

# ASIA AND THE PACIFIC TRANSPORT FORUM 2024

## CLEAN TRANSPORT FOR ALL

14-17 May 2024 | ADB Headquarters, Manila, Philippines



## Session 4: Maritime Decarbonization

*Digitalization for Decarbonization:  
Smart Green Ports for Development*

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## Background

- Maritime and shipping
- Why ports?
- Why smart ports?
- Why smart ports in Asia and the Pacific?

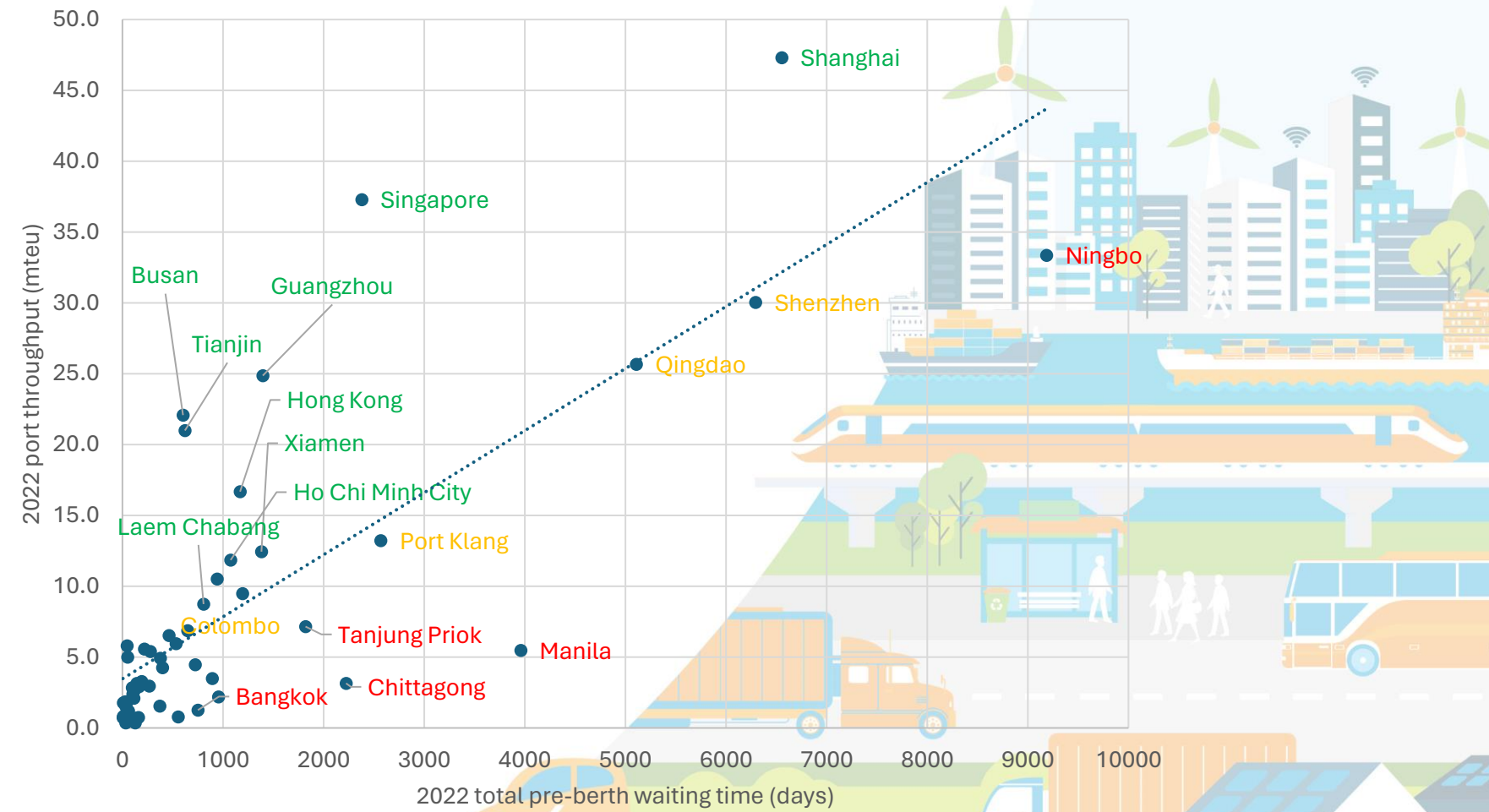


