



The Expanded Panama Canal
Were the forecasts correct?

Esteban G. Sáenz
VP Transit Business

Panama Canal: Redefining World Trade



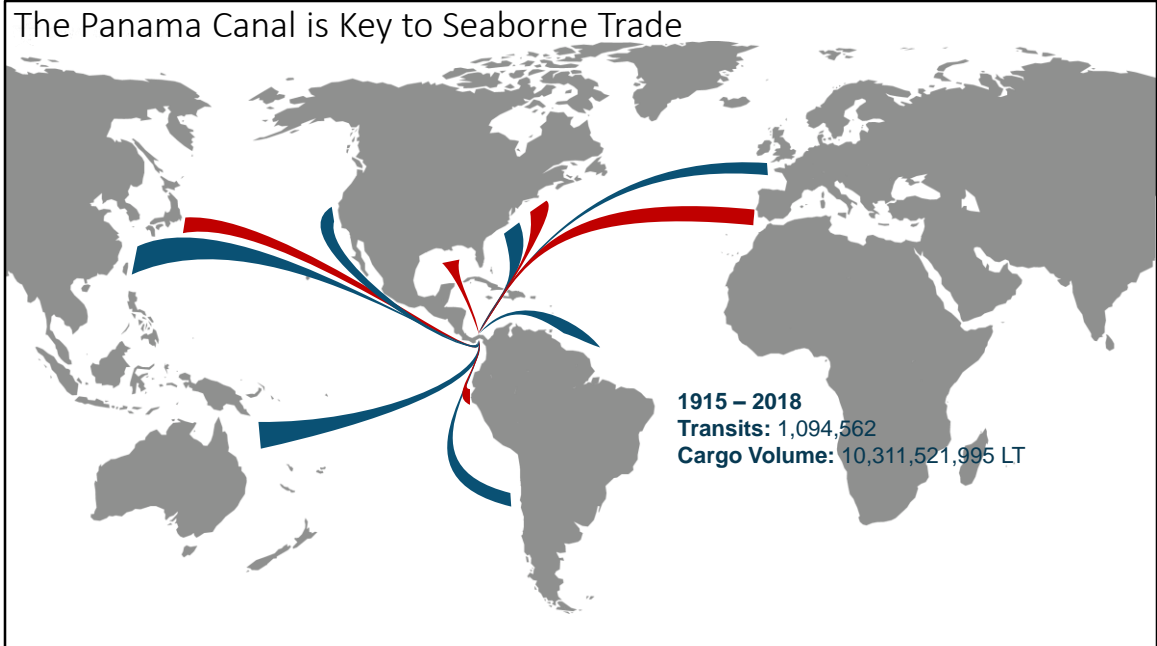
Good morning and thank you for the invitation to share with you some reflections about the Panama Canal and the road towards the decision to engage in this wonderful adventure of expanding our waterway. First, let me introduce to you Ms. Ilya Espino Marotta, vicepresident of Engineering and Services and next vicepresident of Transit Business starting february 6. She was in charge of completing the Canal Expansion and now will be tasked with its operation.

AGENDA

- Panama Canal: the expansion Project
- Our original forecasts vs actual performance
- What is next?

The world was a very different place back in 2003 when we developed the traffic demand forecast that supported the expansión Program of the Panama Canal, so I will begin by explaining the

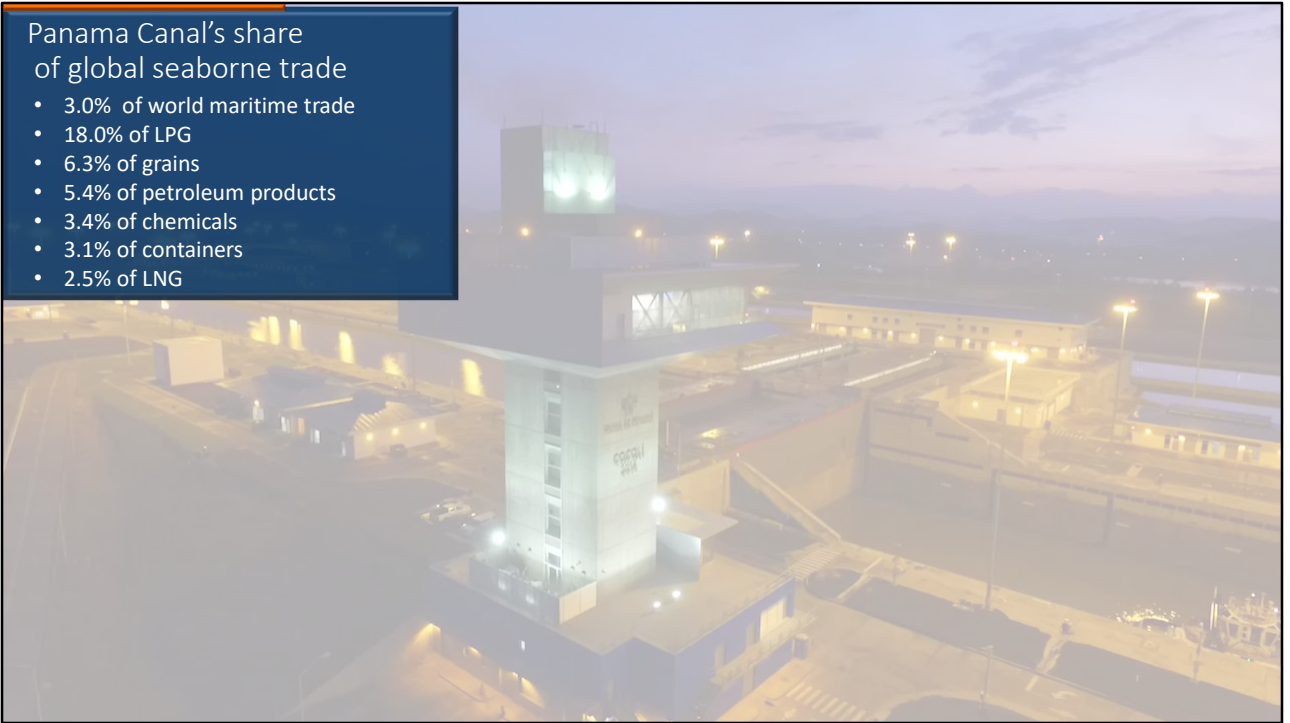
The Panama Canal is Key to Seaborne Trade



The Panama Canal has been a key commercial route since its inauguration in 1914. Through the years, it was witnessed over a million transits and more than 10.3 billion tons of cargo has moved across. The relevance of the Panama route was endangered at the beginning of the century as the waterway approached its maximum capacity and container vessels started a race towards larger than Panamax size and more efficient technologies.

Panama Canal's share of global seaborne trade

- 3.0% of world maritime trade
- 18.0% of LPG
- 6.3% of grains
- 5.4% of petroleum products
- 3.4% of chemicals
- 3.1% of containers
- 2.5% of LNG



Currently, the Panama Canal handles 3% of world maritime trade. Due to its geographical location, it is more beneficial for certain types of cargo.

For example, around 6.3% of world maritime trade of grains transit through the Canal. This is due to the fact that the US is one of the largest grain exporters in the world, and most of the tonnage exported has destinations in Asia, so the Canal route is one of the most advantageous.

The Panama Canal also handles 3.4% of the world maritime trade of chemical products and 3.1% of containers.

