CANAL DE PANAMÁ

Panama Canal: Achieving Resilience Through Strategy

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TOC Americas | Octuber 1, 2024

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The Panama Canal - Highlights

General information

110 years
of operation

788.71 kms²
operation area

82 kms
total length

5 Set of locks

3 Panamax locks: Miraflores, Pedro Miguel and Gatún

2 Neopanamax locks: Cocoli and Agua Clara

Key indicators

USD 4,968M Revenues FY 2023

14,080
Transits FY 2023

6,645 Neopanamax transits
7,435 Panamax and others transits

511.11M
Tonnage FY 2023

210.8M Neopanamax tons
300.3M Panamax and others tons

Human Capital

8,464
Employees

7,444 men
1,020 women

Fleet

1,069
Land fleet

246
Floating equipment

Facilities

3 Power Plants

Gatún Hydro: **24.0 MW**
Madden Hydro: **36.0 MW**
Miraflores Hydro: **99.6 MW**

1,422 Buildings

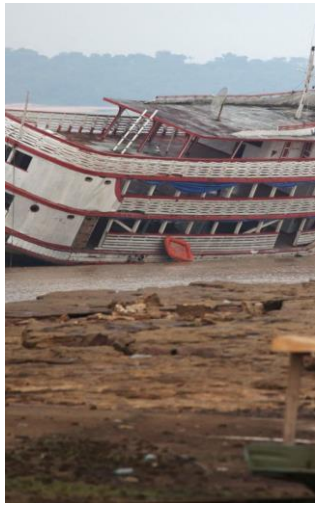
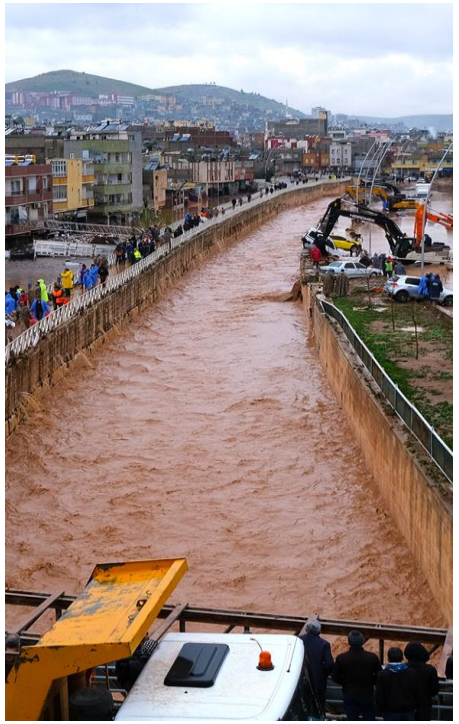
3 Water Treatment Plants

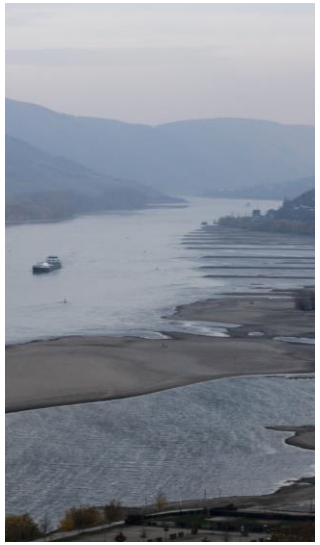
Miraflores: **50 MGD**
Mendoza: **40 MGD**
Monte Esperanza: **35 MGD**

