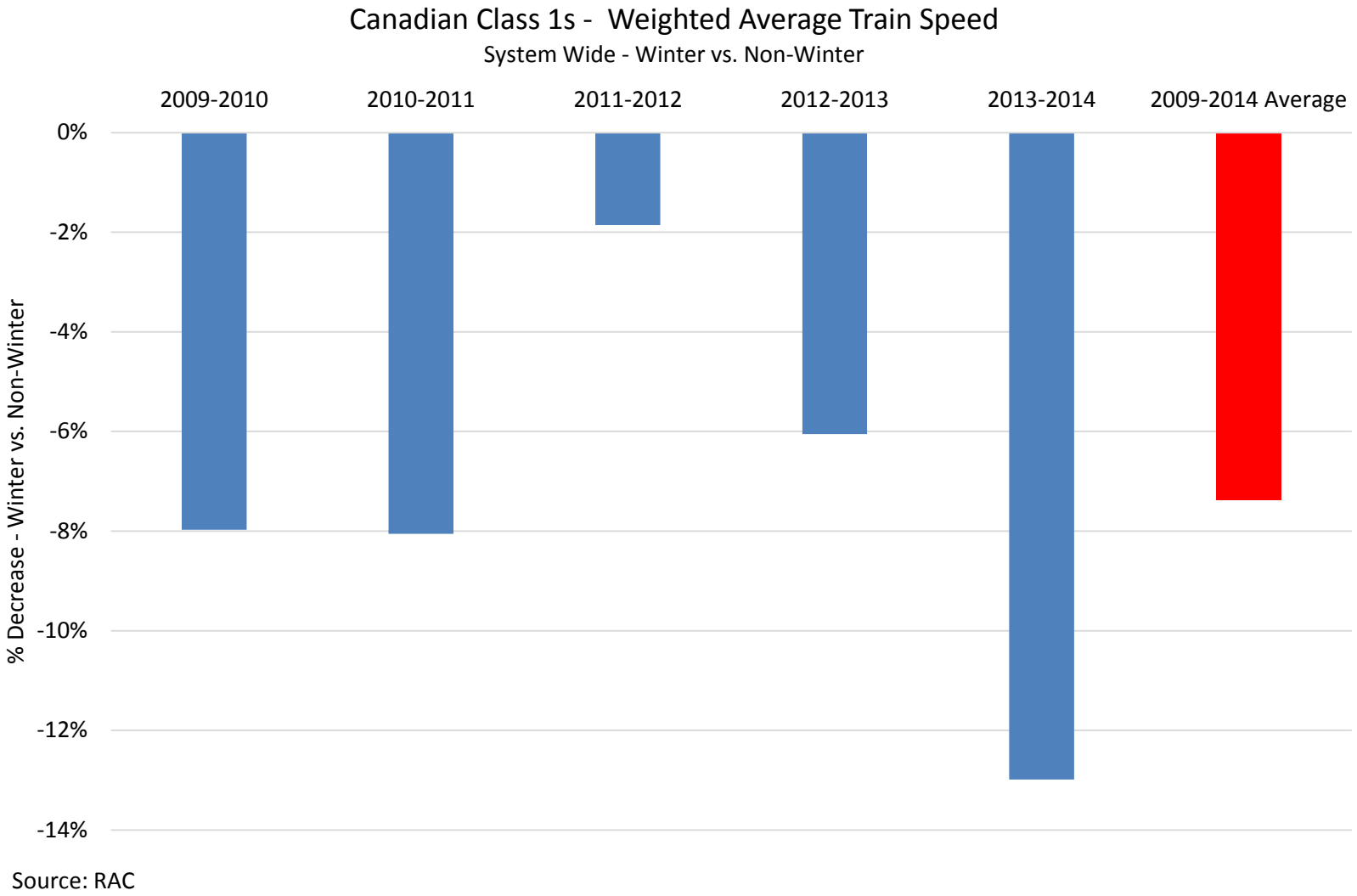
Movement of traffic



Source: RAC

Service Outputs

Train Speed



Source: RAC

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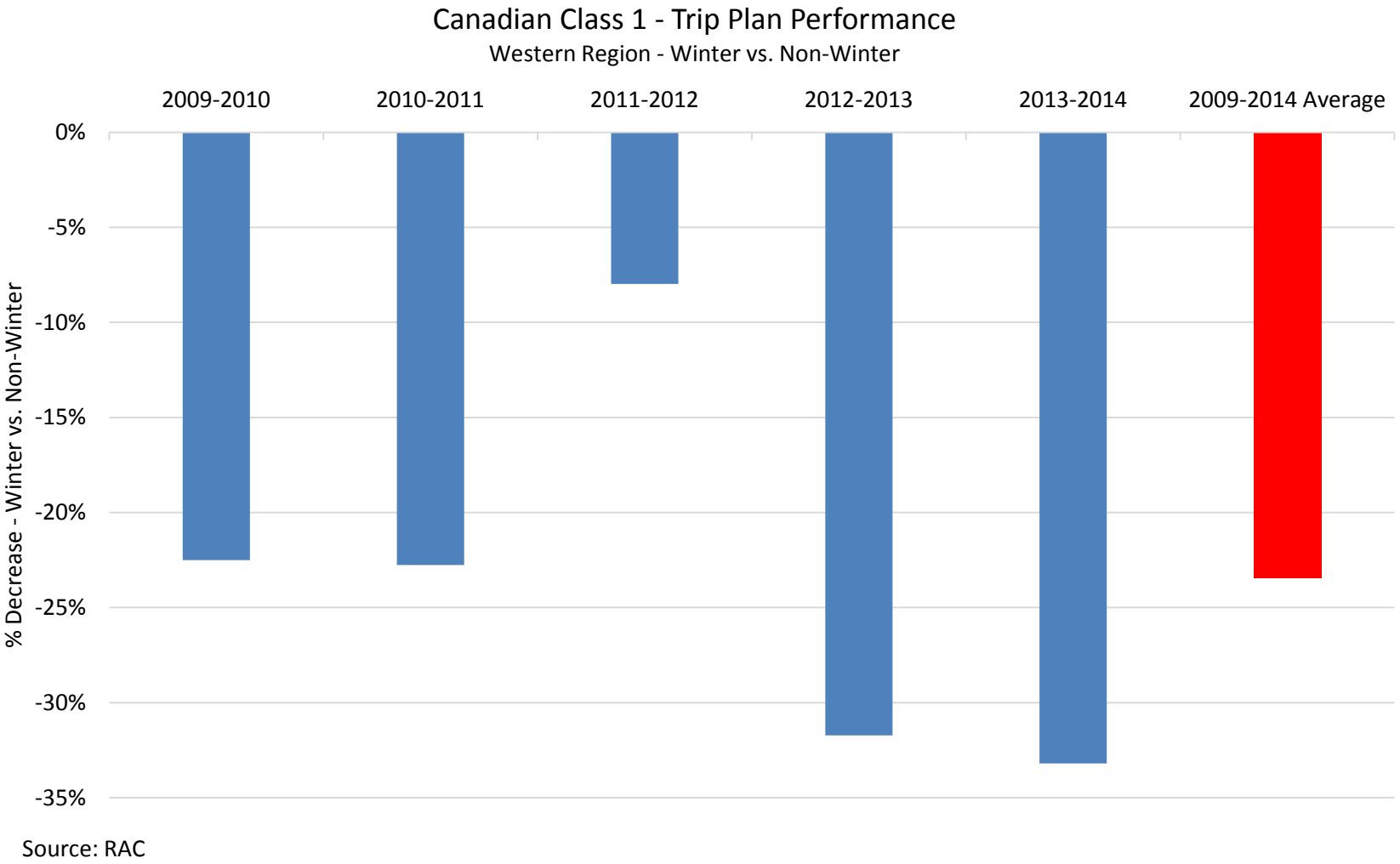
Service Outputs
Reliability



