

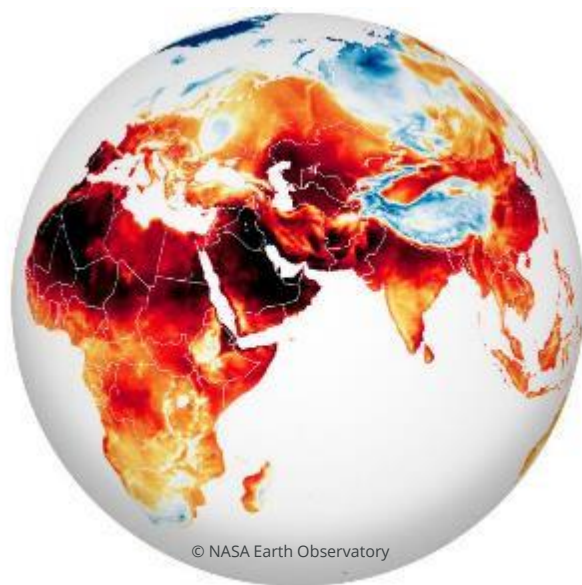
# FF55: Aktueller Stand und die Bedeutung für den deutschen Wasserstoffhochlauf

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Nabu Fachgespräch, 01.12.2022

## Paris Agreement and status quo



- » In Paris 2015, the “world” agreed to save the planet from climate change.
- » So far, the process towards climate neutrality has started and several projects are ongoing with very good intermediate results.
- » Following different studies, our current pathway is not sufficient by any means!
  - **We are not doing enough!**
  - The time frame for effective steps is closing.
  - Every single sector needs to contribute to a climate neutral system.

# Renewable power and P2X create major benefits

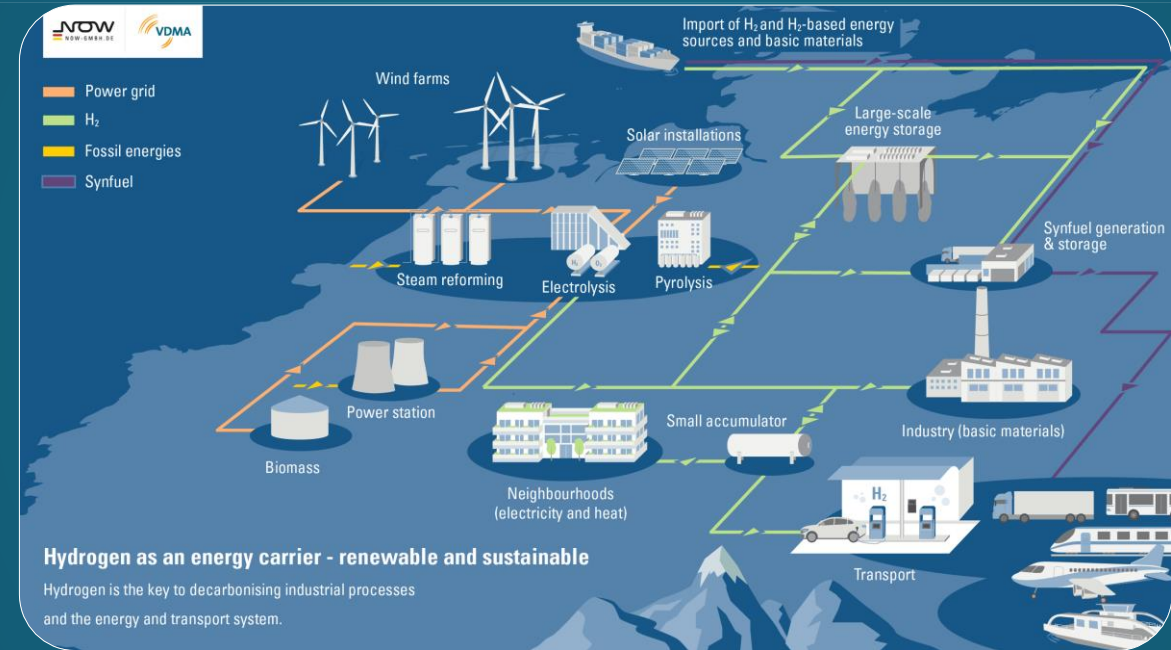
Shift to **renewable power** leads to:

- Greater energy security
- Stabilization of energy prices
- Accelerated pathway for low-carbon energy system
- Green economy-driven growth
- A long-term sustainable energy market



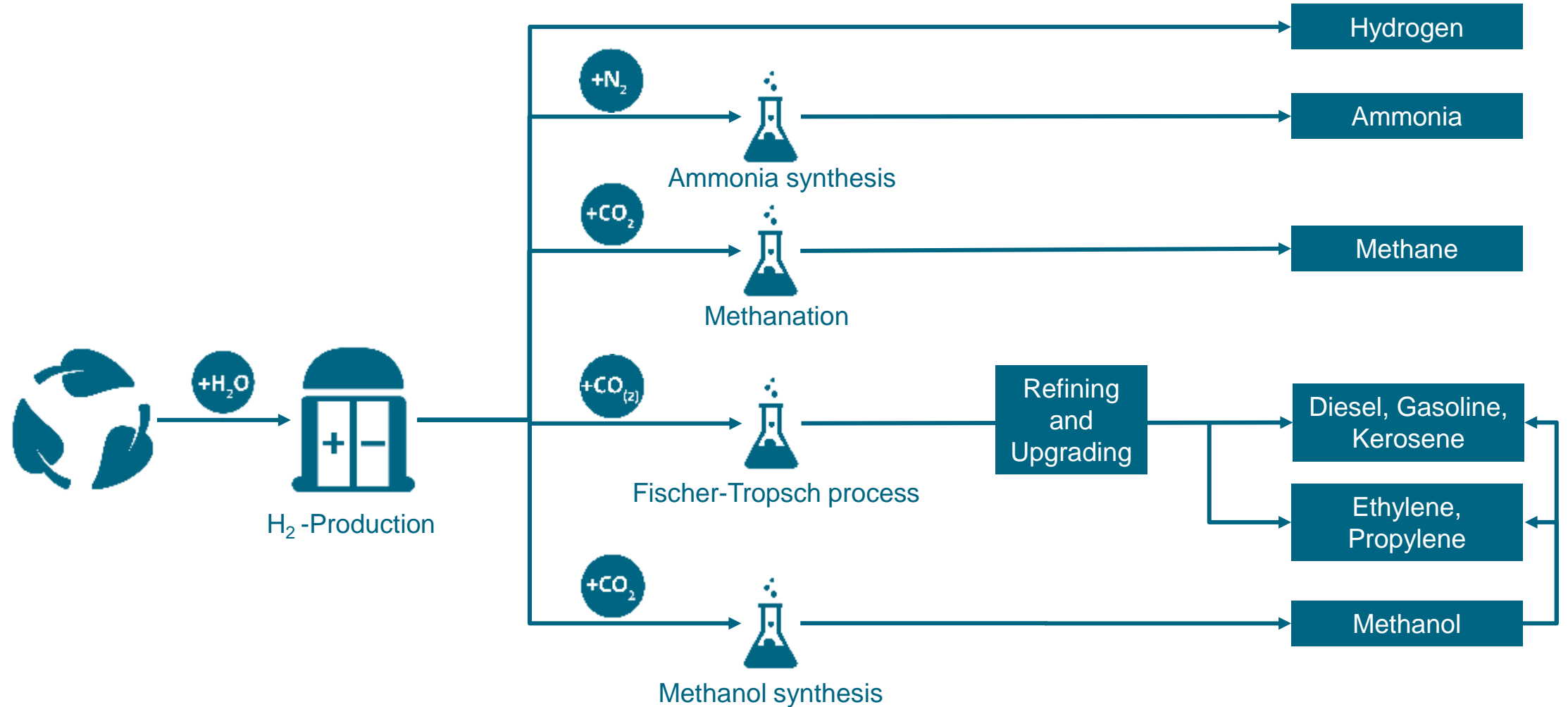
Shift to **P2X** based on renewable facilitates:

- **Domestic production of green molecules** to decarbonize industry, mobility and energy sector
- **Long-term storage of green energy**
- **Production of green molecules** in renewable rich regions **and transport** to demand centers



