Hydrogen in Motion: With H_2-Buses to Vienna's H_2-Valley



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Hydrogen at Wien Energie

Our achievements so far



2021

COD **H_2 -Refuelling**

in Leopoldau



2023

Founding **H2REAL**

Valley for Austria

H_2-Blending Field Test



2024

COD **2. H_2-Refueling**

in Simmering



COD **3 MW Electrolysis**

in Simmering

2025

ISCC-EU-**Certicate**

for **RFNBO-H_2**



Wiener Linien **Hydrogen buses**

Line 2A,3A, 39A



Proof of Concept

H_2-Kaffeeröster



H_2-Delivery

10th customer

2026

Hydrogen Auction

Funding commitment for an H_2-Industrial project

Hyoneer

Software tool for the certification of green H_2

Application

HyHOPE

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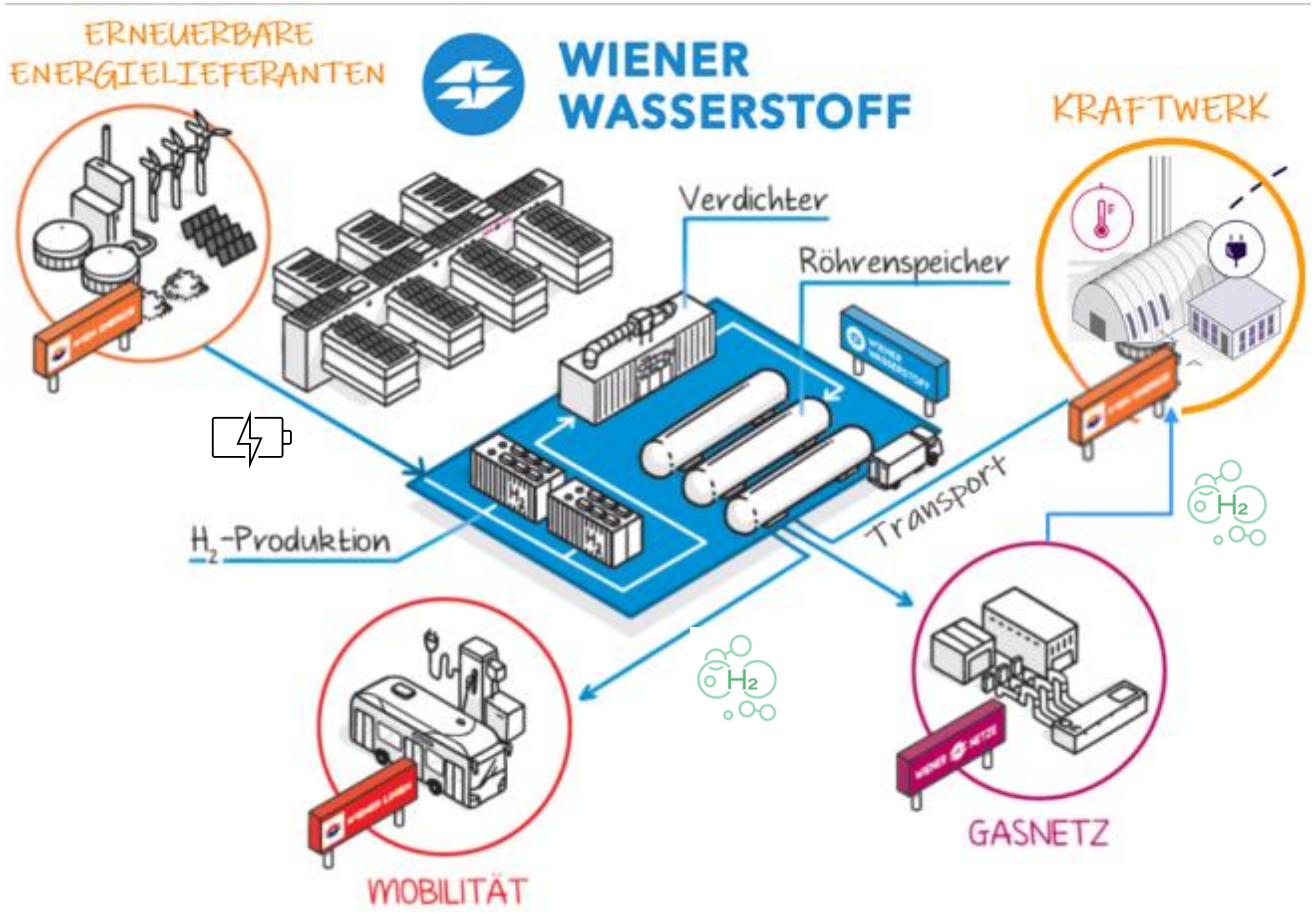
Wiener Stadtwerke‘s Hydrogen Strategy