# Port Delays in Asia and the Pacific (53 Port Sample)

**Total pre-berth waiting time, 2019-2022**

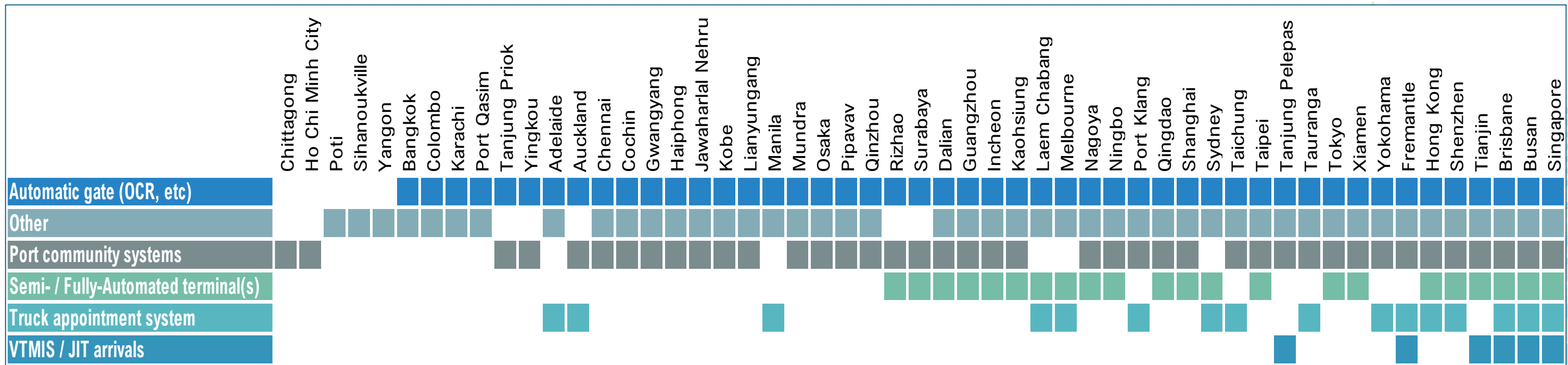


**Pre-berth waiting time vs. port throughput, 2022**

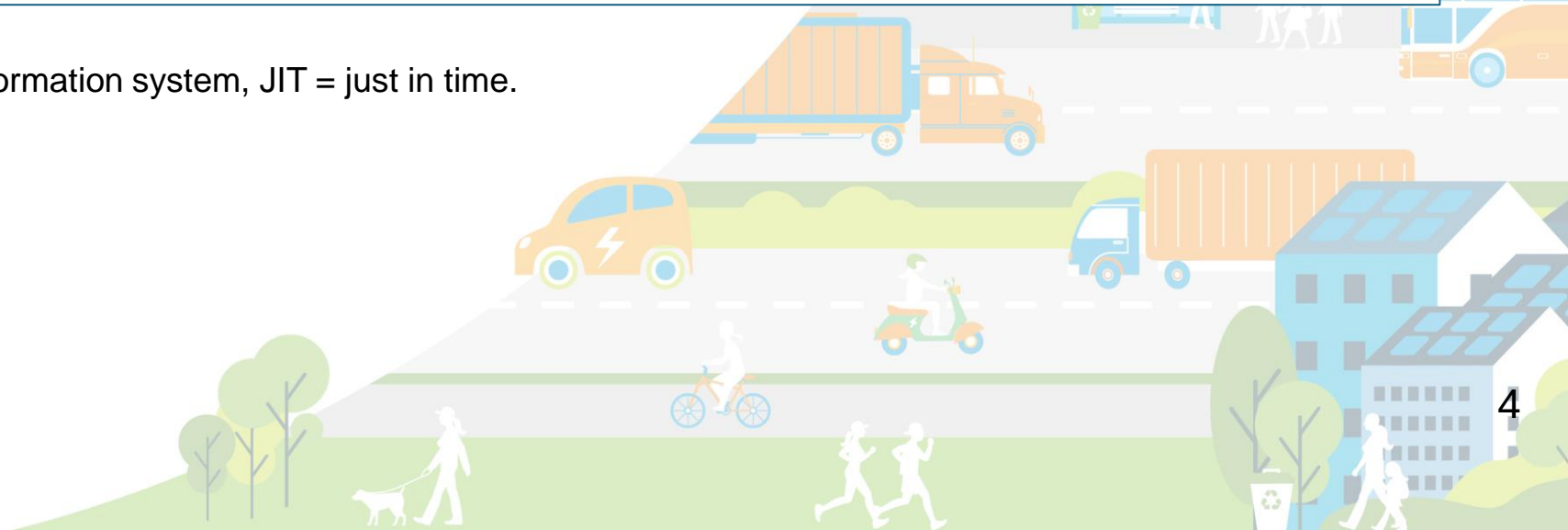


\* Longer the wait, lower the throughput and higher the emissions.

# Smart Port Systems in Asia and the Pacific Region (Sample of 53 Ports)



Note: OCR = optical character recognition, VTMS = vessel traffic management and information system, JIT = just in time.  
 Source: Author's compilation from respective port authorities.

