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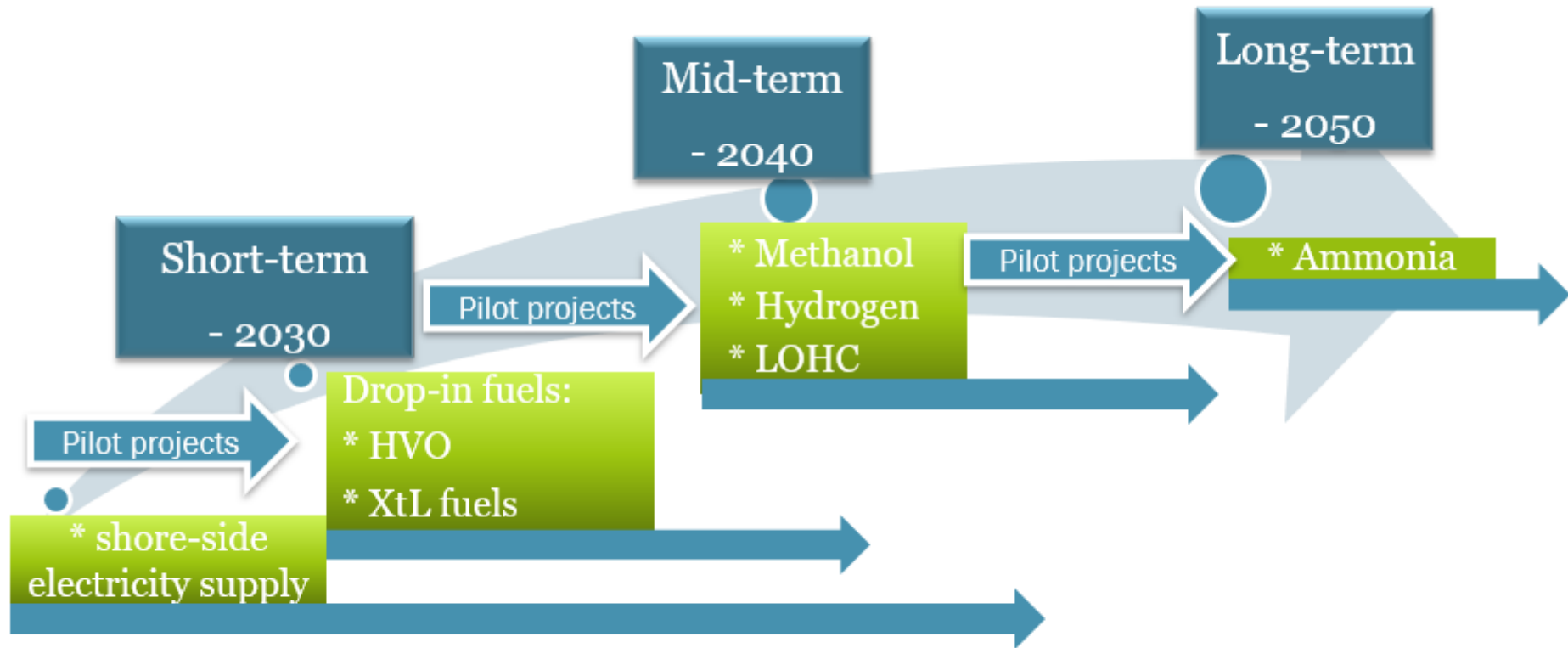
Alternative fuels and propulsion systems for the Danube Region

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Decarbonisation of inland navigation - options

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Short-term greening solutions

1. Drop in fuels

- Biofuels HVO100 → min. 80% GHG reduction
- Blended products e.g. OMV Marine Gas Oil ECO20 → min. 11% GHG reduction

⚡ *Availability in the Danube region* ⚡ *Price* ⚡ *Willingness of the customer to pay*

2. Modernisation of the fleet

- Measures to improve the efficiency of inland vessels
- Measures to reduce greenhouse gas emissions

⚡ *Investments* ⚡ *Subsidies*

3. Developing shore-side power supply

Reduction of fuel consumption, noise emissions,...!

