

Timeline

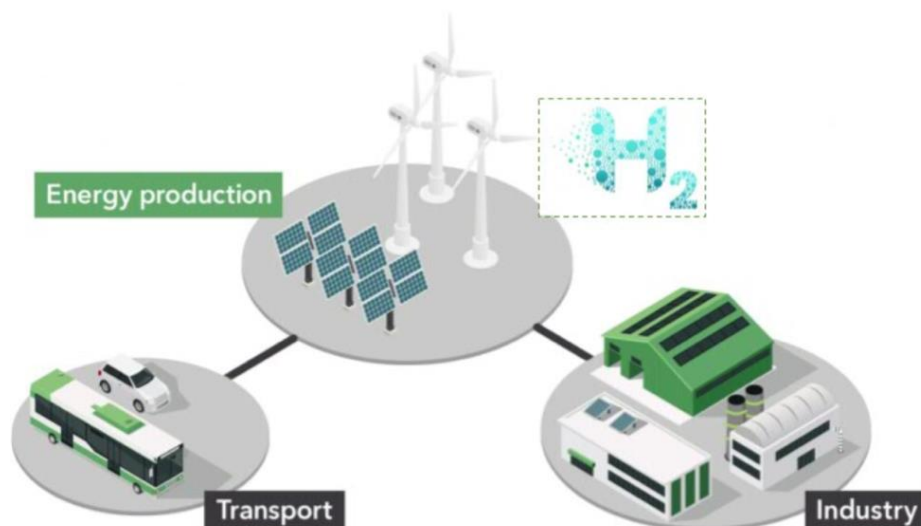


Hydrogen: Fuel of the future

Hydrogen is a potential **future fuel** due to being a versatile and clean-burning energy source that can be used in a variety of applications. Hydrogen produces no greenhouse gases but water when burned, making it a **clean-burning fuel**. It can contribute to reducing emissions in various sectors, including transportation and industry, which are major contributors to global carbon emissions. Hydrogen can be produced through the process of electrolysis performed by using renewable sources such as wind, solar, and hydro power. In electrolysis, electricity is used to break water into its constituents: hydrogen and oxygen. When produced using renewable energy, hydrogen is referred to as **"green" hydrogen** and can be used to store and transport renewable energy.

The Luxembourg Hydrogen Valley (LuxHyVal)

The Luxembourg Hydrogen Valley (LuxHyVal) is a major step towards large-scale green hydrogen production in the Greater region. The project aims at eliminating Luxembourg's reliance on the fossil hydrogen imports, **decarbonising** its industry and transport sectors as well as creating a sustainable hydrogen ecosystem. It will be the **first source of green hydrogen** for mobility as well as the **first integrated green hydrogen value chain** in the region. This value chain is composed of all entities from production to end users thus providing a viable business model. The project officially started on 01 November 2023 with the first 12 months dedicated to performing the business case study. The first delivery of hydrogen is planned for 2026.



'Fit for 55' emission targets

'Fit for 55' is the EU's climate goal of reducing the EU emissions by at least 55% by 2030. With the LuxHyVal the emission of **Greenhouse gases (GHG) in Luxembourg will be reduced by 20%**. As industrial and mobility sectors are major contributors to emissions using fossil fuels, it is essential to replace those fossil fuels with green hydrogen. The project industrial partner Ceratizit will be utilizing the hydrogen for its production of metal parts, replacing its use of natural gas-derived hydrogen. Sales-Lentz and TICE will deploy up to 15 Fuel Cell Hydrogen (FCH) buses, refuelling them at a dedicated hydrogen refuelling station in Bascharage.

A pan-European ecosystem project

LuxHyVal is a collaborative effort of **17 partners from 7 countries** (Luxembourg, France, Germany,

Spain, Czech Republic, Ukraine, and Australia) with the University of Luxembourg as Coordinator. With support from 9 prominent Luxembourg companies, the LuxHyVal project will cover the complete value chain from production to end-users.



Replacing “grey” with “green” hydrogen

The project will be located in the **Bascharage region** and plans to include the construction of a **6 MW electrolyser** under implication of the engineering company Paul Wurth. The electrolyser will produce up to 650 tonnes of hydrogen each year and will be operated with green electricity. This green hydrogen will replace the approximately 450 tonnes of fossil (grey) hydrogen being used by the industry in Luxembourg each year.

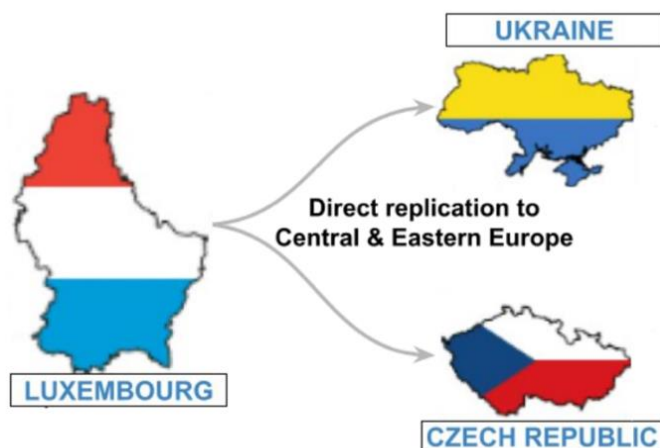
EU investments

LuxHyVal has an **overall budget of € 39.2M** with contribution from EU of € 8M (20.4 %). Additional funding is provided by the corporate partners, and a contribution may be obtained from the national government of Luxembourg through a competitive green hydrogen auction mechanism.

Replicating valleys in Czech Republic and Ukraine

Researchers from University of Chemistry and Technology, Prague, Czech Republic, and King Danylo University, Ukraine, joined the LuxHyVal project. The knowledge gained during the planning and implementation phases of the project enable the creation of follower hydrogen valleys in these partner countries and upscale hydrogen production in Europe.

This will also support the building of a cleaner economy by replacing natural gas usage in industries and CNG/Diesel based vehicles.



Open market of hydrogen

The project is designed to be sustainable and therefore has a non-exclusive contract with its end users in industry and mobility sectors. This creates an **open market to other companies** for the hydrogen produced by the LuxHyVal project. Through its hydrogen ecosystem, LuxHyVal will therefore contribute to creating an environment for growth and entrepreneurship around clean energy and hydrogen in Luxembourg.

Partners

LuxHyVal brings together a powerful consortium that involves 17 partners from 7 different countries. University of Luxembourg, Paul Wurth, Encevo, Enovos, LuxEnergie, Green Power Storage Solutions (GPSS), Ceratizit, LuxMobility, Sales-Lentz, Syndicat T.I.C.E., and Luxembourg Institute of Science and Technology (LIST) represent Luxembourg-based partners, together with University of Bordeaux, France; IZES GGBH, Germany; R2M Solution, Spain; University of Chemistry and Technology, Prague (VSCHT), Czech Republic; King Danylo University, Ukraine, and University of New South Wales (UNSW), Australia.

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Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Clean Hydrogen Partnership. Neither the European Union nor the granting authority can be held responsible for them.

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**Co-funded by
the European Union**