Operating in an era of climate risk

Climate-related extreme weather events have already doubled



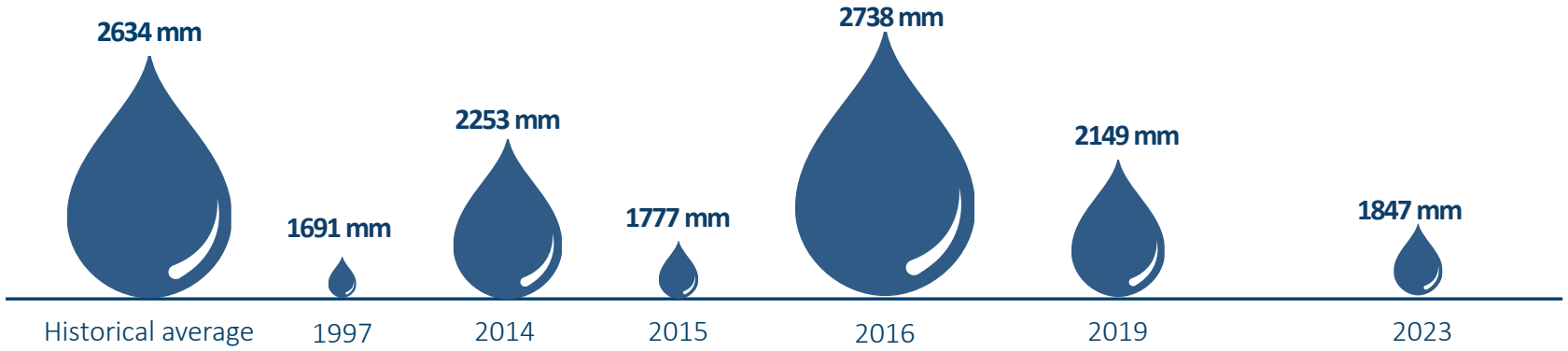



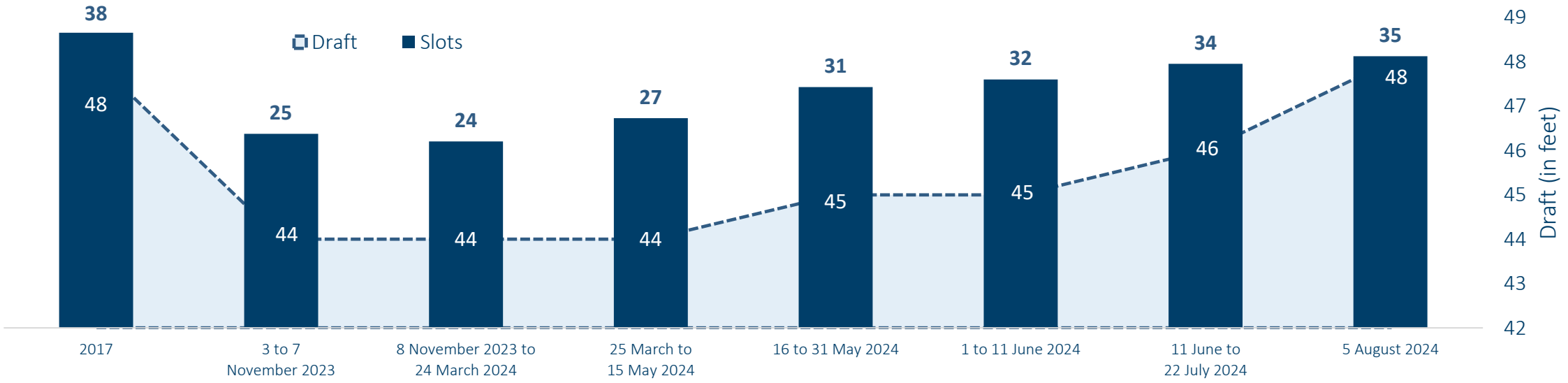
2023 was the warmest year on record

- Affecting **17% of the world's grain production.**
- Europe faced a severe water crisis intensified by a multiyear drought and the **worst heatwave in 500 years**.
- Reduced water levels in the **Rhine** and **Amazon and historical lows in the Mississippi** impacted shipping and trade.
- The US experienced 28 separate billion-dollar climate disasters with a total cost of **$93 billion**.
- In China, 15-20% of the population saw a rising frequency of moderate-to-severe droughts. **The intensity of drought is projected to surge by 80% by 2100**.

Average Rainfall in The Panama Canal Watershed



Draught Restriction And Permitted Slots



Operating in an era of climate risk

The Panama Canal has responded …

- Cross filling
- Water saving basins
- Hydraulic assistance
- Short-chamber
- Tandem Lockages

Growth of vessels and cargo through the Canal

Evolution of Maximum Container Ship Size (TEU)

Evolution of Vessel Dimensions Allowed through the Panama Canal

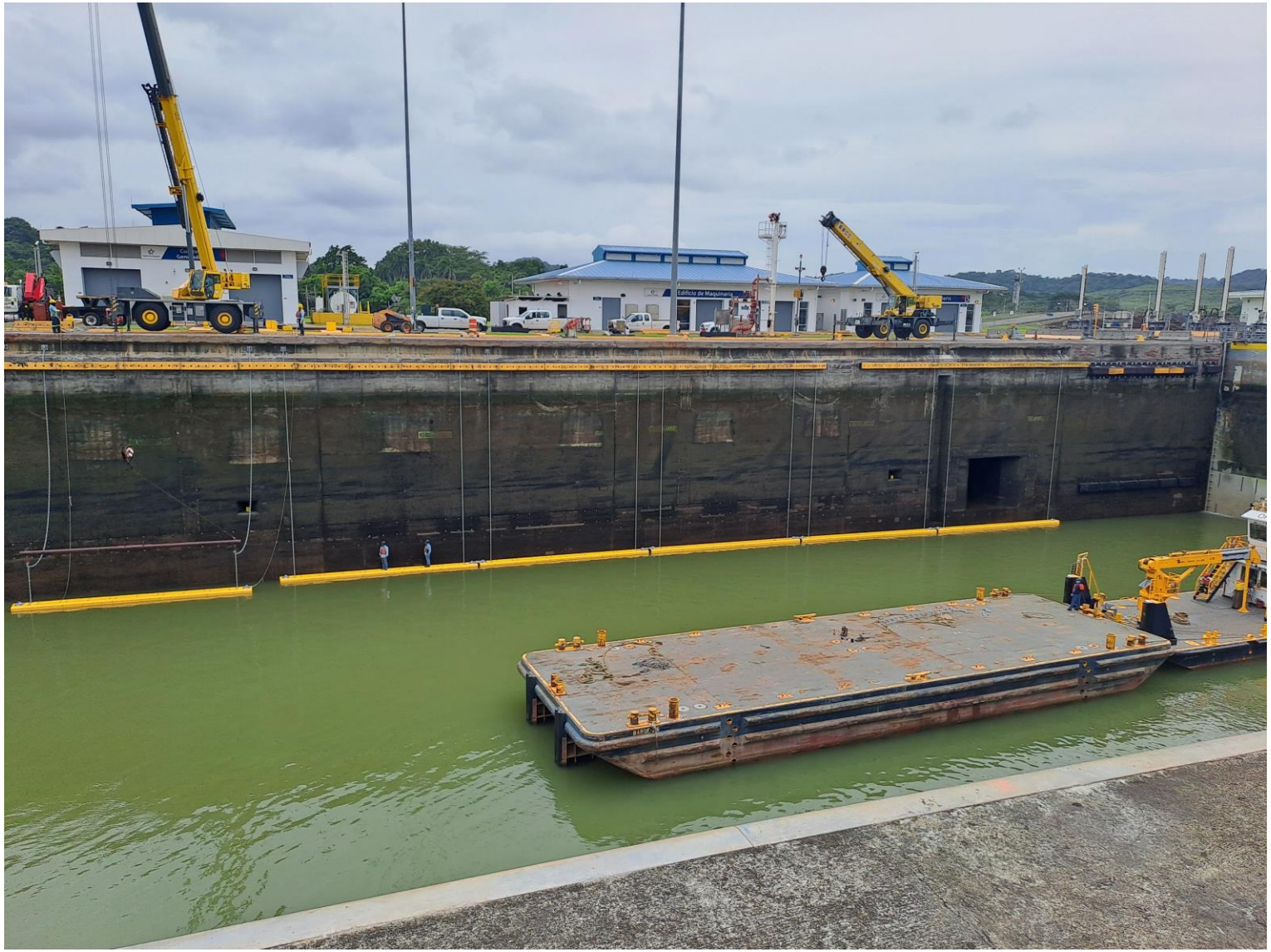
Year	LOA	Beam
2016	**366m**	**49m**
2018	**366m**	**51.25m**
2020	**370.33m**	**51.25m**
20XX	**370.33m**	**53m**

Record of the Largest Container Ship through the Panama Canal

MSC Marie – August 30, 2024

- LOA: 366 m (1,200 ft)
- Beam: 51 m (167.4 ft)
- Total TEUs allowed: 17,640 TEUs

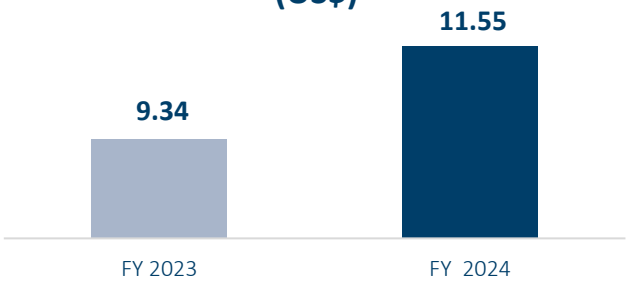
Floating Fender System - Cocolí Locks



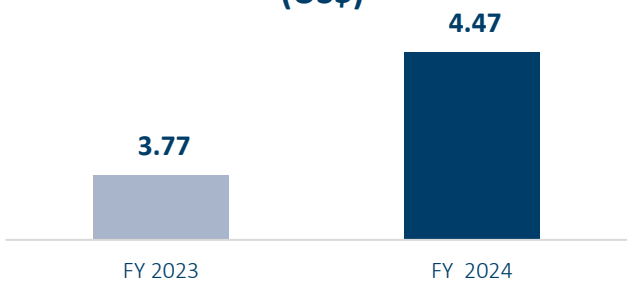
Improving Efficency and Reliability

FY 2023 vs FY 2024 (Octuber to August)