Connectivity

Panama's maritime hub:

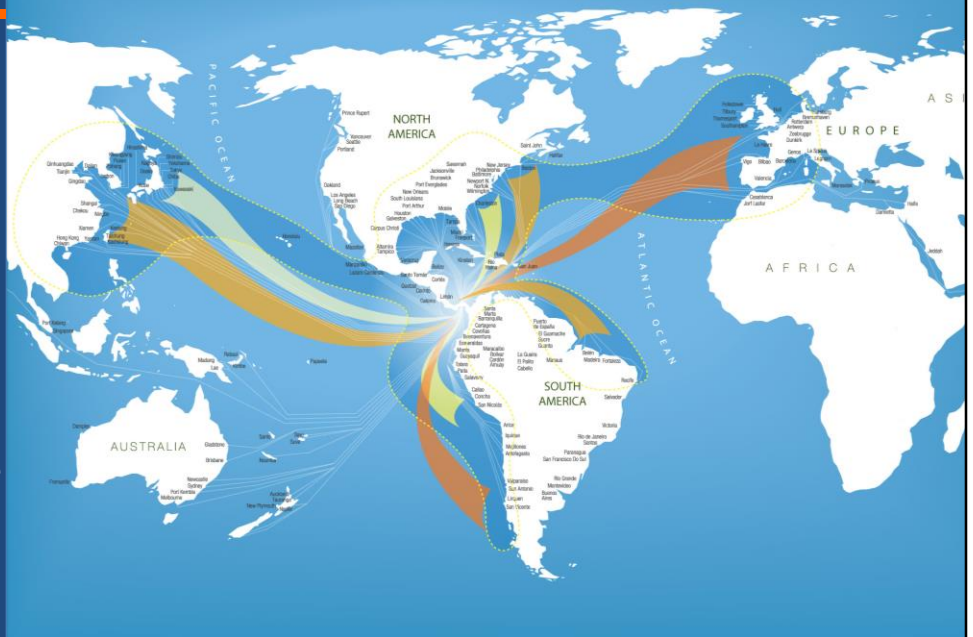
- 144 trade routes
- Over 1,700 ports
- In more than 160 countries

Panama's air hub:

- 85 direct destinations in America and Europe
- 35 countries

Panama: Logistics Hub and Transportation of the Americas

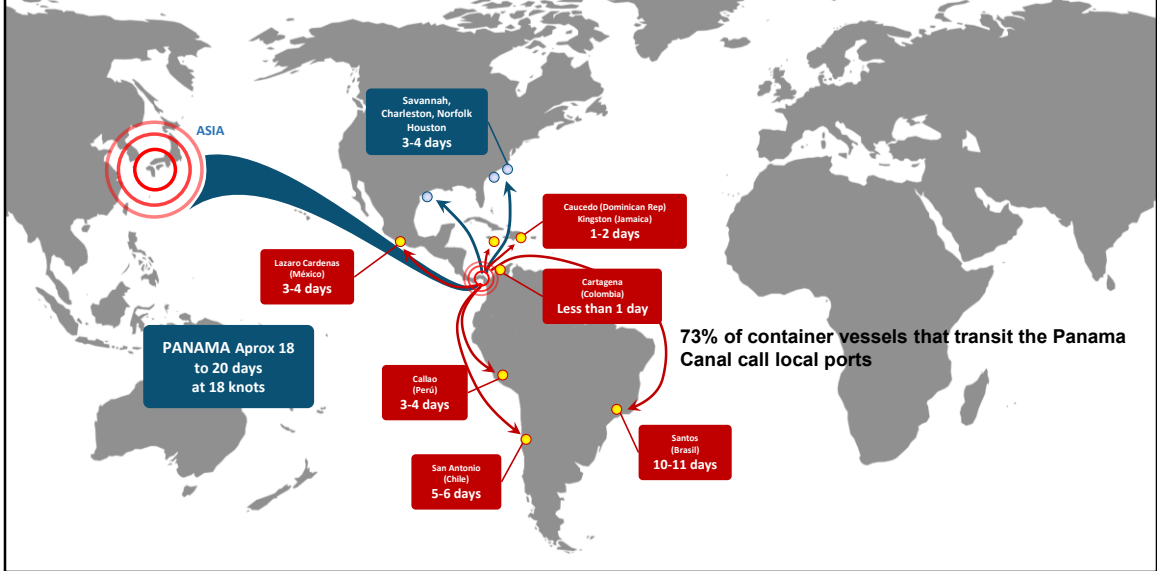
Reaching the Maximum Potential from our Geographic Location



The well known connectivity that the Panama Canal provide, enabling over 144 maritime routes linking more that 1,700 ports in 160 countries around the world, was strengthened by the newly acquired economies of scale.