Source: RAC

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In conclusion…

- Beyond a tipping point – railways are ***uniquely*** challenged by winter
  - ***Structural issues*** related to basic railroad technologies
- Research, investment, effort will continue
  - Incremental improvements
- Breakthroughs must come from elsewhere
  - Supply chain initiatives and collaboration

PULLING for CANADA

FREEDOM IN WESTERN GRAIN MOVEMENT

A Summary Assessment of the Effect of the *Maximum Grain Revenue Entitlement (A.K.A.* Revenue Cap) on Railway Efficiency, Growth & Productivity in the Western Canadian Grain Handling & Transportation System

OWEC

by

Dr. Barry Prentice and Dr. Graham Parsons

Regina & Winnipeg

January 13, 2015

Context & Acknowledgements

This summary report is an abridged version of a larger and more comprehensive assessment of the effect of the Maximum Grain Revenue Entitlement on the Western Canadian Grain Handling and Transportation System. The main report and this summary has been prepared for the Railway Association of Canada using data and information from the Canadian National and Canadian Pacific railways, Statistics Canada, the Canada Transportation Agency, Transport Canada and many others who have recently evaluated and commented on grain handling and transportation systems in Canada and the United States. The views expressed are those of the authors alone and should not be interpreted as the views of the Railways Association of Canada or its members. The authors thank the staff of the Railway Association of Canada and the officials of railways, governments and universities who have been helpful in obtaining information for the work.

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INTRODUCTION

Efforts by Canadian Governments to manage the export movement of grains through the 20th Century did not serve western Canadian farmers well. The physical regulation and allocation by government, and their agent the Canadian Wheat Board, of transportation and grain storage assets and movement costs led to efficiency losses, massive investment deficits and large government subsidies. The loss of marketing freedom in many parts of the grain handling and transportation system (GHTS) caused participants in the system to defer and reduce investment for capacity and productivity improvements. Government intervention distorted Western Canadian agriculture reducing Prairie farmer incomes.

Through this same period the *Canada Transportation Act* deregulated rail transportation of all other non-grain commodities and their respective exports. This resulted in privately financed infrastructure that improved the efficiency of transporting Western Canada's rapidly expanding natural resource commodity and energy exports. Deregulation of the railways was a huge economic and regulatory success.

Since the start of the 21st Century much has changed in the western GHTS, but remnants of the old command and control regulatory framework remain. Specifically, the Maximum Grain Revenue Entitlement (Revenue Cap) creates a ceiling on the total railway revenues earned from moving grain by rail in any crop year, based on volume and length of haul.

For all intents and purposes, the Revenue Cap is a statutory freight rate no different in its long run effects than the Crow Rate abandoned in 1983. This regulatory disincentive limits efficiency gains throughout the GHTS supply chain and reduces western farmer incomes.

Agricultural and export grain development and marketing have been mainstays of the Canadian economy since Confederation. The world continues to want Canadian grains. As the 21st Century unfolds export market development opportunities are emerging that could dramatically increase grain exports by 2050.

Whether Canada can move these increased levels of grain through its GHTS export supply chain in the years ahead depends on achieving an internationally competitive delivered price and reliable and timely delivery for grain from farm gate to port following a complex:

- Movement by truck, rail and ship;
- Storage and handling by grain companies in the country and often internationally, at port and by truck, railways and shipping in transit; and,
- Efficient multi-modal transfers from road to country storage, from country storage to rail, from rail to port terminals and from port terminals to international shipping.

This large agricultural grain export opportunity is significant to the national and Western Canadian economies. Current federal regulatory constraints continue to limit physical capacity and commercial evolution of the western GHTS.

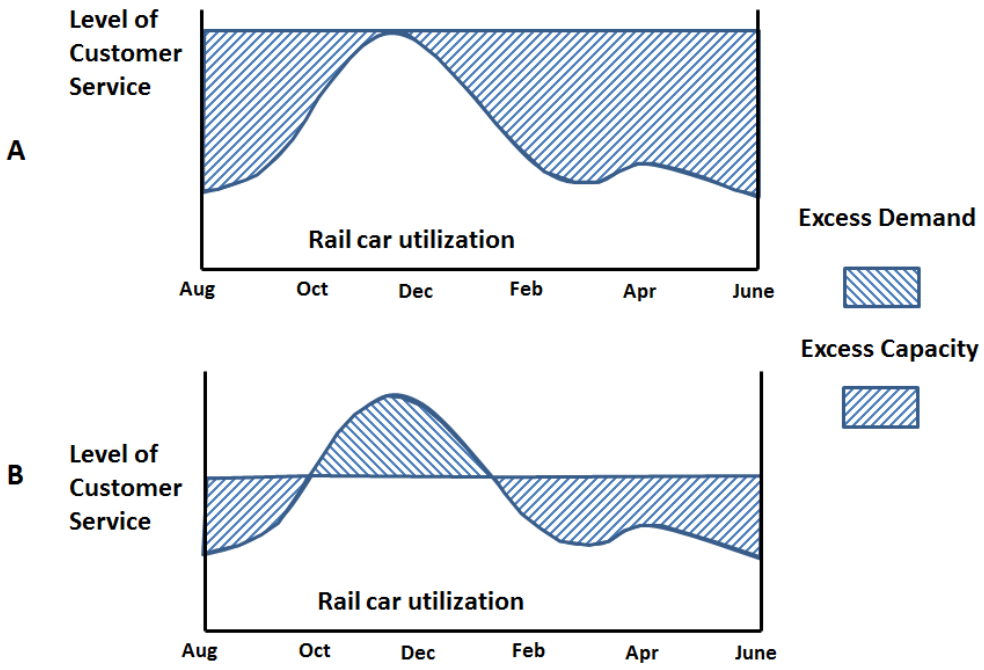
KEY FINDINGS

The Revenue Cap is shown to have adverse effects on the efficient operation of the GHTS. The Cap limits investments required to meet Canada's infrastructure capacity growth to competitively move Canadian grains into world export markets. The effects of the Railway Cap are summarized briefly below and expanded in the main report.