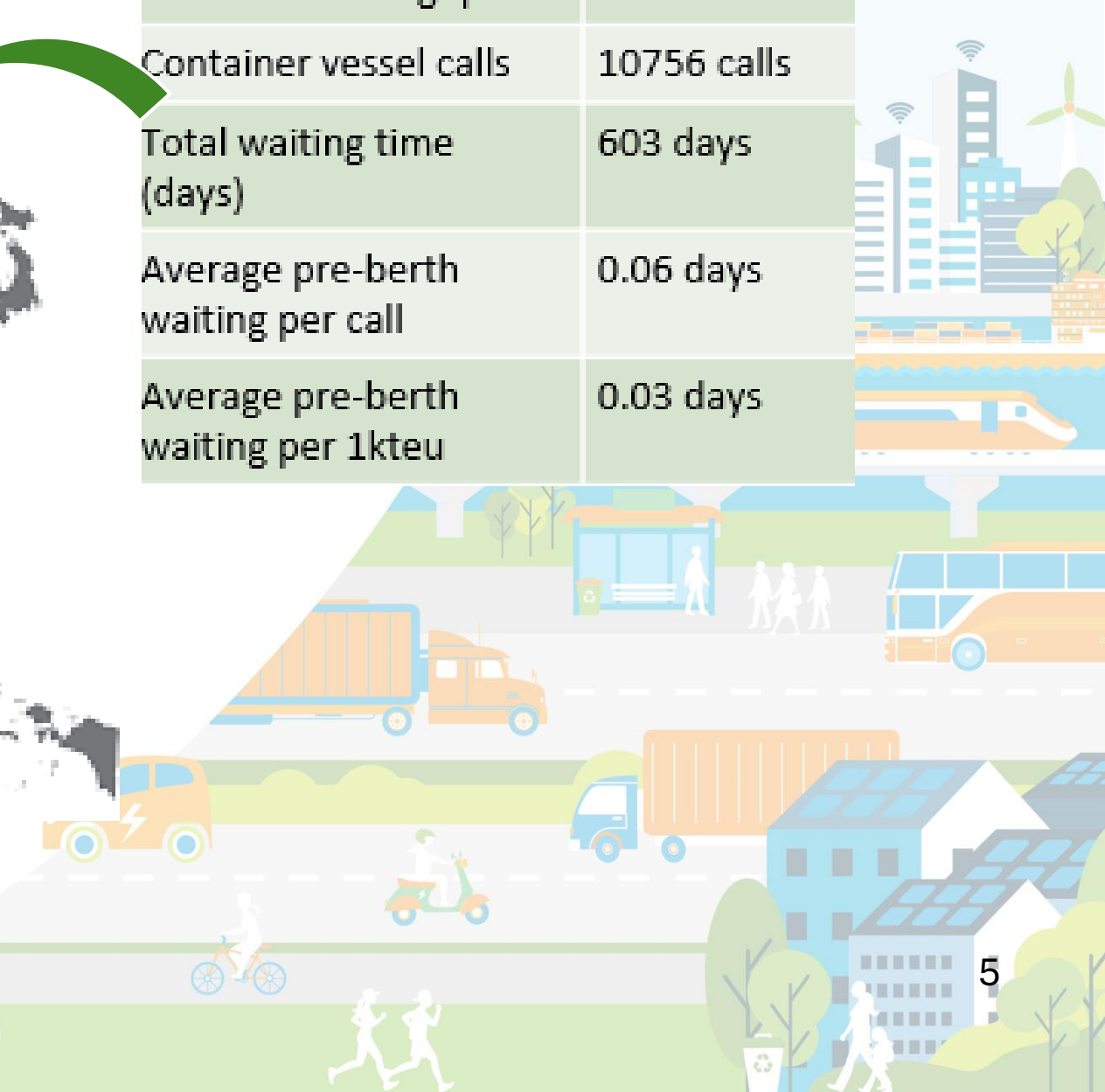