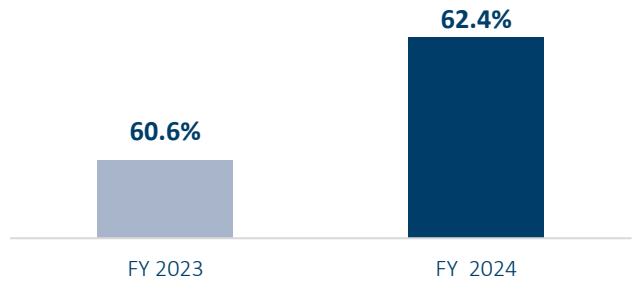
Transit Revenues per PC/UMS (US$)

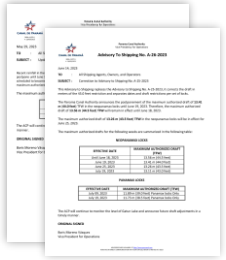


Total expense per PC/UMS (US$)



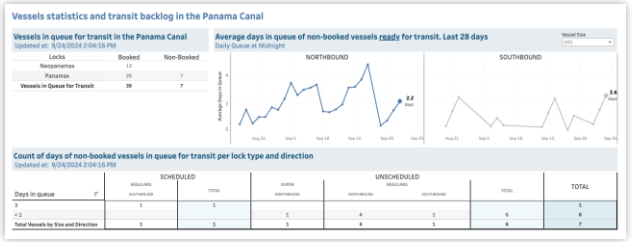
Operating Margin





Advisory To Shipping

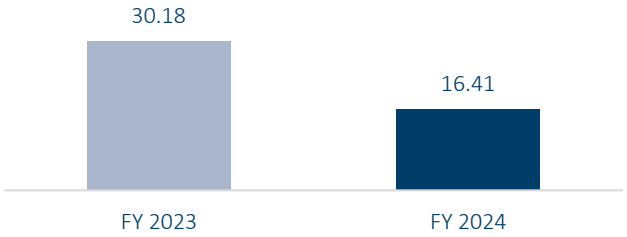
Provide forecasts to guarantee transit availability.



Vessels statistics and transit backlog in the Panama Canal

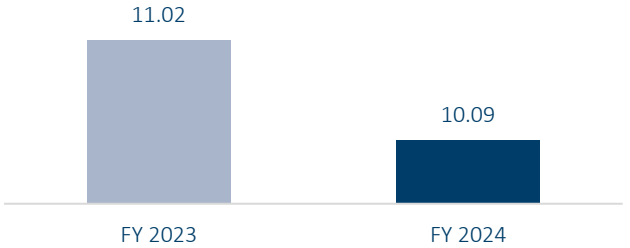
Waiting Time

(hours)



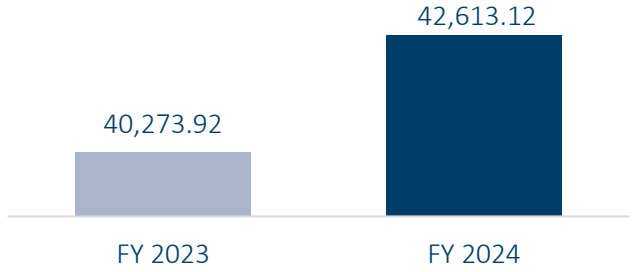
In-Transit Time

(hours)



Average Vessel PC/UMS

Oceangoing



Panama Canal Watershed

The Panama Canal Authority is responsible for **the administration, maintenance, use, and conservation** of the water resources of the Panama Canal Watershed.

