

Hydrogen Research & Innovation Days
24-25 November 2025



LUXEMBOURG HYDROGEN VALLEY

LuxHyVal Project Presentation



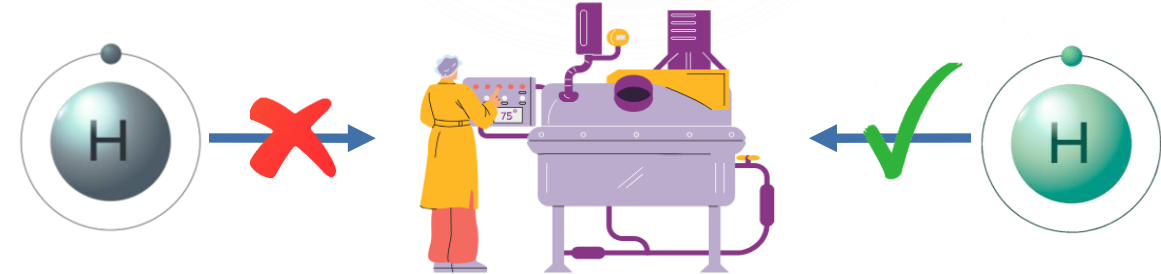
Building Business case

Need for green energy in Mobility



- Luxembourg's transport sector accounts for **64% of national CO₂ Emission**.
- Fuel cell buses produce zero tailpipe emissions, lower noise, and faster refueling compared to battery electric buses.

Need for green energy in Industry



- In Luxembourg, an annual consumption of fossil hydrogen of around **450 tonnes (H₂)** has been identified in industry.
- The substitution of presently used fossil H₂ by renewable H₂ should constitute an intermediate objective, allowing for GHG emissions savings of up to **>5,000 tonnes (CO₂)** per year.



Building Business case

Different expertise from 17 partners in 7 countries

Luxembourg, Germany, Spain, France, Czech Republic, Ukraine, Australia

Energy



Engineering



Mobility & Transport



Industrial End-Users and Market Innovation



Academia / RTOs





Building Business case

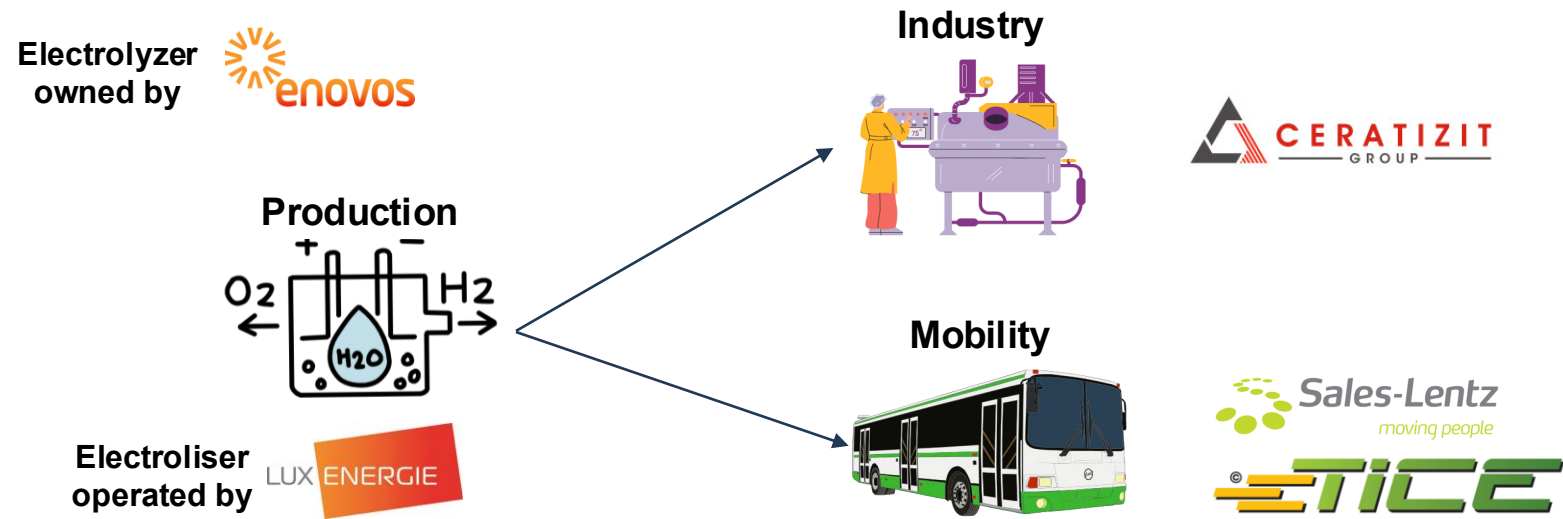
Value across domains





Project organization

From production to end use





Hydrogen Valley support

What can be done to attract further private investment for Hydrogen Valley projects?

