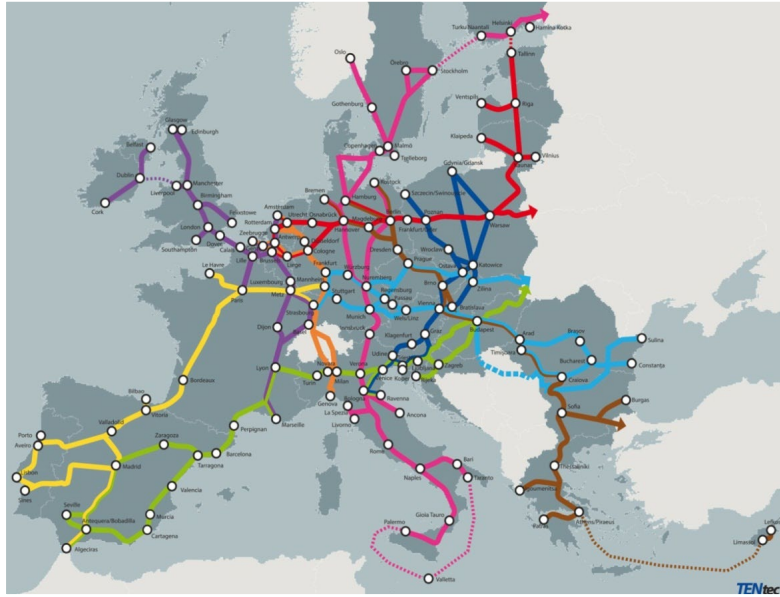


Inland Ports

Logistic hubs for green energy



Geographical position – in the heart of Europe

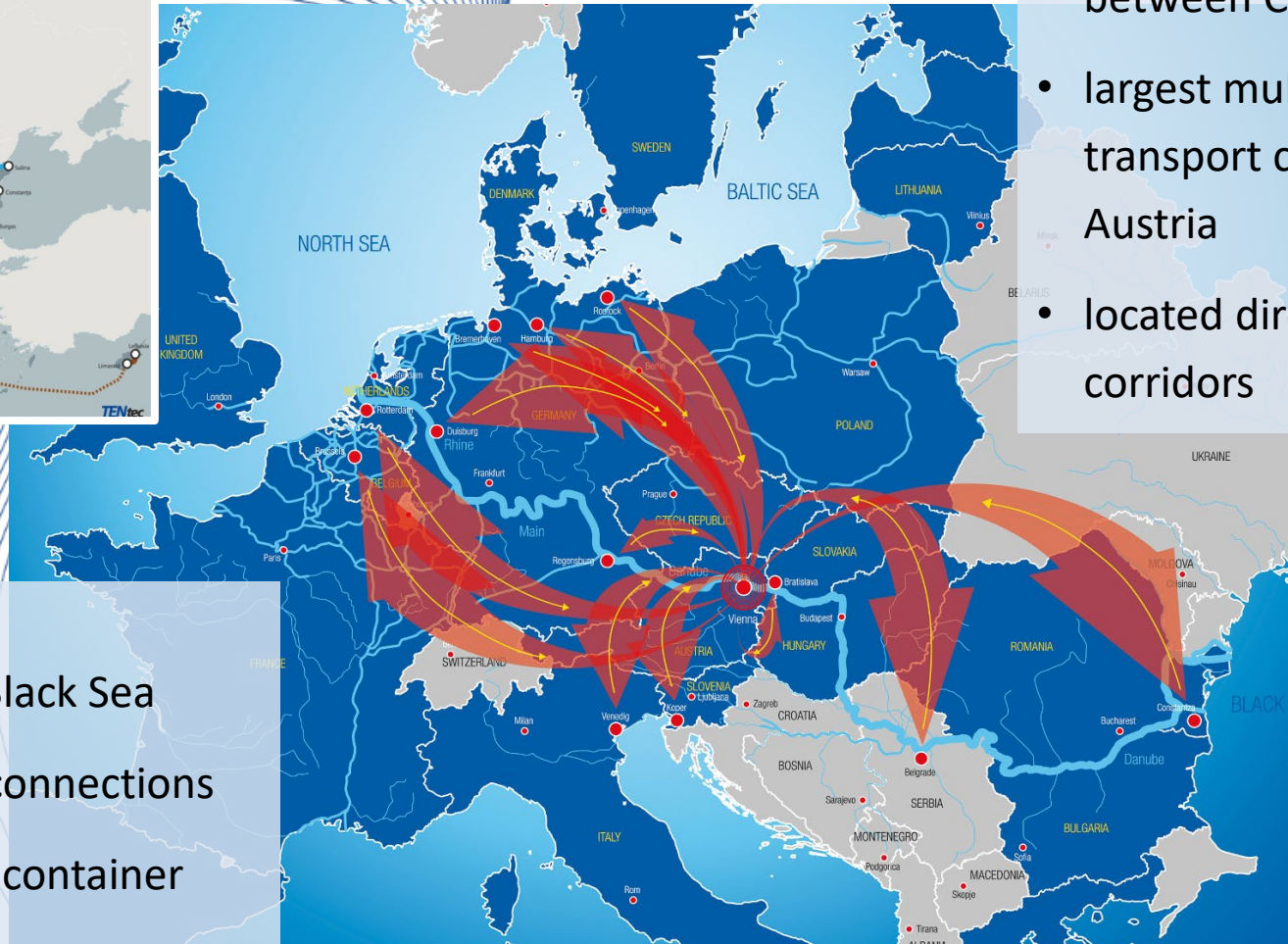


Role for Europe

- Logistic Hub for Transports between CEE & SEE
- largest multimodal freight transport centre in Eastern Austria
- located directly on 3 ten corridors

Location in Europe

- between North Sea and Black Sea
