



Ports as battlegrounds for decarbonization

TOC America's

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CO2 emissions are estimated to have increased from 701 million tonnes in 2012 to 740 million tonnes in 2018 accounting for approximately 2% of global CO2 emissions.

Source: Fourth IMO GHG Study 2020



An aerial photograph of a large container ship sailing on a blue-green sea. The ship's deck is covered with numerous colorful shipping containers in shades of red, blue, yellow, and white. A large white plume of smoke or steam rises from the ship's funnel, drifting towards the right. The ship's white superstructure, including the bridge and various decks, is visible in the center-right of the frame.

**If we can't measure
emissions, how can we
manage them?**

Ports play a critical role in supporting the transition to net-zero emissions

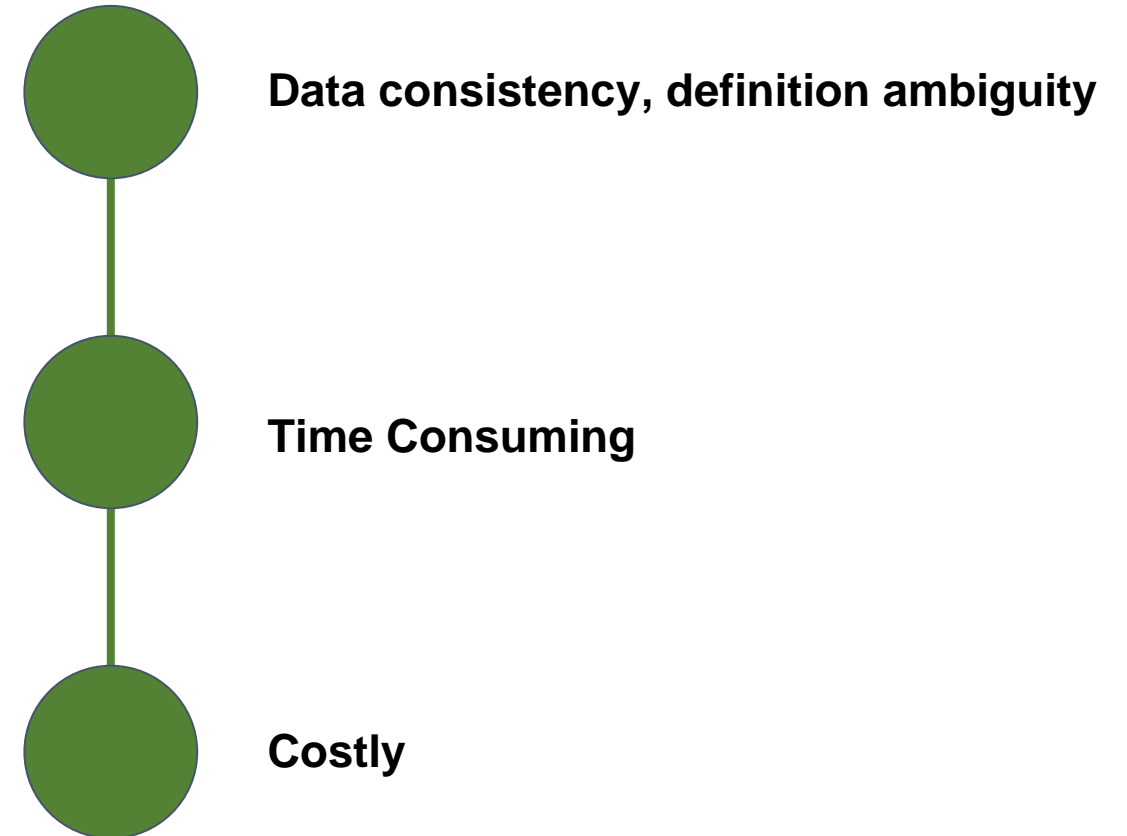
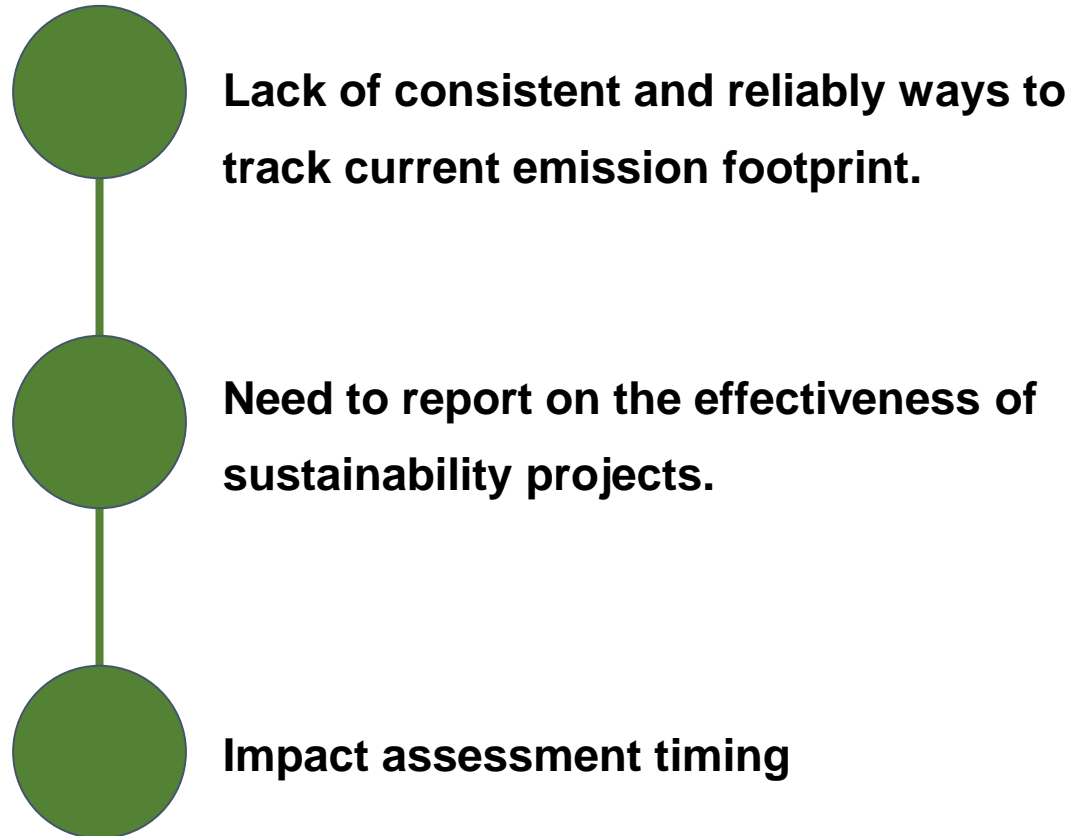