THEORETICAL CONFLICTS IN MANAGING PEAK LOAD INSTABILITY AND SURGES IN DEMAND

Each crop year there is a trade-off between rail car capacity utilization and customer service. Figure ES1 shows two models of customer service and capacity utilization. Seasonal demand begins in August and terminates in July on a fairly regular annual cycle. In model A, enough rail car capacity is established so that customer service is consistent through the year. However, the more equipment and crews that are dedicated to serve the peak demand, the more idle equipment and crews remain under-utilized over the balance of the year. Unused capacity must still be financed all year round.

Figure ES1 Customer Service and Capacity Management Given a Seasonal Demand Pattern



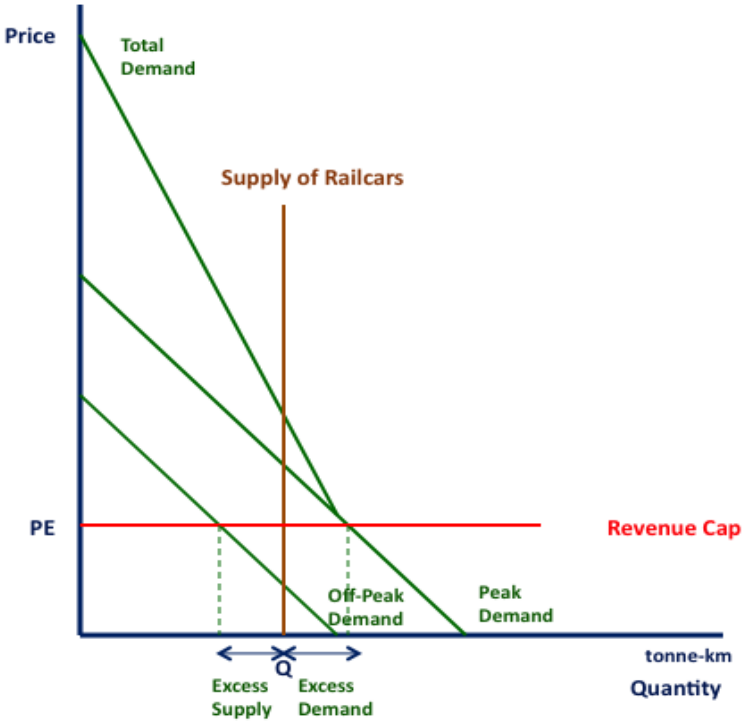
In model B, the capacity is designed to meet a "high average demand".[a] During the peak period some shippers receive a lower level of customer service than is experienced by off-peak shippers. However the cost of providing the service is much lower too, because far less excess capacity has to be maintained throughout the year. The economic trade-off between the quality of customer service shippers are willing to pay for and the level of customer service that the grain transportation and handling supply chain can afford to offer is found by the interaction of supply and demand.

[a] It should be noted that even *"high average demand"* is in many years exceeded by large amounts when a combination of weather, harvest and world demand provide much higher crops with *"super surges"* in demand.

The key to the efficient management of peak demands is the method of dealing with the scarcity of supply. Current practice under the Revenue Cap and minimum movement directives is to use annual revenue limits and rules-based rationing to allocate resources. Market allocation and pricing systems as used with other railway commodities or for grains in the United States allocate demand with variable prices. Both approaches have merits. Fixed prices and revenues offer horizontal equity – *"everyone is treated the same".* Variable prices provide vertical equity - *"everyone gets what they are willing to pay for"*. However, it can be shown theoretically that variable price systems encourage efficiency, while rationing systems are subject to chronic complaints of inconsistent customer service, inefficient use of resources and a growing lack of capacity in response to investment constraints created by the system.

Figure ES2 is an economic model of an administered pricing system with a rules-based method for rationing supply. The model shows two demand curves referring to a peak demand curve - high shipping from September to January and the off-peak demand over the rest of the year. Supply refers to the supply of hopper railcars available to move the crop. This represents the way that grain hopper cars in Western Canada are currently allocated under the Revenue Cap. During the peak demand period, more shippers are willing to pay the Revenue Cap price for railcars than the railway can provide. As a result the Revenue Cap creates an excess demand for service.

Figure ES2 Peak Load Model of Administered Pricing



Excess demand creates problems. Peak shipping periods are subject to chronic complaints regardless of the allocation rules employed because not everyone can obtain a railcar at the regulated price.

Game theory suggests that buyers will take action to secure their share of the available supply of rail cars. If a "first-come, first-served" allocation rule is used, a phenomenon called "phantom orders" emerges.

Each buyer now has an incentive to game the system in a rush to obtain supply. Over ordering emerges in the knowledge that if orders are cutback *pro rata*. "Phantom orders" distort peak demands and underestimate system performance.