Wiener Stadtwerke Cover the Entire Value Chain



WIENER STADTWERKE

WIEN ENERGIE | WIENER NETZE | WIENER LINIEN

production + distribution + use

- Production of **green hydrogen** using **renewable** electricity
- **Infrastructure** for **transport** and **storage** to the necessary consumers
- Supplying the **Wiener Linien bus fleet**
- Use of **green hydrogen** to **decarbonize** our **energy generation facilities**

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Our Path to Climate Neutrality by 2040

Hydrogen as a Cornerstone of Climate Neutrality











Mobility	Industry	CHP
Supply for refueling stations	Energy (process heat)	H_2 mixture in existing CHP
Green hydrogen for LDV + HDV	Feedstock	H_2 in new Green CHP

2026 — 2030 — 2040

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WIEN ENERGIE
WIENER STADTWERKE GRUPPE

Hydrogen Mobility Initiative Wiener Linien

Decarbonizing Public Transport with Green Hydrogen

Rampini-Minibus Routes 2A & 3A



Caetano-Buses Route 39A



Starting in 2025, the hydrogen era at **Wiener Linien** began with the support of **Wien Energie**, marking a milestone for climate-friendly mobility in Vienna.

Refueling Infrastructure:

- **Production** of renewable green hydrogen at the 3 MW electrolyzer in Simmering
- **Refueling stations**: Vienna Simmering and Vienna Leopoldau
- **Operating pressure** levels: 350 bar and 700 bar

Total 20 new Buses:

- **Inner city buses:** 10 Rampini Hydron Routes 2A, 3A
- **Normal buses:** 10 Caetano H2.City Gold Route 39A
- **Test bus:** Hyundai Hyundai Elec City FC (world premiere)

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External Hydrogen Mobility Partners

Including IKEA, MA48, JCB Excavator



Quelle: Quantron

5 Hydrogen Delivery Vehicles Operated by IKEA

JCB Hydrogen-Powered Excavator for CO_2-Neutral Construction Operations PORR





Quelle: VCÖ

Hydrogen Waste Collection Truck by MA48

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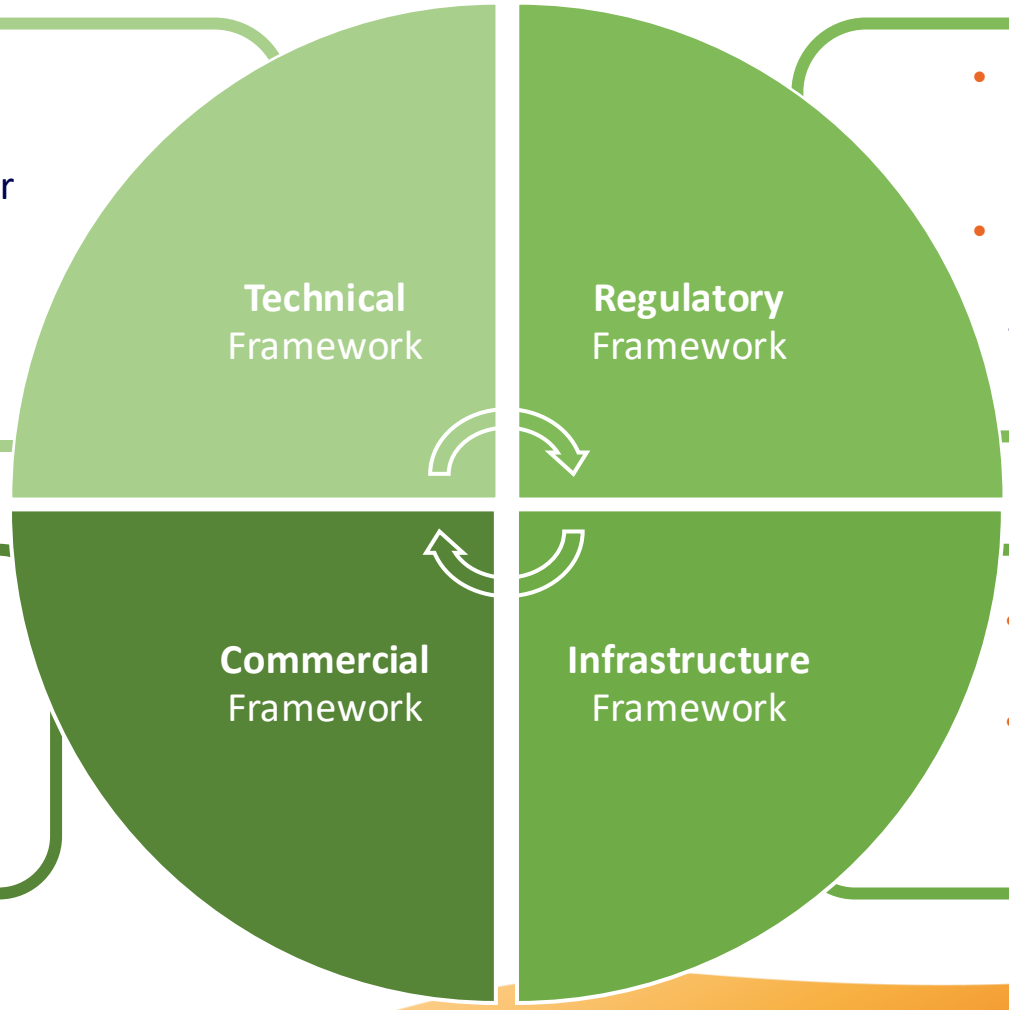
H2 Mobility as a Key Enabler for the Market Ramp-UP

