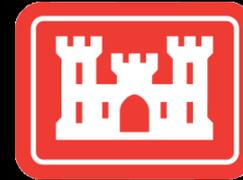


**2011 WEDA Western Dredging Association  
Eastern Chapter Annual Meeting**

**October 12, 2011 Hilton Virginia Beach Oceanfront Hotel**



**Trade & Transportation  
Emerging Opportunities:  
Panama Canal  
Expansion Impacts**

*John Vickerman*



*Williamsburg, Virginia*

**BACK**  
**TO**  
**THE FUTURE**

The image features the title 'BACK TO THE FUTURE' in a highly stylized, comic-book font. The word 'BACK' is the largest and most prominent, rendered in a 3D perspective that tapers to the right. It has a yellow-to-orange gradient fill and a thick blue outline. Below it, 'TO' is smaller and also has a blue outline. 'THE' is the smallest word, positioned to the left of 'FUTURE'. 'FUTURE' is large and matches the style of 'BACK', with a yellow-to-orange gradient and a blue outline. The entire text is set against a solid black background.



# **International Port External Industry Pressures Driving Today's Logistics**

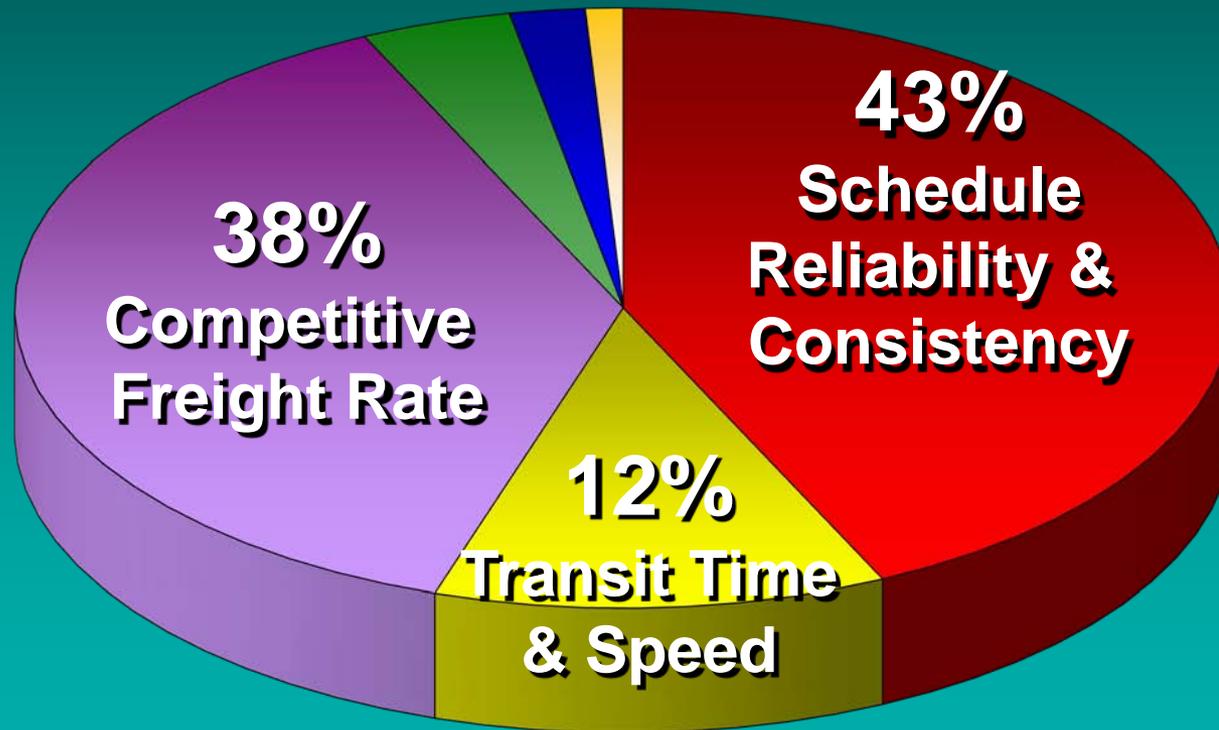
***More than 98% of everything we consume, wear, eat, drive and construct is brought to us via ships through the North American port system.***





**To Be Competitive Today...  
Marine/Intermodal  
Terminals Must Reduce  
Throughput Cost &  
Increase Cargo Velocity  
Securely and as Stewards of  
the Environment**

# Poll of the Top 1000 “Blue Chip” Multinational Shipper Priorities



# Today's Logistics Truth:

*“The customer  
wants **more** and  
is willing to pay  
**less** for it.”*

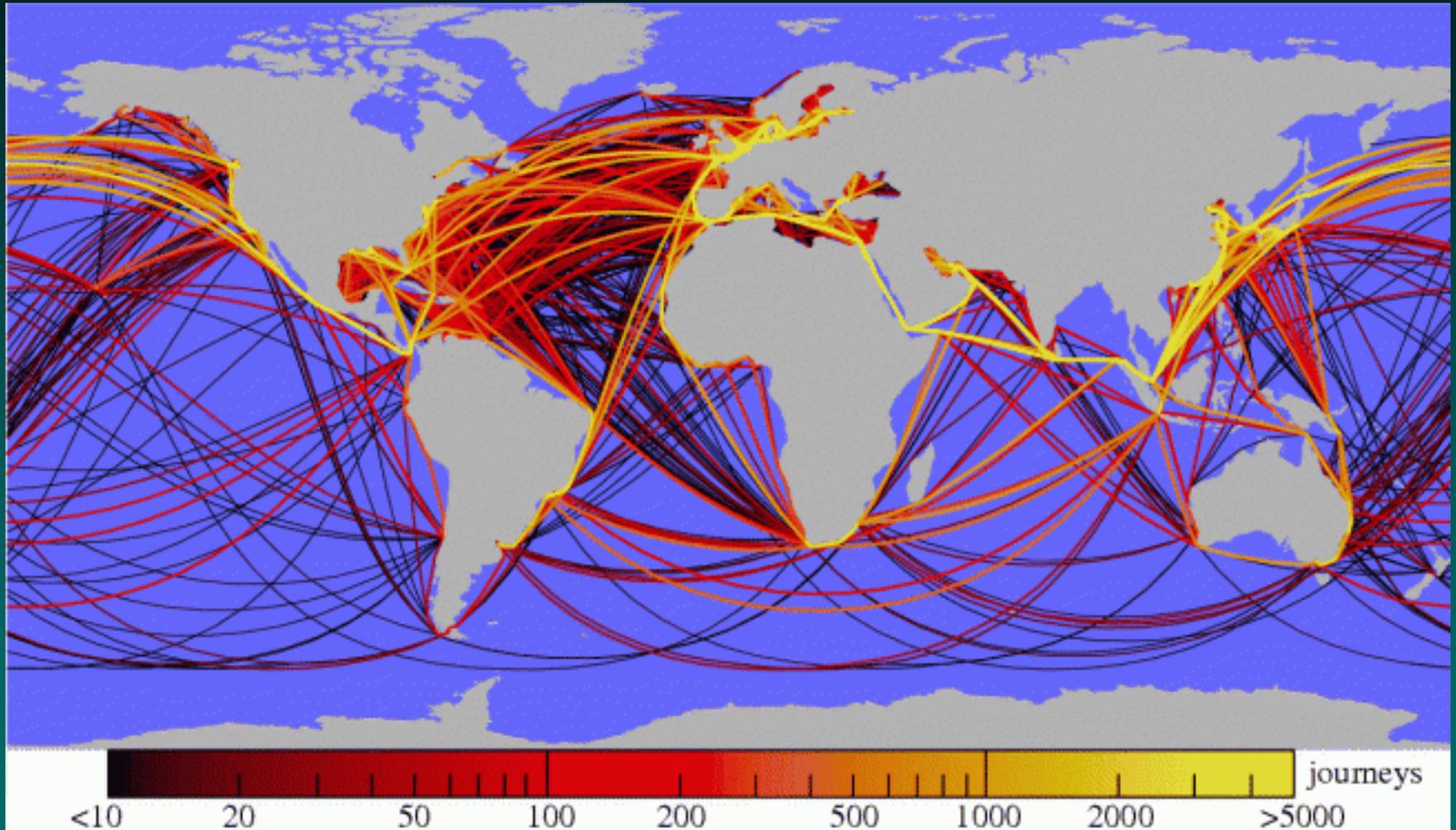


***Today's Trade  
Logistics Driving  
World Change***

# Global Shipping Routes Plotted by AIS GPS

*2010 Busiest Routes:*

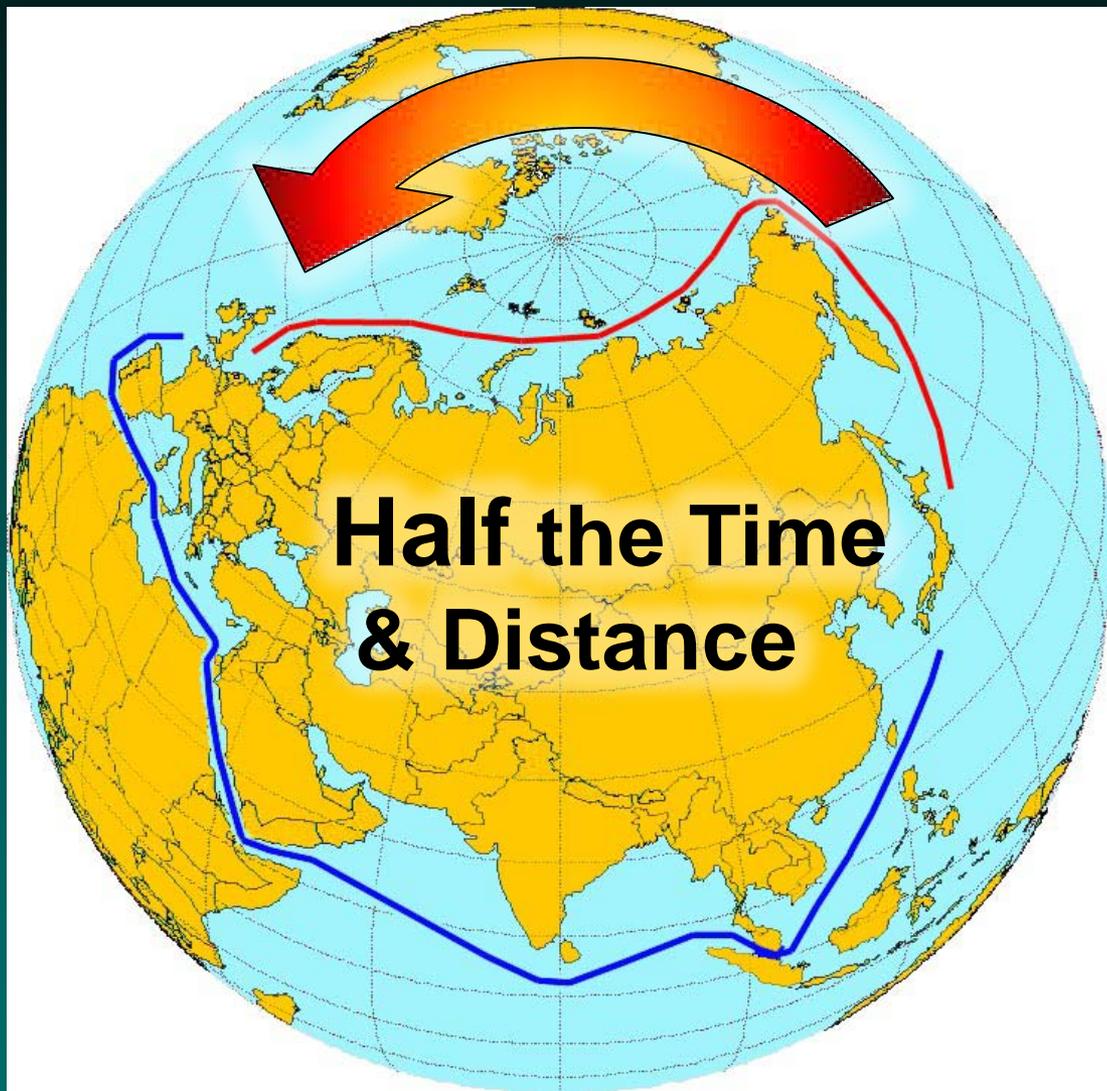
*(1) Panama Canal, (2) Suez Canal, (3) Shanghai Port*



