

“Update on the Panama Canal Expansion”

**AAPA’S SHIFTING INTERNATIONAL TRADE ROUTES
TAMPA - FLORIDA**

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Vice President of Planning and Business Development

January 23, 2014



CANAL DE PANAMÁ



Panama at a Glance

GDP growth rate – last 10 years	7.5%
GDP estimated- 2013 (millions of dollars)	38,633
GDP per capita - 2013 estimated (in dollars)	13,032
Population (millions of persons)	3.5
Unemployment rate (in %)	4.0
Inflation rate - 2013 (in %)	4.08

Source: INEC (Contraloría General de la República) 2013



CANAL DE PANAMÁ



Panama Canal Facts

Drivers of Canal Expansion

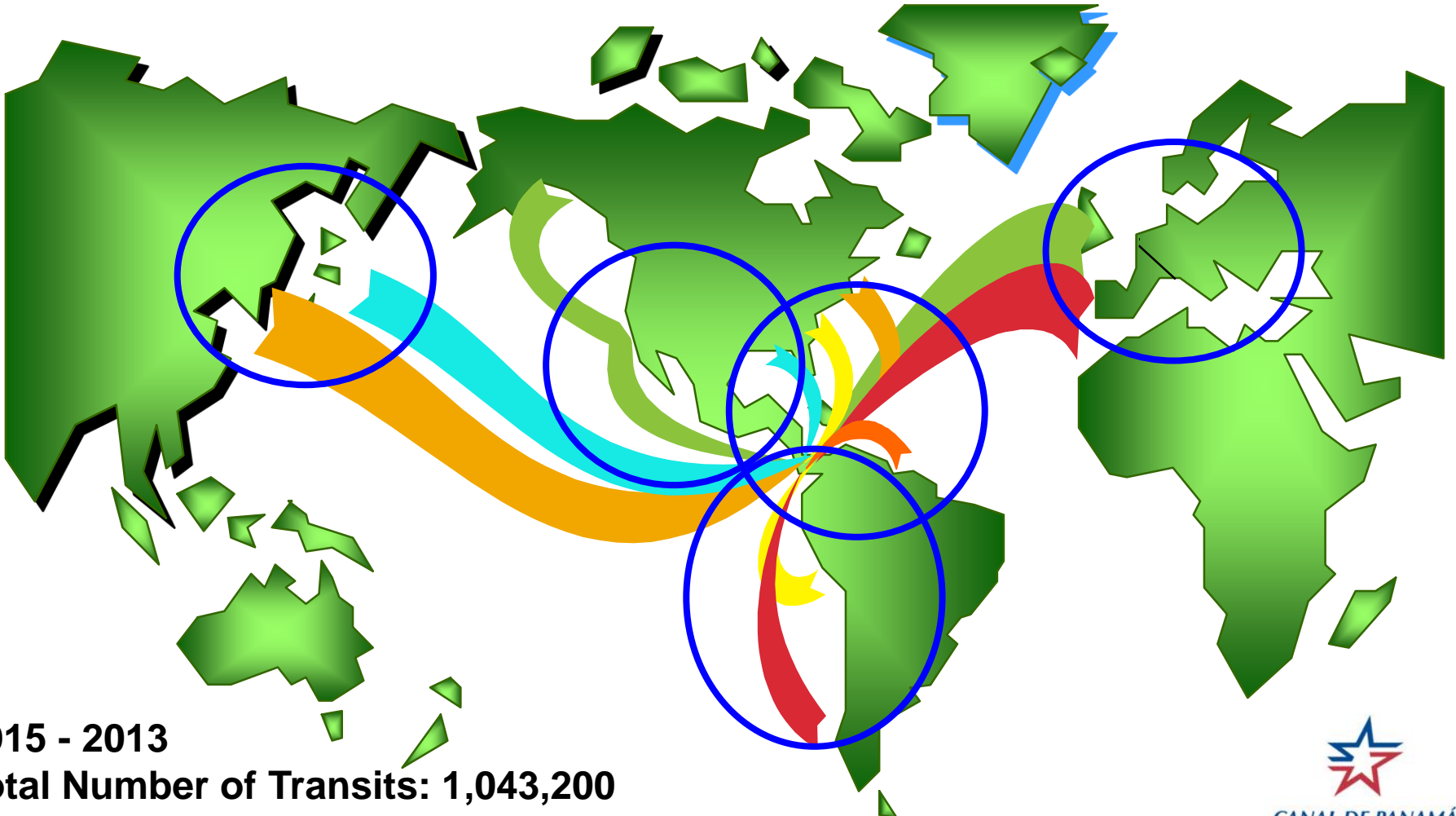
Components of Canal Expansion Program

Progress Report of the Expansion

Potential Impact on International Commerce



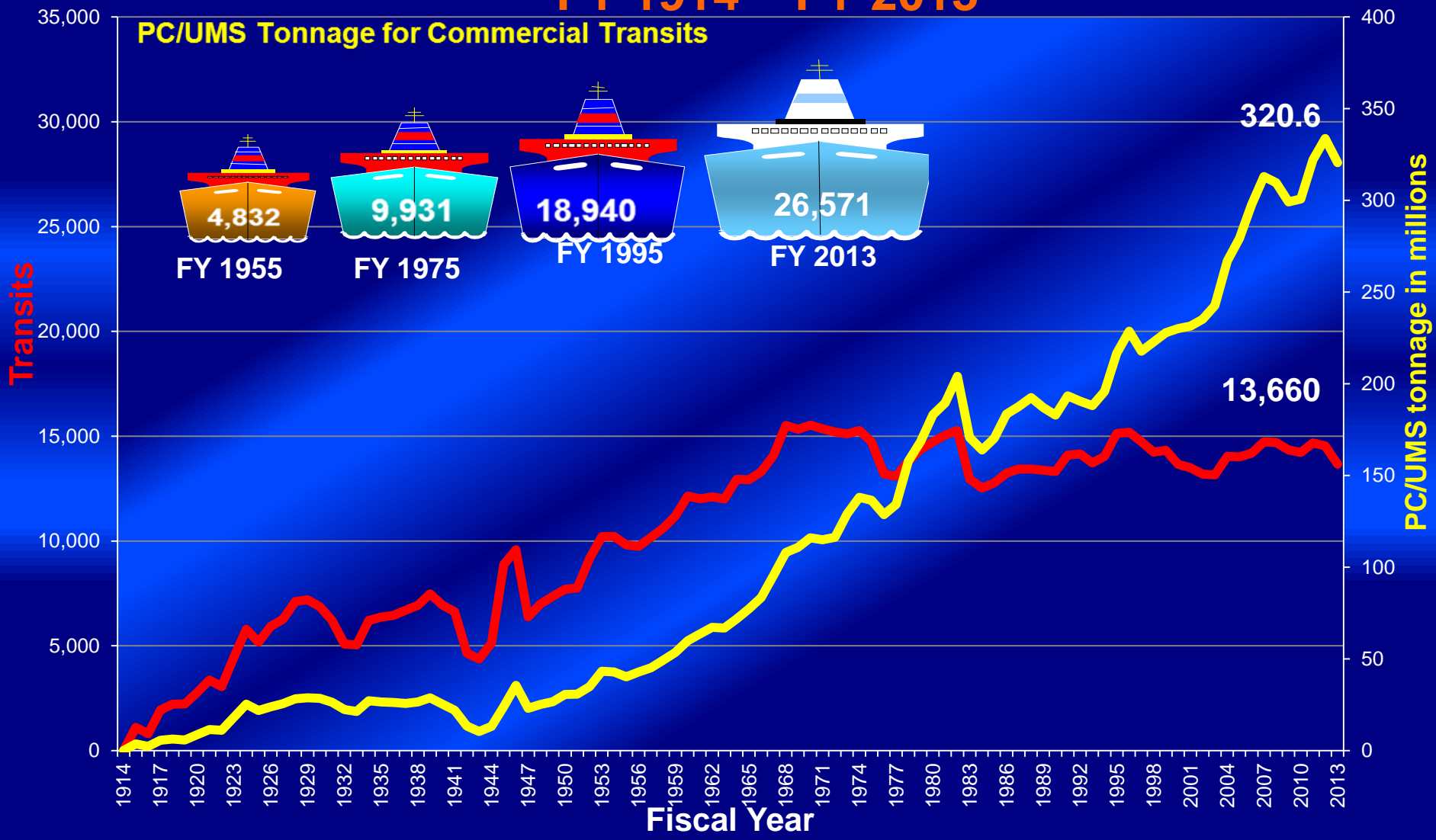
100 years serving the World Trade The Panama Canal



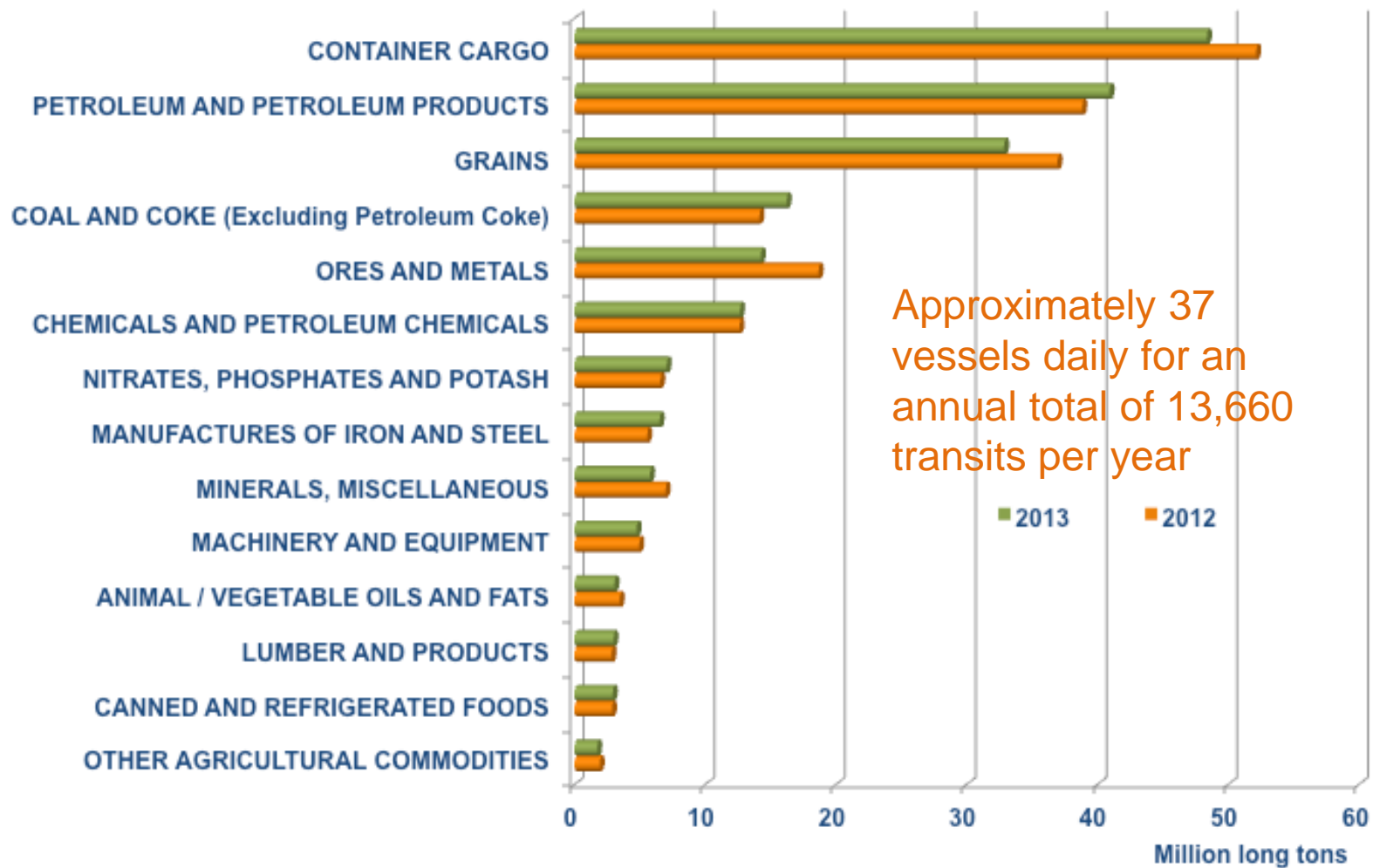
1915 - 2013
Total Number of Transits: 1,043,200
Amount of Cargo: 9,028,495,549 LT



Transits vs PC/UMS Tonnage FY 1914 – FY 2013



Main Cargoes in Long Tons FY 2012 - 2013



Panama Canal Customer Ranking FY 2013

Rank		Company
1	↑	NIPPON YUSEN KAISHA (NYK LINE)
2	↔	MEDITERRANEAN SHIPPING CO.
3	↓	MAERSK LINE
4	↑	COSCO
5	↓	HAPAG LLOYD
6	↔	EVERGREEN MARINE
7	↓	MITSUI O.S.K.
8	↑	CMA CGM
9	↓	WALLENTIUS - WILHELMSSEN
10	↓	HAMBURG - SUD
11	↑	SEA TRADE REEFER CHARTERING NV.
12	↑	SONAP
13	↑	DAMPSKIBSSELSKABET NORDEN AS
14	↔	HANJIN SHIPPING CO.
15	↑	CSAV – COMPAÑÍA SURAMERICANA DE VAPORES
16	↓	ZIM AMERICAN INTEGRATED SHIPPING SERVICES CO. INC.
17	↓	KAWASAKI KISEN K LINE
18	↔	HYUNDAI MERCHANT MARINE
19	↑	ARCHER DANIELS MIDLAND COMPANY
20	↑	TRAFIGURA BEHEER B.V.

