Monitoring the Canadian Grain Handling and Transportation System

Grain Logistics: Recognition of Economic Imperatives in the Canadian Grain Freight Market

M.A. Hemmes
Presentation to Agriculture Australia 2006
Sydney, NSW
August 8, 2006
Topics

- Perspective
- Canadian Grain Handling & Transportation System (GHTS) - Structure and Background
- Regulatory Background
- Canadian Grain Logistics
  - Impact
  - Economic Imperatives
- Summary
Perspective: Canada vs. Australia

Grain Production: 64.7 MMT  37.1 MMT
Grain Exports: 27.4 MMT  22.2 MMT

All Stats are 5 year averages. Source: Canada Production from Quorum GMP data + Canada Grain Commission Annual Canadian Grain Exports Reports; Australia figures from ABARE (Australian Bureau of Agricultural and Resource Economics) Australian Crop Report, June 2006.

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Perspective: Overview

• Canada and Australia saw comparable growth and challenges through roughly the same period of history:
  – Started in Mid 1800’s
  – Immigrant population attracted to farm/Ag industry
  – Economic challenges of early 1900’s determined marketing approach for next 50 years
Perspective: Overview

- Major differences are
  - climate
  - length of haul
  - infrastructure approach
  - “On farm” storage
- Much driven by marketing approach
- Also differences in the approach to solutions
Canada: Production and Exports

Production = 45.4 MMT (1)
Exports: Port = 20.3 MMT (2)
Elevators = 2.6 MMT (2)
Total = 51%

Production = 19.3 MMT (1)
Exports = 4.5 MMT (2)
Total = 23%
## Grain Production in Canada

<table>
<thead>
<tr>
<th></th>
<th>West</th>
<th>East</th>
<th>Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Board Grains</strong></td>
<td>31,029.4</td>
<td>3,240.2</td>
<td>34,269.6</td>
</tr>
<tr>
<td>(Wheat, Durum, Barley)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Canola</strong></td>
<td>6,338.1</td>
<td>236.4</td>
<td>6,574.5</td>
</tr>
<tr>
<td><strong>All Other</strong></td>
<td>8,033.5</td>
<td>15,844.1</td>
<td>23,877.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>45,401.0</td>
<td>19,320.7</td>
<td>64,721.7</td>
</tr>
</tbody>
</table>
Canadian GHTS

Country Storage: 5.8 MMT
Terminal Storage:
East - 3.7 MMT
West - 2.6 MMT
6.3 MMT
The Western Canadian GHTS...By the Numbers

- 20.8 million tonnes moved, 18.9 mmt loaded to bulk vessels
- Approx. 672,000 truckloads delivering grain
- 385 elevators at 282 delivery points
- 18,764 miles of track
- 218,447 cars unloaded at ports
- 695 vessels loaded with an average of 27,250 tonnes per load
- Average length of haul = 904 miles (1,446 km)
- Value of WC export movement = $11 B ++
  - Cost of Transportation and Logistics = $2.7 B ++
Actual tonnes unloaded/ week

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Evolution of the GHTS Infrastructure
Country Receiving Network
Country Elevators - 1999

1,004 elevators in 685 communities
Country Elevators - 2005

385 elevators in 282 communities
Country Receiving Network

AgPro Grain - Vulcan

• 31,500 Tonne Capacity
• Mixed Operation
Weyburn Inland Terminal

- 105,000 Tonne Capacity
- (Largest Primary in Canada)
- 366,000 MT Throughput in 2005
- Mixed Operation
Country Receiving Network

West Central Road & Rail
- 3,800 Tonne Capacity
- Producer Loading Site

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Railroading in Western Canada

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Railroading in Western Canada

- Grain trains typically 100-112 cars long
  - Carrying 10,000 – 12,000 tonnes each
- Train length on most trains now 8,000 ft. min with up to 14,000 tonnes/ train
- 2-3 4,000 HP Locomotives, 2 crew members
- Typical crew run is 120 miles
- Average length of haul is 906 miles
Western GHTS Rail Network - 1985

From over 21,000 Miles

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Western GHTS Rail Network - 2005

