An Overview of the Western Grain Handling and Transportation System

Association of Canadian Port Authorities Annual Meeting
Thunder Bay, September 8, 2016
Total Supply (Western Canada Production and Carry In Stock)

Year | Production | Carry In | Total Supply
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1999 | 58.7 | 8.0 | 66.7
2000 | 60.5 | 10.5 | 71.0
2001 | 58.1 | 11.8 | 69.9
2002 | 56.2 | 12.7 | 68.9
2003 | 54.3 | 13.6 | 67.9
2004 | 52.4 | 14.3 | 66.7
2005 | 50.4 | 15.0 | 65.4
2006 | 48.4 | 15.5 | 63.9
2007 | 46.4 | 16.0 | 62.4
2008 | 44.4 | 16.5 | 60.9
2009 | 42.4 | 17.0 | 59.4
2010 | 40.4 | 17.5 | 57.9
2011 | 38.4 | 18.0 | 56.4
2012 | 36.4 | 18.5 | 54.9
2013 | 34.4 | 19.0 | 53.4
2014 | 32.4 | 19.5 | 51.9
2015 | 30.4 | 20.0 | 50.4
2016* | 28.3 | 20.5 | 48.8

* Forecast
Where does Western Grain Go? (2015-16)

Total = 50.6 MMT

- Western Canada: 38.50 MMT (76%)
- Eastern Canada: 2.80 MMT (6%)
- US - Rail: 6.76 MMT (13%)
- US - Truck: 2.27 MMT (4%)
- Mexico: 0.26 MMT (1%)
Western Canada Traffic (2015-16)

Total = 38.5 MMT

- Vancouver: 24.33 MMT, 63%
- Prince Rupert: 6.31 MMT, 16%
- Thunder Bay: 7.18 MMT, 19%
- Churchill: 0.15 MMT, 0.1%
- Domestic: 0.54 MMT, 2%
Increased Volume and Diversity in Crop Types

1999-2003 Average: 46.2 MMT

- Special Crops, 4.6 MMT (10%)
- Canola, 6.3 MMT (14%)
- Cereals, 35.3 MMT (76%)

2012-2016 Average: 65.6 MMT

- Special Crops, 8.8 MMT (14%)
- Canola, 16.5 MMT (25%)
- Cereals, 40.2 MMT (61%)
Port Terminals – 5 Year Avg. Volumes
Capacity at Port

- 17 facilities at 4 ports in Western Canada with 2.933 MMT of storage capacity
- Focus in last five years on throughput capacity
  - Richardson: Increased storage, railcar unloading and ship loading efficiency at Vancouver; increased efficiency at Thunder Bay
  - Viterra and Cargill: railcar unloading and ship loading efficiency
  - All terminals have improved plant throughput efficiency
  - AGT to replace gallery and ship loaders next year
  - 1 new and 1 expanded terminal in Hamilton
- G3 terminal in planning stages for Vancouver North Shore
Capacity in Country

- Stations from 685 to 271
- Facilities from 1,004 to 383
- Storage from 7.03 to 7.8 MMT
- 60% are with the major companies (down from 94%)
- 53% are HTP facilities (up from 12% in 1999)
- 7 new builds on stream in next 12 months
Shipments from Port: 2015-16

- 0.6% lower than last year
- 2.2% lower than 5 year average
- Last 3 months dropped to 500-600 TMT weekly from 800+
Time in the System (Days)
Country and Port Turnover Ratios
Railway Car Cycles
Railcar Cycles - Western Canada Traffic - days

2015-16 Crop Year YTD
West Coast Vessel Lineups

Vancouver:
- 30 vessels

Prince Rupert:
- 15 vessels

Graphs showing the number of vessels over time with lines indicating the total this year and the total last year.
Issues
Average Vessel Time in Port (days)
BDI vs. Days in Port
Railcar Fleet Size

- Aug: Cars in Fleet (2015-16) = 22,354
- Sep: Cars in Fleet (2015-16) = 22,354
- Oct: Cars in Fleet (2015-16) = 22,354
- Nov: Cars in Fleet (2015-16) = 22,354
- Dec: Cars in Fleet (2015-16) = 22,354
- Jan: Cars in Fleet (2015-16) = 22,354
- Feb: Cars in Fleet (2015-16) = 22,354
- Mar: Cars in Fleet (2015-16) = 22,354
- Apr: Cars in Fleet (2015-16) = 22,354
- May: Cars in Fleet (2015-16) = 22,354
- Jun: Cars in Fleet (2015-16) = 22,354
- Jul: Cars in Fleet (2015-16) = 22,354

- Aug: Cars in Storage (2015-16) = 1,000
- Sep: Cars in Storage (2015-16) = 1,000
- Oct: Cars in Storage (2015-16) = 1,000
- Nov: Cars in Storage (2015-16) = 1,000
- Dec: Cars in Storage (2015-16) = 1,000
- Jan: Cars in Storage (2015-16) = 1,000
- Feb: Cars in Storage (2015-16) = 1,000
- Mar: Cars in Storage (2015-16) = 1,000
- Apr: Cars in Storage (2015-16) = 1,000
- May: Cars in Storage (2015-16) = 1,000
- Jun: Cars in Storage (2015-16) = 1,000
- Jul: Cars in Storage (2015-16) = 1,000

