

The A to Z of GFS

Countdown Newsletter Slides
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Mærsk Mc-Kinney Møller Center
for Zero Carbon Shipping

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A note on this slide deck

The following slides are from [our fifth Countdown newsletter](#) on the IMO mid-term measures (MTM) which was published on 11 December 2024.

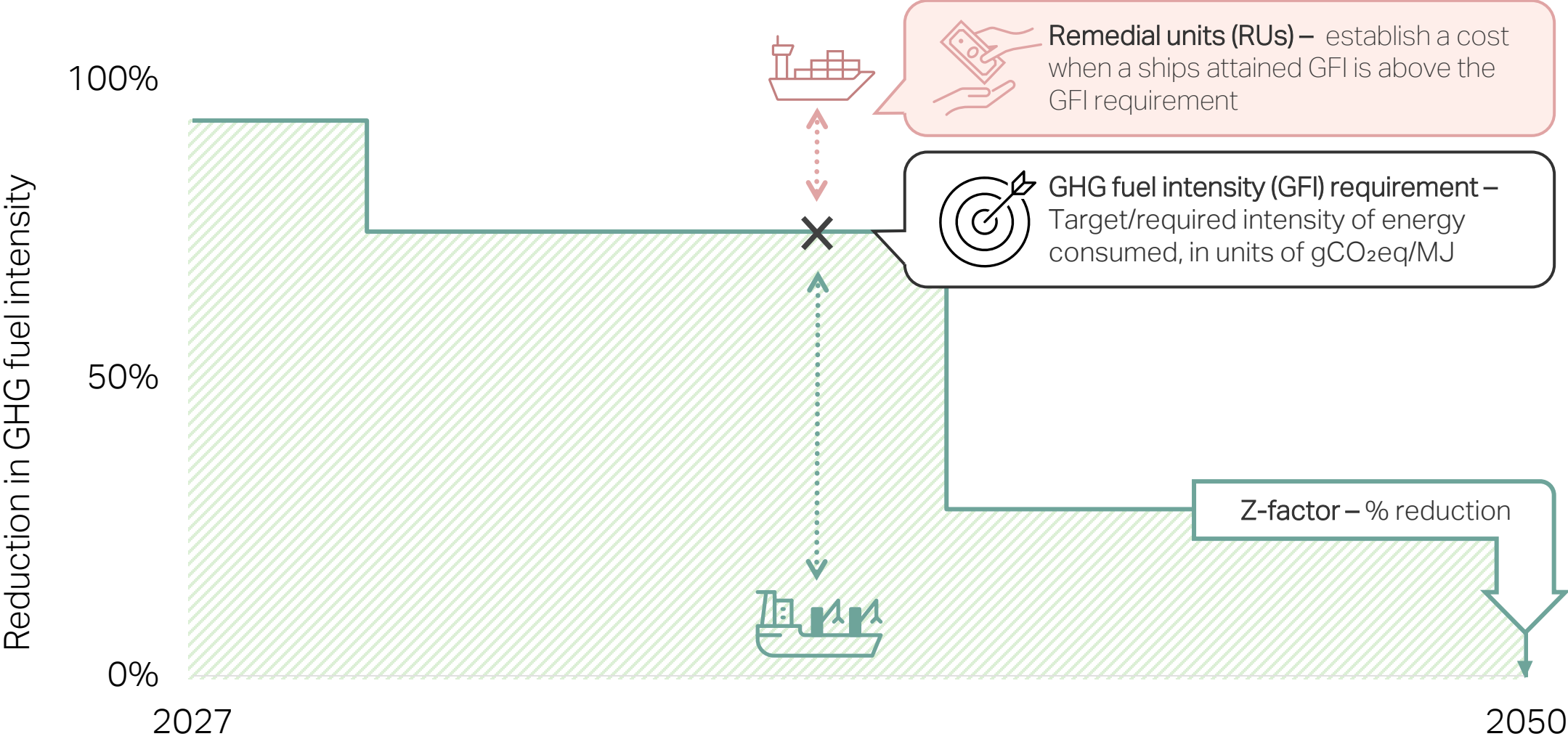
These slides are derived from our internal understanding and analysis of the status of the mid-term measures and do not represent an official IMO position or the views of our partners.

