

**Estimated Contributions Earned by Railways from  
Handling of Statutory Grains and Grain Products  
2007/2008 and 2008/2009**

**Prepared for**

**The Canadian Wheat Board**

**John Edsforth  
Travacon Research Limited**

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## EXECUTIVE SUMMARY

This report presents Travacon's estimate of contributions earned by the railways from handling of statutory grain and grain products in 2007/2008 and 2008/2009

For the crop year 2007/2008, based on revenue determined by CTA (Decision 628-R-2008) CN and CP combined earned a contribution from statutory grain of \$ 221.7 millions, which was \$ 8.27 per tonne and 45.3 % of volume-related variable cost (VRVC). This was \$ 123 millions, or \$ 4.61 per tonne, in excess of the contribution level of 20 % that was deemed fair and adequate under the *WGTA*, and which Travacon believes is the maximum that could be earned under effective competition.

For the crop year 2008/2009 it is projected that CN and CP combined earned a contribution from statutory grain of \$ 383.5 millions, which was \$ 12.29 per tonne and 70.5 % of volume-related variable cost (VRVC). This is some \$ 275 millions, or \$ 8.81 per tonne, in excess of the contribution level of 20 %.

For the average of the 2 crop years, the contribution in excess of 20 % was \$ 199 millions, or \$ 6.87 per tonne.

In its Decision LET-R-66-2010, the Canadian Transportation Agency, at page 3, stated that its staff had calculated that the railway average system contribution was 20.3 % of variable costs, close to the level deemed fair and adequate under the *WGTA*.

From 2007/2008 to 2008/2009, the estimated contribution increased by \$ 162 million, as a consequence of a \$ 216 million revenue increase, partially offset by a \$ 54 million increase in VRVC. The revenue increase is mostly attributable to increased volume (\$ 136 million) coupled with an increase in revenue per tonne (\$ 70 million) enabled by an 8 % increase in the volume-related composite price

index (VRCPI). Traffic increase caused VRVC to increase by \$ 80 million, but this increase was partially offset by reduction in fuel prices (\$ 19 million) and efficiencies in train operations (\$ 11 million).

## INTRODUCTION

This report has been prepared on behalf of The Canadian Wheat Board (CWB), and contains estimates of the contributions earned by Canadian National Railway (CN) and Canadian Pacific Railway (CP) from handling statutory grain and grain products in the crop year 2007/2008, and 2008/2009.

The estimates contained herein have been based upon the following data sources:

- CWB carload shipping records
- CTA 2007/2008 Revenue Cap Decision 628-R-2008 and 2008/2009 Revenue Cap Decision 529-R-2009.
- Statistics Canada Monthly Railway Carloadings publication
- Canadian Grain Commission grain export data
- Traffic data obtained from port websites
- Travacon railway cost model

Travacon appreciates information, assistance and guidance provided by CWB staff in conduct of this research.

## RAILWAY COSTING CONCEPTS

For regulatory purposes, railway costs are defined in the economic sense, including, thereby, operating expenses (including depreciation) and cost of capital. Cost of capital provides an allowance for coverage of debt interest, corporate income taxes and a fair return on shareholders' equity. Cost of capital is determined by application of a regulator-determined annual percentage rate applied to the net book value of railway assets (e.g., track structure, locomotives, freight cars, working capital).

Volume-related variable costs (VRVC) include that portion of total costs which varies, up or down, in response to change in traffic volume. Like total costs, these variable costs include operating expenses (including depreciation) and cost of capital, with the latter relating to assets whose quantity is variable with changes in traffic volume (e.g., locomotives, freight cars and a portion of track structure and working capital). The author of this report estimates that volume-related variable costs represent 80 to 85% of the total costs of CN and CP.

Contributions above variable costs are required to cover constant costs (the portion of total costs that is not variable), although there is doubt as to the need to cover the totality of constant cost. On average, a contribution of 20 to 25% of variable cost is required to fully cover constant costs. The following summarizes available references respecting Canadian railway contributions from freight movements:

- Under conditions of effective contribution, Travacon believes that railway contributions will not exceed 20 % of VRVC.
- When freight rates for rail movements of statutory grain and grain products were set under provisions of the Western Grain Transportation Act, a contribution of 20 % of VRVC was considered fair relative to other commodities and adequate to meet the financial needs of the railways. A

comparable level was incorporated into the grain revenue cap formula currently in effect under provisions of the Canada Transportation Act (CTA).