Consideration of All Relevant Framework Conditions

- **Technology Openness** to Deliver Tailored Solutions for Individual Applications



- Use of Renewable Hydrogen in **Hydrogen Internal Combustion Engines (HCIE)**
- **CO_2 Zero Emission Certification**: No Specific Guidelines Currently Available for Construction and Work Machinery

- **Reducing** Hydrogen Costs through Sustainability Certificates (PoS)
- **Scaling Effects t**hrough Increased Capacity Utilization

- **Establishment** of Hydrogen Refueling Infrastructure
- **Reliable** Hydrogen Supply Through Local Energy Providers in Urban Nodes

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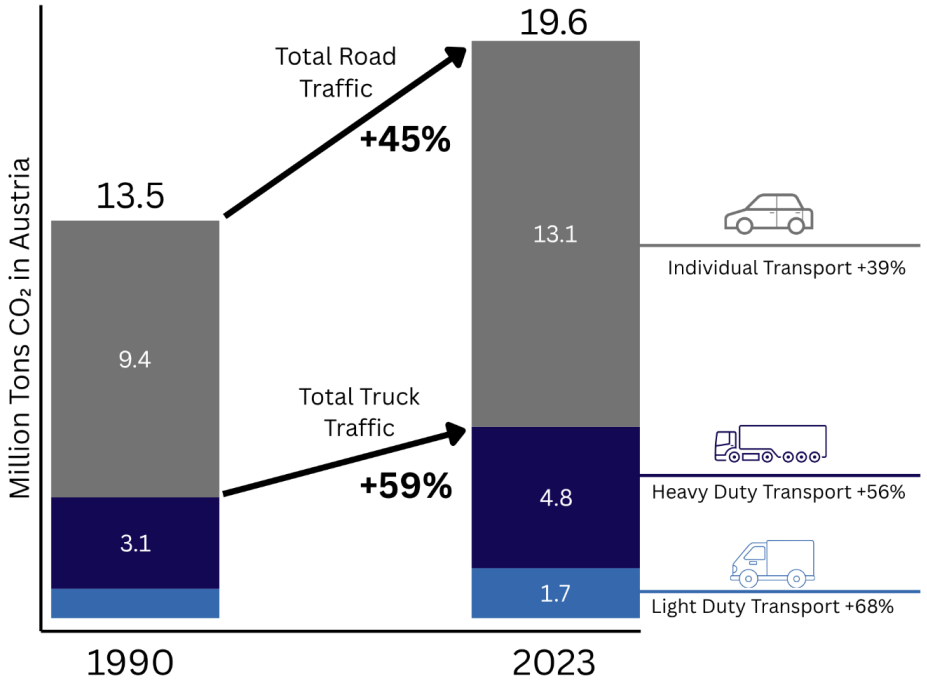
Hydrogen for Heavy-Duty Transport

Battery-electric solutions for passenger vehicles, green hydrogen for heavy-duty transport

Road Transport CO_2 Emissions in Austria



Quelle: UBA Klimaschutzbericht 2025; VCÖ 2025 (abgeändert)