These customers are accountable for 65% of tolls revenue in FY 2013

Total Cargo Movements of Main User Nations Panama Canal

Cargo Long Tons

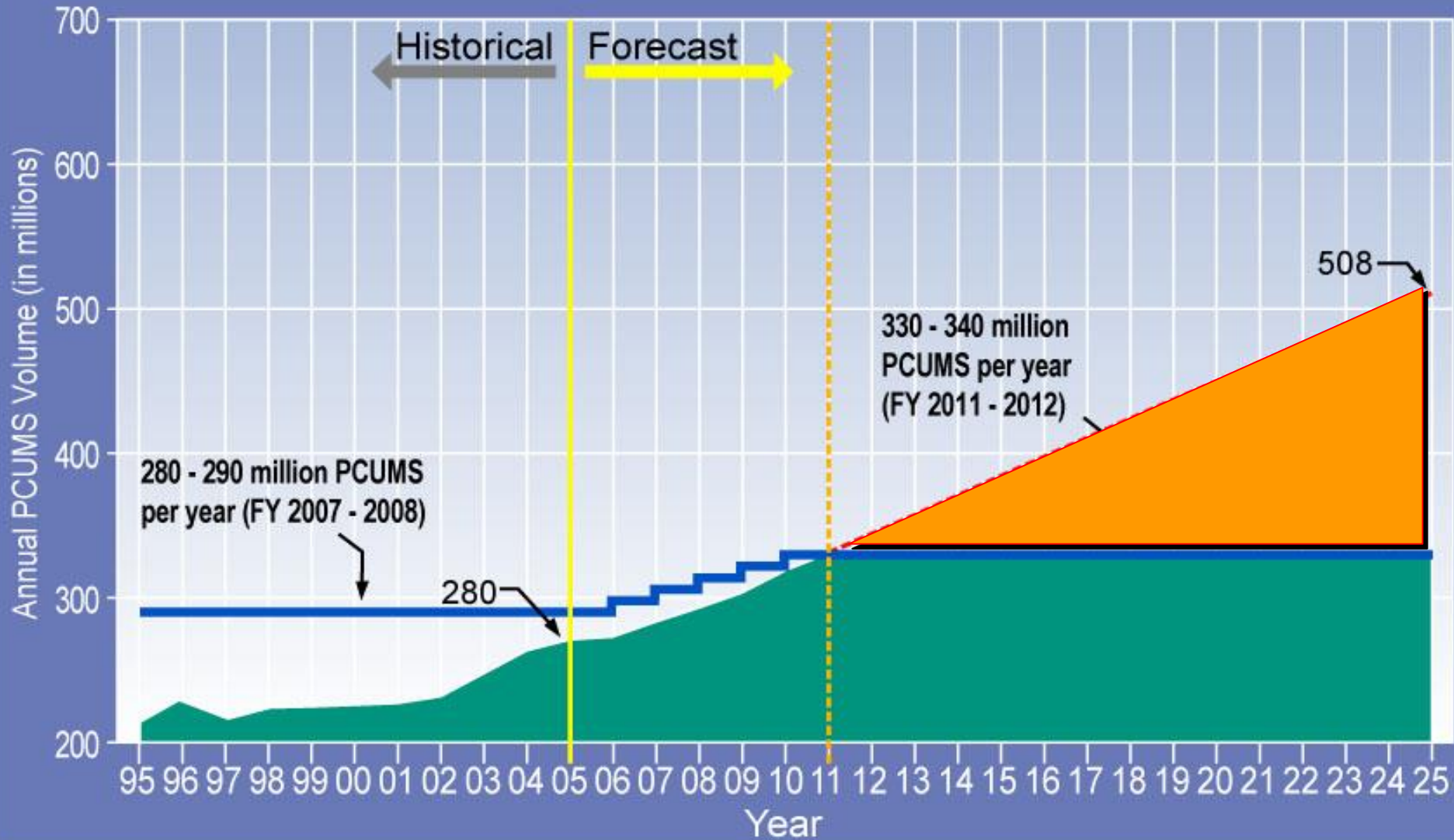
User Nation	FY 2012	FY 2013
United States	142.0	134.8
China	52.7	46.4
Chile	28.0	29.0
Japan	22.4	20.0
Colombia	15.0	17.5
South Korea	17.0	16.8

**65% of Canal cargo traffic originates in
or is destined to the United States**

The Panama Canal - 2014



Maximum Sustainable Capacity of the Canal



— Maximum sustainable capacity

■ Manageable demand

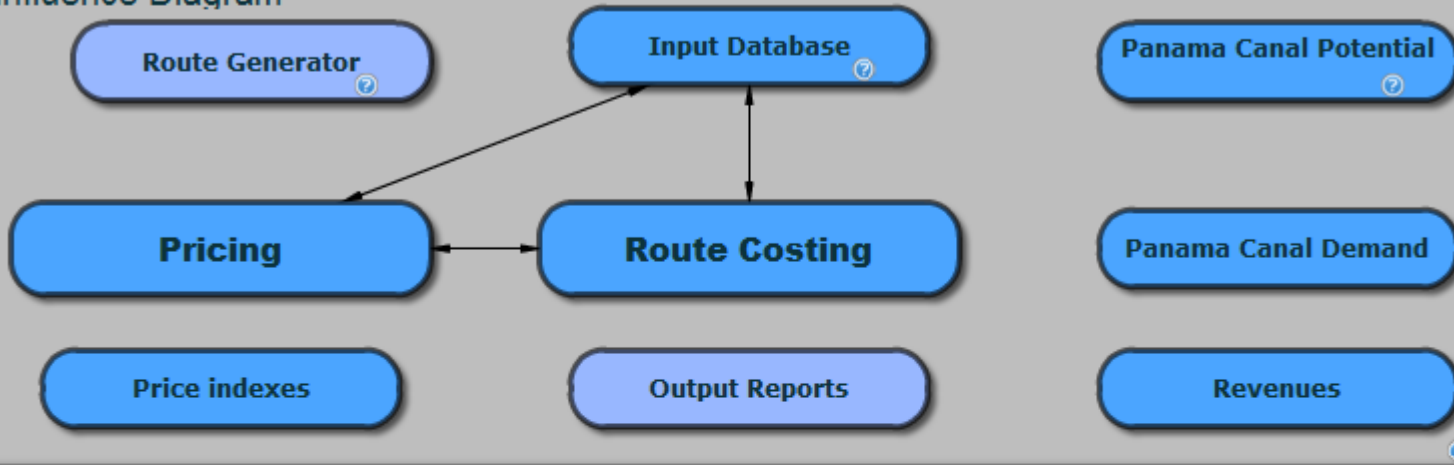
- - - Probable Demand

PCRCAM

Panama Canal Route Competitiveness Analysis Model



Influence Diagram



Control Panel

Variable Inputs

Time Horizon	2011. ▾	Time Selection For Route Costing	2010.0 ▾
Fuel Variation Scenario	Result	Inflation Forecast	Calc
Exchange Rates Forecast	Calc	Panama Canal Tolls Adjustment	Calc

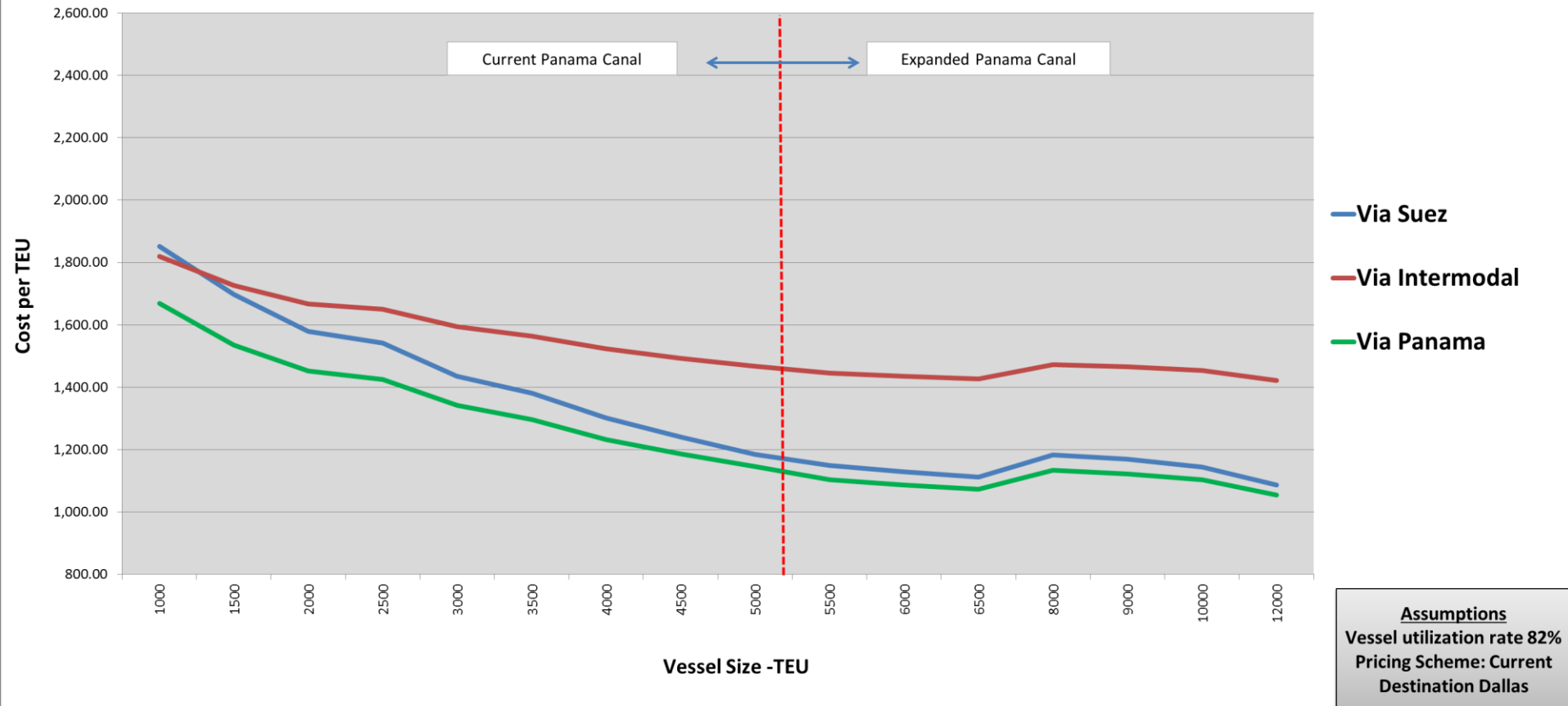
Main Outputs

FY Revenue Vessel Group and New Market Segments	Calc	Generalized Cost per Weight Average TEU (US\$)	Calc
FY Revenue by Customer	Calc	Competitiveness Index for Route	Calc