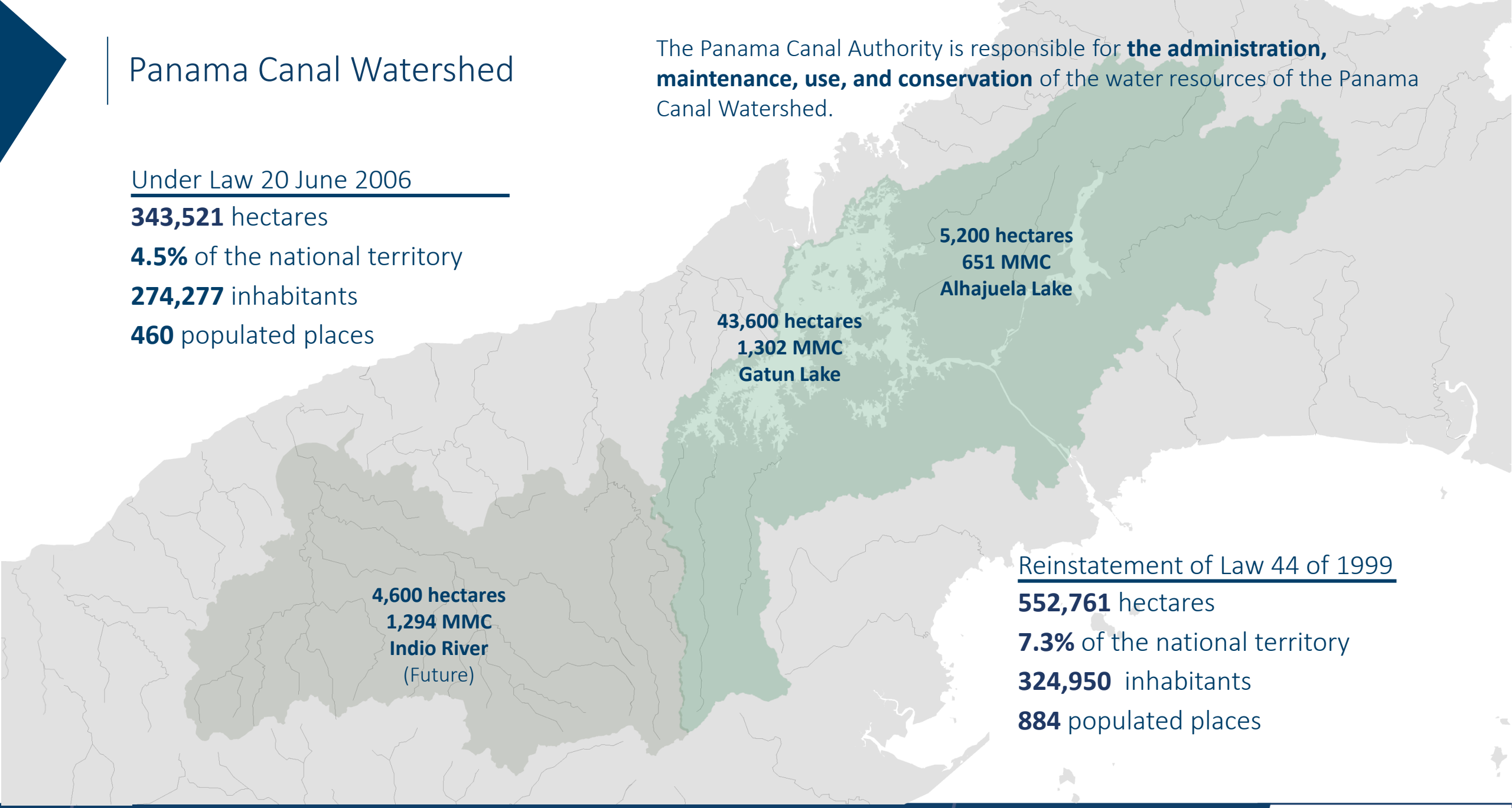
Under Law 20 June 2006

343,521 hectares

4.5% of the national territory

274,277 inhabitants

460 populated places



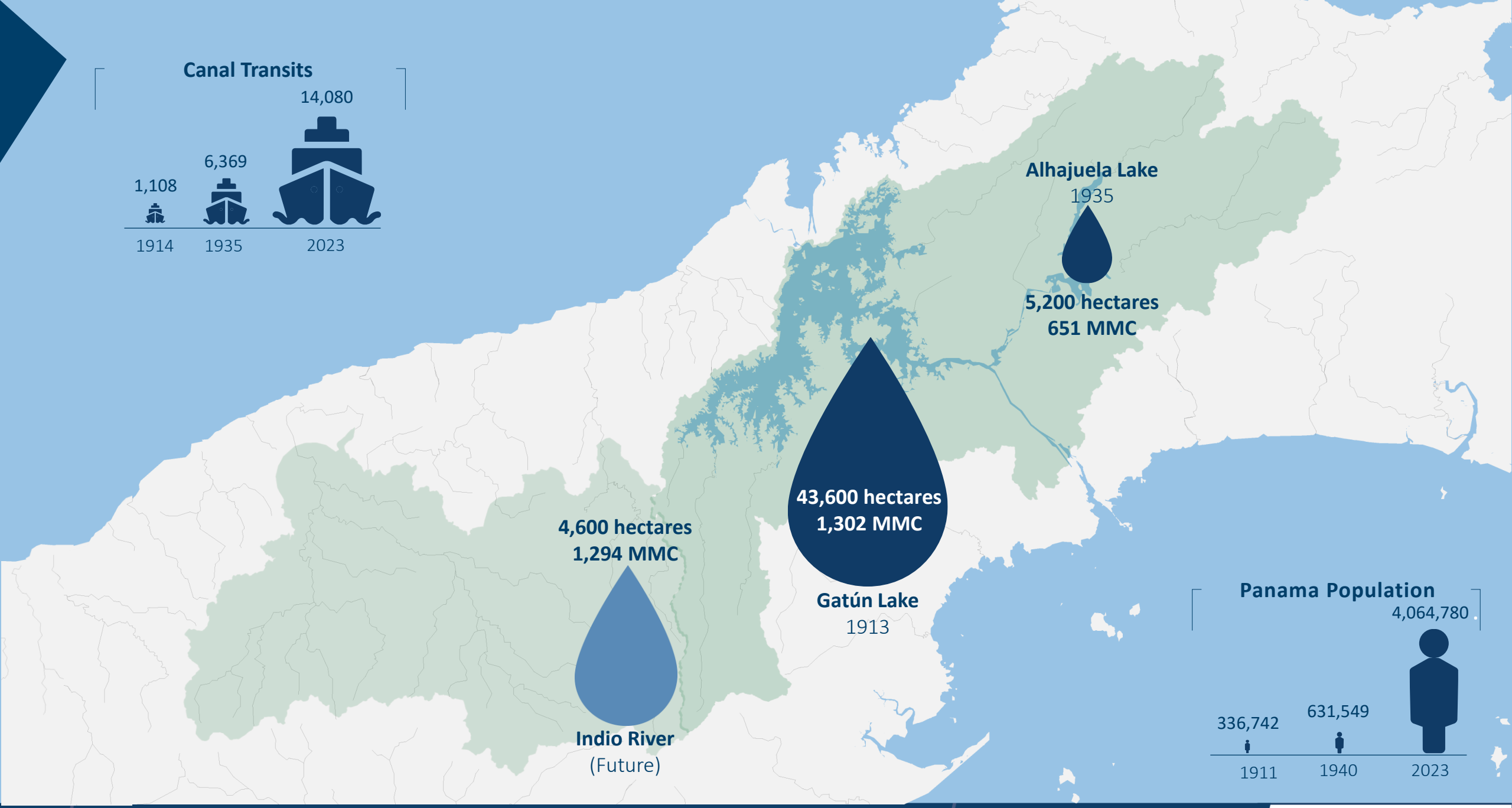
Reinstatement of Law 44 of 1999

552,761 hectares

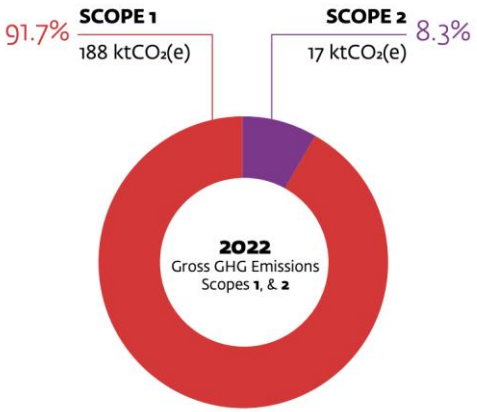
7.3% of the national territory

324,950 inhabitants

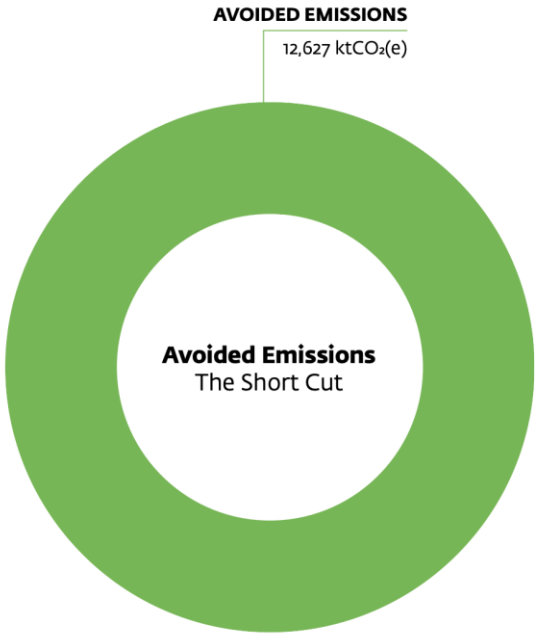
884 populated places


Canal Transits
14,080
6,369
1,108
1914
1935
2023
Alhajuela Lake
1935
5,200 hectares
651 MMC
43,600 hectares
1,302 MMC
Gatún Lake
1913
4,600 hectares
1,294 MMC
Indio River
(Future)
Panama Population
4,064,780
631,549
336,742
1911
1940
2023

