

2011 Executive Management Conference

Broadening Industry Awareness - Part One

Saddlebrook Resort, Tampa , FL

May 2, 2011



Planning for Future Transportation Realities

John Vickerman



Williamsburg, Virginia

BACK
TO
THE FUTURE

The image features the title "BACK TO THE FUTURE" in a highly stylized, three-dimensional font. The word "BACK" is positioned at the top and is rendered in a perspective view that recedes into the distance to the right. Below it, the words "TO" and "THE FUTURE" are stacked. "TO" is on the left, and "THE FUTURE" is on the right, also in a perspective view. The letters are filled with a gradient from red on the left to yellow on the right. Each letter has a thick blue outline and a black shadow, giving it a 3D effect. The background is solid black.

Functional Classification of Global Maritime Cargoes

All Maritime Cargo

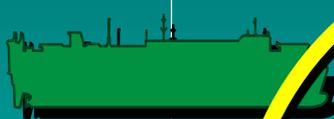
General Cargo

Bulk Cargo



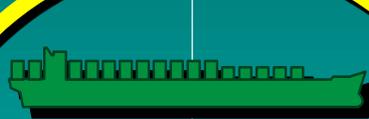
Break Bulk

Sacks, Cartons,
Crates, Drums,
Pallets, Bags



Neo-Bulk

Lumber, Paper,
Steel, Autos



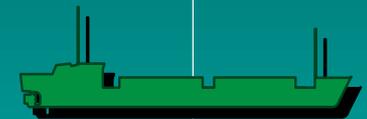
Containerized

Containers,
Lift On/Lift Off
(Lo/Lo),
Roll On/Roll Off
(Ro/Ro)



Liquid Bulk

LNG, Petroleum,
Molasses,
Chemicals,
Vegetable Oil



Dry Bulk

Grain, Sand &
Gravel, Scrap
Metal, Coal/Coke,
Clinker, Fertilizer

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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.



Our Quality of Life is Directly Related to Our Participation in Global Trade & Transportation



Relationship Between US Trade and US Prosperity – 1930 to 2005

(US Trade & Gross Domestic Product - \$ Billions)



Source: USDOT Based on USDOC Data

Vessel Cargo Handling Circa 1955





Cargo Handling Circa 2010

US Navy Fast Frigate Circa 2045



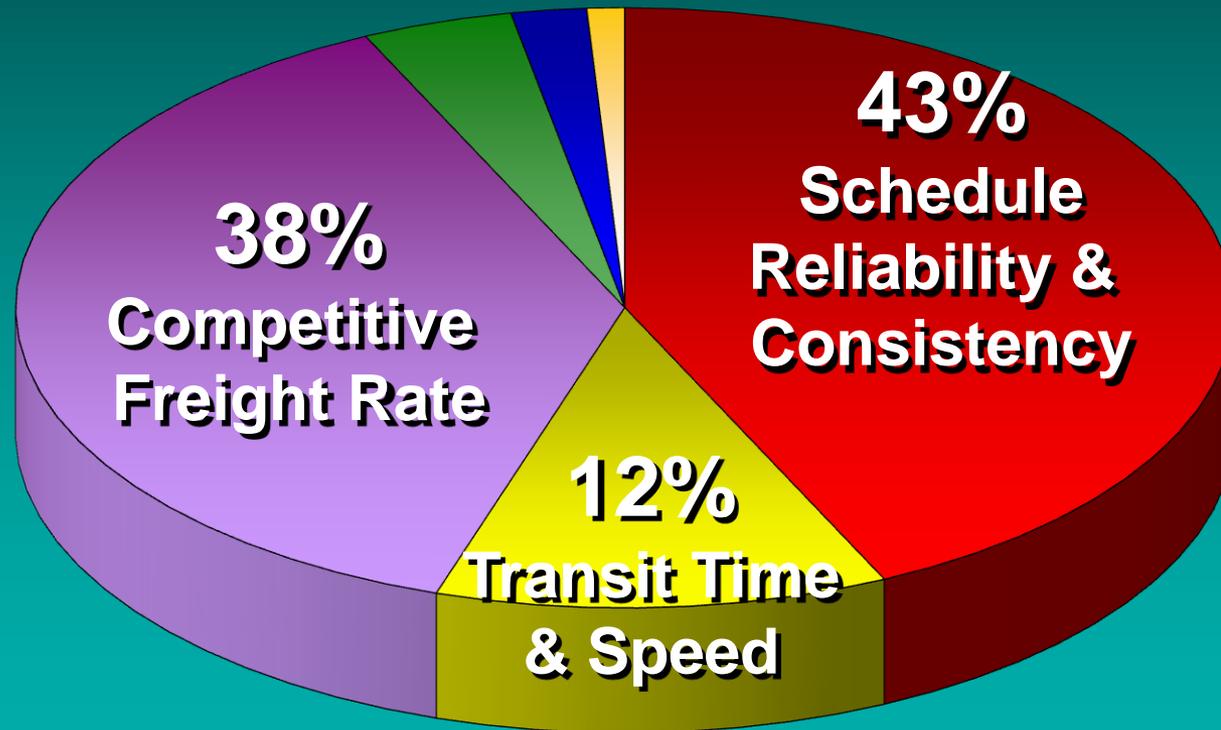


**What We Know
Today... Will Surely
Be Different
Tomorrow!**



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.”***

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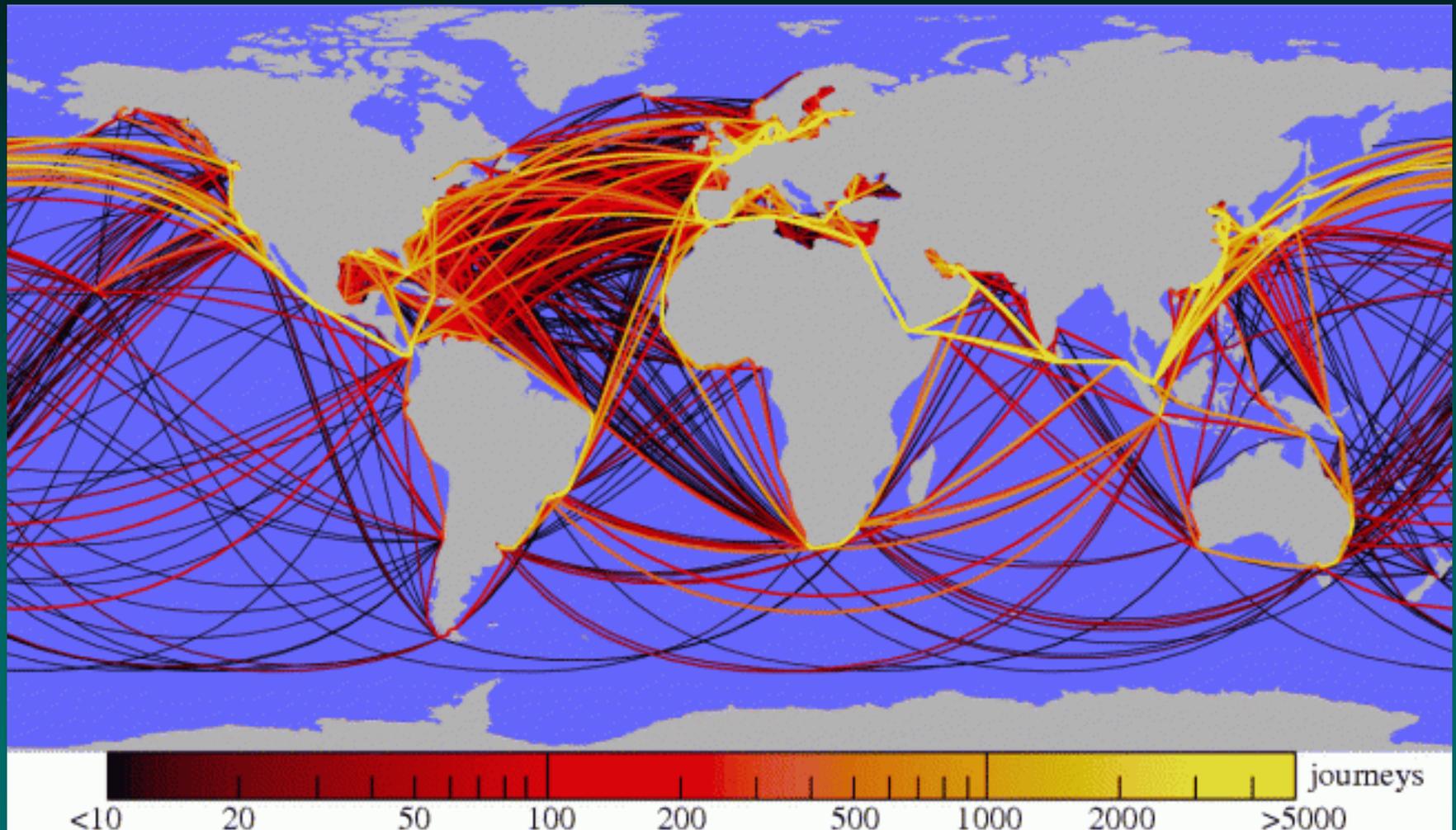
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Today's Trade Logistics Driving World Change

Global Shipping Routes Plotted by AIS GPS

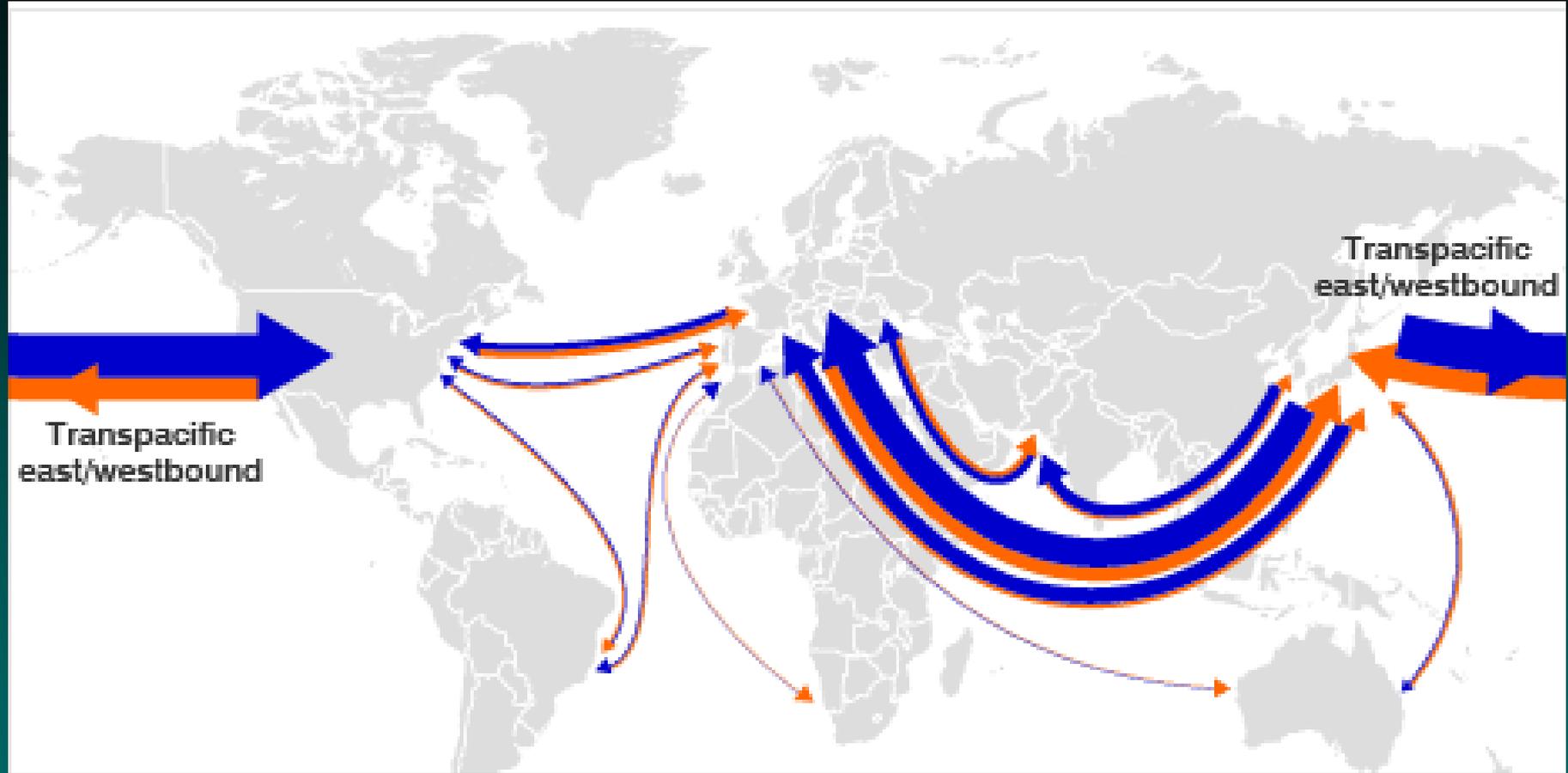
2010 Busiest Routes:

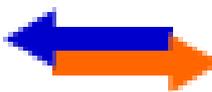
(1) Panama Canal, (2) Suez Canal, (3) Shanghai Port



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

Today's Main Container Shipping Routes

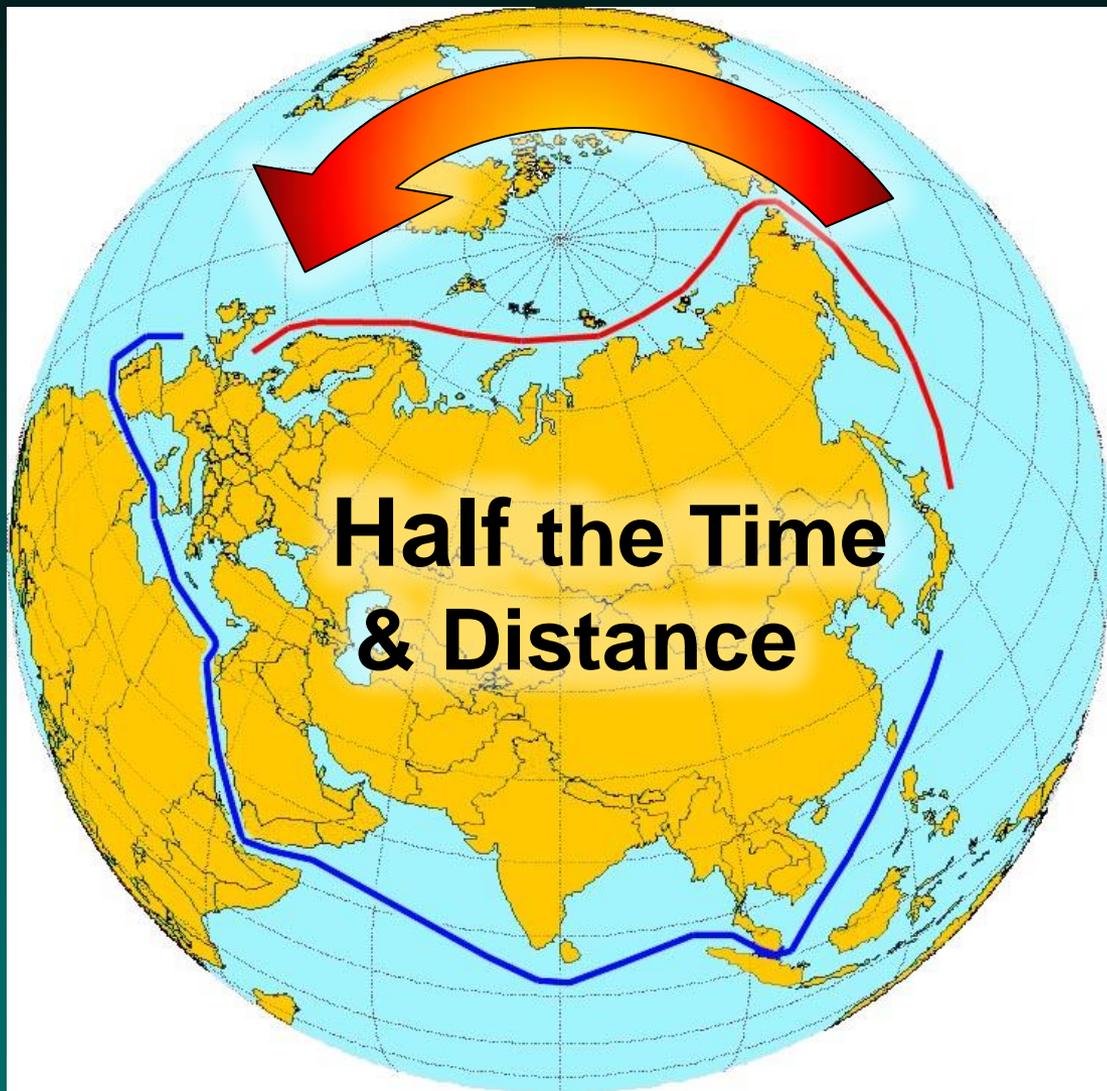


 5,000,000 TEUs (units based on volume of 20ft container)

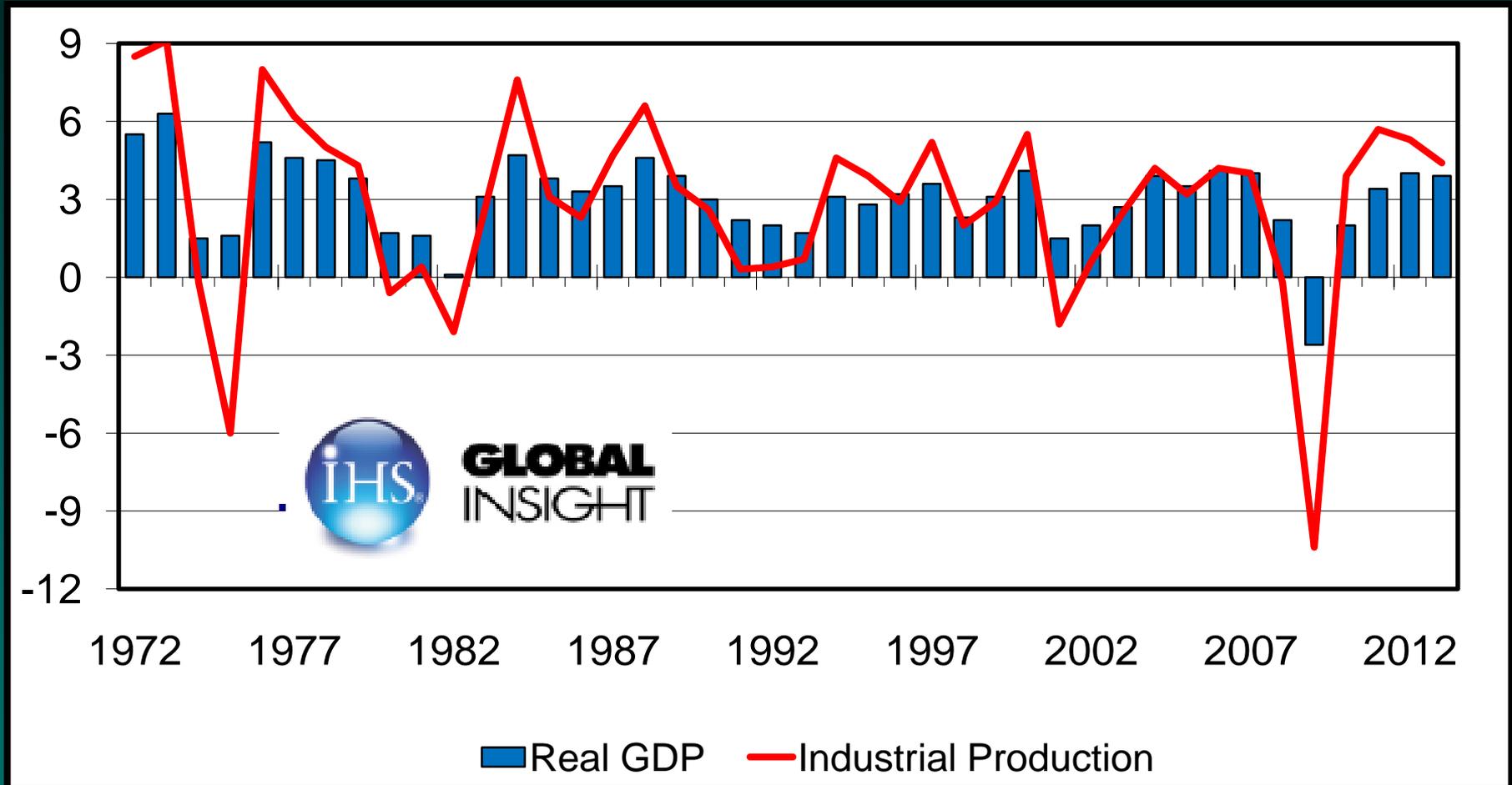
Source: Containerization International and MDS Transmodal

Shorter – Faster Arctic Ocean Route

2+ Months A Year Using Convoys

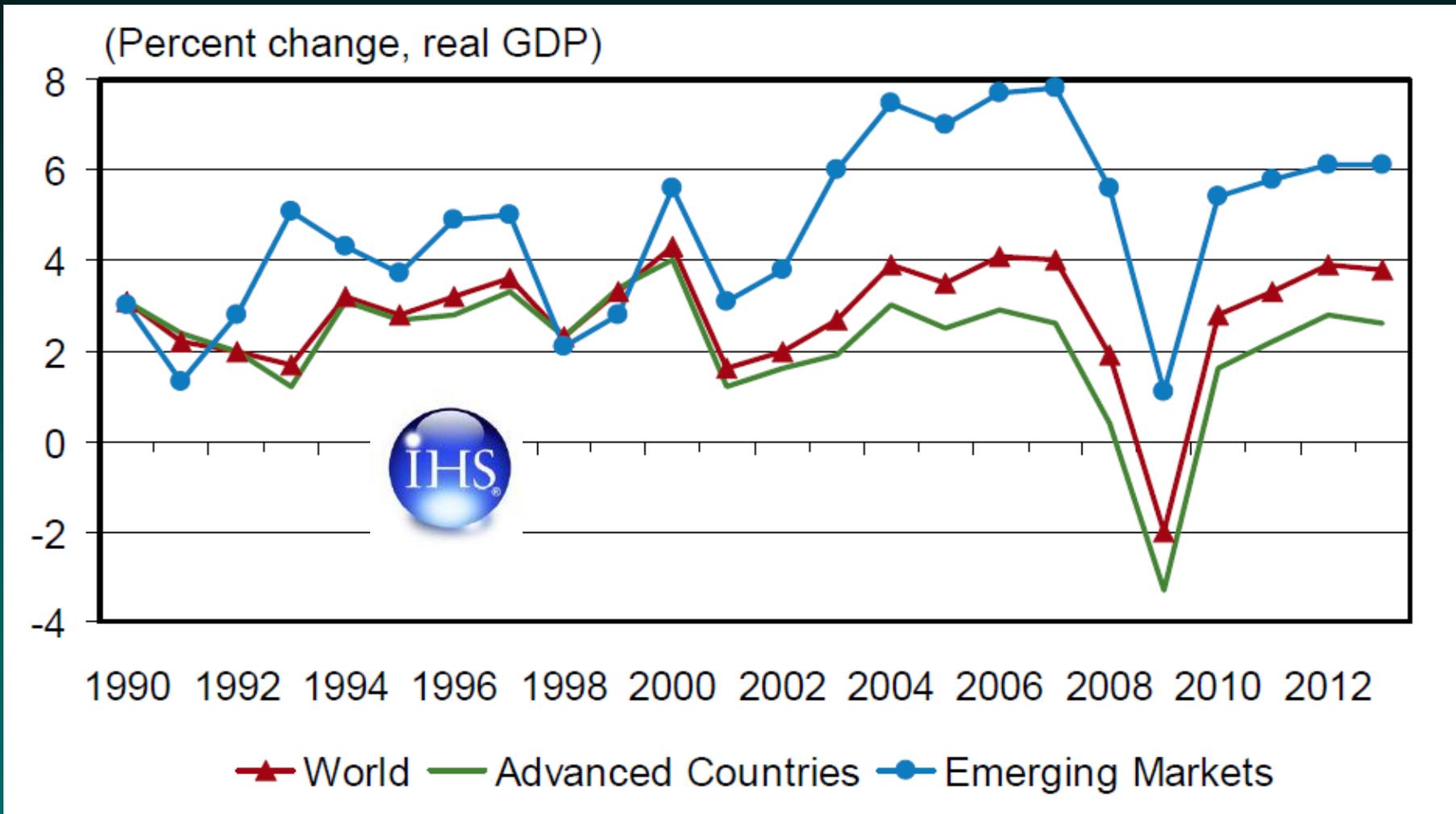


The World Economy Has Suffered the Worst Recession of the Postwar Era (Percent Change)