Key Takeaways

- CO_2 Emissions from Heavy-Duty Trucks are increasing disproportionately
- For ranges above 300 km, green Hydrogen becomes the preferred solution for heavy-duty transport

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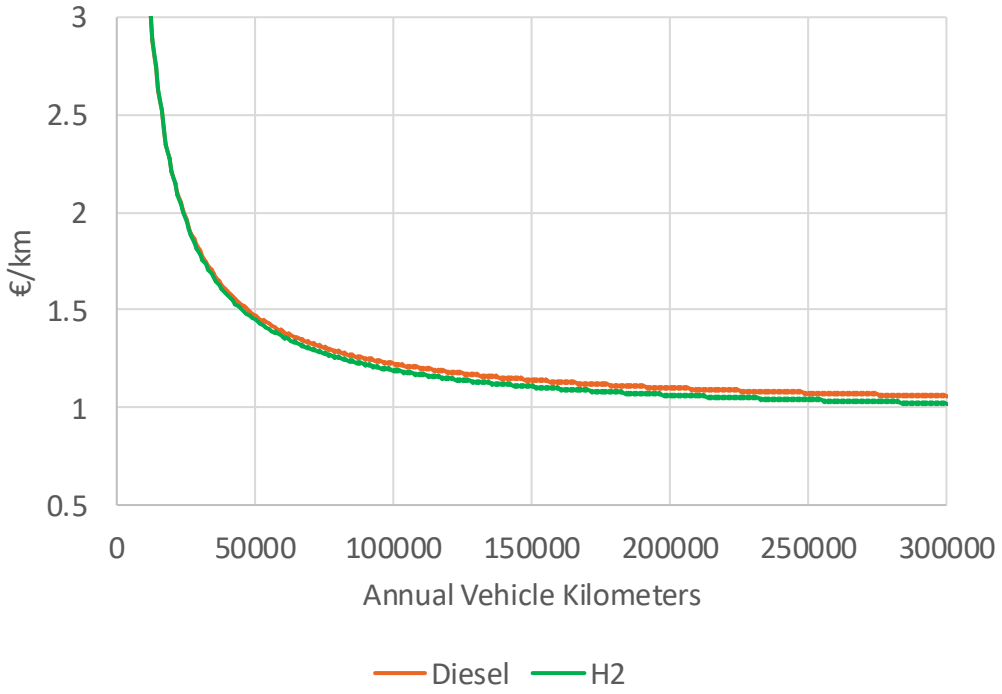
Hydrogen for Heavy-Duty Transport

Battery-electric solutions for passenger vehicles, green hydrogen for heavy-duty transport

Total Cost of Ownership



Key Takeaways

Hydrogen mobility can be economically sustainable for Logistics Companies

Attractive hydrogen pricing can be achieved through RFNBO certification and associated revenue streams