Ports play a critical role in reducing vessel related emissions

- **Just-in-time sailing** needs to be facilitated by ports:
 - Terminal berth planning
 - Nautical service planning
 - Harbour fee discount
- Environmental impact:
 - **13 tons** bunker fuel saved / portcall
 - **39 tons** of CO₂ / portcall
- **On shore power**
 - Port of Rotterdam can save **2500 tons NOx** by applying on-shore power across terminals
 - Provide infrastructure for future fuel bunkering



Needs and challenges with emission reporting



Case study

Making the transport emissions transparent in the Port of Rotterdam

Challenges

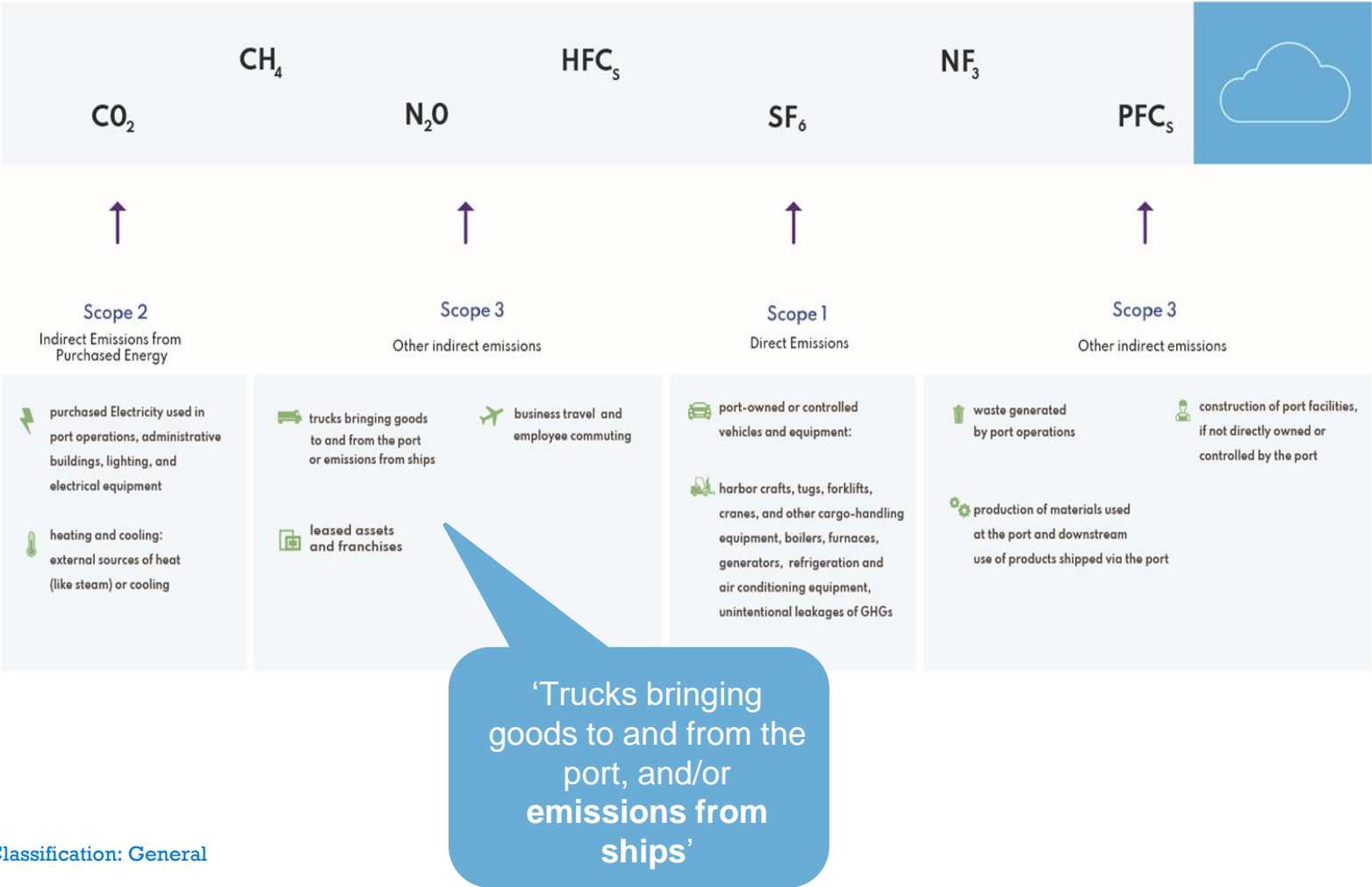
- Emission calculations were done sporadically through studies that relied on different assumptions and datasets
- Challenging to compare the emission level over time and track the progress toward the net zero target

Benefits

- Standardize reporting
- Prioritize decarbonization projects
- Enable customers and port community to reach their decarbonization goals



Vessel emissions are considered part of Scope 3 for both landlord and operating ports