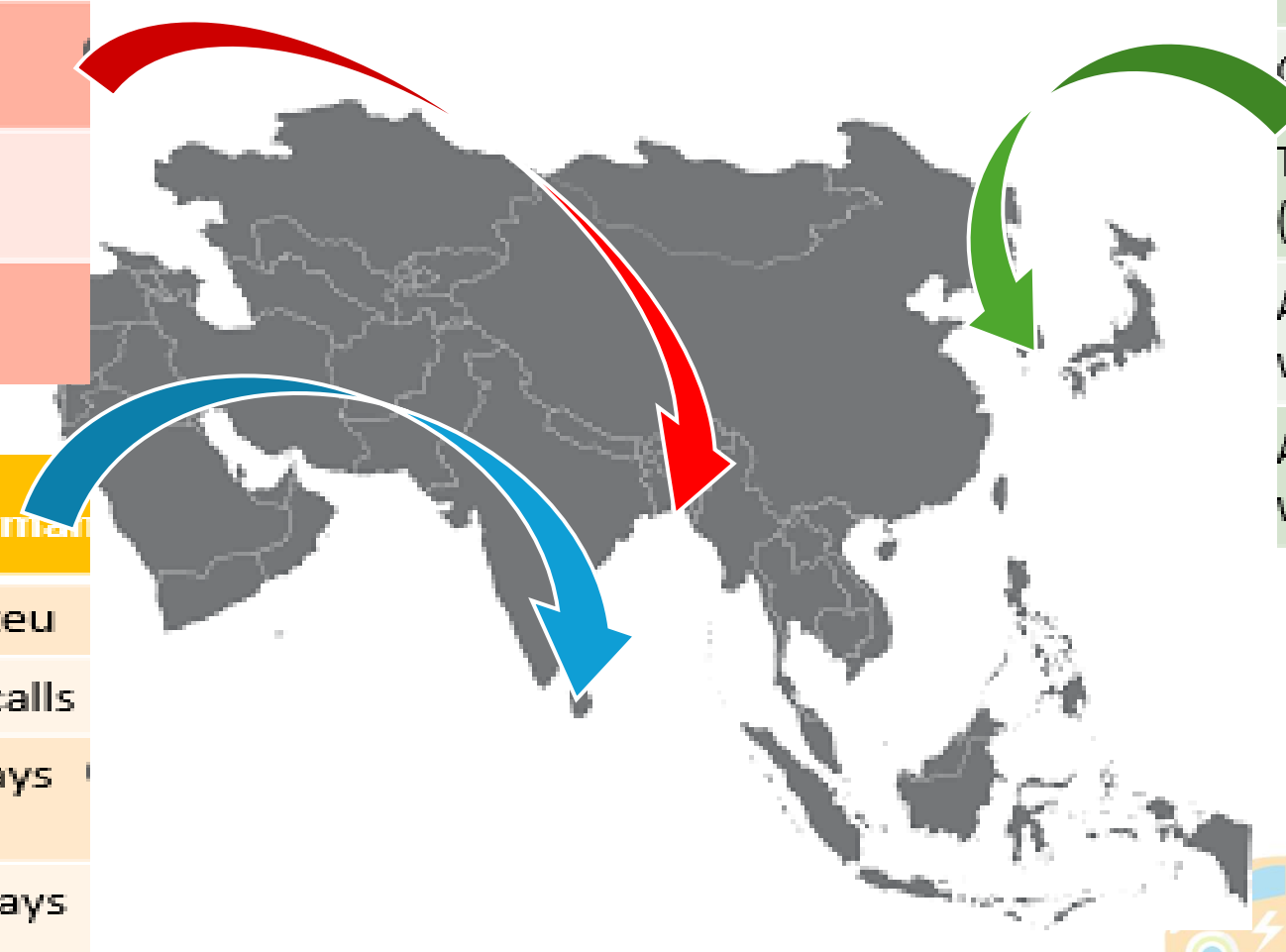