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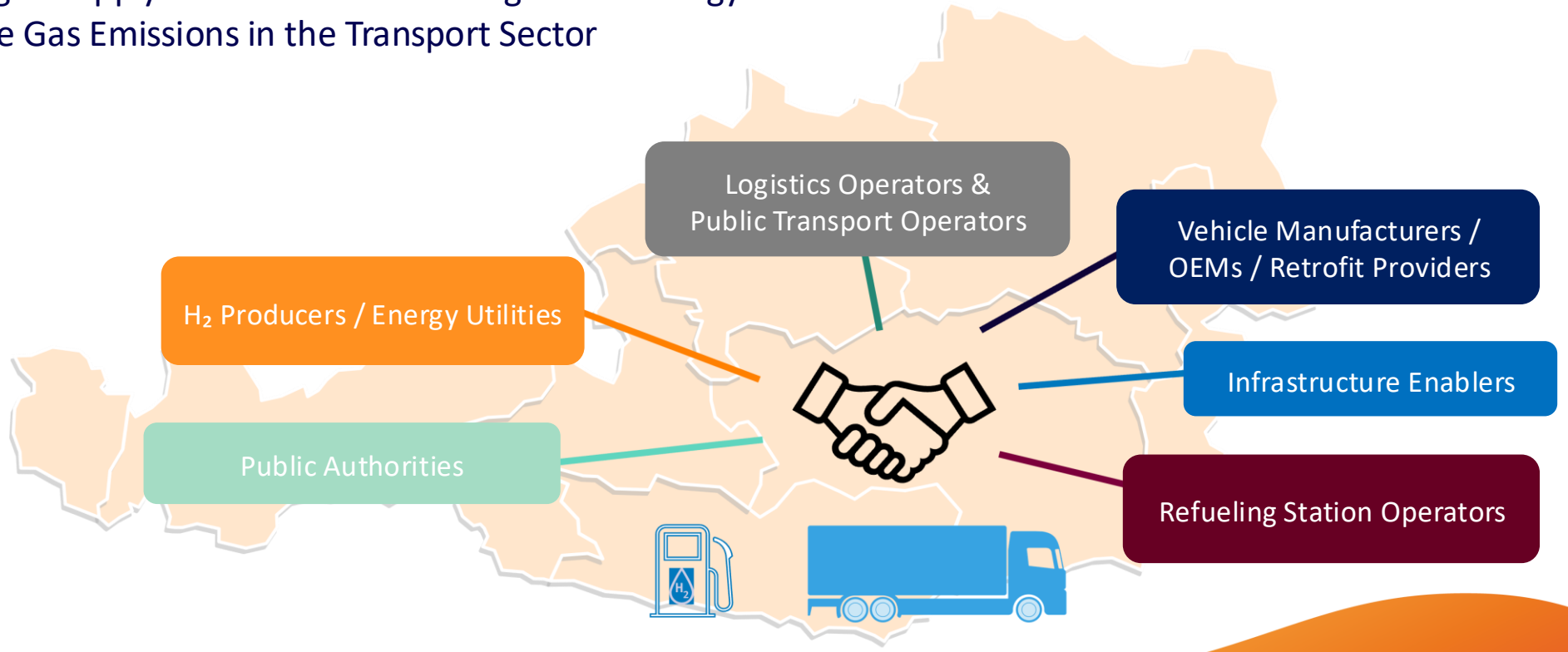
H_2 Mobility Initiative Austria

Alliances across the hydrogen value chain

- Establishing **Reliable** Framework Conditions
- **Deployment** of a Nationwide Hydrogen Refueling Infrastructure
- Ensuring a **Secure** Hydrogen Supply in Urban Nodes Through Local Energy Providers
- **Reduction** of Greenhouse Gas Emissions in the Transport Sector

Partner

- **AVL**
- **BMW**
- **Energie Steiermark**
- **Energie AG**
- **HyCentA**
- **Hydrofy**
- **Hyundai**
- **Kelag**
- **Toyota**
- **Wien Energie**
- **WIVA P&G**



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Hydrogen Mobility Event 29.05.2029

Framework Conditions, Infrastructure and Applications for Successful Hydrogen Mobility







Applications

- Heavy-Duty and Long-Haul Transportation
- Urban and Regional Buses
- Logistics and Distribution Operations
- Municipal and Waste Collection Vehicles
- Refrigerated and Specialized Transport
- Port and Terminal Vehicles
- Airport Ground Support Equipment
- Taxi, Shuttle, and Fleet Applications
- Construction and Off-Road Vehicles
- Agricultural Machinery and Utility Vehicles

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Hydrogen Mobility Perspective / Market Development

Technology Mix as the Key to Successful Market Ramp-Up

Hydrogen Internal Combustion Engine

EU-Certification

- Official classification as zero-emission technology for heavy-duty vehicles (Certification framework for construction and industrial machinery currently not available)

High Robustness and Long Service Life

- Resistant to air and fuel impurities
- Insensitive to vibrations and harsh operating condition
- Zero emission operation at point of use

Rapid Scalability

- Reduced industrialization risk by utilizing proven manufacturing processes
- Utilization of existing service and maintenance infrastructure
- Minimal dependence on critical raw materials



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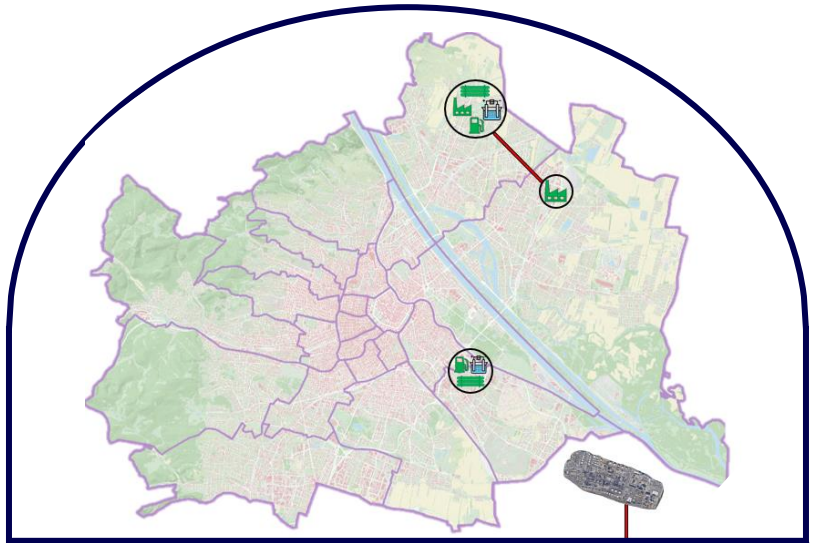
Implementation of the hydrogen ramp-up in reality

