

RU ready? Analyzing the cost of non-compliance

Countdown Newsletter Slides
2024



Mærsk Mc-Kinney Møller Center
for Zero Carbon Shipping

11/27/2024

A note on this slide deck

The following slides are from our [fourth Countdown newsletter](#) on the IMO mid-term measures (MTM) which was published on 27 November 2024.

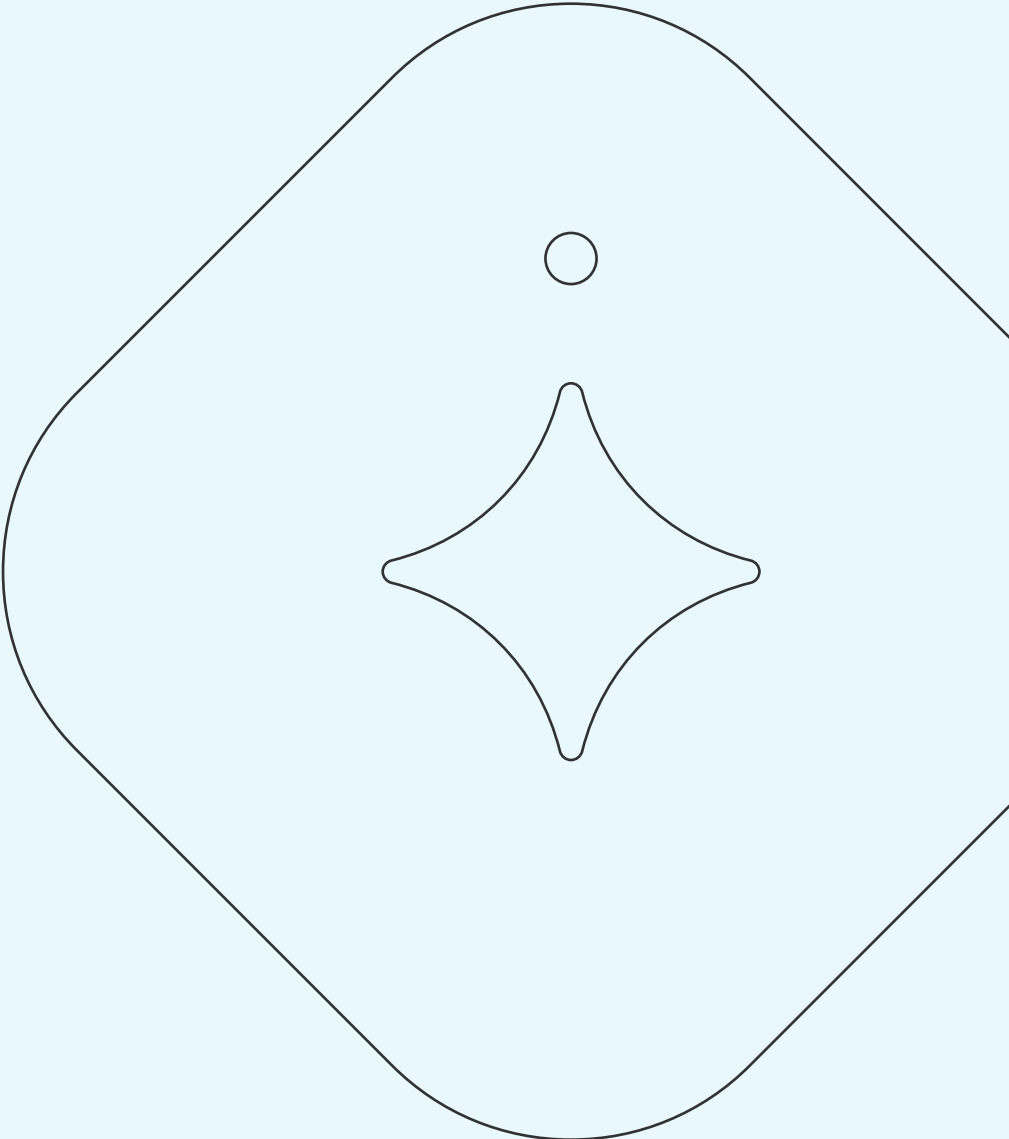
These slides are derived from our internal understanding and analysis of the status of the mid-term measures and do not represent an official IMO position or the views of our partners.