Down 12% to 18,760 Miles
Port Terminal Network
**East Coast**

- 9 Terminals in 5 Cities
- 1.462 Million Tonnes Capacity
- 2004-05 Shipped 4,059 Million MT
Port Terminal Network

Thunder Bay

- 8 Terminals
- All Major Grain Co’s
- Total Capacity = 1,338 M MT
- Uses St. Lawrence Seaway
- Limited to April – December
- 2004-05 shipped 6,049 M MT
Port Terminal Network

Churchill

- Terminal owned by OmniTRAX
- 140,000 Tonnes Capacity
- Limited to August – October
- 2004-05 shipped 402 M MT
Port Terminal Network

Prince Rupert
- Terminal jointly owned by major Grain Cos
- Total Capacity = 209,500 M MT
- Shipped 2,673 M MT in 2004-05
Port Terminal Network

Vancouver

- 6 Terminals; 954,000 tonnes capacity
- 4 majors
- Highest throughput of all Canadian Ports – 11,135 M MT in 2004-05
Canada – USA Border Crossings
• Ft. Francis, Emerson, Northgate, Portal, Coutts, Kingsgate, Brownsville, (etc.)
• + Eastern Canada
Grain Companies - Evolution

- Alberta Wheat Pool
- Manitoba Wheat Pool → Agricore United (Public)
- United Grain Growers
- Saskatchewan Wheat Pool → SWP (Ag Pro) (Public)
- Pioneer (Richardson)
- James Richardson Int. (Priv.)
- ConAgra
- Cargill → Cargill
- Louis Dreyfus → Louis Dreyfus
- Parish and Heimbecker → P & H (Priv.)
- N.M. Patterson Grain → Patterson Global Foods (Priv)
- + about 20 others → + about 20 others
Railways - Evolution

- **Canadian National**
  - Crown Corp
  - Priv. 1995

- **BC Rail**
  - Owned by BC Gov’t

- **Canadian Pacific**
  - CP Holdings
  - Divers. 2003

  CN Rail
  - Illinois Central
  - Wisc. Central
  - BC Rail
  - Various Smaller lines

  Canadian Pacific Railways
<table>
<thead>
<tr>
<th></th>
<th>2004-05</th>
<th>2005-06 Q1</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Time in System:</td>
<td>58.1</td>
<td>63.3 Days</td>
<td>9.0%</td>
</tr>
<tr>
<td>Loaded Transit Time:</td>
<td>8.8</td>
<td>9.5 Days</td>
<td>8.0%</td>
</tr>
<tr>
<td>Time In Store – Country:</td>
<td>29.6</td>
<td>33.5 Days</td>
<td>13.2%</td>
</tr>
<tr>
<td>Time in Store – Terminal:</td>
<td>19.7</td>
<td>20.3 Days</td>
<td>3.0%</td>
</tr>
<tr>
<td>Vessel Time in Port:</td>
<td>5.2</td>
<td>4.7 Days</td>
<td>9.6%</td>
</tr>
<tr>
<td>Elevator Turnover Ratio:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Country:</td>
<td>5.6</td>
<td>6.0</td>
<td>7.1%</td>
</tr>
<tr>
<td>Terminal:</td>
<td>7.5</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Total Car Cycle:</td>
<td>17.9</td>
<td>19.1 Days</td>
<td>6.7%</td>
</tr>
</tbody>
</table>
Regulatory Change
Regulatory History

- 1897 Crows Nest Pass Agreement
- Rail Strike (53)
- More Commissions of inquiry (54, 58)
- National Transportation Act (67)
- Government creates Federal Hopper Car Fleet (72)
- More Commissions of inquiry
- Western Grain Transportation Act in effect 1984
- Railways hit low in profitability (early 80’s)
- Transportation subsidies (Crow Benefit) eliminated (95-96)
- Canadian National Privatized (95)
- Canada Transportation Act (96)
- More Commissions of Inquiry
- CTA Changes (2000)
  - Regulated Rate replacement
  - Grain Monitor Established
  - CWB Tendering agreement
**Crow Rate**
- Started marginally over variable cost
- Gradually slipped to non profitability
- No Productivity to railways (no incentive)
- Capital resp. of the Railways

**Crow Benefit**
- Subsidy = 80% of cost (visible)
- Paid to railways (maintained export bias)
- Agency to control rail car allocation
- Mileage based fixed freight rates

**Current Regs.**
- Gov’t “buy out” of subsidy to producers
- Revenue Cap
- Railway controls rates
- CWB Tendering
- Prairie Grain Roads Fund

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The Revenue Cap limits the maximum revenue entitlement a railway can charge based on a formula driven approach.