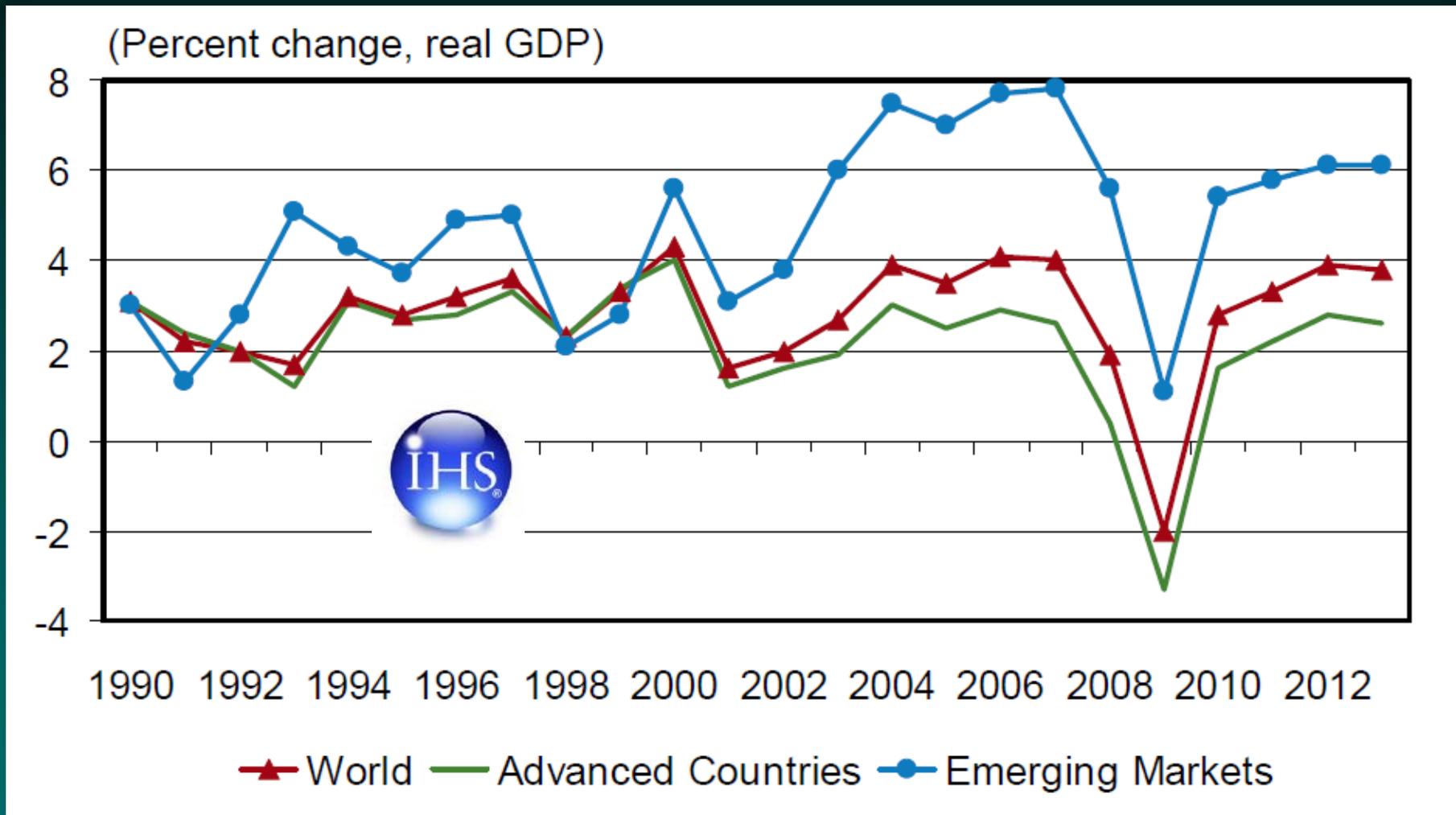
Source: Wired Science January 2010 Journal of the Royal Society: Interface

# Shorter – Faster Arctic Ocean Route

*2+ Months A Year Using Convoys*



# Emerging Markets Lead the Global Recovery



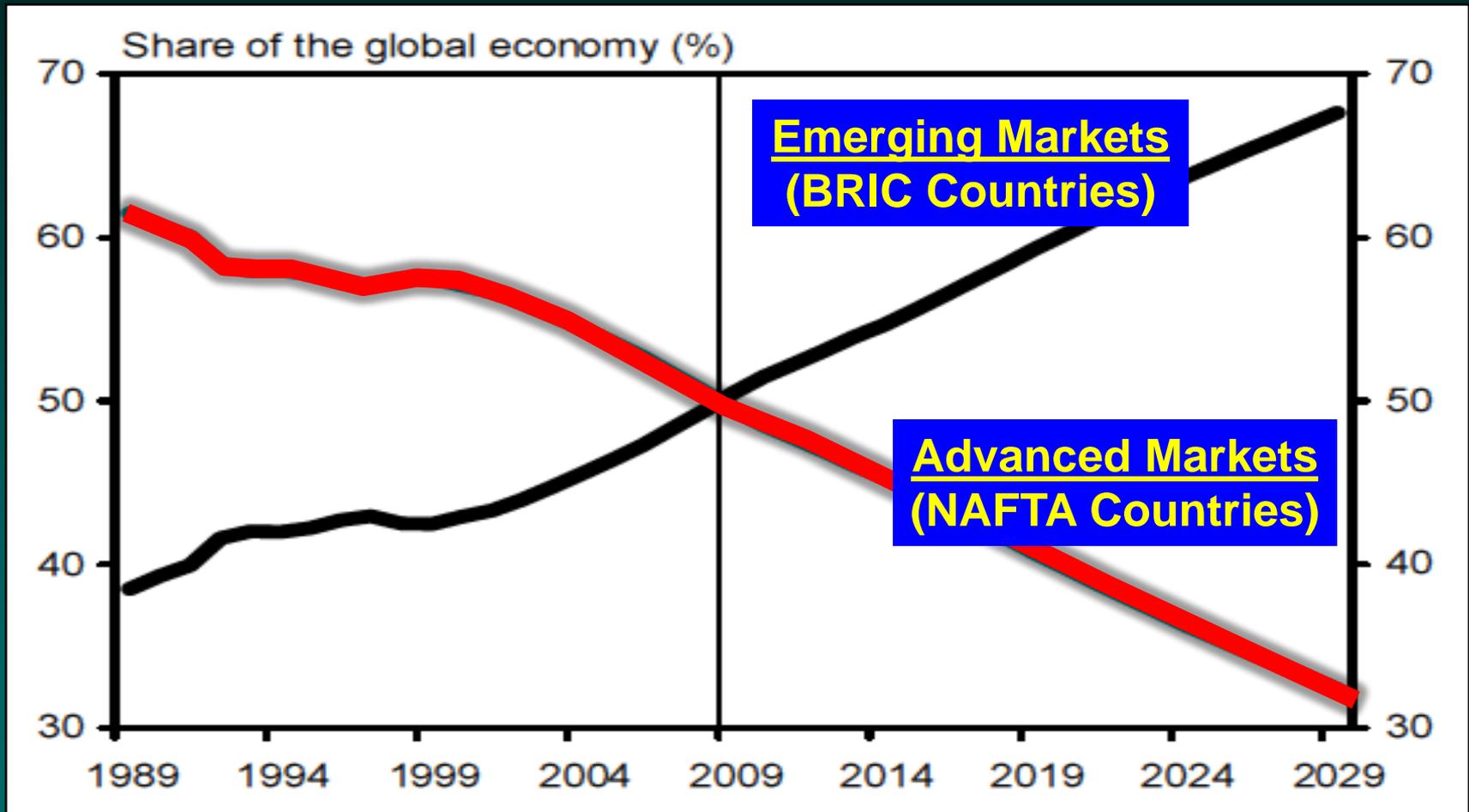
Source: HIS Global Insight – World Trade Service

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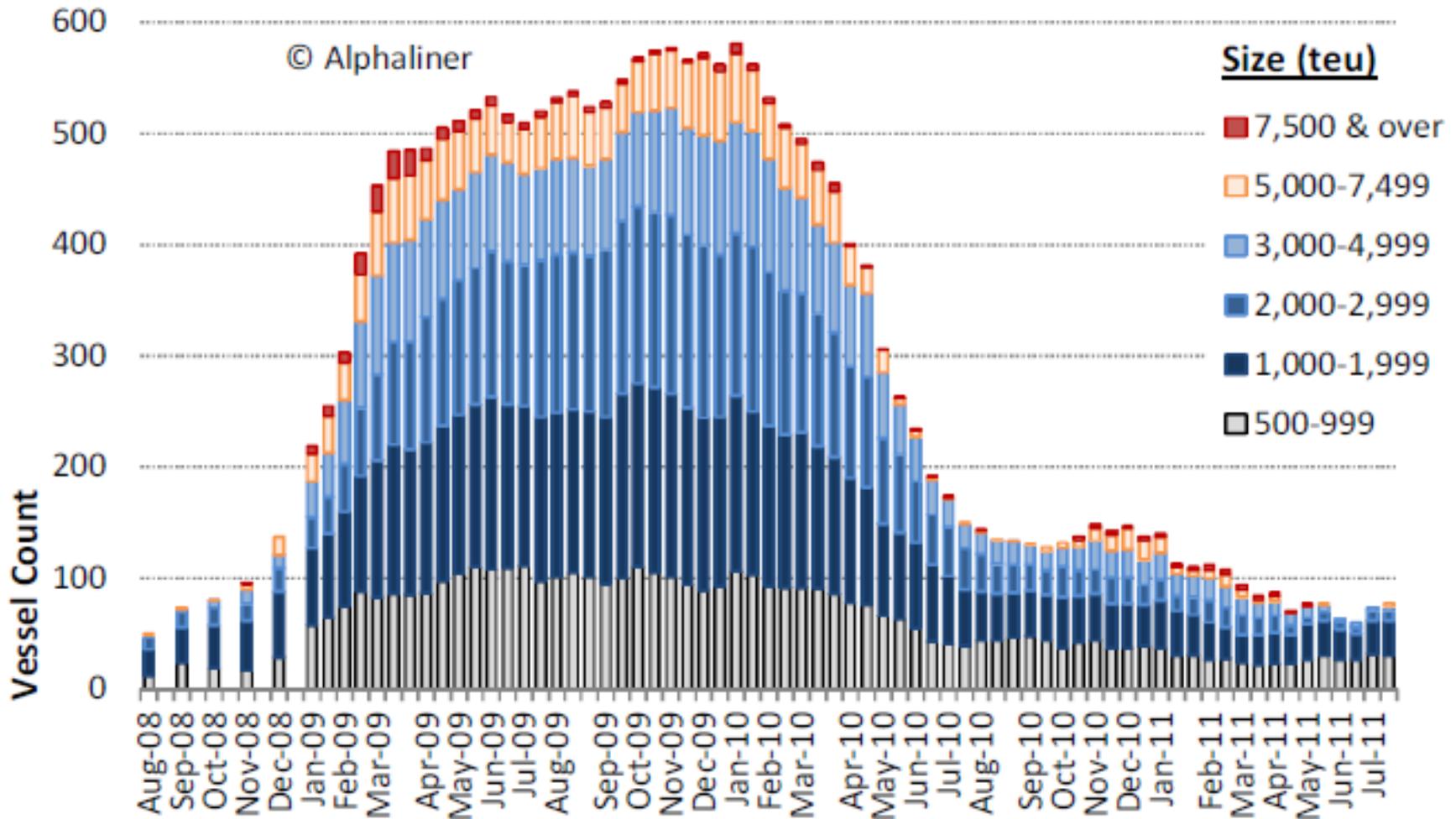
# A Turning Point in Global Economic History

The Advanced Economies Will Decline From 2/3 share of the Global Economy to a 1/3 Global Share. The Global Economy Will See Higher Average Pace of Growth in the Future...