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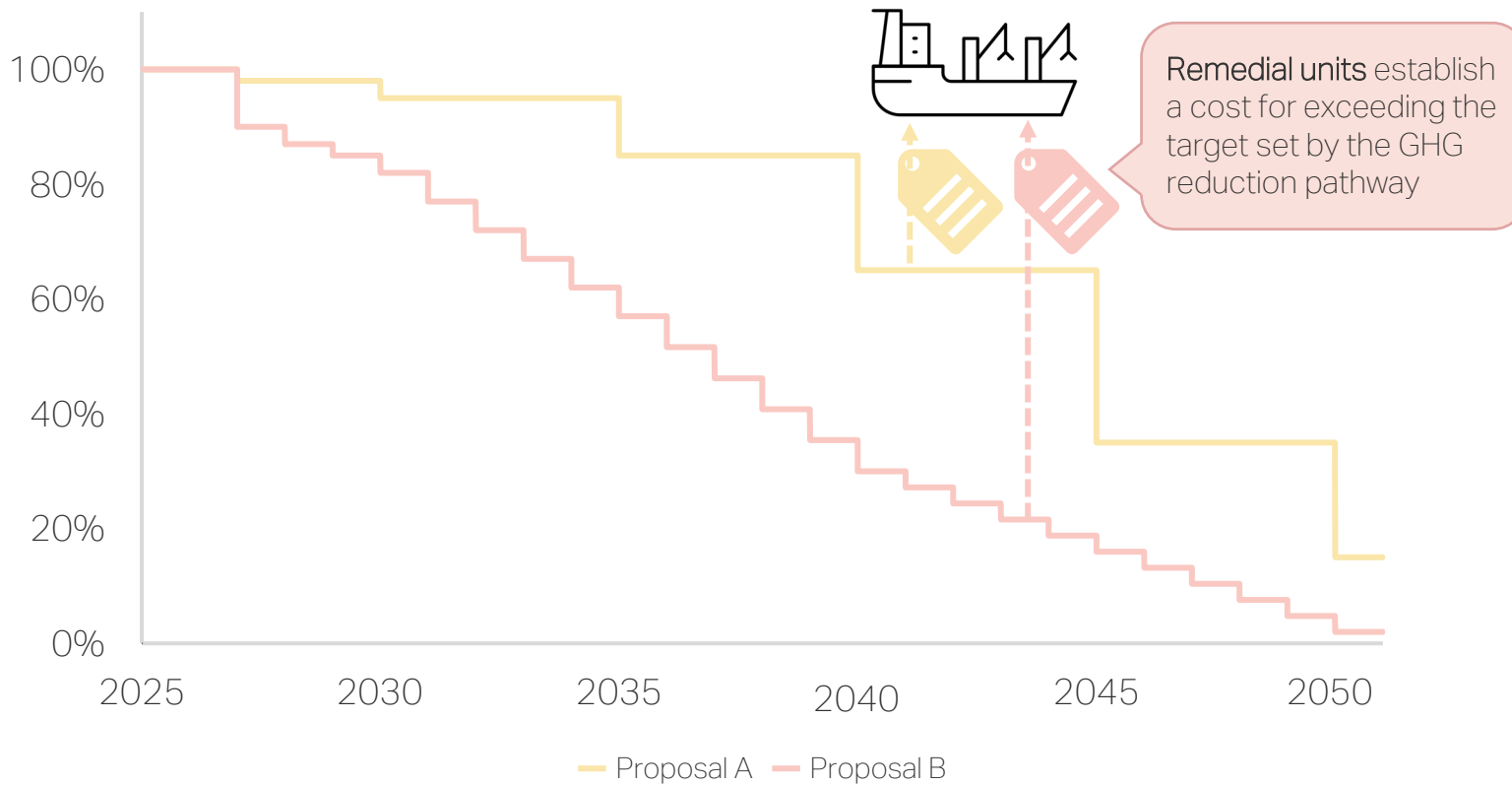


How do Remedial Units in a
GFS work?



