

Wind turbines and winter navigation

Wind Finland Offshore 2023

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Väylävirasto
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Winternavigation in Northern Baltic

- The Finnish Transport Infrastructure Agency (FTIA) is the responsible authority for safe and fluent winter navigation
- All Finnish ports freeze during normal winters. Same applies to Estonian and Northern Swedish ports. Thousand of assistances, only few icebreakers.
- Even icebreakers have to search for the easiest ice to pass through the dynamically mowing icefields.
- Icebreaking is crucial for Finnish trade, industries and stakeholders, roughly 90% of our foreign trade is transported by ships.

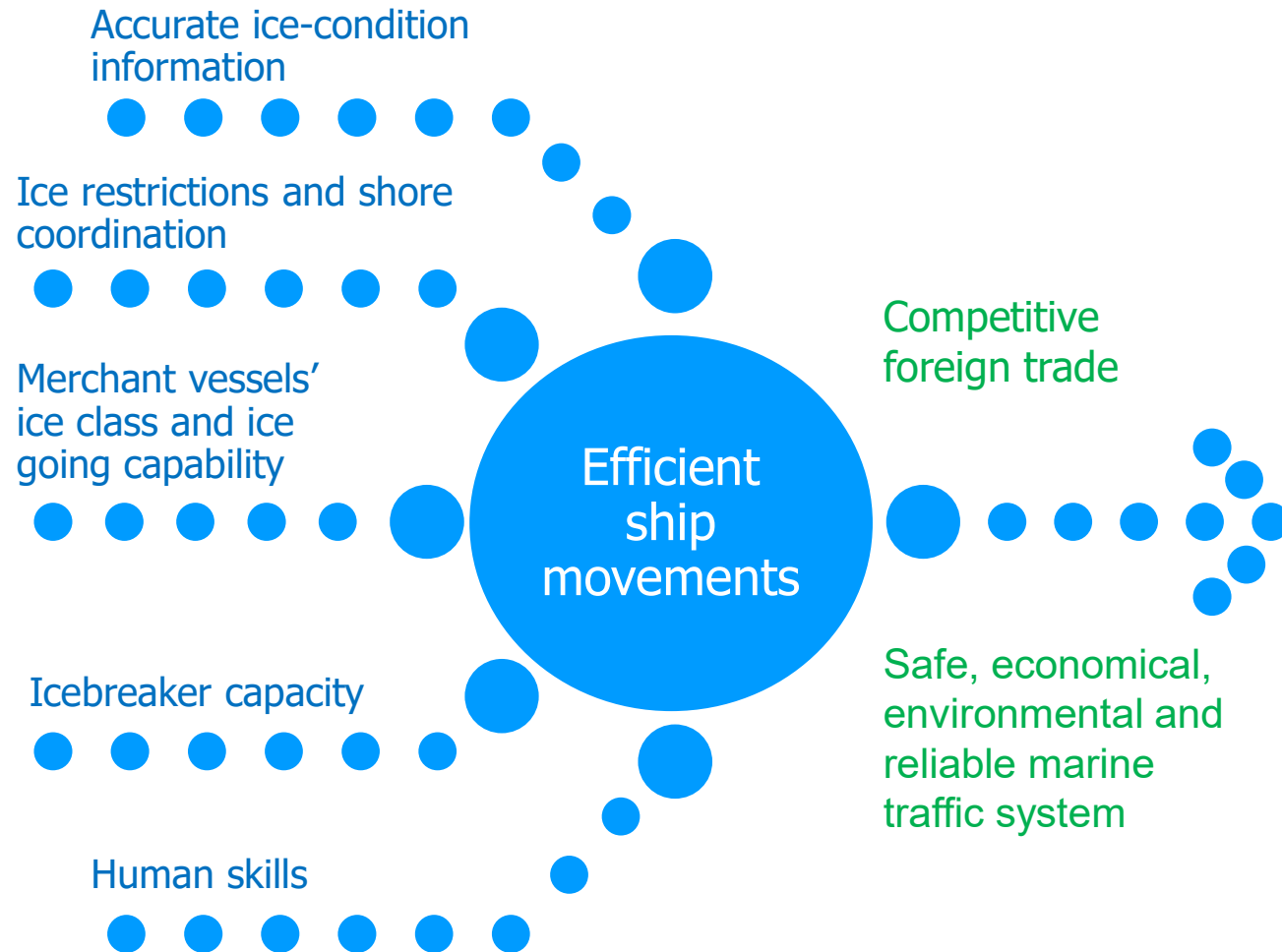


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Winternavigation, System view