- Road, rail and waterway connections
- 3. largest trimodal inland container terminal in Europe



Geographical position – Location in the City

Role for the City

- **110** resident companies
- **5.000** employees at the harbor area

Financials (2022)

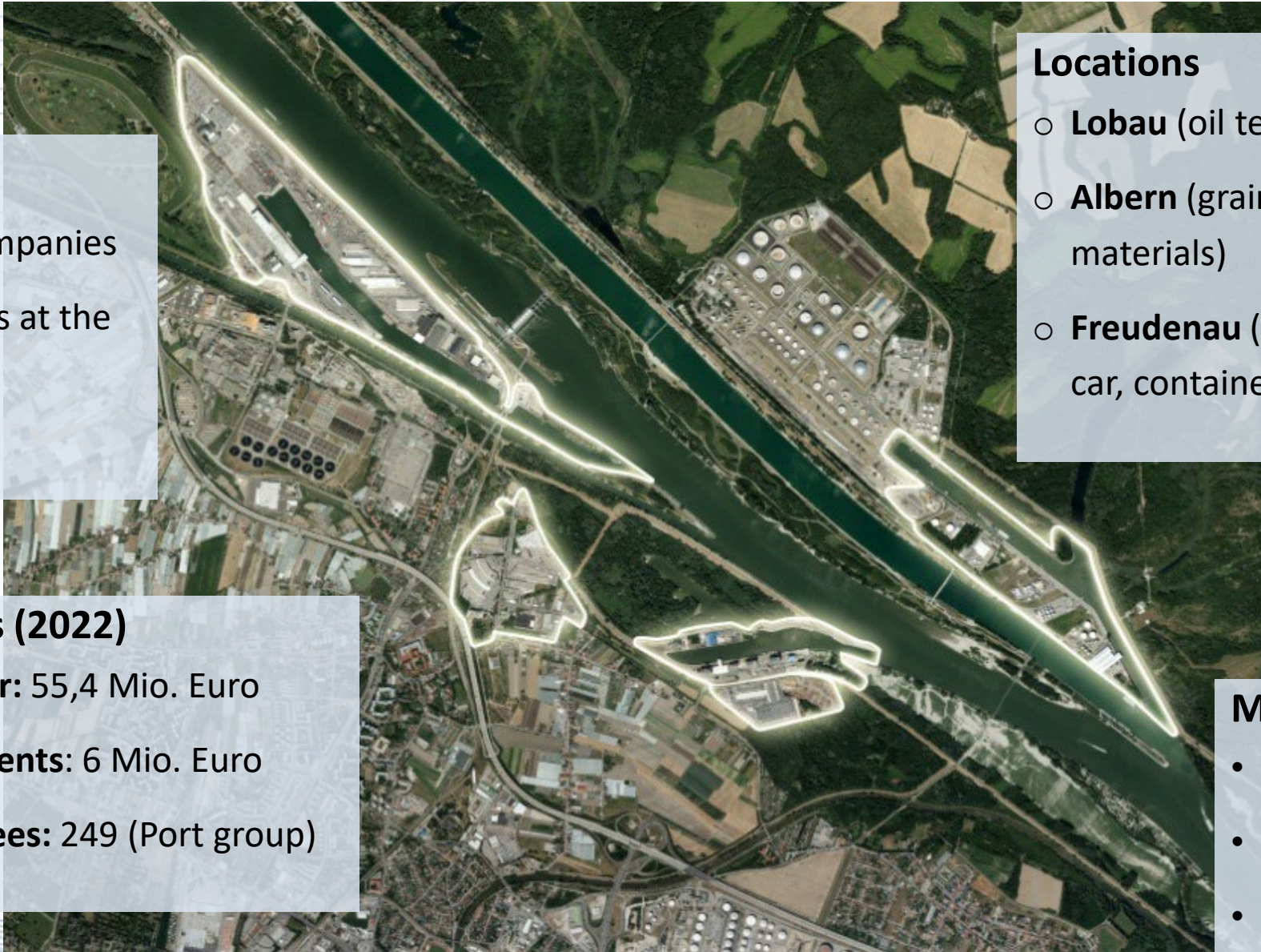
- **Turnover:** 55,4 Mio. Euro
- **Investments:** 6 Mio. Euro
- **employees:** 249 (Port group)