- Engage with public to inform general audience that hydrogen can help decarbonisation. Make this knowledge available so everyone can stay engaged
- Collect and share data among valleys. Share success stories and challenges.

What can regions do to support this endeavour?

- creation of a **multi-offtake ecosystem**: mobility + industry + heating.
- Investigate more on the regulation aspect of hydrogen
- Investment strategies



Policymakers and project promoters

- **Simplify and accelerate permitting**
 - Current timelines often exceed the business viability window.
- **Create stable and realistic policy frameworks**
 - Long-term clarity on renewable hydrogen definitions, additionality, and grid use.
 - Avoiding frequent regulatory shifts that disrupt investor confidence.
- **Support demonstration to scale**
 - Hydrogen Valleys are essential living labs; need continuous R&I support to reduce costs and validate integration models.
 - But also need **industrial policy** that accelerates scale-up, not only pilot funding.
- **Enhance infrastructure planning**
 - Link Valleys into national/regional hydrogen backbones.
 - Public authorities should plan **hydrogen-ready corridors**, storage, and import/export terminals.
- **Market-creation policies**
 - CO₂ pricing that reflects real societal cost.
 - Public procurement mandates for hydrogen mobility.
 - Blending mandates or quotas for hydrogen derivatives in chemicals, steel, aviation fuels.



Future job development and job profile

Current Situation

- Rapid expansion in electrolyser manufacturing and EPC firms is driving strong job growth.
- New roles are emerging across project development, permitting, engineering, safety, logistics, and hydrogen compression and storage.

Current Situation

- Technical skills will be in high demand:
- electrolyser O&M, Power-to-X engineering, hydrogen safety, and advanced storage
- Hybrid profiles will be essential:
- power-system, process engineers, multi-skilled technicians
- Workforce needs will grow for:
- refueling stations, heavy mobility, industrial retrofits
- Supported by major upskilling and reskilling programs.

Current Situation

- Hydrogen Valleys can become major regional job engines, generating thousands of direct and indirect roles.
- With stable demand and scaled manufacturing, Europe could position itself as a global leader in hydrogen technologies.



Industrial Applications (CER, GUA)

- CER: Hard metal manufacturing (Mamer & Niederkorn) uses H2 for sintering (90% of H2) and coating. Daily demand: **189 kg (Mamer) & 550 kg (Niederkorn)**. Plans: 100% green H2.
- GUA: Flat glass production uses H2 and O2 in tin bath. Demand: **490 kg/day H2**. Current furnaces: NG-fired; shift to H2 & O2 to reduce emissions.

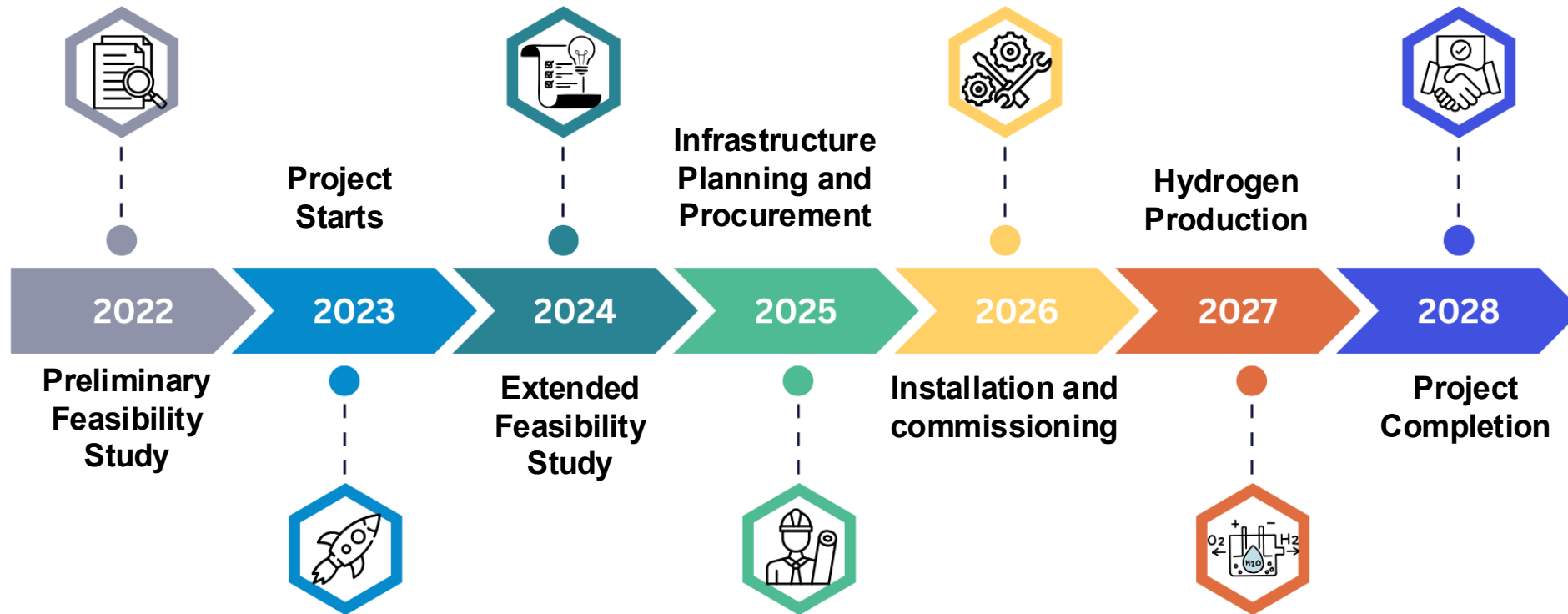
Mobility Use Cases (SLA, ACL, TICE)