Source: IHS Global Insight

Emerging Markets Lead the Global Recovery



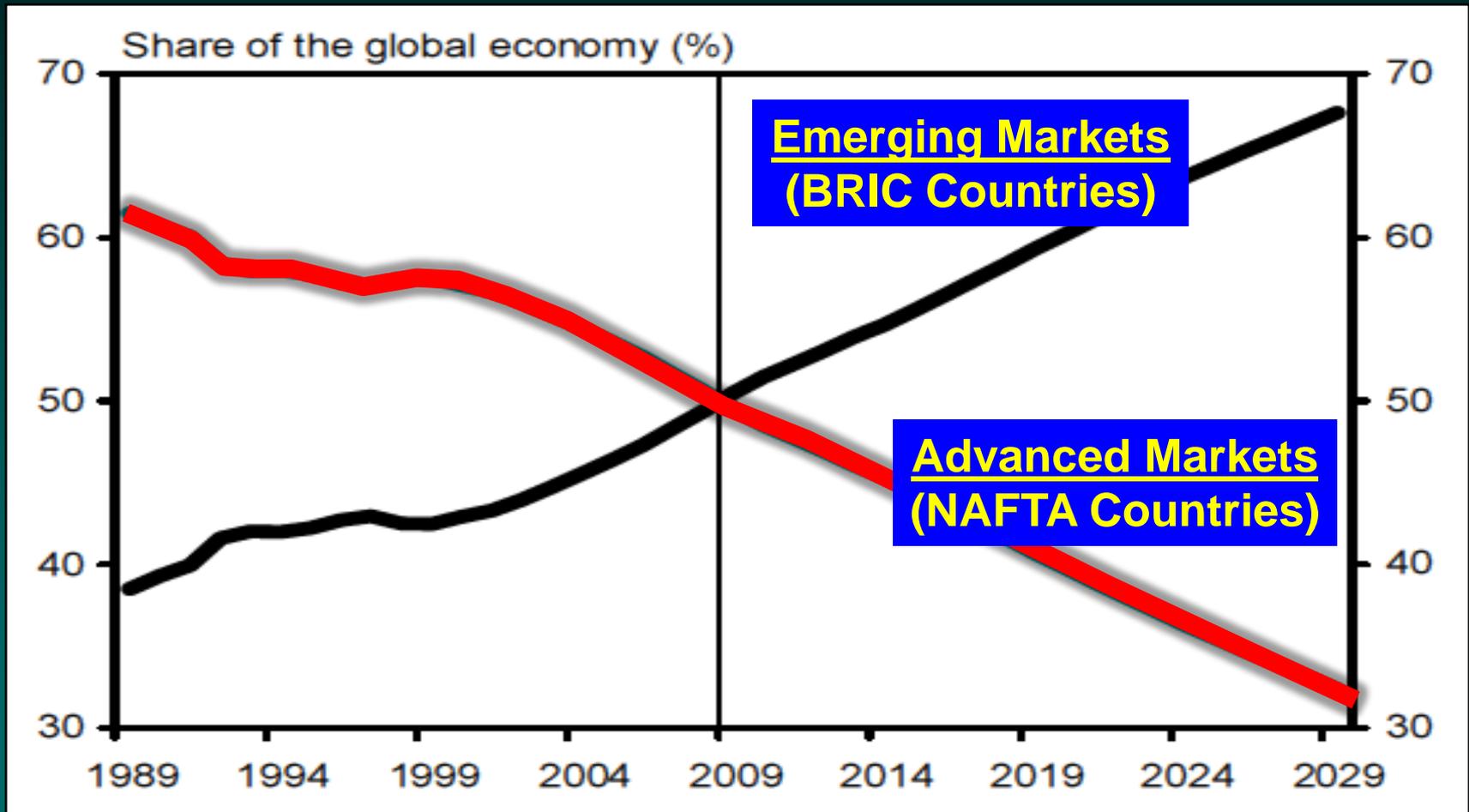
Source: HIS Global Insight – World Trade Service

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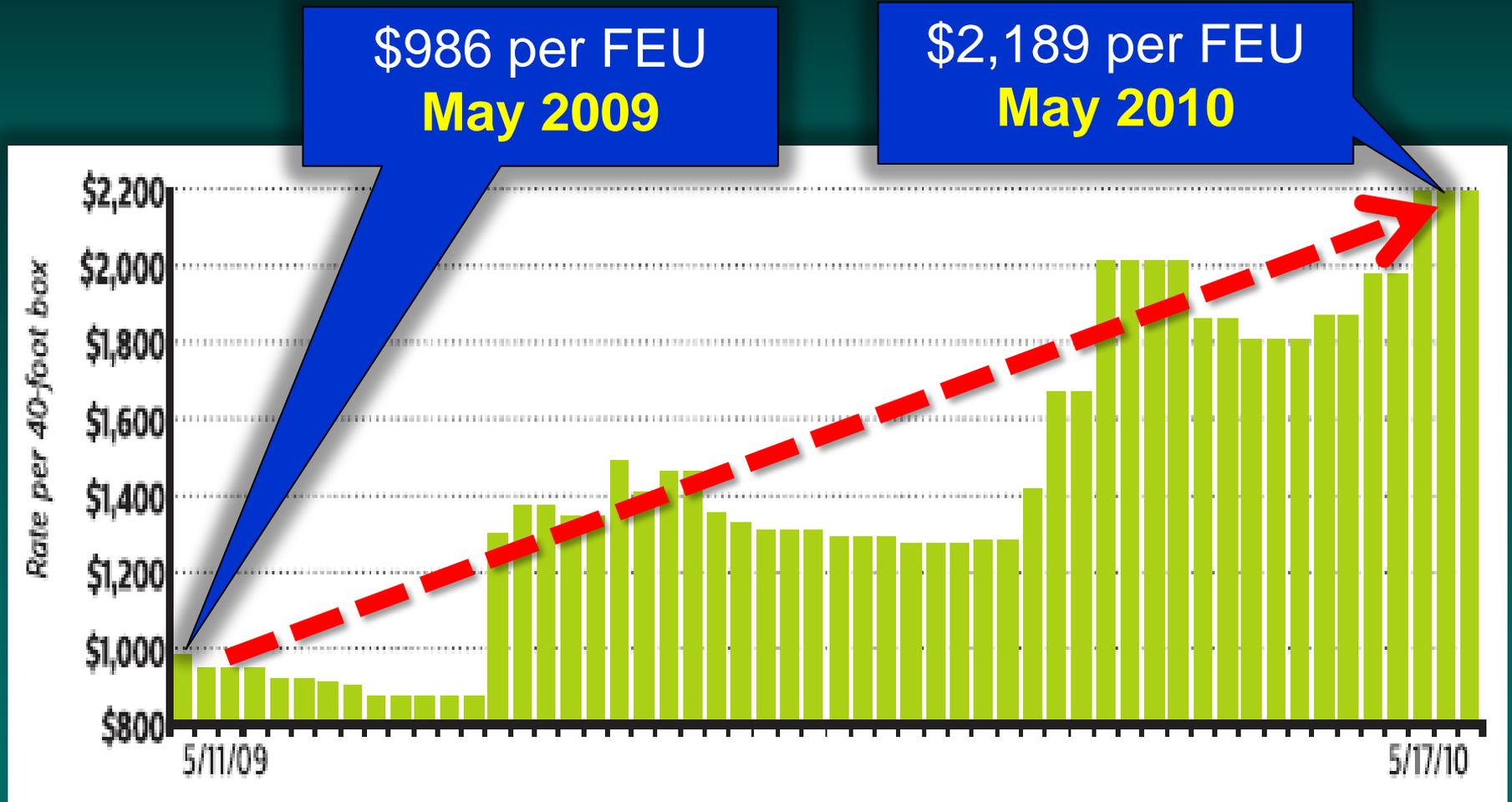
A Turning Point in Global Economic History

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

2009 - 2010 Container Rate Benchmark (Average FEU Spot Rate in US Dollars)



Source: Drewry Shipping Consultants , Journal of Commerce May 24, 2010

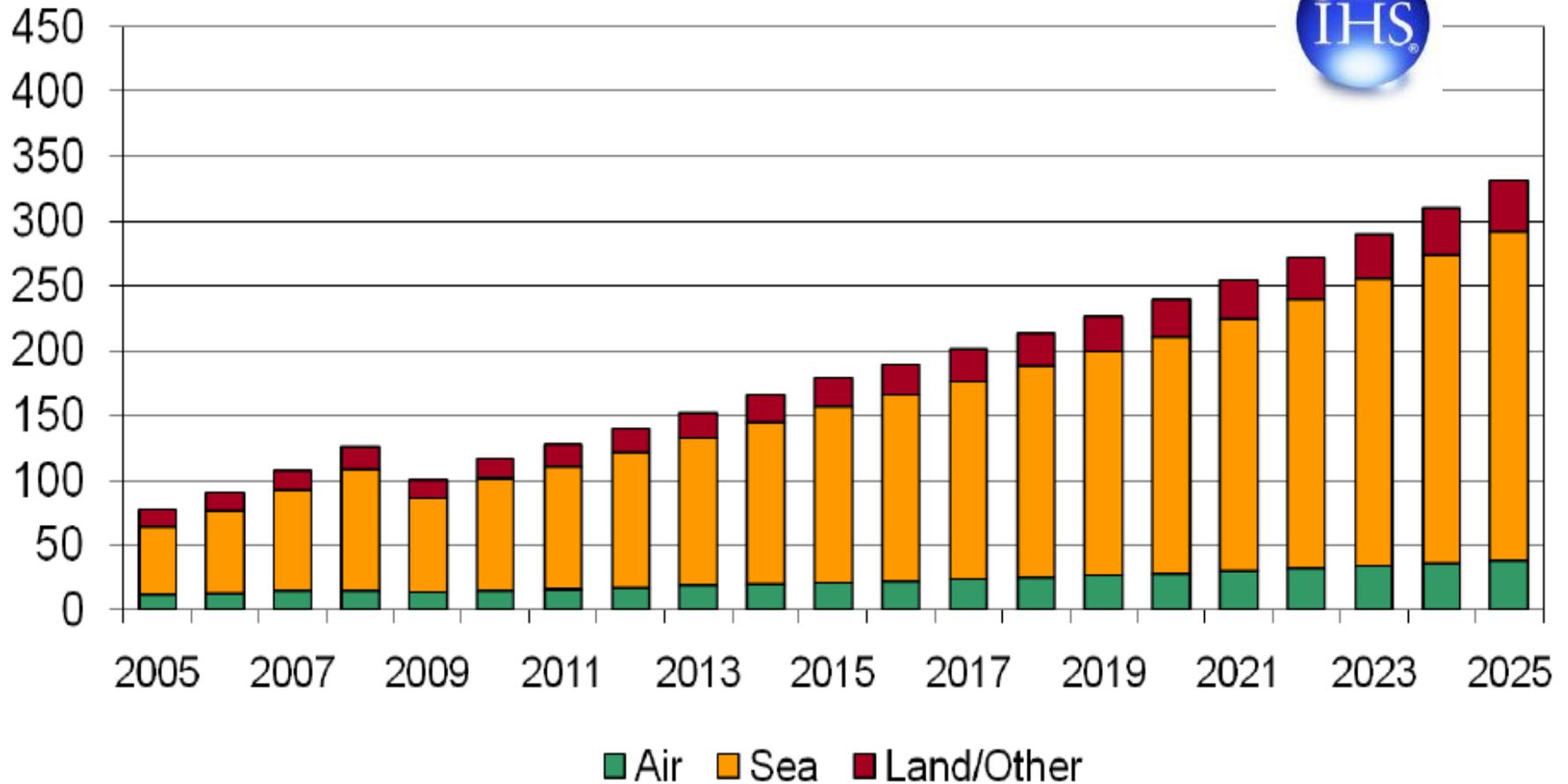
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Growth in Global Merchandise Trade

(Intra Europe Trade Excluded)

(Trillions of U.S. dollars)

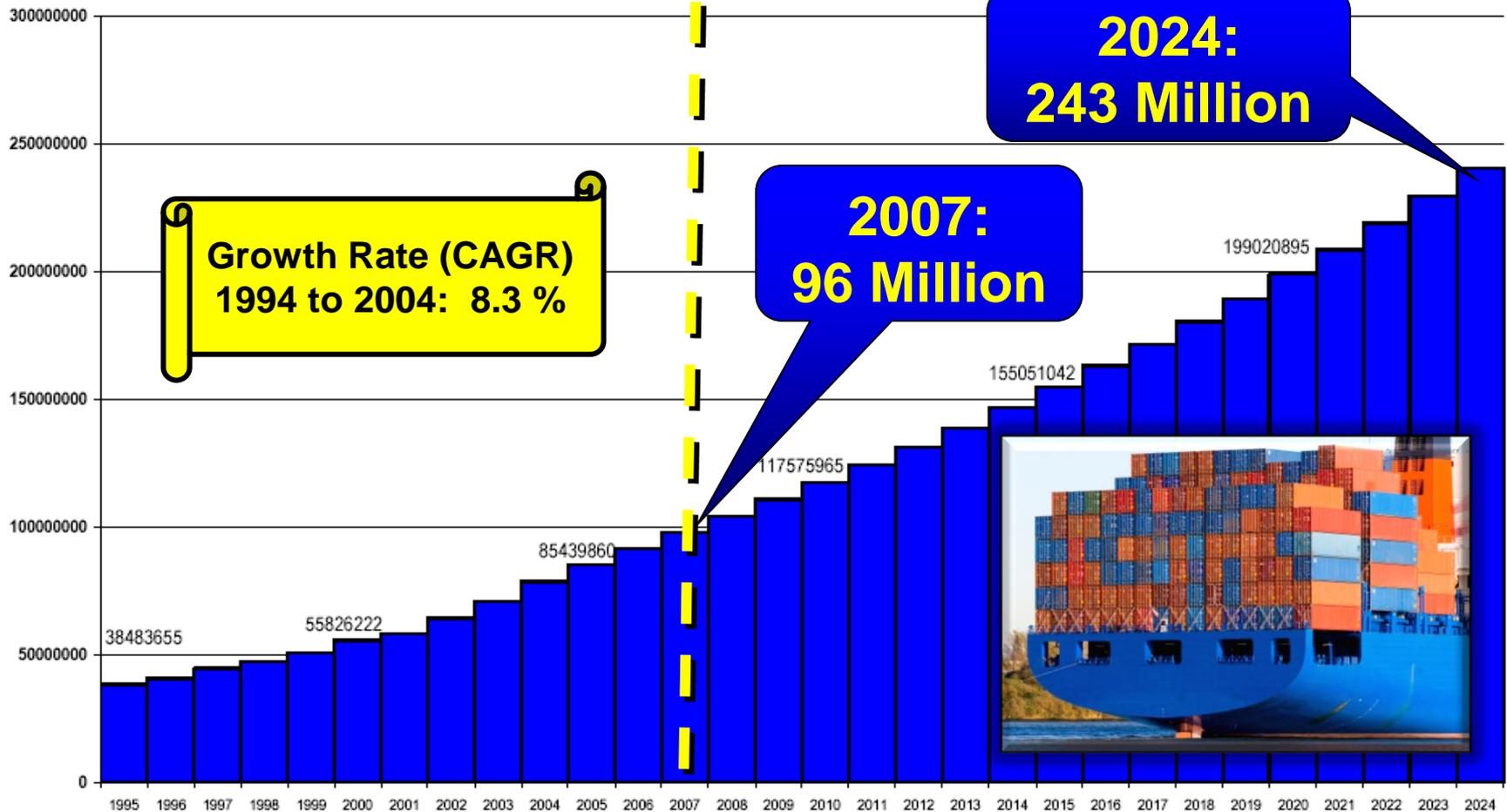


Source: HIS Global Insight – World Trade Service

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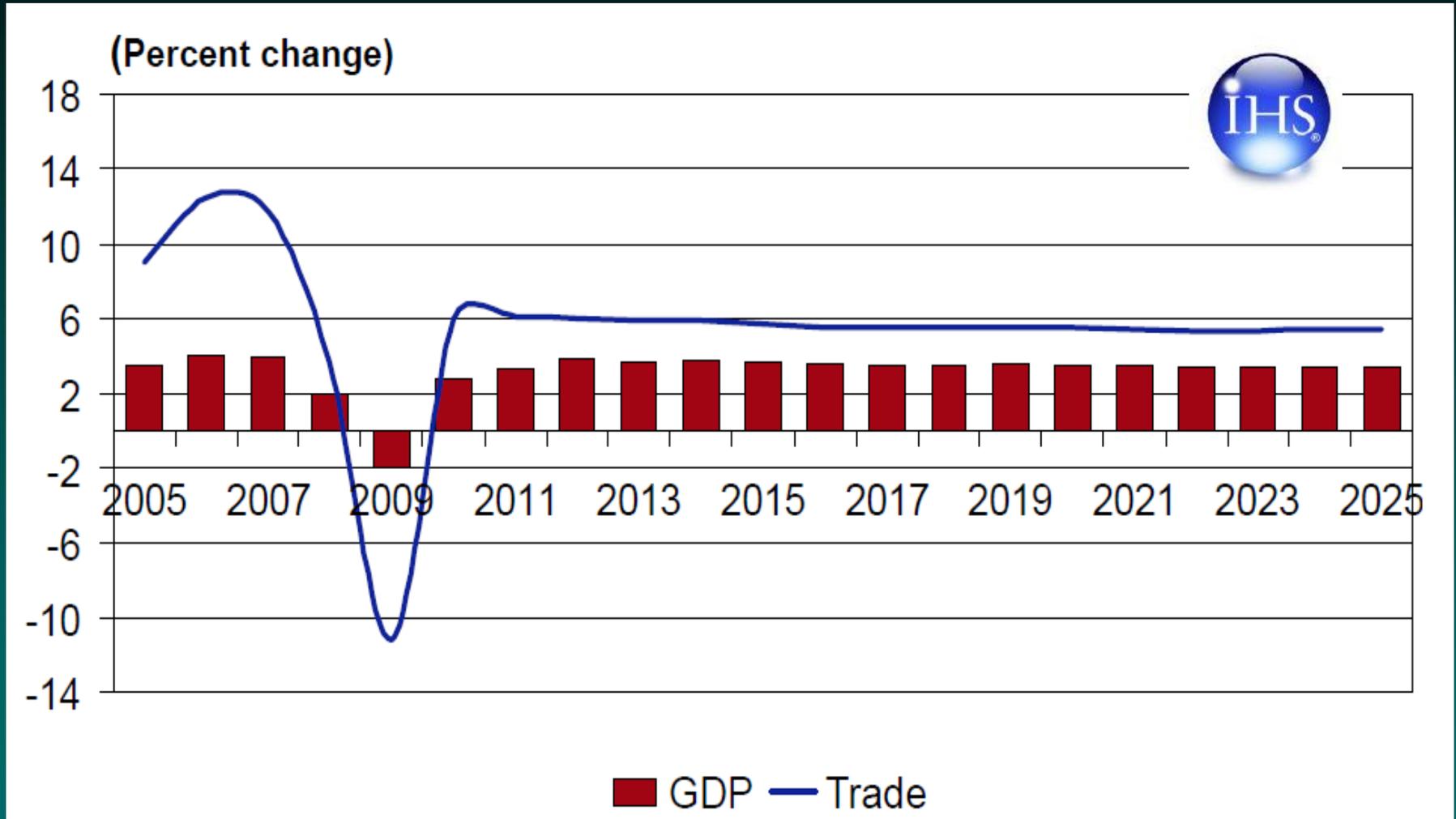
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World Container Forecast to 2024 in TEUs (186% Increase in Next 20 Years)



Source: Global Insight

World Trade Typically Grows Faster Than Real GDP



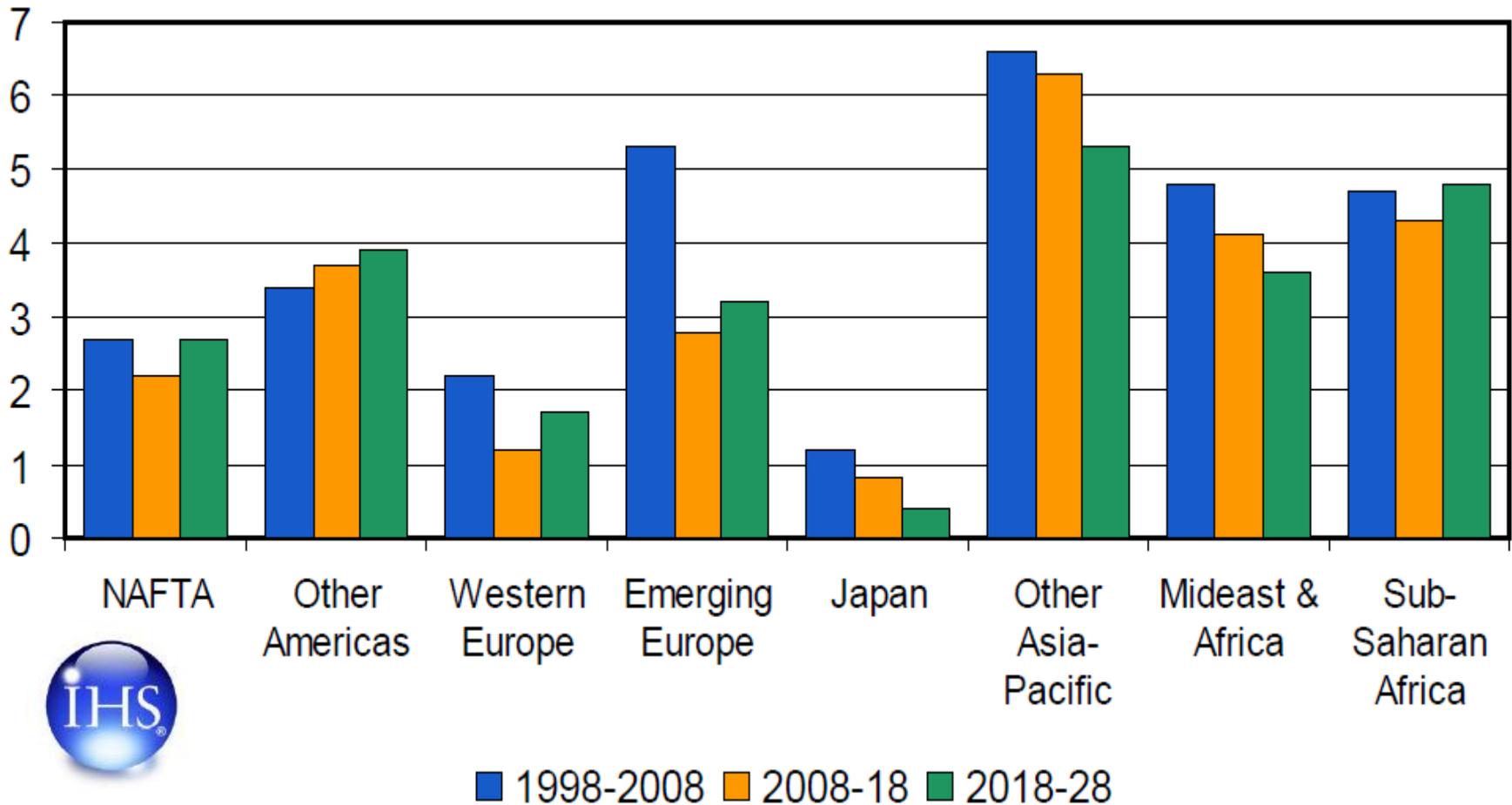
Source: HIS Global Insight

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Long Term World Economic Growth by Region