....**not** only icebreaking or costs of icebreaking

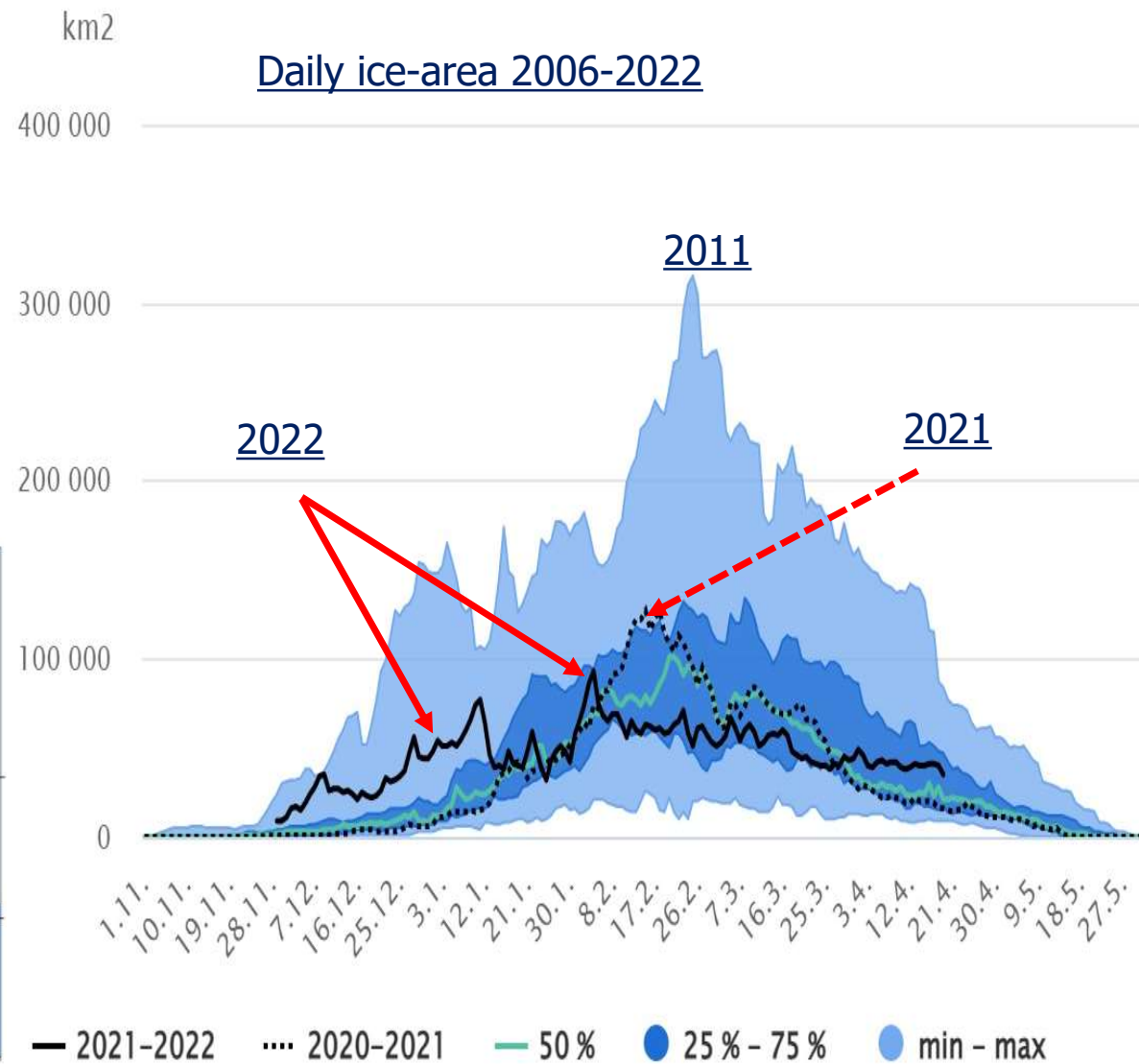
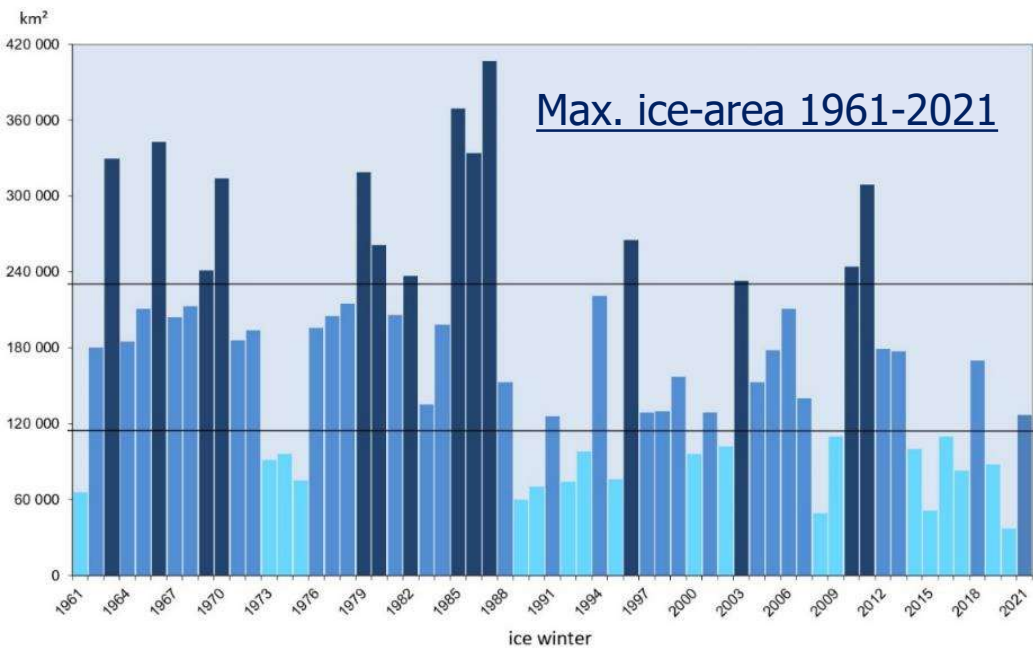
Biggest influence and costs lie in the merchant shipping costs and competitiveness of foreign trade



