

CCNR/viadonau workshop „Shore power at berths“

# The energy self-sufficient waterway – Installation of a shore power supply system in Austria

DI Hans-Peter Hasenbichler, viadonau

3rd February 2022

Available for you on 378 kilometres.

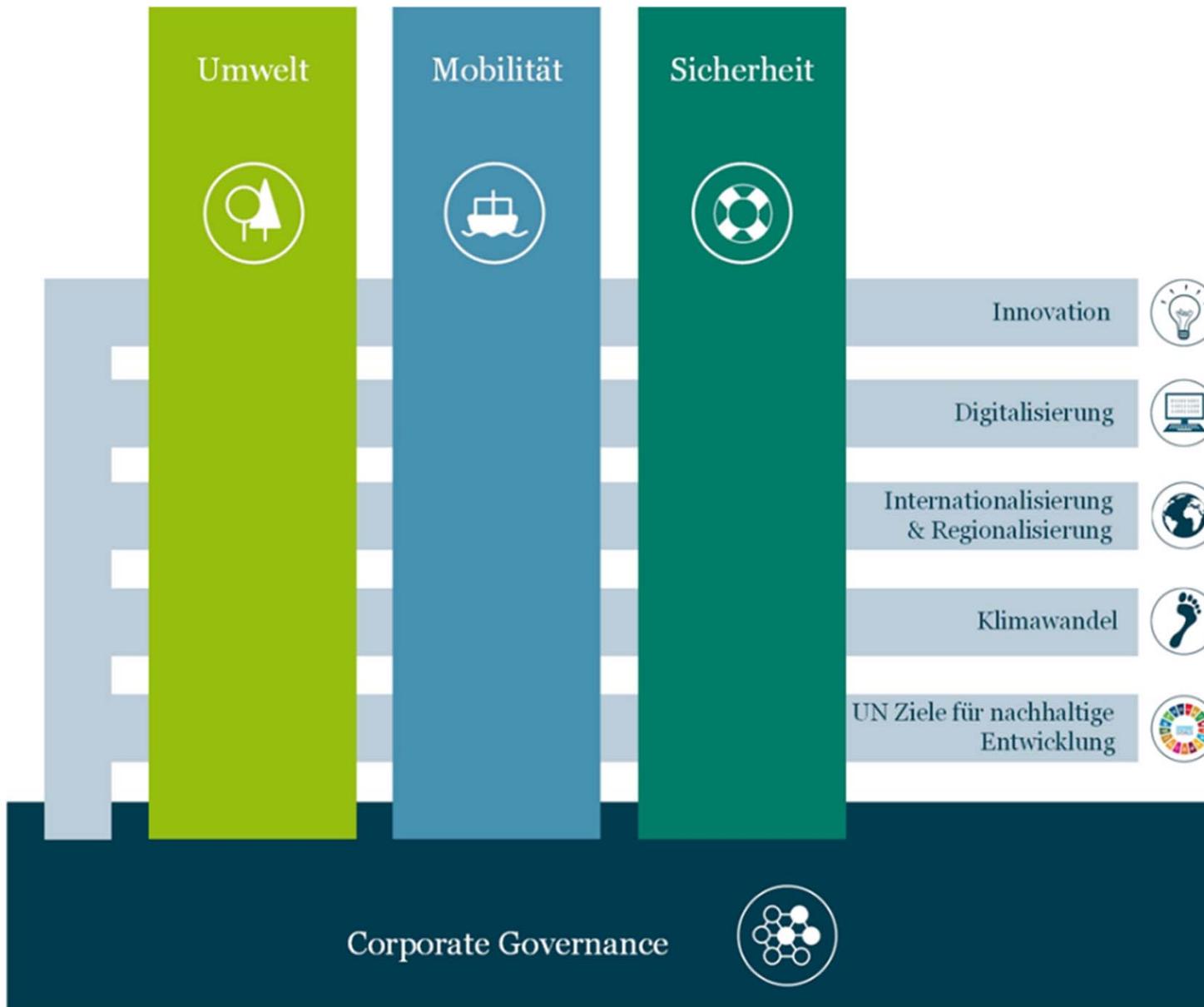


## viadonau – Österreichische Wasserstraßen-Gesellschaft mbH

- owner: BMK– Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology
- founded 2005 (Federal Waterways Act)
- around 270 employees