The Panama Canal Hub

It is all about reliability, connectivity and value added services



Our Promise to the World

Economies of Scale

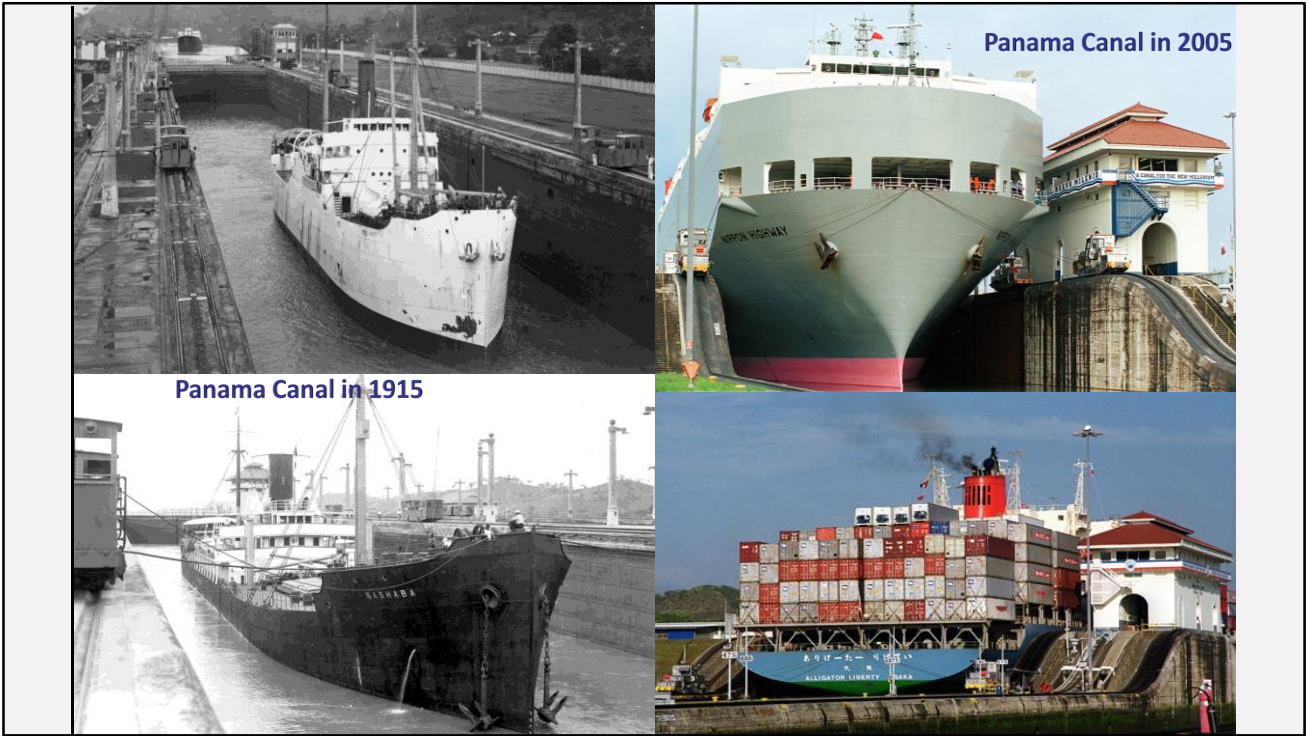
Connectivity

Sustainability

Reliability

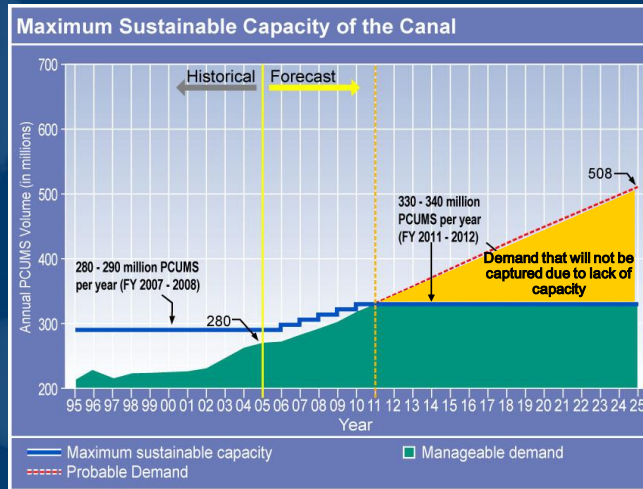


Our service offer to shippers and shipping lines is based on three main aspects: reliability, sustainability and connectivity.



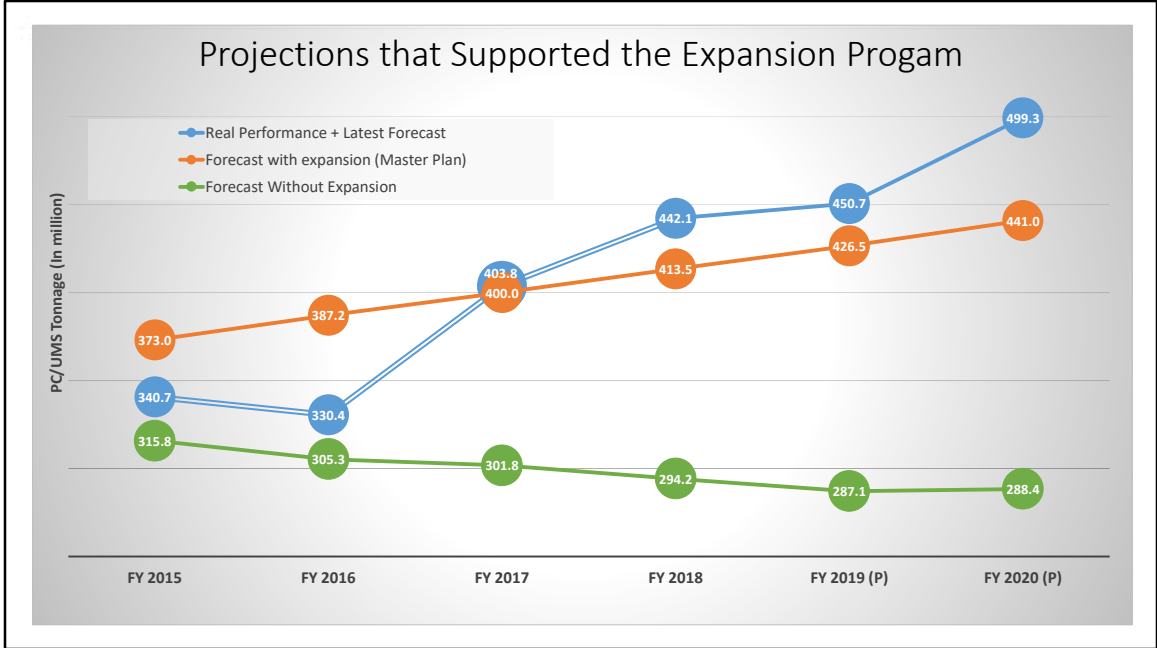
But when I say that vessels have grown, sometimes people don't realize the magnitude of these words... that's why I like to show pictures to illustrate this fact.

Maximum Capacity of the Improved Canal



This trend toward larger vessels, together with the Canal approaching its maximum capacity triggered the need to expand the waterway through the construction of an additional set of locks, larger in size than the existing one. The graph shown here illustrates the situation in 2005. The demand for transit had grown to 280 million PC/UMS tons; the blue staircase represents the additional capacity that could be added by the investment to enhance the existing navigational channels, improve lightning and other features that could take us to the expected demand in 2011-2012, about 330-340 million tons. After that, there was nothing else to be done to improve capacity, unless a major investment was done. The yellow triangle portrays the future demand estimated through 2025 that could not be handled due to capacity constraints.

It became evident that something major was needed to be done.



In 2003, when the project was being planned, the world looked as the orange and green lines. The orange line was our baseline tonnage projection basically supported by the growth in neopanamax containerships. The green line represents the future demand if the expansion project was not done and it was supported by the fact that the container industry had already made the decision to move towards the use of larger vessels that could not fit the original locks of the Panama Canal and the consequent decline in demand due to the deterioration of the service and increased transiting times.

The blue line is the actual performance of the Canal. In 2016, the Canal starts to feel the effect of constraint capacity, but the new locks are inaugurated in June, which then allows the waterway to attract new demand in the next two years. The short term projections show continues growth, in spite of the current trade war, being impulsed by the energy sector.