**Revenue Cap**

$$\text{Revenue Cap} = \left( \frac{A}{B} + ((C-D) \times 0.022) \right) \times E \times F$$

Where:
- $A$ is the carrier’s revenue for the movement in the base year;
- $B$ is the tonnage moved by the carrier in the base year;
- $C$ is the carrier’s average length of haul for the movement of grain in the crop year;
- $D$ is the carrier’s average length of haul for the movement in the base year;
- $E$ is the tonnage moved by the carrier in the crop year; and
- $F$ is the volume-related composite price index determined by the Agency.
Revenue Cap Definitions

- A statutory limit on amount of revenue railway can earn
- A dynamic revenue regulating mechanism
- Allows for adjustments of add. operating costs and inflation.
- It allows for the handling of more volume
- Does not incorporate static revenue limits
# Revenue Cap Performance

<table>
<thead>
<tr>
<th></th>
<th>BASE</th>
<th>2001-02</th>
<th>2002-03</th>
<th>2004-05</th>
<th>Var.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Tonnes Moved (Millions)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(7.7%)</td>
</tr>
<tr>
<td>Average Length of Haul (miles)</td>
<td>967</td>
<td>896</td>
<td>869</td>
<td>904</td>
<td>(6.5%)</td>
</tr>
<tr>
<td>Allowable Revenue ($Mil.)</td>
<td>710.9</td>
<td>580.3</td>
<td>425.5</td>
<td>629.3</td>
<td></td>
</tr>
<tr>
<td>Reported Revenue ($Mil)</td>
<td>558.0</td>
<td>401.7</td>
<td></td>
<td>628.8</td>
<td>(11.5%)</td>
</tr>
<tr>
<td>Reported Revenue Cap Differential ($Mil)</td>
<td>22.3</td>
<td>23.8</td>
<td>0.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual Revenue per tonne (dollars)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(4.2%)</td>
</tr>
<tr>
<td>Actual Revenue per tonne-mile (cents)</td>
<td>2.82</td>
<td>2.82</td>
<td>2.86</td>
<td>2.5%</td>
<td></td>
</tr>
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</table>

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# Revenue Cap Performance

## Crop Year 2004-05 Results

<table>
<thead>
<tr>
<th></th>
<th>CN</th>
<th>CP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allowable Revenue ($000)</td>
<td>305,670</td>
<td>323,582</td>
</tr>
<tr>
<td>Reported Revenue ($000)</td>
<td>305,789</td>
<td>323,069</td>
</tr>
<tr>
<td>Reported Rev. Cap Diff. ($000)</td>
<td>(119)</td>
<td>513</td>
</tr>
<tr>
<td>% Variance</td>
<td>-0.04%</td>
<td>0.16%</td>
</tr>
</tbody>
</table>

- Exceptional management of rates and costs to be within 2/10ths of a percent
- What do the past two years results really indicate?
Single Car Rate Adjustments

CN to Vancouver
CP to Vancouver
CTA Composite Price Index

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CWB Tendering

• Regulatory imperative from 98-99 inquiries
  – intended to add “more commercial” flavour.
  – Required CWB to source a proportion of port export movement by commercial tender
  – Three year/ staged approach (25%-25%-50%)
  – Difficult negotiations between CWB and Grain Co’s …
  – Intent was to take discounts and pass them back to growers through the CWB Pool Accounts

• Qualified success …. but
  – Dissatisfaction with operation resulted in review and rollback to 20%
Economic Impact
## Regulatory Impact on Export Basis