(Real GDP, annual percent change)



Source: HIS Global Insight – World Trade Service

The World's Top 20 Ports Posted a 15.1% Volume Growth in 2010 (2009 Rank in Brackets)

Rank	Port	Mteu(Change)
1 (2)	Shanghai	29.07 16%
2 (1)	Singapore	28.43 10%
3 (3)	Hong Kong	23.53 12%
4 (4)	Shenzhen	22.51 23%
5 (5)	Busan	14.21 19%
6 (6)	LA/LB	14.10 19%
7 (9)	Ningbo	13.14 25%
8 (7)	Guangzhou	12.55 12%
9 (10)	Qingdao	12.01 17%
10 (8)	Dubai	11.60 4%
11 (11)	Rotterdam	11.14 14%
12 (12)	Tianjin	10.08 16%
13 (13)	Kaohsiung	9.18 7%
14 (14)	Port Klang	8.87 21%
15 (15)	Antwerp	8.47 16%
16 (16)	Hamburg	7.94 13%
17 (17)	Tg Pelepas	6.53 8%
18 (18)	Xiamen	5.82 24%
19 (20)	Dalian	5.24 15%
20 (19)	Laem Chabang	5.19 12%

2010: 260 Million TEUs

2009: 226 Million TEUs

*This Recovery Reflects the Rebound in Global Container Trade Due Primarily to **Intra-Asia Volumes** and Supply Chain Inventory Restocking.*



US Ports



Chinese Ports

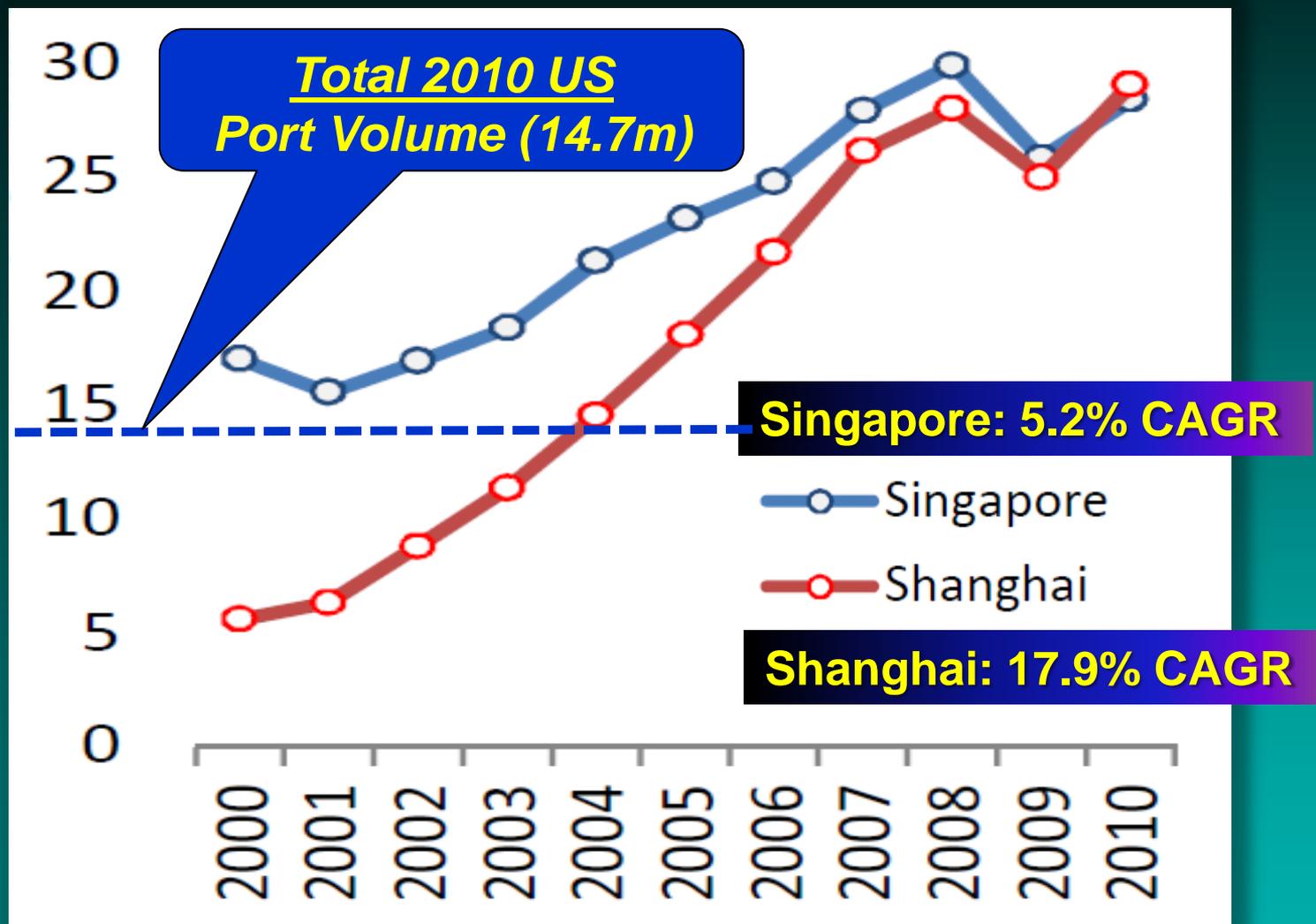
China Breaks Container World Record

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



Source: Alphaliner Newsletter Volume 2011 Issue 2

Full Global Recovery:

Singapore-based PSA posted a 14.4 percent increase
in throughput in 2010

65.12 million TEUs handled by the PSA Group,
a new record for the Singapore (4.4 x total US volume)



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The Astounding Ocean Marine Carrier Industry Comeback

**2009 Carrier Losses:
Container Ocean Carriers Suffered
\$52 Million/Day Average Loss**

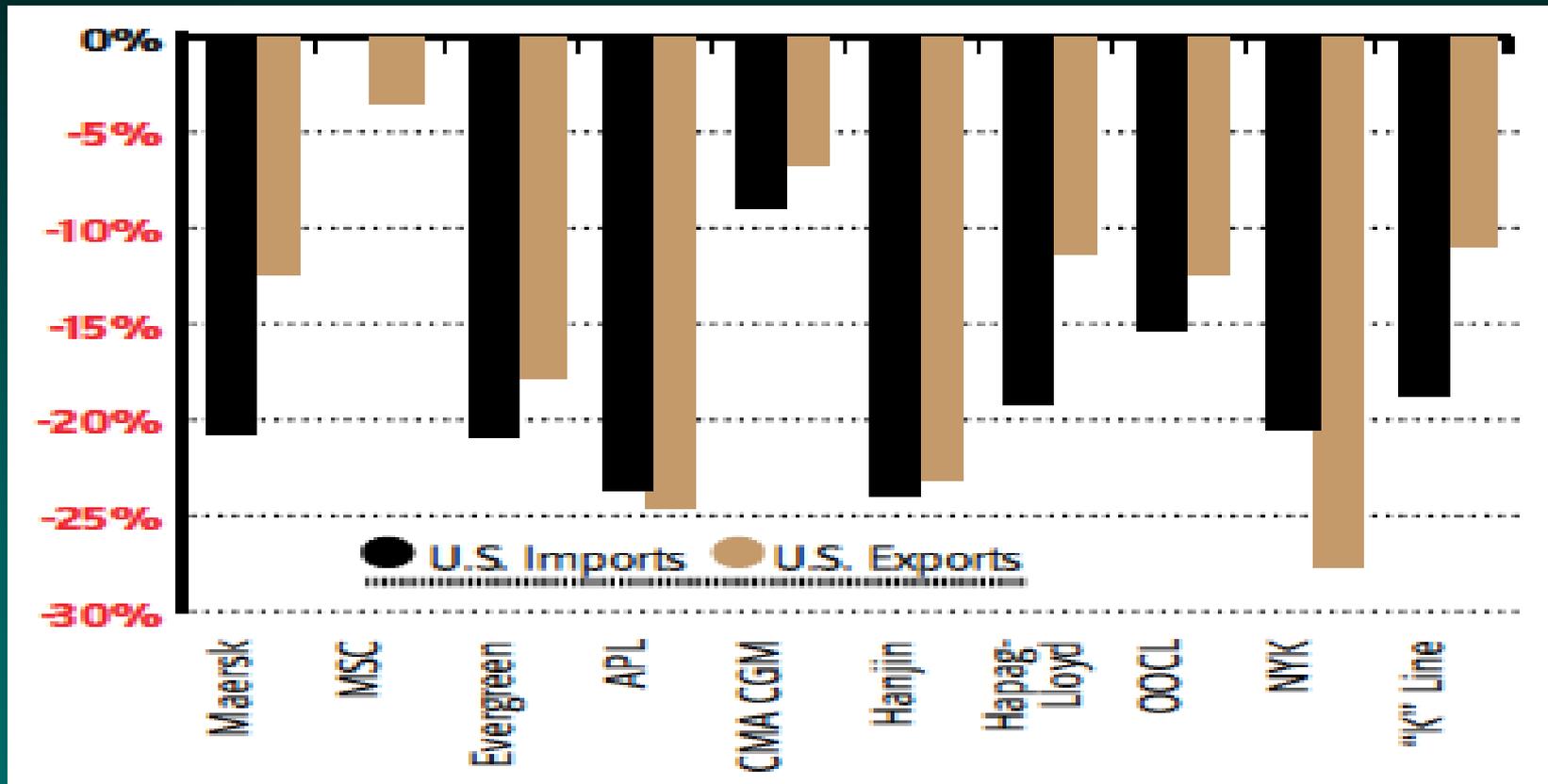
**Shoals of Red Ink:
\$19 Billion in Losses in 2009**





In 2009 the Ocean Carriers Lost \$10 Billion Every Six Months

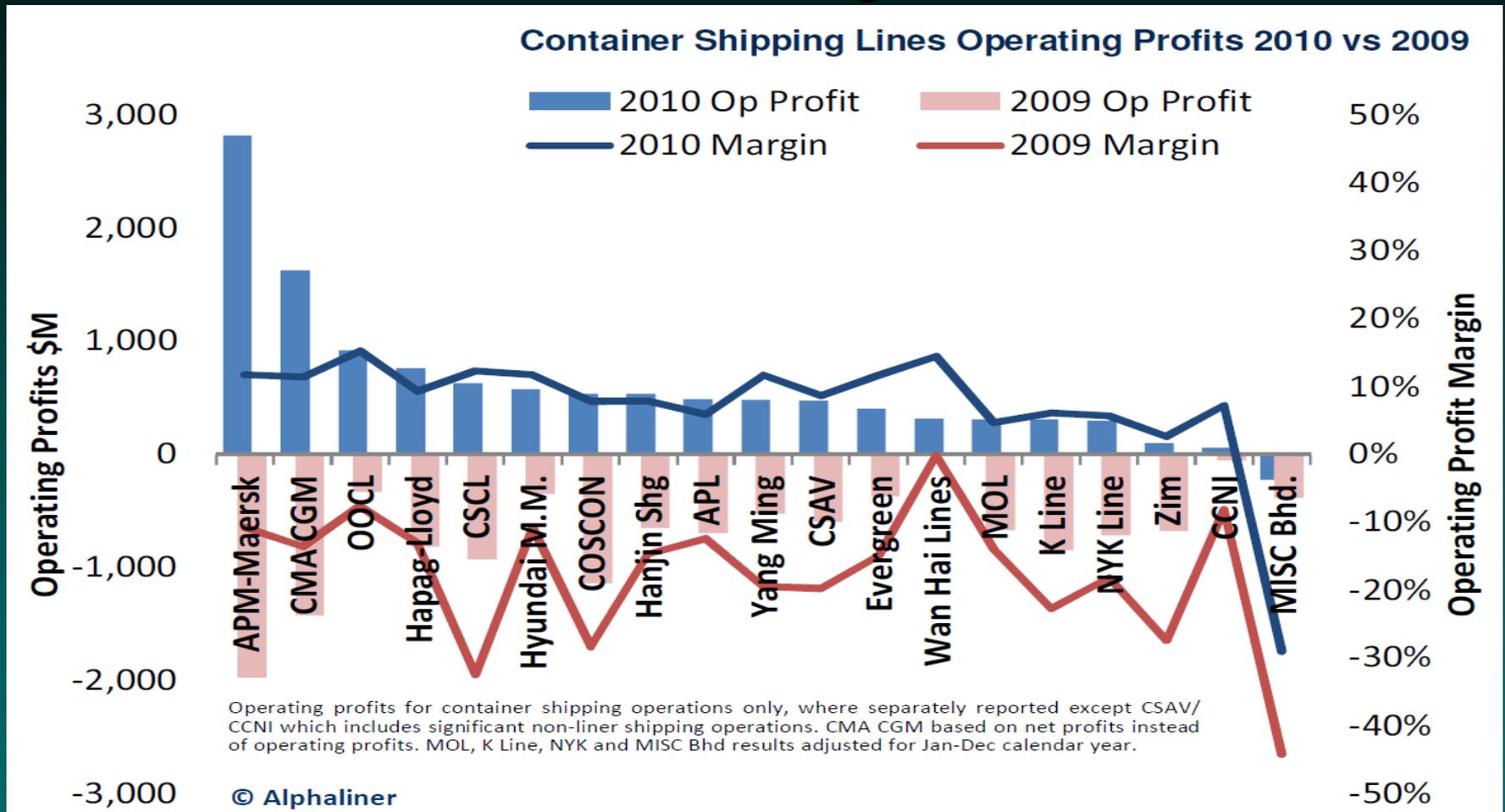
Jan-Sept 2009 vs 2008



Note: MSC's US Import Volume was Flat Through the First Nine Months of 2009

Source: JOC Top 40 Container Lines, PIERS Global Intelligence Solutions

2010: Container Carriers Most Profitable Performance in History - \$14B in Profit

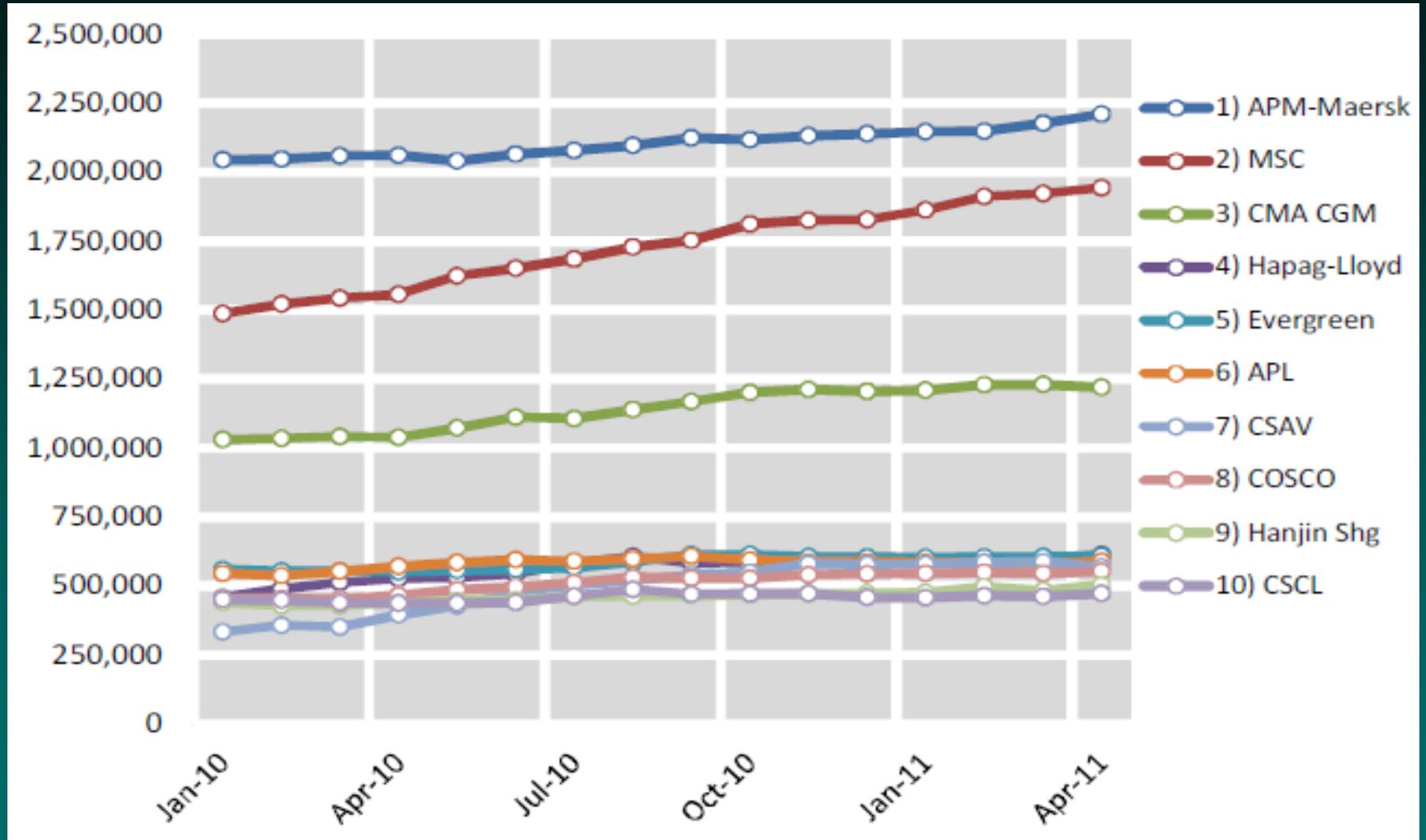


2010: Total Revenues Rising 42%; Total Container Handlings Increased by 14%; Freight Rates Increased 26%

Source: Alphaliner Newsletter Volume 2011 Issue 16

2011 Top Containership Carriers

(Monthly Change in Operating Capacity (TEUs))



Source: Alphaliner Newsletter Volume 2011 Issue 16

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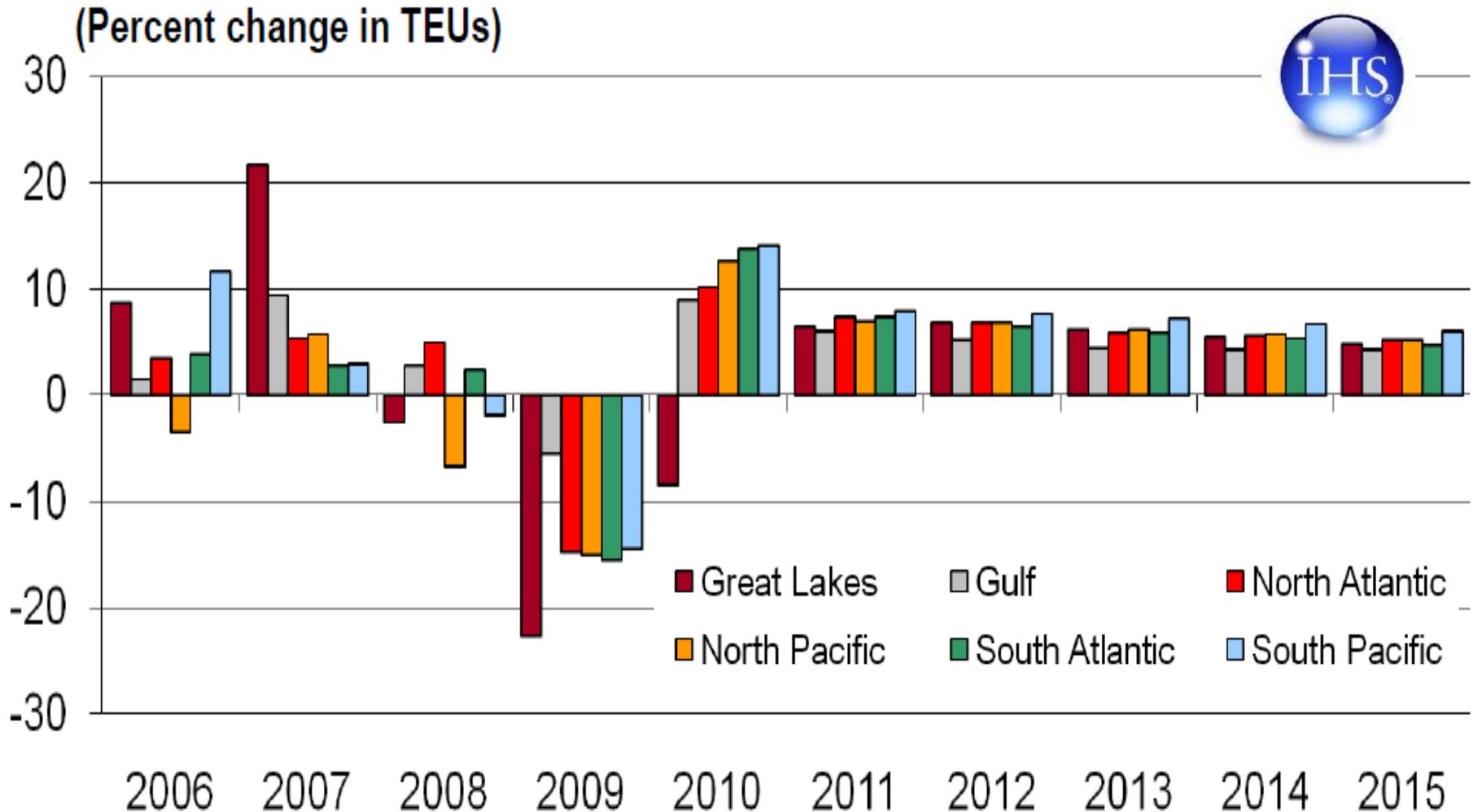


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North American Cargo Demand Trends

(Déjà vu Experience)