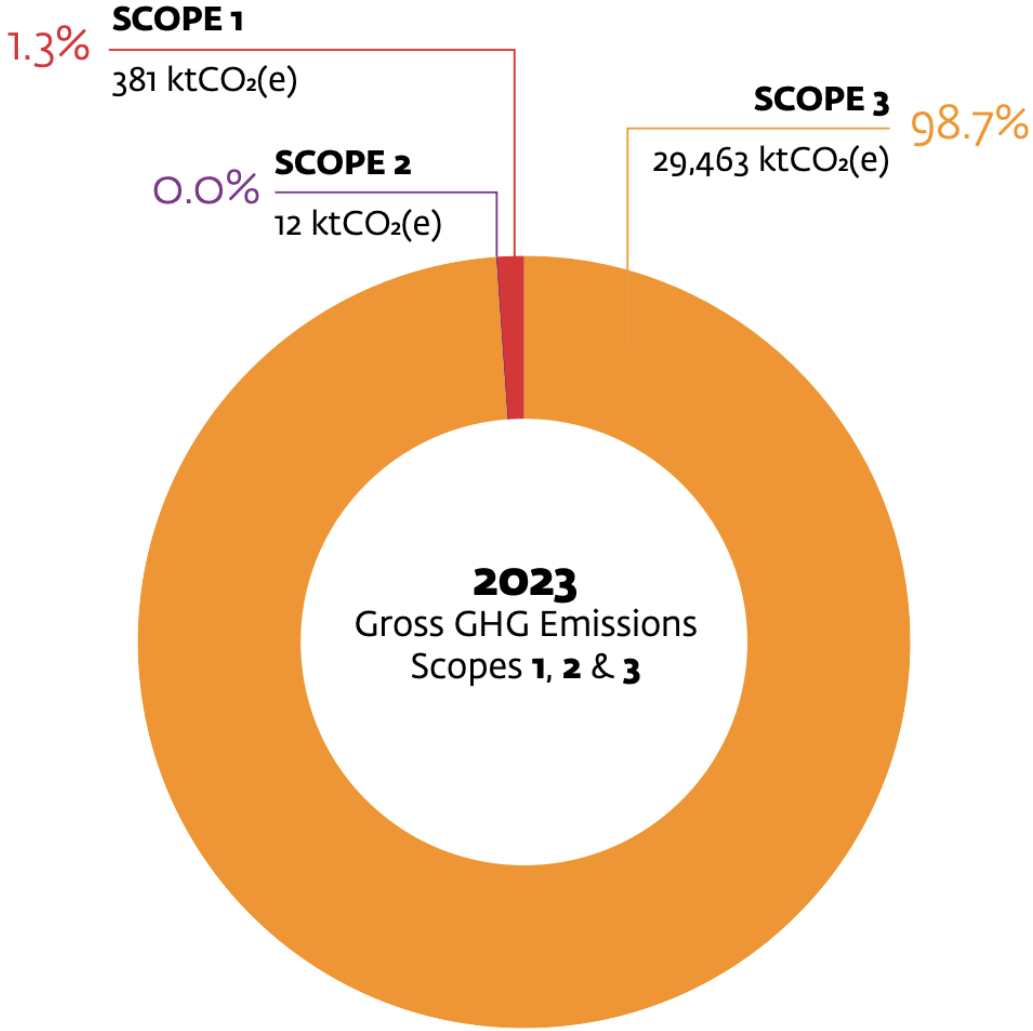
FY 2023 GHG Inventory Results



205 KtCO$_2$(e)

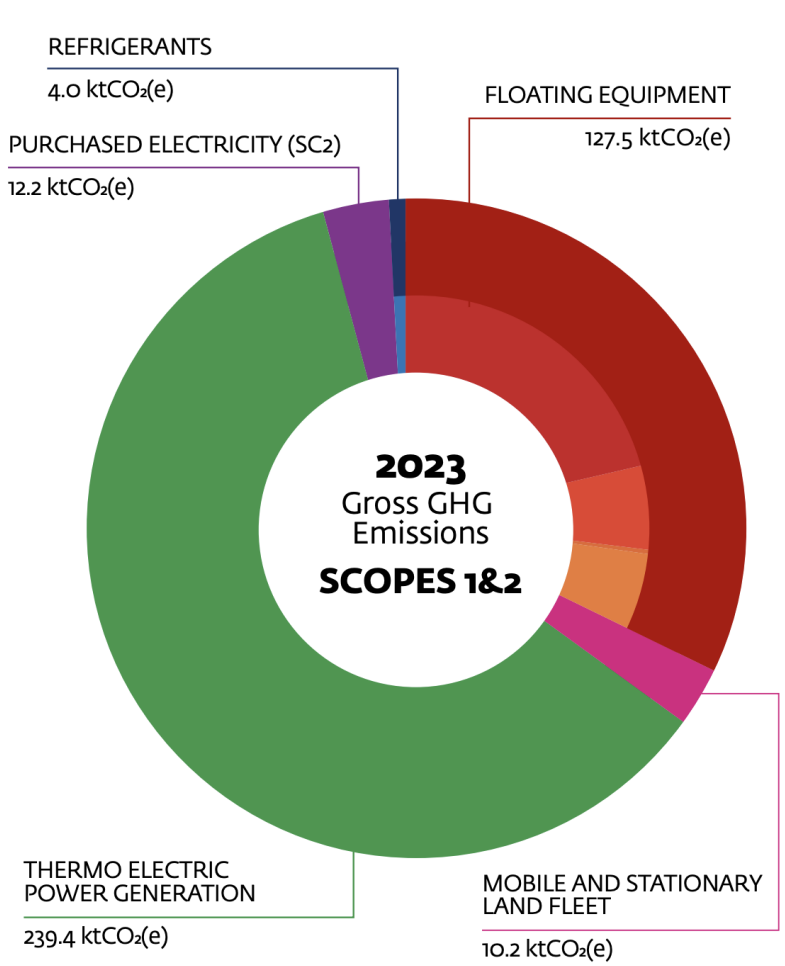