# Power-to-X for Applications

## Production and products



# PtX not only offers a contribution to climate protection, but also come with a big market potential!

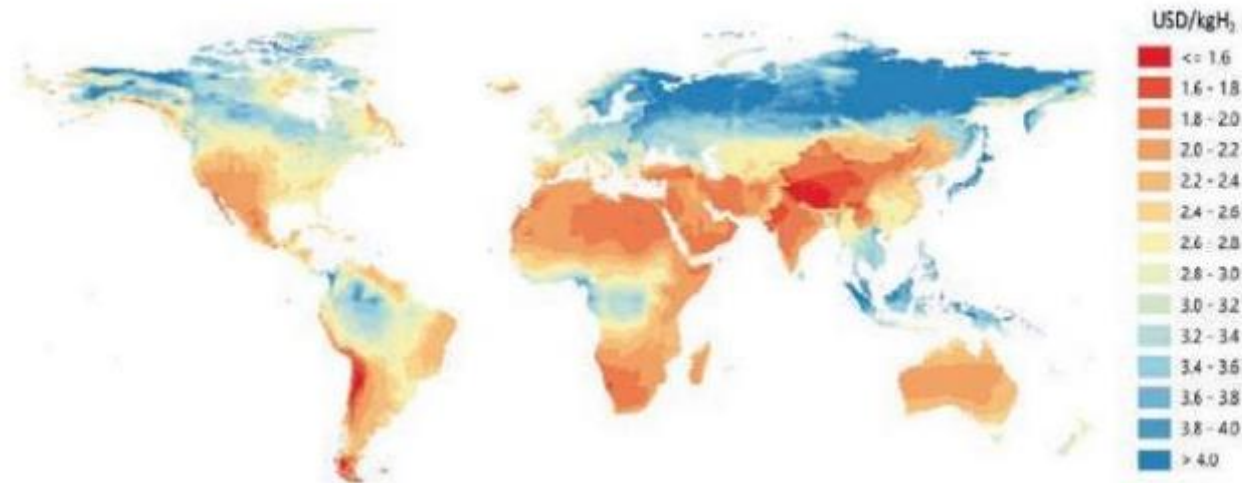
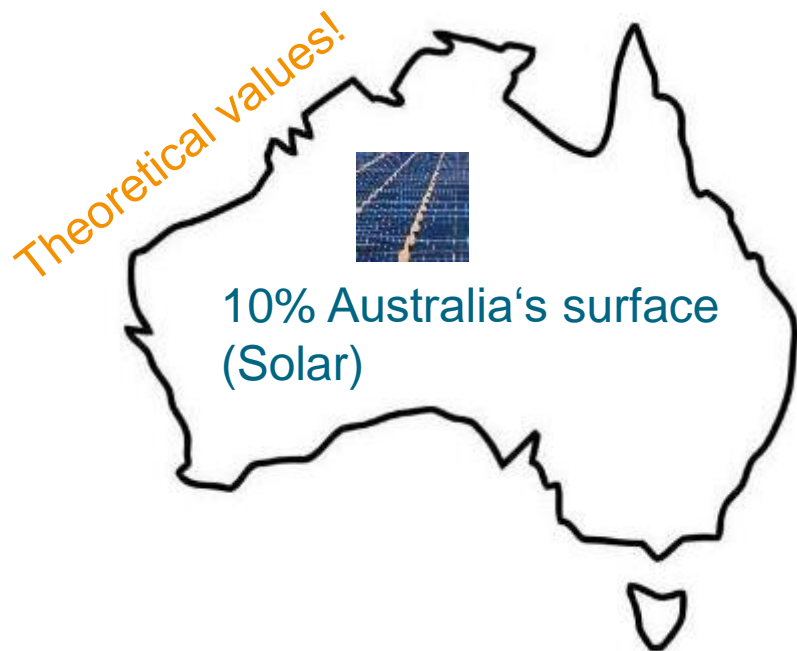


# Is a climate neutral world possible?

## Global regenerative energy potential is tremendous!

Surface needed to convert **all the world's** energy consumption (556 EJ = 154.444 TWh)

Hydrogen costs from hybrid **solar PV and onshore wind** systems in the long term