# viadonau's corporate strategy by 2030

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# Contributions to European and Austrian mobility strategies and programmes

## Europäische Union

## Österreich



# Motivation energy self-sufficiency

## ■ Primary objective

Based on the United Nations 2030 Agenda for Sustainable Development and the Austrian environmental and energy strategies, viadonau implements concrete measures.

## ■ Corporate objective by 2030

energy self-sufficiency = positive, annual energy balance (consumption < production)

## ■ Priority measures by 2030

- energy-efficiency concept
- building construction and renovation
- renewable heat (e.g. heat pump)
- electro mobility (vehicle fleet and charging infrastructure)
- highly efficient devices & processes
- energy supply by photovoltaic (PV)
- behaviour & awareness



timetable energy self-sufficiency

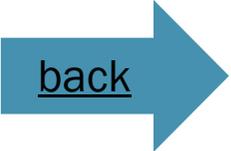
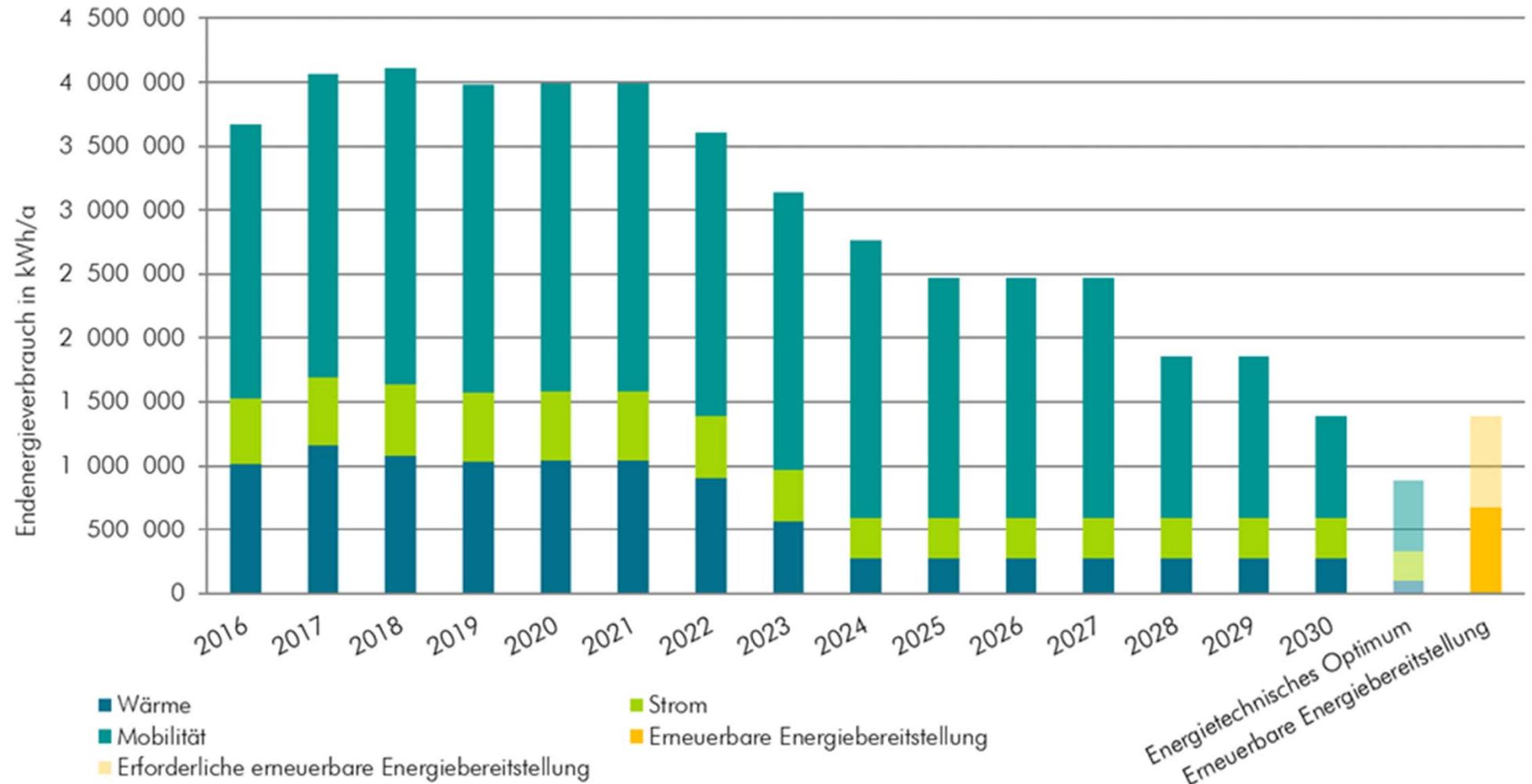