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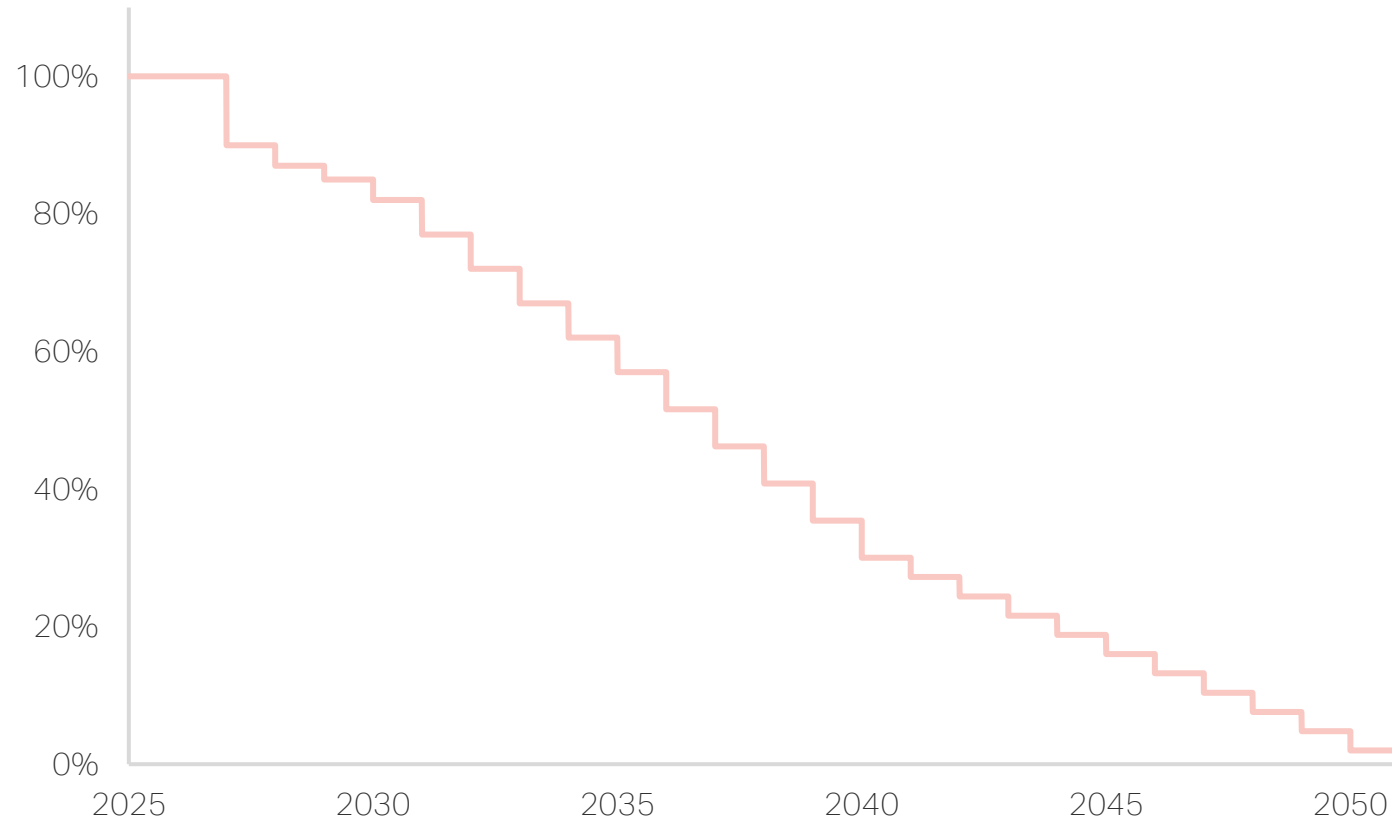


Global Fuel Standard (GFS) regulates the amount of GHG per unit energy



Aligning Z-factors with decarbonization goals

Base Z-factors evaluated in the Comprehensive Impact Assessment



The GFS regulates emissions intensity, not total annual emissions, so finding the right Z-factors depends on future shipping growth.

The [Fourth IMO GHG Study](#) anticipates overall trade growth through 2050, meaning GFI requirements must exceed absolute emissions reductions to meet the 2023 IMO GHG Strategy.

The [Comprehensive Impact Assessment](#) by DNV assessed 'base' Z-factors aligned with the indicative checkpoints in the 2023 Strategy.

This scenario also forms the basis of the latest MTMs proposal from the EU and Japan; while two other proposals do not specify Z-factors.