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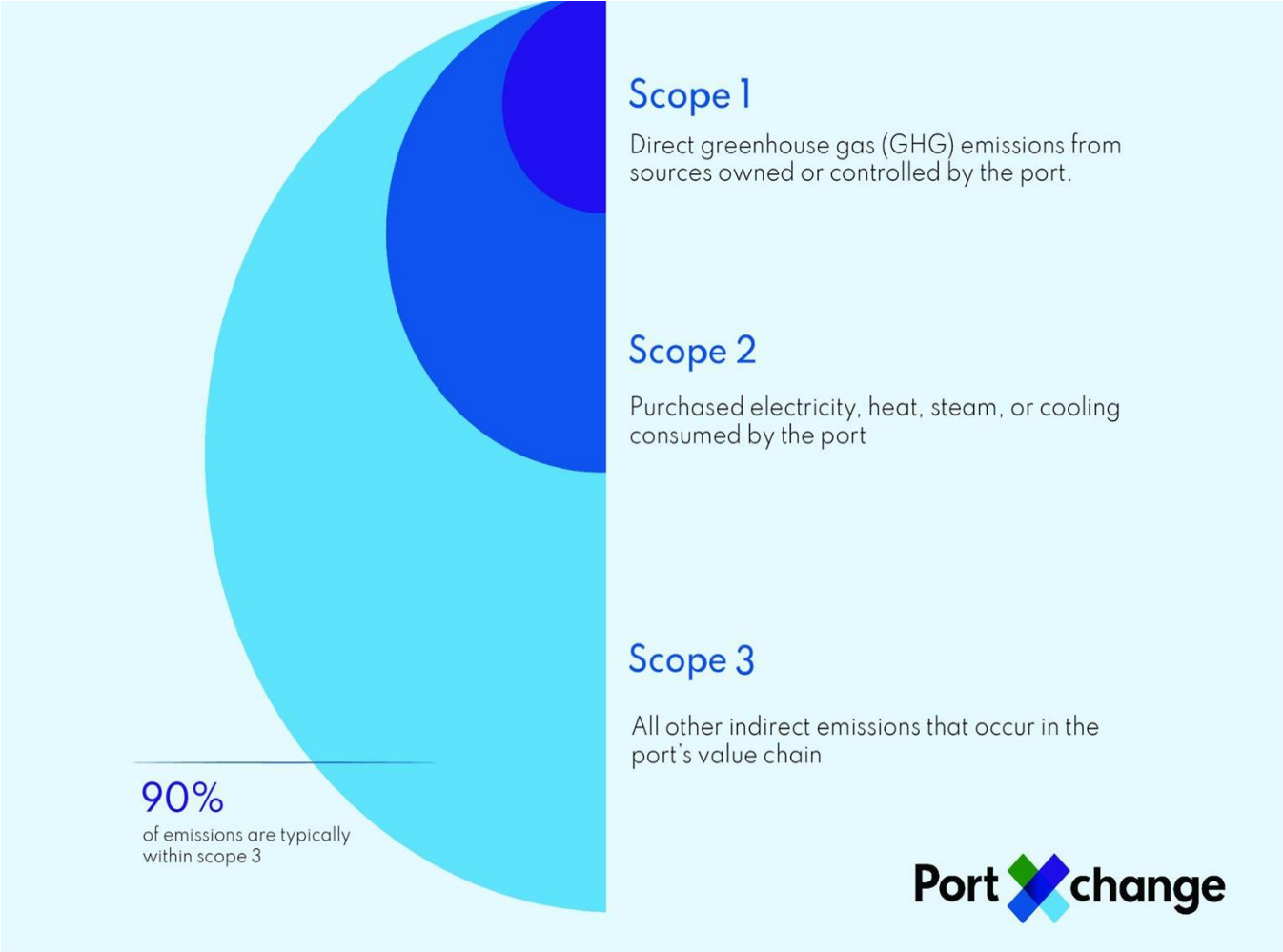
Port of
Rotterdam



Belfast
Harbour



Scope 3 Emissions represent the largest bucket of emissions in a port



96%



PortXchange EmissionInsider:Carbon Insight Suite

Analyze current emission footprint; for vessels/truck/rail

How does it work?

1

Together with the port authority we begin by outlining the **port polygon**, which encompasses the anchorage area, berths, and any other points of interest.

2

We utilize **AIS data** to monitor the movements and activities of all vessels within the designated port polygon.

3

We integrate AIS activity data with **vessel specifications** and **emission factors** to create emission profiles for each vessel.

*We can tailor our solution to incorporate specific methodologies that are aligned with your requirement

3 key actions to start the change

1. Dare to lead the change in your community, and get started
1. Put down an ambitious target, monitor where you are and honestly showcase progress
1. Share learnings internally and externally