From local pilot networks to an integrated hydrogen market

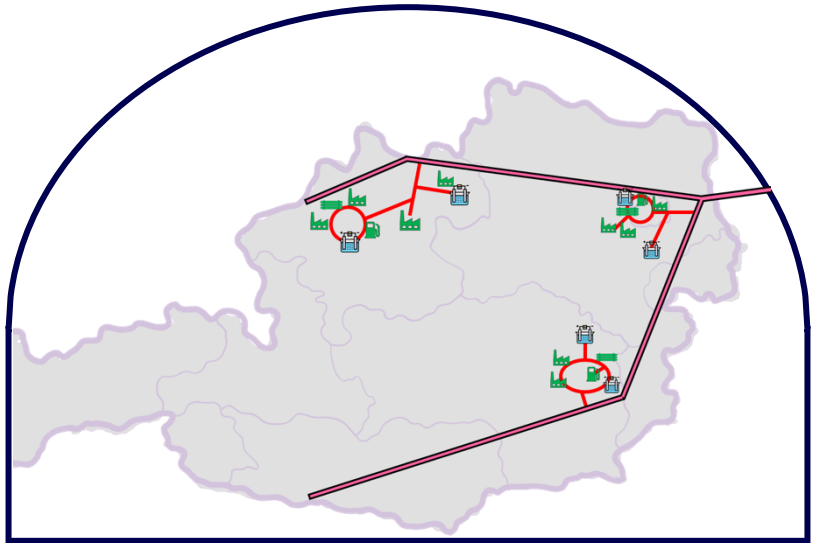


Phase 1: Initial local Network

Until 2030

Regional projects

- Development of decentralized electrolyzers
- Deployment of HRS and trailer loading facilities
- Initial distribution networks
- Focus on mobility and industry
- Blending framework required to enable market ramp-up

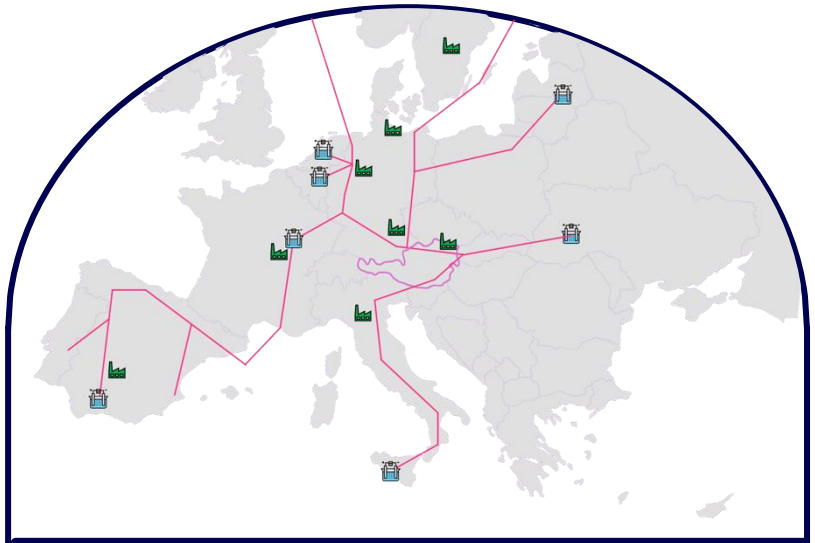


Phase 2: Market Development

From 2030

Establishment of H_2 Valleys

- Connecting regional hydrogen clusters
- First integrated H_2 networks in Austria
- Decarbonization of industry
- First geological H_2 storage facilities
- Development of H_2 import corridors



Phase 3: Integrated Market

From 2035

Hydrogen trading

- Hydrogen imports through long-distance pipeline
- Cross-border hydrogen trading
- Operation a 100% H_2-powered gas turbine in Vienna
- Climate neutrality by 2040
- End of the hydrogen blending regime

