

# *Session 5: Future Oil Prices, Effect on Supply Chain Strategies*

## Energy, the Environment and Value Chains

May 3, 2011

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## *There are two questions.....*

First, what are relevant future oil price scenarios?

Second, what impact will they have on supply chain strategy?

# *Future Oil Price Scenarios*

Scenario	\$US/bbl
Low	<\$100/bbl
Intermediate	\$100/bbl - \$150/bbl
High	>\$150/bbl

## *Oil Price determination<sup>1</sup>:*

- Demand;
- Mix of sour/sweet crude supply;
- Industry's capacity to process the crudes; and
- Decisions by oil-exporting nations on the volume of sour crude produced.

Note 1: Source Philip K. Verleger Jr.

While we do not know which scenario will emerge, we can plan our response.

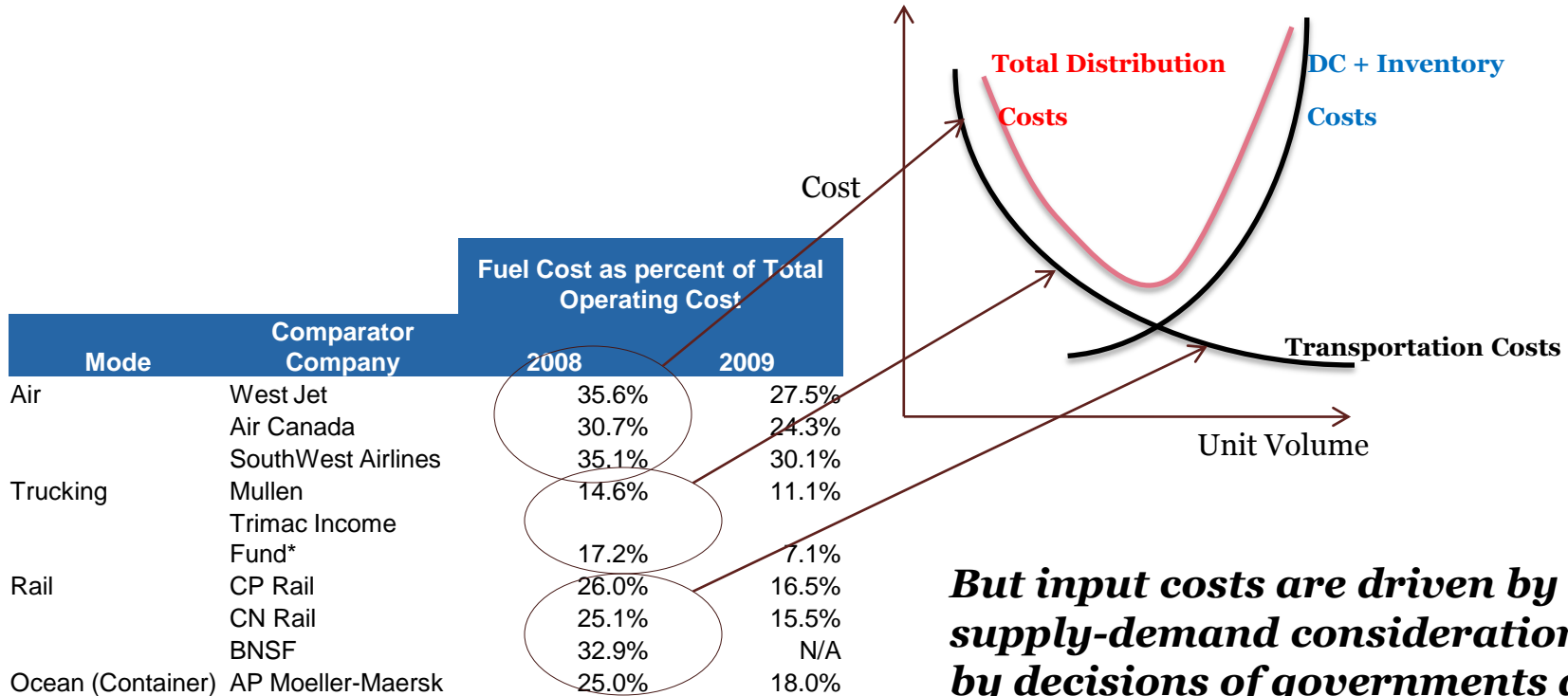
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## ***Examine Two Contexts***

