

Navigating towards the solution: the **Carbon Intensity Indicator (CII)**, a global **GHG fuel standard** and a **levy**

To transition the shipping industry successfully to zero carbon, we need:

Stronger and enforceable **CII requirements** + A global **GHG fuel standard** transitioning away from polluting fuels to carbon neutrality + An **ambitious carbon levy** for a low-cost transition

Background

 Carbon Intensity Indicator (CII)	 Global Fuel Standard (GFS)	 Levy
<ul style="list-style-type: none"> ▶ Maximising ship efficiency to minimise fuel consumption; ▶ Overcoming barriers to adopt new tech and practices; ▶ Reducing ships' speed to provide important ocean health co-benefits. 	<ul style="list-style-type: none"> ▶ Ensuring the uptake of readily-available wind technologies; ▶ Making sure zero-emission fuels are available when needed. 	<ul style="list-style-type: none"> ▶ Incentivising clean shipping; ▶ Reducing the cost gap between old polluting fuels and zero-emission fuels; ▶ Distributing the revenue gained towards a just & equitable transition.

Different tools for different jobs

By reducing speed and achieving greater efficiency, ships will produce lower GHG emissions and ensure healthier oceans and communities:

Ocean health

 Reducing the emissions of black carbon and other air pollutants from dirty fuels	 Safeguarding food security and supporting healthy communities	 Reducing underwater noise pollution as well as the number and fatality of whale strikes
--	---	---

Helping the ocean will help us combat the climate crisis!

Shipping will need **zero GHG emission fuels** but their **use in shipping should be kept to a minimum** because:

- ▶ Shipping is uniquely placed to exploit wind energy directly and for free by fitting sails and other new wind tech.
- ▶ The electricity needed to produce them could be in short supply.
- ▶ The process is very energy intensive and renewable energy used to create ships fuels could be used in other parts of the economy more efficiently
- ▶ It is unclear if zero-emission fuels are safe.

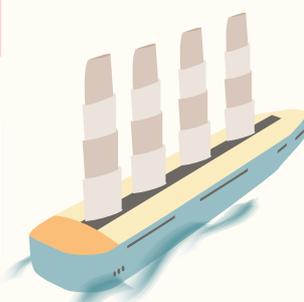
Zero-emission fuels

There is also an economic reason!

▶

Every \$1 spent on improving on-board energy efficiency could save \$10 in costs associated with the supply of these new fuels.

IMO must agree on a suite of new measures including a strong revised CII, a global fuel standard that drives uptake of wind, and an ambitious carbon levy for a low cost transition and ensure no-one is left behind.



Optimised ship operations and retrofitting



Retrofitting existing ships with wind assist technology can mean up to **30% saved in fossil fuel consumption.**



Use dry-docking time during maintenance and cleaning to retrofit vessels with wind assist technology.



Fuel savings for:

% on BAU voyage

Underwater cleaning with capture

6% - 10%

- ▶ Quick & efficient
- ▶ Minimal downtime for vessel

Dry-docking

15% - 18%

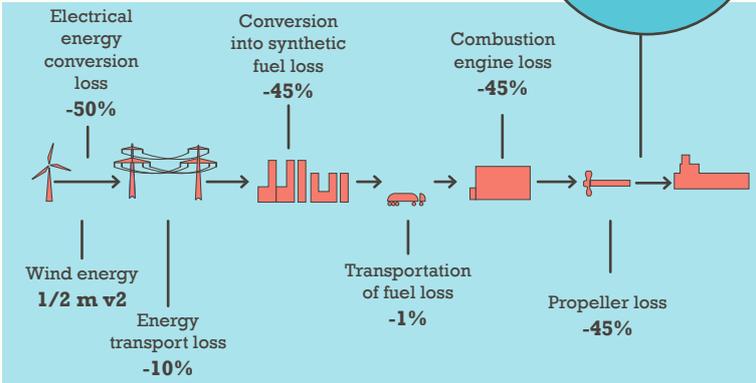
- ▶ Thorough maintenance
- ▶ Longer downtime but deeper cleaning



Power to fuel

Creating zero-emission fuels from electricity will be necessary but is less efficient than direct electrification, and results in significant losses.

Losses complete = **-93%**
Only **7%** of wind energy is used for ship propulsion



When feasible, ships should connect directly to electricity rather than use zero-emission fuels.



For each gigajoule (GJ) of fuel saved in shipping

2 GJ

6 GJ

2 GJ of green electricity are available for other purposes...

...which can become 6GJ of heat through a heat pump.



Reduction in port delays



Just-in time arrivals and synchronised departure schedules could lower absolute CO₂ emissions by up to **14%**.



-14%

absolute CO₂ emissions reduction



Scheduling and route choices

Plans for an efficient voyage include weather routing and monitoring.

The wind averages in all regions are 9-10 knots or above, with the Baltic sea, Indian Ocean, North Atlantic, North Pacific, North Sea and Southern Ocean all averaging 15 knots + or above



Vessel deployment

Maximise efficiency by ensuring more vessels sail at full capacity.



Blue speed

Reductions in speed of **20%** means decrease in lethal whale collision hazard of **67%** in European waters.

speed **-20%** ▶ **-67%** whale strikes

Proper bunkering facilities



Integration of zero-emission fuel bunkering in port infrastructure will increase the overall efficiency.