Ice,

Now and in the future

Increase of ice dynamics

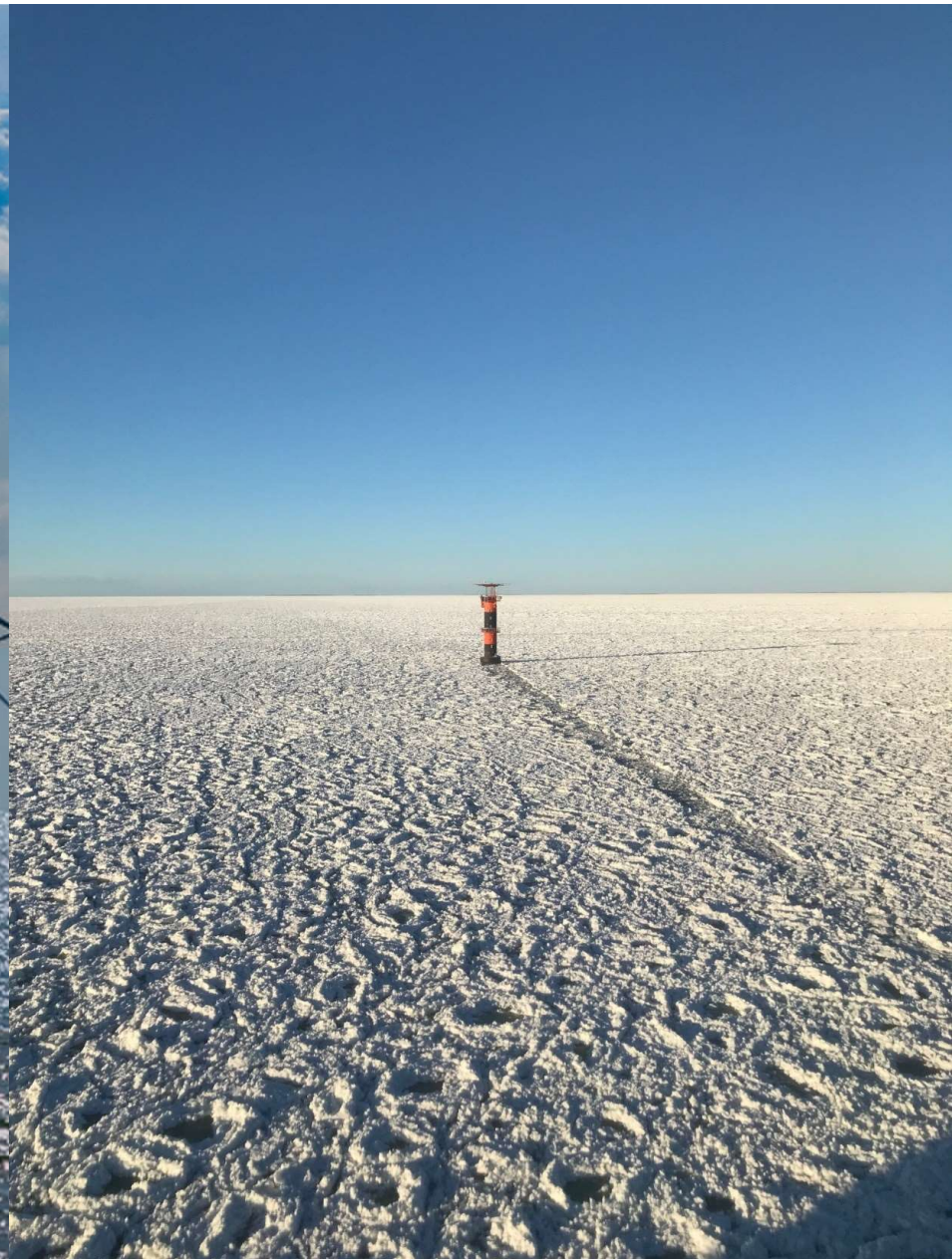


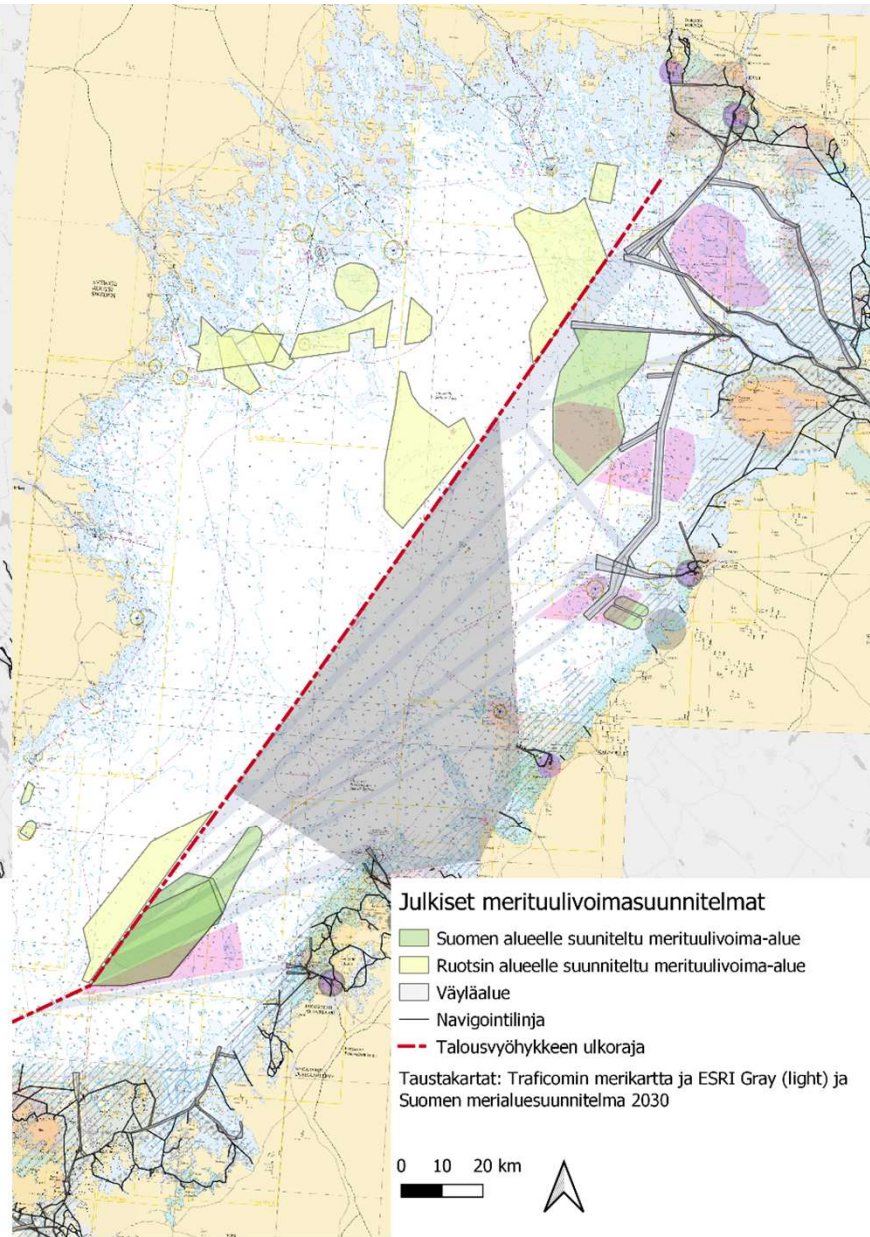