Context 1: Distribution in North America

Context 2: Importation of industrial products into North America

# The Distribution Model is fundamental

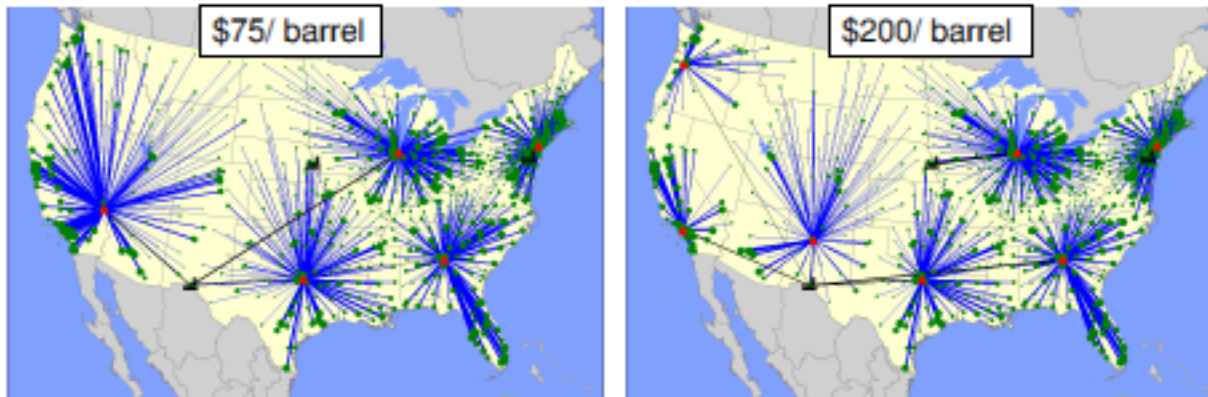


\* Note: Trimac reports revenue from fuel surcharges and this measure is Fuel Surcharge revenue as percent of total operating cost.  
Source: Annual reports

***But input costs are driven by global supply-demand considerations and by decisions of governments and NGO's, such as the International Maritime Organization concerning the environment.***

# Context 1: North American distribution

Moving from \$125/ barrel to \$150/ barrel changes the optimal number of DC's from 5 to 7. In particular, you can think of Las Vegas being replaced by Los Angeles, Albuquerque, and Portland.



Source: Dr. David Simchi-Levi, MIT and iLog,  
Impact of crude oil volatility on network design, p  
9.

Why? Dr. Simchi-Levi noted that as oil prices increase, transportation costs become relatively more important than production and distribution facility fixed costs and we expect production to move nearer demand and additional DC's are more attractive.

## ***Context 2: Industrial Products Imported into North America.... considerations***

1. Commodity prices are rising.
2. Low cost country sourcing is subject to the same economics as we saw Dr Simchi-Levi note for North America.
3. Expect to see shifts in trade patterns in the next 20-30 years.

**Table 1: Price increases in year to end of March 2011**

Crude oil (West Texas Intermediate)	27%
Crude oil (Brent)	43%
Copper	21%
Gold	29%
Silver	116%
Palladium	188%
Corn	101%
Wheat	67%
Coffee (Arabica)	93%
Sugar	63%
Cotton	145%
Orange juice	21%

Source: FT

# Context 2: Industrial Products Imported into North America... considerations

Top 25 sea and air freight bilateral trade pairs in 2009



Top 25 sea and air freight bilateral trade pairs in 2030



**Key**

Size of bilateral trade flow (in 2009 \$USm for both charts)	Under 50,000	50,001-100,000	100,001-200,000	200,001-350,000	350,001-

Source: PwC study, The Future of World Trade, Top 25 Sea and Air Freight Routes in 2030, March 2011



# Can't leave without addressing fuel surcharges!

## FCA Fuel Surcharge Rates (Canada Only)

Period Beginning	Price (¢) Per Litre w/o GST/HST Note 1	Fuel Calculation (shown as percent)		
		LTL Note 2	TL Note 3	Heavy TL Note 4
March 7	105.7	15.0	35.4	39.7
February 28	102.3	14.3	33.6	37.7
February 21	101.1	14.0	33.0	36.9
February 14	101.4	14.1	33.1	37.1
February 7	100.4	13.9	32.6	36.5
January 31	99.6	13.7	32.2	36.1
January 24	98.5	13.4	31.6	35.4
January 17	96.1	12.9	30.3	34.0
January 10	94.8	12.6	29.6	33.2
January 3	94.8	12.6	29.6	33.2

**A 20% increase in fuel surcharge over 2 months!**

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*Whatever scenarios emerge for future oil prices, there will be adjustments to trade patterns and the model of distribution will still be a valuable tool. Companies focused on cost containment will want to re-visit their supply chain design.*

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