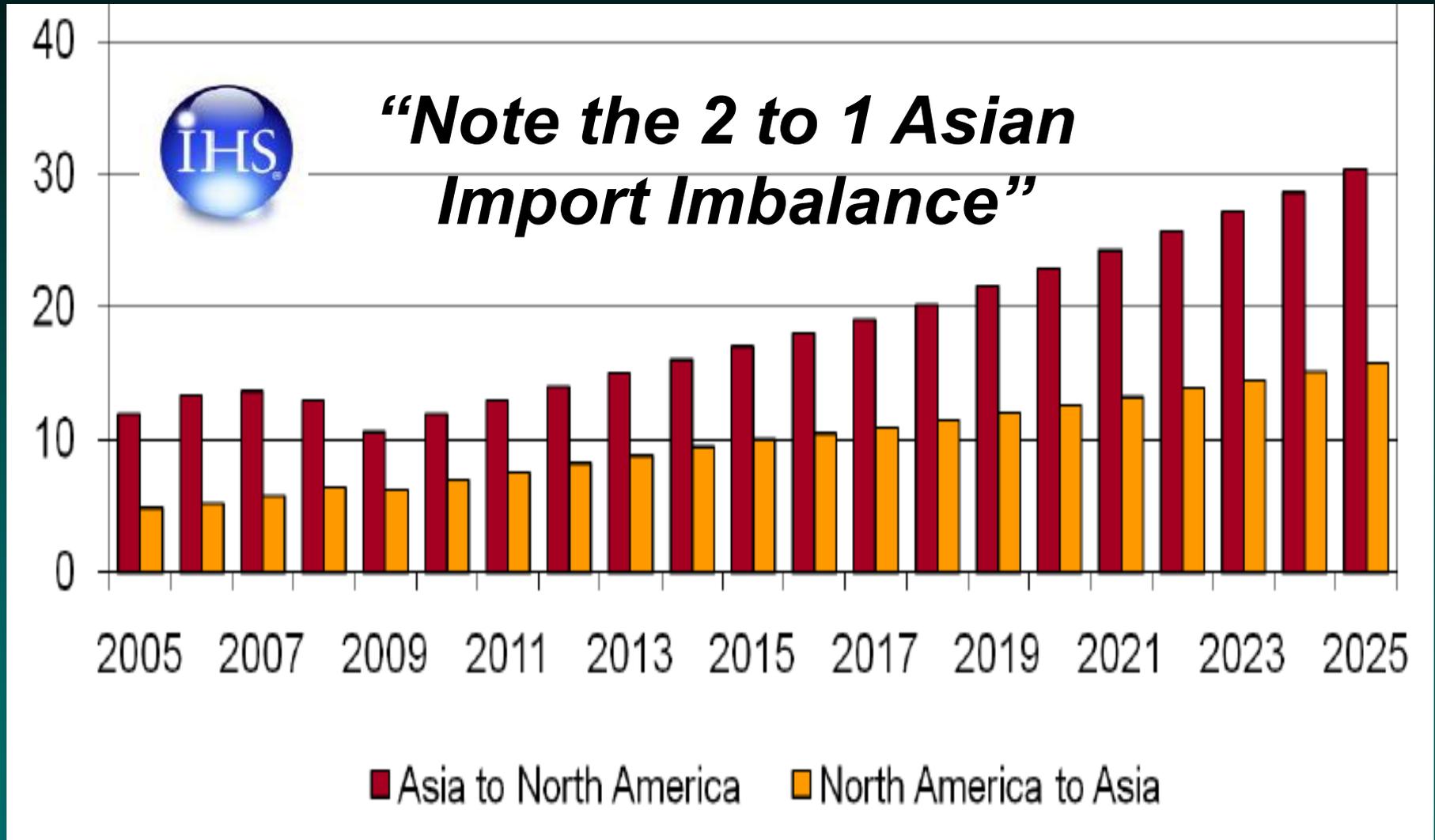
Container Growth Rates by North American Coast



Source: HIS Global Insight – World Trade Service

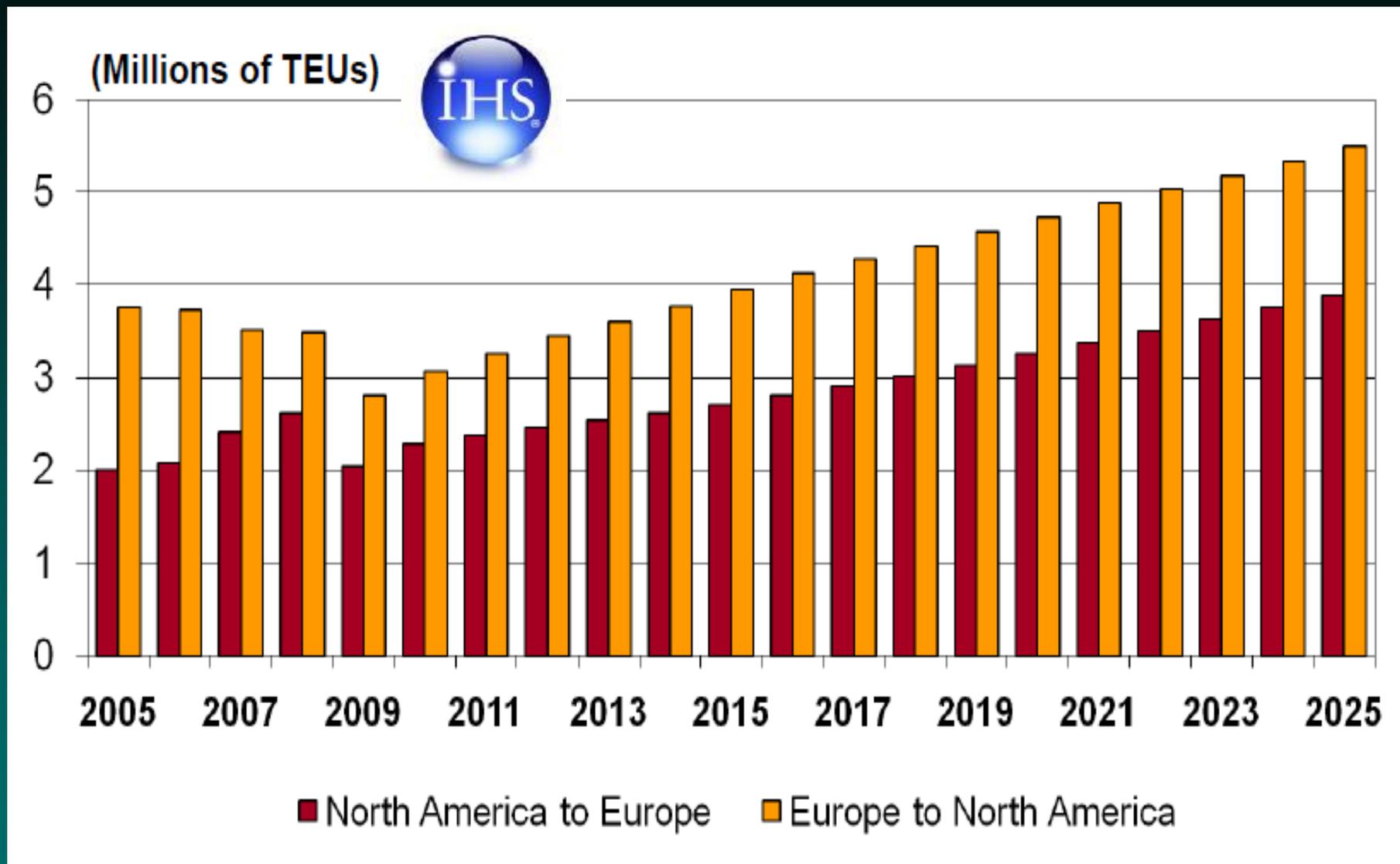
Transpacific Container Trade Recovery

(Millions of TEUs)



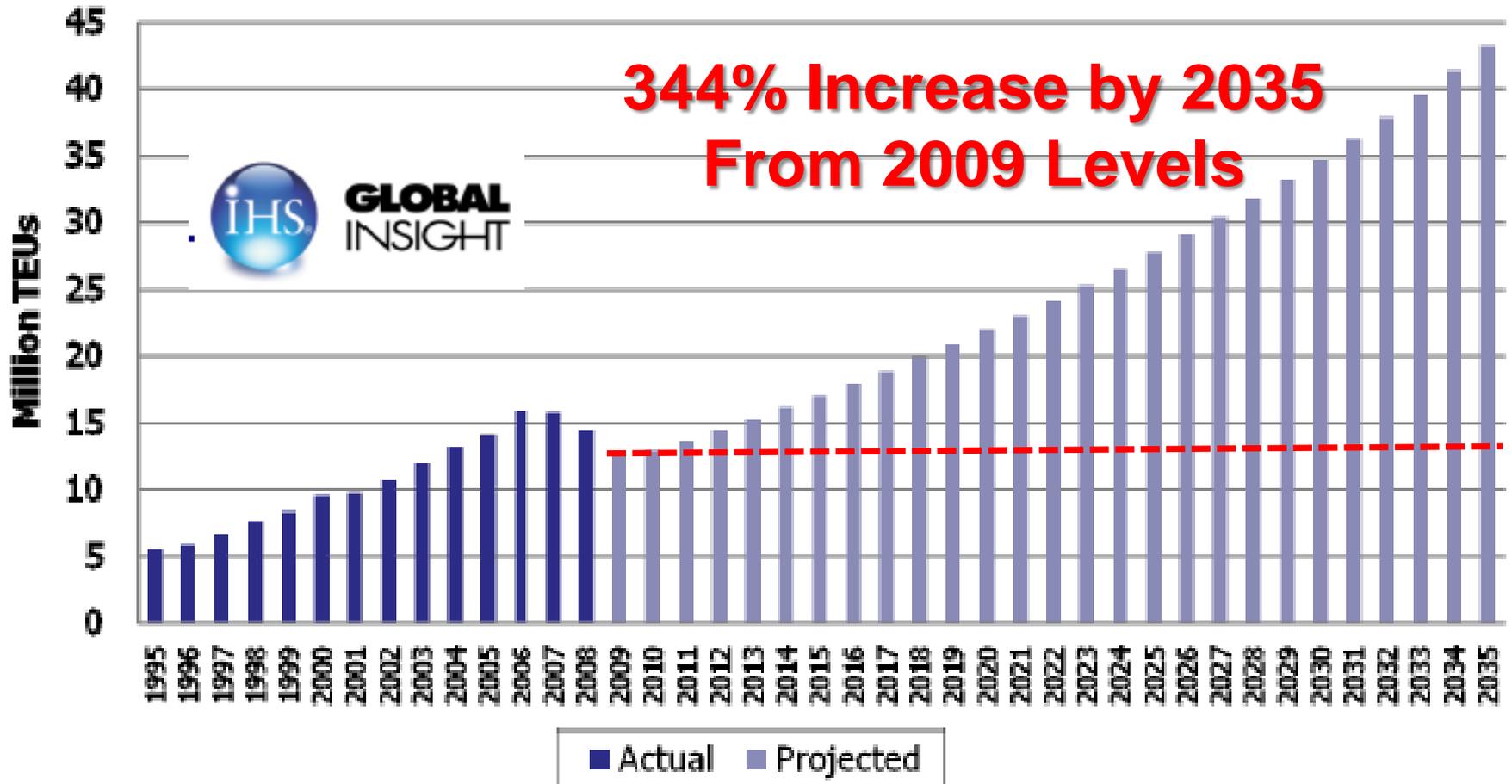
Source: HIS – Global Insight -The Global Outlook – October 14, 2010

Transatlantic Container Trade Recovery



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

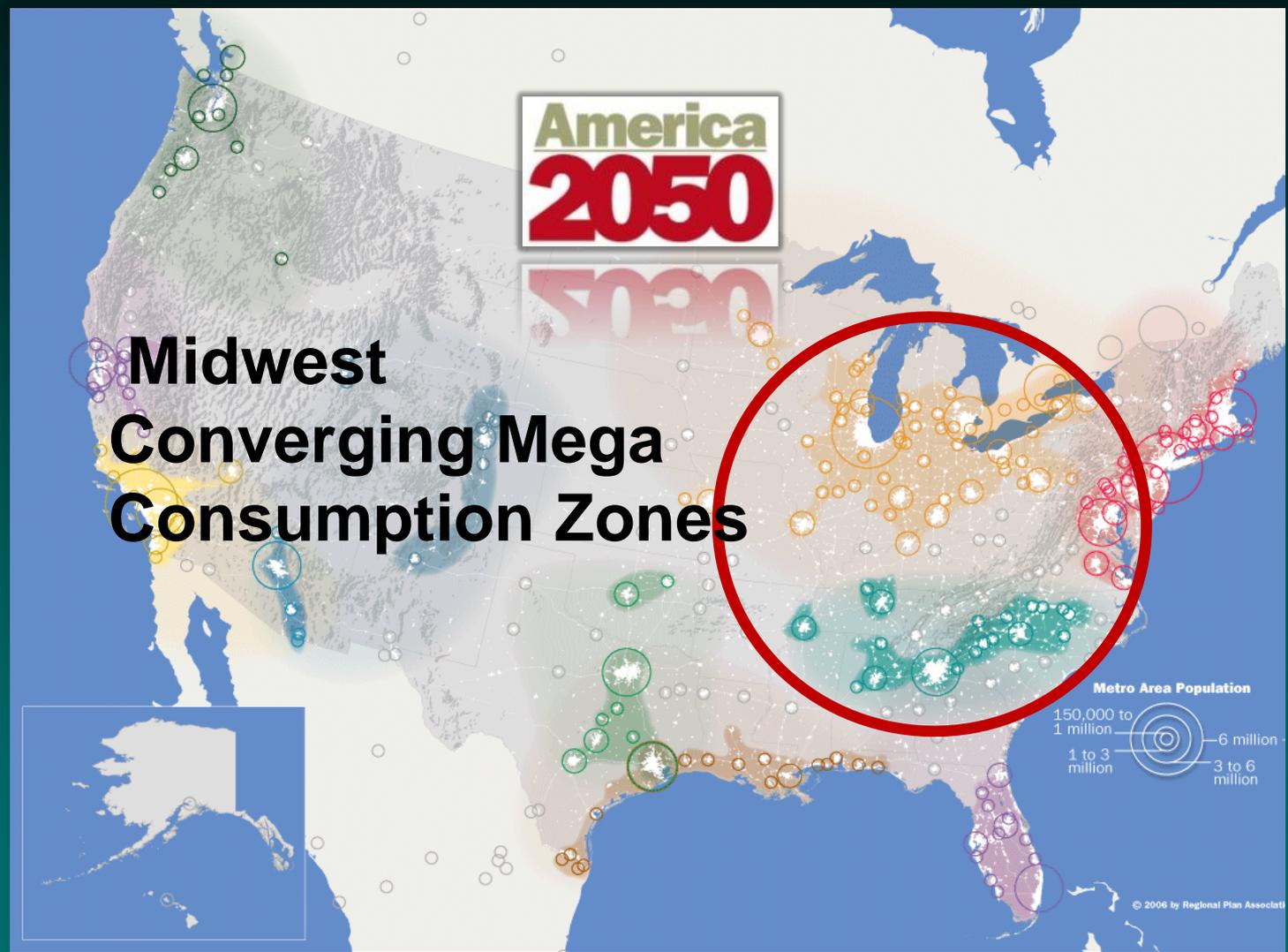
San Pedro Bay (POLA +POLB) Container Volume Forecast



Annual Growth Rate in Recovery Averages Around Five Percent

North American Emerging Mega-Regions

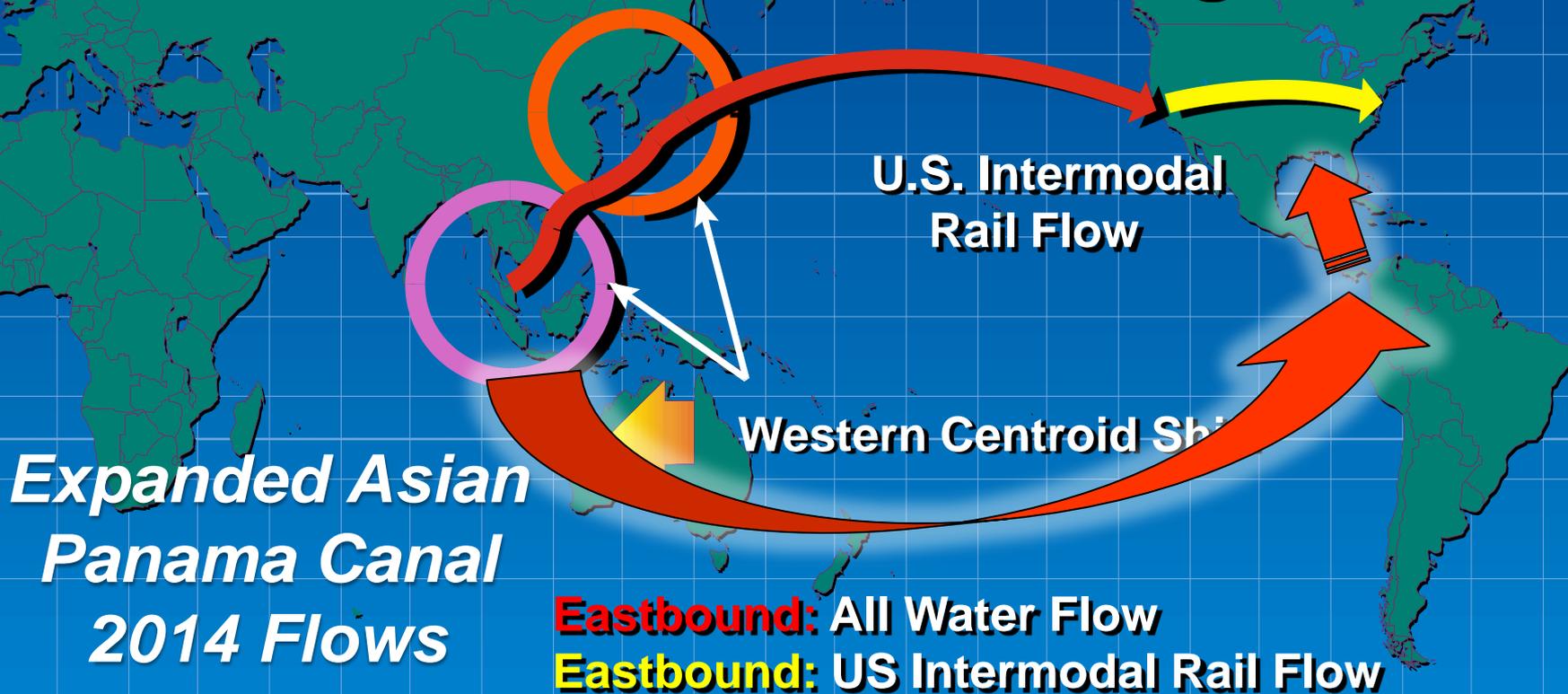
Future US Growth Areas



Source: America 2050 Prospects - Regional Plan Association

Southeast Asian Manufacturing Centroid Shift

Current Inbound U.S. Cargo Flow



Southeast 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

Hong Kong - New York: Panama vs. Suez Canal Transit Times & Distances



*Approx.
\$425,000
Per
Transit
(8,000 TEUs)*

Source: Dataloy Distance Tables

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.

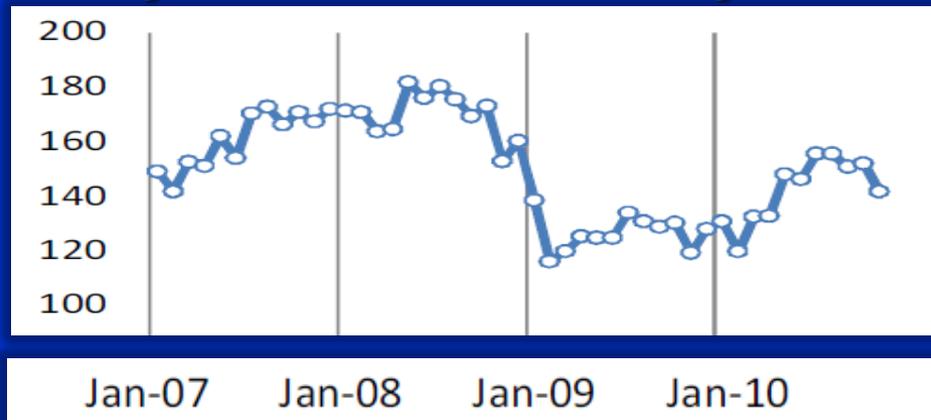


Suez Canal Operations



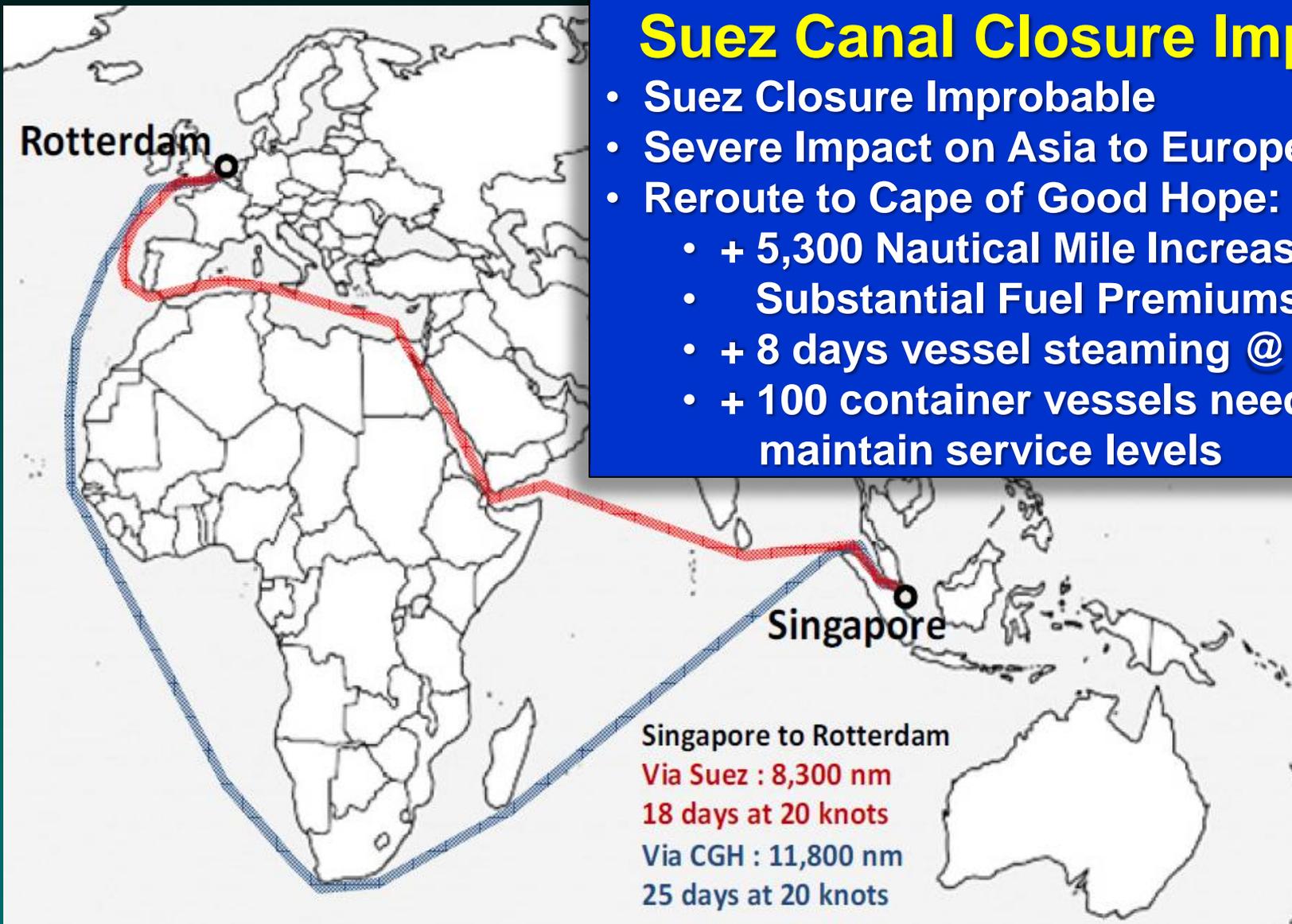
Suez Canal Operations:

- Suez Canal Closed Twice Before:
 - 1956 - 1957 (6 months)
 - 1967 – 1975 “Six Day Arab-Israeli War”
- Heavy military presence along the Canal
- UN Peacekeeping force at the Suez Canal is reported to be 90 % U.S. Military
- **Weekly Vessel Transit History:**



Suez Canal Closure Implications:

(Singapore to Rotterdam Via Suez vs. Cape of Good Hope)



Suez Canal Closure Impacts

- Suez Closure Improbable
- Severe Impact on Asia to Europe Trade
- Reroute to Cape of Good Hope:
 - + 5,300 Nautical Mile Increase
 - Substantial Fuel Premiums
 - + 8 days vessel steaming @ 20 knots
 - + 100 container vessels needed to maintain service levels

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Maritime Vessel Technology Trends

April 26, 1956

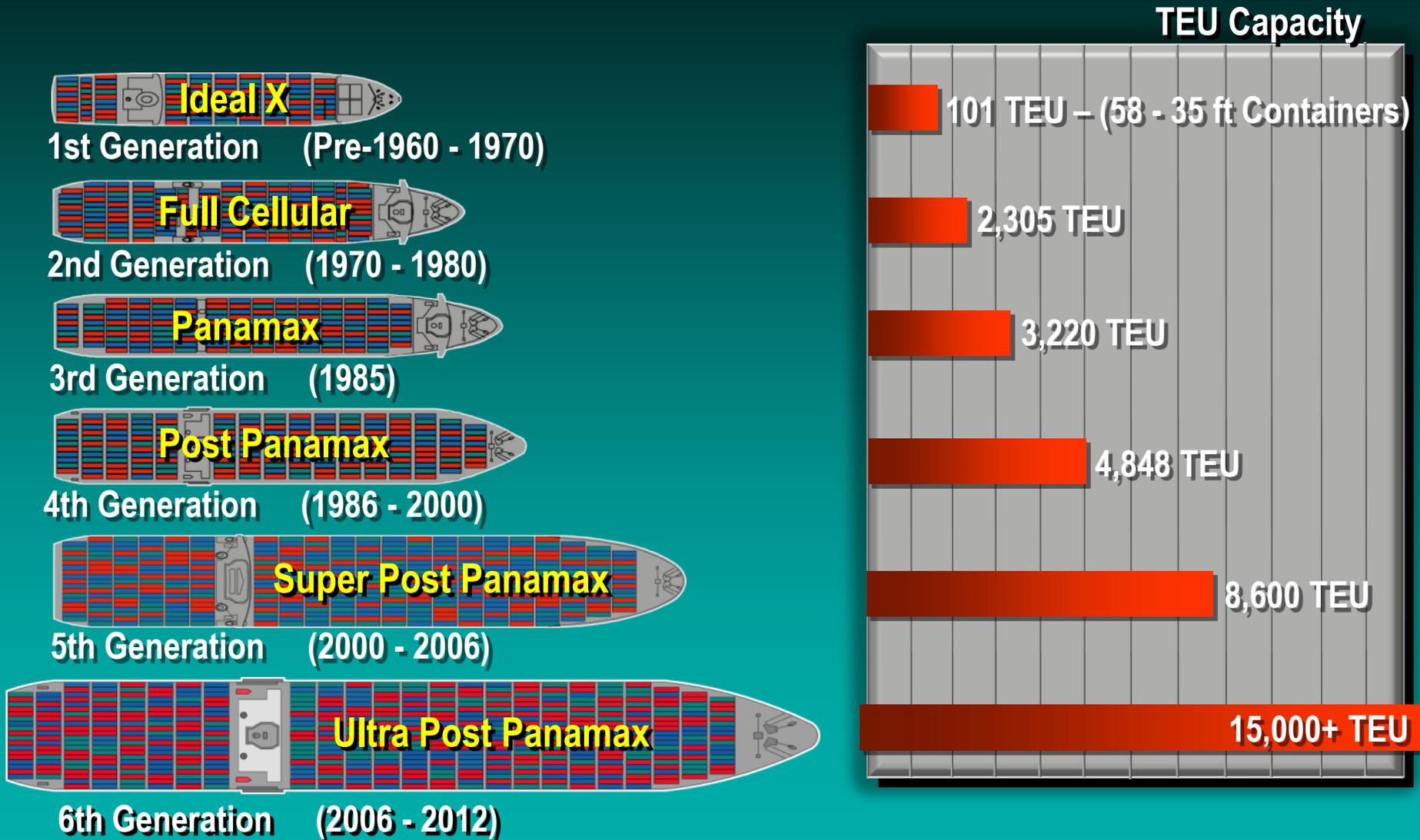
58 Modified 35-foot Truck Containers

The deck of the *Ideal X*
at Port Newark
preparing for the
historical sailing
of the world's first
containership.