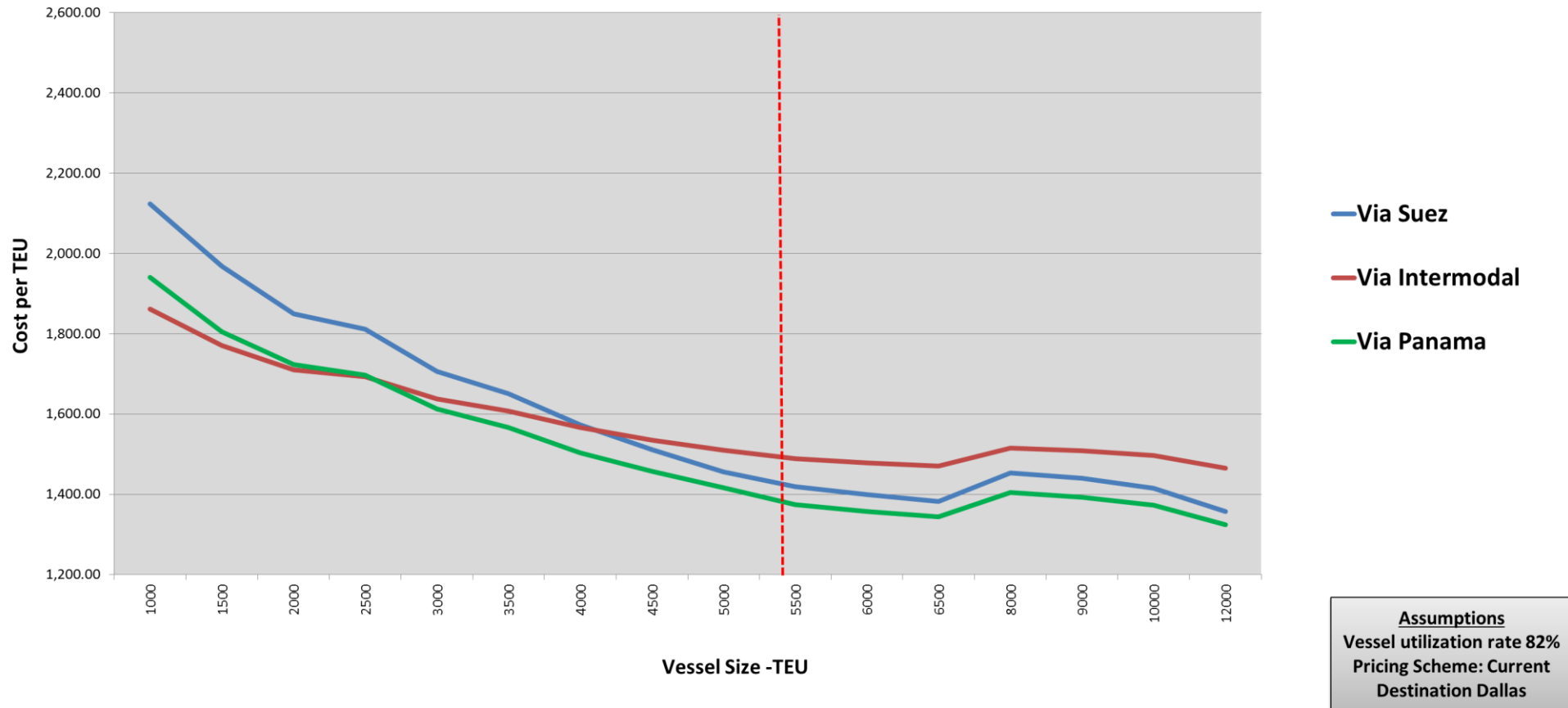




Estimated Unit Cost per TEU for Full Container Vessel from Asia to Gulf - DC in Houston



Estimated Unit Cost per TEU for Full Container Vessel from Asia to Gulf - DC in Dallas





Impact of the Expansion of the Canal, due to economies of scale derived from the use of larger container carriers through the Panama Canal



Panama Canal Expansion Program Objectives

- 🚢 **Maintain Canal competitiveness as well as the value of the route**
- 🚢 **Increase capacity and allow the transit of larger ships**
- 🚢 **Reduce water consumption**
- 🚢 **Improve safety and efficiency**
- 🚢 **Sustain tonnage and profitability growth**



New Locks



Third Set of Locks – Pacific Side



Third Set of Locks – Atlantic Side

2013



Transportation of Gates



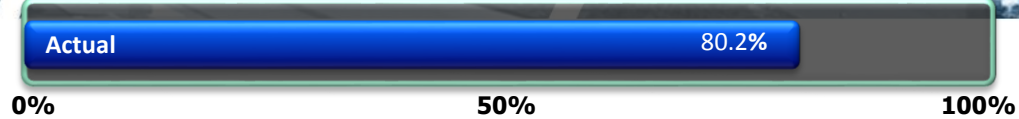
Panama Canal Expansion Update

Pacific Access Channel

42.9 M m³ excavated / 49 M m³

Award of last contract: 7-Jan-2010

Estimated completion date of last contract: 20-Apr-2015

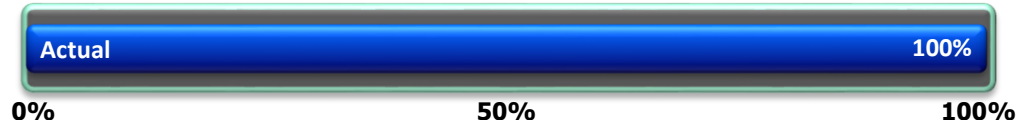


Dredging – Pacific Entrance

8.6 M m³ dredged

Award: 1-Apr-2008

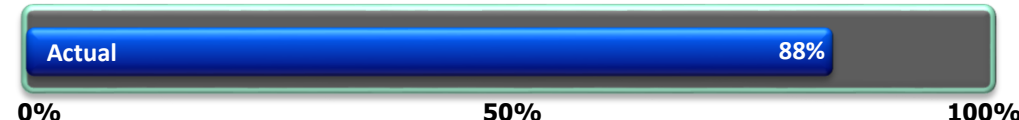
Contract completion date: 31-Jul-2013



Dredging Areas in Gatun lake and Gaillard Cut

22.3 M m³ dredged / 26 M m³

Estimated contract completion date: 26-Apr-2015

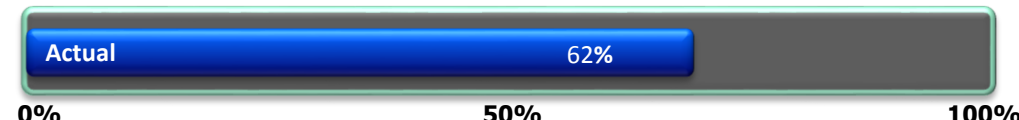


Locks Design and Construction

38.8 M m³ excavated vol. / 46.5 M m³

Award: 15-Jul-2009

Estimated contract completion date: 20-Apr-2015

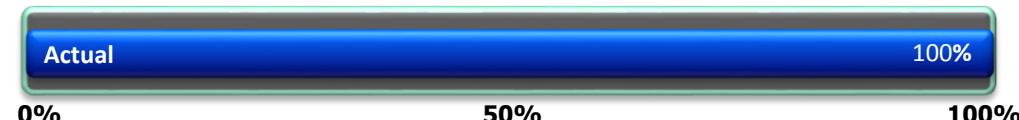


Dredging – Atlantic Entrance

17.6 M m³ dredged

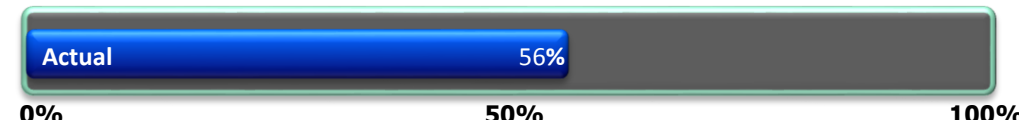
Award: 25-Sep-2009

Contract completion date: 21-May-2013



Raising the Maximum Operating Level of Gatun Lake

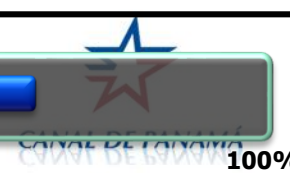
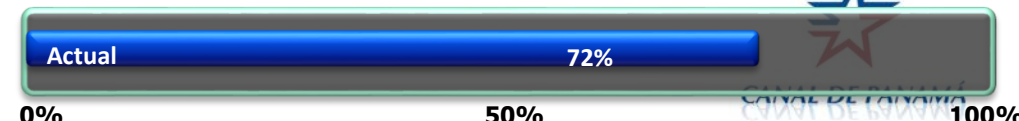
Estimated completion date: 30-Sep-2014



Expansion Program

Removed Material:

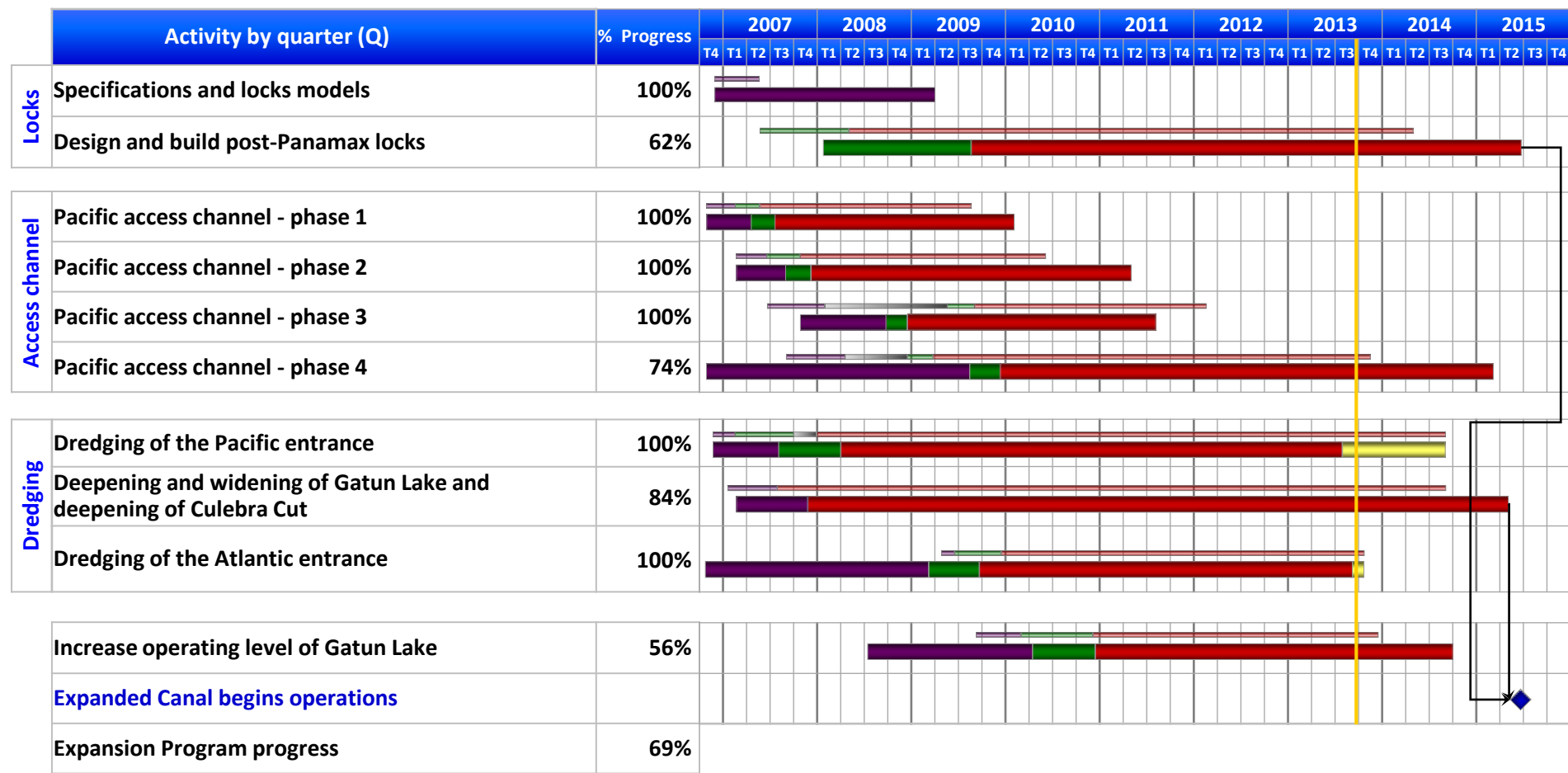
130.2 M m³ / 148 M m³





Summary Schedule of Main Projects with Baseline and Contingency

As of 31 October 2013



Specifications and design

Bidding and contracting

Execution

Contingency against baseline

Baseline*

Baseline

Baseline

Beginning of operations



* Baseline from 31 December 2006 including contingency



Impact of Canal expansion

**Reduces
transport cost
per TEU**

**Improves
productivity
and flexibility
of carrier**

**Reduces CO₂
emissions per
TEU**

**Improves the
competitiveness
of the Panama
route**

**Improves
carrier's
network
performance-
T/S**

**Impacts
development of
US ports and
land
infrastructure**

Liner Services Connectivity Panama Canal



Commercial Route	Number of Services	Annual Capacity	Number of Vessels	Average Vessel Size
Feeder Services Atlantic	24	2,019,094	74	1,904
Feeder Services Pacific	9	2,287,197	66	6,072
Total	33	4,306,291	140	