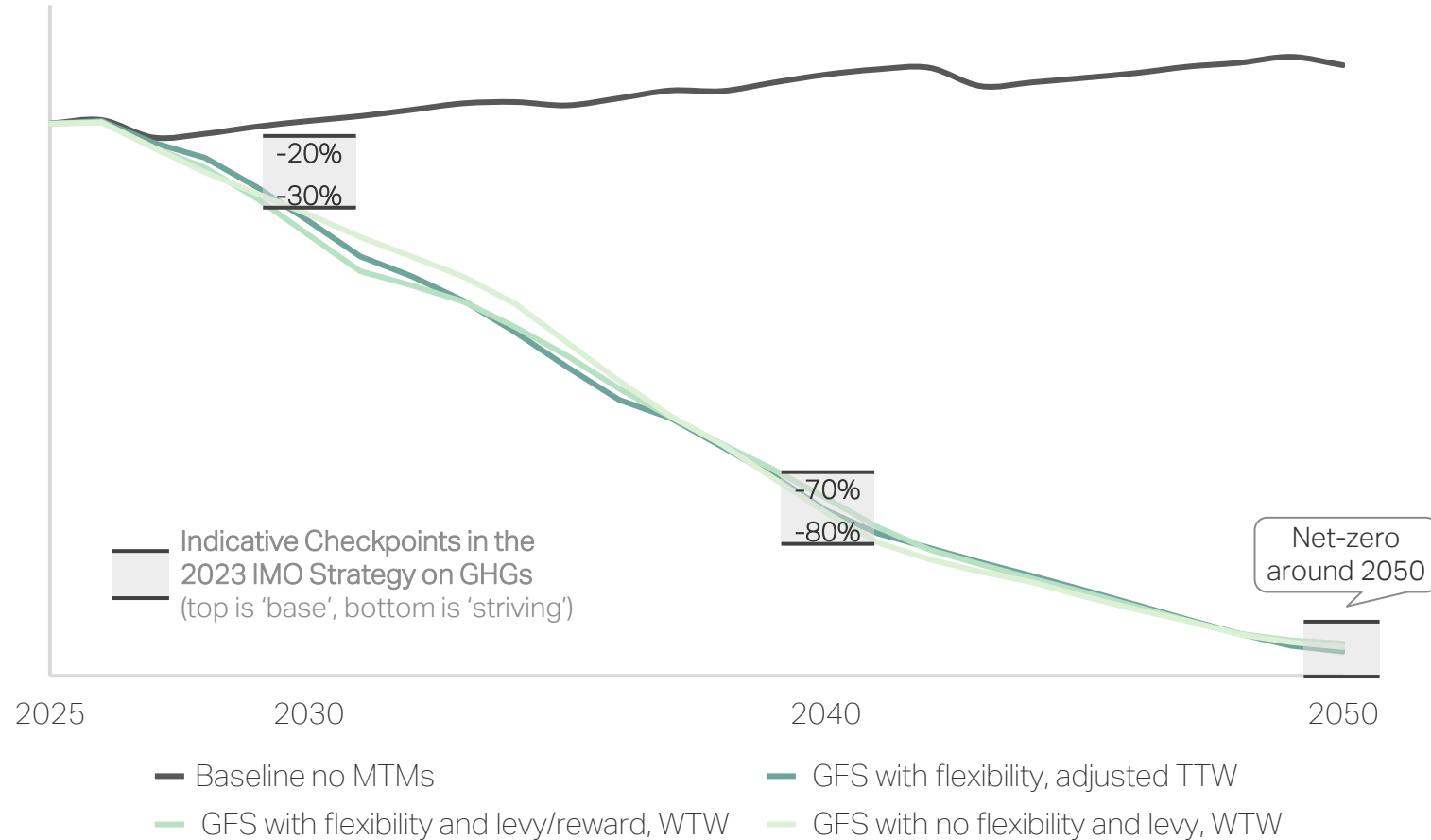
We validated that base Z-factors can achieve the indicative checkpoints using our [NavigaTE model](#).



1: The proposal includes both a "Base" and a "Strive" GFI target, we have used the "Base".

The base Z-factors are a good candidate to align with the Strategy

WTW emissions GtCO₂eq/year



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



We constructed a scenario in [NavigaTE](#) that assumes high availability of sustainable fuels and an RU set at 450 USD/tCO₂eq (see [previous analysis](#) of the RU).