# Assessing the Emissions Saving Potential (2022 baseline)

Chittagong Smart port score 17%	2022 performance
Container throughput	3.1 mteu
Container vessel calls	1293 calls
Total waiting time (days)	2223 days
Average pre-berth waiting per call	1.72 days
Average pre-berth waiting per 1kteu	0.71 days

Colombo Smart Port Score 33%	2022 performance
Container throughput	6.9 mteu
Container vessel calls	3216 calls
Total waiting time (days)	648 days
Average pre-berth waiting per call	0.20 days
Average pre-berth waiting per 1kteu	0.09 days

Busan Smart Port Score 100%	2022 performance
Container throughput	22.1 mteu
Container vessel calls	10756 calls
Total waiting time (days)	603 days
Average pre-berth waiting per call	0.06 days
Average pre-berth waiting per 1kteu	0.03 days



Source: Authors' elaborations from AIS data.

# Can “Just in Time” Arrival System Generate Emissions Savings?

		Busan	Colombo	Chittagong
Reduce average inbound speed to 12 knots	Total time saving	47 days	76 days	466 days
	% reduction	4%	13%	21%
Reduce average inbound speed to 10 knots	Total time saving	128 days	169 days	946 days
	% reduction	11%	29%	43%
		Busan	Colombo	Chittagong
2022 Baseline	Emissions in anchorage (CO <sub>2eq</sub> tonnes)	39,467	20,365	76,355
Reduce average inbound speed to 12 knots	Total saving (CO <sub>2eq</sub> tonnes)	1599	2615	16,008
	% reduction	4%	13%	21%
Reduce average inbound speed to 10 knots	Total saving (CO <sub>2eq</sub> tonnes)	4,397	5,806	32,461
	% reduction	11%	29%	43%

Note: Assumes 1.43 tonnes CO<sub>2eq</sub> per hour of waiting.  
Source: Author's analysis.



## Points for Consideration

- Direct and co-benefits
- Collaboration in a competitive industry
- Short-, medium- and long-term solutions





**Thank you**

**For more information:**

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