April 2006:
50 Year Anniversary of the Container

*In 1955 Malcolm McLean, sold McLean Trucking,
and secured a bank loan of US\$42 million to build the
world's first container ship.*

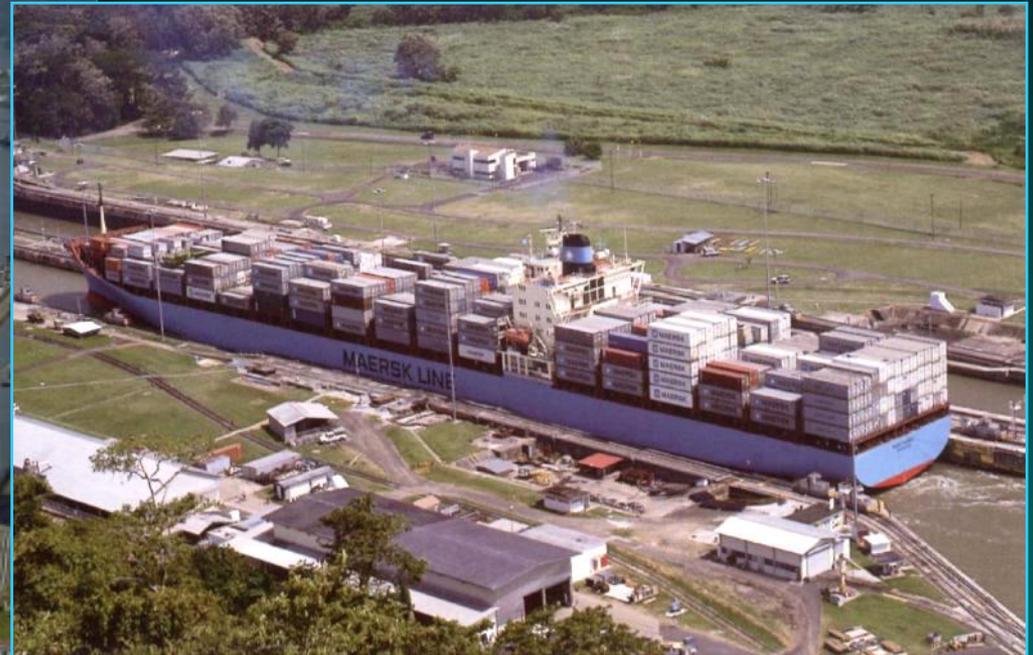
World Container Ship Evolution



Madison Maersk (3,928 TEUs)

in the Panama Canal

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





A.P. Moller-Maersk L Class M/S Emma Maersk

(15,000 TEU Vessel - 22 Containers Wide)



Length: 1,302 ft, Width: 207 ft, Net Cargo: 123,200 tons

Quay Cranes: 10, Engine: 14 in-line cylinders diesel engine (110,000 BHP)

Cruise Speed: 31 mi/h, Full Crew: 13, Construction cost - US \$145 M+

Source: Maritime World Logistics Inc..

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2010: Evergreen Orders 100 New Containerships, delivery 2010-2012



32 vessels of a new type with a capacity of 8,000 TEUs each
20 additional S-type (7,024-TEU) ships
20 additional U-type (5,364-TEU) ships
20+ 2,000-TEU feeder ships of a new type

Source: JOC April, 9 2010

MSC Daniela 15,000+ TEUs World's Largest Container Ship

Built by Samsung Shipbuilding & Heavy industries Co. Ltd in South Korea and delivered to Mediterranean Shipping Company in December 2009. She is the largest container ship ever built.

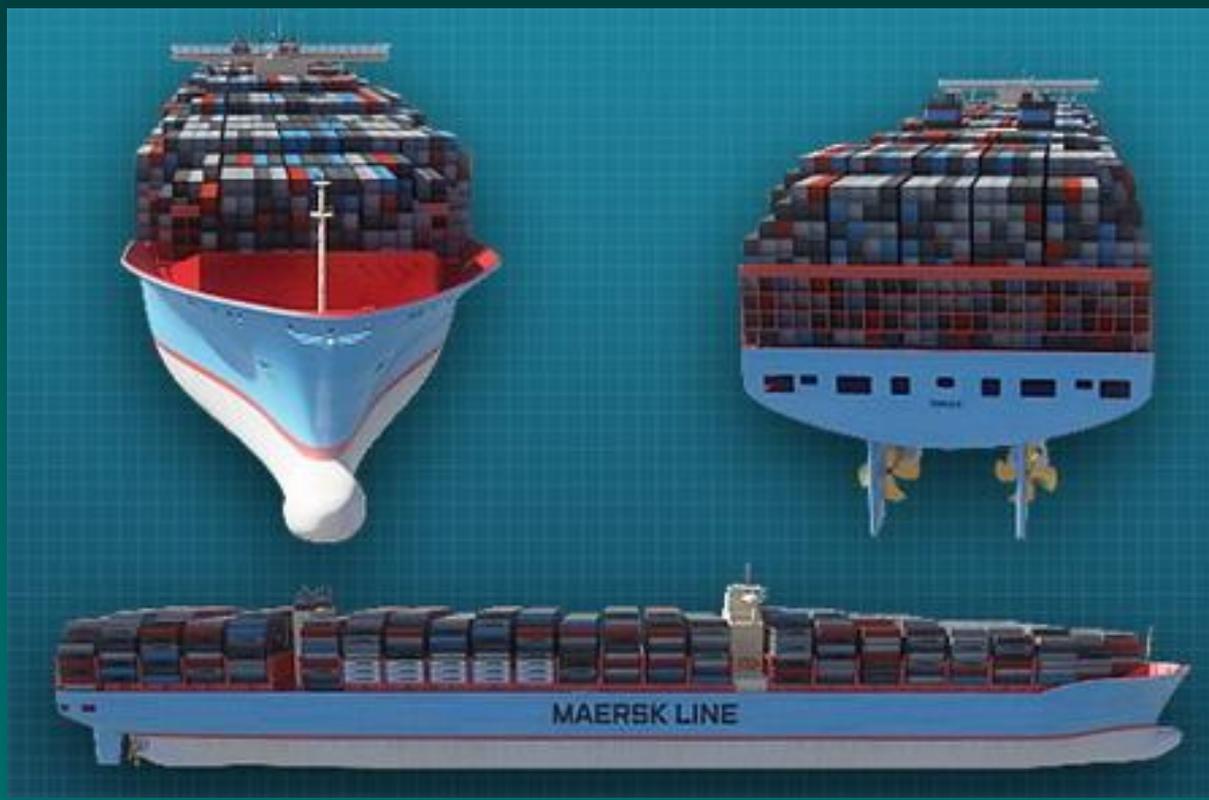




MAERSK
LINE, LIMITED

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: Cargonews Asia – e-Cargo news Asia February 18, 2011

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MAERSK
LINE, LIMITED

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



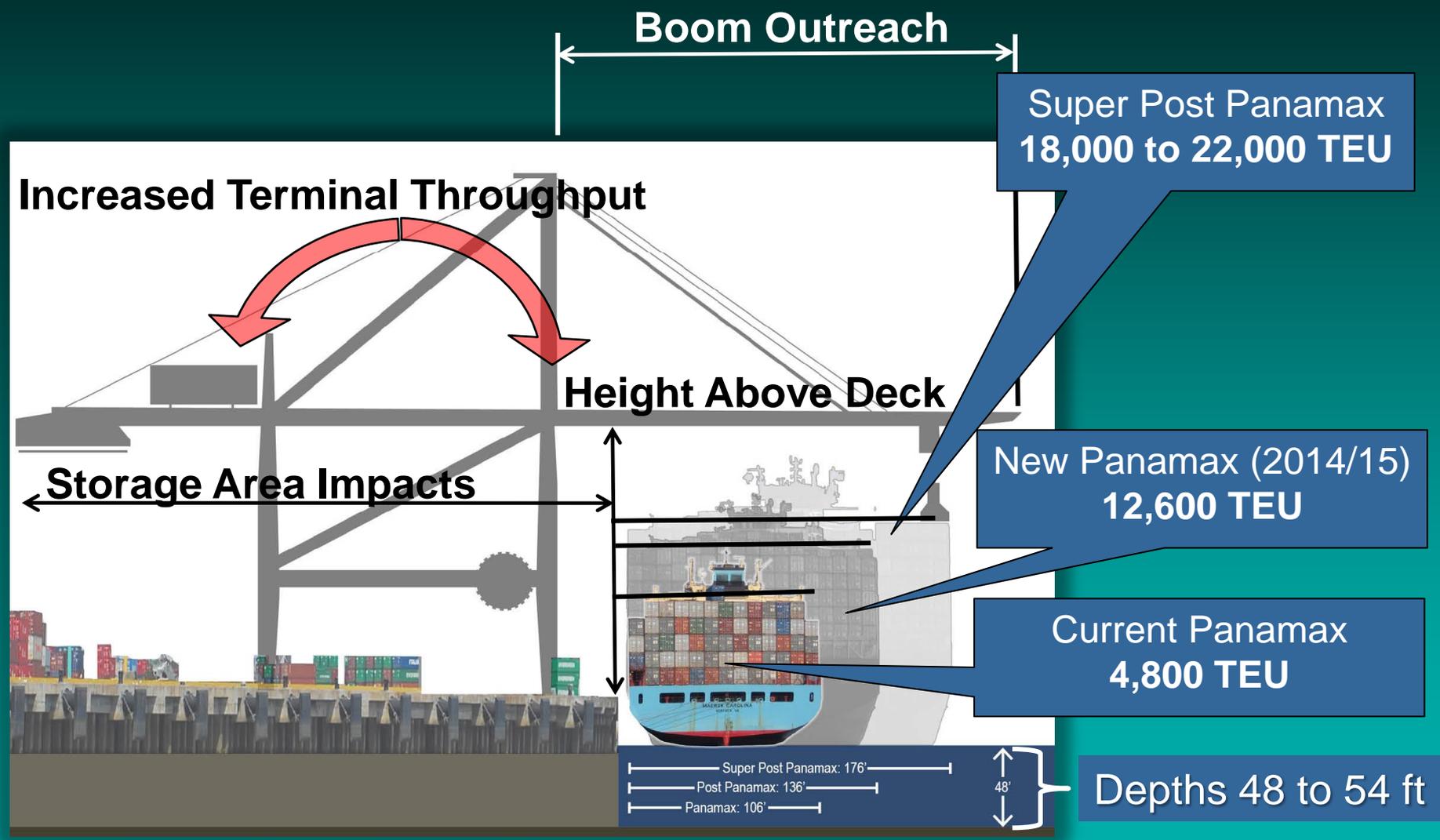
23 Containers Wide – 9 Tiers Above the Hatch

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Vessel Size Expansion - Terminal Impacts

(Port Terminal Infrastructure & Equipment Geometry Impacts)



Source: Georgia Ports Authority and Vickerman & Associates

21,000 TEU Ultra Large Twin Engine Container Ship - 2011



23 Containers Wide



Source: Alphaliner Newsletter Volume 2011 Issue 4

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***

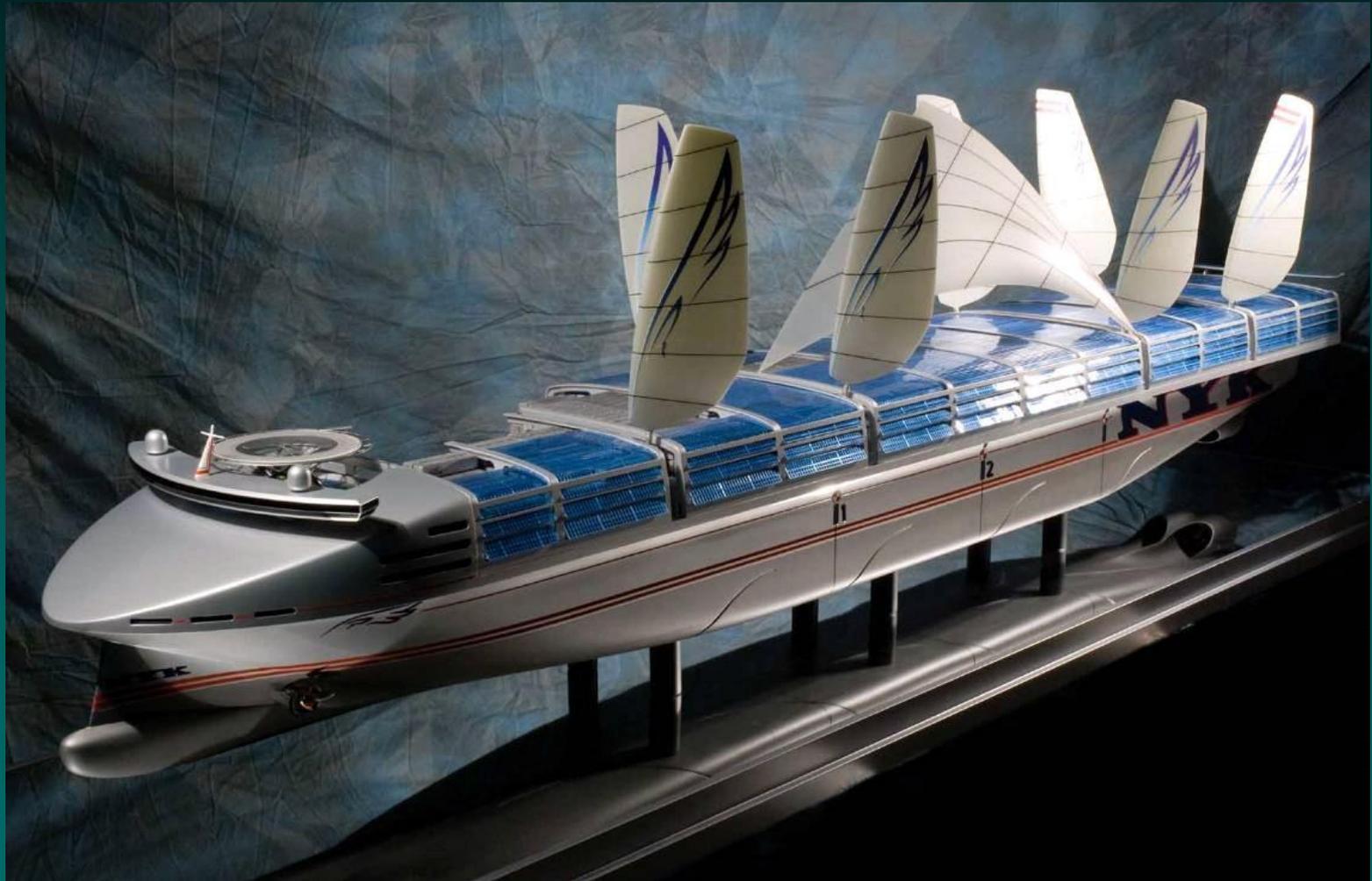
*Deadweight Tonnage = **220,000 Long Tons***

*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

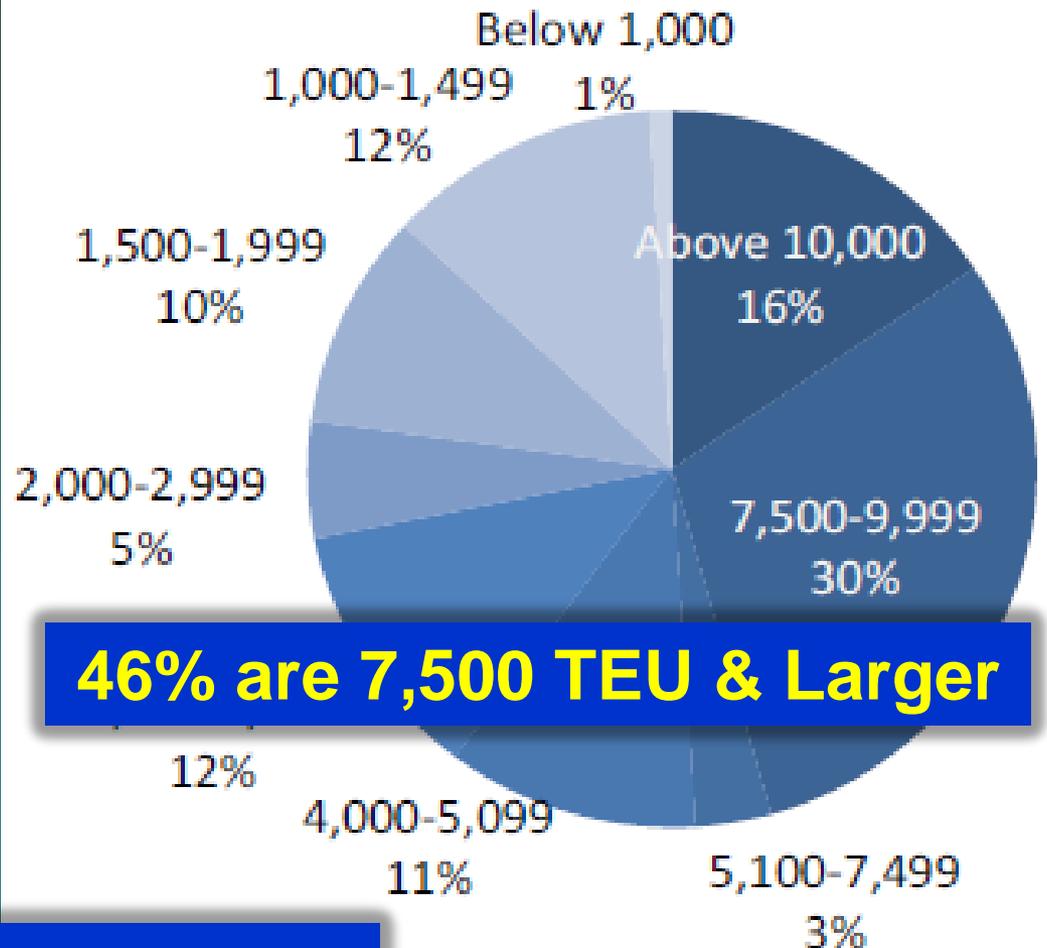


2010 - 2011 New Containership Orders

(Size Range, Order Percentage, & Country of Built)

Size Range	Units Ordered
Above 10,000	32
7,500-9,999	62
5,100-7,499	7
4,000-5,099	23
3,000-3,999	24
2,000-2,999	11
1,500-1,999	20
1,000-1,499	25
Below 1,000	2

Country	Units	TEU
S Korea	127	1,038,123
China	62	269,338
Philippines	8	30,400
Taiwan	6	7,600
Japan	2	
Germany	1	



46% are 7,500 TEU & Larger

92% Built by S. Korea & China

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Panama Canal Expansion: New Capacity

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The Panama Canal Circa 1914



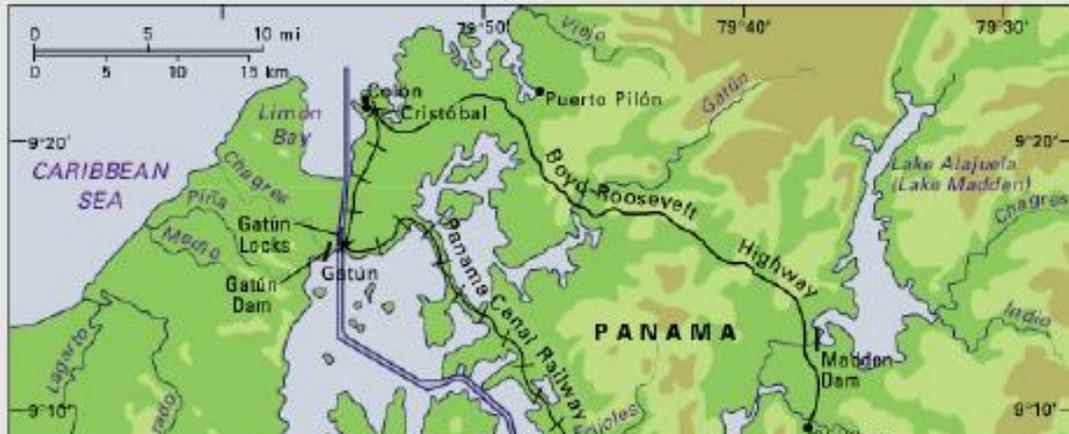


The Autoridad Del Canal de Panama

Panama Canal Today



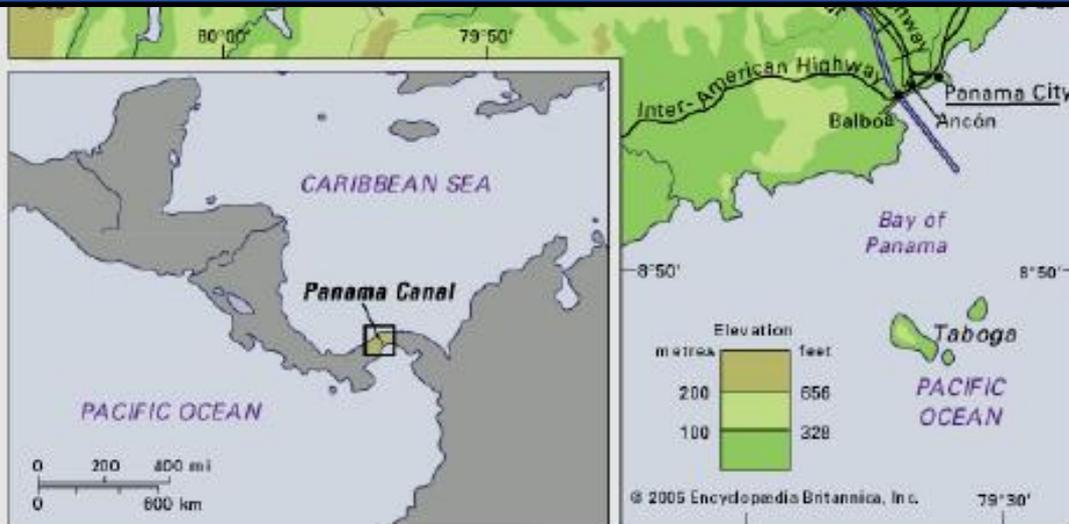
Panama Canal Expansion



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 3rd 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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FY 2009 Panama Canal Route Traffic