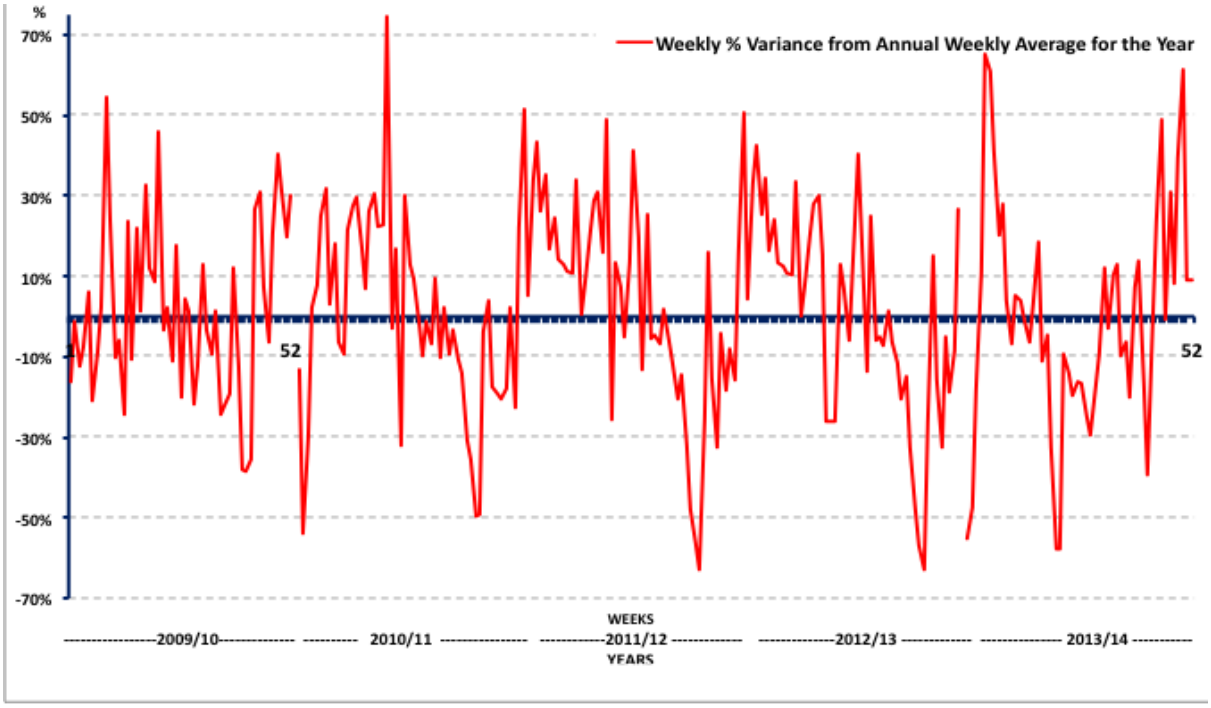
Excess demand increases when the supply of railcars is reduced because of weather, or problems unloading at the ports, or a sustained reduction in supply. Equipment scarcity cannot be signaled to the market. As excess demand grows customer service complaints increase. This situation is observed every winter when the cold conditions reduce the safe length of trains and reduce operational performance of crews and equipment. Volatility in shipment demand is a *"normal"* condition of the GHTS, triggering temporary supply disruptions throughout the GHTS. Regulated rationing also creates inefficiency during the off-peak season. Administered fixed price systems make no allowance for slack capacity in the system. The lower opportunity cost of the operator is ignored and the

higher fixed price discourages utilization leaving more excess supply standing idle than would otherwise be the case.

Surges and super surges in movement demand are a characteristic of Prairie grain shipments. The extreme variability of the Prairie climate creates complexity for the GHTS supply chain with very high levels of seasonal, annual and weekly delivery volatility over the long distances grain travels to market. Movement volatility must be accommodated across the GHTS.

Delays at the ports or country delivery points can be accommodated to some degree by stocks, but the pattern of shipments is inherently unstable. Figure ES3 illustrates the weekly variations in farm deliveries of grain to country elevators. They can range from plus or minus 50% in any one week and by much higher amounts at individual country locations. Retrospective Revenue Cap regulation limits management options to address the volatility issues through modern logistics and pricing practices.

Figure ES3 Weekly % Variance in, Prairie Grain Deliveries to Elevators & Terminals 2009/10 - 2013/14



Source: Grain Deliveries to Elevators, Canadian Grain Commission, Special Tabulation, Ottawa, 2014.

Peaks and valleys in demands are not fully predictable on even a seasonal basis. Surges and super surges respond to global market conditions and the weather and immediately affect system efficiency throughout the GHTS. Figure ES4 illustrates the effect of surges on the administered Revenue Cap driven GHTS. While both regular and peak demands increase with the surge, there is no adjustment in the Revenue Cap or the supply of rail cars. Supply does not respond to the peak. Regulation cannot adjust to dynamic changes in the market. Instead, excess demand is exaggerated and shippers become more dissatisfied with the service the system offers.

Figure ES4 Managing the Demand Surge under a Revenue Cap Annual Fixed Price

Following an unusually large harvest in 2013-14, the super surge in peak load demand created a chorus of shipper complaints about inadequate customer service.

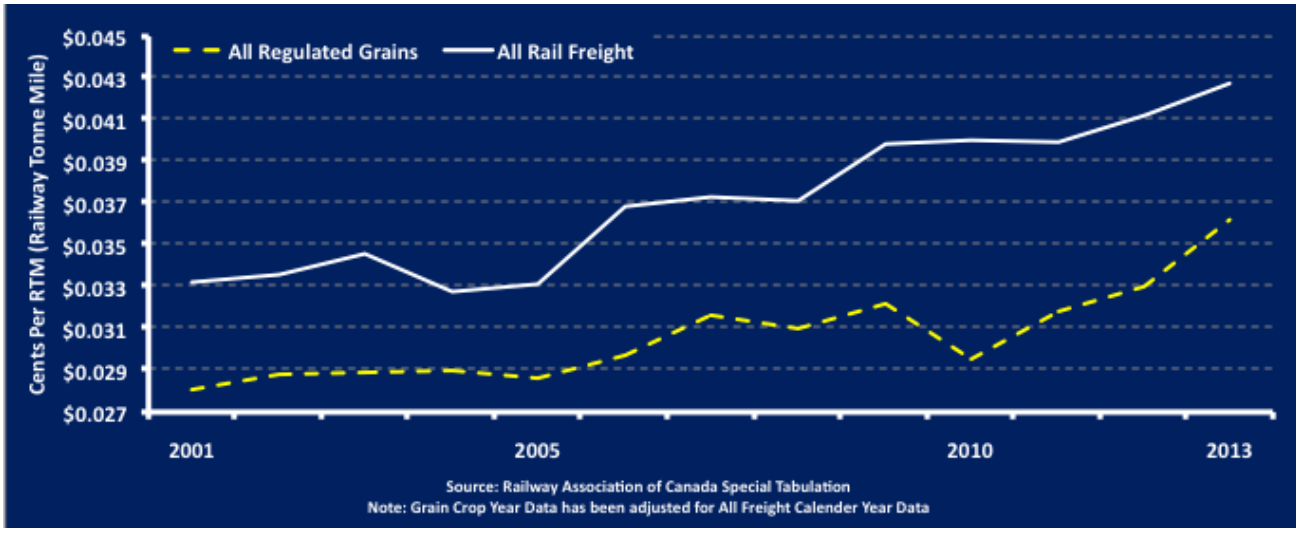
The government reacted with new regulatory measures that were intended to increase the customer service provided by the railways. In general, these measures offer no solution to the peak load problem, and especially the years of surging demand.