5 e-cars



Servicecentre Oberes Donautal

# viadonau's path to energy self-sufficiency by 2030 **viadonau**



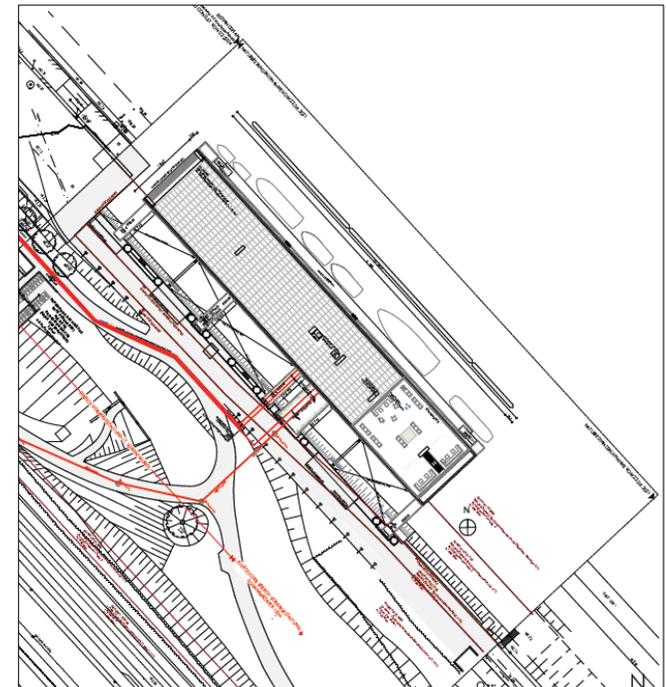
# New company headquarter 1/2

- **Planning principles**
  - floating office building on the Danube in Vienna/Handelskai
  - innovative linkage ship technology and building construction
  - realisation in line with energy self-sufficiency and climate protection
  - integration of additional shipping-relevant authorities and company-owned mooring places
  - supervision and safety centre (digital operational supervision (DoRIS), locks, flood management etc.)



# New company headquarter 2/2

- Innovations in the fields of climate protection/energy consumption
  - passive-house standard (insulation, no thermal bridges etc.)
  - plus-energy-house concept (= positive, annual energy balance)
  - pilot project: e-fuels for operational boats
  - research project „plusenergy-Flagship“: recycling wastewater and generating energy from organic matter as a demonstration for ship and building technology



- **Objective**

Maintaining the operation and traffic safety of the waterway until vessels are safely moored.