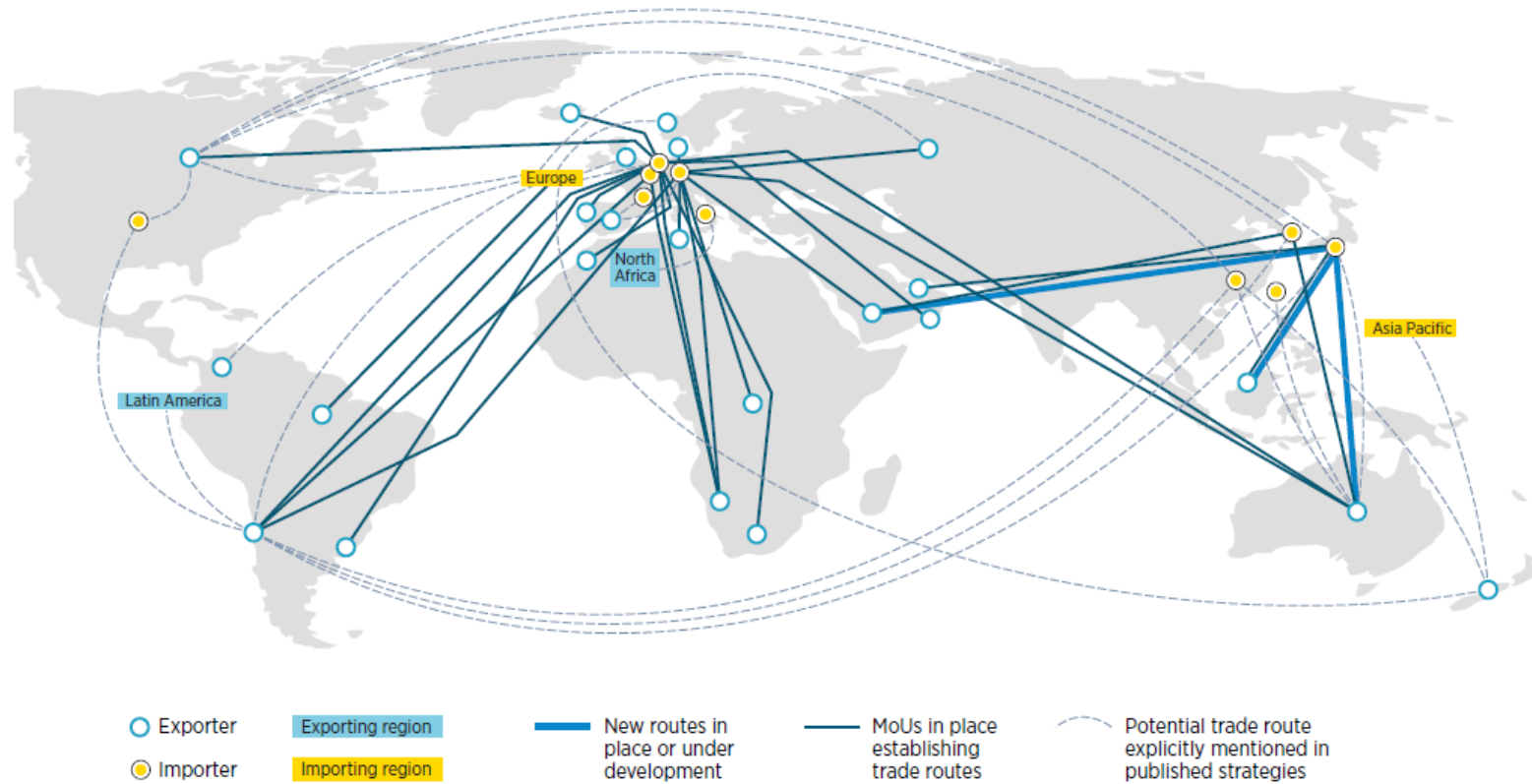


... or 5% of the Sahara desert (Solar)