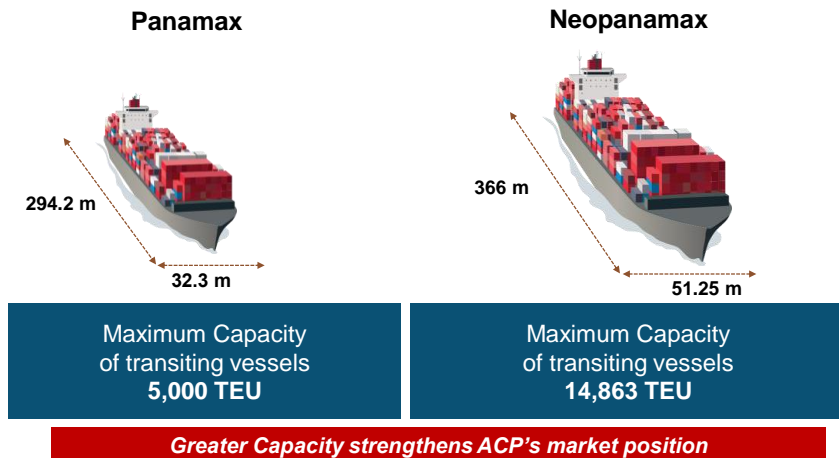


Expansion works began on September 3, 2007 after a national referendum

And the third set of locks was inaugurated on June 26, 2016

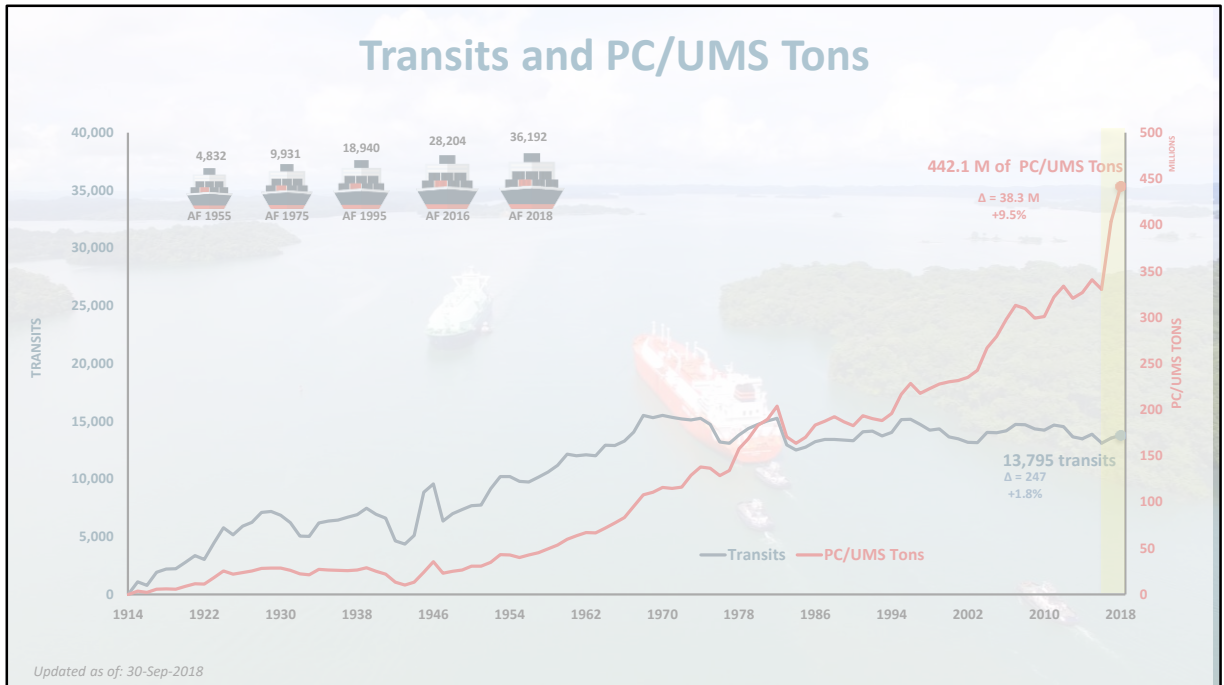


The expansion improves significantly the competitive position of the Canal worldwide

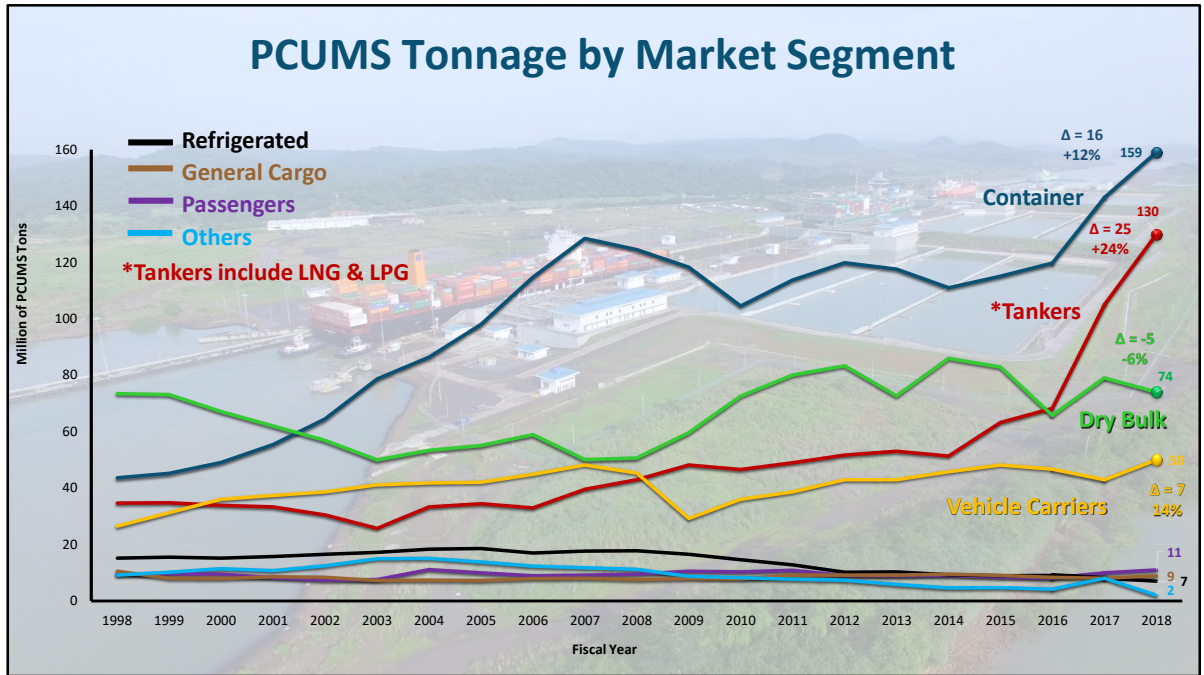


Key message: Upon completion, the Canal will be able to tend to an extra **24.3%** of global vessel fleets.

- The larger dimensions of the Canal locks will enable access of New Panamax-sized vessels, which carry almost three times as much cargo as Panamax counterparts (14k v 5k)
- The Expansion, in particular, will be able to accommodate New Panamax LNG vessels, which will also allow for transshipment opportunities by taking advantage of expected container terminal port capacity, railroad improvements and multipurpose capacity facilities
- Additionally, the ability to tend to New Panamax-sized, so we will have a reduced cost per unit of cargo because larger vessels will be able to transit the Panama Canal
- The Expansion will more than double the waterway's tonnage capacity, unlocking economies of scale and enabling a pricing strategy that incentivizes usage of the Canal, driving transportation costs down. Given that transportation comprises a significant part of the overall cost, the Expansion will create a virtuous circle of economic activity in the orbit of the Canal, enhancing its network capability and connectivity and benefitting exporters, importers, shipping lines, and ultimately customers



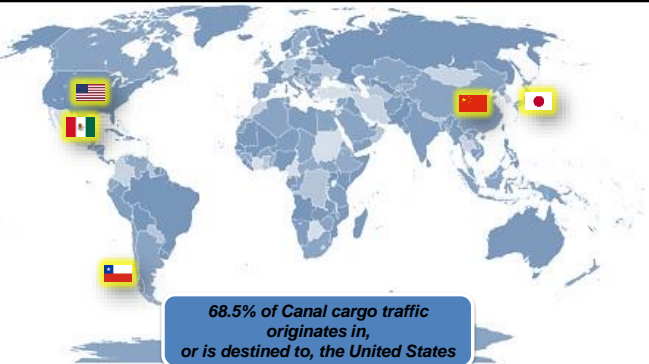
At the Panama Canal, vessels are measured in Panama Canal tons, or what we internally refer to as PC/UMS (Panama Canal Universal Measurement System), which corresponds to the volumetric capacity of vessels to carry cargo. Since 1914, PC/UMS and transits had been moving together on a steady growth until the 1980s, when transits stabilize at around 12-13,000 per year and tonnage started to grow significantly faster. This fact was just the reflection of the trend in the Shipping industry toward the search of better economies of scale using larger vessels. In the 1950s, a typical vessel through the waterway would be 4,832 tons, while in the 1990s this average size of vessels in the Canal was 4 times larger. After the third set of locks began operations, the average vessel was in 2018 about 36,000 tons.