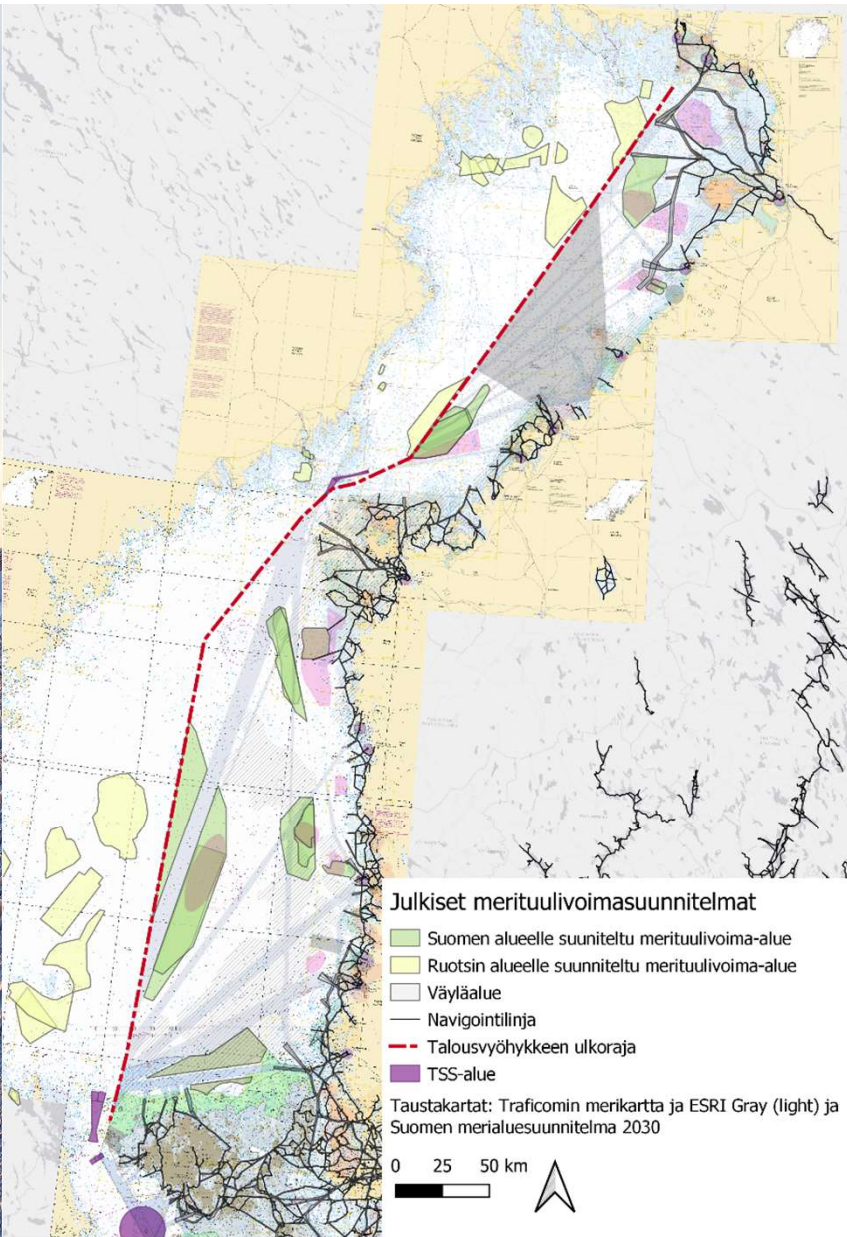