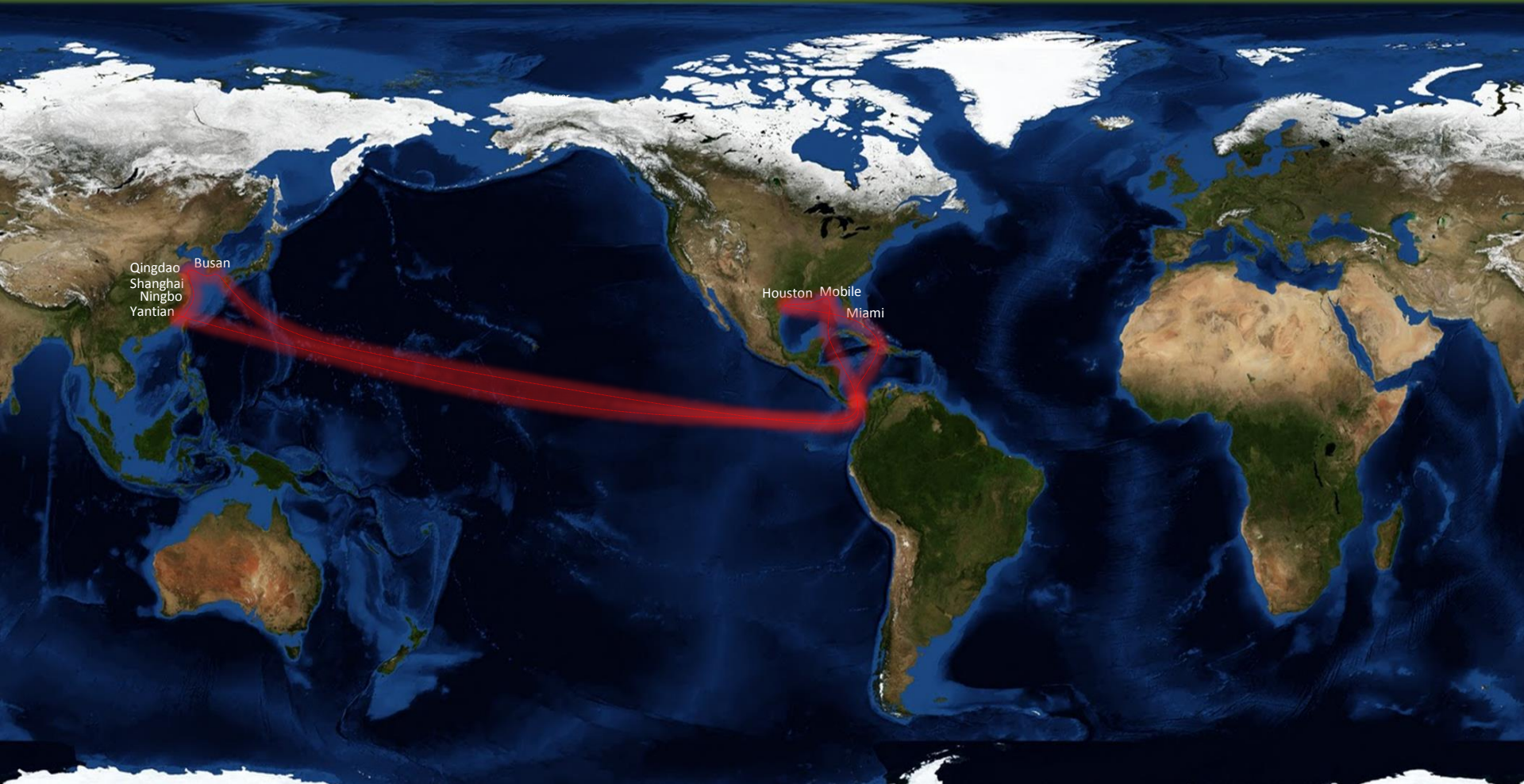
Commercial Route	Number of Services	Annual Capacity	Number of Vessels	Average Vessel Size
Asia - USEC / Gulf	11	2,540,082	109	4,439
WCSA - Europe	7	1,204,679	56	3,496
Pendulum	2	493,012	28	4,726
WCUS - Europe	2	430,335	21	4,087
WCSA - ECUS	2	405,620	12	3,942
Asia - Caribbean	1	246,428	12	4,726
Australia - Europe	1	90,572	13	1,737
Australia - ECUS	1	178,642	10	3,426
WCSA - Caribbean	1	49,010	3	1,477
Total	28	5,638,380	264	4,027

Source: ACP MEMN, Compar Data, November 2013

PEX-3/Everglades/TP-15 Service

P3 Alliance

Maersk Line, CMA CGM, MSC

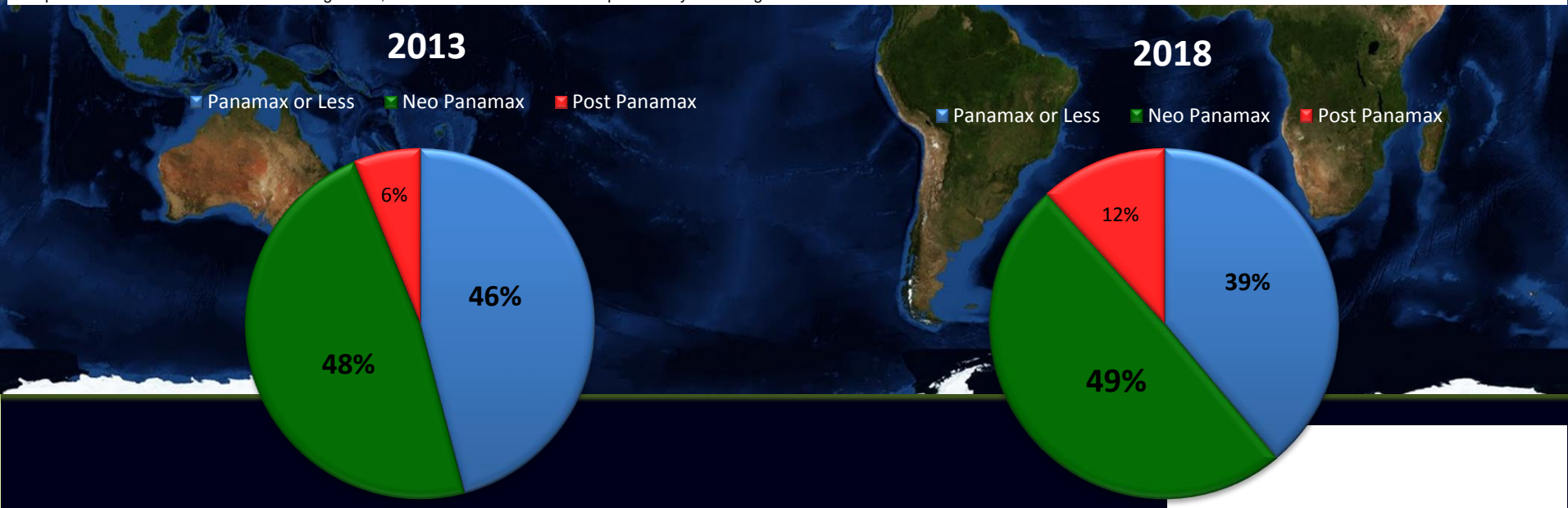


Frequency days	7
Number of vessels	11
Average vessel size in TEU	4,952
TEU size range	4,367 – 5,095


Fleet Capacity and Vessel Size Composition

Vessel size	Existing fleet as of December 2013				Orderbook 2014-2018				Estimated Fleet in 2018			
	No. of vessels	%	Capacity (thousands of TEUs)	%	No. of vessels	%	Capacity (thousands of TEUs)	%	No. of vessels	%	Capacity thousands of TEUs)	%
Feeders 100-499	355	6.9%	108	0.6%	0	0.0%	0	0.0%	355	6.4%	108	0.5%
Feedermax 500-999	793	15.5%	594	3.5%	7	1.5%	5	0.1%	800	14.3%	599	2.9%
Handy 1000-1999	1,226	24.0%	1,724	10.1%	66	13.9%	95	2.6%	1,292	23.1%	1,819	8.7%
Sub-Panamax 2000-2999	661	12.9%	1,678	9.8%	43	9.1%	101	2.7%	704	12.6%	1,779	8.5%
Panamax 3000-5000	899	17.6%	3,761	22.0%	10	2.1%	35	0.9%	909	16.3%	3,796	18.2%
Neo Panamax* 3500-13,200	1,107	21.6%	8,208	47.9%	261	55.1%	2,081	56.4%	1,368	24.5%	10,289	49.4%
Post Panamax* 13,200+	74	1.4%	1,056	6.2%	87	18.4%	1,375	37.2%	161	2.9%	2,431	11.7%
Total	5,115		17,129		474		3,692		5,589		20,821	
% Less than Panamax	59.3%		24.0%		24.5%		5.4%		56.4%		20.7%	
% Panamax	17.6%		22.0%		2.1%		0.9%		16.3%		18.2%	
% Neopanamax	21.6%		47.9%		55.1%		56.4%		24.5%		49.4%	
% Pospanamax	1.4%		6.2%		18.4%		37.2%		2.9%		11.7%	

*Neopanamax estimated at a maximum range of 13,200 TEU based on information provided by Samsung H.I.



The Impact of Canal Expansion on Dry Bulks

A satellite-style map of the world, centered on the Arctic region. The map shows the Arctic Ocean, Greenland, and parts of North America, Europe, and Asia. The landmasses are in shades of brown and green, while the oceans are dark blue. The Arctic region is covered in white ice. The map is used as a background for the text boxes.

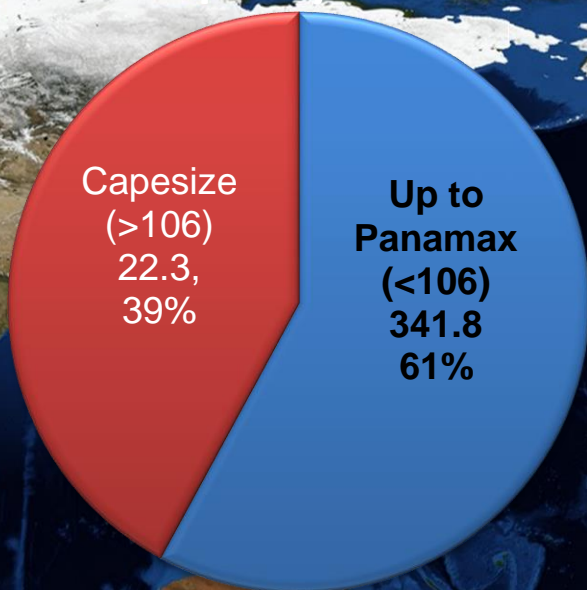
1. The USG-Asia grain trade will become more competitive through the use of larger vessels.