**CPI = 14%/ FIPI = 24%**

<table>
<thead>
<tr>
<th></th>
<th>1999-2000</th>
<th>2004-2005</th>
<th>% Chg</th>
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</thead>
<tbody>
<tr>
<td><strong>Freight Costs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weighted Applicable Freight</td>
<td>31.87</td>
<td>33.74</td>
<td>6%</td>
</tr>
<tr>
<td>Churchill Freight Advantage Rebate</td>
<td>(0.05)</td>
<td>n/a</td>
<td>CWB Initiative</td>
</tr>
<tr>
<td>Trucking Costs</td>
<td>5.94</td>
<td>6.54</td>
<td>10%</td>
</tr>
<tr>
<td><strong>TOTAL FREIGHT</strong></td>
<td>37.81</td>
<td>40.23</td>
<td>6%</td>
</tr>
<tr>
<td><strong>ELEVATION AND CLEANING</strong></td>
<td>13.69</td>
<td>16.21</td>
<td>18%</td>
</tr>
<tr>
<td><strong>Other Costs and Premiums</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CWB Costs</td>
<td>5.40</td>
<td>6.50</td>
<td>20%</td>
</tr>
<tr>
<td>Trucking Premiums</td>
<td>(2.32)</td>
<td>(3.68)</td>
<td>59%</td>
</tr>
<tr>
<td>CWB Transportation Savings</td>
<td>-</td>
<td>(1.49)</td>
<td>144%</td>
</tr>
<tr>
<td><strong>TOTAL OTHER</strong></td>
<td>3.08</td>
<td>1.33</td>
<td>-57%</td>
</tr>
<tr>
<td><strong>TOTAL EXPORT BASIS</strong></td>
<td>54.58</td>
<td>57.77</td>
<td>6%</td>
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<table>
<thead>
<tr>
<th></th>
<th>Canada 2004-05</th>
<th>Aus 2004-05</th>
<th>USA 2005-Q4</th>
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<tbody>
<tr>
<td><strong>Freight Costs</strong></td>
<td></td>
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<tr>
<td>Rail Freight</td>
<td>33.74</td>
<td>16.00</td>
<td>49.49</td>
</tr>
<tr>
<td>Churchill Freight Advantage Rebate</td>
<td>(0.05)</td>
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<tr>
<td>Trucking Costs</td>
<td>6.54</td>
<td>7.00</td>
<td>10.06</td>
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<td><strong>TOTAL FREIGHT</strong></td>
<td>40.23</td>
<td>23.00</td>
<td>59.45</td>
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<td><strong>ELEVATION AND CLEANING</strong></td>
<td>16.21</td>
<td>14.00</td>
<td>13.00</td>
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<td></td>
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<td>1.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL EXPORT BASIS</strong></td>
<td><strong>57.77</strong></td>
<td><strong>37.00?</strong></td>
<td><strong>72.45 +/-</strong></td>
</tr>
</tbody>
</table>

Canada Basis from Quorum GMP Measures 2004-05; Australia Basis interpreted and estimated from SD&D Presentation at Agriculture Australia 2006 (Grai Sector Value Chains Commercial and Policy Implications; USA basis from USDA Report on Grain Transportation July 20, 2006 (Elevation is estimated based on Quorum data.)
Looking to the Future

- Access to transportation capacity
  - Rail
  - Bulk Vessel
  - Container
- Inevitable changes that will come from evolving energy markets
  - Wheat for fuel, ethanol
  - Canola for biodiesel
  - DDGS – local feed demand
- Necessity for continued Supply Chain process improvements and coordination
Summary

• Canada now has a strong and rationalized GHTS – in terms of infrastructure and network capability
  – Due to strong economic growth, some short term issues lie in available transportation capacity … Not insurmountable

• Next challenges lie in dealing with optimizing the Supply Chain

• Performance and trends starting to reveal real improvements (i.e. time in Supply Chain)

• Revenue Cap, and other regulatory actions have largely accomplished the intended goals

• More changes are coming for the Canadian GHTS – perhaps sooner than later …
...in closing