Source: IMF - Forecast by TD Economics, December 2009

# Idle Containership Global Fleet is Gone (Vessels Idle by Size Range)

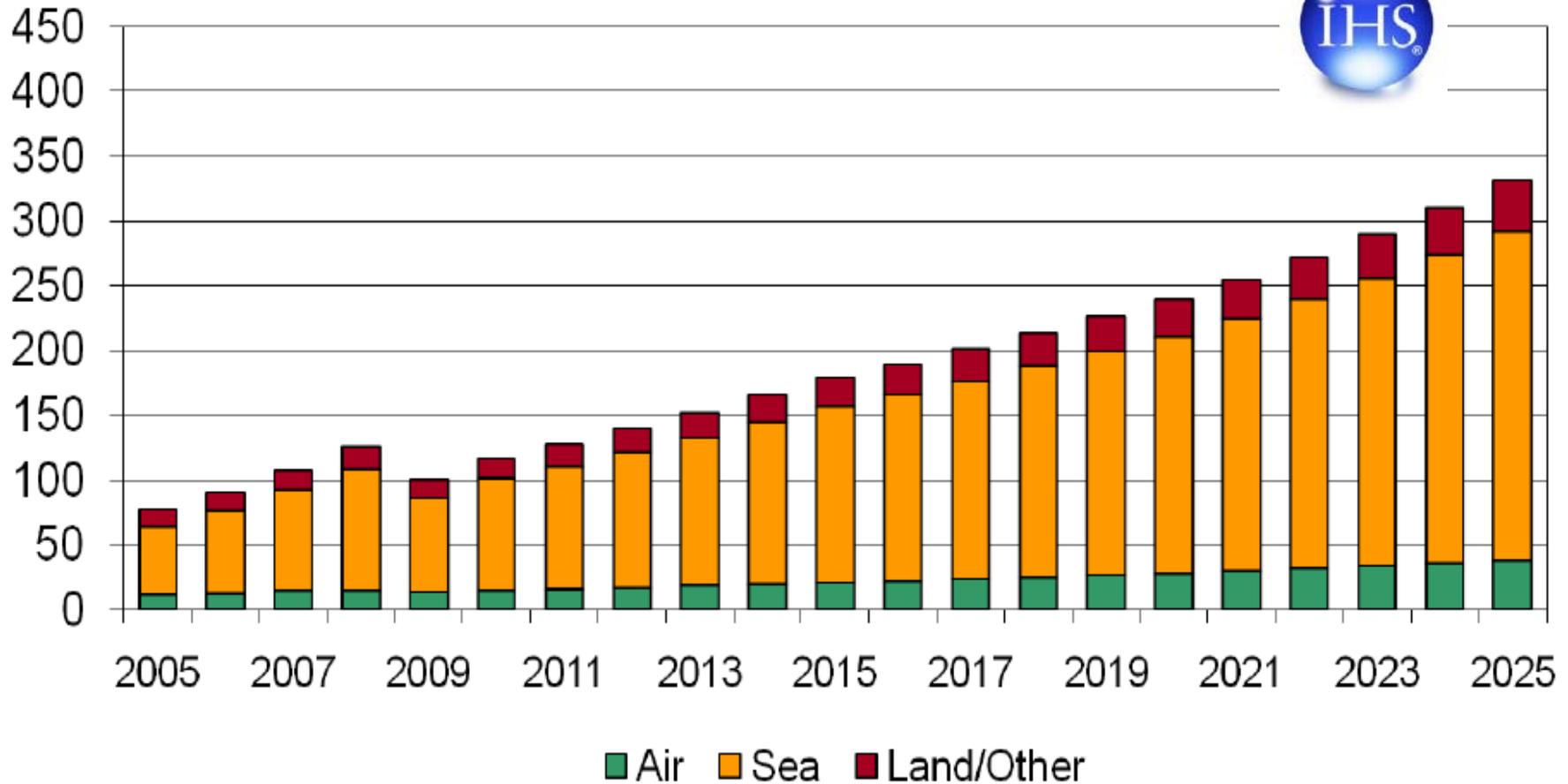


Source: Alphaliner Newsletter Volume 2011 Issue 29

# Growth in Global Merchandise Trade

(Intra Europe Trade Excluded)

(Trillions of U.S. dollars)



Source: HIS Global Insight – World Trade Service

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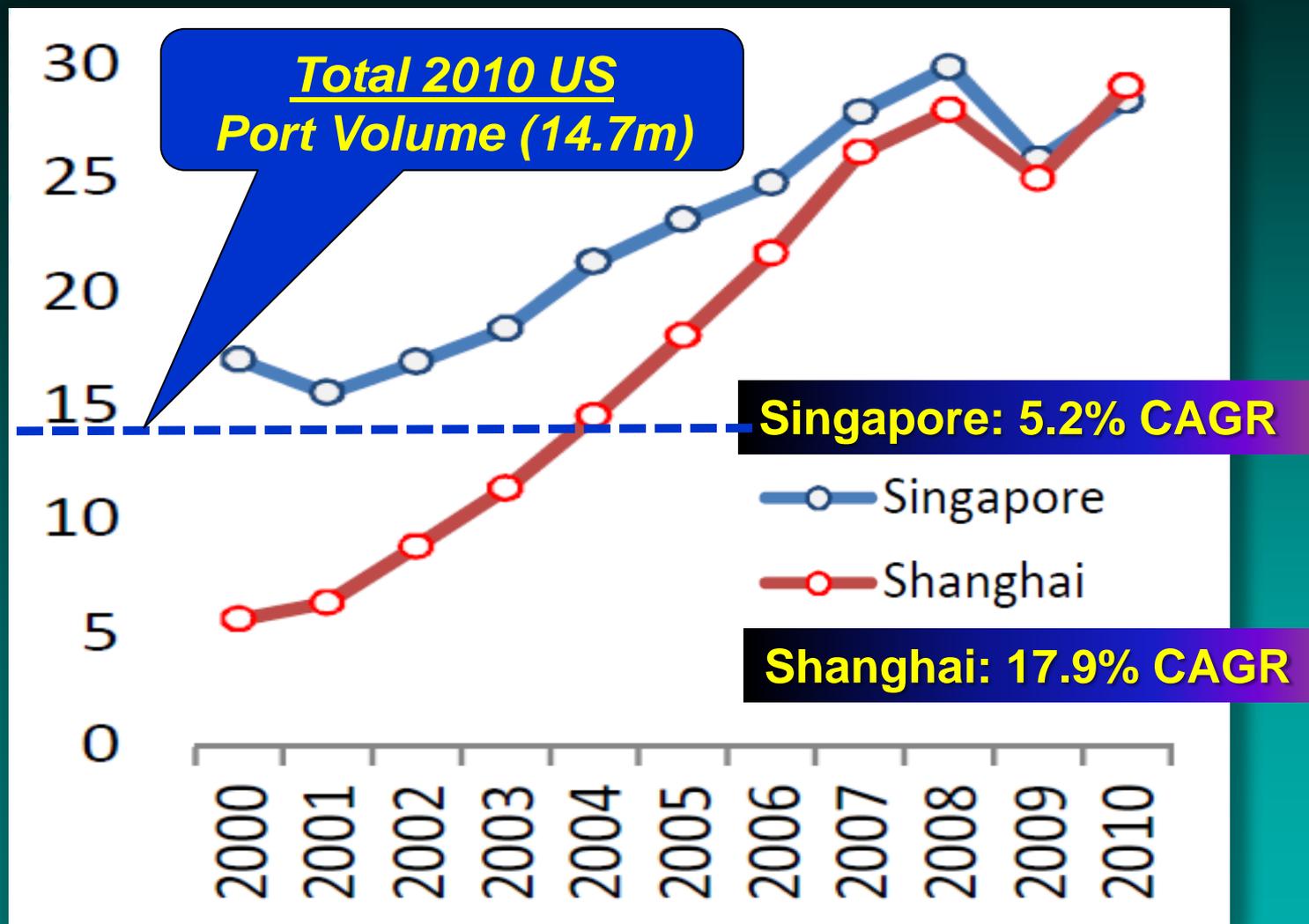
# China Breaks Container World Records

Of the 10 busiest ports in the world in 2010, Nine are in Asia; of the top 10, Six are on the Chinese mainland

Chinese Ports hit an all-time monthly high of 12.44 Million TEUs in **May 2010** with Six of the Top 10 Chinese Ports reporting Record Volumes.