2. Potential for increased trade of coal to Asia/China.

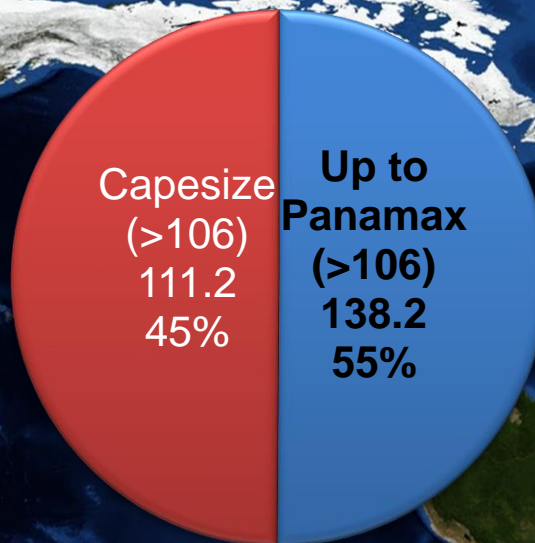
Dry Bulk Fleet Capacity

(Millions DWT)

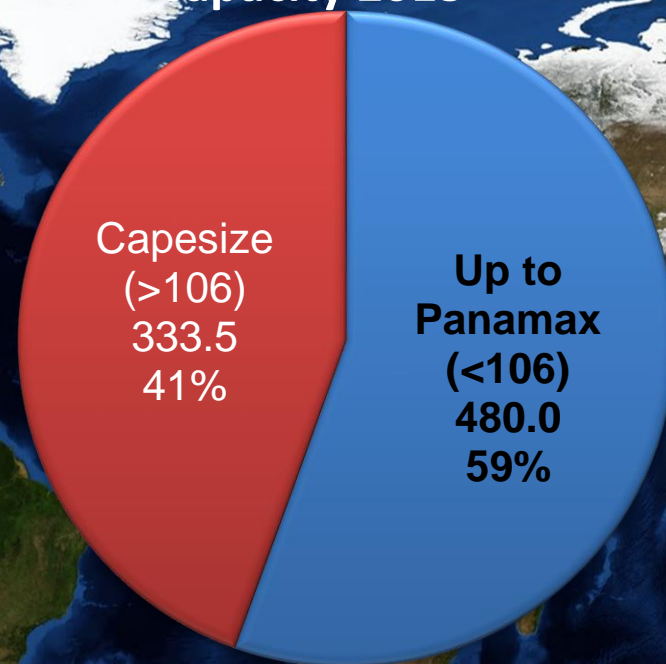
Capacity 2011



New Orders



Capacity 2013



Size Range	2011	Orders (2011-13)	2015 E*
	Capacity in Millions of DWT		
Up to Panamax (10-90K DWT)	326.6	125.0	451.6
Capesize (>90K DWT)	237.5	124.4	361.9
Total	564.1	249.4	813.5

* Total 2015 estimated ,not including scrapping

Source: Clarksons Research Studies, June 2011

The Impact of Canal Expansion on Liquid Bulks

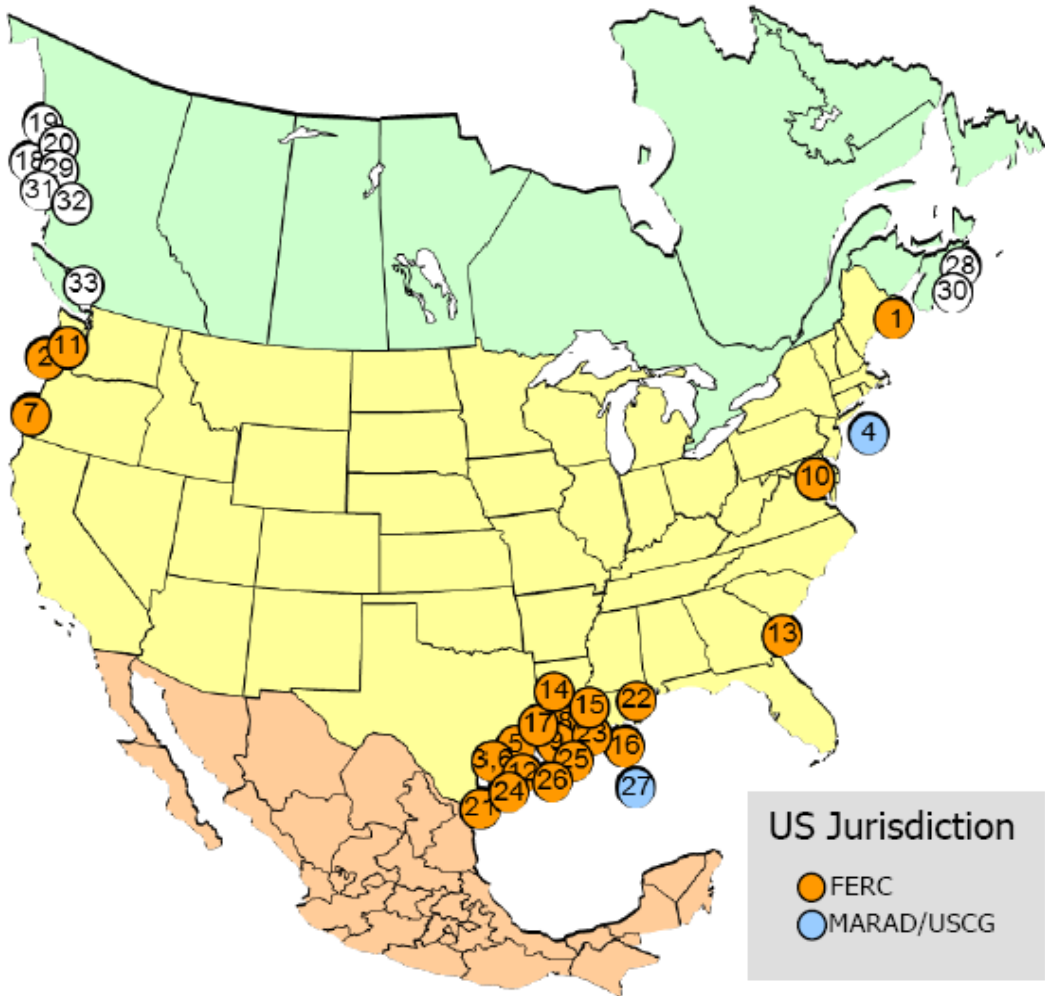
1. Canal expansion will make Ecuador – USG crude shipments more competitive vs alternative sources (e.g., ex Nigeria).

2. The expanded Canal will be the first route choice for LNG trades between Trinidad-Chile and Peru-USG and for Shale Gas exports coming out of the U.S. destined to Asia.



North American LNG Import/Export Terminals

Proposed/Potential



US Jurisdiction

- FERC
- MARAD/USCG

Import Terminal

PROPOSED TO FERC

1. Robbinston, ME: 0.5 Bcfd (Kestrel Energy - Downeast LNG)
2. Astoria, OR: 0.5 Bcfd (Oregon LNG)
3. Corpus Christi, TX: 0.4 Bcfd (Cheniere – Corpus Christi LNG)

POTENTIAL U.S. SITES IDENTIFIED BY PROJECT SPONSORS

4. Offshore New York: 0.4 Bcfd (Liberty Natural – Port Ambrose)

Export Terminal

PROPOSED TO FERC

5. Freeport, TX: 1.8 Bcfd (Freeport LNG Dev/Freeport LNG Expansion/FLNG Liquefaction)*
6. Corpus Christi, TX: 2.1 Bcfd (Cheniere – Corpus Christi LNG)*
7. Coos Bay, OR: 0.9 Bcfd (Jordan Cove Energy Project)*
8. Lake Charles, LA: 2.4 Bcfd (Southern Union - Trunkline LNG)
9. Hackberry, LA: 1.7 Bcfd (Sempra – Cameron LNG)*
10. Cove Point, MD: 0.82 Bcfd (Dominion – Cove Point LNG)*

11. Astoria, OR: 1.25 Bcfd (Oregon LNG)
12. Lavaca Bay, TX: 1.38 Bcfd (Excelerate Liquefaction)
13. Elba Island, GA: 0.35 Bcfd (Southern LNG Company)
14. Sabine Pass, LA: 1.3 Bcfd (Sabine Pass Liquefaction)
15. Lake Charles, LA: 1.07 Bcfd (Magnolia LNG)
16. Plaquemines Parish, LA: 1.07 Bcfd (CE FLNG)
17. Sabine Pass, TX: 2.1 Bcfd (ExxonMobil – Golden Pass)

PROPOSED CANADIAN SITES IDENTIFIED BY PROJECT SPONSORS

18. Kitimat, BC: 0.7 Bcfd (Apache Canada Ltd.)
19. Douglas Island, BC: 0.25 Bcfd (BC LNG Export Cooperative)
20. Kitimat, BC: 3.23 Bcfd (LNG Canada)

POTENTIAL U.S. SITES IDENTIFIED BY PROJECT SPONSORS

21. Brownsville, TX: 2.8 Bcfd (Gulf Coast LNG Export)
22. Pascagoula, MS: 1.5 Bcfd (Gulf LNG Liquefaction)
23. Cameron Parish, LA: 0.16 Bcfd (Waller LNG Services)
24. Ingleside, TX: 1.09 Bcfd (Pangea LNG (North America))
25. Cameron Parish, LA: 0.20 Bcfd (Gasfin Development)
26. Cameron Parish, LA: 0.67 Bcfd (Venture Global)

U.S. – MARAD/COAST GUARD

27. Gulf of Mexico: 3.22 Bcfd (Main Pass - Freeport-McMoRan)

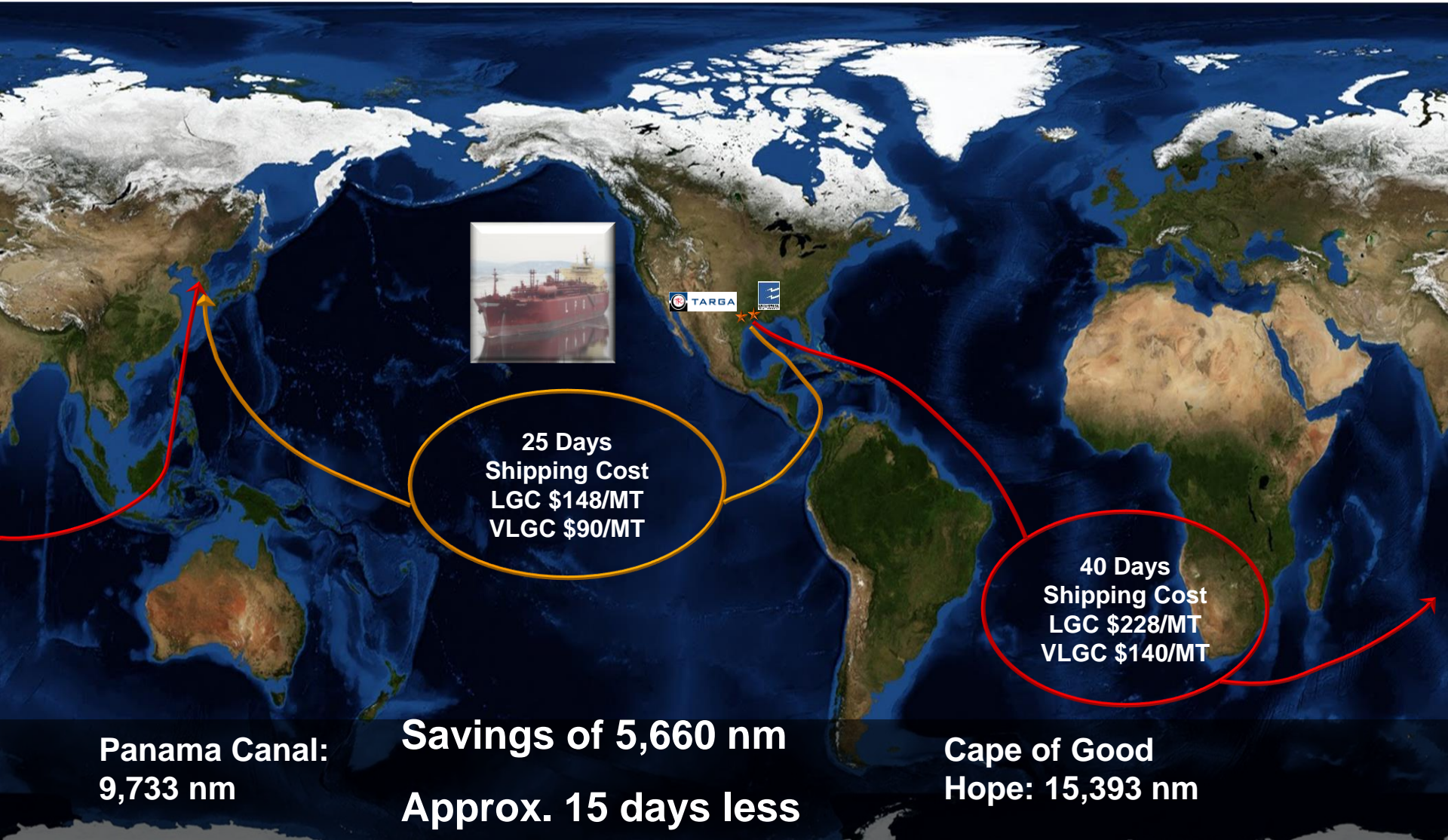
POTENTIAL CANADIAN SITES IDENTIFIED BY PROJECT SPONSORS