OFFSHORE WIND

Will come, is needed

**.....but consequences to winternavigation shall
be recognized and mitigated in due time**



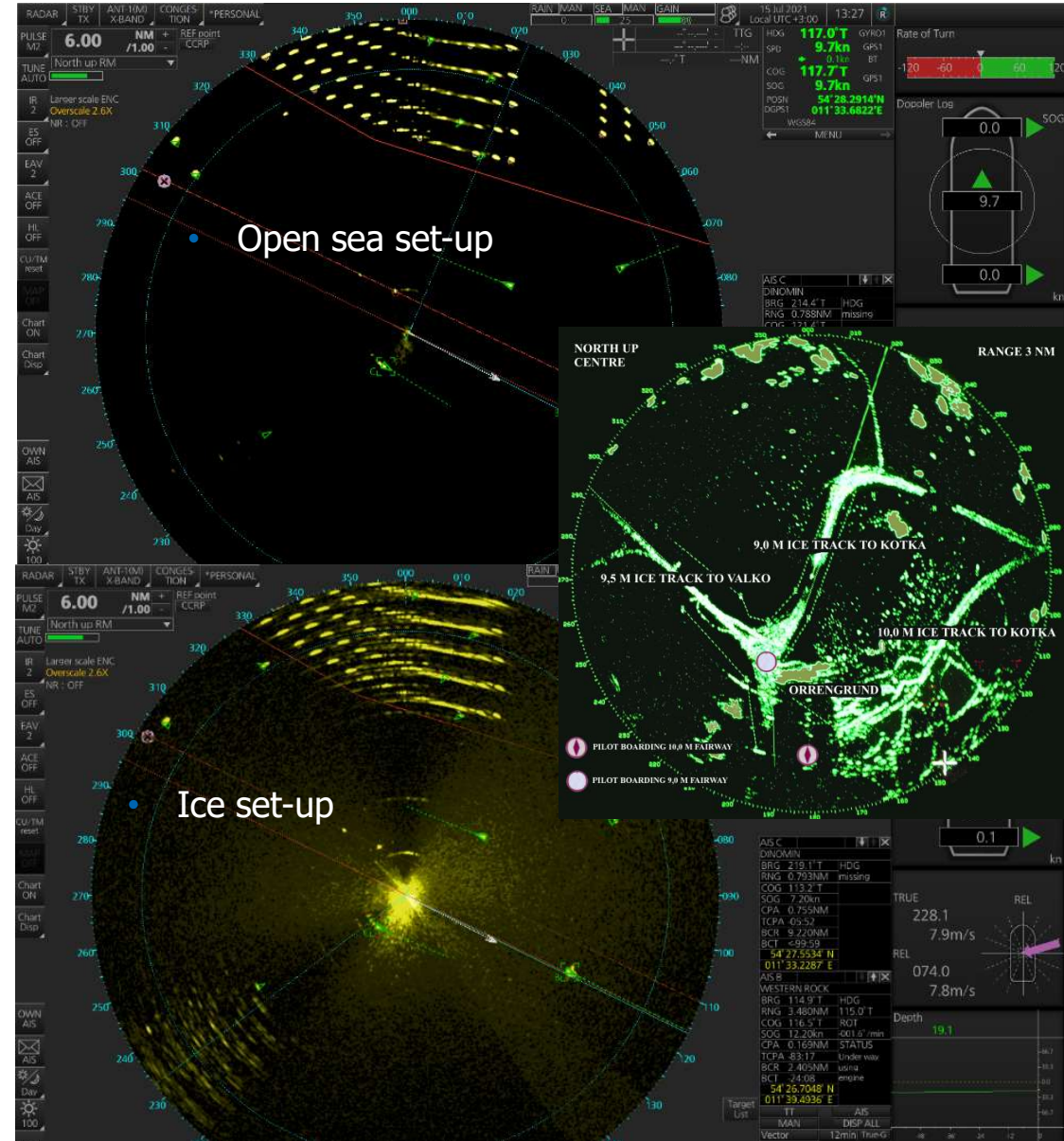


**Animation of
merchant vessel
tracks during a
hard winter
2010-2011**



Winternavigation challenges with offshore wind farms

- Increased sailing distances and limited options to choose easiest route through ice causes significant added fuel consumption and environmental impact
- To prevent vessels stuck in ice to collide with wind turbines, icebreaker assistance distances will increase, causing need for additional icebreaker capacity
- Every time ice is broken, by a ship or for instance wind turbine foundation, the amount of ice and ice obstacles is increased, causing additional ridging and brash belts, thereby adding need for assistance. Phenomena is well known but magnitude is a big unknown at the moment.
- Disturbance to radars and other critical sensors and information networks increase navigational risks related to winternavigation