# Singapore vs. Shanghai Container Volumes

2000 through 2010 Volumes in Millions of TEUs



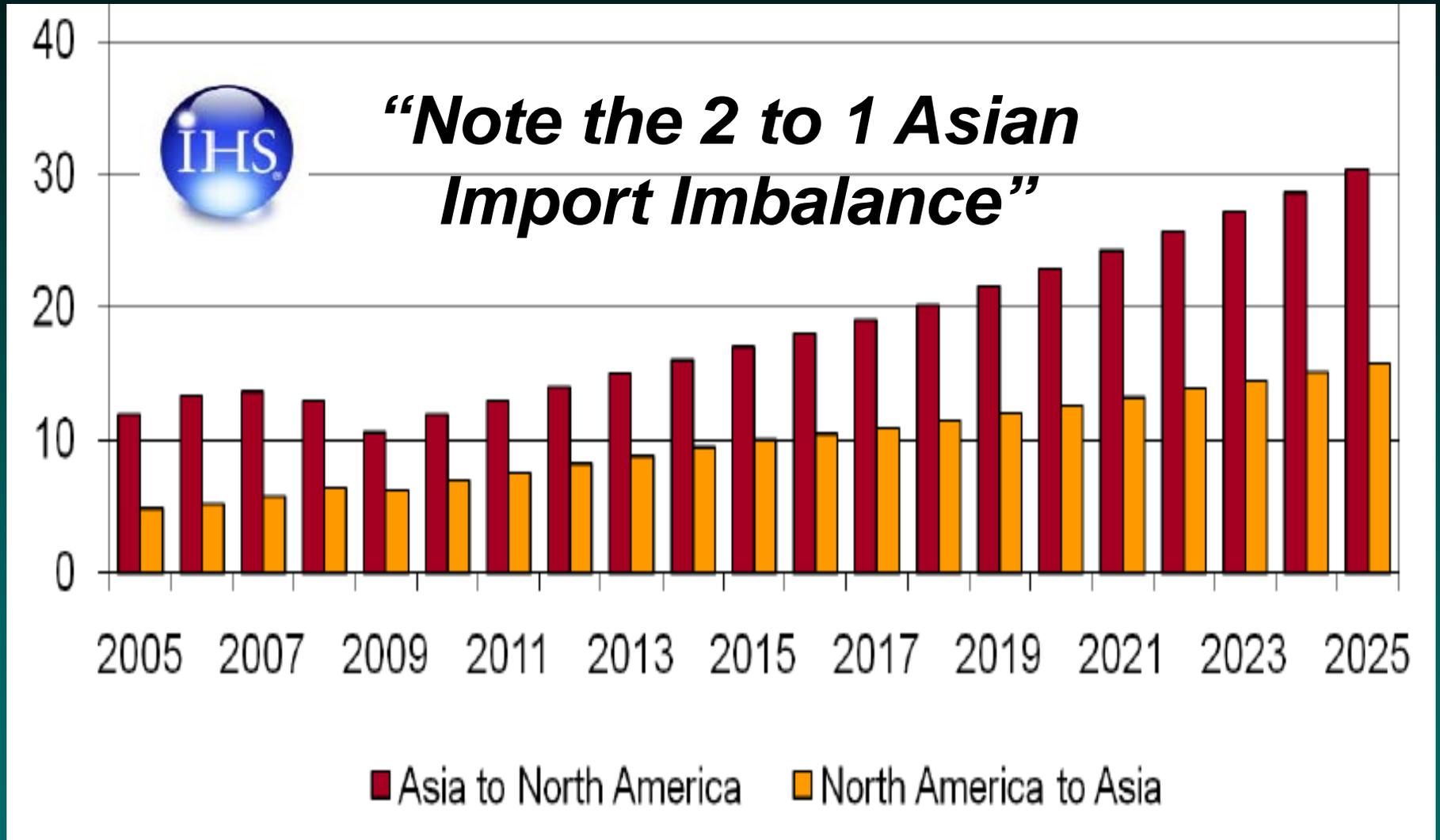


# North American Cargo Demand Trends

*(Déjà vu Experience)*

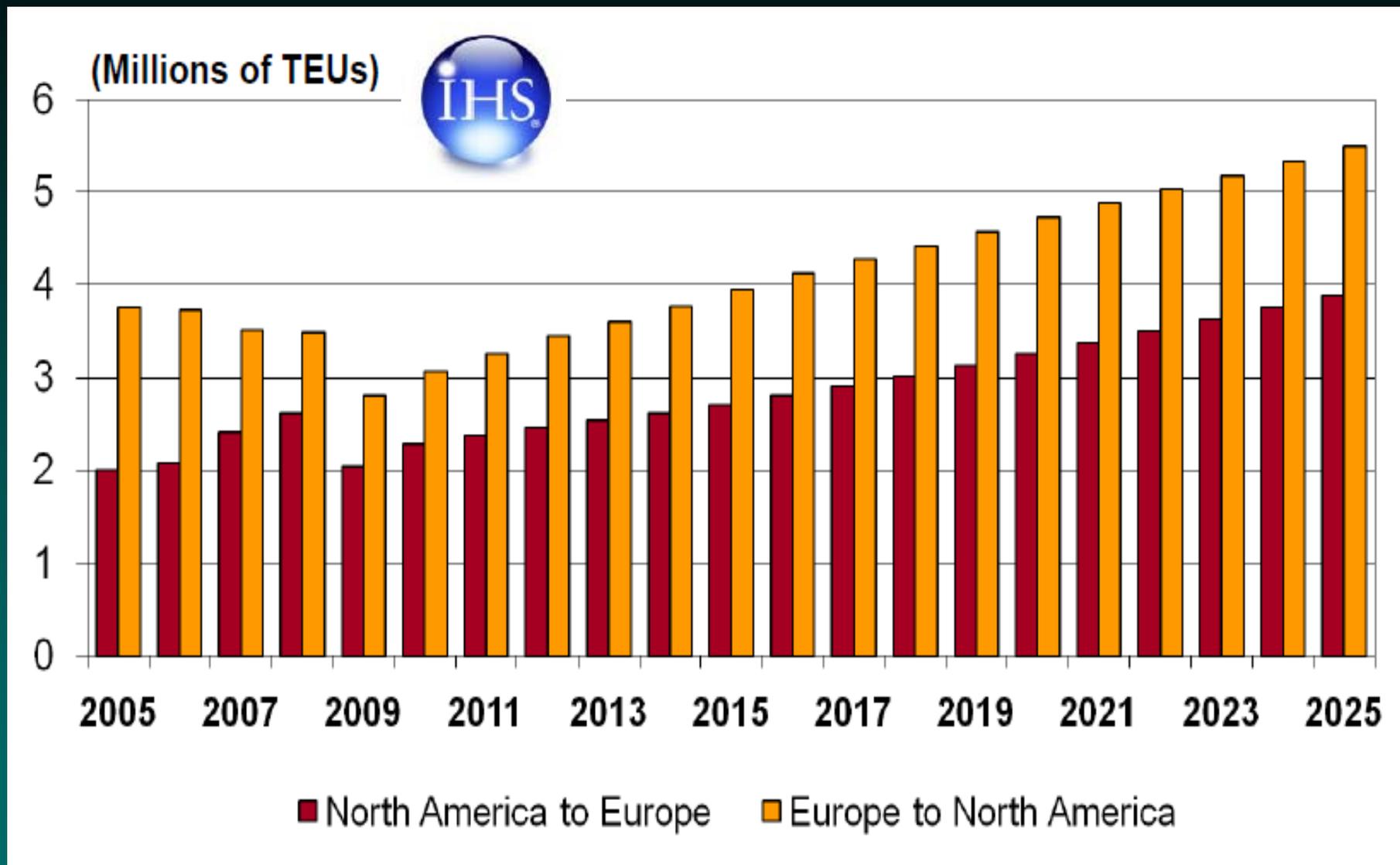
# Transpacific Container Trade Recovery

(Millions of TEUs)



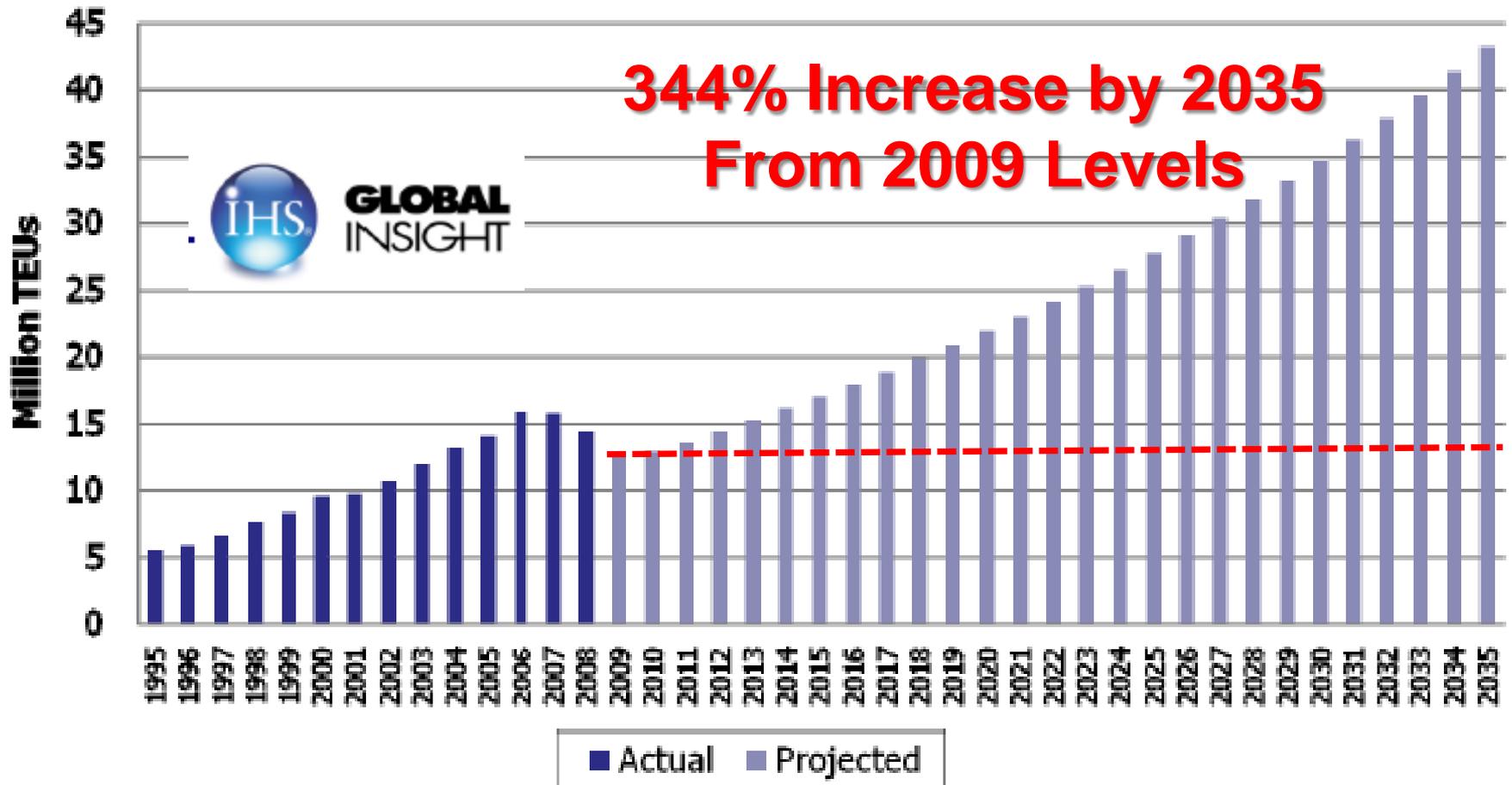
Source: HIS – Global Insight -The Global Outlook – October 14, 2010

# Transatlantic Container Trade Recovery



Source: HIS – Global Insight -The Global Outlook – October 14, 2010

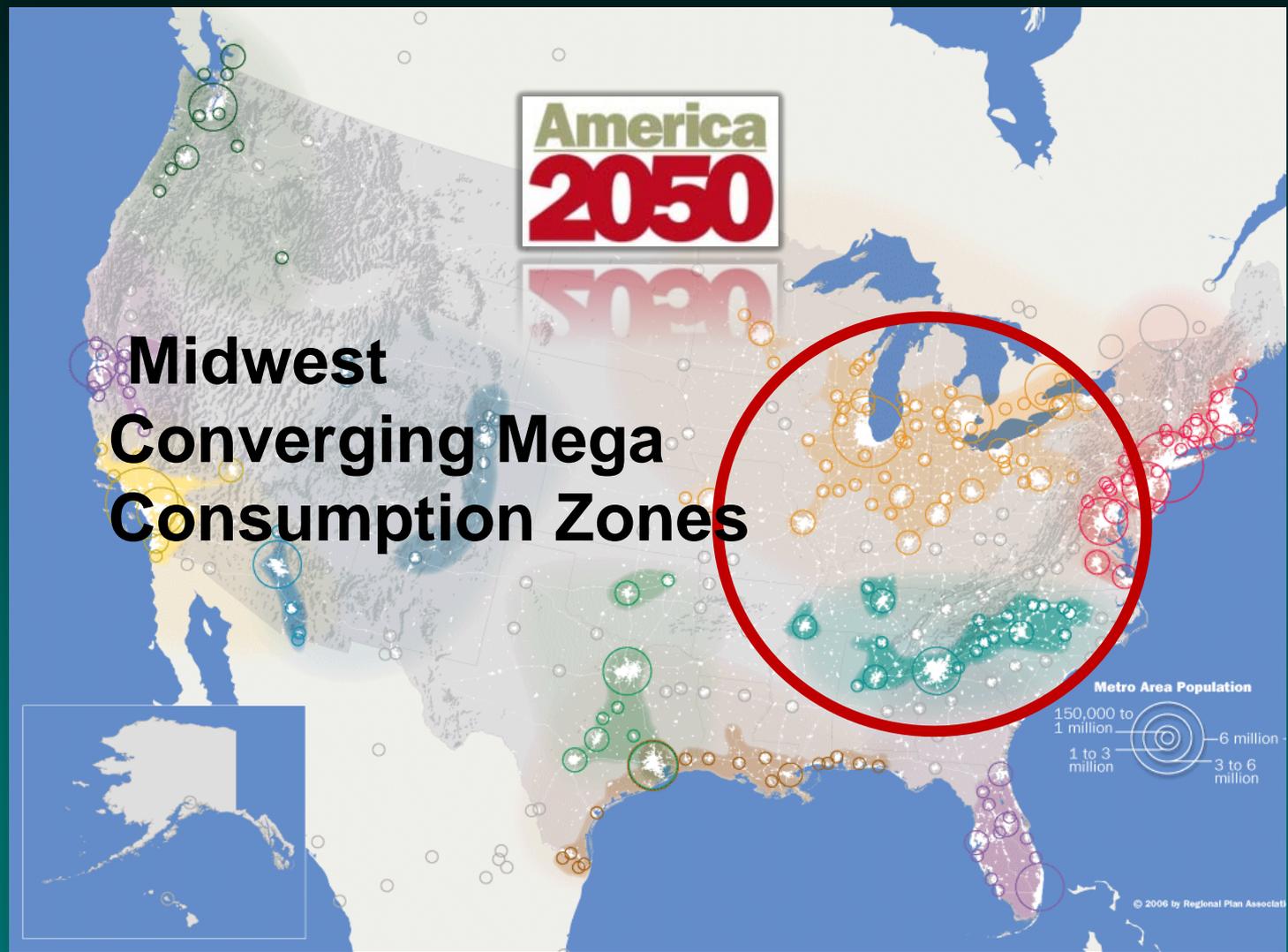
# San Pedro Bay (POLA +POLB) Container Volume Forecast