⚡ *Expansion in the Danube region* ⚡ *Standardisation* ⚡ *Cargo & passenger shipping*

Exemples for short term greening solutions

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1. Drop in fuels

viadonau HVO100 testing phase Sept. 23 – Dec. 24

- 17.000 liters HVO100 → 52 tons CO2 reduction
- Calculated 88% CO2 saving
- Technical inspection of fuel system



2. Modernisation

Austrian [“Climate and environmentally friendly shipping support program”](#)

3. Developing shore-side power supply

[Power supply in ports and mooring places in Austria](#)



Mid- and long-term greening options

1. Electric drive

- High efficiency
- Zero direct emissions
- Fully electric vs. hybrid drive

⚡ *Technology development* ⚡ *High costs* ⚡ *Feasibility*

2. Methanol

- Compareably low retrofit costs
- Easy bunkering / transport

⚡ *Engine availability* ⚡ *(E-)Methanol availability* ⚡ *Handling*

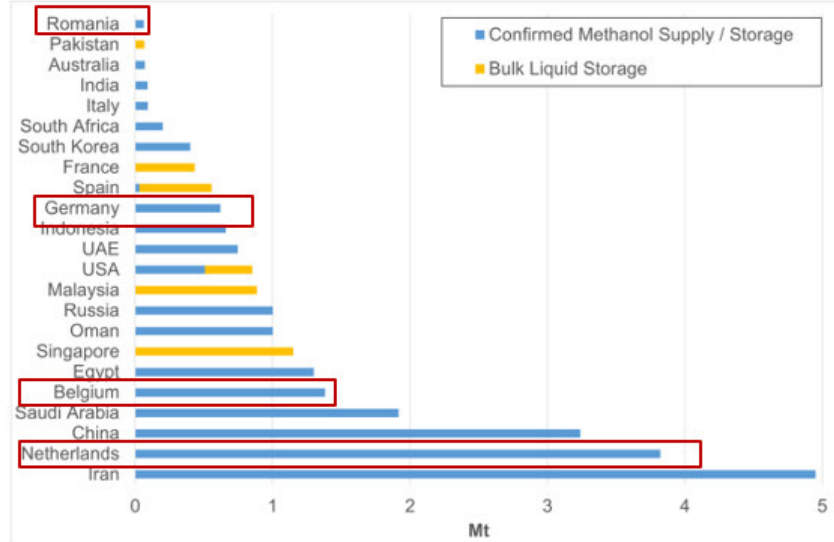
3. Hydrogen

- Zero direct emissions
- Push from EU
- Numerous pilots & initiatives in West-EU

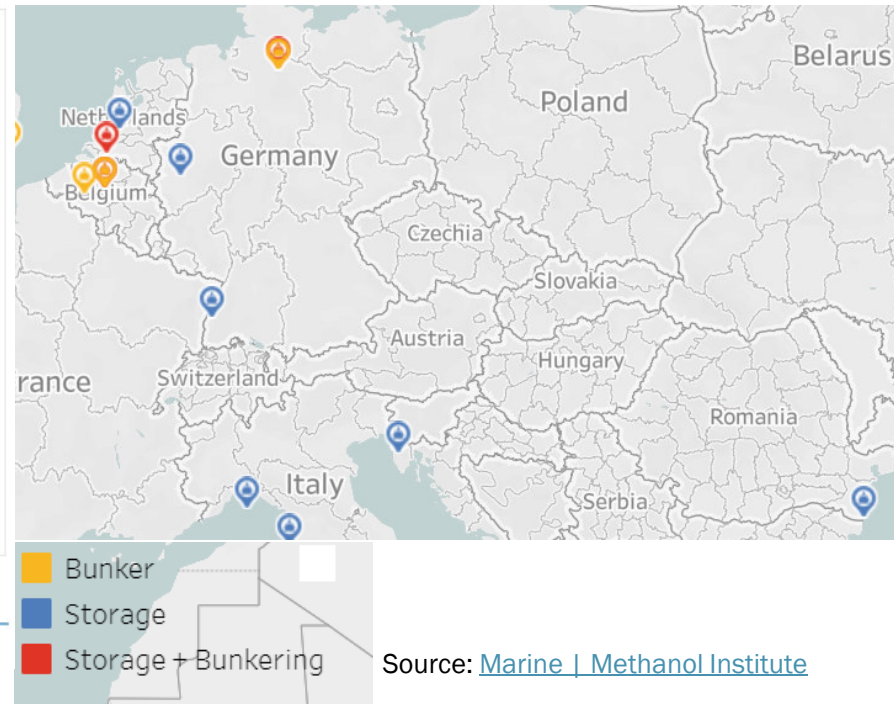
⚡ *Capex/Opex* ⚡ *Availability of green H2* ⚡ *Green H2 price* ⚡ *Feasibility*