- **Measures**

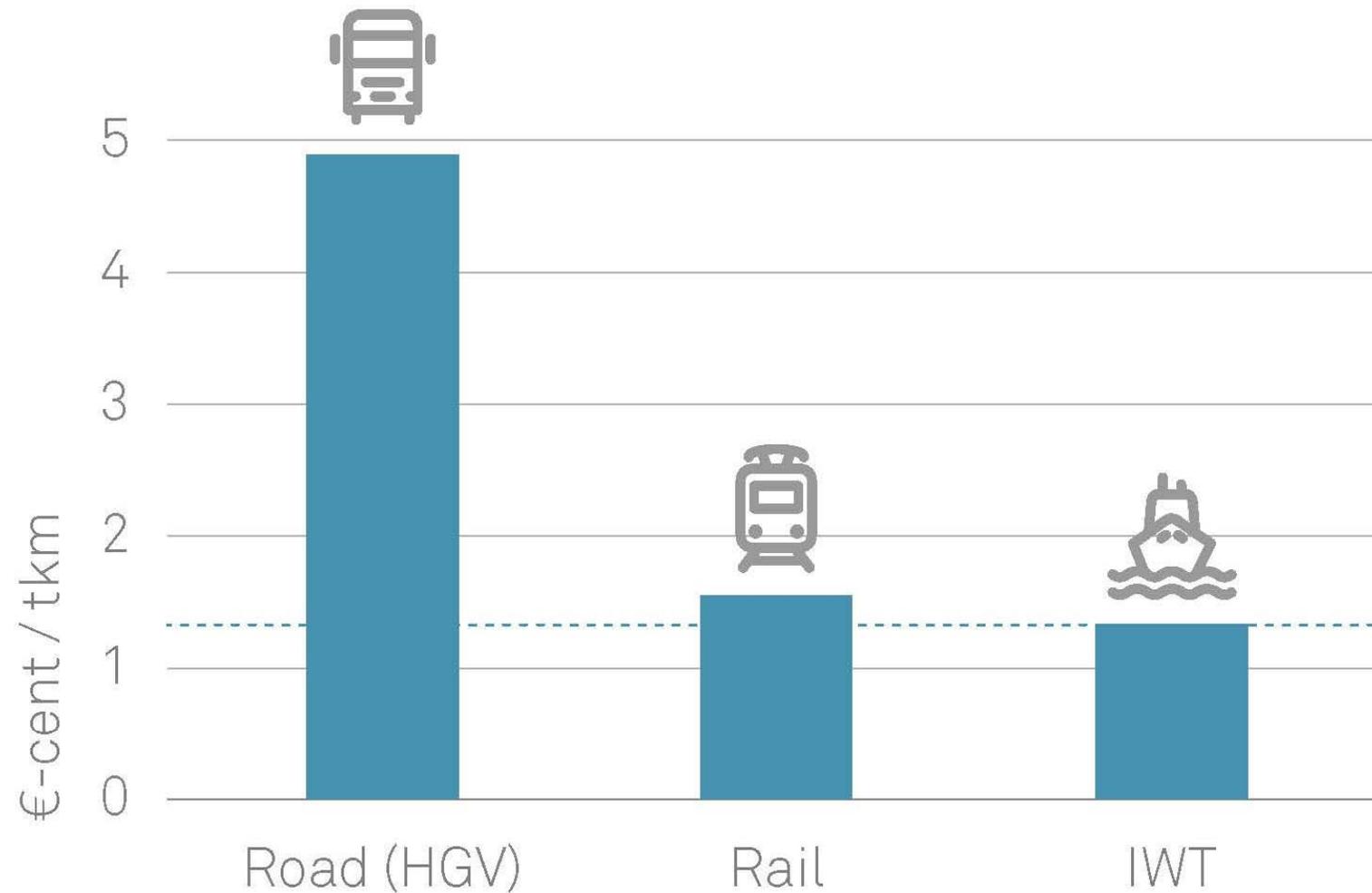
- energy self-sufficiency for applications in the field by usage of PV and battery storage instead of grid connection (e.g. indicators on the shore)
- energy self-sufficiency at offices through maximisation of PV-surfaces in combination with battery buffer storages
- provision of an emergency generator for longer breakdowns (>1 day up to 7 days)
- ensuring the continuity of critical core processes and central IT applications in a blackout-proof data centre (e.g. locks, gauging system, distance-surveillance of buoys or DoRIS)