Annual Growth Rate in Recovery Averages Around Five Percent

# North American Emerging Mega-Regions

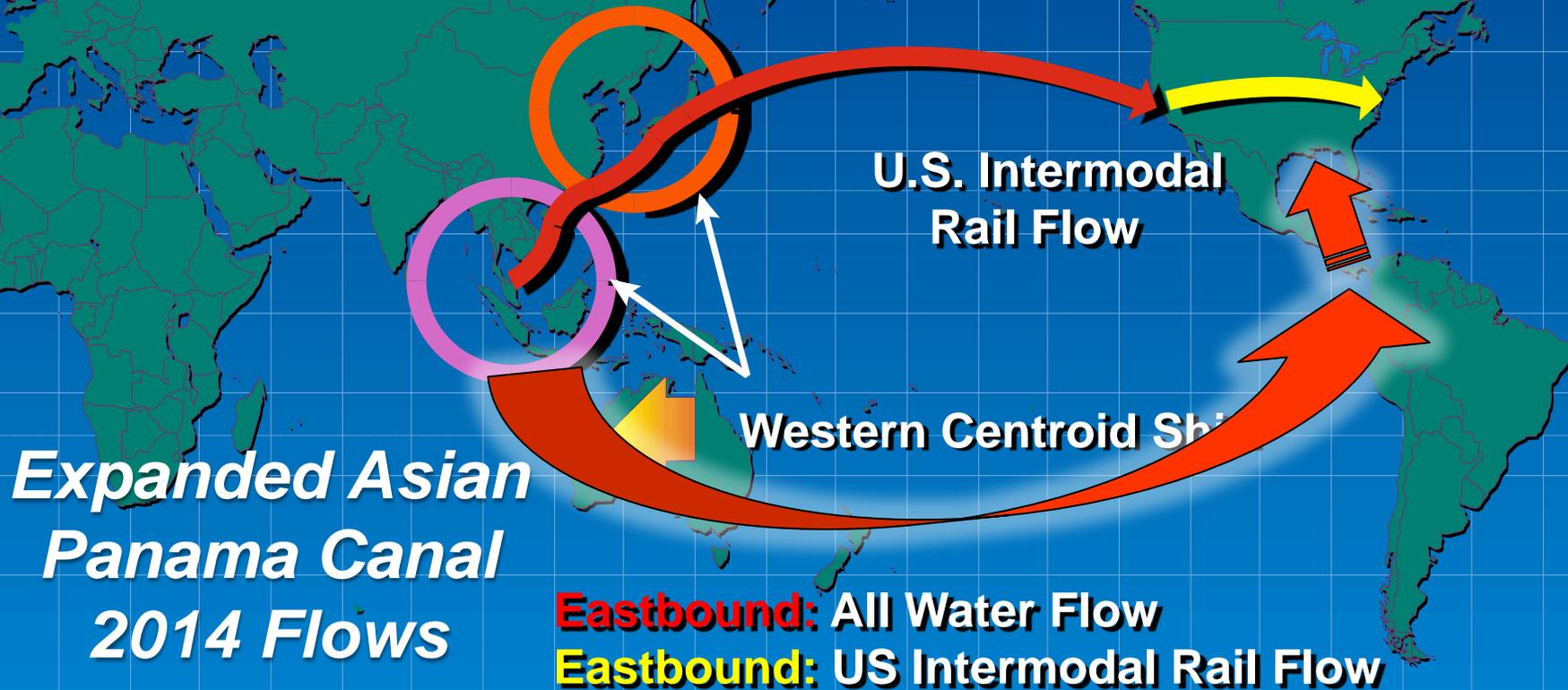
## *Future US Growth Areas*



Source: America 2050 Prospects - Regional Plan Association

# Southeast Asian Manufacturing Centroid Shift

## Current Inbound U.S. Cargo Flow



# South East Asian Manufacturing Centroid Shift

Cu

Flow



U.S. In  
Rail Fl

**With Manufacturing Centroid Shifts Into Vietnam  
and/or India, The North American East Coast will  
See Dramatically More Westbound Suez Traffic**

# Suez Canal Container Vessel Convoy Traffic

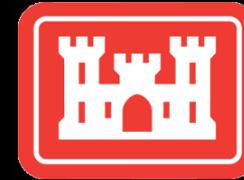
*(Ships Currently Transit the Suez Canal in 3 Daily Convoys)*



## 2014 Suez Canal Pricing Strategy:

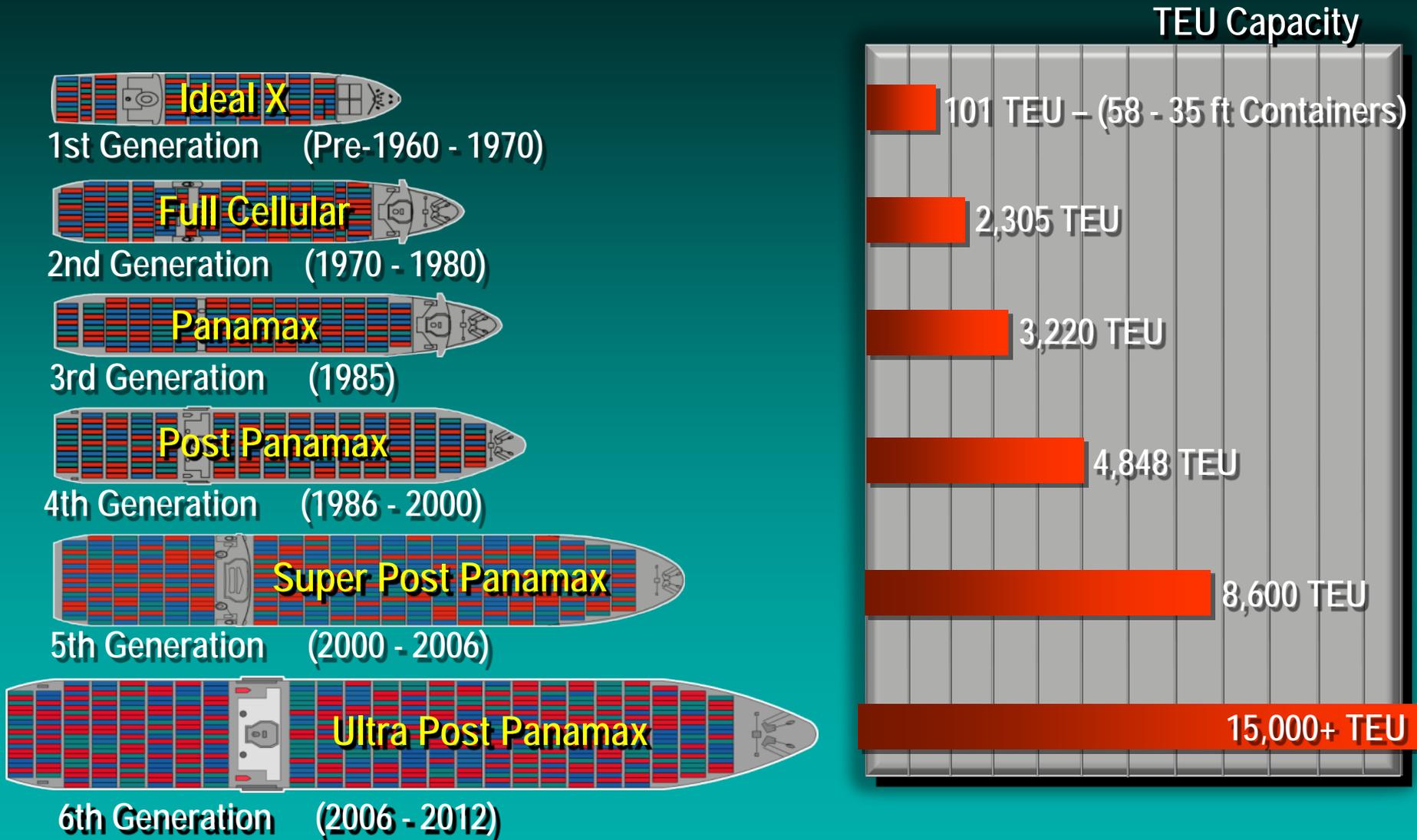
The Suez Canal has an opportunity to competitively alter global shipping patterns by undercutting 2014/15 Panama Canal new pricing strategy.





# Maritime Vessel Technology Trends

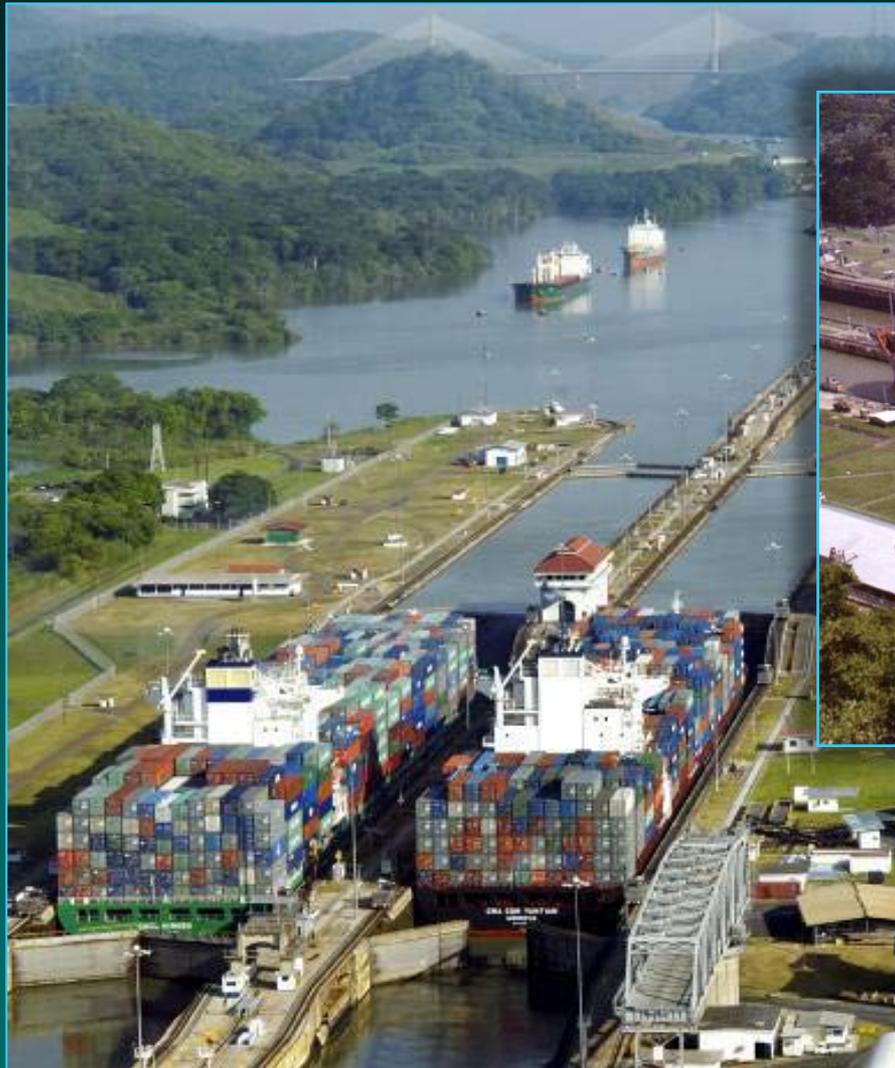
# World Container Ship Evolution



# Madison Maersk (3,928 TEUs)

## in the Panama Canal

(Current Max Panamax Vessel Approx. 4,800 TEUs)