Excursus: Methanol bunkering stations / storage

Figure 3: Ports with available methanol storage capacity in 2020



Note: Bulk liquid storage refers to ports with the potential to store chemicals, such as methanol and ethanol, whereas confirmed methanol supply / storage refers only to the capacity of ports to supply methanol.
 Source: <https://www.methanol.org/marine/>



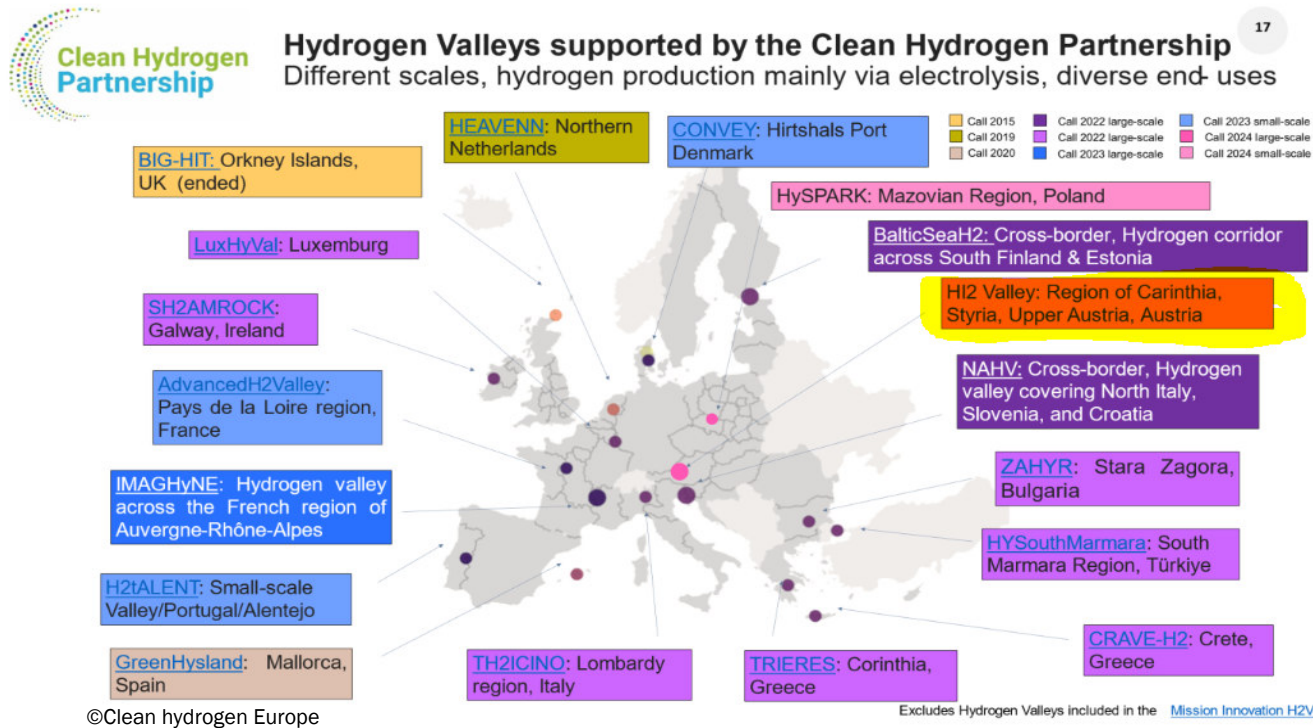
Source: [Marine | Methanol Institute](#)

Source: [Infopapier_Hintergrund \(nabu.de\)](#)