78%
VESSELS



16%
TRUCKS

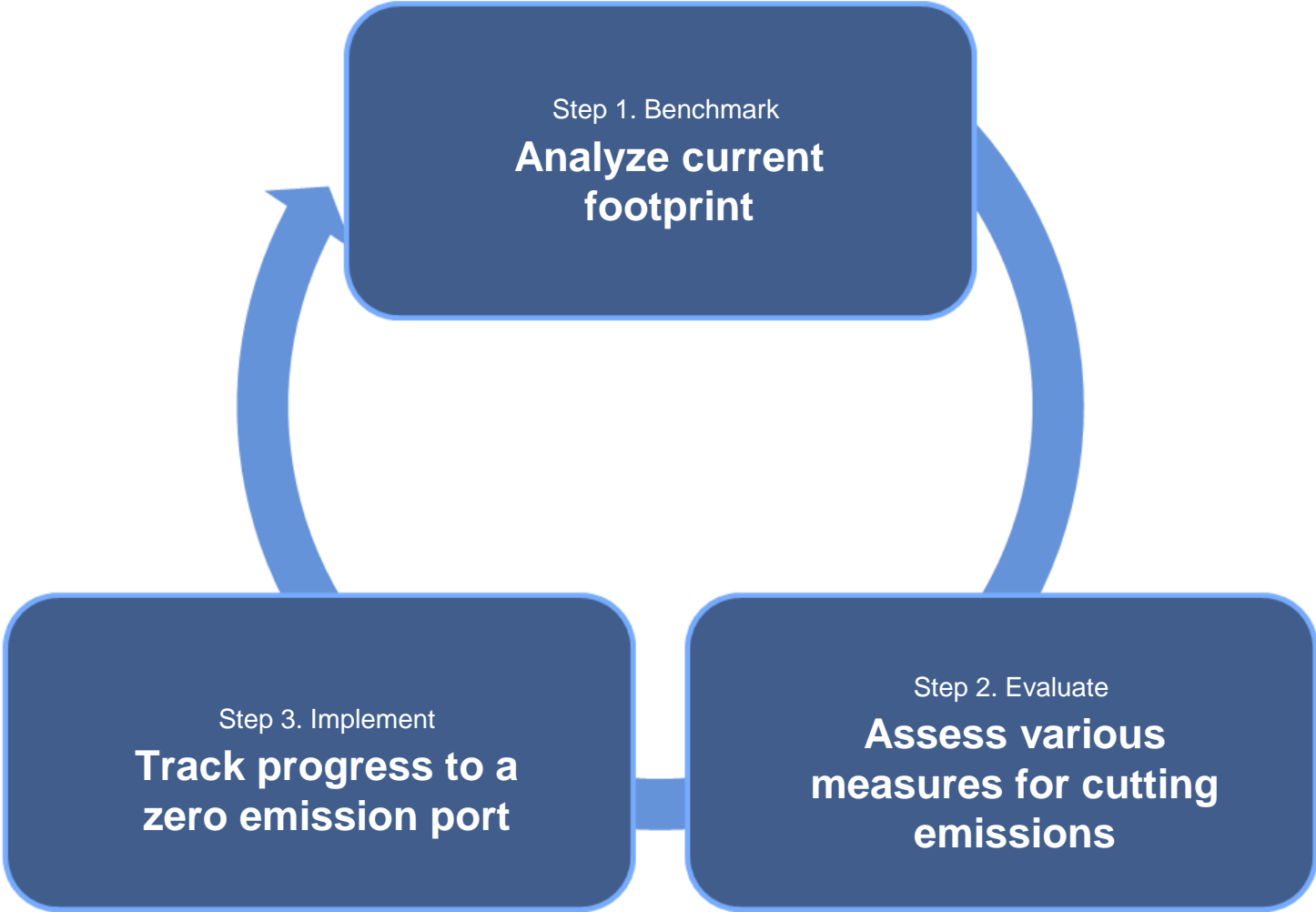


6%
RAIL



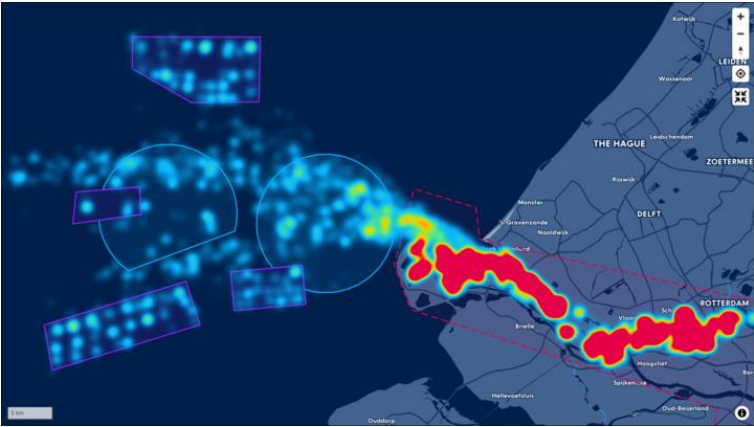
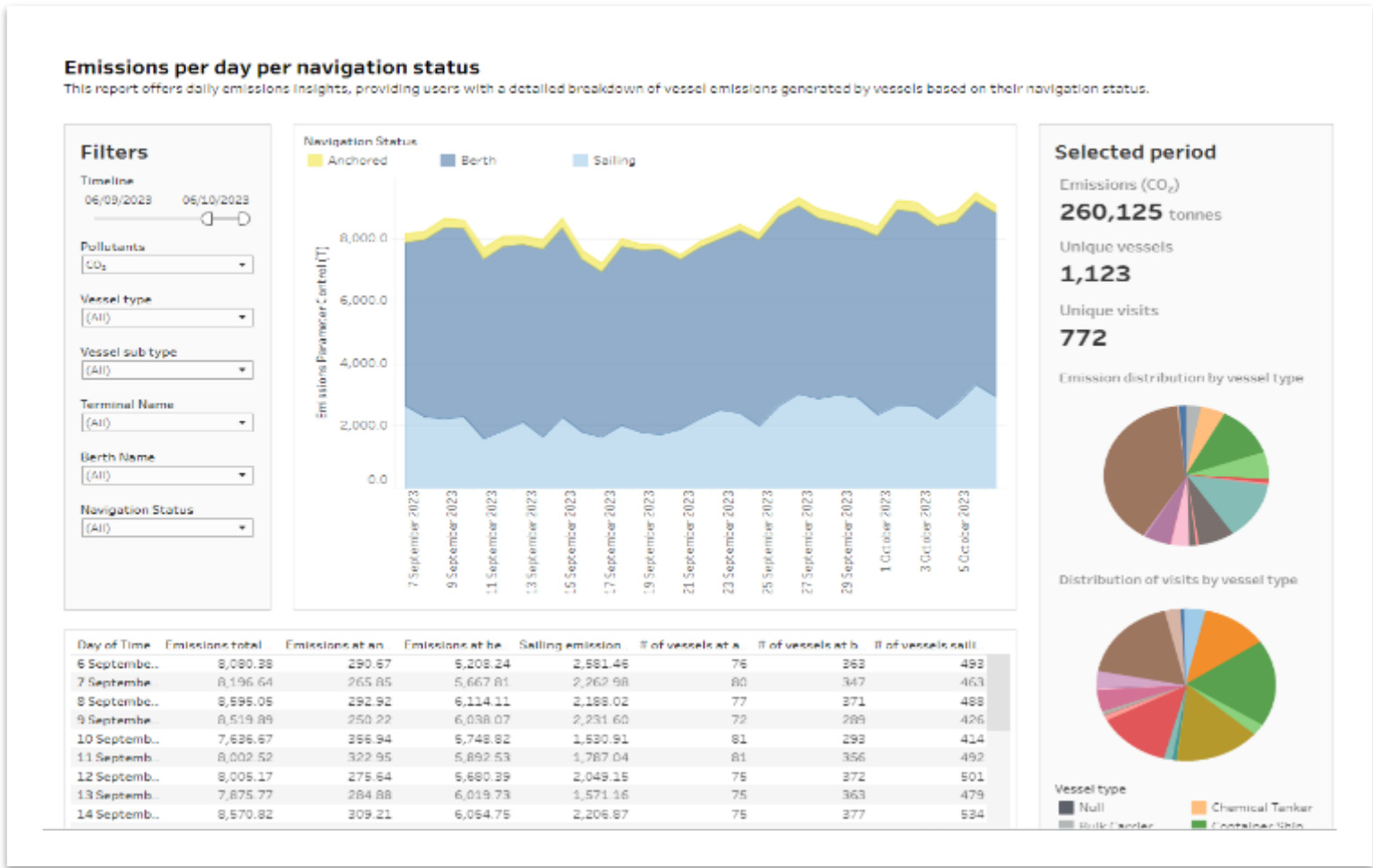
PortXchange EmissionInsider

How to get started



PortXchange EmissionInsider

Track your progress toward a zero-emission port



Build the path to a zero emission port:

- Identify emission trends, aiding in transparent communication with stakeholders, regulatory bodies, and the public.
- Measure the effectiveness of decarbonization strategy
- Report on the results and apply corrective actions if needed

Looking forward to
connect!



Contact Information



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