28. Goldboro, NS: 0.67 Bcfd (Pieridae Energy Canada)
29. Prince Rupert Island, BC: 4.2 Bcfd (BG Group)
30. Melford, NS: 1.8 Bcfd (H-Energy)
31. Prince Rupert Island, BC: 2.5 Bcfd (Pacific Northwest LNG)
32. Prince Rupert Island, BC: 3.8 Bcfd (ExxonMobil – Imperial)
33. Squamish, BC: 0.27 Bcfd (Woodfibre LNG Export)

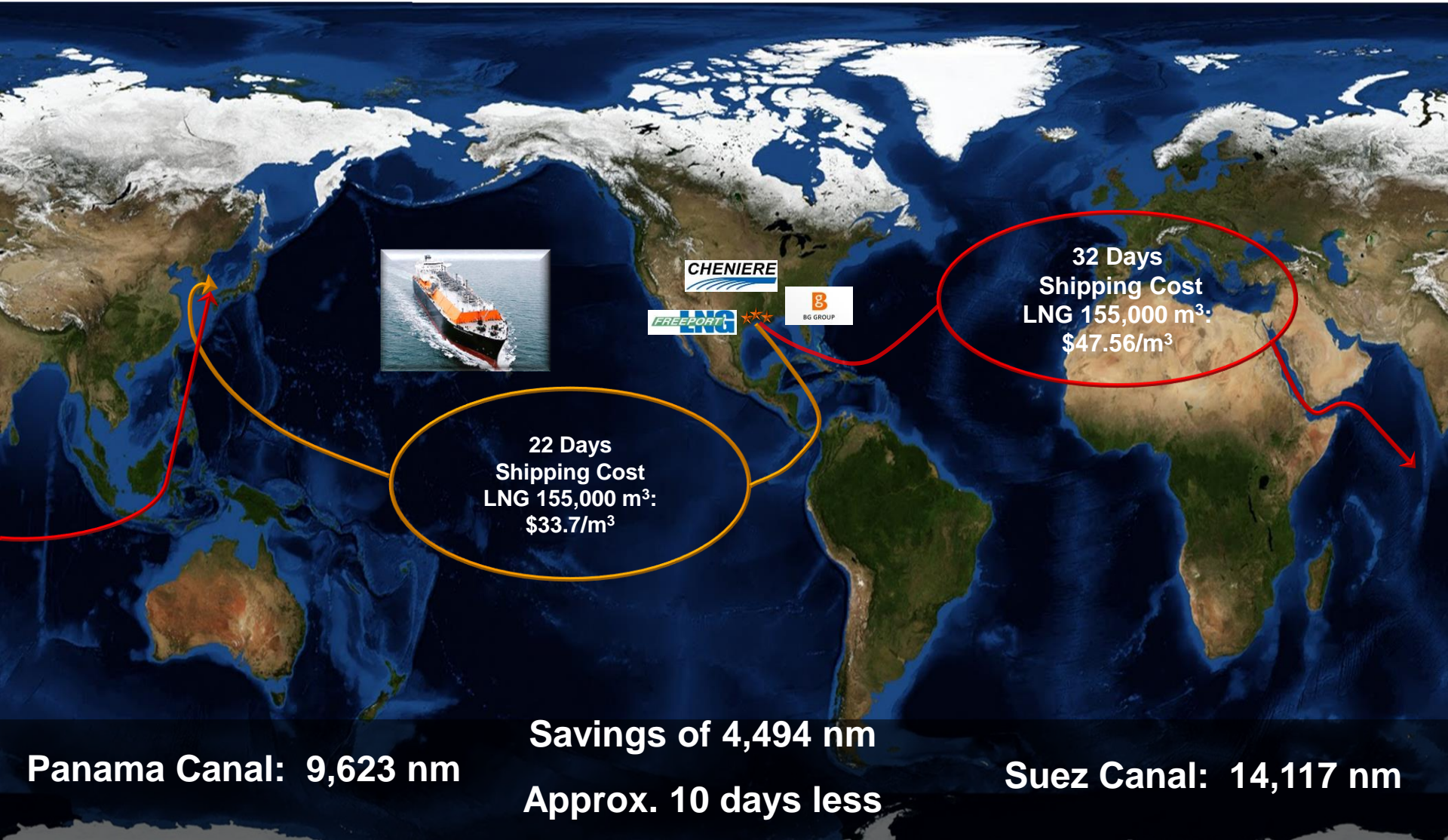
As of July 25, 2013

Office of Energy Projects

LPG Trade – U.S. Gulf to South Korea

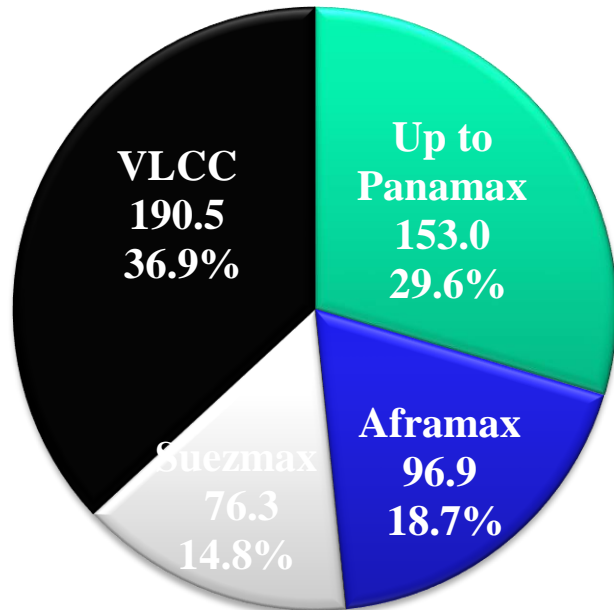


LNG Trade – U.S. Gulf to Fukuoka, Japan

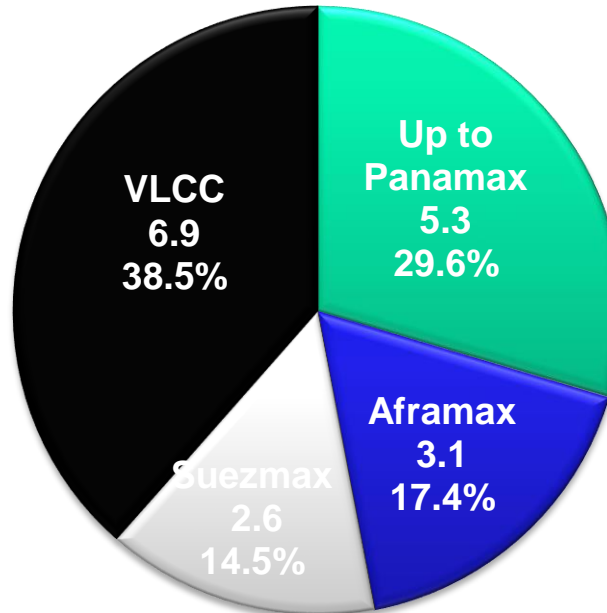


Tanker Fleet Capacity (Millions DWT)

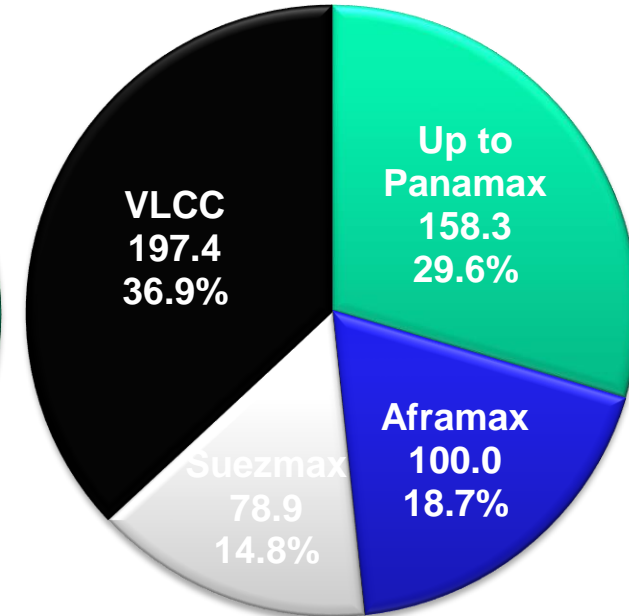
Capacity 2013



Orderbook 2014-2016



Capacity 2017



Vessel Size Range	2013	Orderbook (2014-16)	2017 E *
	Capacity in Million DWT		
Up to Panamax (<106')	153.0	5.3	158.3
Aframax (106' - 140')	96.9	3.1	100.0
Suezmax (140' - 160')	76.3	2.6	78.9
VLCC (> 160')	190.5	6.9	197.4
Total	516.6	17.9	534.6