Excursus: Clean Hydrogen Partnership

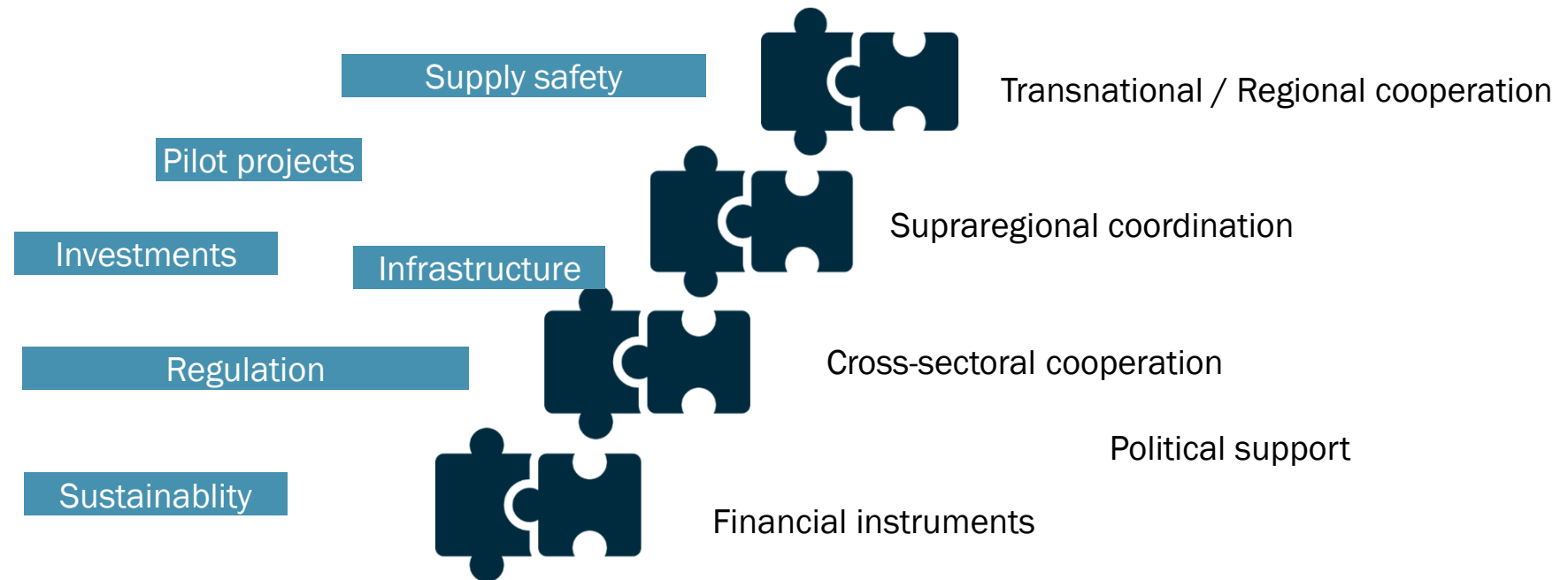
- public-private initiative by the EU
- budget: around €2 billion
- launched in 2021 as a continuation of the Fuel Cells and Hydrogen Joint Undertaking (FCH JU) and is part of the EU's strategy to achieve climate neutrality by 2050
- aims at accelerating the development and deployment of clean hydrogen technologies
 - Boost Clean Hydrogen Production
 - **Develop Hydrogen Infrastructure → Role of inland ports!**
 - **Support Industrial and Transport Applications**
 - Reduce Costs & Improve Efficiency
 - Strengthen EU's Leadership in Hydrogen

Hydrogen Valley in the Danube Region



1. Hydrogen Industrial Inland Valley (APPROVED) → establishing a large-scale renewable H2 economy in the Austrian industrial regions of Upper Austria, Styria and Carinthia
2. Upcoming H2 valley call 2025
→ Integration of inland navigation foreseen

Green inland navigation and green ports need...



Study on alternative propulsion on the Danube

by aristoï – communication partners

Free download:

https://www.viadonau.org/fileadmin/content/20241128_Aristoi_Study_Viadonau_final.pdf

(in English)

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