Missing the target will require paying for Remedial Units

Comparison of proposed GHG reduction pathways



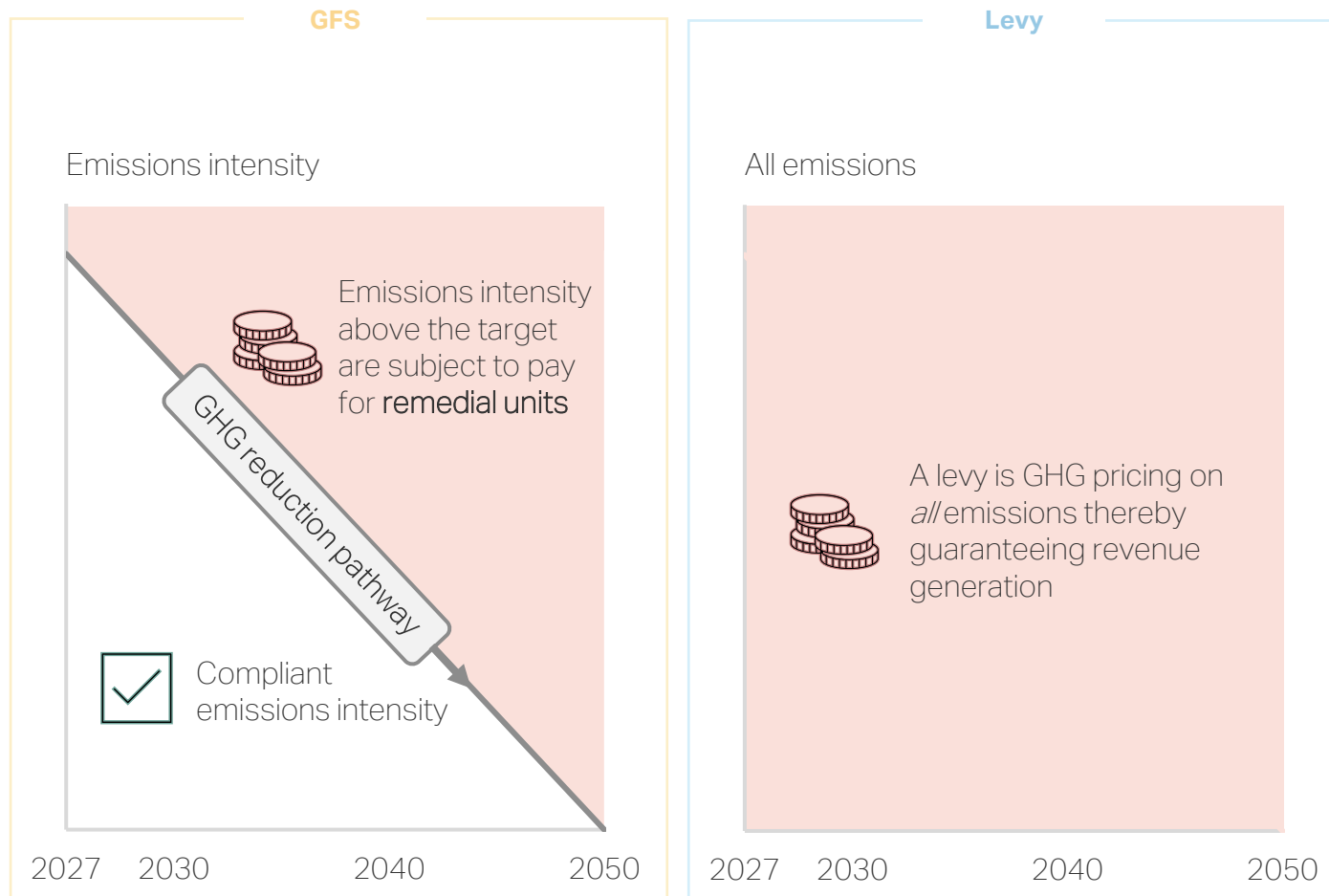
A GFS limits a ship's average GHG emissions per unit of energy over the course of a year, with these GHG reduction targets becoming progressively stricter over time.