- SLA: **10 regional FCH buses** (12m) consuming 35 kg H2/bus/day (**350 kg/day**). Plan: 43% of SLA fleet by H2.
- ACL: Light service vehicles (Hyundai Nexa) tested: 6.33 kg H2 for 575 km range. Plan: **6 vehicles**.
- TICE: **5 FCH 10m buses** for narrow routes consuming **150 kg/day**. Addresses depot charging constraints for BE buses.



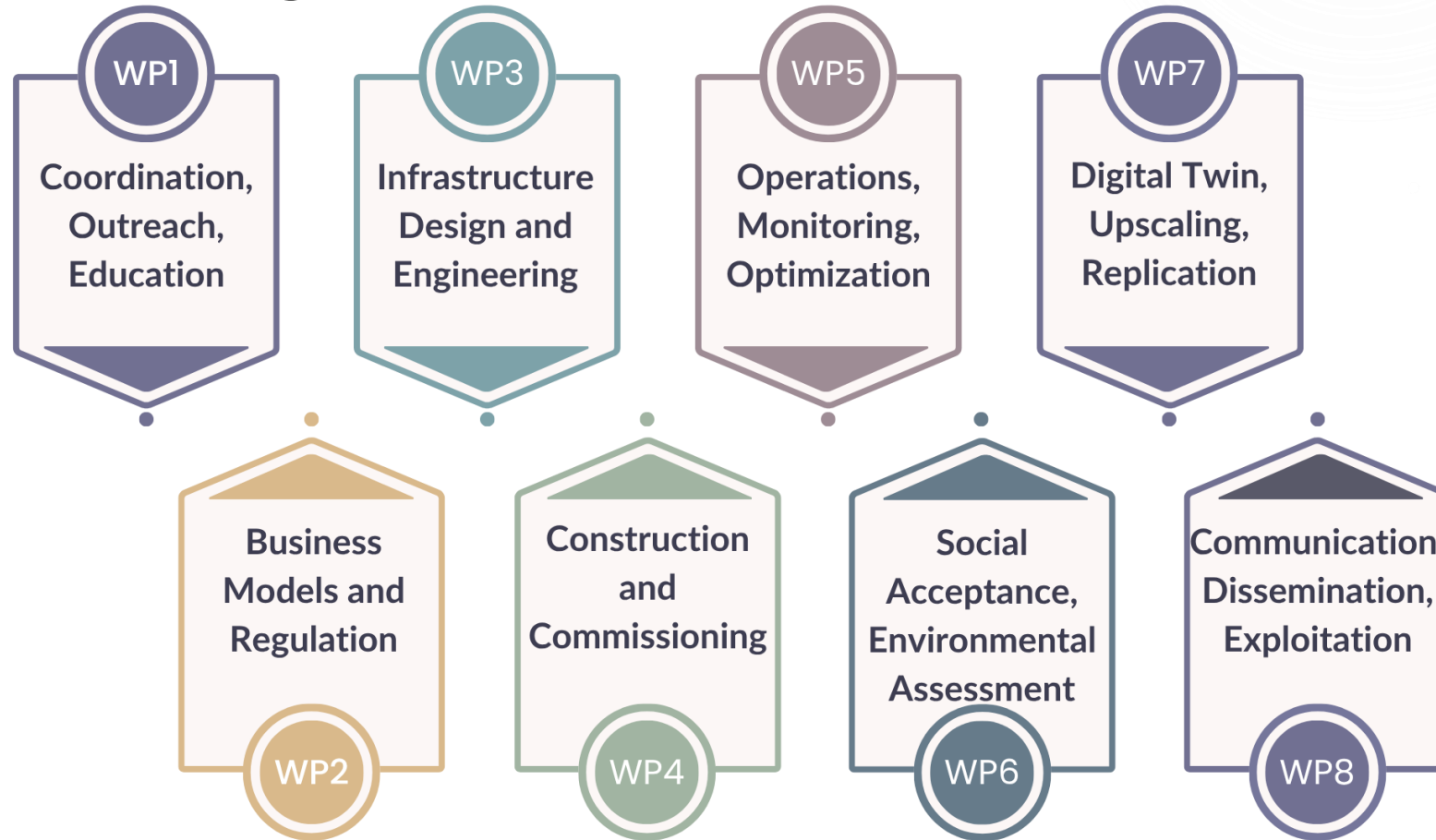
Timeline and Funding

LuxHyVal spans **63 months** with total funded budget: **€39M** (8M€ from Clean Hydrogen Joint Undertaking).



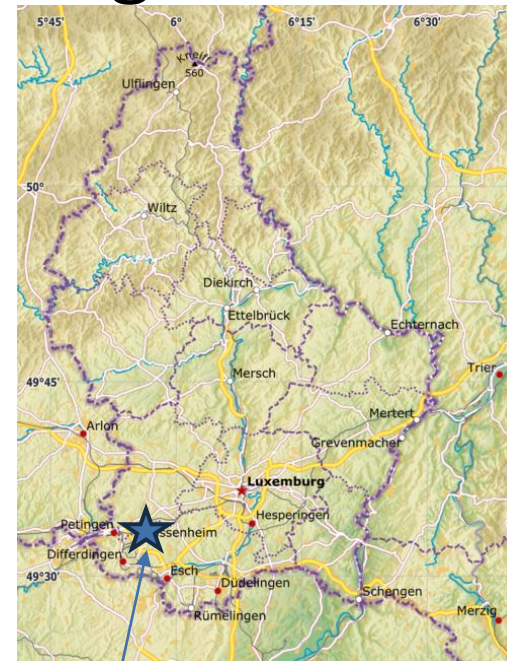
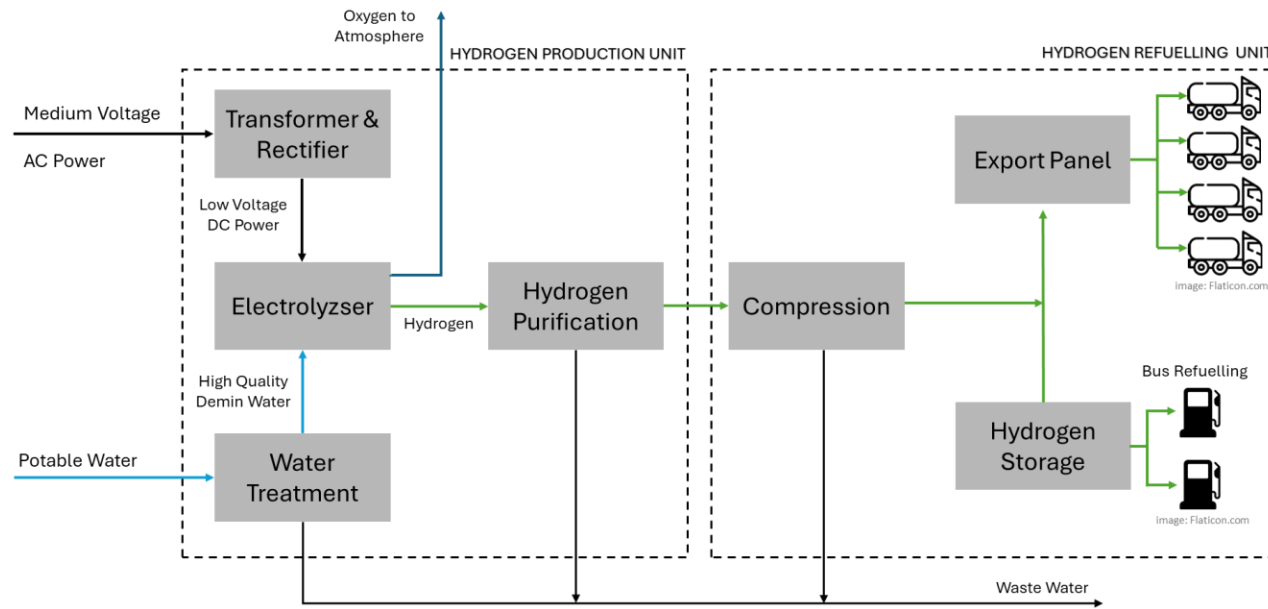


Work Packages





WP4: Construction and Commissioning



Infrastructure in Bascharage