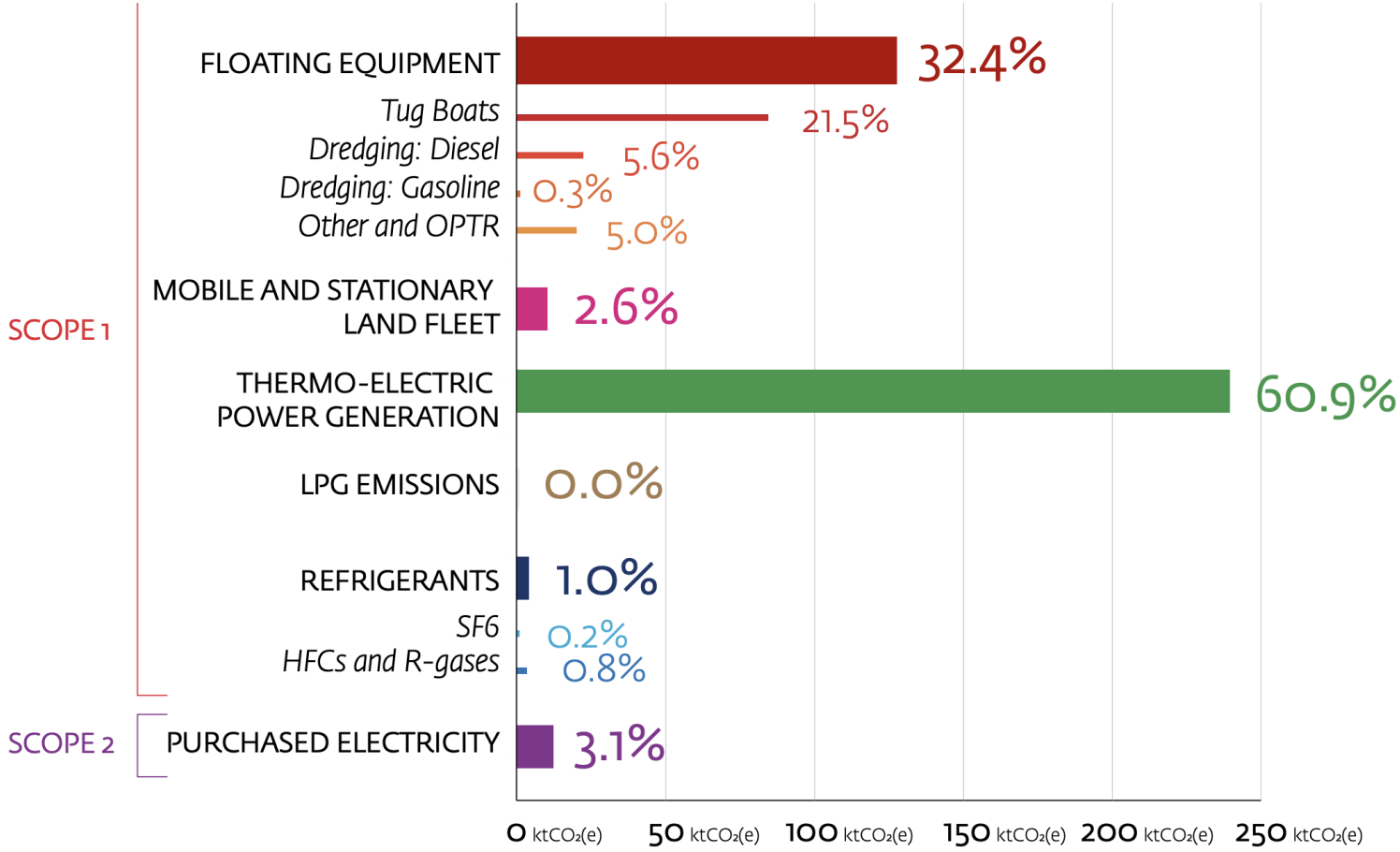
12,627 KtCO2(e)



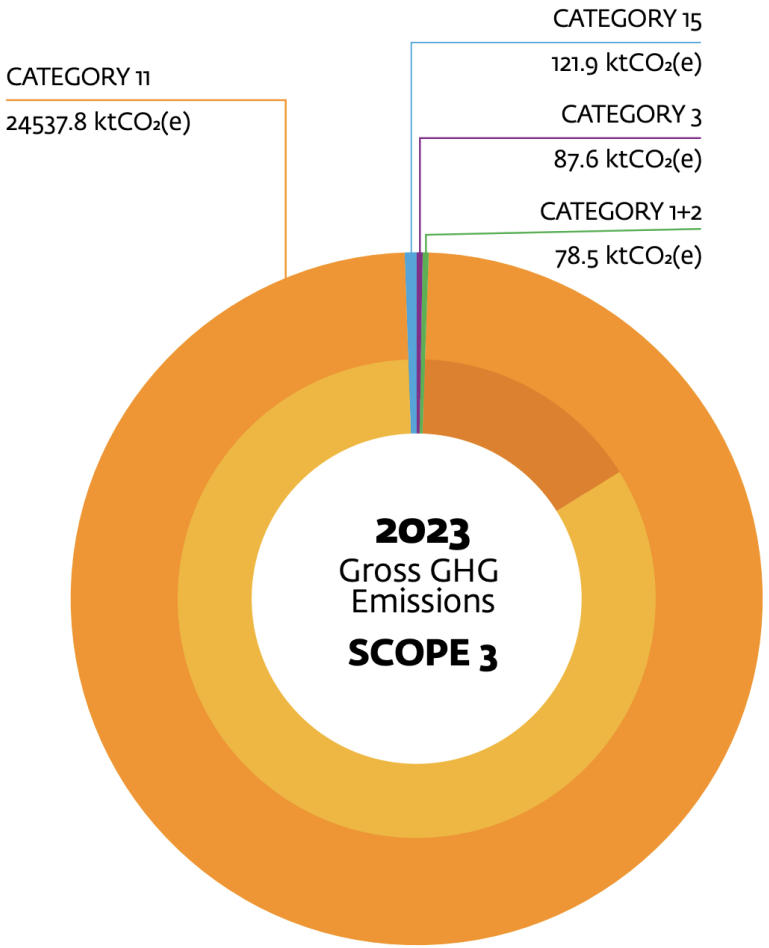
29,857 KtCO2(e)