In all proposals for a GFS, vessels exceeding the annual GHG intensity target must pay a penalty for non-compliance, referred to as 'Remedial Units' (RU) in some proposals.

RUs set a cost for GHG emissions above the annual intensity target. But views on the appropriate RU to meet the 2023 IMO GHG strategy vary.



The RU determines if the transition is cost-efficient



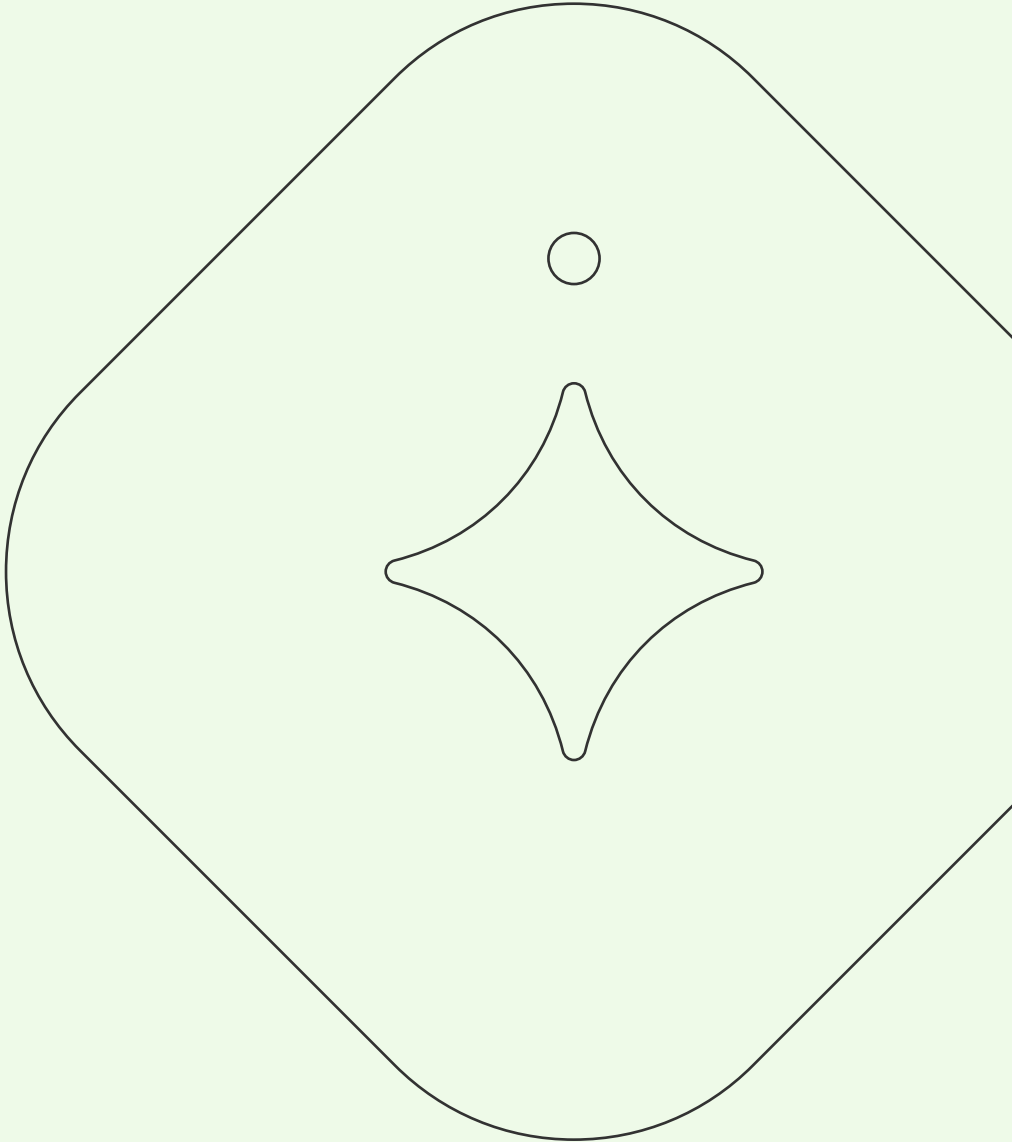
If the RU cost is lower than the cost gap, **companies may opt to pay-to-pollute** and only face the full impact on emissions in the final years. In this case a levy may be preferred as it adds costs to the full scope of emissions from the start.