* Total 2017 estimate does not include demolitions

Source: Clarkson Research Ltd, 2014



Latin America Population / Growth Projection 2010-2030

Mexico
+18.9%
Pop: 135M

Caribe, Cuba, Puerto Rico, Dominican Republic, Jamaica, Haití +11.0%
Pop: 42M

Guatemala, El Salvador, Belice, Honduras, Nicaragua. +28.0%
Pop: 39M

Costa Rica, Panama +23.0%
Pop: 11M

Colombia, Venezuela +22.0%
Pop: 88M

Ecuador, Peru, Bolivia, Chile +20.0%
Pop: 85M



Paraguay, %
Pop: 29M

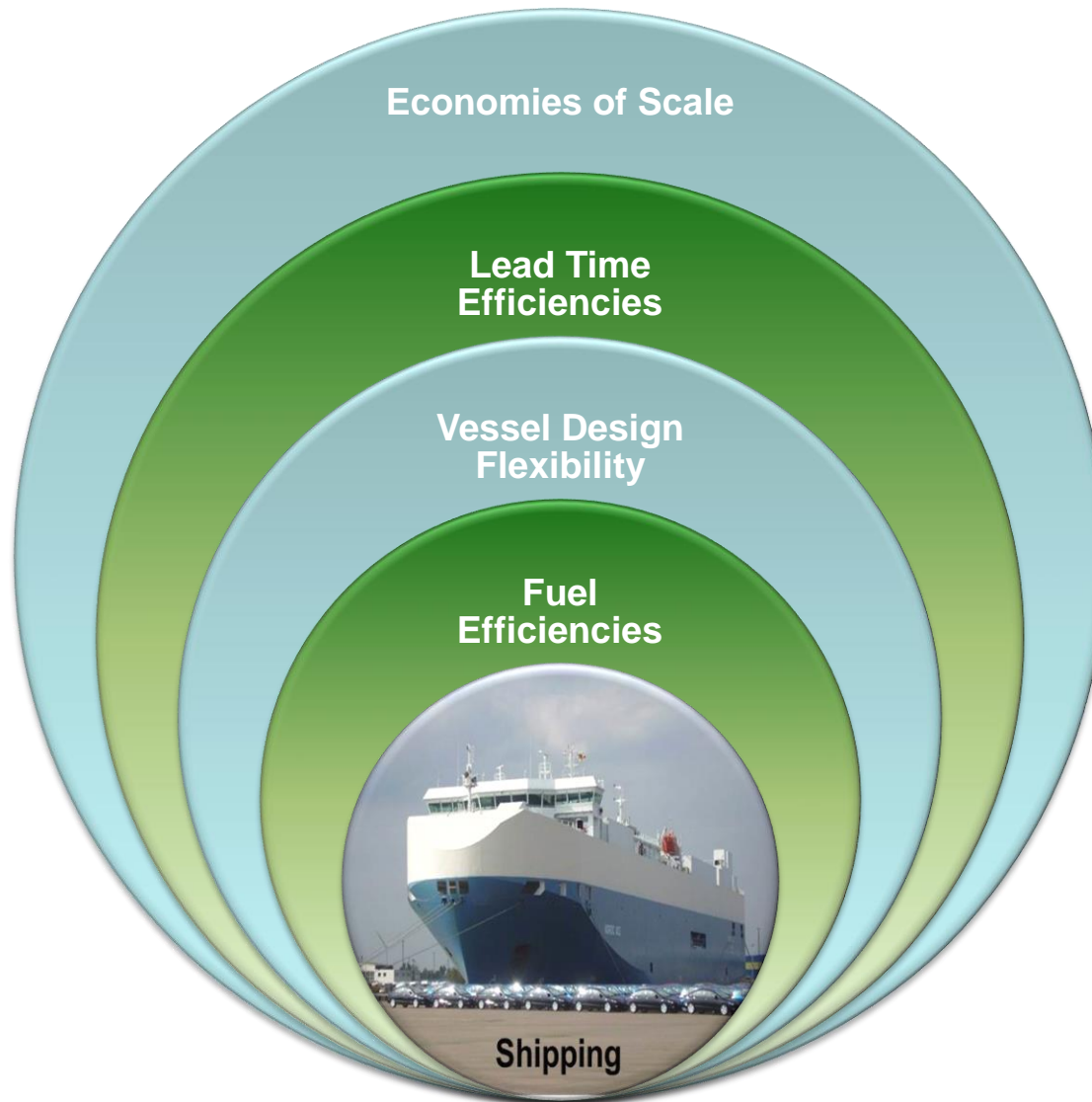
Argentina, +17.0%
Pop: 48M



Source: «US CENSUS: International Database»

Our Approach to Business

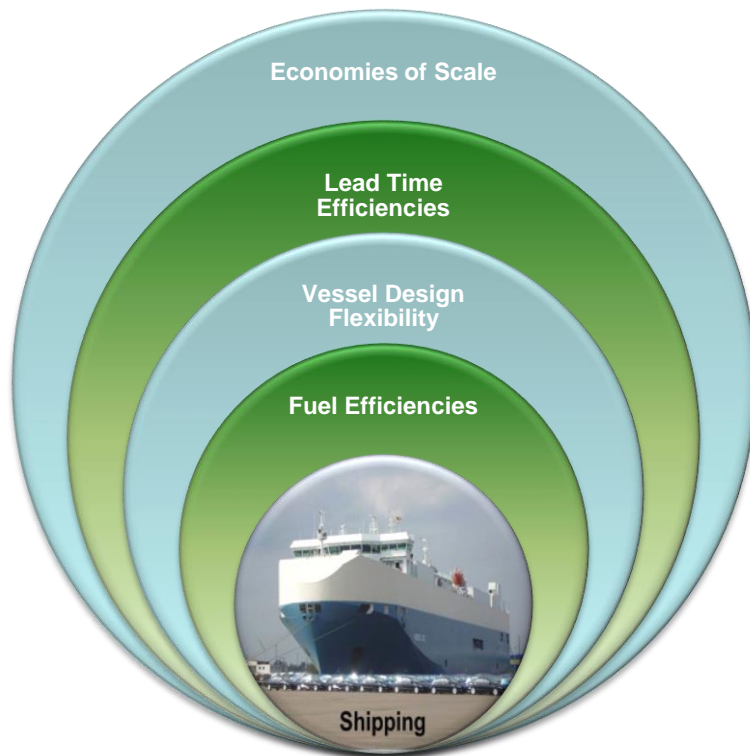
Value Network Business Model



Our Approach to Business

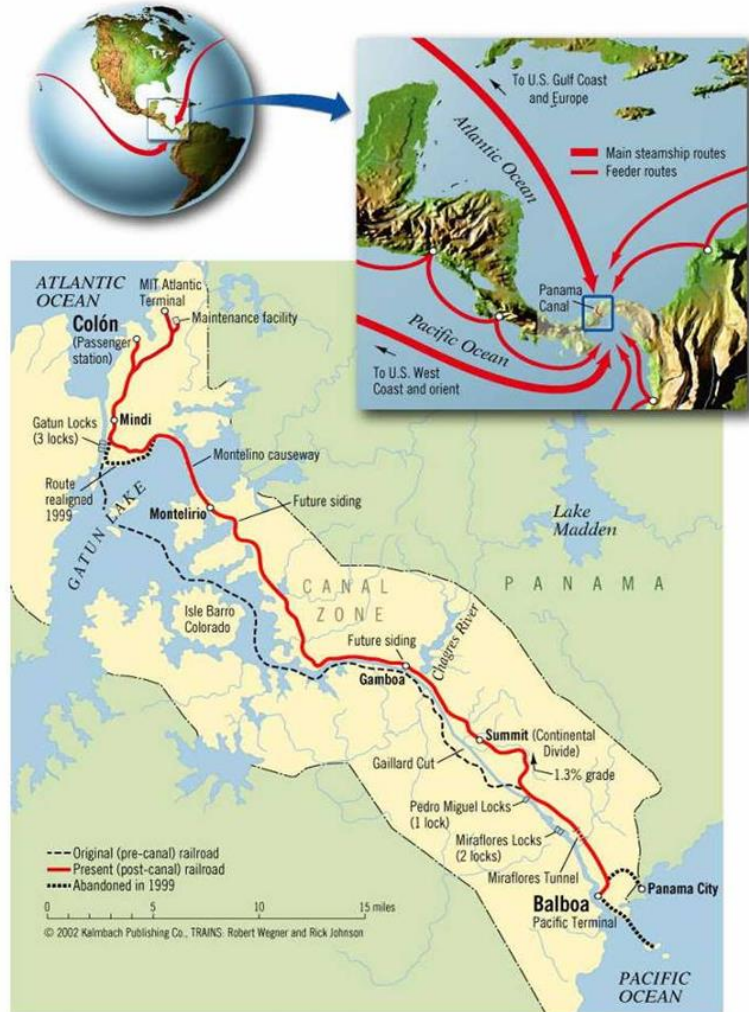
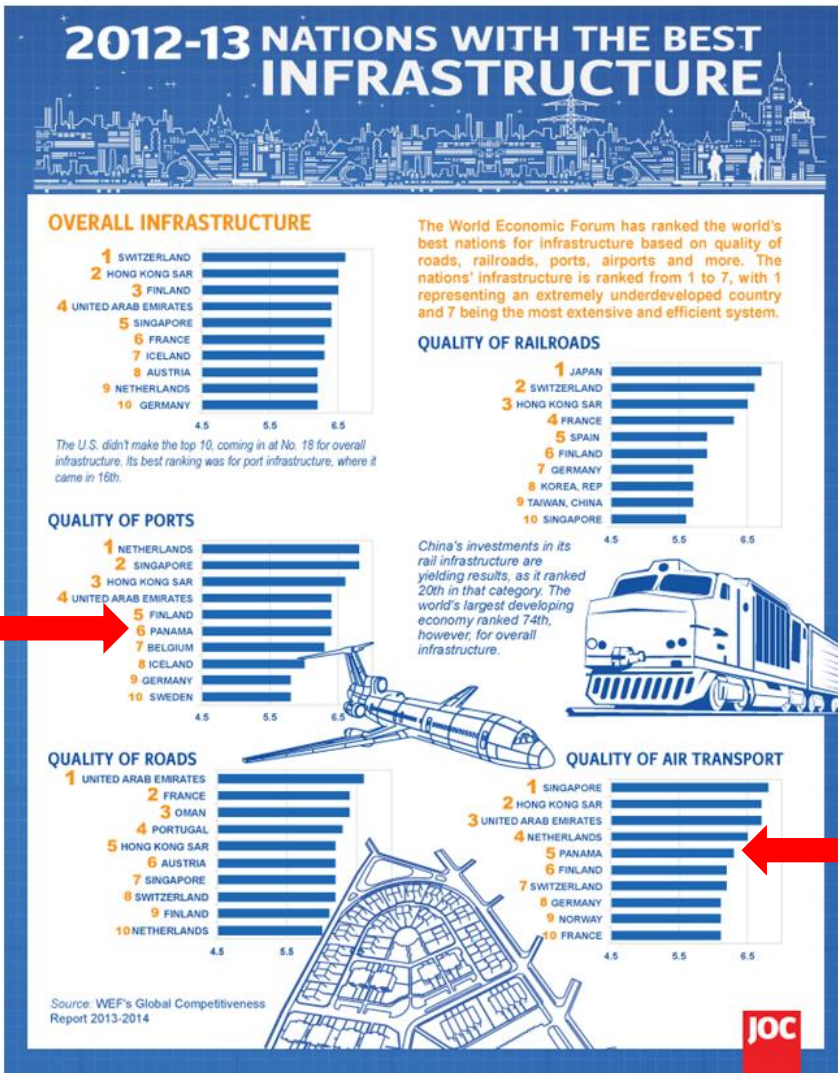
Value Network Business Model

Impact on maritime transportation by the
“Second Wave of Globalization in the Maritime
Industry”

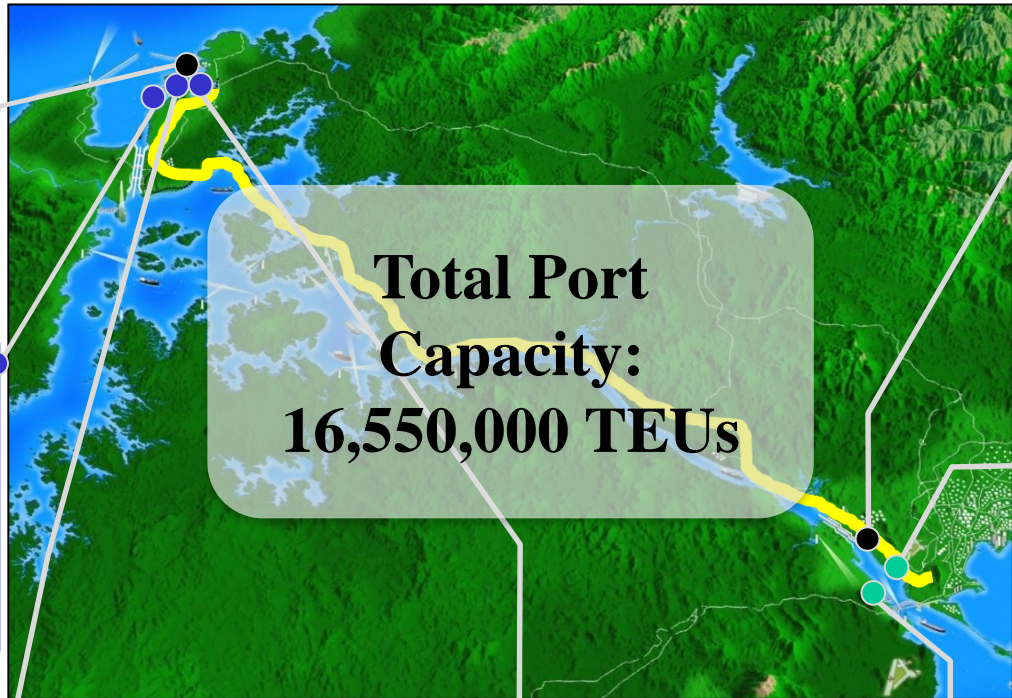


This approach will
provide solutions with
competitive advantages

Panama's World Logistics Cluster

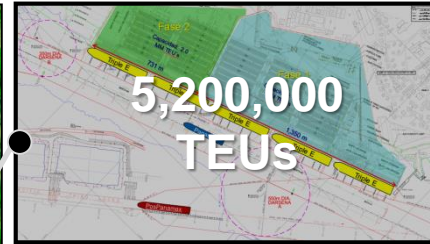


Port Development in Panama



**2,000,000
TEUs**

Panama Canal Colon Port, Inc.