**MAERSK**  
LINE, LIMITED

# February 2011: A.P. Moller-Maersk Orders 30 – 18,000 TEU Container Vessels “*Largest in the World*”



**23 Containers Wide – 9 Tiers Above the Hatch**

VICKERMAN  
& ASSOCIATES, LLC

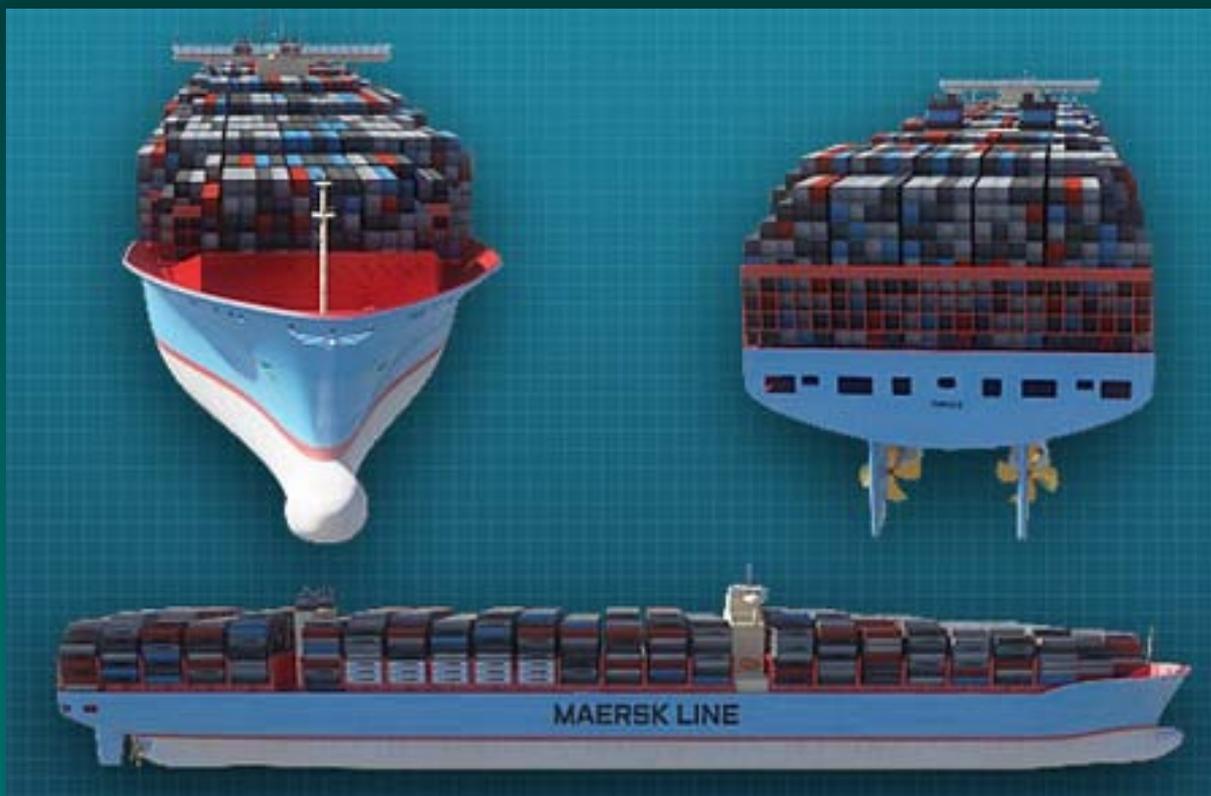
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**MAERSK**  
LINE, LIMITED

## February 2011: A.P. Moller-Maersk Orders 30 – 18,000 TEU Container Vessels “*Largest in the World*”

Daewoo Shipbuilding & Marine Engineering has won a **US\$2 billion** order from A P Moeller-Maersk to build **10 vessels of 18,000 TEU** capacity each. Daewoo is in talks with Maersk to build a **further 20 ships** of same capacity for a total order worth **\$6 billion**, Korean firm's biggest ever single order



Source: Cargoneews Asia – e-Cargo news Asia February 18, 2011

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ASSOCIATES, LLC

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# Future Container Vessel Characteristics:



*Capacity = up to **22,000 TEUs***

*Deck Stow: **23 wide** & 7- 9 Containers above hatch*

*Length = up to **1,445 ft** (4.5 Football Fields)*

*Beam = up to **194 ft***

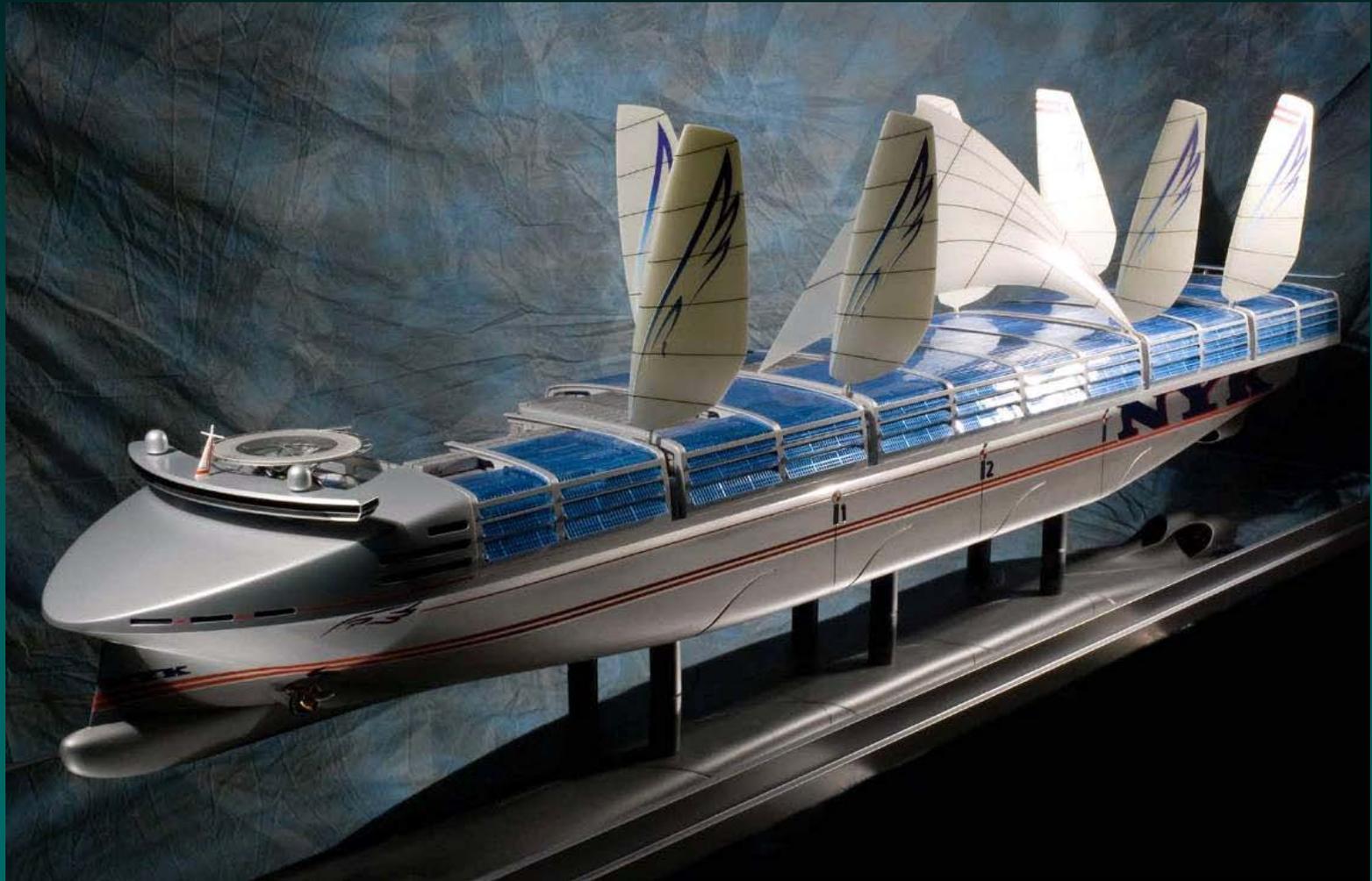
*Deadweight Tonnage = **220,000 Long Tons***

*Draft = up to **54 ft***

***Far Exceeds the 2014/15 Panama Third Lane Capacity***



# NYK Super Eco Ship





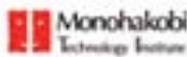
# NYK Super Eco Ship

## NYK Super Eco Ship 2030

Green Ship Design for the Future



Nominated for the  
**Clean Innovation** award  
at Nor-Shipping 2009





# Panama Canal 2014 Expansion: New Capacity



The Autoridad Del Canal de Panama

# Panama Canal Today



# ***Panama Canal Third Lane Expansion Circa December 2014/January 2015***



***The Panama Canal will more  
than Double Its Capacity by 2014***



The Autoridad Del Canal de Panama

# Post 2014 Panama Canal



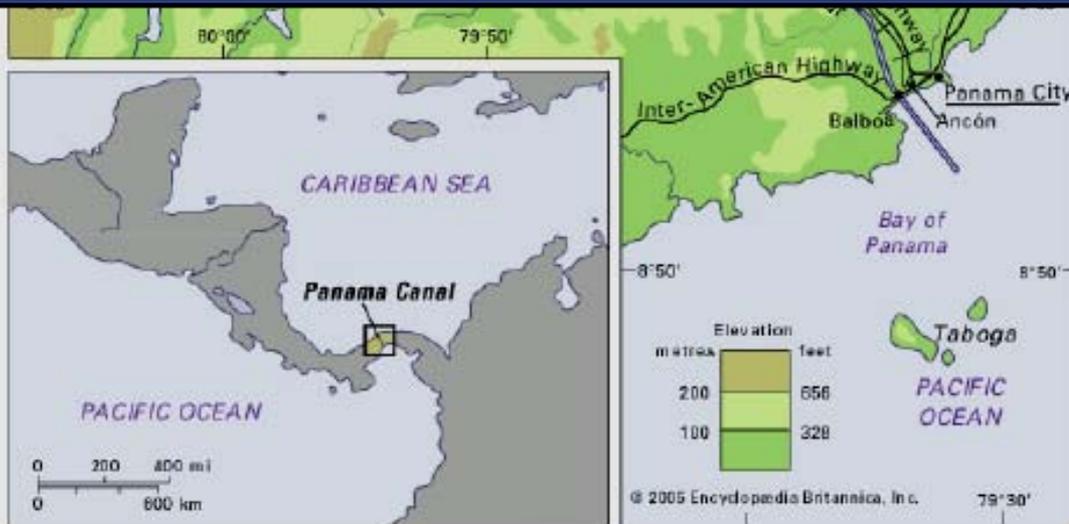
# Panama Canal Expansion



The Autoridad Del Canal de Panama

More than **14,000 ships** a year pass through the **50 mile**

**A \$5.25 Billion Investment in a 3<sup>rd</sup> Set of Locks Equating to 16% of Panama's National GDP**



Pacific Ocean & Caribbean Sea carrying **275 million tons of Cargo** and **\$100 billion in container shipping**