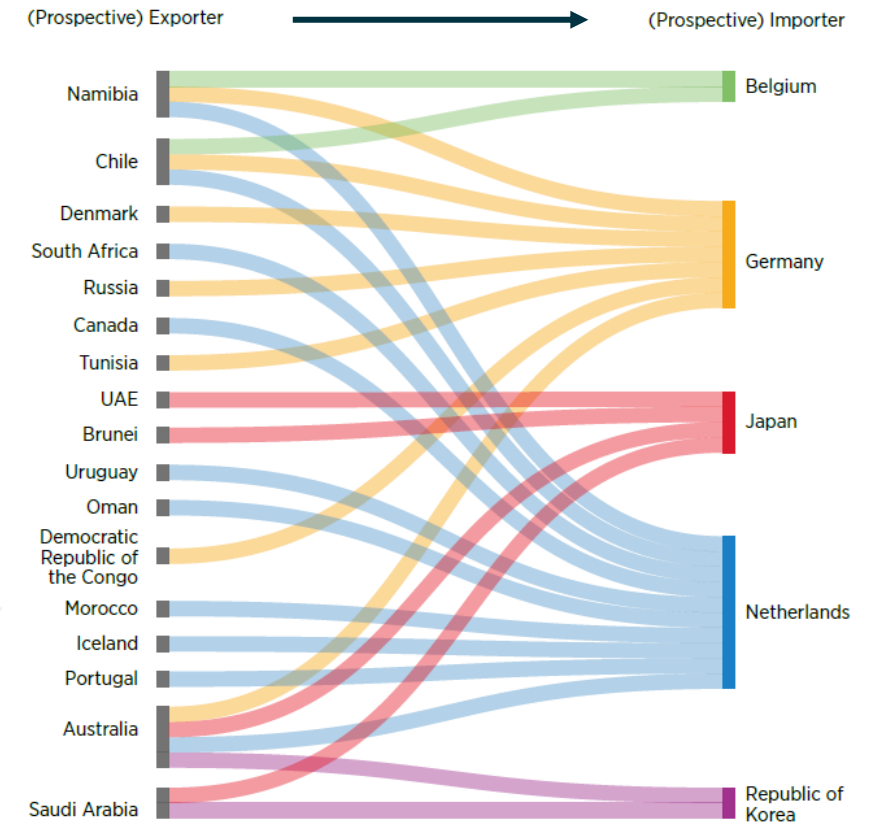
... or 1.5% of the Pacific Ocean (Wind)

**The transition to regenerative energy supply requires new trade routes, agreements, ...**

# An expanding network of hydrogen trade routes, plans and agreements will be established



Map source: Natural Earth, 2021



Note: Figure covers hydrogen trade related agreements only, based on public announcements and is not exhaustive. Private agreements and those that focus exclusively on technology co-operation are not included. MOU = Memorandum of Understanding.

# “Power-to-X Roadmap for the Maritime Energy Transition”

- » Joint roadmap from VDMA and VSM to a climate neutral maritime industry (at least inter-European) by 2045.
- » Possibilities but also requirements for PtX fuels in maritime applications.
- » Publicly available and ready to be used for discussions with the industry and political decision makers.





## Fleet wide greenhouse gas (GHG) reduction path

- » Should be achieved through the combined use of alternative fuels and measures to increase efficiency.
  
  - » We advocate an ambitious path **for intra-European shipping**, which will enable Europe to achieve **climate neutrality by 2045**.
  
  - » Incremental GHG reduction steps:
    - 2027: 10%
    - 2035: 50%
    - 2045: 100%
- based on the *FuelEU Maritime initiative*