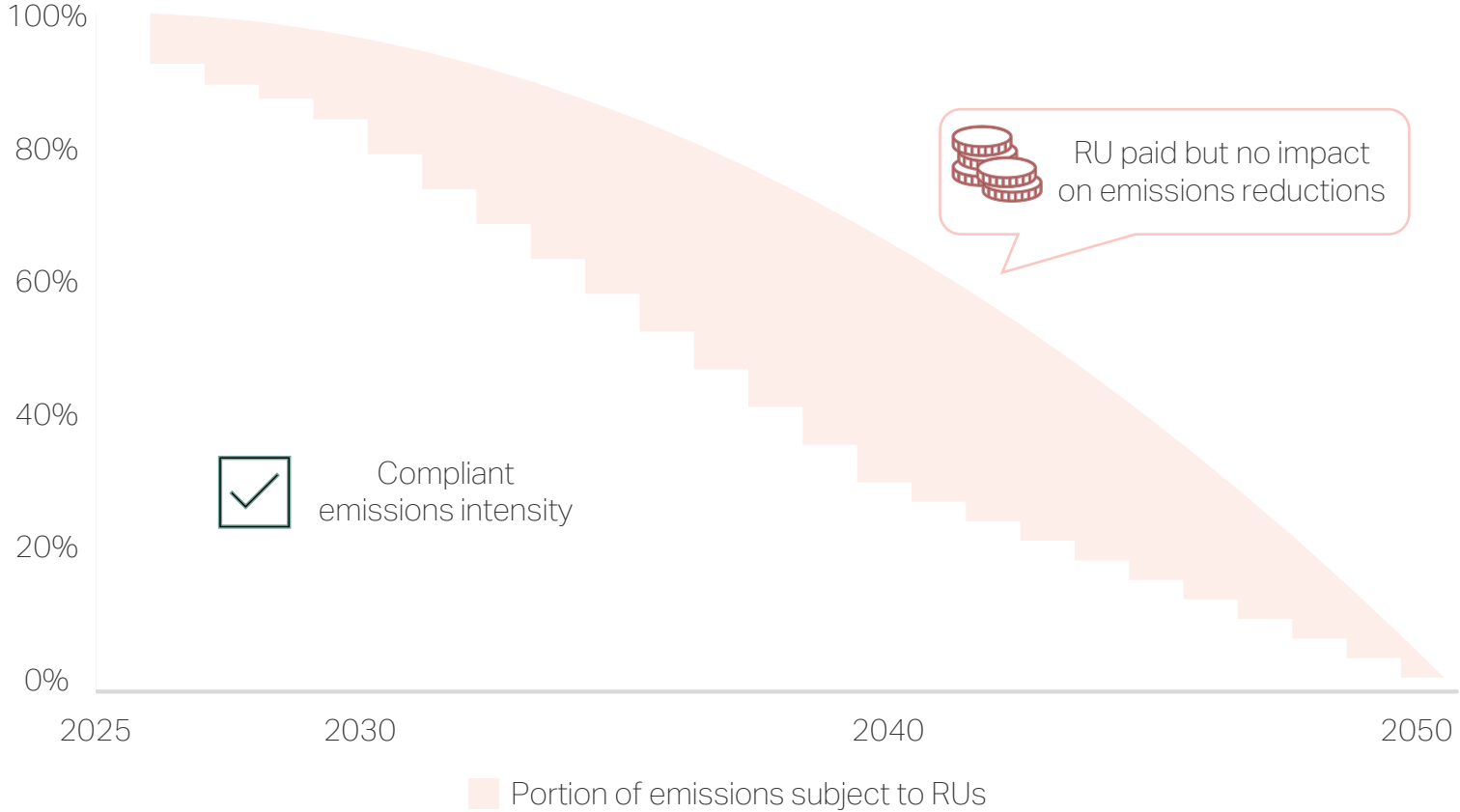
We evaluated three MTM versions based on existing Member State proposals:

- GFS with Flexibility, Adjusted TTW: Allows trading surplus units with flexibility and uses adjusted tank-to-wake emissions scope.
- GFS with Flexibility and Levy/Reward, WTW: Includes flexibility, a levy, and a reward scheme with well-to-wake emissions scope.
- GFS no Flexibility and Levy, WTW: No trading of surplus units, includes a levy, and uses well-to-wake emissions scope.

Our NavigaTE simulations show that all three proposals can achieve the Strategy's absolute emissions reductions. The consistency between the simulations highlights that 1) using base Z-factors and 2) setting the RU at least at 450 USD/tCO₂eq are the most important elements of a GFS for driving sustainable fuel adoption and meeting indicative checkpoints.

There is such a thing as overly ambitious Z-factors

Illustration of emissions subject to RU gCO₂eq/MJ



Unlike a levy, the goal of a GFS is to ensure consistent emissions reductions by transitioning to sustainable energy.

If Z-factors are set too high, it could lead to substantial RU payments with minimal emissions reductions, risking political backlash and regulatory rollbacks.

Unrealistic Z-factors can undermine investor confidence if the industry expects regulations to be rolled back. Therefore, Member States should set ambitious yet feasible targets.

Pairing feasible Z-factors with strong incentives can create the certainty needed for long-term investments in maritime decarbonization.



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