Locations

- **Lobau** (oil terminal, tank Port)
- **Albern** (grain, construction materials)
- **Freudenau** (storage, handling, car, container, Property Man.)

Modal Split

- **41% Rail**
- **39% Road**
- **20% Ship**



Greening the Port

Decarbonization measures & Projects of the Port of Vienna

- Share of **renewable energy at 25%**
- **4 photovoltaic** systems
- **100 % green electricity**
- **LED** exterior and interior **lighting**
- Use of **e-cranes, e-forklifts, e-bikes** and **e-cars**
- Use of **air-heat pumps**
- **WienCont** container terminal -> renewable energy from **100% hydropower**
- Partner in **EU-wide and transnational projects** in the areas of **efficiency in ports and terminals, renewable energies, alternative fuels,...**



Greening the Port

Horizon Europe Project - ReMuNet



European Transport Network

WP1 Develop transport ontology & typology of disruptive events

Reference Model

WP2 Create reference model, routing algorithms, prediction modelling

Industrial Application

WP3 ReMuNet Collaborative Platform
WP4 Modelling self-learning transport corridors

Validation & Dissemination

WP5 Pilot 1 Social Use Case
Pilot 2: Ecological Use case
WP6 Dissemination & joint activities

ReMuNet Use Cases

Two pilot corridors have been selected, each with its specific emphasis: In addition to experimenting with the fundamental ReMuNet concept, the North Sea – Baltic pilot aims to assess resilient and sustainable routing for the provision of humanitarian supplies to Ukraine, whereas the Rhine – Danube pilot concentrates on an environmentally conscious multimodal strategy involving alternative propulsion methods.



ReMuNet communicates alternative, predefined, multimodal transport routes in the **event of incidents**, thus enabling a faster response in the multimodal network.

Objective: Significantly **reduce emissions** and **increase flexibility** and **efficiency** on freight corridors in the event of incidents.