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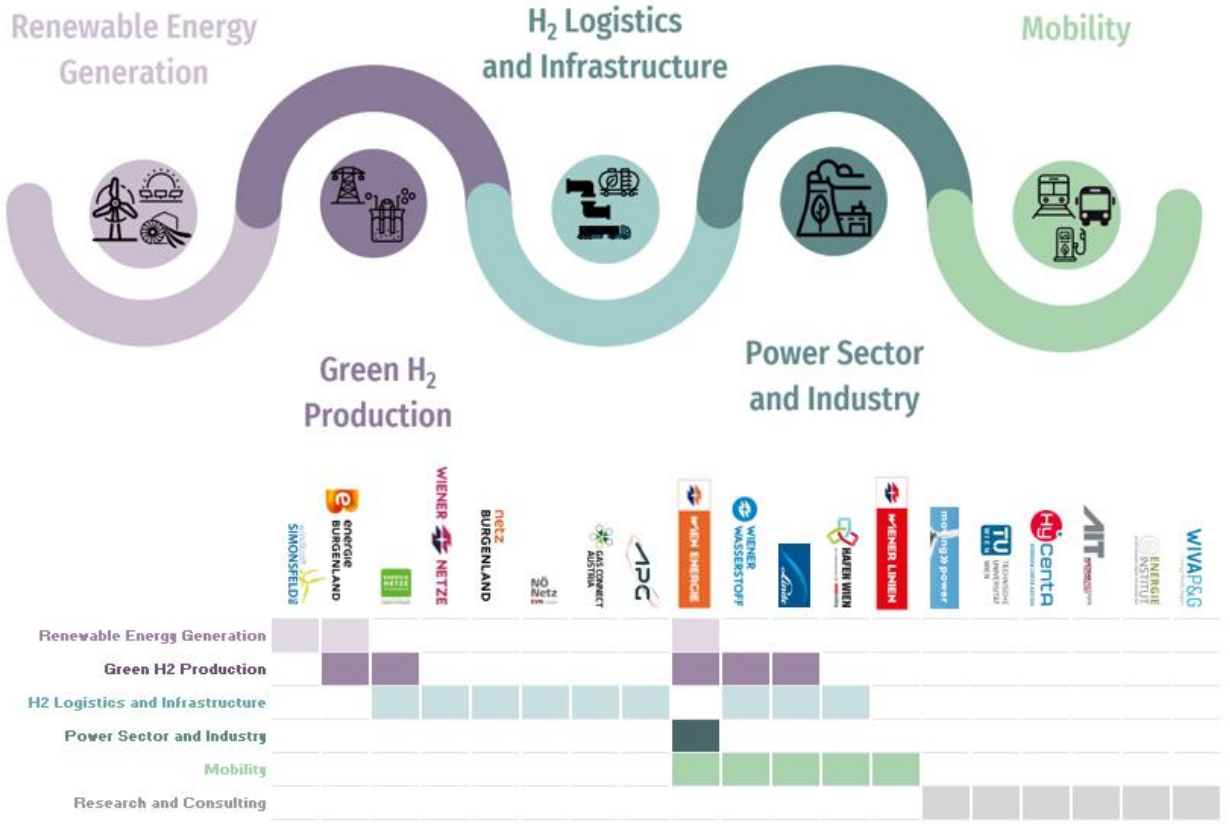
Hydrogen Valley: H2REAL

Hydrogen Region East Austria goes Live

- The **H2REAL** project, led by Wien Energie, aims to develop a **hydrogen valley** as the key to **hydrogen technologies and applications** in the region of **Eastern Austria**.
- Eastern Austria offers the perfect environment to demonstrate the realization of an **integrated value chain**, from production, storage, distribution, and consumption of H_2.

Value Chain



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Strategic Projects for the Hydrogen Market Rollout

Collaborations across the value chain and across borders are key to the ramp-up of the hydrogen market

H2Real- WIVA- FFG, Klima u. Energiefond
- Partners along the value chain in Eastern Austria
- Establishment of an H2 Valley in Eastern Austria
- Duration: Spring 2023–Spring 2027

ElevateCee- i3 Funding
- Collaborative project between Austria, Hungary, and Slovakia
- Preparations for a cross-border Valley initiative – Further development of H2REAL
- Duration: Fall 2025–Spring 2027

HyHOPE- Clean Hydrogen Partnership
- Cross-border Valley
- Projects across the entire value chain
- Establishment of the regional H2 ramp-up and enabler for future imports
- Strong focus of Mobility, particular HD-Vehicles with its location on several core TEN-T axes
- Deployment of a FC bus fleet by 2030 to promote hydrogen-based public transport in urban and regional areas.