(Millions of Long Tons)



1915 - 2010

Total Number of Transits: 1,000,972

Amount of Cargo: 8,587,711,605 LT

Source: ACP Data

2010 Weekly Panama Canal Through Transits vs. Non-Transit Feeder Services



- █ Weekly Through Transits
- █ Feeder Services – No Transit

Source: ACP and Compare, 2008 Data

Panama Maritime Authority Becomes A Major Transshipment Center

Port Development in Panama

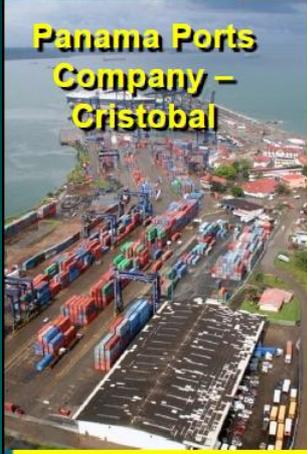
Manzanillo International Terminal (MIT)



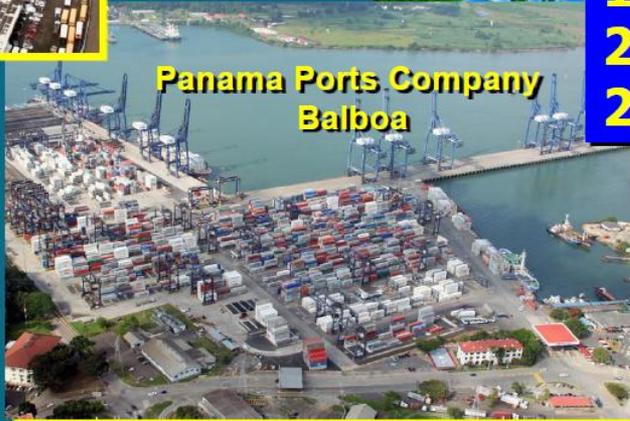
Colon Container Terminal



Panama Ports Company - Cristobal



Panama Ports Company Balboa

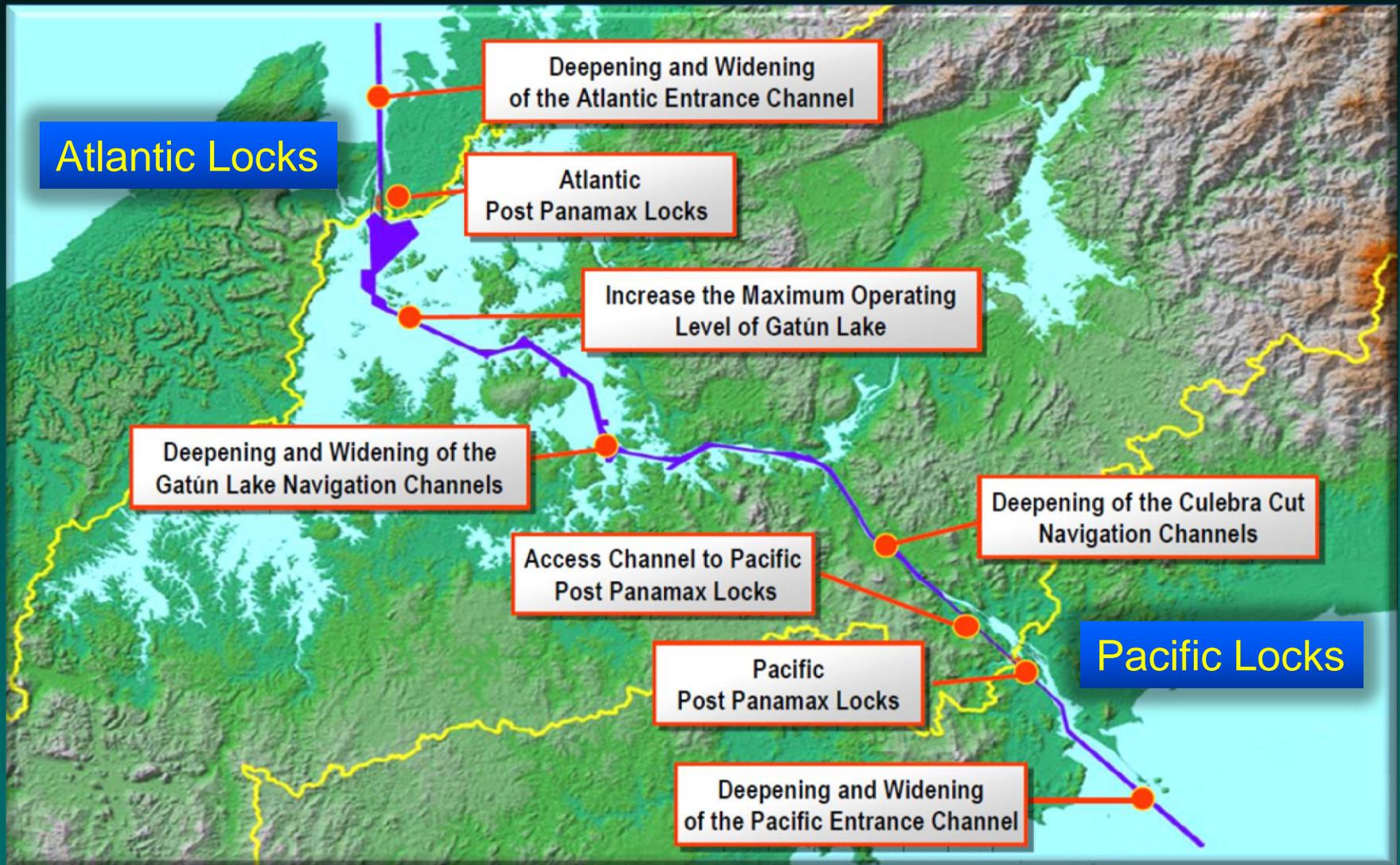


1996: 235 Thousand TEUs
2009: 4.23 Million TEUs
2015: 7.4 Million TEUs

Source: Panama Maritime Authority

Source: Panama Maritime Authority

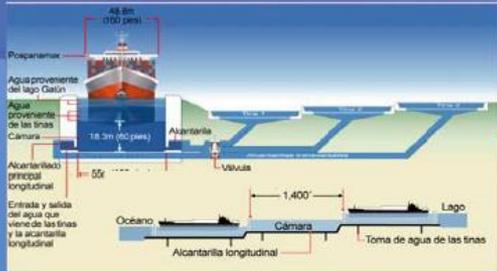
Panama Canal Expansion Program Components



Source: ACP Information

Cost Estimates for the Project (in million U.S. dollars)

New Locks



2,730

620

820

Navigational Channels



290

260

Inflation during construction

530

Total Investment

5,250

Water Saving Basins



Access Channels for the new Locks



Water Reservoir Improvements



Estimates include contingencies



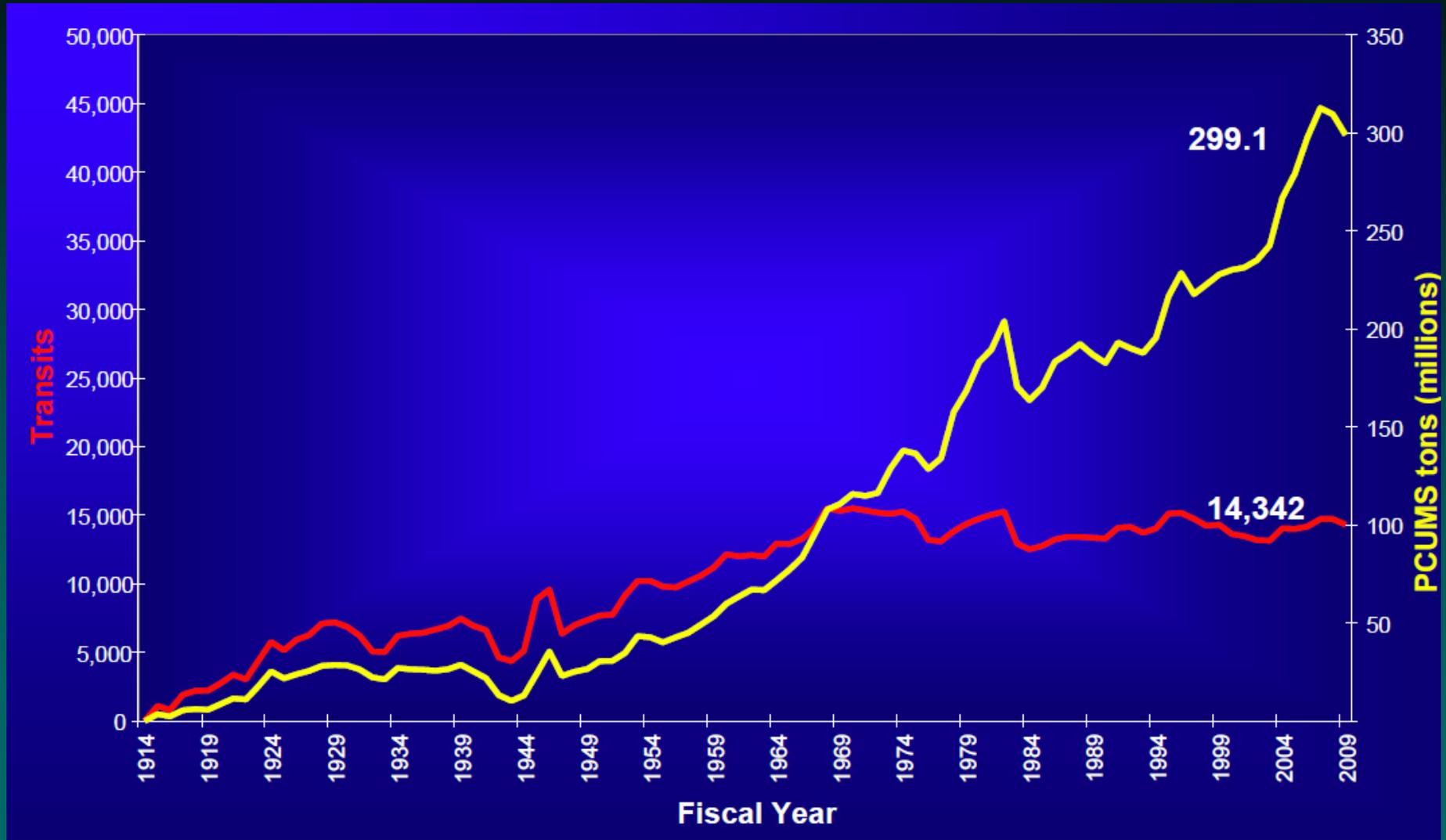
The Autoridad Del Canal de Panama

Post 2014 Panama Canal



Panama Canal Transit & Tonnage Traffic

(Transits and PCUMS Tonnage 1914 to 2009)



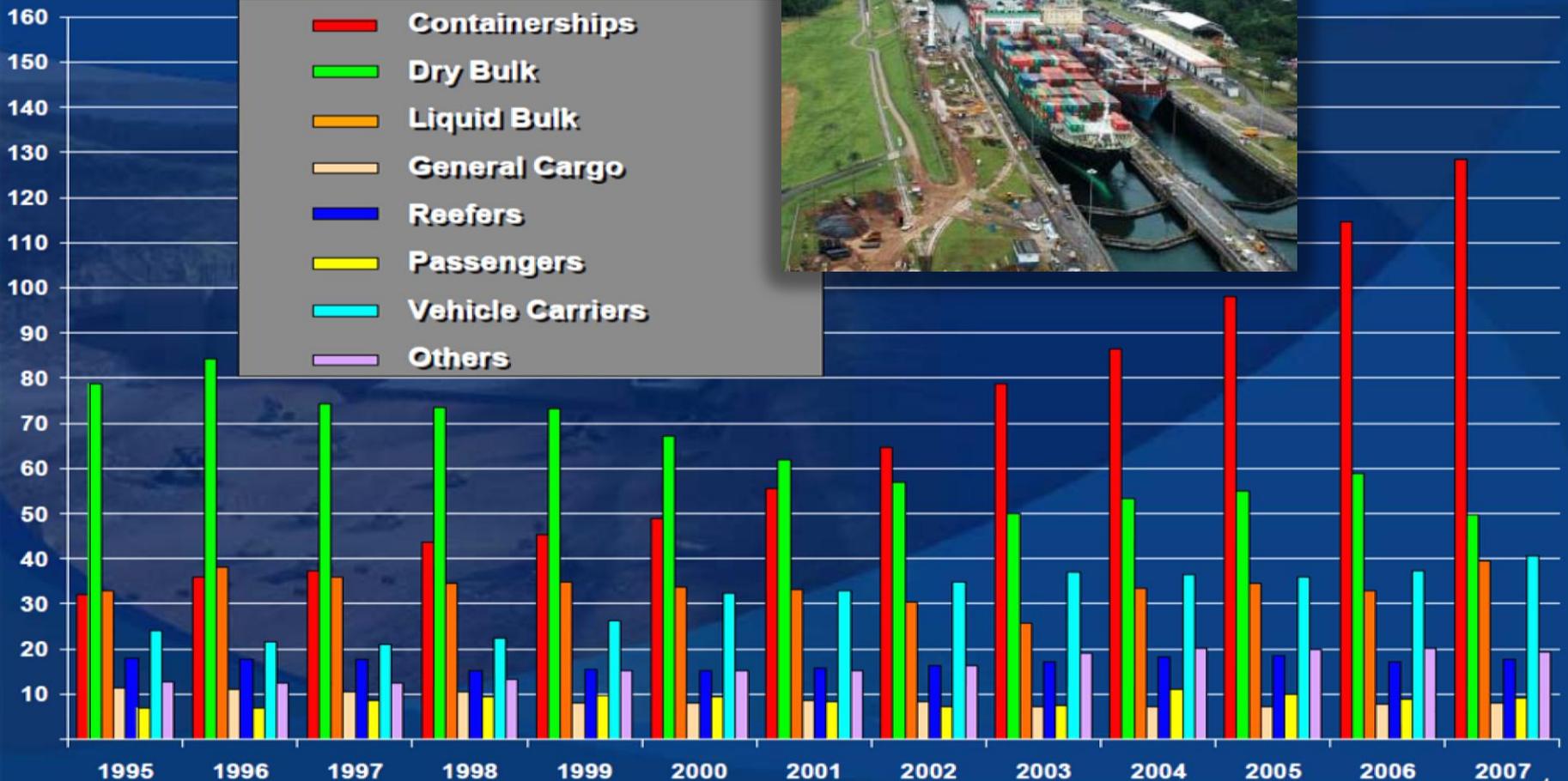
Source: ACP Data

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PC/UMS Vessel Type By Market Segment (In Millions – FY 1995 to 2007)



Source: ACP Market Research and Analysis, R. Sabonge, VP

Typical Container Vessel Service Route

Asia to USEC: Weekly Service with 8 - 4,320 TEU Vessels
Generating **104 Yearly Transits** and
\$150 million in Annual Canal Transit Fees



Source: ACP Data

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2025 Summary of Canal's Financial Results

(To 2025 In Millions of Dollars – Annual Fees)



Summary of the Expanded Canal's Financial Results

Financial Results ¹	Year 2005	Year 2025	Annual average growth rate
PCUMS Tons ²	279	508	3.0%
Transit Revenue		6,101	8.9%
Other Revenues	92	125	1.5%
Total Revenues	1,209	6,227	8.5%
Operating Costs	444	1,016	4.2%
Fee per Net Ton ³	218	668	6.5%
Public Services Fees ³	2	2	0.0%
Depreciation	61	231	6.8%
Net Income		4,310	11.6%

546% Increase

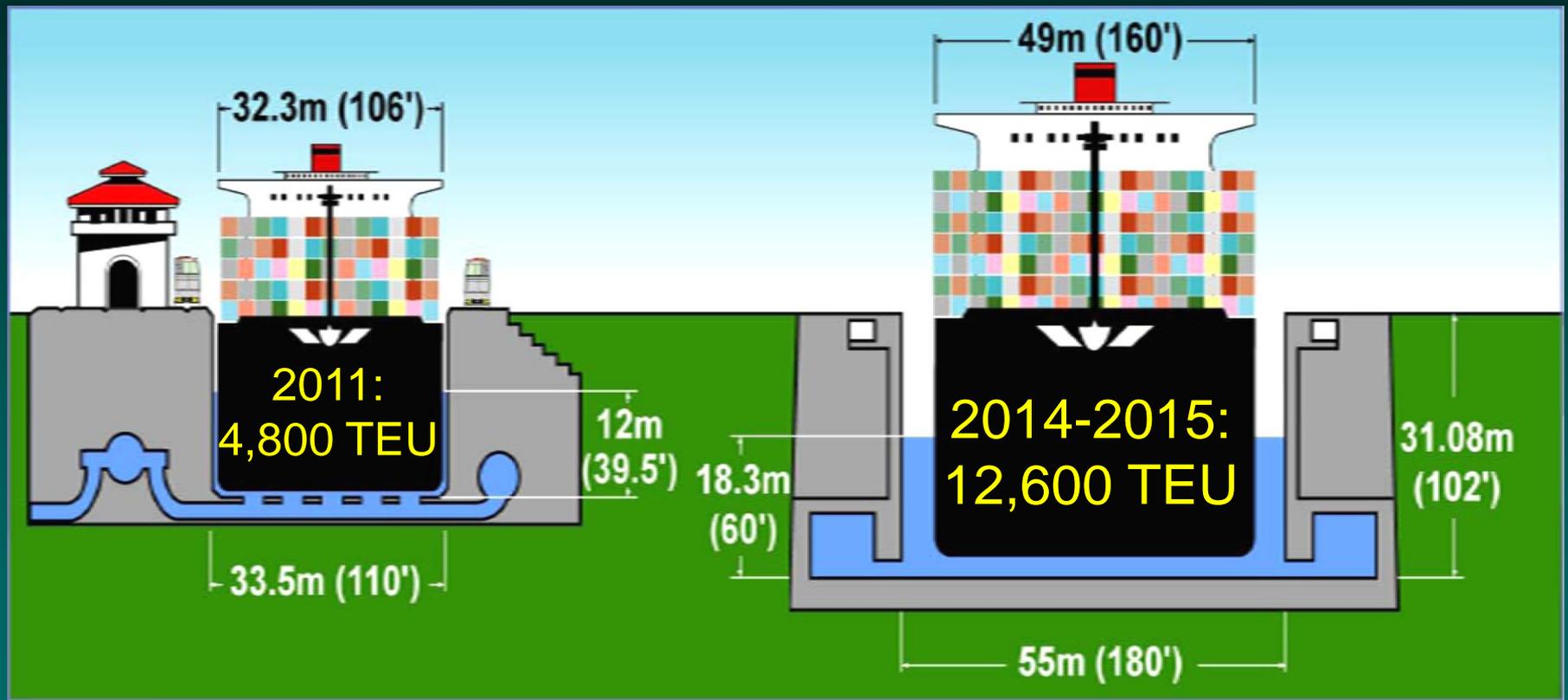
890% Increase

Source: ACP Financial Data



The Autoridad Del Canal de Panama

Panama Canal Third Lane Expansion Capabilities



Source: ACP Expansion Proposal

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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**



The Container Ship Colombo Express (8750 TEU)



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

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Panama Canal Expansion:

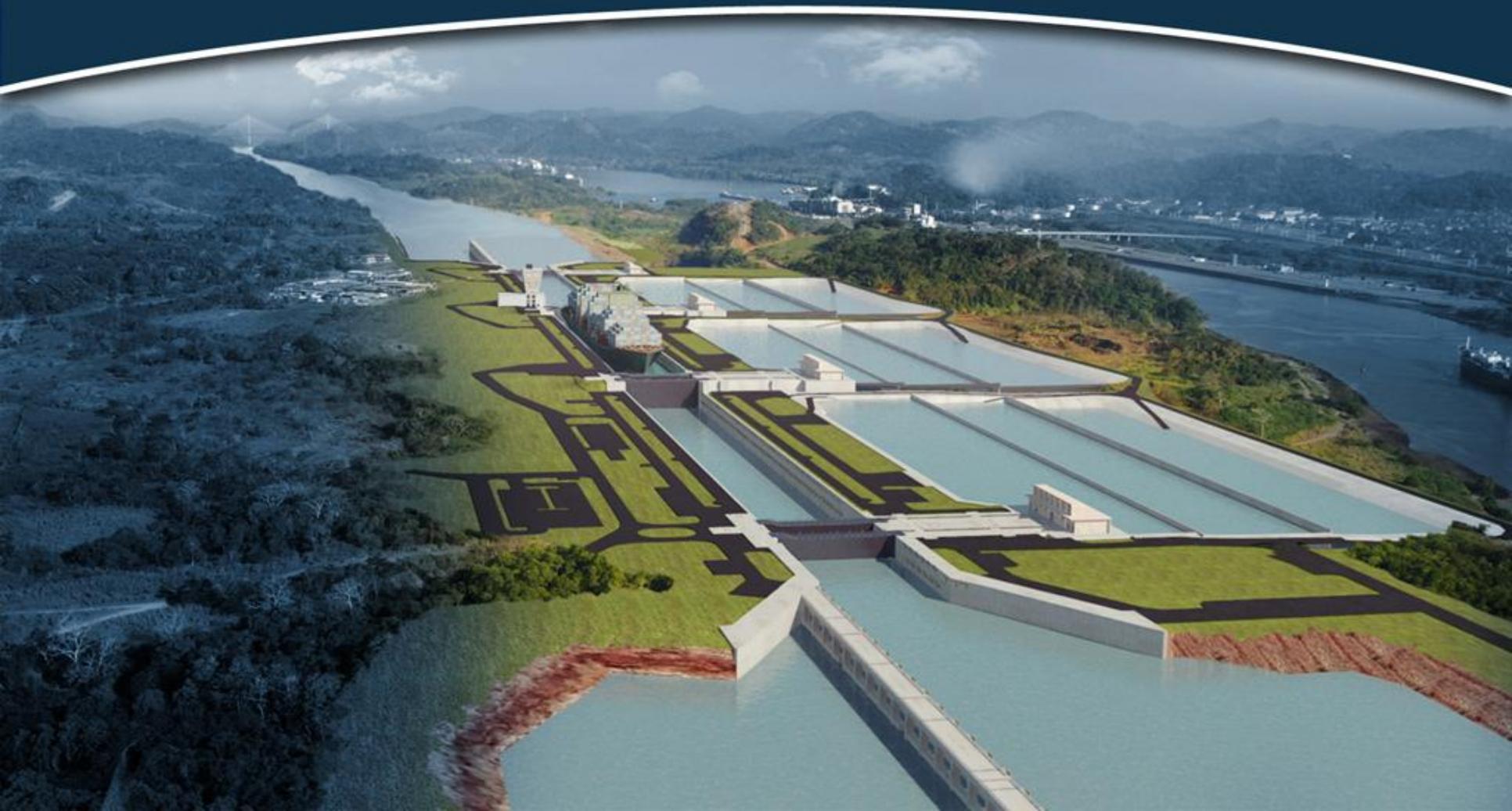
Current Construction Status

(January 2011)