In fact, the regulations in place do more to accentuate the complaints created by a demand surge.

HOW THE REVENUE CAP LIMITS INVESTMENT IN INFRASTRUCTURE AND CAPACITY

The Railway Cap affects infrastructure and capacity financed by the rail tariff structure of its freight traffic. All rail freight shares the cost of operations, maintenance, and investment in infrastructure, technology and capacity. When the Railway Cap does not cover the full cost of railway operations, maintenance and infrastructure then other shippers have to make up the difference. In the early years of the Revenue Cap its impact was small. Over time the Railway Cap has not kept up with operating, maintenance and capital cost increases. Like its predecessor Crow Rate the cross-subsidy between grain and non-grain shippers has increased. The growing gap is clearly evident in Figure ES5 which shows the average rail freight rate for grain compared to all commodities.

Figure ES5 Average Rail Freight Rate Compared to Regulated Grain Freight Rate per Ton-Kilometer
Canadian Class 1 Rail Operations, 2001 - 2013



An examination of the revenue per ton-mile over the 2001-2013 period for grain, other bulk commodities, industrial automotive and intermodal shipments and all commodities shows clearly that under the railway Revenue Cap grain revenues are not adjusting for market conditions. Over this period grain revenues per ton-mile increased by 14%, less than half the rate of increase for all movements and well below the increases recorded by both bulk commodities and industrial, automotive and intermodal shipments.

Returns from grains must eventually come into line with both the levels and the rates of growth for other bulk commodities. This is necessary to provide a continuous and sustainable adjustment to changing market conditions, maintenance and investment in system expansion. This situation creates a cumulative revenue deficit for grain investment and GHTS efficiency in western Canada in a number of areas:

- Regulated grains are not financing an equitable share of the common infrastructure used by all products, shifting system financing burden onto other Canadian exports, effectively weakening their competitive positions in the global marketplace.
- Revenues from grain are not available for railways to replace capacity in grain rolling stock (hopper cars) required to meet peak demands. With government owned hopper cars the burden of replacing hopper car capital stock is shifted to the general taxpayer and to farmers to purchase producer cars.
- Railway investment is not available to increase the number of multiple car loading spots required to increase GHTS loading efficiency in the country and at the ports.
- Grain revenues are not applied to the early adoption of new technologies that could increase capacity and delivery reliability.

Clearly, over the past decade revenues from regulated grain movement have steadily deteriorated vis-a-vis all other railway commodity classes. Looking ahead it is naive to believe that grain movements under a Revenue Cap can fully reflect the investment, technological improvement, market and competitive efficiency requirements of the export marketplace under a static formula for adjustment.

REVENUE CAP LIMITATIONS ON NEW TECHNOLOGY & INNOVATION

Western Canada's GHTS was a model of new technology in the early 20TH Century and allowed Canada to create an agricultural economic relationship with Europe that was the envy of the world. Advanced steam locomotives crossed the mountains in the west and the Canadian Shield in the east overcoming terrain and distance. Grain elevators kept grain dry and segregated to meet the market and travel requirements. The rail and elevator networks brought a new technology to thousands of Prairie communities and the region thrived.

Technological change is an ongoing process of innovation and investment that continues to create benefits for western farmers. All stages of the GHTS have increased the capacity and efficiency of the movement of grain over the years. Innovations have included replacing box cars with hopper cars, diesel replacing steam on the rails, longer trains, longer loading sidings, large inland terminals replacing smaller country elevators, increased grain bin storage on farms, tractor trailer units replacing open grain trucks, bar code information control on deliveries, larger bulk ocean carriers and the introduction of containers and container ships for grain movement.

Infrastructure engineering advances allowed improved tunneling through the Rockies, the opening of the St. Lawrence Seaway and the replacement of wooden rail ties with reinforced concrete and the stabilizing of rail beds to meet the conditions of the region. System management improvements in double stacking of containers on the rails and multiple stacking in ships, ports and loading yards tied to advanced computer management brought a transformation in container movement around the world. Today, grain shuttle trains are logistics management advances for even more efficient grain movement.

This process continues to directly improve western Canadian transportation networks. For grains, however, the existence of the railway Revenue Cap creates a constraint that limits the early adoption of innovation and new technology. Opportunities to increase grain handling productivity, capacity and throughput are seen in many areas that include:

- Longer trains can increase train lengths by up to 9%, improve fuel efficiency by 8% and locomotive productivity (GTM/active horsepower) by up to 20% increasing the efficiency of grain movement.
- More unit train loading sites to accommodate 100 car plus unit and shuttle trains. Currently, only 40% of the Prairie loading sites can accommodate these trains and contribute to improvements in capacity and system efficiency.
- Faster train velocity requires train and track upgrades to reduce delivery times and increase throughput capacity.
- Replacement of the aging over thirty year old Government Hopper Car fleet with new short hopper cars providing for longer trains carrying more grain.
- Development of grain specific containers to speed loading while remaining within the dimensions to integrate into the existing container movement practices.
- Increased storage capacity at ports and inland terminals
- Track sharing information management technology.
- Establishment of efficient container transloading facilities on the Prairies.

These grain-handling innovations can all increase system capacity but require capital investment. The costs can be high. For example, replacement of the government hopper car fleet with the newer high technology cars, longer trains and a major 32% increase in unit shuttle train capacity is currently estimated to cost between $1.0 and $1.3 billion. Assuming these cars were purchased over a ten-year period, as was previously the case, this would require an ongoing annual investment in excess of one hundred million dollars a year.[b]

Table ES 1 Canadian Class 1 Railway Capital Expenditures, by Major Expenditure Group, 2004 – 2013.

	Track and Roadway		Buildings, Related Machinery & Equipment		Rolling Stock		Other		Total	
Year	$ Million	% of Total	$ Million	% of Total	$ Million	% of Total	$ Million	% of Total	$ Million	% of Total
2004	$364	35%	$188	18%	$337	32%	$154	15%	$1,043	100%
2005	$582	42%	$189	14%	$416	30%	$207	15%	$1,394	100%
2006	$613	44%	$212	15%	$352	25%	$231	16%	$1,408	100%
2007	$618	44%	$255	18%	$350	25%	$176	13%	$1,399	100%
2008	$688	49%	$189	14%	$290	21%	$224	16%	$1,391	100%
2009	$706	46%	$257	17%	$317	21%	$244	16%	$1,524	100%
2010	$804	47%	$231	14%	$427	25%	$243	14%	$1,705	100%
2011	$971	53%	$314	17%	$297	16%	$252	14%	$1,834	100%
2012	$961	54%	$269	15%	$253	14%	$312	17%	$1,795	100%
2013	$892	51%	$357	20%	$239	14%	$276	16%	$1,764	100%
Decadal										
Total	$7,199	47%	$2,461	16%	$3,278	21%	$2,319	15%	$15,257	100%
Annual Average	$720	47%	$246	16%	$328	21%	$232	15%	$1,526	100%

Source: Railway Trends, Railway Association of Canada, 2014

[b] 13,500 federal hopper cars times price of a new technology hopper car ranging from $75,000 to $95,000 per car = from $1,012,500,000 to $1,282,500,000.