The GFS's focus on a share of emissions can be a **benefit by allowing for a high RU that creates a business case** for switching a portion of fossil fuels to sustainable alternatives.

The interaction between a GFS and a levy **will influence the RU level needed**, as a levy can both close the cost gap and raise funds to support a just and equitable transition, as called for in the GHG Strategy.

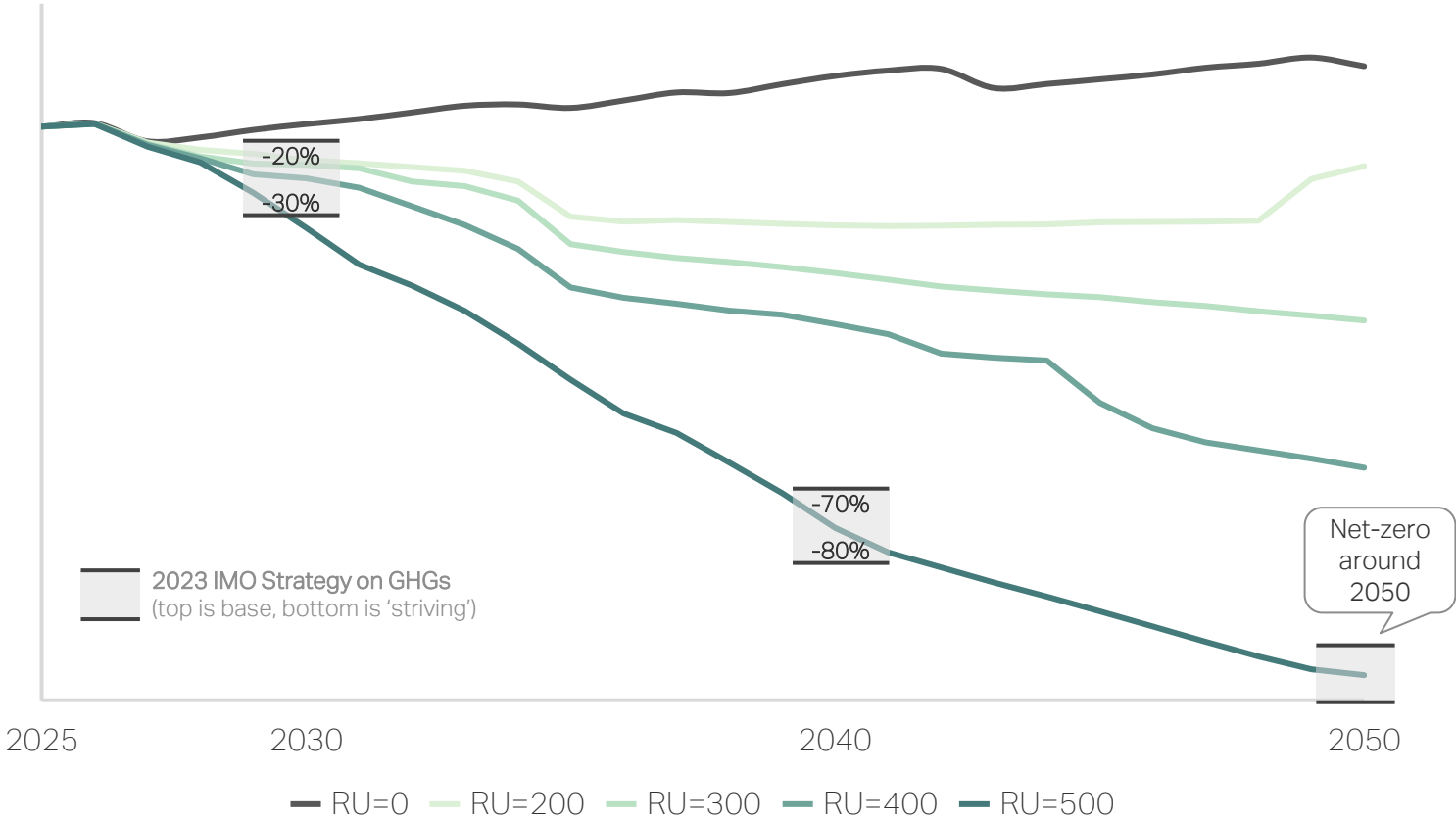


What should the cost of non-compliance be?



Our modeling shows that the Remedial Unit should be at least 450 USD per tonne of GHGs

WTW emissions GtCO2eq/year



Using our integrated assessment model, NavigaTE, we estimated the RU cost needed to achieve the 2023 IMO GHG Strategy, excluding a levy and assuming the 'base' GHG reduction pathway from the latest EU proposal (ISWG-GHG 17/2/2).