**5,200,000
TEUs**

Corozal Port



**1,500,000
TEUs**

Panama Ports Company – Cristobal



**3,600,000
TEUs**

Panama Ports Company - Balboa



**1,600,000
TEUs**

Colon Container Terminal



**2,200,000
TEUs**

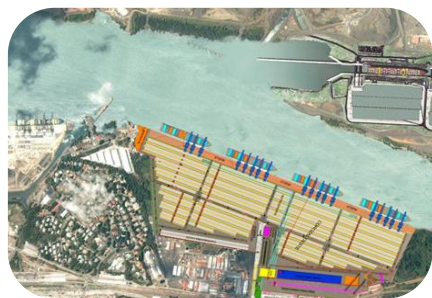
Manzanillo International Terminal (MIT)



**450,000
TEUs**

PSA

Ancillary Activities Under Analysis



Corozal Container Terminal



RoRo Terminal



Logistics Parks Services



Container Barge Services



Bunkering



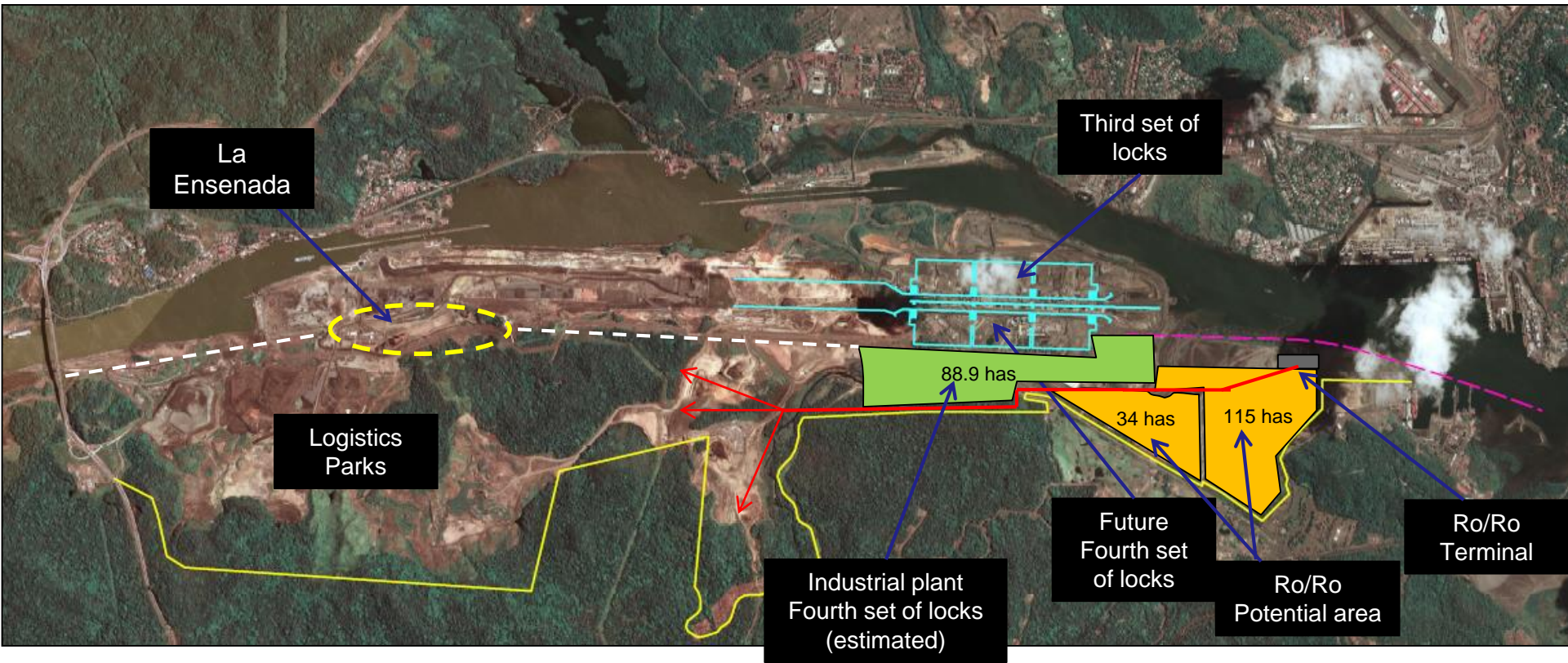
LNG Terminal



Top-Off Operations



Vessel Repairs

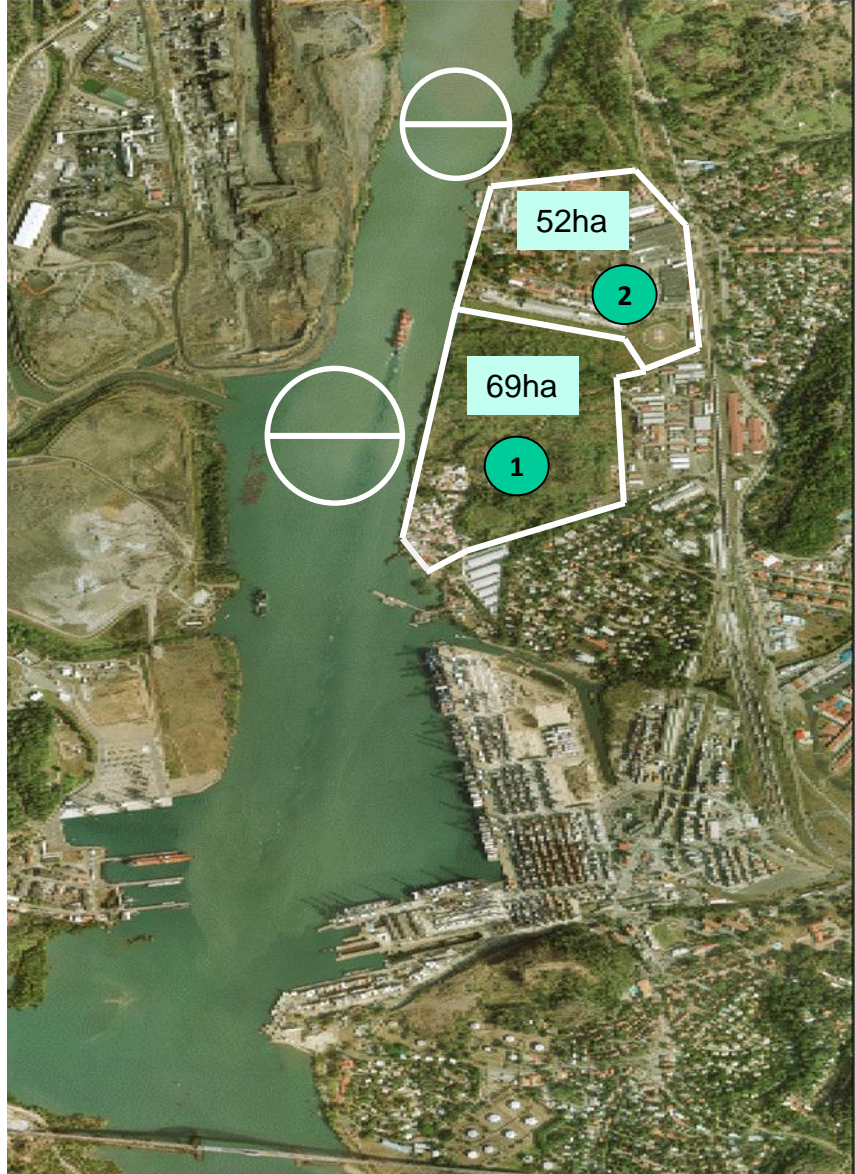




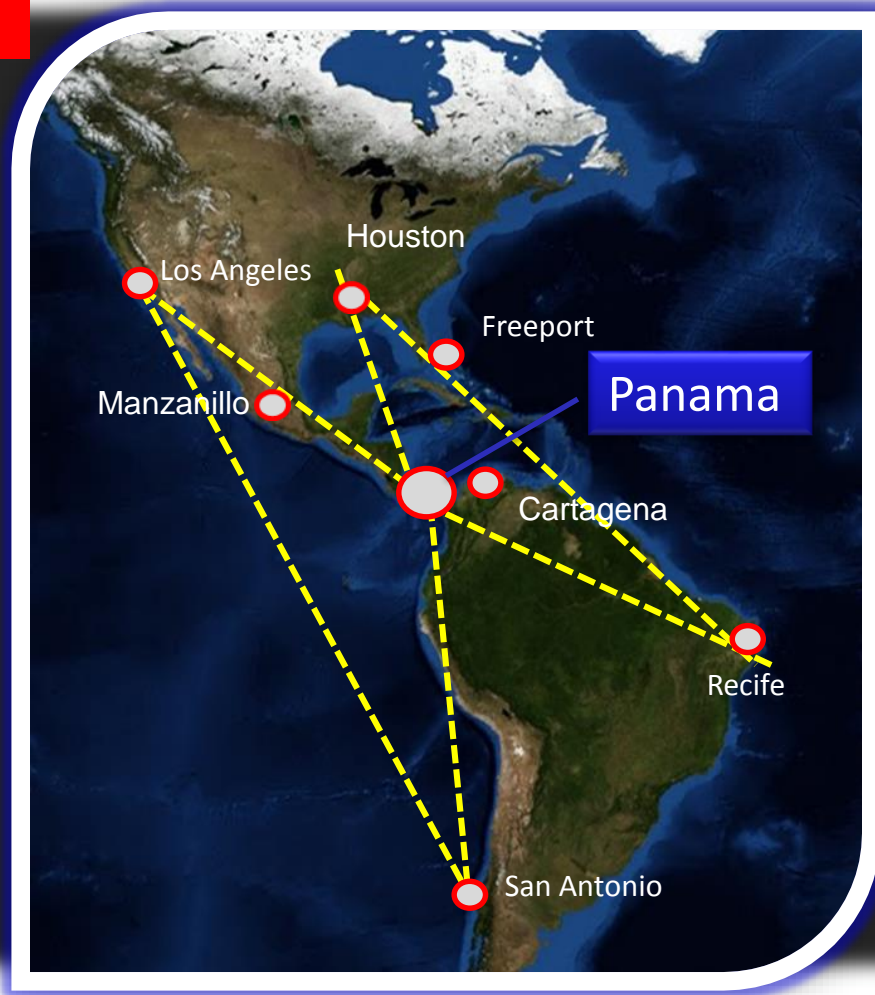
Location and Development

- 1 Phase I: 69 hectares
- 2 Phase II: 52 hectares

Concept	Phase I	Phase II	Total
Total Area	69 ha	52 ha	121 ha 98 for CY
Estimated Capacity (in millions of TEUs)	3.2	2.1	5.3
Gantry Cranes			32
Dock (m)	1,350	731	2,081
Draft (m)			16.3 18



Logistics Development



Where two
triangles
merge...



WORLD MARITIME
& LOGISTICS OUTLOOK
PANAMA 2015

Thank you...!



CANAL DE PANAMÁ