Co-funded by the European Union

HySISI- Interreg AT-HU
- Cross-border strategy development
- Network development at HU
- Duration: Fall 2025–Fall 2027



Project Objectives

Promoting the **regional rollout of hydrogen**, establishing **partnerships,** ensuring a **secure energy supply**, and achieving a **climate-neutral Vienna by 2040**.

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Key Messages

- Technology openness enables the most effective solution for each application
- A reliable regional hydrogen supply network at urban nodes and logistics hubs is essential to enable the ramp-up of hydrogen mobility
- Hydrogen mobility transforms vision into reality, moving from pilot projects to an H_2-Valley



From 2040

Climate-neutral Vienna

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WIEN ENERGIE
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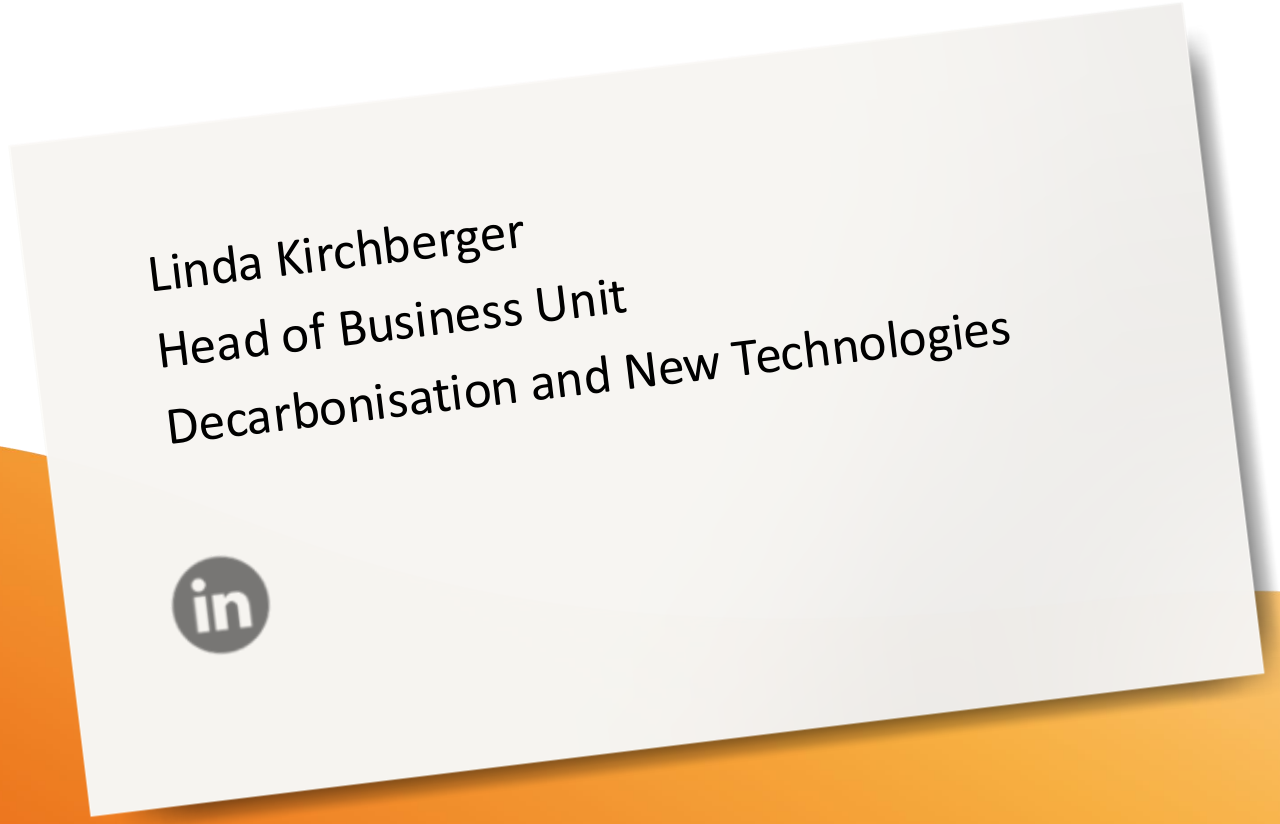
DIE ENERGIE VON WIEN

treibt den Klimaschutz voran.



Ihr*e Ansprechpartner*in



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