## The energy transition needs an effective CO<sub>2</sub> pricing scheme ...

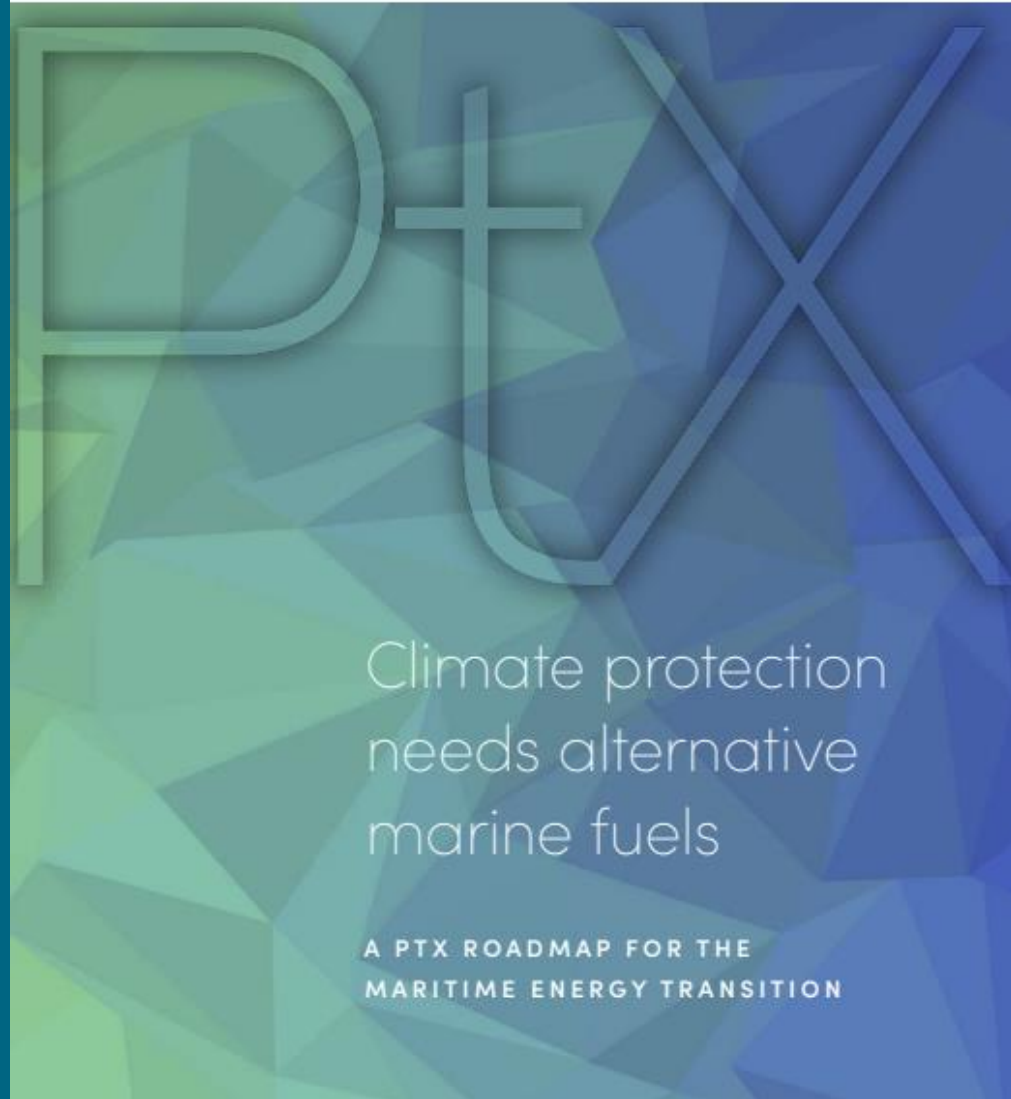


- » To make carbon-neutral fuels competitive and raise investment funds for the restructuring of the maritime economy an effective CO<sub>2</sub> pricing is mandatory.
- » **Including shipping in the EU *Emissions Trading System* (EU ETS)** would be an important step.
- » The technical **criteria for CO<sub>2</sub> pricing** needs to be compatible with the certification and operating rules
  - levy the fee based on a life-cycle analysis of the total GHG intensity of fuels