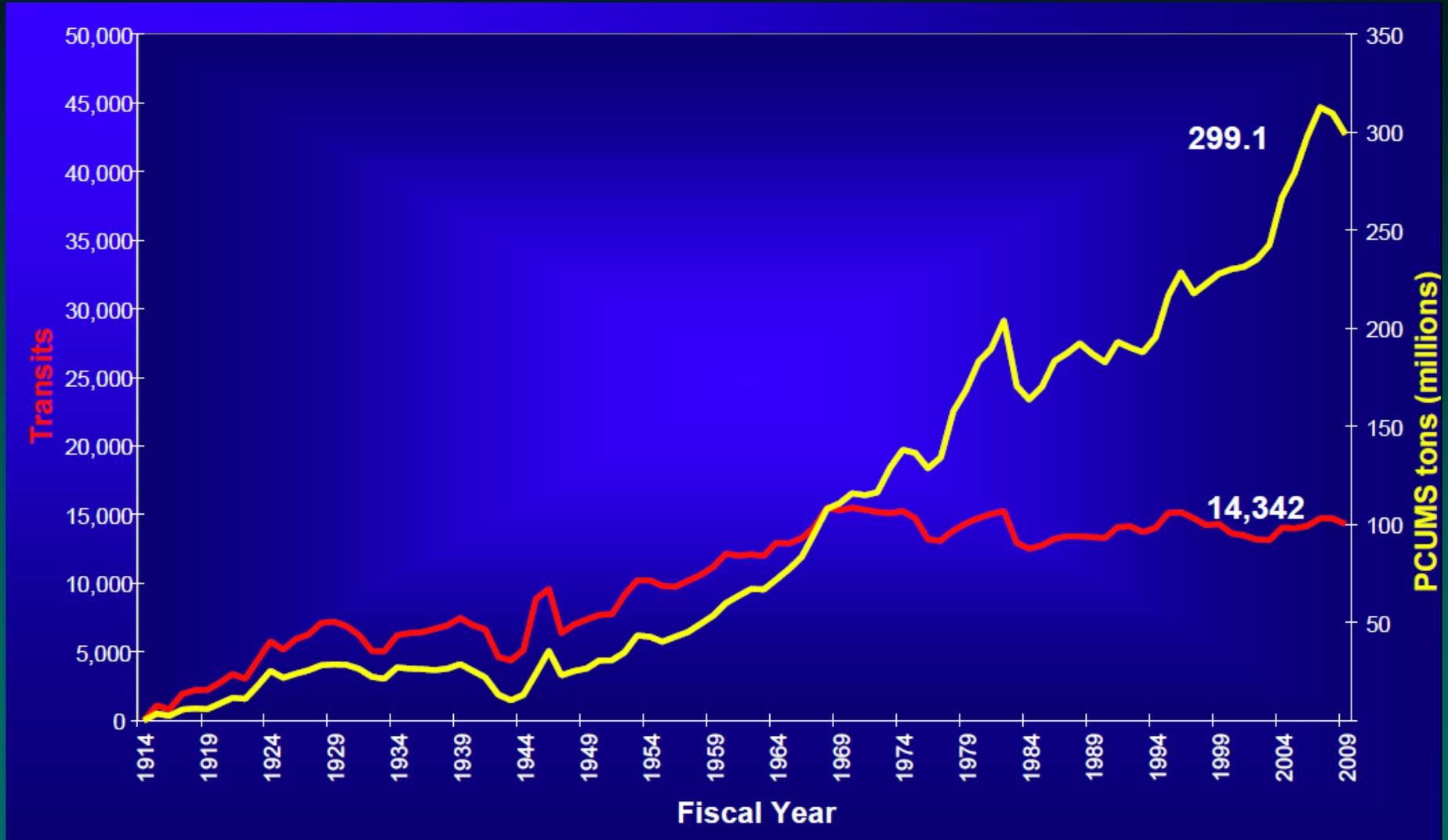
Source: ACP Data

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# Panama Canal Transit & Tonnage Traffic

(Transits and PCUMS Tonnage 1914 to 2009)



Source: ACP Data

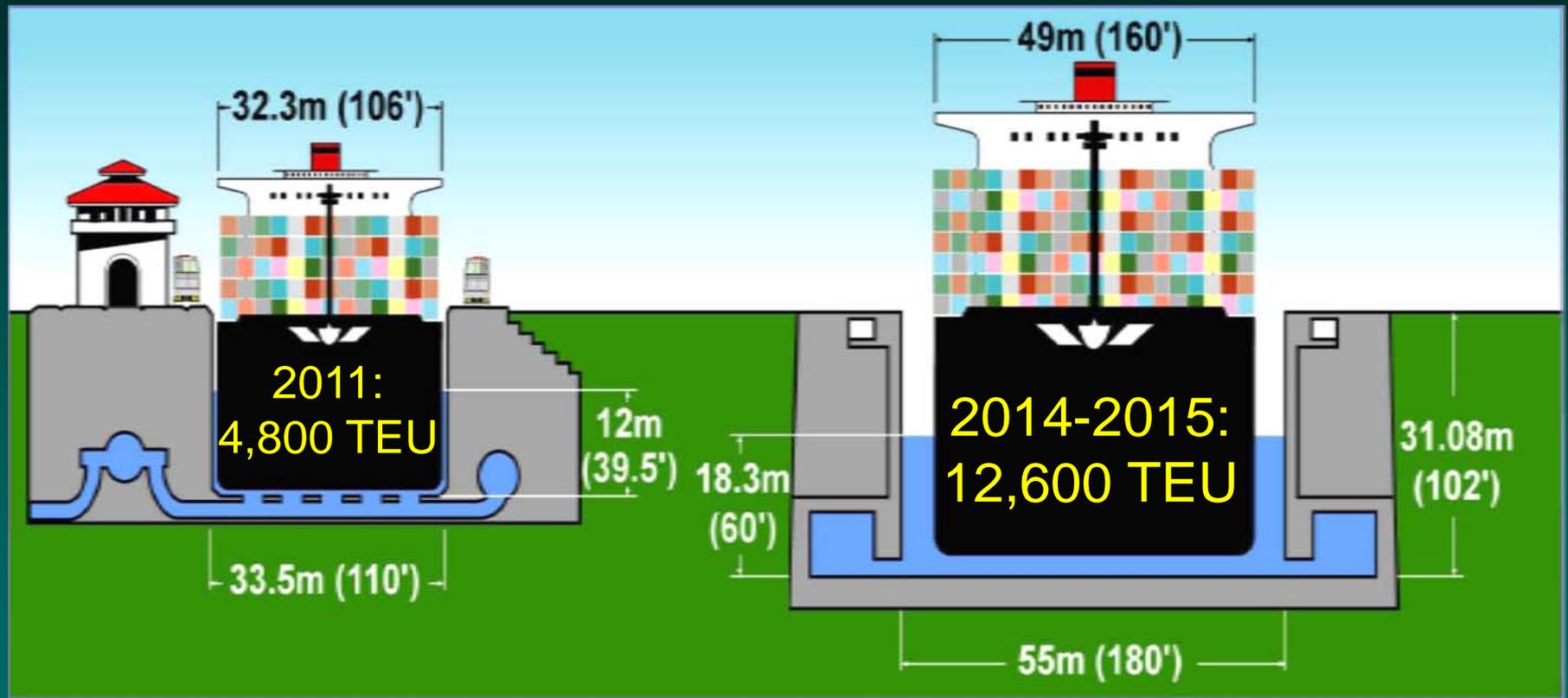
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The Autoridad Del Canal de Panama

# Panama Canal Third Lane Expansion Capabilities



Source: ACP Expansion Proposal

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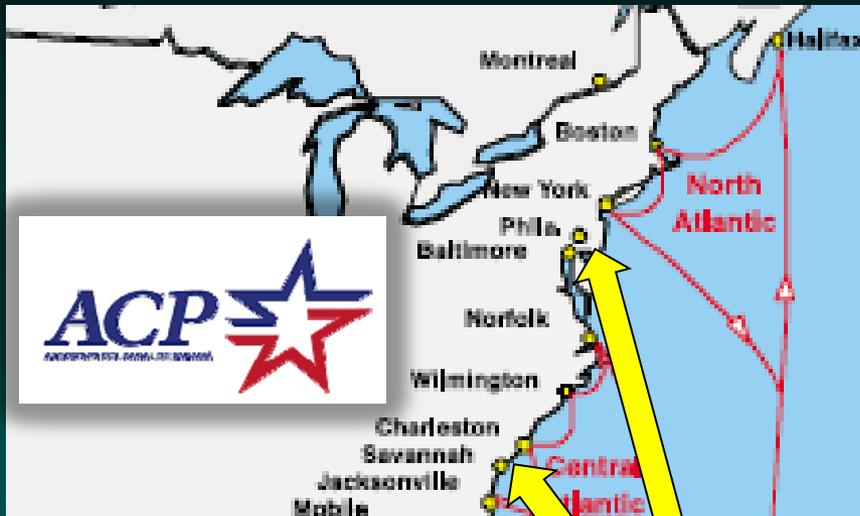
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# The New Post Panamax Capacity Favors All - Water Service Routes with the Following Vessel Characteristics:



- Vessel Capacity: **9,000 to 10,000 TEUs**
- Vessel Draft: **46 to 50 feet** (tropical fresh water)
- Required Port Channel Depths: **50 to 54 feet**
- LOA: **1,000 to 1,200 feet**
- Beam: **140 to 160 feet**

# Panama Canal Vessel Deployments Will Determine New US Logistics Patterns



*The Distance to  
New Orleans  
and Savannah Via  
the Panama Canal*

**A Competitive & Robust  
Landside Access to the Gateway  
Port's Inland Market will be a Key  
Success Factor!**



# Southeast Louisiana Asian Routing Comparison – Shanghai to New Orleans



Source: Parsons Brinkerhoff - Napoleon Avenue Container terminal Development

# Non-Transit Panama Canal “Feeder Services”

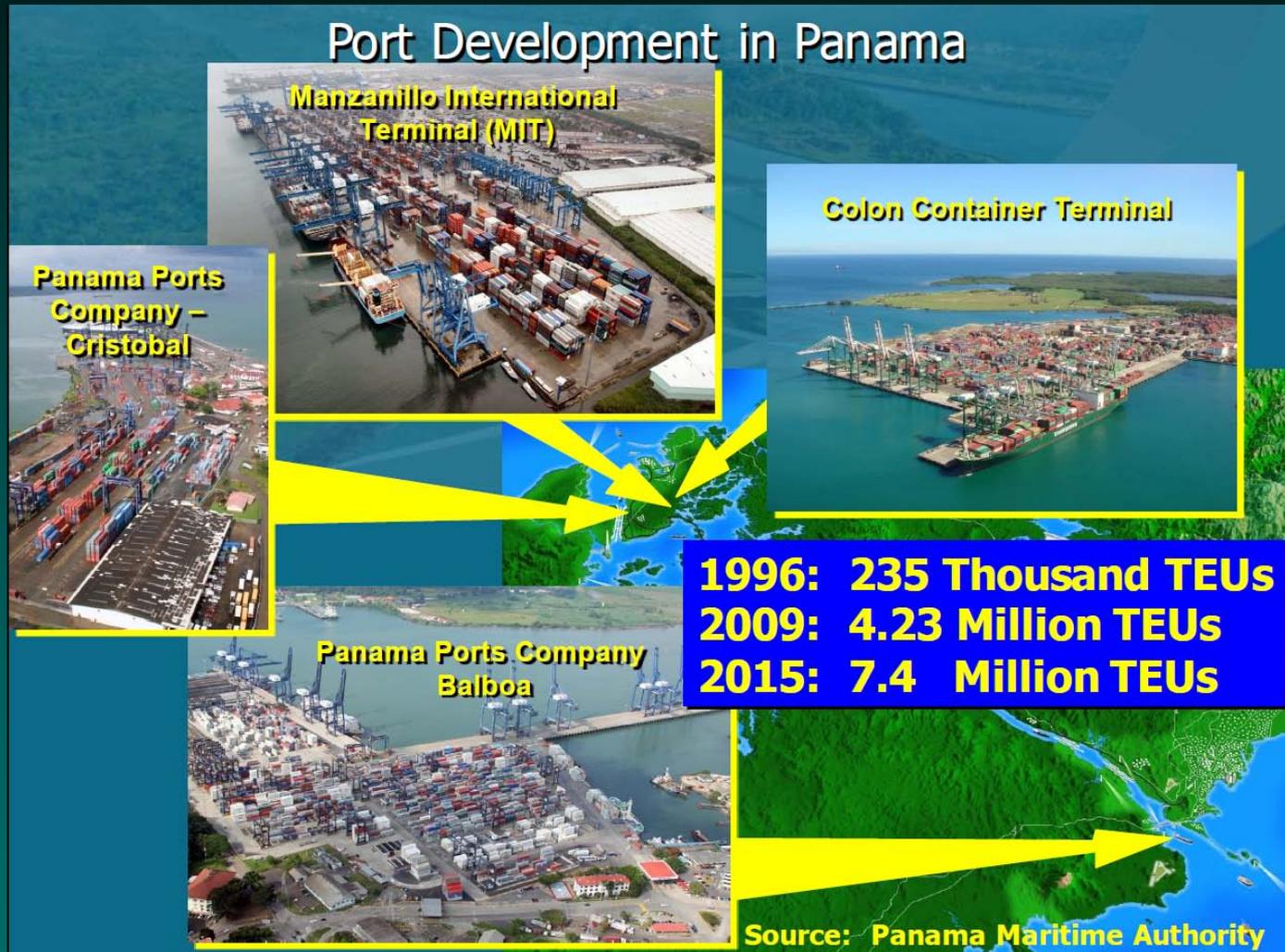
## May Be the Real Boom from the Canal Expansion