# Environmentally friendly inland vessels (motors, fuels)

- **Sonderrichtlinie zur Förderung einer klima- und umweltfreundlichen Schifffahrt**
  - focus: climate protection, sustainability and modal shift
  - planned start 2022, duration over 5 years
  - total funding amount: 3.5 million EUR
- **Current greening-initiatives viadonau**
  - participation at Horizon 2020-Projekt PLATINA 3: implementation of the NAIADES 3 action programme of the European Commission
  - acquisition push boat /marking vessel (stage V, biofuel compatible (HVO))
- **Alternative propulsion systems (project start 2022 each)**
  - baseline study on behalf of BMK
  - project H2 meets H2O - roadmap for the development of a climate-neutral hydrogen supply along the Danube

# Environmental performance inland navigation **viadonau**

Weighted averages of external costs in the Danube corridor (2021)



# Policy objectives regarding shore power

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## Programmes of the federal government and the federal states



Regierungsprogramm 2020 – 2024

- Wenn technisch möglich, verpflichtende Landstromanschlüsse an den öffentlichen Anlegestellen am Bundeswasserstraßennetz sowie die Prüfung eines Maßnahmenpakets des Bundes zur Forcierung von Landstromanschlüssen an privaten Bootsanlegestellen an Seen und Flüssen

### Abschnitt Klimaverträglicher Verkehr

- Wien wird die erste europäische Metropole, die eine Landstromversorgung für Flusskreuzfahrtschiffe errichtet, um Emissionen aus deren Dieselgeneratoren zu vermeiden. Wir setzen uns dafür ein, dass dies auch für andere Anlegestellen an der Donau realisiert wird.



Regierungsprogramm 2021–2027

**Abschnitt Nachhaltige Mobilität**  
+ Errichtung von Landstromanlagen für Kreuzfahrtschiffe in Engelhartszell und Linz



Regierungsprogramm 2020-2025

# Guideline planning: Shore power on the Austrian Danube (finalisation 2019)

Coordination by viadonau on behalf of Federal Ministry for Climate Action (BMK)

- **Objective**

Elaboration of a basic planning for the construction and operation of shore power facilities across all concerned federal states

- **Use cases**

- cruise vessels at private berths
- cruise vessels during winter stand in ports
- cargo vessels at public berths

- **Working group members**

grid operators, energy suppliers, berth and port operators, representatives of the federal states as well as stakeholders from Bavaria (DE)



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# Guideline planning: Shore power on the Austrian Danube (finalisation 2019)

- Elements of the guideline planning
    - technical specification of the shore power units
    - cost estimation and profitability prognosis
    - considerations regarding organisational concepts (incl. access and billing system)
  
  - Followed by: Due Diligence survey (2020/21)
    - in-depth profitability analysis and elaboration of business models
    - provision for future shore power operators
- > **result:** subsidies are necessary to make shore power projects economically viable



# Shore power at public berths (cargo ships)

## ■ Pilot phase

- 3 locations in Linz, Wildungsmauer and Vienna
- prohibition of the use of on-board devices for power generation (incl. monitoring provisions).
- testing an operating scenario that is as low-threshold as possible
  - > experience and knowledge for long-term operation resp. suitability for widespread use
- duration of pilot phase: q3 2022 – q4 2024 (30 months)



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## ■ Evaluation criteria

- technical and legal feasibility
- costs and profitability
- compliance/acceptance by sector
- service quality, vulnerability to faults, frequency of use

# Shore power at private berths (cruise ships)

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- coordination by viadonau, realisation by federal states Upper Austria, Lower Austria, Vienna (joint working group)
- regional and communal energy supply companies as shore power operators
- challenges: financing and estimation of economic viability, provision of required power outputs, supply for multiple rows, cityscape/landscape  
-> many questions clarified in/since guideline planning
- currently preparation of projects in Engelhartzell, Linz, Melk, Krems and Vienna (technical plannings, profitability/financing concepts)
- pilot project (2022/23): equipment of 10 berths in Upper Austria with shore power by Linz AG
- further projects in ports Linz, Enns, Vienna (winter stand)



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