- Aug: Cars Bad Order (2015-16) = 100
- Sep: Cars Bad Order (2015-16) = 100
- Oct: Cars Bad Order (2015-16) = 100
- Nov: Cars Bad Order (2015-16) = 100
- Dec: Cars Bad Order (2015-16) = 100
- Jan: Cars Bad Order (2015-16) = 100
- Feb: Cars Bad Order (2015-16) = 100
- Mar: Cars Bad Order (2015-16) = 100
- Apr: Cars Bad Order (2015-16) = 100
- May: Cars Bad Order (2015-16) = 100
- Jun: Cars Bad Order (2015-16) = 100
- Jul: Cars Bad Order (2015-16) = 100

Total:
- Aug: 22,354 + 1,000 + 100 = 23,454
- Sep: 22,354 + 1,000 + 100 = 23,454
- Oct: 22,354 + 1,000 + 100 = 23,454
- Nov: 22,354 + 1,000 + 100 = 23,454
- Dec: 22,354 + 1,000 + 100 = 23,454
- Jan: 22,354 + 1,000 + 100 = 23,454
- Feb: 22,354 + 1,000 + 100 = 23,454
- Mar: 22,354 + 1,000 + 100 = 23,454
- Apr: 22,354 + 1,000 + 100 = 23,454
- May: 22,354 + 1,000 + 100 = 23,454
- Jun: 22,354 + 1,000 + 100 = 23,454
- Jul: 22,354 + 1,000 + 100 = 23,454
Lifespan of the Covered Hopper fleet

Years:
- 1985
- 2016
- 2022
- 2027
- 2036

Railcars (Thousands):
- 0
- 2
- 4
- 6
- 8
- 10
- 12
- 14
- 16
- 18
- 20

1970 to 2044:
- Red line: Government of Canada
- Grey line: All Publicly-Supplied Equipment
The term “Revenue Cap” is a misnomer as it does NOT a place an absolute “cap” on railway revenues.

What it does do is:

- …Provide a statutory limit on the amount of revenue a prescribed railway can earn from the movement of regulated grain in western Canada.
- …Provide an effective dynamic control mechanism limiting the amount of revenue per tonne that a railway company may derive from the movement of regulated grain

… It does not penalize the railways for:
- Handling more grain; length of haul
- Inflationary effects
Why did the MRE come into force?

- In the 1990’s:
  - Railways were constrained by inflexibility of maximum tariff regulations set by the CTA and wanted the ability to price differentially.
  - Concern by shippers and producers on the lack of market competition led to the belief that railways needed a control mechanism for rate structures

- Railways developed the MRE as an alternative means by which rates could be limited using total revenues as a base and having the average rate increasing by a proxy for CPI
The railways have the ability to set rates:

- To reflect differences in commodity type, geographic location at both origin and destination, the season etc..
- To price differentially for the car block size (known as multi car block rates).
- To differentiate grain movements so as to incent shippers towards specific routes, origins, destinations or seasons, over others.

The CTA sets a price index adjusted annually to reflect changes in railway operating costs, which is applied through an agreed upon formula.
Rail Freight Rates since 1980

- Four rail freight rate regimes have been used over the last 30 years:
  - The Crow rate
  - The Western Grain Transportation Act/Agency
  - The Maximum rate scale
  - The Maximum Revenue Entitlement - MRE (Rev Cap)

- Over the period from 1980, when the Crow Rate was still in effect, to 2013, the rail freight has increased from $5/tonne to over $47.
Supply Chain Relationships

Generic Supply Chain Model

Canadian Grain Supply Chain Model (Bulk through Grain Company)
Churchill

- Currently still in negotiation
- Discussion over funding model and price
- For 2016 season, approx. 20,000 MT of applications for CPUP received … it wasn’t enough
- 29,500 tonnes of stock in position (reported)
- Questions:
  - Will they open next year?
  - Who will buy them?
  - Where will the funding come from?
Extended Interswitching
### Canadian Grain Logistics in the Global market

#### Length of haul to port of export

- Brazil: 100 – 150 miles (Truck 90% ++)
- Australia: 150 – 250 miles (Truck 50%/ Rail 50%)
- United States: 350-600 miles (Rail 60%+, Truck –Barge)
- Canada: 790 – 1,150 miles (Rail 95%, Truck 5%)

#### Agriculture dependency on Exports (% of Crop Exported)

- Brazil: 9% (27 M of 318 M)
- Australia: 23% (17 M of 74 M)
- United States: 12% (61 M of 500 M)
- Canada: 55% (52 M of 95 M)
  - *Covers all field crops exported against total grains production*

#### Other Issues

- Climate
- Distance to market (Ocean)
- Relative market position (size)
Global Competition

- The average price of wheat back to the producer has been gradually decreasing
  - All time low in 2016
  - Partially reflective of productivity; Partially of increased global competition

- To compete globally, Canada must have the most efficient grain supply chain
Thank You