This hopper car investment requirement would also need to be accompanied by additional investments for more powerful locomotives to push and pull the longer grain shuttles and investments in longer multi-car loading sites. Table ES1 shows the annual capital expenditures of the Canadian railways from 2004 to 2013. Over this ten year period, the Class 1 railways in Canada made capital investments of $15 billion. On an assumption that grain accounts for about one fifth of freight revenues this amounted to less than $50 million in 2013, well below the investment required to replace the existing hopper car fleet, that through age and deterioration is nearly now half its original capacity.

The Revenue Cap creates a disincentive for railway investments in Canada, even though they can make significant improvements to services, capacity and productivity. Similar innovations to those outlined above are already underway in non-grain railway movements in Western Canada and grain handling is modernizing in the U.S. In Burlington Northern and Santa Fe submissions to the Surface Transportation Board grain rate hearings, John Miller, BNSF Group Vice President Agricultural Products stated: *"BNSF will have spent $US 1.17 billion since 1998 on railcars for its grain shuttle fleet. BNSF is devoting considerable new investment to its northern lines that support grain transportation, including investments in terminal and line-capacity extension projects, new equipment and expansion of its labor force."*[1]

In Canada the two major class 1 railways also make large capital investments in railway efficiency, capacity and productivity. In 2013 they invested some $1.8 billion in the Canadian rail network. About half of this investment was on track and around 20% was invested in rolling stock over the decade, although this share fell to 14% in 2013. Yet, the Revenue Cap removes the incentive for railways to invest in and to adopt technological innovation that could provide efficiency gains throughout the system. Regulatory formulas based on cost adjustments for inflation cannot accommodate the introduction of new technology because they are both retrospective and not a basis for calculation of the Revenue Cap.

The most significant technological innovation in transportation during the past 50 years that has direct application to the management of the demand surge in grain was containerization. Container shipping increased the volume of goods entering world trade by enabling global supply chains. Many products once moved in break-bulk or bulk have shifted into containers.[2] The growth in containerized grain shipments has already been spurred by the availability of low cost backhaul rates on the Pacific traffic lanes and the growth of special crops in Western Canada. Yet, Revenue Cap rules create a disincentive to move grain in containers. Accordingly, many grain products are moved to ports in bulk or by truck where they are transloaded into ISO containers for export.

Since the start of the 21st Century, containerized Pacific trade has been chronically unbalanced. For every full container returning to Asia from North America, two return empty, creating ocean freight discounts for backhauls that encourage more containerized shipments. In addition, booming Asian commodity demands for steel, cement and other bulk commodities bid up the freight rates of bulk cargo ships. By 2008, ocean freight was more expensive for grain in bulk than in containers. As a result, traditional grains like wheat, and corn and soybeans from the U.S. started to move in containers, too.

The existence of the large inventory of empty backhaul containers moving through western Canada introduces an important capacity addition that could become available to address the periodic surges and super surges in export demand.

Figure ES6 Containerized and Bulk Grain exports from Port Metro Vancouver, 2000 to 2012

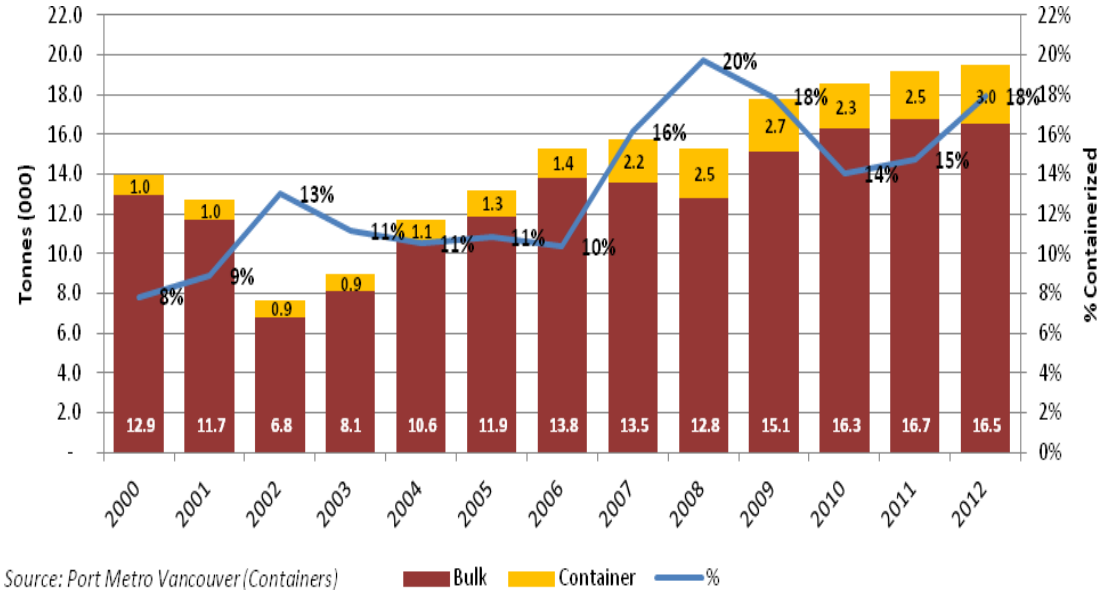


Figure ES6 documents the growing proportion of Canadian grain exports being shipped via Vancouver. In 2008 20% of grain exports from Vancouver were containerized. Excess capacity resulting from the great recession dropped both bulk and container ocean shipping rates and slowed the shift of grain from bulk to containers, but no one expects the system to reverse completely because containerization offers certain advantages of quality and service that bulk cannot provide.[3] Moreover, the special crop sector continues to grow in Western Canada where containers have a clear handling advantage for the more delicate products.

The Revenue Cap limits the containerized supply chain, holding back western farmers from maximizing their incomes. The ability to segregate and ship exact quality specifications to buyers has value the market rewards. When the Revenue Cap was established costs were based on a system that had very few containerized grain movements. Consequently, containerized grain was simply lumped in with the bulk grain volumes and revenues. Over time the demand for containerized grain has increased yet Revenue Cap input cost adjustments do not consider the costs associated with containers relative to bulk handlings, effectively discriminating against containerization in favour of bulk shipping.