As I said at the very beginning, the world was very different back in 2003. Our projections about container vessels were partially correct, as we did foresee the arrival of container neopanamax vessels, but mainly in the 8-9,000 TEU size range. What we have seen so far is that the shipping industry has put its trust on us and has sent our way 14800 TEU vessels, testing our capabilities to handle these ships!

A market segment that was not in our radar back in 2003, and I should say probably in nobody's radar, was LNG. At the time, the U.S. was a net importer of LNG mainly from the Middle East and we could only foresee some volumes being imported from Peru, and perhaps some few movements from Trinidad into Chile. The U.S., following the shale revolution, has come from being a net energy importer to be a net energy exporter in 2022. Just last month, the U.S. was for the first time a net crude oil exporter.

Panama Canal Main Users



Total Cargo Movements (in millions of long tons):
241.0 millions long tons

User Country	FY 2016	FY 2017	FY 2018
United States	137.2	164.6	174.9
China	38.7	45.4	41.6
Chile	25.3	27.5	30.4
Mexico	15.4	25.2	30.4
Japan	19.0	27.4	30.0

Sources: ACP Data Warehouse

USA → **imports** computers/electronics, cars, pharmaceuticals and crude oil; **exports** integrated circuits, pharmaceuticals, cars, refined oil

CHINA → **imports** integrated circuits, crude oil and iron ore; **exports** computers/electronics, textiles and metals

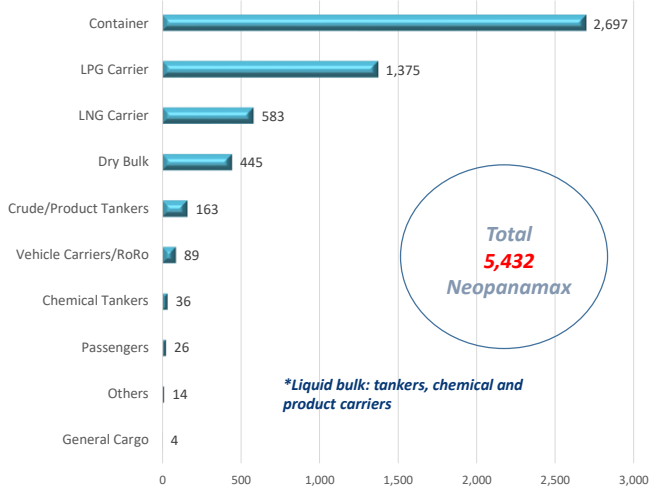
CHILE → **imports** machinery/electronics, cars and refined/crude oil; **exports** copper ore/refined, veg products/fruits, animal products/fish

JAPAN → **imports** computers/electronics, crude oil, gas and pharmaceuticals; **exports** integrated circuits, machinery, cars and vehicle parts

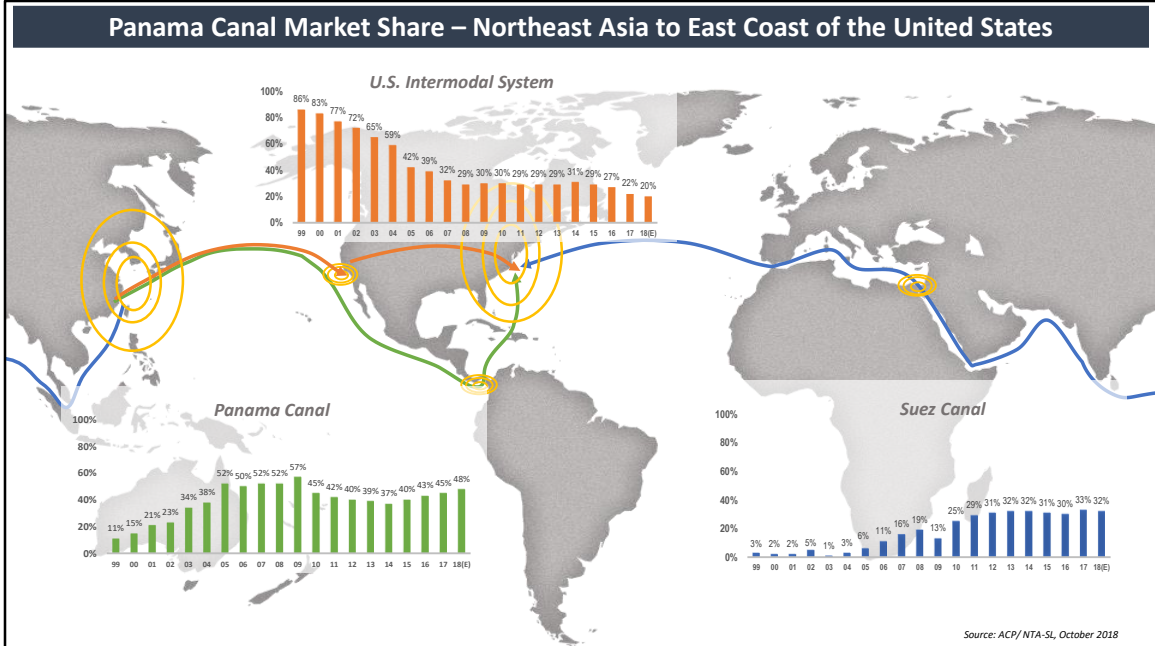
MEXICO → **imports** circuits/computers/electronics, vehicle parts, metal products and plastics/rubbers; **exports** computers/electronics, cars/trucks and crude oil

Neopanamax Locks – Total Transits

(Jun 26 2016 – January 8, 2019)

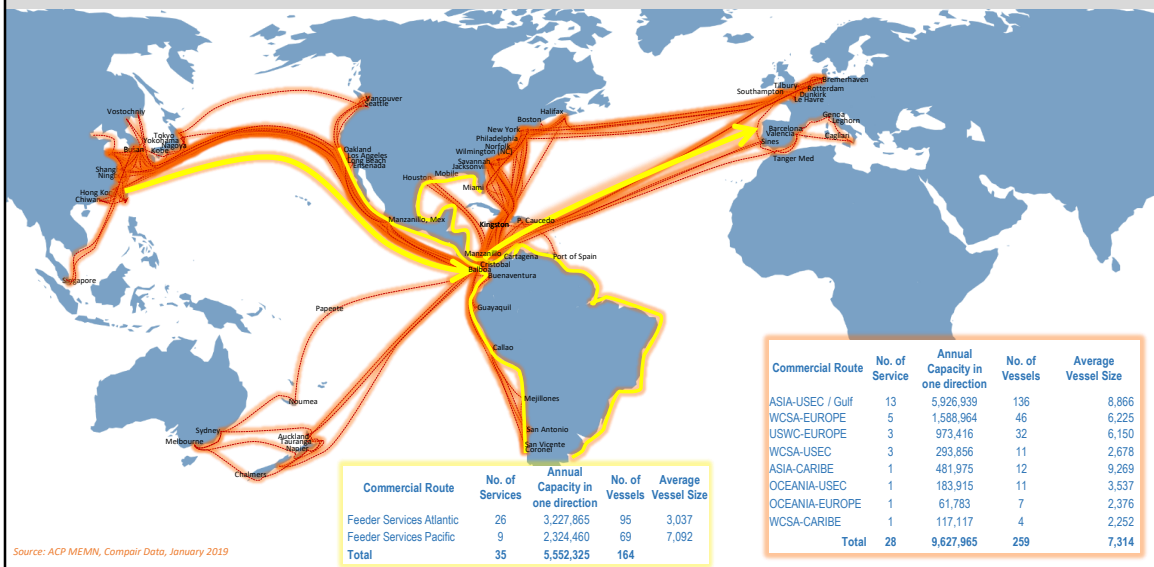


Panama Canal Market Share – Northeast Asia to East Coast of the United States



Since 2008, the waterway began to experience a decline in market share in its most important trade route: Asia – East Coast of the United States, losing ground versus Suez and the West Coast intermodal system, as forecasted. However, we experienced a recovery triggered by the launching of a loyalty program in 2015 that required the accumulation of TEU capacity by customer in order to access better rates in 2016. This tolls strategy helped to bring back some of the liner services that had been using alternative routes because of changes in vessel size in their fleet. Once the third set of locks began operations, we observed a significant improvement and in 2018, the Panama route registered 48% of the market share in this trade lane.