- In setting maximum rates for railway interswitching under the CTA, the Canadian Transportation Agency incorporates a contribution of 7.5 % of VRVC.
- In a report prepared for the Canadian Wheat Board, Travacon estimated that, for the 2006/2007 crop year, CN and CP earned an aggregate contribution of 53.9 % of variable cost in handling statutory grain and grain products.
- In a report prepared for the Forest Products Association of Canada, Travacon estimated that, for 2006, CN and CP earned an aggregate contribution of 39 % of variable cost in handling forest products.

Development of the volume-related variable costs for a specific movement is dependent upon the concept of service units. Service units are measures of work performed by a railway with respect to a movement, and which can be related to specific components of the variable cost structure. Examples of service units are gross ton miles, train miles, locomotive unit miles, freight car miles, freight car days, train crew wages and gallons of fuel consumed. Associated with each service unit is a unit cost specifying the level of volume-related variable cost incurred by the railway per one unit of the service units expended. To calculate the total volume-related variable cost for a specific movement, the service units incurred by the railways to accomplish that movement are first determined, each service unit is multiplied by its corresponding unit cost, and the results thereof are summed to arrive at the total volume-related variable cost.

When the regulatory body calculates the volume-related variable costs for a specified movement, use is made of significant railway-confidential data supplied by the carriers. Such confidential data is not available to Travacon; hence, the

volume-related variable costs as estimated in this report were prepared using the Travacon Railway Cost Model,<sup>1</sup> which relies exclusively on data available from clients and from public sources. Travacon believes that the results obtained thereby, as presented in this report, are reasonable.

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<sup>1</sup> The Travacon Railway Cost Model provides estimates of railway variable costs on a basis consistent with that used for regulatory purposes.

## **TRAFFIC AND REVENUE**

Overall traffic and revenue were based on data contained in the CTA Revenue Cap Decisions. Where railways earned revenues in excess of their revenue caps, revenues were taken as the revenue cap levels, less the penalty amounts specified in paragraphs 96 and 97 of the 2007/2008 Decision, and in paragraph 114 of the 2008/2009 Decision. Thus, revenues for 2007/2008 totaled \$ 748 millions, and traffic volume totaled 26.8 million tonnes. Revenues for 2008/2009 totaled \$ 964 millions, and traffic volume totaled 31.2 million tonnes. The total traffic volume was disaggregated to individual origin-destination volumes based on the CWB shipping data.

## **VARIABLE COSTS**

### **Volume-related Variable Costs**

These costs were estimated using the Travacon cost model. Service units were estimated on the basis of input data respecting specifics of the railway method of operation from each originating train run to each destination, including such factors as train performance (train sizes and locomotive consist), car cycles, empty return ratios, train crew consist, fuel consumption and switching requirements. Car cycles and empty return ratios were estimated on the basis of analysis of movements of the car fleet in the two crop years.

On that basis, it is estimated that volume-related variable costs totaled \$ 490 millions in 2007/2008, and \$ 544 millions for 2008/2009.

## **Line-related Variable Costs**

Line-related variable costs are costs other than volume-related that are incurred by the railways on lines that are deemed to exist solely for the purpose of statutory grain handling. For 2007/2008 line-related variable costs are estimated at \$ 36.4 millions, and for 2008/2009 at \$ 36.2 millions.

## RAILWAY CONTRIBUTIONS

Based upon the foregoing, the following Table 1 presents Travacon's estimates of railway contributions earned from handling of statutory grain and grain products in 2007/2008 and 2008/2009.

**Table 1**  
**Estimated contributions earned by CN and CP from handling of statutory grains**

	2007/2008		2008/2009	
	Millions	\$ per tonne	millions	\$ per tonne
Tonnes	26.8		31.2	
Revenues	\$748.0	\$27.90	\$963.9	\$30.90
<b>Variable costs</b>				
Volume-related (VRVC)	\$489.9	\$18.27	\$544.2	\$17.45
Line-related (LRVC)	\$36.4	\$1.36	\$36.1	\$1.16
Total	\$526.3	\$19.63	\$580.3	\$18.60
Contribution	\$221.7	\$8.27	\$383.5	\$12.29
<b>Percent contribution (1)</b>	<b>45.3</b>		<b>70.5</b>	

(1) Contribution as a percent of VRVC

From 2007/2008 to 2008/2009, the estimated contribution increased by \$ 162 million, as a consequence of a \$ 216 million revenue increase, partially offset by a \$ 54 million increase in VRVC. The revenue increase is mostly attributable to increased volume (\$ 136 million) coupled with an increase in revenue per tonne (\$ 70 million) enabled by an 8 % increase in the volume-related composite price index (VRCPI). Traffic increase caused VRVC to increase by \$ 80 million, but this increase was partially offset by reduction in fuel prices (\$ 19 million) and efficiencies in train operations (\$ 11 million).