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Pacific Locks Site



Pacific Locks Site

January 2011

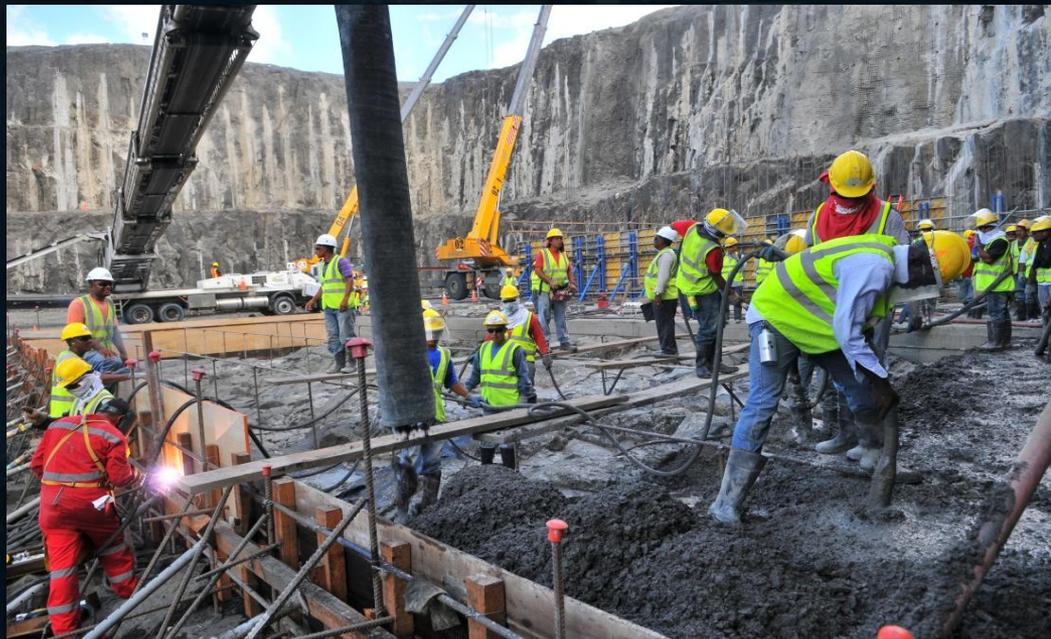


Pacific Locks Site Construction

Lock head 2



Pacific Locks Site Construction



Pacific Locks Site - Finished





CANAL DE PANAMÁ

Atlantic Locks Site



Construction Progress

October 2009

June 2010

January 2011



Atlantic Locks Site Construction



Lock head 1



Trifurcation 1



Crossunder 1



Trifurcation 2



Crossunder 2



Lock head 2



Atlantic Locks Site Construction



Atlantic Locks Site: Finished



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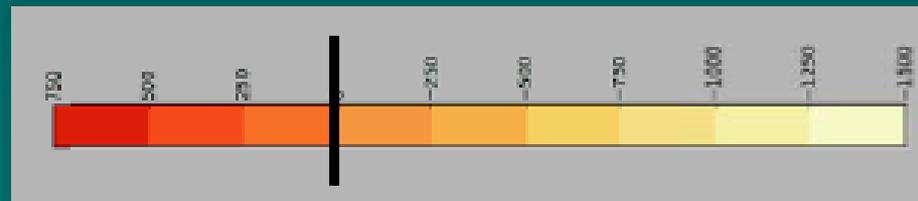
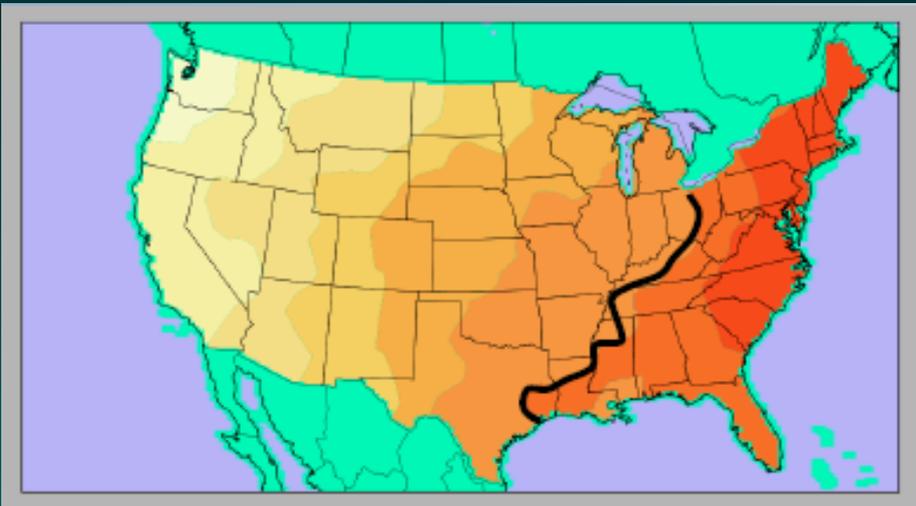
Panama Canal Expansion:

Predictions & Impacts

Scale Economies: Panama Canal Vessel Deployment US East Coast Market Reach

4,000 TEU – 51% US Market

8,000 TEU – 66% US Market



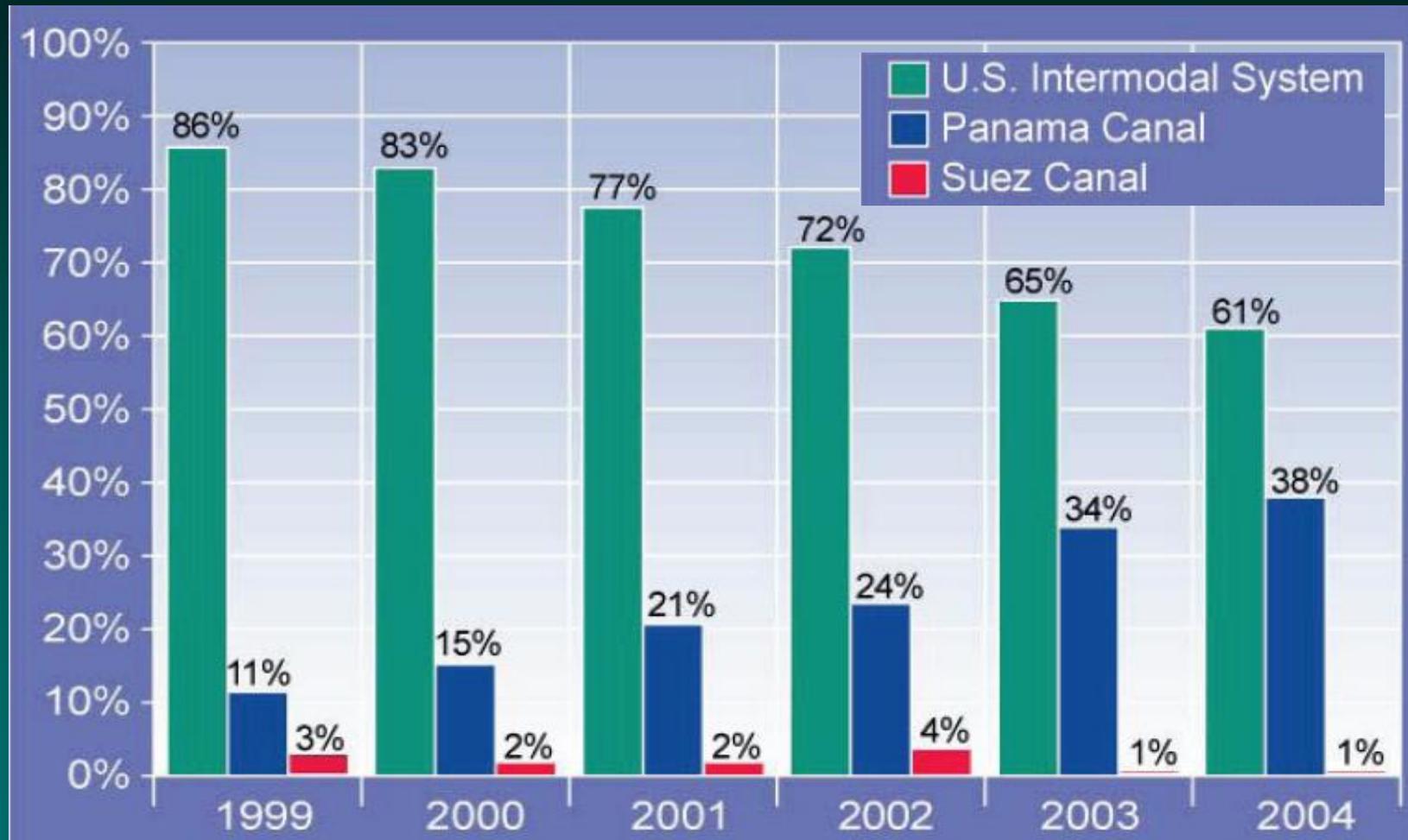
Assumptions: \$400/MT Bunker; 2011 ACP Canal Tolls; 2010 Ship Charter Rates; Inland Move by Rail

Source: PANY/NJ, Halcrow Princeton Consultants, June 2010



Panama Canal Gained Market Share in US Intermodal Transcontinental Container Trade

(1999 to 2004 - Asia to USEC)



Source: ACP Data Base, PIERS, AAR

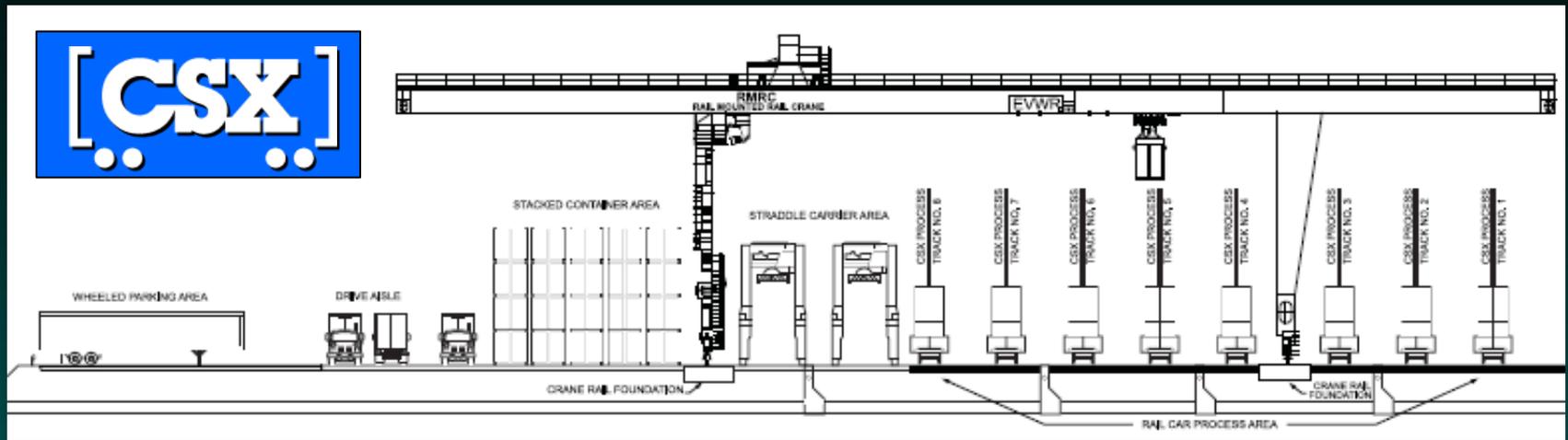
The Primary North American Competitor to the Panama Canal is the Class I Rail Intermodal System

(Potential Increased Service Offerings and System Capacity)

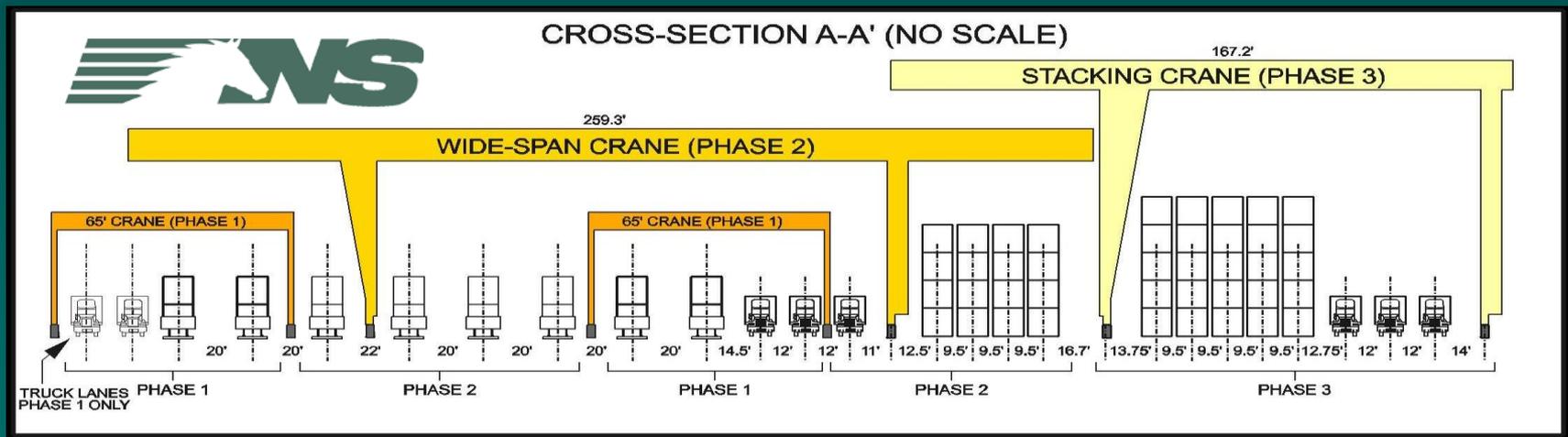


Source: USDOT Maritime Administration (MARAD) 2009

Emerging US Green Inland Port Technologies



CSX High Density Intermodal Crane Configuration

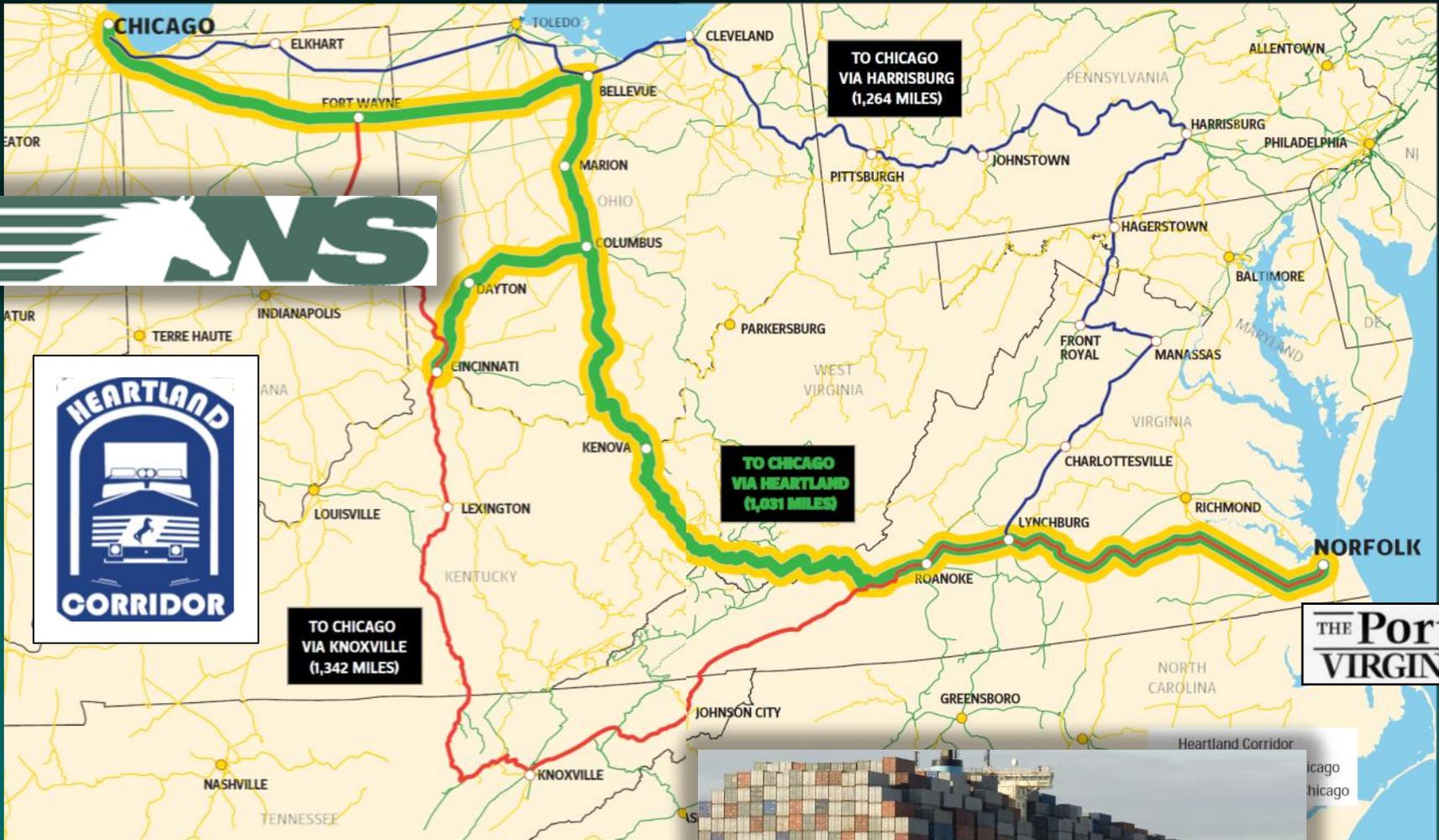


NS High Density Nested Crane Configuration



Norfolk Sothern Heartland DST Corridor

(Carrier Opinions on the corridor are undecided)



\$842 Million CSX National Gateway



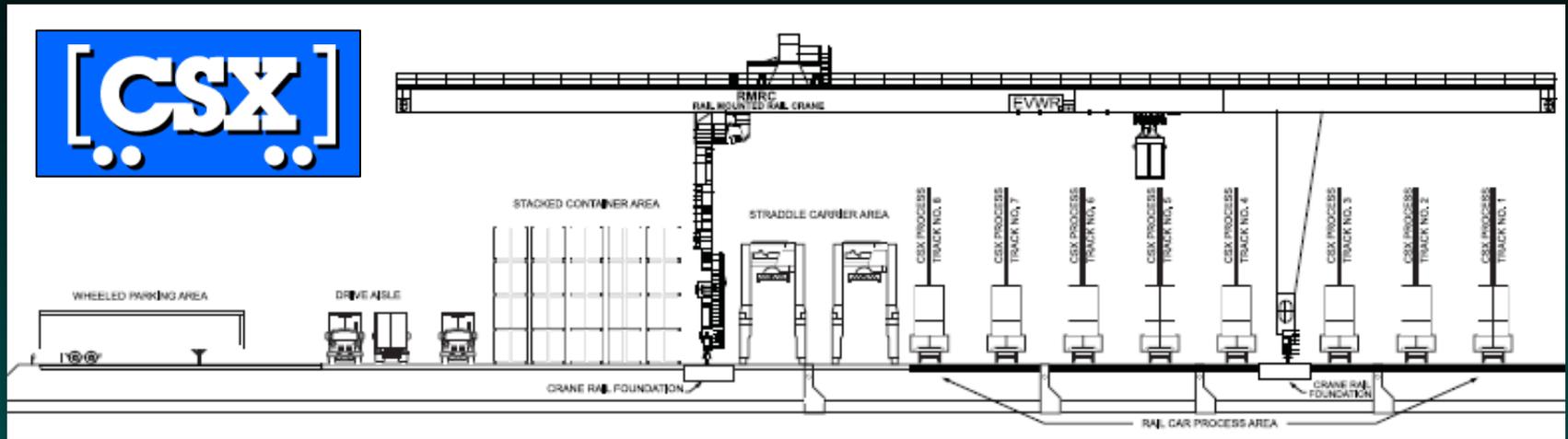
National Gateway

**National Gateway was awarded 2009
Competitiveness Project of the Year
(North American Strategic Infrastructure Leadership Forum)**

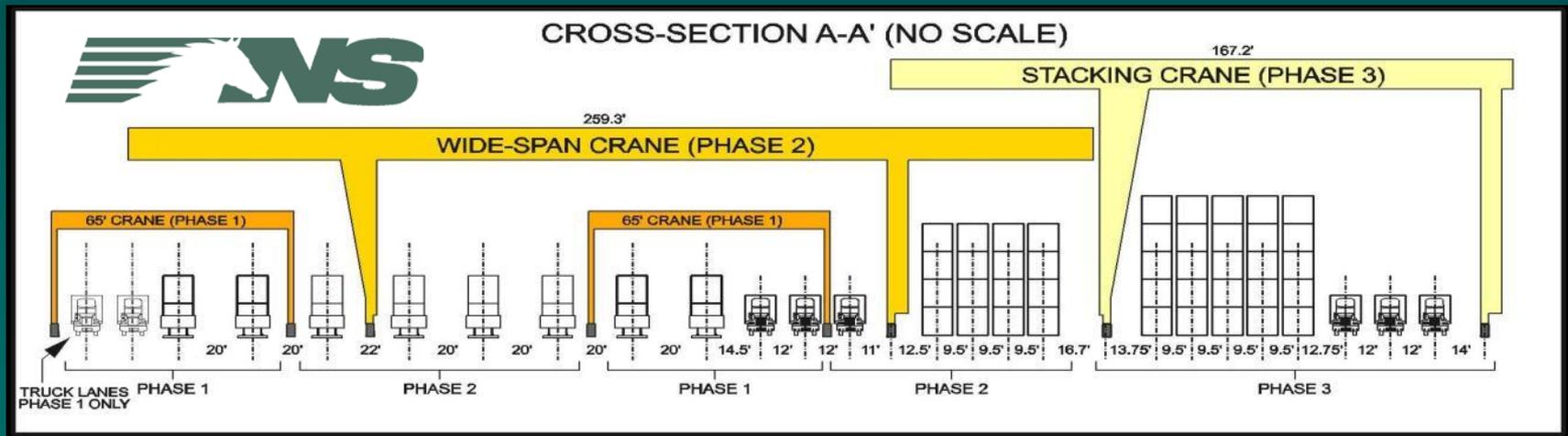
CSX Rail Mounted Gantry (RMG) Cranes North Baltimore Ohio Rail Logistics Hub