Liner Services Connectivity of the Panama Canal



At this moment, we have 12 Panamax liner services deployed in our route, plus 16 Neopanamax services. Our main route is Asia – USEC with 13 liner services deploying 136 vessels with an average vessel size of 8,866 TEU. In addition, our country provides additional connectivity through 35 feeder services, 26 in the Atlantic coast and 9 in the Pacific area.

CMA CGM Theodore Roosevelt

August 22, 2017

Transit Record
Capacity: 14,863 TEUs



Looking at the original forecast, the Canal was expecting to see container ships within the range of up to 8,000 TEU, at least during the first years of operations, as this vessel size was to be the workhorse of the industry back in the day! In contrast, our customers placed great confidence in our capability to handle the maximum size of vessels allowed in the new locks and as early as August 2017, we had our record transit of 14,863 TEU containership.

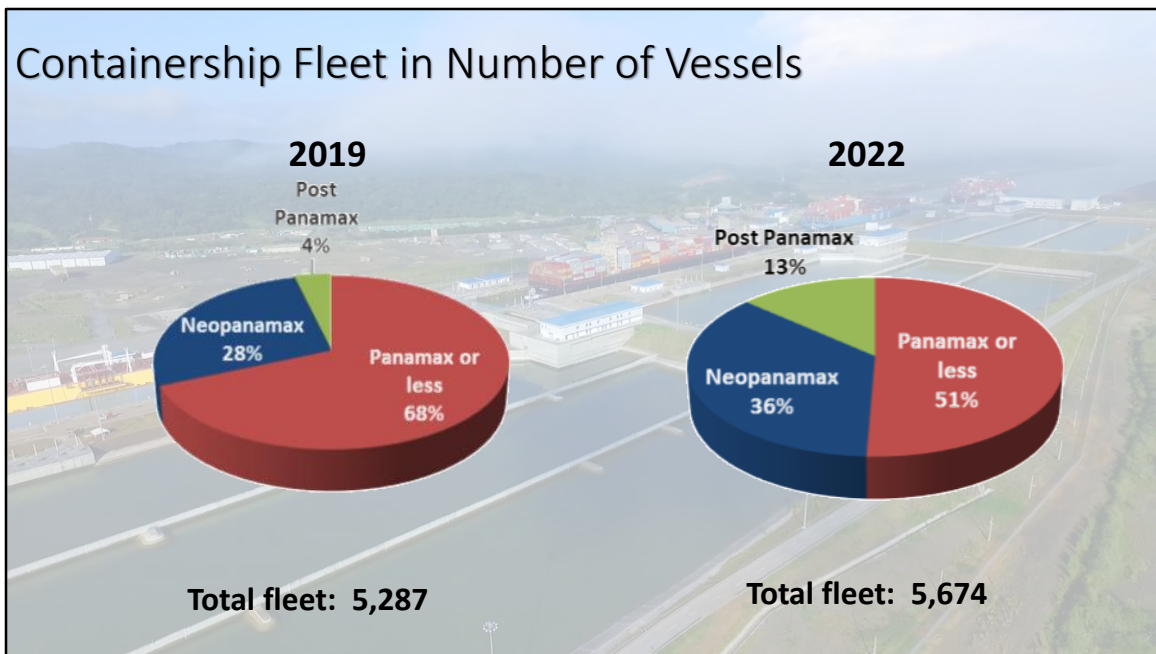
CMA CGM T. Roosevelt & CMA CGM J. Adams [sister ship]

August 22 → transited 1 week later after August 29, 2017

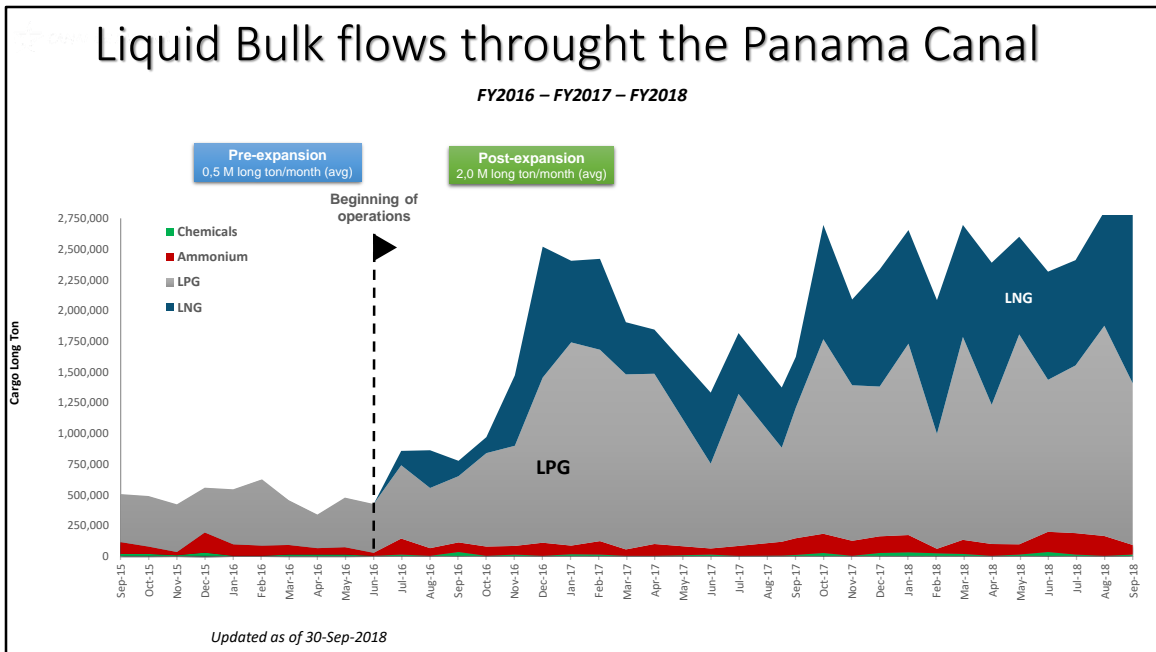


Another assumption from the early days was that there would be a decline in Panamax transits, as the cargo moved toward larger vessels...a sort of what we called “cannibalization”. This happened, but not the extend we were expecting and today we can see both lanes, panamax and neopanamax, very well utilized.

Containership Fleet in Number of Vessels



About 96% of the container fleet can use the Panama Canal route today and this percentage is set to continue well into 2022.