Consortium:



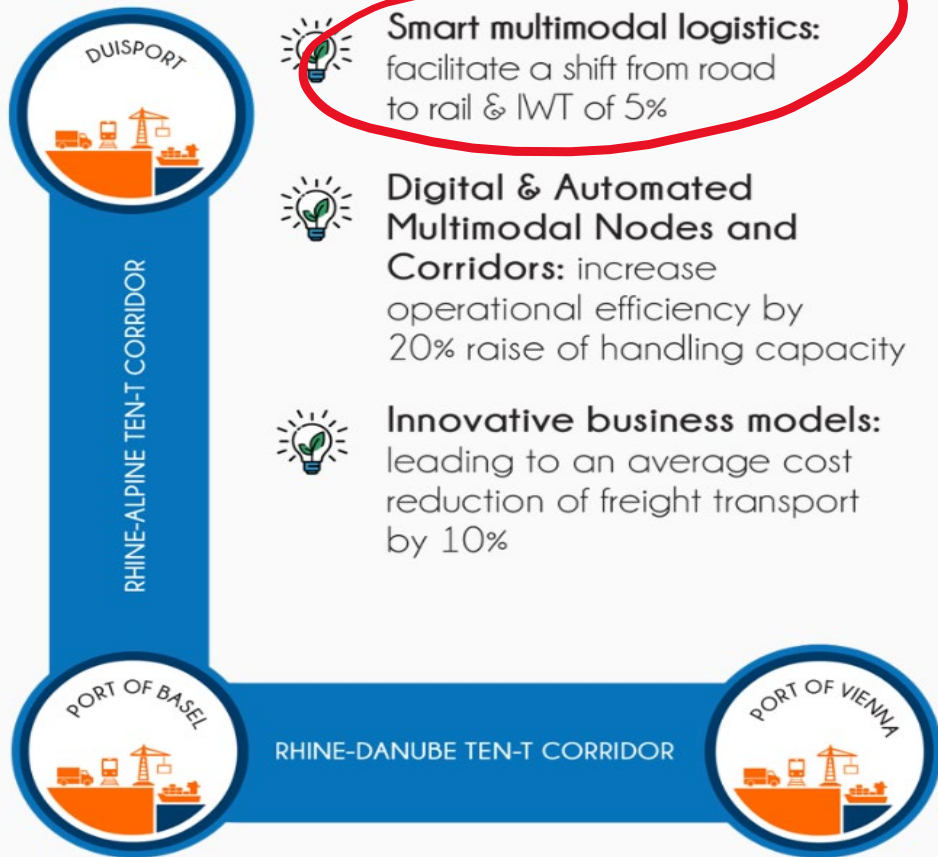
Greening the Port

Horizon Europe Project - MultiRELOAD

European cooperation in the development of **innovative** inland port solutions for **efficient, effective** and **sustainable multimodality**



MultiRELOAD
PORT SOLUTIONS FOR SUSTAINABLE MOBILITY



MultiRELOAD
PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

Open **I**nnovation **C**hallenge:

we want your ideas:

green products on green corridors
AGRICULTURAL PRODUCTS
IN PART LOADS ON INLAND WATERWAYS

be part of it:



implemented by
thinkport VIENNA

Three areas of innovation with specific targets by 2025, reflecting the actions of the **EU Smart Mobility Strategy**

Consortium:



Funded by
the European Union

thinkport VIENNA Mobility Lab



thinkport VIENNA
powered by BOKU Wien und HAFEN WIEN

Awareness

circular
economy

Green
Corridors

City
Bound

Energy
And
Inland
Ports



Forum Green Logistics 2023:

KLIMA:AKTIV:IST: Knowledge | Act | Action
... you just know, or are you already acting?

SELF-IMAGE: we are the place to go when it comes to logistics innovation

DEFINITION: urban mobility lab - logistis innovations hub

MISSION: develop, test and implement logistics innovations in Vienna

VISION: Vienna takes a leading position in the implementation of socially supported logistics innovations



Workshop series on the realization of H2 in inland ports

Tackling the transition together

Survey 2022:

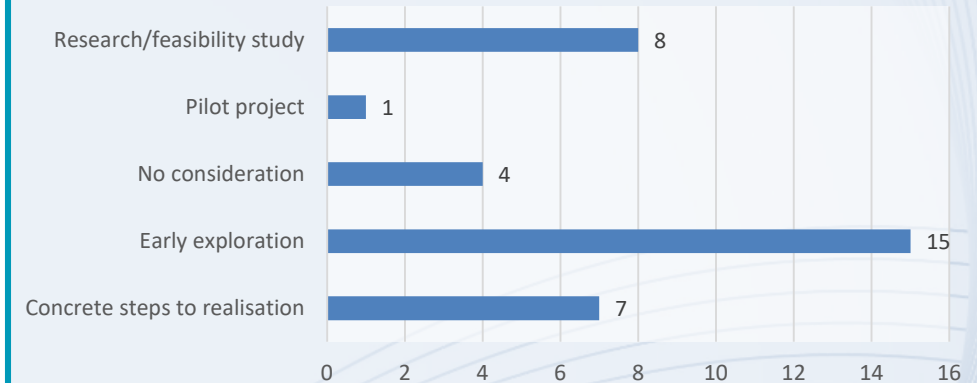
As a **starting point**, you need to understand the **current state of affairs**

Determination of:

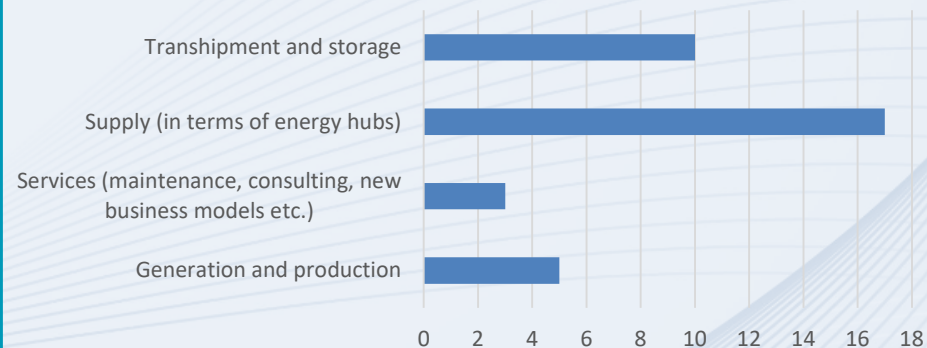
- State of **knowledge** in **inland ports**
- Current **state of development**
- **Hurdles**
- **Known needs**

➤ **Over 35 responses from ports across the EFIP network**

To what degree has your organisation/port deployed or realised hydrogen projects?



In H2 development, what is your primary focus as a port?



EFIP Position Paper

Making hydrogen a success for Inland Ports



H2 Position paper
2023
#3 Focus on
implementation and
recommendations



Recommendations: Ensuring a coherent legal framework

- For the switch to **hydrogen in inland ports** to be a success, a **legal framework is required** first and foremost.
- **Standards and legislation** must be **harmonized** to **enable the use of hydrogen** in ports.

These include standards for:

- **Hydrogen tanks** for various industrial applications;
- Requirements for **compressed** and **liquefied hydrogen**;
- **Revision** of the Non-Road Mobile Machinery Directive (**NRMM**) to recognize **hydrogen as a fuel**
- **Safety requirements** for hydrogen in internal combustion engines;
- The **European Standard** on the **technical requirements for inland navigation vessel (ES-TRIN)** updated where necessary.

H2 meets H2O

National exploratory project 2023

Roadmap for the development and establishment of a climate-neutral hydrogen supply along the Danube

Excerpt from the objectives and main results:

- **Assessment of the feasibility/sensibility** of a hydrogen supply from a technical, legal and socio-economic perspective.
- Participatively developed **roadmap for the implementation of the hydrogen infrastructure.**
- Presentation of possible **synergy effects** in relation to **multimodal freight logistics chains**
- Exploiting the development **potential of ports as hydrogen hubs**
- **Networking of the relevant players** in several workshops

Consortium:



Exploratory project - co-funded by



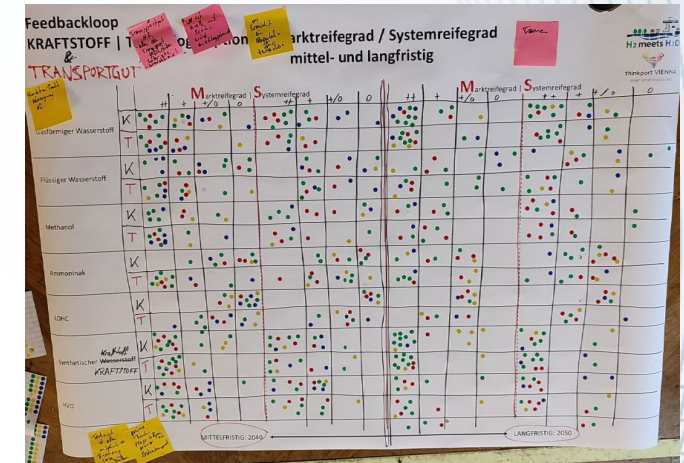
H2 meets H2O

Workshop: Potential as alternative Fuel

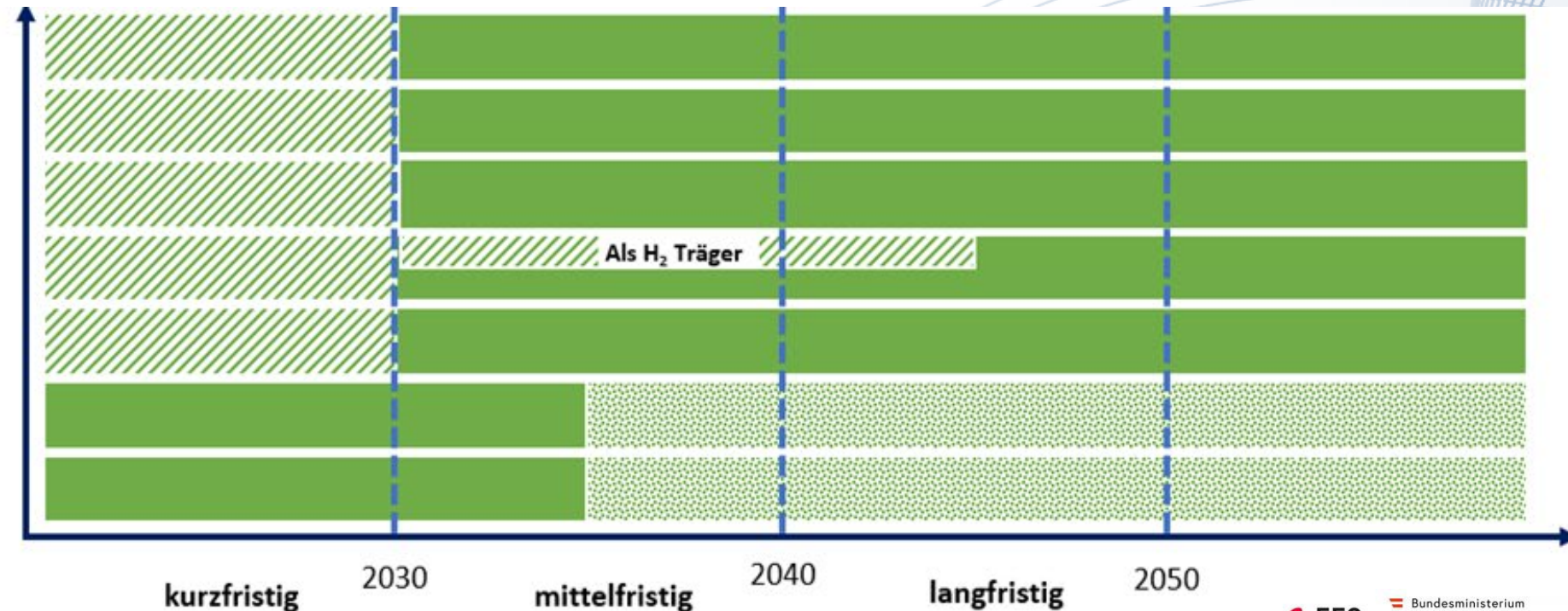
MISSION

A **concept** needs to be **developed** that, on the one hand, enables the **short-term implementation** of greenhouse gas reductions and, on the other hand, supports the **long-term objective** of **climate neutrality** in the **inland navigation sector**.