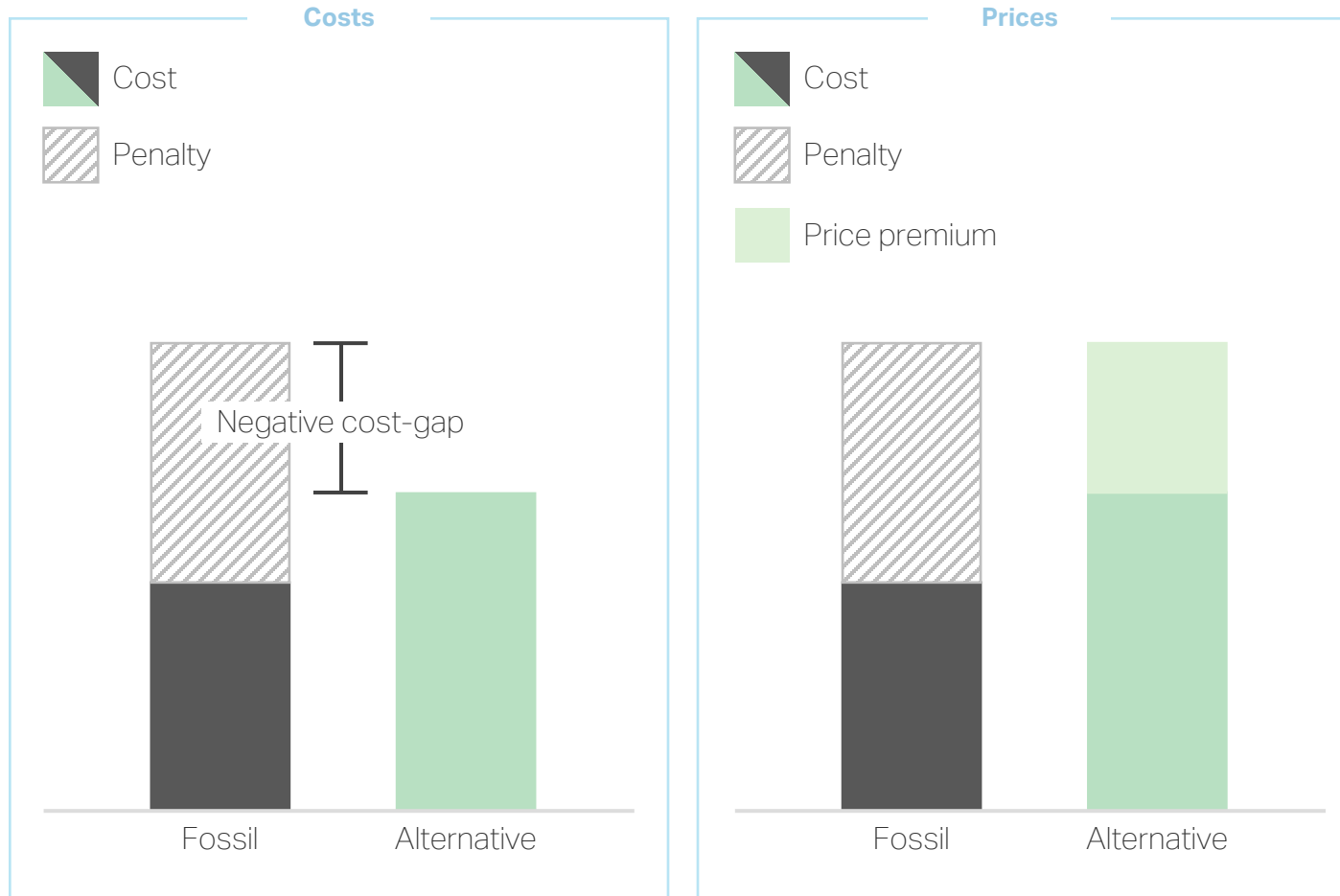
Our results show that the RU cost should be **at least 450 USD per tonne of GHGs** to achieve the IMO Strategy.

To estimate the RU value, we created a high fuel availability scenario in NavigaTE. This allows us to isolate the impact of the RU on the industry's ability to meet the indicative checkpoints in the IMO Strategy.



Note: This assumes the emissions in 2028 were 0.962 GtCO2/year.

The 'Goldilocks' RU: the "just right" level avoids unnecessary costs



If the fuel market were static, setting an RU cost to close the cost gap would be simple, but **fuel markets are governed by dynamics of supply and demand**, with the RU being part of these dynamics.

If the RU is set high enough that the cost of using fossil fuels plus RUs exceeds sustainable alternatives, **sustainable energy producers may add a premium to their prices and pocket the surplus.**