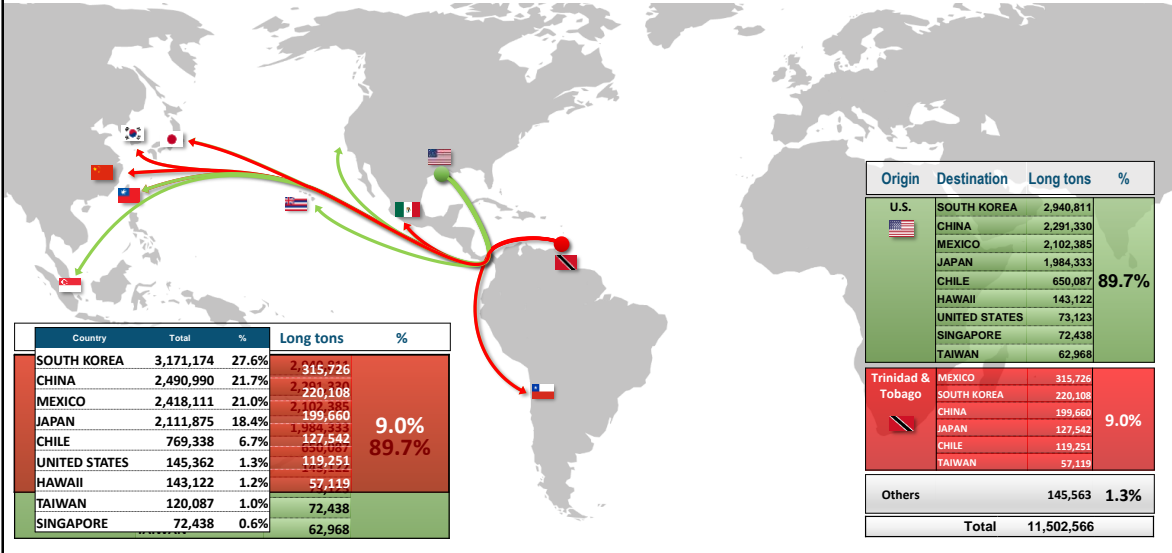


Another market segment that has excelled at the new locks is Liquid Bulk in general. This segment has received a strong impulse from the shale revolution in the United States, something unthinkable when the original forecasts were prepared in 2003. Since the inauguration of the neopanamax locks, the Canal added one more market segment to the group: LNG.

The pre-expansion volumes of gas were on average 500,000 tons per month and solely composed by LPG. Upon the opening of the new locks, this volumen has grown 4 times, as can be observed in the graph and is expected to continue this upward trend.

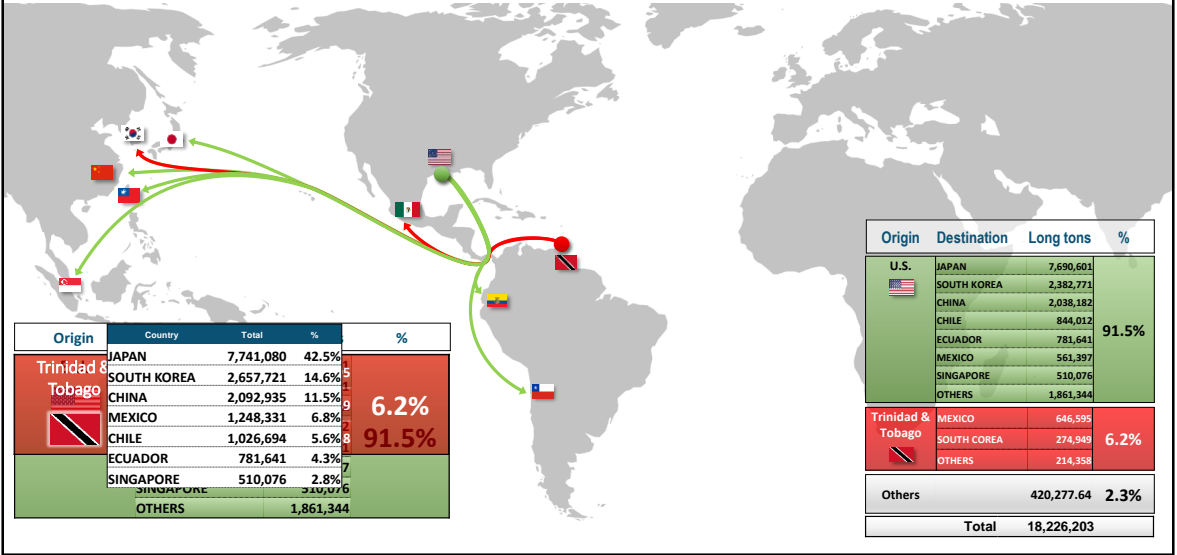
LNG flows at the Panama Canal

FY2018



LPG flows at the Panama Canal

FY2018



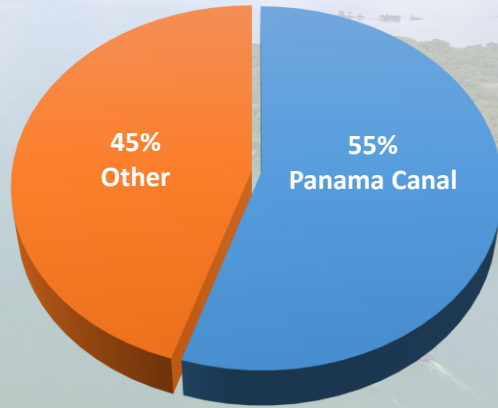
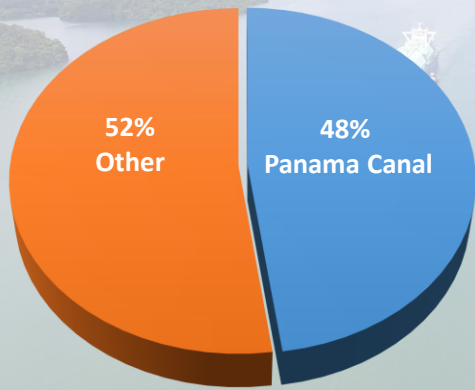
Market Share of U.S. LPG and LNG Exports

LPG exports – Panama Canal market share - 2018

LNG exports – Panama Canal market share - 2018

FY 2018

FY 2018



Who Benefits from the Canal Expansion?



The main users of the Canal are the benefited from the expansion.

68.5% of the trade has its origin or destination in the United States.

Ports serving larger vessels benefit from higher cargo volumes and greater transshipment calls in a limited number of ports, mainly in the Caribbean region.