-  Weekly Through Transits
-  Feeder Services – No Transit

Source: ACP and Compare, 2008 Data

# Panama Maritime Authority Becomes A Major Transshipment Center



Source: Panama Maritime Authority



# Panama Canal Expansion: *Predictions & Impacts*

# The Primary North American Competitor to the Panama Canal is the Class I Rail Intermodal System

*(Potential Increased Service Offerings and System Capacity)*





# Post 2015 Expanded Canal: Predicting the Future Impacts for the US East & Gulf Coasts?

## IF:

- ✓ *West Coast Ports & Rail become/remain congested...*
- ✓ *East Coast Ports Accommodate the big ships...*
- ✓ *Canal Cost Remains Price Competitive with Suez...*
- ✓ *Cargo Trade Volumes Continue to Increase...*
- ✓ *Canal's infrastructure keeps pace with Growth...*

## Then:

- ✓ **Global Carriers will route as much traffic via the expanded Panama Canal as it can handle...**



# Post 2015 Expanded Canal: Predicting the Future Impacts for the US East & Gulf Coasts?

## IF:

- ✓ *Panama Canal Tolls are Set to Maximize Revenue and not Container Volumes...*
- ✓ *East Coast Ports **Can't** Accommodate the big ships – Channel Draft & Terminal Impacts...*
- ✓ *Class I Railroads Exert Their “Pricing Flexibility”...*
- ✓ *All-Water Time is not competitive for High Value Time Sensitive Intermodal Landbridge Cargo...*

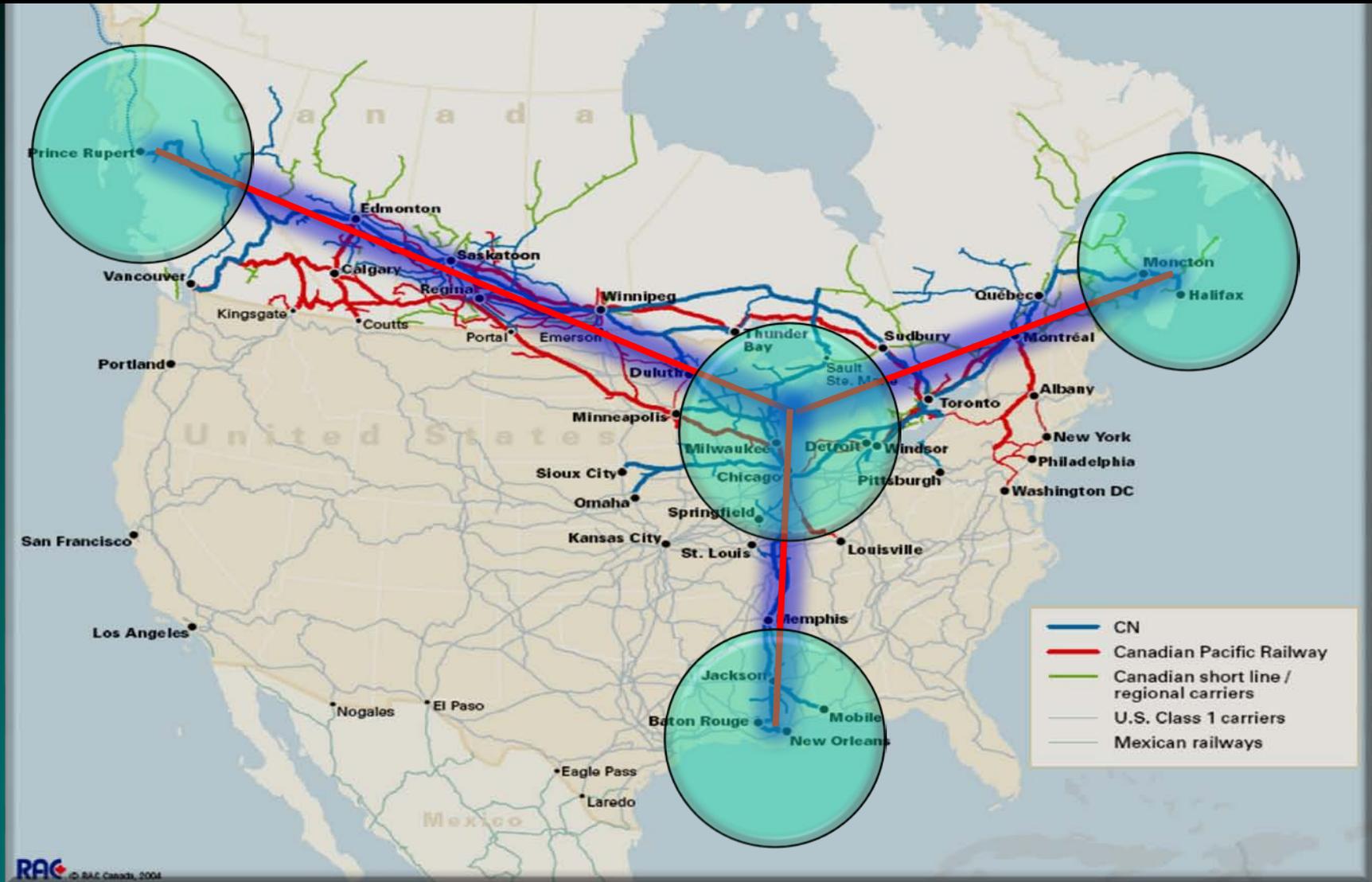
## Then:

- ✓ **The Panama Canal Market Shift to the East and Gulf Coast May Not Occur at All!**



# ***Emerging New East Coast Transportation Corridors***

# Canada's Intermodal Rail Network



# New Terminals Are Being Built on All Three Coasts to Support Asian & South American Trade Linkages



# Port of Prince Rupert Container Terminal



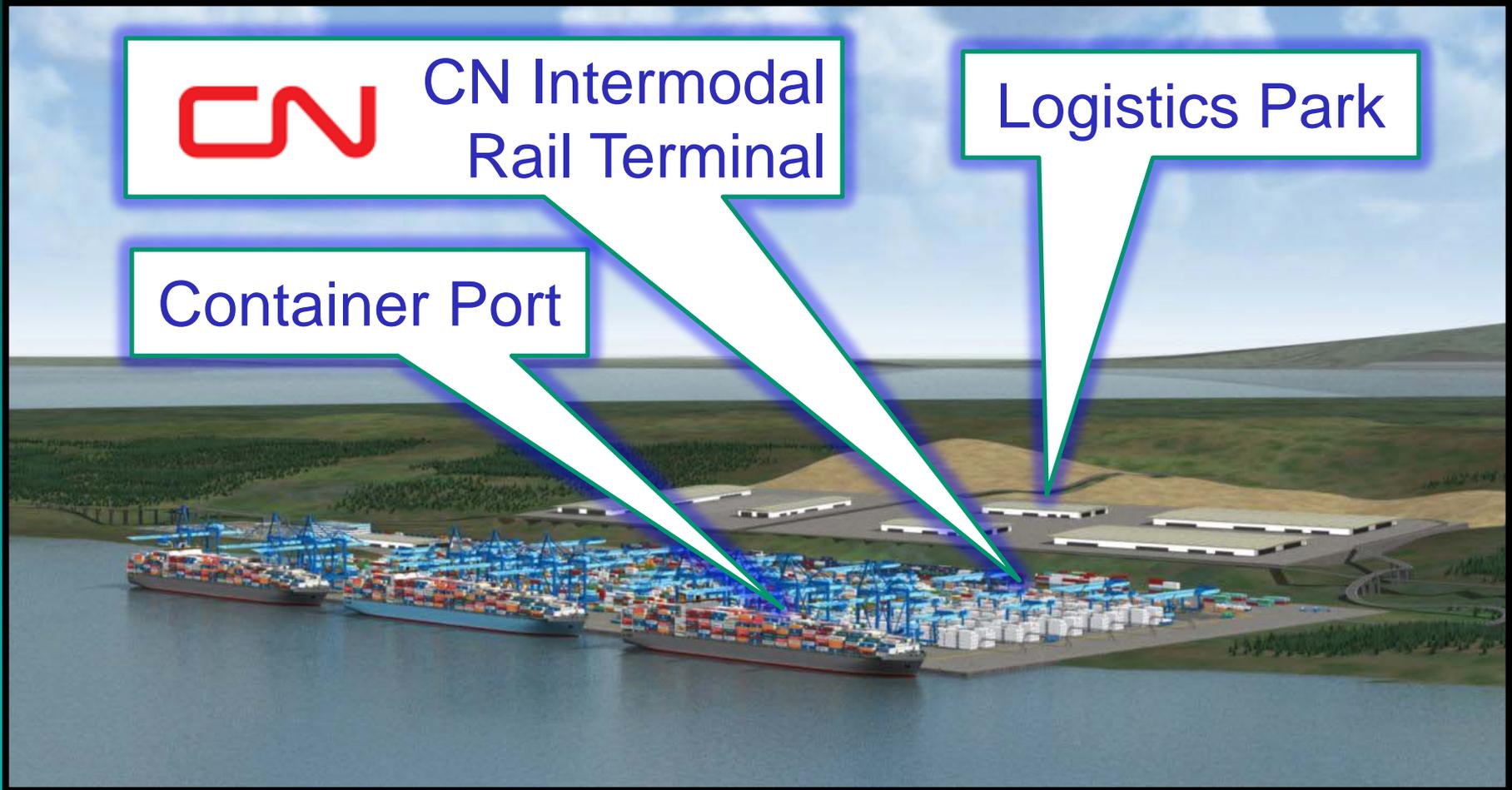
Port of Prince Rupert





# **Maheer Melford Automated Container Port & Intermodal Logistics Hub, Nova Scotia, Canada**

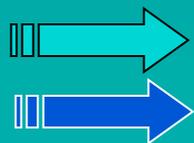
# Melford International Terminal Project Components



# Waterborne Feeder Service to Great Lakes Ports



## Great Lakes Short Sea Connections



Atlantic Maritime Trade Lane  
St. Lawrence Seaway Route



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**Maher Melford**

**Closest East Coast Port To  
Europe and the Suez:**

- **29 Hour Sailing  
Advantage on New York**
- **36 Hour Sailing  
Advantage on Norfolk**

\*Data SIO, NOAA, U.S. Navy, NGA, GEBCO

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© 2009 Tele Atlas

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*2011 WEDA Eastern Chapter Annual Meeting*



***Thank You***

*John Vickerman*



*Williamsburg, Virginia*