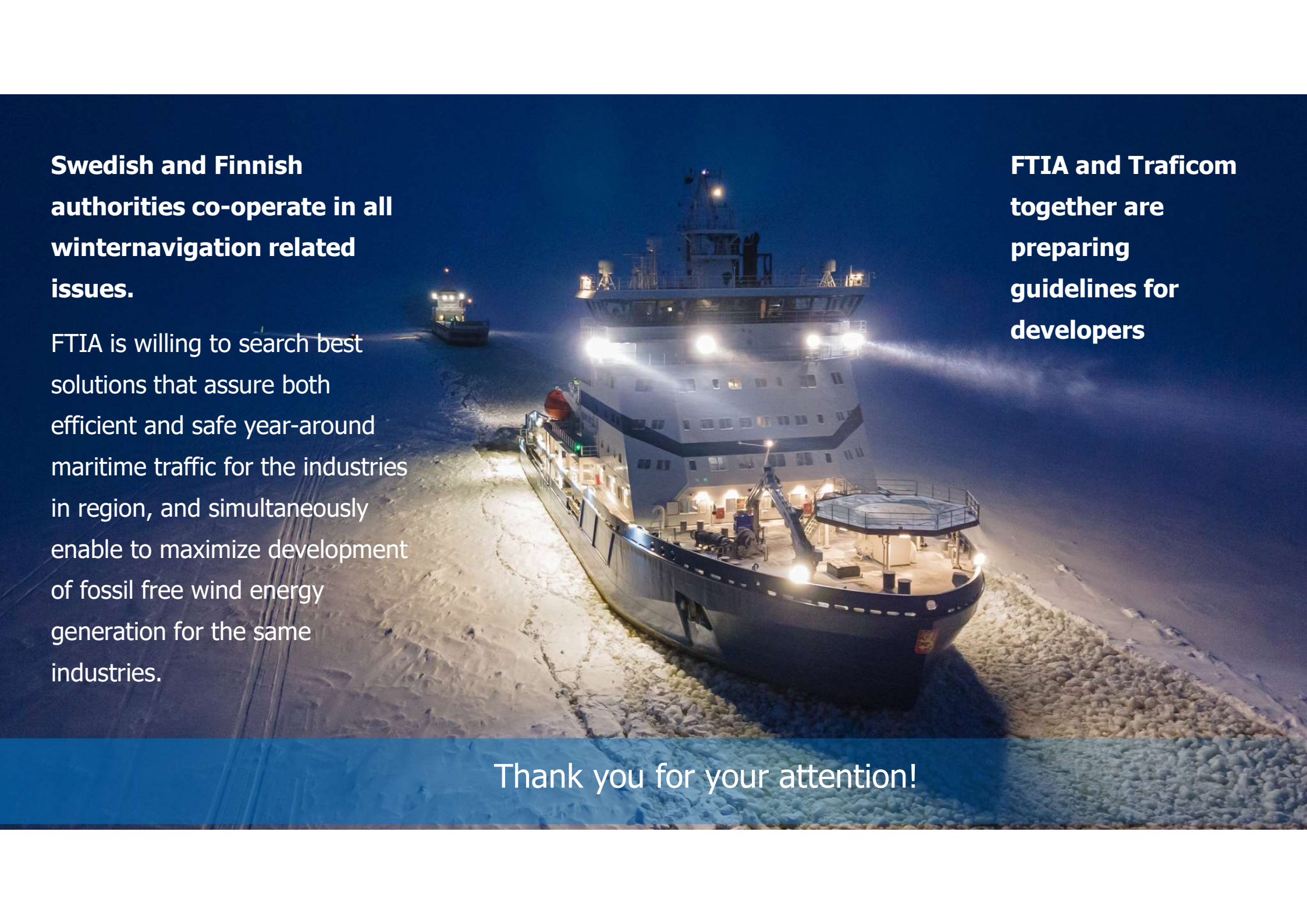
16.2.2023

**Swedish and Finnish
authorities co-operate in all
winternavigation related
issues.**

FTIA is willing to search best solutions that assure both efficient and safe year-around maritime traffic for the industries in region, and simultaneously enable to maximize development of fossil free wind energy generation for the same industries.

**FTIA and Traficom
together are
preparing
guidelines for
developers**

Thank you for your attention!





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