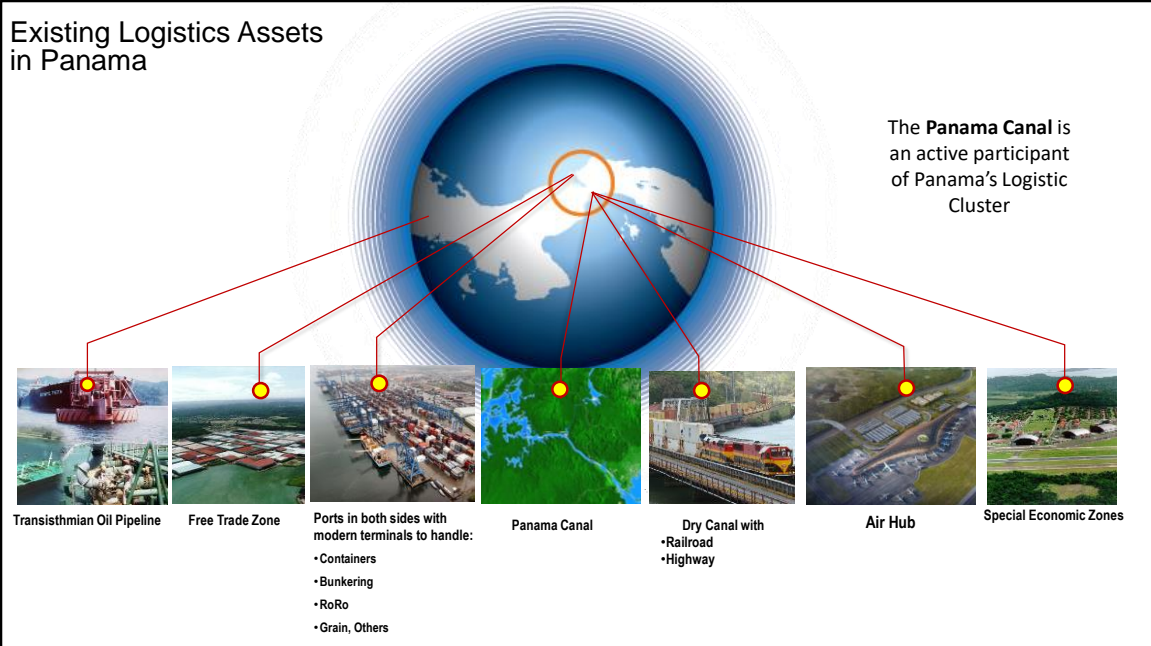
Exporters and importers reduce their transportation costs.

The shipping lines make better use of their fleet and reduce the costs associated with the management of the crew, insurance and fuel, among others.

Members of the supply chain, such as warehouses located near the areas where Neopanamax ships dock, benefit from further consolidation of cargo volume in one place and have the opportunity to provide value-added services (repackaging, labeling, modifications to the load).

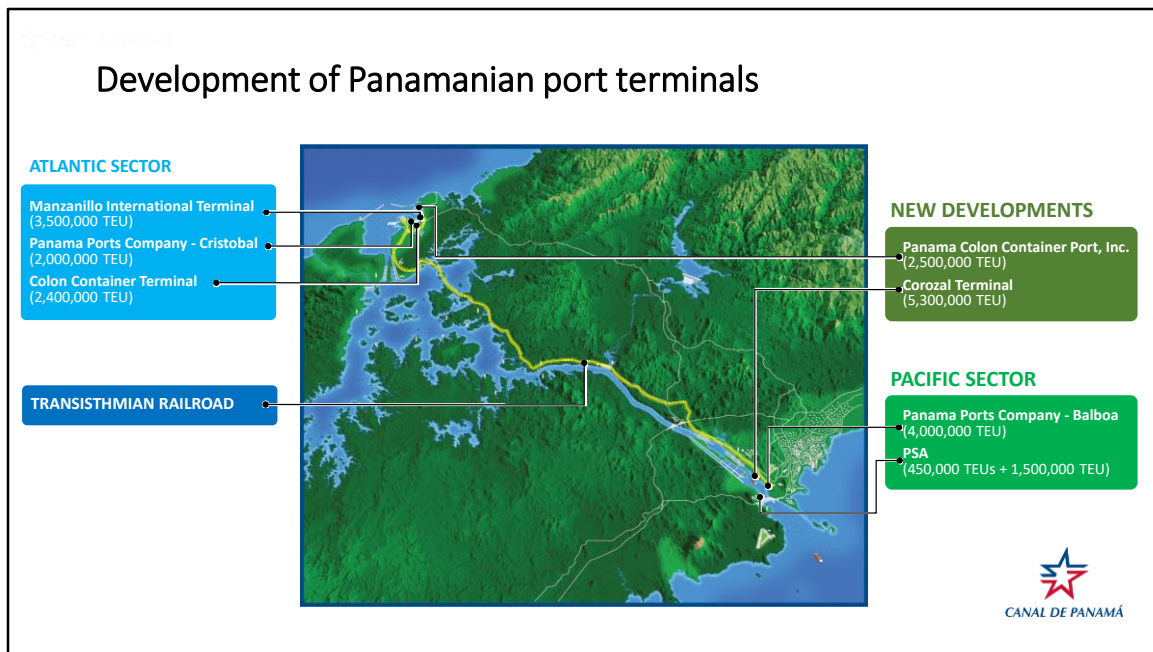
The consumer can benefit from lower costs.

Existing Logistics Assets in Panama



In the future, the Panama Canal continues to support the local maritime and logistics cluster in a more aggressively. Our country has a number of logistics assets that can make Panama the preferred hub of the Americas and the Canal is committed to seeing this plan come through

Development of Panamanian port terminals



This is the Panamanian port system.

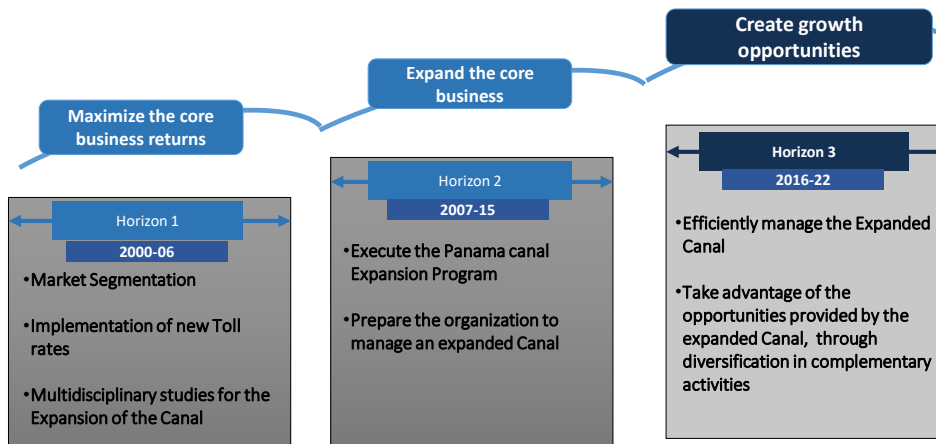
The Panamanian Port System is formed by five important containers terminals. In the Atlantic side we have three ports with almost 8 million TEU of capacity. Manzanillo International Terminal (MIT), is the biggest of the Atlantic Container Terminal with 3.5M TEUs. This terminal is managed by SSA Marine which is positioned at #12 in the international ranking.

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In the Pacific area we have two ports with almost 8.5 million TEU of capacity. The PSA Terminal is one of the biggest of the first terminal with 1.5M

Panama Canal Challenges Horizons



Immediately, after the administration of the Canal was transferred to the Panamanians, the ACP developed a Strategic Horizon Plan that frames the main projects of interest in the short, medium and long term. This plan was updated as the years went by, and is divided into three horizons:

- **The first horizon** involved Maximizing the benefits of the main business (transit of ships), through the segmentation of the market and the adjustment of tolls. It was also necessary to carry out market studies to determine if there was a need to expand the plant or not.
- **the second horizon**, Expanding the Main Business, consisted in executing the expansion of the Canal and preparing the organization for administration.
- **And the third horizon**, efficiently manage the Expanded Channel and ensure the sustainability of the organization through the commercial development of complementary activities.

Complementary activities to maximize the value of the route



In order to take advantage of the opportunities that will be created by the Canal expansion, the Panama Canal is looking into a diversification strategy that will allow it to generate additional revenue while at the same time, strengthening the importance of the Panama Canal route.

Potential developments as new container, ro-ro and LNG terminals, power generation projects, and logistics parks are among the main projects in our business development strategy to capitalize on the opportunities aforementioned.



This is how we foresee the future of Panama



The Expanded Panama Canal
Were the forecasts correct?

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