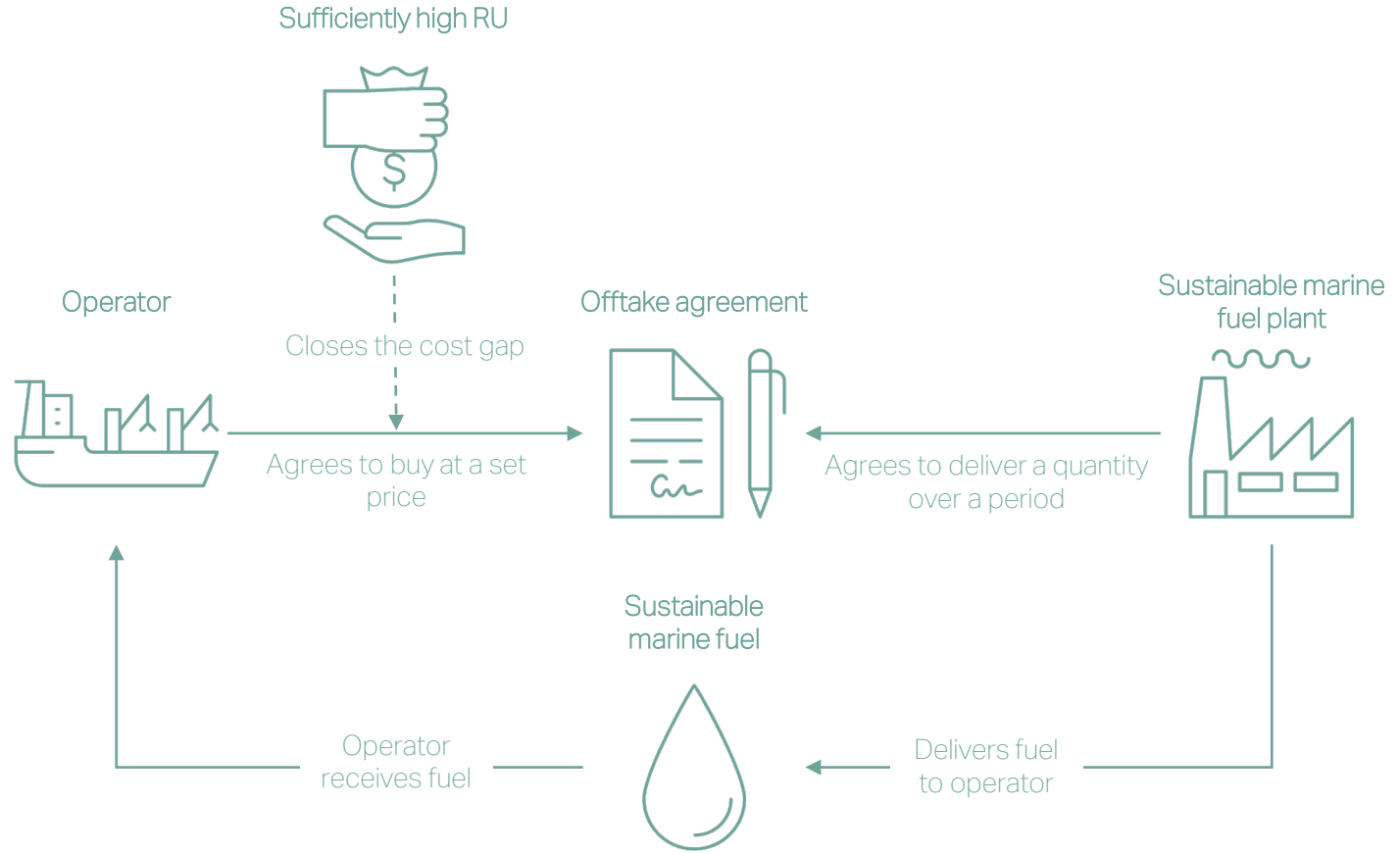
NavigaTE does not consider market prices, so we do not provide an upper limit for the RU price, but it is critical that the RU be high enough to drive sustainable energy uptake without causing inflationary effects from high demand and constrained supply.

To manage this balance, Member States could **consider regular reevaluation of the RU** to adjust for changing market conditions.



1: This will occur in situations where there is insufficient fuel supply to meet the target of the GFS thus requiring some to purchase remedial units.

A sufficiently high RU can create the needed incentive to drive offtake agreements



Investing in sustainable energy production requires **significant upfront capital** for facilities with long asset lifetimes, with returns taking many years. Without offtake agreements that guarantee revenue, developers cannot secure needed capital.

At the same time, operators cannot commit to high-priced agreements **without closing the cost gap with fossil fuels.**

Large-scale offtake agreements need certainty that the cost-gap will be closed and remain closed, with an RU of **at least 450 USD per tonne of GHGs** providing a clear, long-term financial incentive essential for early investment in sustainable energy production.



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