## ... and market ramp-up of eFuels

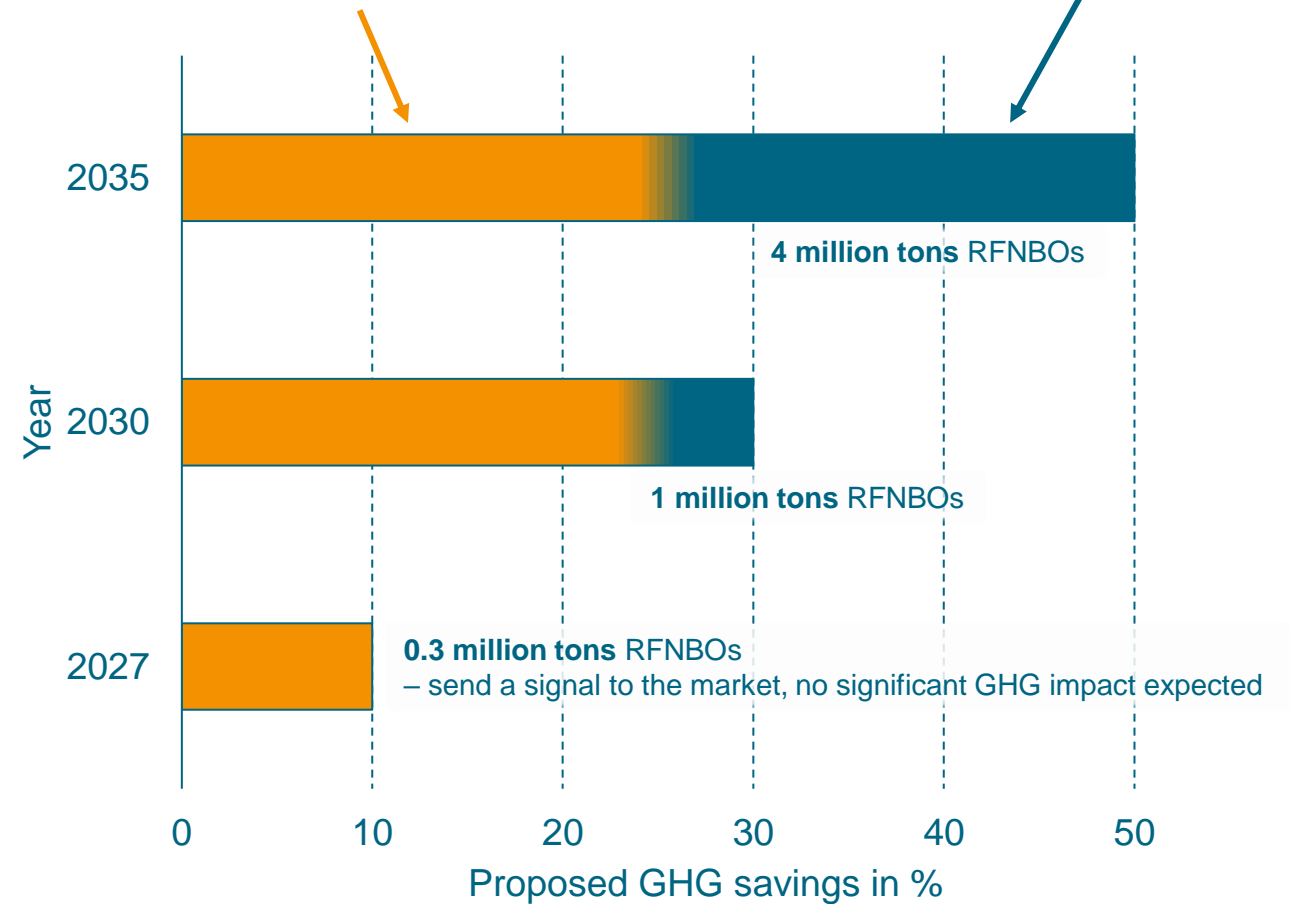
- » A fuel switch is absolutely necessary for the climate neutrality of the maritime economy is economy.
  
- » The fuel switch needs to start now:
  - 2027: 0,3 Mio t RFNBOs
  - 2030: 1 Mio t RFNBO
  - 2035: 4 Mio t RFNBOs





GHG saving based on e.g. slow steaming, efficiency measures, bio-fuels and LNG, logistics optimization, ...

GHG saving based on RFNBOs





## Current status in the FF55 negotiations (1/2)

- » An agreement between the EU Council and the EU Parliament is emerging that **shipping** will be included in the **ETS**.
  - Scope:  $\geq 5000$  GRT
  - 50% rule for shipping to third countries
  - Incremental inclusion:
    - 40% from 2024
    - 70% from 2025
    - 100% from 2026
- » This could save 120 million tons of CO<sub>2</sub> by 2030. However, the triilogue will not be concluded until mid-December



## Current status in the FF55 negotiations (2/2)

- » **FuelEU Maritime** is the central new regulation, for ambitious **GHG reduction quotas** and the ramp-up of **eFuels**.
- » Member States and EU Parliament differ on a number of key issues.
- » **EU Council Position**
  - GHG-Reduction targets: 75 % in 2050
  - Multipliers for RFNBOs
- » **EU Parliament Position**
  - 80% GHG Reduction target in 2050
  - 2% RFNBO-target in 2030

Not concluded this year

An aerial view of a large container ship sailing on the ocean, viewed from the front. The ship is loaded with many colorful containers (red, yellow, blue, green) stacked on its deck. The ship is moving towards the viewer, leaving a white wake in the blue water.

**Thank you for your attention!**



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