Railway costs and the rates charged are higher for container movement. Revenue from grain shipments in containers eat up the Revenue Cap faster, while container shipping adds more to the railway's cost of moving grain than bulk shipments. The Revenue Cap therefore creates a double disincentive for the railways by raising average cost and reducing their margin in the allowable revenue. Accordingly, an increasing number of grain shippers wishing to use containers to exports markets are forced to move their product to the ports by other means and transload at the coast rather than in the country.

CONCLUSIONS ON THE EFFECTS OF THE REVENUE CAP ON WESTERN CANADA'S GHTS

Recent changes in western Canadian GHTS shows that high levels of market competition in the GHTS are sufficient to deregulate the movement of grain, as has occurred in all other sectors of the Canadian export economy. This competitive market framework can protect farmers from predatory pricing at all stages of a fully commercial GHTS and is based on:

1. Railway competition from two parallel Class 1 railways in Canada and another Class 1 railway running east-west across the northern U.S. tier states and within trucking distance of the southern Prairies.
2. Railway self interest in covering the costs of their sunk capital investments and retaining and increasing freight shipments.
3. Intermodal competition from increased trucking and in the U.S. barges.
4. Long distance trucking introduces increased spatial competition between grain companies and railways.
5. Grain company growth in size provides a level of market power sufficient to counter perceived railway market power.
6. Geographic competition to supply that protects farmers from the exercise of local market power by railways over farmers or grain companies.
7. Port competition from Canadian and U.S. ports
8. International competition for grain exports prices and volumes make individual supplying countries price takers and creating competitive market forces to limit regional market controls.
9. Grain pricing and product demand from food and feed processors constrain export GHTS rate increases.
10. A fully competitive railway pricing grain export GHTS in the U.S. that has passed system productivity, efficiency and income onto farmers with railway freedom to price.

The railway Revenue Cap is a deterrent to the capacity capital investments required to:

1. Meet the long term global growth in demand for grain exports;
2. Compete with offshore exporters from the U.S., Australia, the EU and former soviet suppliers in the Ukraine and Russia;
3. Accommodate continuing market volatility from:
    a. climate and market induced production swings;
    b. changes in market demands; and,
4. Capture short term income opportunities for farmers available from high grain prices.

The Revenue Cap on railways is not structured to either protect farmer incomes, to reflect rapidly changing market conditions or the complex and rapidly changing ownership and competitive characteristics of the GHTS. The very existence of the Revenue Cap limits investment, innovation and technology for the productivity and efficiency gains required throughout the GHTS to increase capacity and to manage production surges.

Finally, the Railway Cap is an implicit subsidy on the railway portion of the export movement of Canadian export grains that is illegal under the terms of international and continental free trade agreements.

CONSIDERATIONS AND RECOMMENDATIONS TO IMPROVE GHTS INVESTMENT, CAPACITY & EFFICIENCY - A PRINCIPLED APPROACH TOWARDS COMPETITIVE COMMERCIAL REGULATION

Many of the problems identified for the GHTS over the years have their roots in the complexity of the system's logistics. Regulations established in the rail market preclude the dynamic economic responses required to provide for the continual adjustment and balancing across the five supply chain elements that constitute the GHTS – country collection, country elevation, rail movements, port elevation and port loading.

Dynamic markets require flexible pricing mechanisms related to market demands in order to create the conditions where the movement of goods through the system can be balanced, on a daily basis, to optimize the capacity of the whole.

Retrospectively regulating the railway element in the grain transportation supply chain will always create suboptimal conditions across the system creating inefficiencies and income losses for farmers. The Revenue Cap perpetuates the tradition of inefficient cost-based regulation that propagates continued efficiency losses across the throughout the GHTS and ignores the supply realities of the system. The theoretical and practical evidence is clear. Recent federal regulatory approaches for western export grains discourage investment in technology and Revenue Capacity that western Canadian farmers need from the GHTS to realize their income and revenue benefits from an expanding world food market.

Other commercial bulk export handling and transportation systems operate efficiently and successfully throughout Canada without any cost regulation. The same is true in the United States, including the rail transport of grains. Canada has no more need for a railway Revenue Cap on export grains. Competitive commercial regulation operates in most global rail markets on the basis of two key principles. These are:

1) **Market pricing of both supply and demand** provides carriers an adequate return on investment for technology and capacity for the timely movement of grain to maximize farmer returns from world markets. Market pricing also acts to create current and future efficiency incentives and deterrents at all stages of the movement of grain from farm to port position. Market pricing therefore creates an ongoing and dynamic daily test for the best and most efficient way of moving grain to market. It creates a framework for sustainable investment from the market to quickly resolve issues of capacity, investment and technology that are the foundation of so many of the GHTS efficiency issues.

2) **Regulation to encourage competition**, rather than to control assets and revenues. Competitive regulation does not micro manage costs as a basis for pricing or provide for retroactive accounting. Rather they establish broad tests for market contestability and competitive behaviour within the rules of the *Canadian Transportation Act* to allow grain to promote a competitive environment for grain handling and transportation in all five GHTS markets by:

    i) Responding to pricing incentives established through both variable costing and pricing to achieve grain flows best able to meet the short and long term price and supply requirements of the marketplace;

    ii) Defining competition in terms of contestable markets based on inter and intra modal, inter market and inter produce competition; and,

    iii) Measuring and publishing system wide GHTS performance statistics.

Other industries have seen significant efficiency gains where the benefits are shared between carriers and customers in the form of improved choice at a reduced real price and/or increased revenue. There is no reason why these principles for efficiency gain will not operate in the western Canadian GHTS with equivalent or better results. Wilson's analysis of deregulation of rail shipping of agricultural commodities between 1972and 1995

demonstrated the shift from a regulated rail movement to a deregulated system in the United States and the dynamic benefits it created throughout the U.S. GHTS. His evaluation identified a dynamic and complex range of factors that contributed to railway rate variations and productivity changes concluding:

> *"There is an integral relationship between regulation and their effect on rail productivity, costs and rates. Specifically, less regulations allow railroads to operate more efficiently, thereby reducing their cost and through competitive pressures (i.e. from multiple forces, including inter and intra modal, as well as product and geographic), rail rates would decline. Second, in virtually every industry that has gone through some form of deregulation in the past decades, rates and prices have fallen. This is true in the case of rail shipping and grain in particular."*[4]