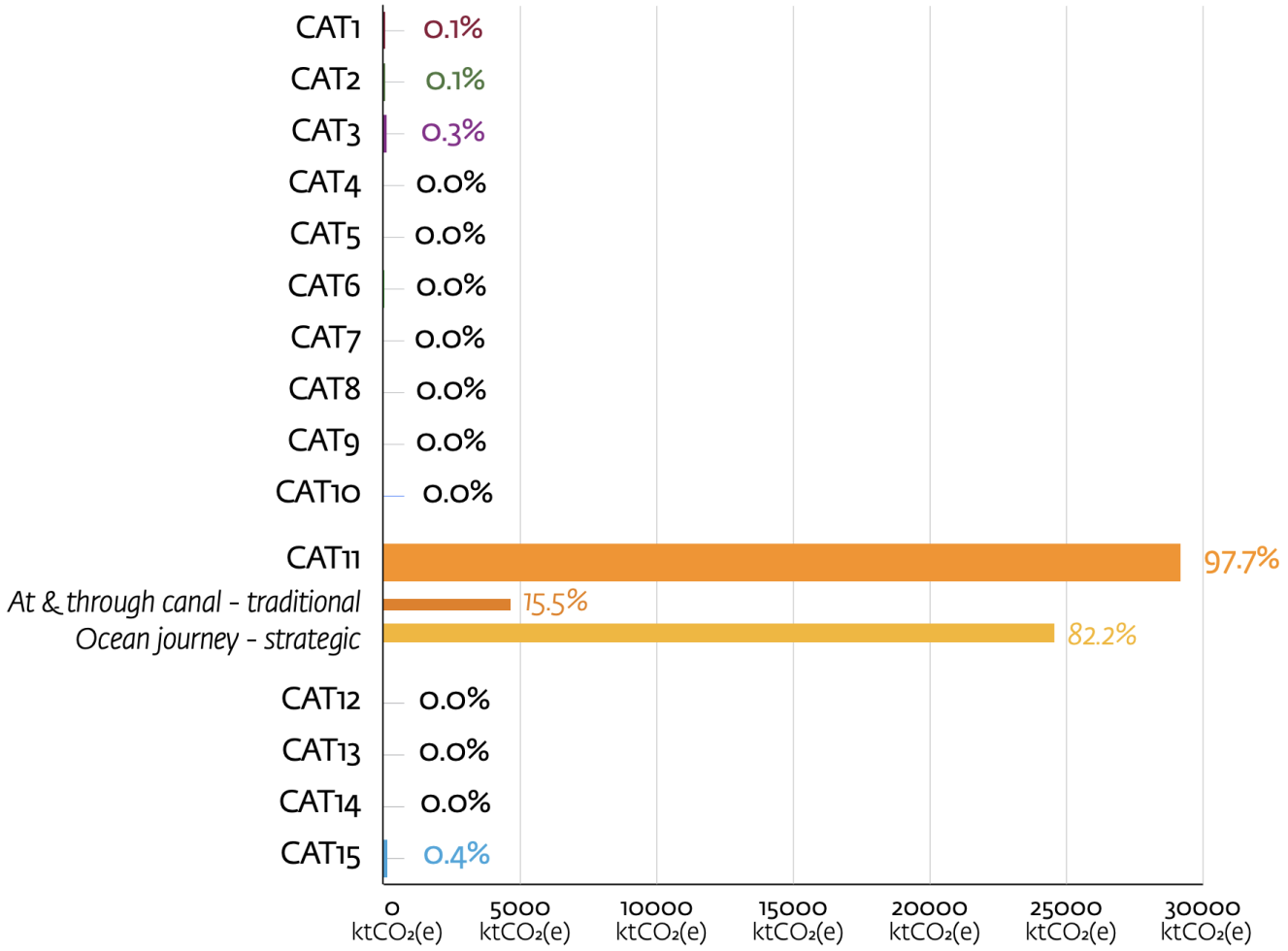
FY 2023 GHG Inventory Results





FY 2023 GHG Inventory Results





Proyects

Photovoltaic Power Station

Objective: producing 26 GWh of energy per year (first year), equivalent to approximately 15% of the ACP's annual consumption. A solar tracking system with north-south axes will be used.

Renewable diesel

Renewable diesel trial for tugboats.

Award of purchase of hybrid tugboats

First delivery: May 2025

Quantity: 10 + 10

Potential savings: 15% fuel savings

Electric cars

Cantidad:

24 in operation

22 awarded

ACP fleet: 810

Electric chargers: 14

In evaluation of the use of chargers for employees and visitors.

Green corridors

Specific maritime routes where zero-emission ship operation's technological, economic and regulatory feasibility is catalysed through a combination of public and private actions.

Pre-feasibility study of green corridor with the U.S. Department of Energy in conjunction with Mærsk Mc-Kinney Møller Center, and other stakeholders (ports and public sector: AMP, MiAmbiente, Secretaría de Energía, etc.).

a. Lloyd's Register
   - Technical support (demand and fuel source analysis - critical feedstock)
   - Unlocking investment opportunities (incentives, community development, etc.)
   - Support in IMO discussions

b. Collaboration with universities (Norwegian School of Economics, Liverpool John Moores University, UTP, UMIP) and research centers (Georgia Tech, MTCC Latin America) in the development of scientific research on three aspects:
   - Climate risks of the Canal and their impacts on global maritime trade (including Arctic route - Northwest Passage).
   - Life cycle analysis of potential fuels in a green corridor through the Canal.
   - Study of green fuels distribution network in Latin America focusing on a green corridor through the Canal.

Modelo de priorización de los corredores por UMAS (Coalición Getting to Zero)

Just In Time Iniciative - JIT

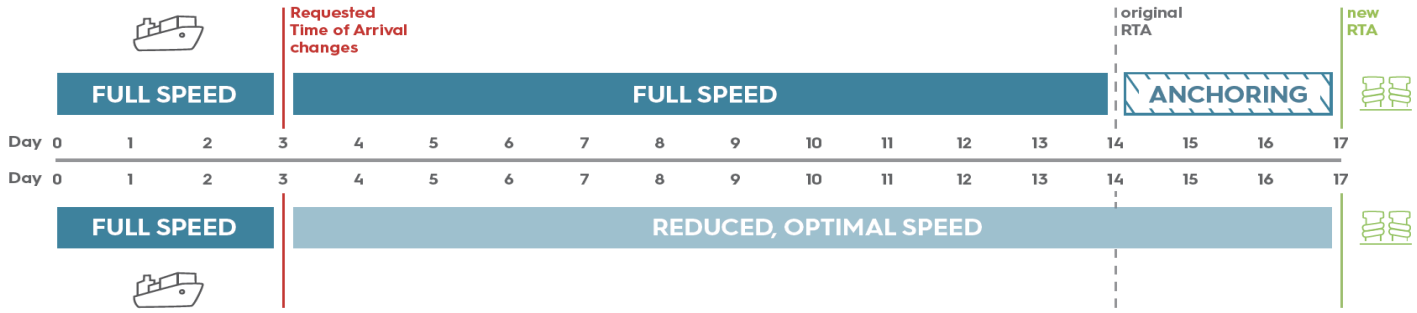
JIT is used to describe a ship that has sailed to a port with the least amount of bunker fuel consumed. This saves fuel, GHG emissions and also reduces anchorage time in ports.