Emerging US Green Inland Port Technologies

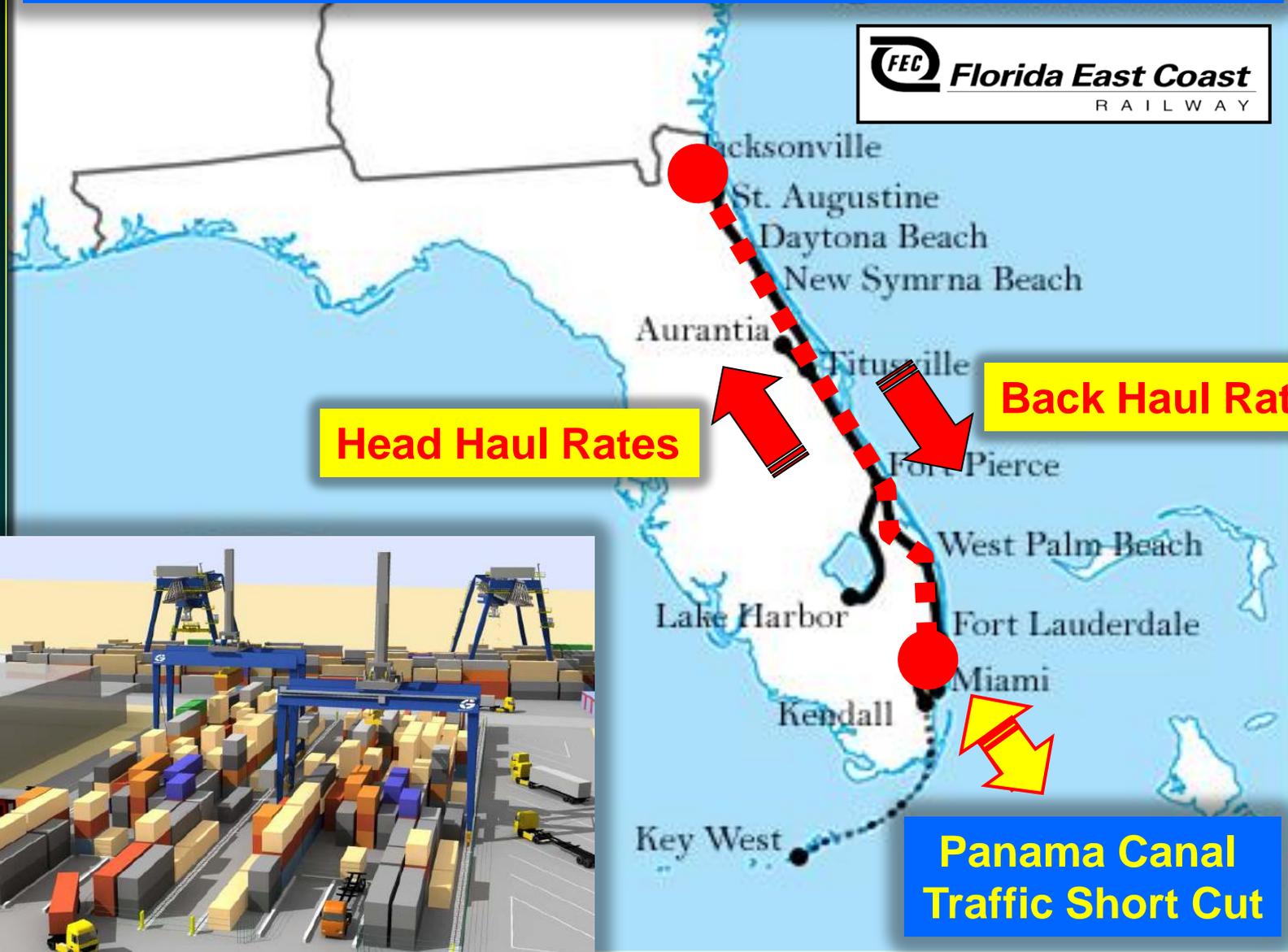


CSX High Density Intermodal Crane Configuration



NS High Density Nested Crane Configuration

Dedicated Express Double Stacked Train Service



Alternative “Dry Canal” Proposals to Counteract Anticipated Canal Fees/Costs





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:

- ✓ **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!**

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Inland Ports: Defined – A Convergence of Logistic Trends

Inland Ports Defined

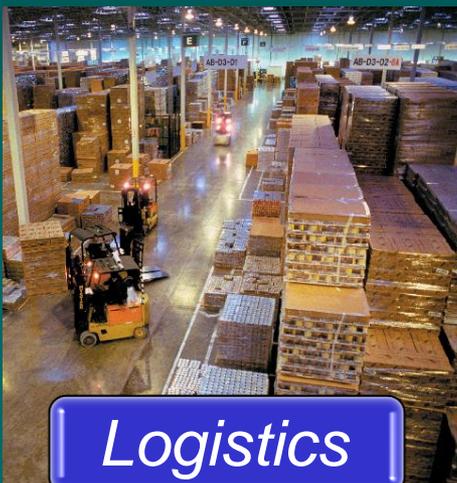
A Convergence of Logistics Trends



Short Sea Shipping Technology



Intermodal Rail



Logistics



Automation



Distribution Center

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Inland Ports: Europe's Current Strategy Applications



Rotterdam World Gateway- EUROGATE Builds an Inland Container Port Network

ECT Main Terminal



Maasvlakte 2 Plan



European Shortsea Network



Short Sea Container Inland Port



The Dutch Transport Ministry and Port of Rotterdam Authority (PoRA) signed a Founding Agreement on June 29, 2009

The Town of Alblasterdam, East of Rotterdam will get a Container Transferium (CT), ***a Inland Port Container Transfer Facility*** to be operated by Binnenlandse Container Terminals Nederland (BCTN).

“This is the first time the Port Authority has promoted such a partnership. PoRA to promote transport by rail and water and to shift containers from road to the other modes of transport in order to reduce the number of trucks in the road.”

Dutch Transport Ministry Inland Port Container Transferium (CT) Strategy

*(Noord River, Town of Alblasserdam
€38 million, open by end-2012)*



Dutch Transport Ministry Inland Port Container Transferium (CT) Strategy

*(Noord River, Town of Alblasserdam
€38 million, open by end-2012)*



Emerging Major Inland Port Logistics Centers

Throughput Capacities in Millions of TEUs



BNSF Logistics Park, Joliet. IL

A New Model For Freight Logistics Centers



Wal-Mart's New 3.4 million SF (78 acres under roof) Import Distribution Center



The Cost of This Import Distribution Center was Paid for by the Savings in Truck Drayage Between the Warehouse & the Intermodal Rail Terminal

An aerial photograph of a large inland port facility. The foreground shows a multi-lane highway with several semi-trucks. The middle ground is dominated by a vast yard filled with thousands of colorful shipping containers stacked in neat rows. In the background, there are some industrial buildings and a flat landscape under a clear sky.

The Inland Port:

***“With Integrated JIT Delivery:
The Inland Port Can Greatly
Increase a Regions Freight
System Capacity”***

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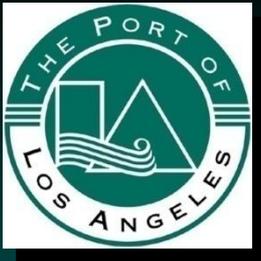


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Growing Environmental Concerns for Marine Vessel Emissions

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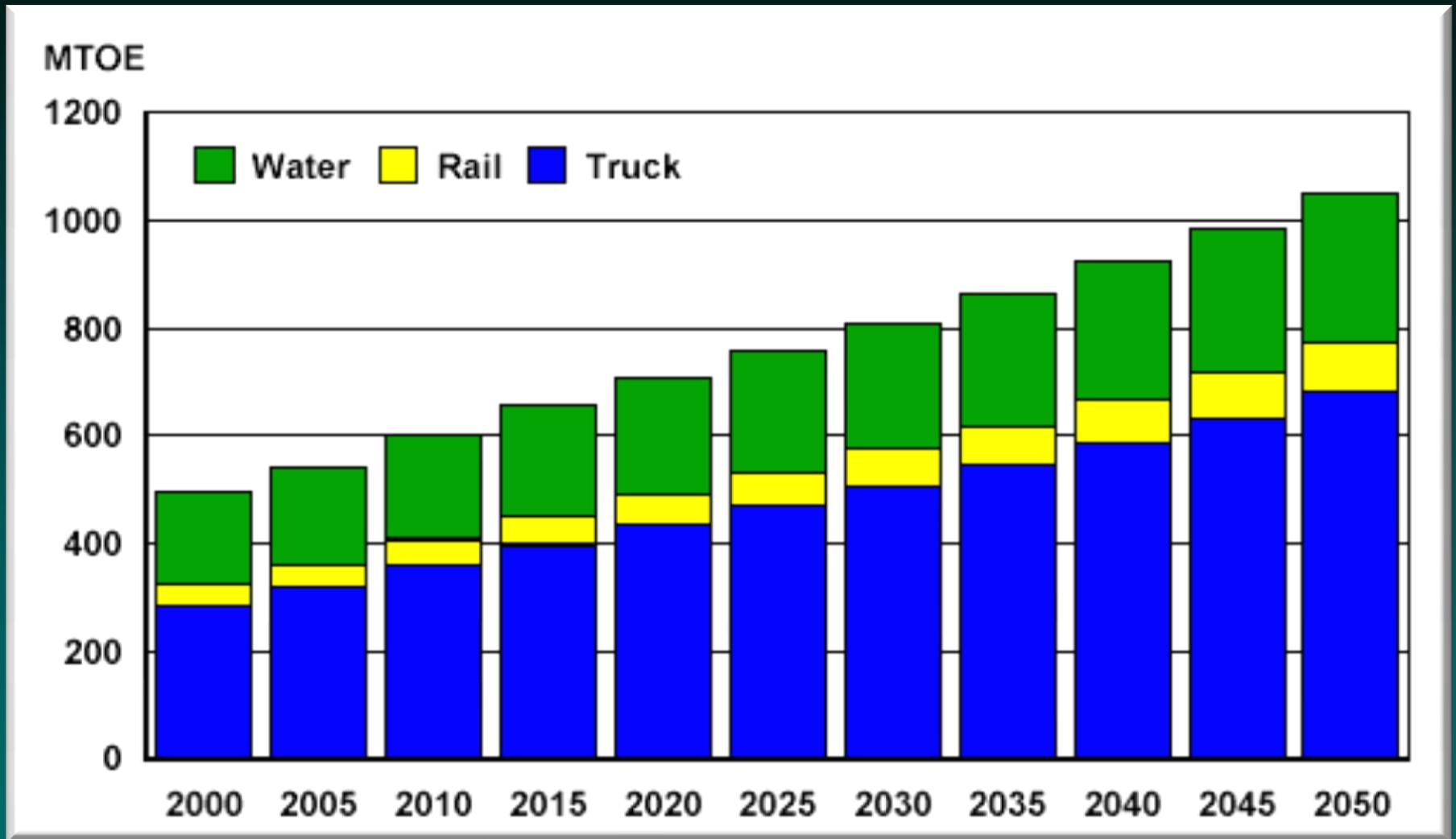
Port of Los Angeles Commission on Diesel Emissions

“According to the health information I've been given, this port is killing people, and we've got to cut it out as fast as we can. When I say we have to act as though our lives depend on it — because they do — that's serious talk.”

“We're the polluters. We know it's our responsibility to clean it up,”

S. David Freeman, President
Los Angeles Board of Harbor Commissioners

Global Freight Energy Use is on the Rise



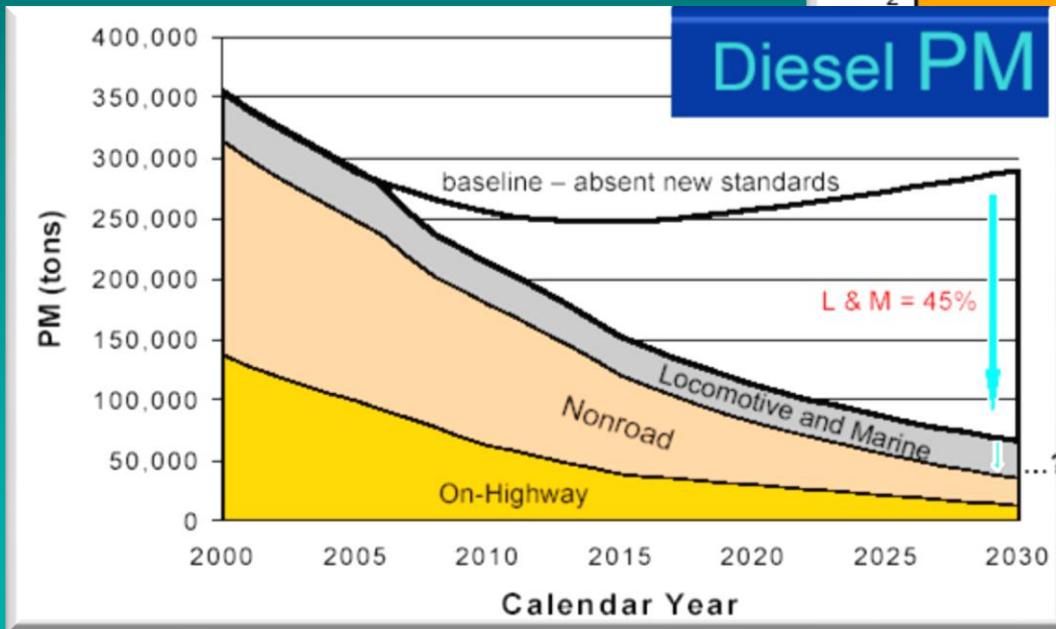
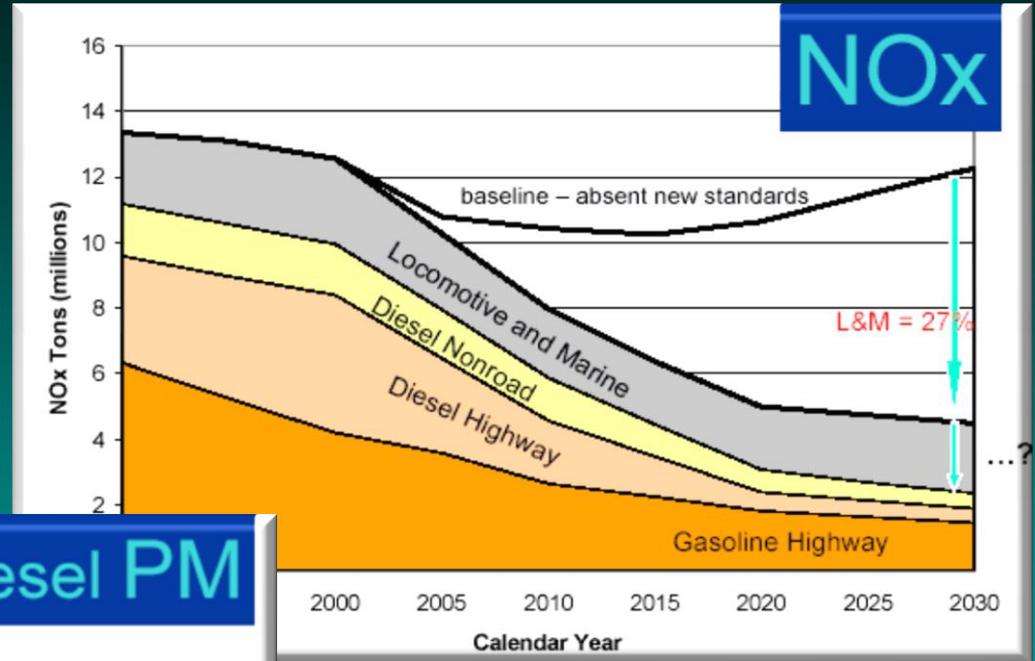
Source: 2005 Haagen Smit Worldwide Emissions Overview & NRDC "Harboring Pollution"

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Global Diesel PM & NOx Baseline Projections

Land Based Pollutants
Have Declined with
Regulation, but the
Unregulated Marine
Based Pollutants are
Increasing



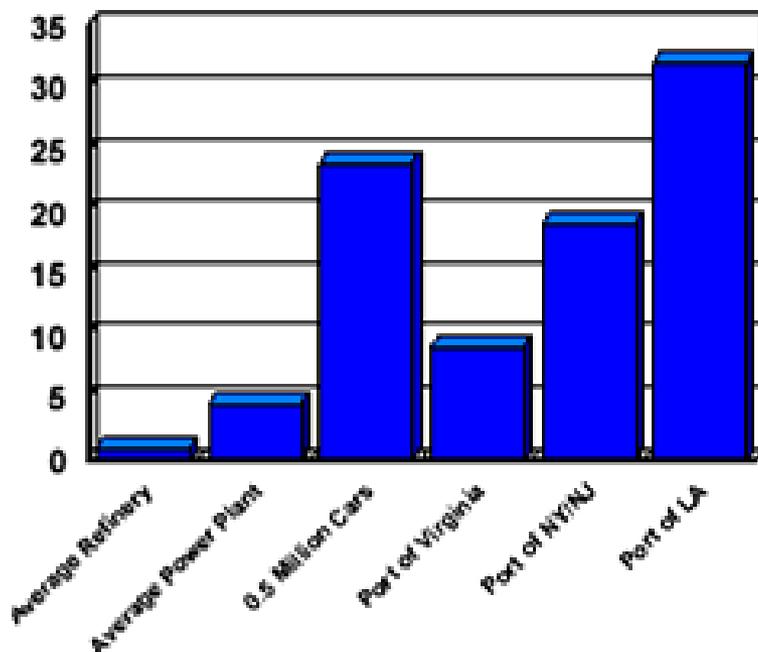
Absent New
Standards and
Regulations the
Pollutant Baselines
Are Forecast to Rise

Pollution Sources

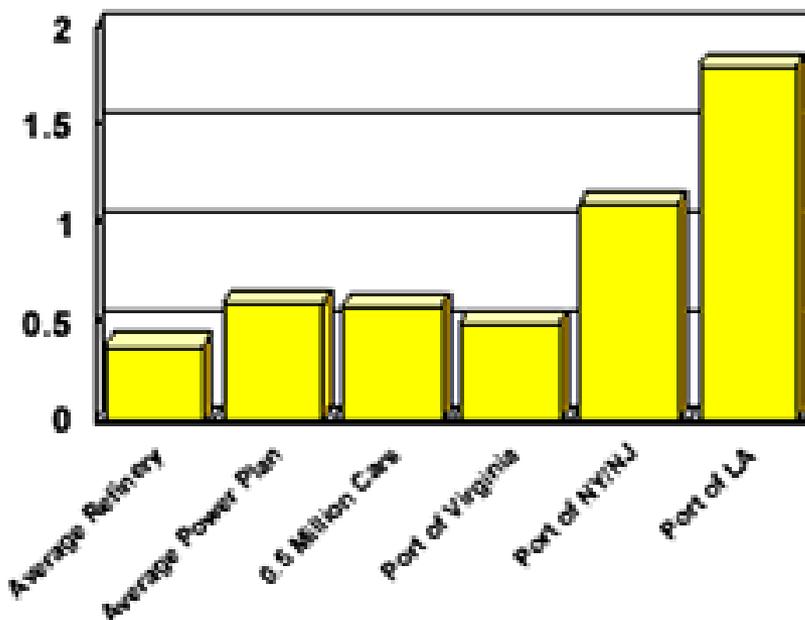
US Ports vs Other Industries...

We Need To Do Better

NOx Emissions Tons per day



PM10 Emissions Tons per day



Transportation Diesel Pollutants are Putting Our Health in Jeopardy



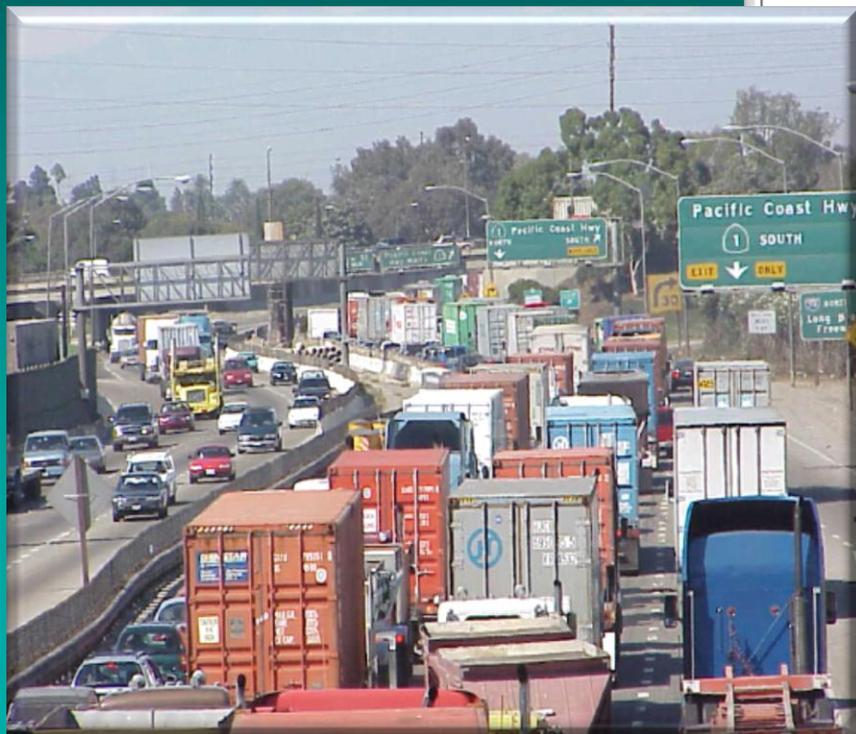
Diesel PM

Progress has stalled and diesel emissions from ships, locomotives and port complex are projected to increase.

Diesel pollution from cruise lines and cargo ships can increase the risk of respiratory infection, lung inflammation and asthma. Particulate matter (PM) from diesel has been linked to heart and lung diseases and, in some cases, premature death

South California Environmental Challenges

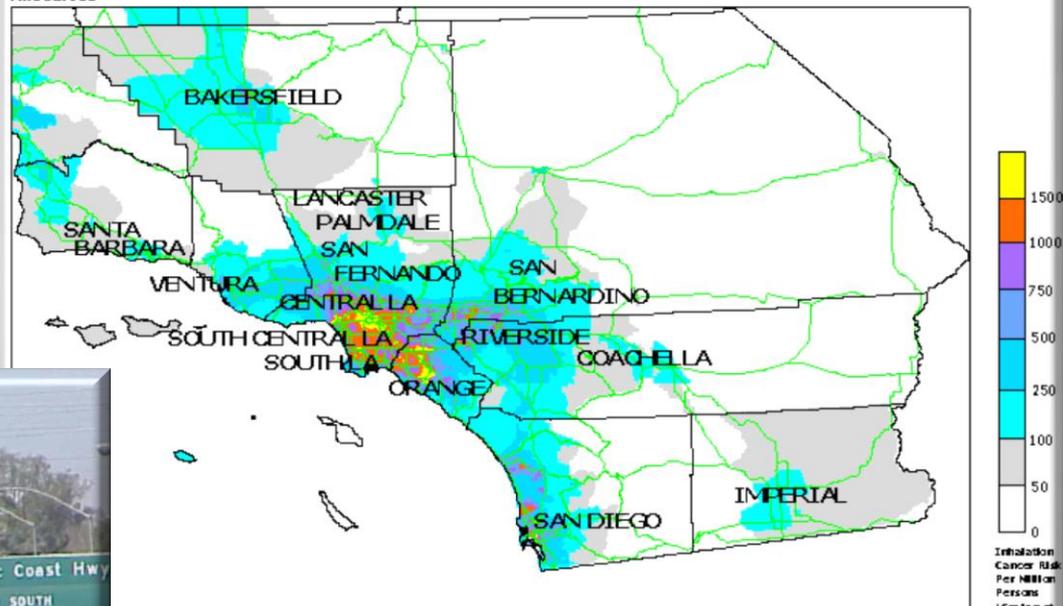
The “Diesel PM Death Zone”



I-710 Typical Day from POLA/POLB

Total Risk (diesel + nondiesel)

Southern California: 1990 Cancer Risk Per Million
All Sources



Cancer Risk Per Million

- Environmental Constraints are Growing
- POLA/POLB Have had 40 major Projects Held up for Years
- State Looking Into User Fees

Port Environmental Mitigation Measures



2011 Executive Management Conference

Broadening Industry Awareness - Part One

Saddlebrook Resort, Tampa , FL

May 2, 2011



Thank You