Similarly, testimony to the U.S. Surface Transportation Board from the American Association of Railroads to a Rate Regulation Review of the Rail Transportation of Grain pointed out that:

> *Generally speaking, competitive industries in the United States, like railroads, set their prices based on the value they provide to their customers, not on their input costs. This market-based approach to pricing allows railroads to balance the desire of each customer to pay the lowest possible rate with the requirement that the railroads be able to attract capital and pay for all the things needs to keep their networks functions now and growing in the future.*[c]

Accordingly, the authors suggest that the issues identified in this paper could be addressed with the following recommendations:

1. The Railway Revenue Cap provisions of the *Canada Transportation Act* be removed as a deterrent to GHTS efficiency and productivity improvement and replaced with a policy based on encouraging competition in the movement of western Canadian export grains based on:
    a. a definition of competition for grain regulation measured in terms of contestable markets including inter and intra modal, inter market and inter product, and domestic and international competition; and,
    b. support for demand based differential pricing to stimulate competitive outcomes similar to the regulatory approaches applied to other commodity based transportation export movements.

It is noted that when the Revenue Cap was introduced under Division II.1 of the 1995 *Budget Implementation Act*, with its changes to the Transportation Western Grain it provided the federal Minister of Transport with authority to repeal the Revenue Cap provisions based on "the efficiency of the grain transportation and handling system and on the sharing of efficiency gains as between shippers and railway companies" (Section 181.18(1)) and whether the repeal of the Division and Schedules I, II and III will have a significant adverse impact on shippers" ((Section 181.18(2)).

2. The monitoring of GHTS movement performance be continued for a period of five years to:
    a. develop, establish, measure and publish the measures of market competition across the GHTS; and,
    b. report on the investment, capacity, efficiency, productivity and innovation changes that result from the commercial deregulation of the GHTS.

[c] Association of American Railroads, Submission to the Surface Transportation Board, Rail Transportation of Grain, Rate Regulation Review, June, 2014. Washington.

3. The aging fleet of Government Owned Hopper Cars be transferred to the private sector.
4. Future capacity requirements of the GHTS be financed through a competitive rate structure to finance investment in new grain handling and transportation capacity, efficiency and productivity throughout the GHTS.

The regulation of grain transportation in Canada is unique. Unlike all other commodities that are subject to freight rate negotiation between the shippers and the railways, the government has intervened continuously and, too often unsuccessfully, in the rail transport of grain. A legacy of this experience is a regulatory system that creates an effective maximum average freight rate for hauling grain, and an administered system for rationing railcars to shippers. This approach to economic regulation continues today with the minimum grain movement regulations issued by the federal ministers of Agricultural and Transportation on November 29th, 2014.

Table ES2 Federal Government Directives to Railways (CN and CP) for Grain Movements, December 2014 to March 1015

Time Period (Effective November 30, 2014)	Metric Tonnes of Grain to be Moved Each Week
Nov. 30, 2014 to Dec. 20, 2014	345,000
Dec. 21, 2014 to Jan. 3, 2015	200,000
Jan. 4, 2015 to Feb. 21, 2015	325,000
Feb. 22, 2015 to Mar. 21, 2015	345,000
Mar. 22, 2015 to Mar. 28, 2015	465,000
Source: Transport Canada & Agriculture and Agri-Food Canada, Measure to ensure efficient and predictable movement of grain through winter, Ottawa, November 29th, 2014.	

Federal quantity regulations on minimum grain volumes to be moved in the peak shipping season combined with the railway Revenue Cap means that government now regulates price and quantity while also owning an aging and diminishing fleet of hopper cars. Levels of customer service measured as a minimum quantity moved is specified in 2014 the *Fair Rail for Grain Farmers Act* which amended the *Canada Transportation Act* to require a minimum volume of grain to be transported per week by the two Class I railways.[5]

The federal regulation of both price, quantity and now frequency of service, creates further inefficiency and accentuates the chronic nature of customer complaints already apparent in western Canadian grain regulation discussed in Part II.

Freeing western grain movements from the arcane regulatory approach of the past is essential to the international competitiveness of Western Canada. Regulating price and quantity for western grains cannot be expected to make the ongoing adjustment to the normal and ongoing volatile production, shipping and market conditions or to generate the revenues for investment in the system. The results will almost certainly be seen in continued declines in Canada's share of world grain markets and the related lost income opportunities for Canadian farmers.

Markets work well throughout the Canadian economy. The regulations governing the rail transport of grain in 2015 did not come about because of any reasoned policy or national necessity. Instead this anomaly in what is otherwise a free market economy is a legacy of 118 years of political intervention on behalf of agrarian interests.

Ironically as documented in this study, the efforts of politicians to respond in the best interests of farmers have created five negative outcomes. First, western Canadian farmers have lost market share, reputation and consequently reduced incomes because the GHTS is inefficient. Second, the system is plagued with chronic customer service complaints that will never go away as long as the method of railcar allocation involves administrative rationing. Third, delays in investment to modernize the GHTS mean that supply chain costs remain higher longer and are passed forward to customers, or back to the farm level. Forth, to the degree that grain transportation does not pay its full costs, other commodity shippers must. Therefore, the Revenue Cap is like an export tax on all other non-agricultural products. Finally, the Revenue Cap discourages any efforts to prepare for

the next super surge of demand by grain shippers, while the new measures that have been implemented do little or nothing to ameliorate the surge.

The continuing saga of failure under the Revenue Cap should be more than enough to meet the 1995 criteria for repeal of the cap. Free markets do work better to improve system efficiencies. In the end Western Canadian farmers have more to gain from recovering their share of a growing world market and increased income benefits than whatever perceived protection the current regulatory system has to offer.

ENDNOTES

[1] Miller, J, Submissions to the US. Surface Transportation Board, Washington, June 26, 2014.

[2] Levinson, M., The Box – How the Shipping Container Made the World Smaller and the World's Economy Bigger, Princeton University Press, New Jersey, 2006

[3] Prentice, Barry E. and Mark Hemmes. "Grain Containerization: Trends, Issues and Restrictions." Proceedings. 55th Annual Meetings of the Transportation Research Forum, March 13-15, 2014, at San Jose, California.

[4] Wilson, W., W, U.S. Grain Handling and Transportation System: Factors Contributing to the Dynamic Changes in the 1980s and 1990s, Organisation for Western Economic Cooperation, Regina, 1998.

[5] "Subject to volume demand and corridor capacity, each company referred to in subsection (1) must move the minimum amount of grain that the Governor in Council specifies or varies by order." http://lois-laws.justice.gc.ca/eng/acts/C-10.4/page-41.html#h-63