JIT can reduce CO2 emissions by up to **14.15%** per journey
(Low Carbon GIA study).

The Canal started the JIT service in 2013.

Collaborative initiatives:

1. **IMO JIT (Green Voyage 2050):** Seeks to promote JIT service on container ships.
2. **Blue Visby**: Digital twin model simulation for tankers, chemical tankers and bulk carriers to determine GHG emission reduction potential.



Long-term Booking Sales at Neopanamax Locks

- Adapt our business model to customers and the Canal's needs.
- Be fair, equitable, transparent, and flexible.
- Provide the transit reliability required by some market segments.
- Efficient use of water resources and contributes to emissions reduction

Booking System Schemes - Neopanamax

Long Term

Long-term slots allocation method

- Mechanism used by port terminals.
- Provides long-term business predictability.
- Provides certainty for shipping lines to develop their business.
- Ensures a demand for transits in a formal way with shipping lines.

Current – Short Term

Regular reservations

- Short-term transit certainty required by certain market segments
- Priorities:
  - Period 1: Container ships
  - Period 1a: Container, LNG, LPG and vehicle carriers.
  - Period 2: Container ships
- Customer Ranking tie-breaker
- Clear and easy to apply rules.

Auctions

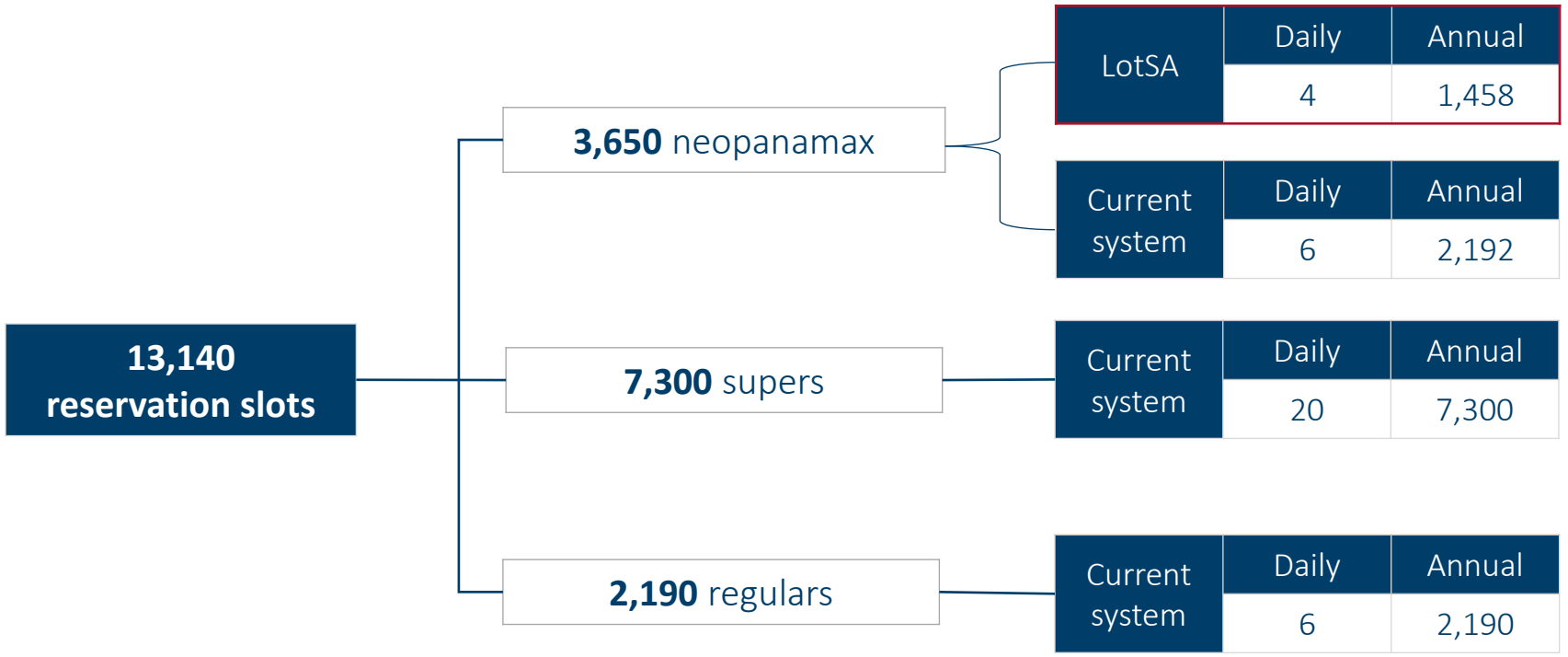
It remains under the same conditions and rules as at present.

Long Term Slot Allocation Methodology (LoTSA)

Availability dates: from January 5, 2025 to January 3, 2026.

Between September and October of this year, approximately 40% of the slots (4 slots per day) are projected to be sold exclusively to clients. Some slots are allocated at a rate of 1 per week, by direction or other criteria, depending on the LoTSA package.

Clients must assign the vessel or visit, as well as the exact date, 70 to 35 days prior to the week in which it is required.



Long Term Slot Allocation Methodology (LoTSA) – up to Date Results

Market segment	Offer	Number of packages	Slot per package	Frequency of transit	Slot per address		Date of auction	Sold slots
					N	S		
Containerships	1	7	104	1 per direction each week	52	52	October 1st - 2nd	-
	2	7	52	1 per week	52	-	October 3rd - 4th	-
LNG / LPG	3	6	24	2 per month	-	24	**September 9 - 10**	**144**
	4	9	12	1 per month	-	12	**September 11 - 12**	**108**
	6	9	12	1 per month	108 N o S		October 9	-
Alla	5	1	6	1 per month	-	6	October 5	-

Auctions from September 9 to 12 360 slots offered
252 slots sold

Proposal to use PCGVM to create the “Green condition slot”, focused on Level 3 and 4.

Locks: Neopanamax

Number of slots and frequency: monthly

Mechanism: the slot is extracted from the auction basket and offered 30 days prior to the transit date.

Tie-breaking method: auction

Substitutions or swapping only for a vessel meeting the same classification.

Value added JIT at no additional charge

	Standar	Level 1	Level 2	Level 3	Level 4
% of reduction (EEDI or EEXI)	0-19.99	20-29.99	30-49.99	>= 50	Clean fuel
Ratio	0-0.019	0.02-0.039	0.04-0.05	> 0.05	

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