Since **economic efficiency** plays a major role in the conversion of shipping, a **showcase project** with a **political statement** and high funding based on it is **needed**.



Gasförmiger Wasserstoff
Flüssiger Wasserstoff
Methanol
Ammoniak
LOHC
Synthetische Kraftstoffe
HVO



H2 meets H2O

Follow-up projects in preparation - Trans- national projects

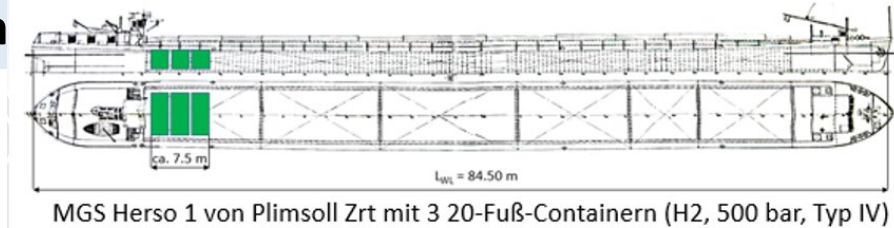
Goal: Identification of first "low hanging fruits" on the topic of hydrogen

Retrofit - conversion of a ship to H2 & piloting of the corresponding infrastructure

- **Consideration** of the findings and **lessons learned** from the **initiatives** already launched
- **Standardized development** and **piloting** of the **infrastructure** required for the use of **H2**
- **Investments** are already **planned** in **white shipping sector** (cruise Lines), **electric motors** are already being **used** in **propulsion technology** and the **energy source** is easier to **change** than in **conventionally powered ships** in **black shipping** (cargo shipping).

The following steps are necessary for a trans-/national funding application:

- **Contacting** a (white) **shipping company** that would like to **convert** a **ship** to **H2**.
- Putting together a **consortium** of **energy suppliers**, **hydrogen technology developers**, **infrastructure providers** and **planners** to support the use of this ship for a **pilot deployment** in a national project.
- Clarification of funding programs



Case studies from practice



Fahrgebiet Herso 1: Budapest – Regensburg, 2010

	Fahrzeit	Strecke	Gasöl	H2	Cont., 20-Fuß á 532 kg H2
	[h]	[km]	[kg]	[kg]	[-]
Herso 1	54	733	6100	1860	3,5
Herso 1 + Leonie	70	733	9900	3020	5,7
Budapest – Wien Freudenau	29	278	4000	1230	2,3
Wien Freudenau – Hafen Linz	19	211	2800	840	1,6
Hafen Linz – Regensburg	22	244	3100	950	1,8

Kraftstoffverbrauch Bergfahrt, Herso 1, 2010

H2REAL

Hydrogen Valley Project

Hydrogen Valley as the **key to hydrogen** technology and applications in the region of **Eastern Austria**

Development of an **integrated value chain** for the **production, storage, distribution and consumption** of H2 etc.

Project Start 2023



Value Chain



H2REAL

Renewable Energy
Generation



H₂ Logistics
and Infrastructure



Mobility



Green H₂
Production



Power Sector
and Industry



H2REAL

Hydrogen Valley Project

Investigating the **role of the port as an energy hub** in the region of Eastern Austria

- Determination of **required infrastructure** measures and **investment costs** at the port of Vienna
- **Cooperation with partners** for the development and handling of **new business models**

Hydrogen Valley Austria East

(consideration of the entire hydrogen value chain)

Concepts and strategies

Development of specific, innovative technologies

Demonstration projects of a regional hydrogen economy

Network of all relevant players

„beyond“



H2REAL
The H2REAL Valley deployment will create a strong cooperation across clusters and regions, through which the Hydrogen Economy in Eastern Austria develops.

Cluster 1 - production | Cluster 2 - freight-based distribution and logistics | Cluster 3 - mobility and infrastructure | Cluster 4 - pipeline-based transport and distribution





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CONNECTING

YOU WITH THE WORLD