

Research content for the short video A New H Utopia 2025

**"IMAGINE a FUTURE...**

**with 100% green energy & hydrogen"**

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**A New H: Trailblazing inventions enable cheaper green hydrogen for heavy industries.**

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**FREE H - Fully REnewable EcosHystem**

**Instead of a fossil-based energy supply with high geopolitical dependencies, increasing supply uncertainties, and increasingly precarious climatic conditions for humans, a fully renewable hydrogen ecosystem offers all the technological solutions needed to make the best possible and sustainable use of renewable energy sources at different locations.**

**Huge photocatalytic hydrogen production plants (photoelectrolysis) in the sunniest spots on Earth, floating electrolysis plants linked to offshore wind turbines, the use of naturally occurring hydrogen, standardized modular systems for private households, decentralized systems directly at the consumers' premises, and generally technologically mature production plants offer a diversified range of options for producing hydrogen on a large scale in a cost-efficient manner.**

**Electrochemical compressors (EHC) ensure the efficient operation of transcontinental pipeline networks for the distribution of hydrogen, process-related CO<sub>2</sub>, and mixed gases from natural gas, biomethane, and hydrogen. The purification capabilities of EHC technology make it possible to supply high-purity hydrogen to refueling stations served by pipelines, largely replacing costly trailer-based supply solutions.**

**In the industrial sector, processes that cannot be electrified are powered by hydrogen or biomethane, and the additional use of oxygen from electrolysis (oxyfuel) leads to increased efficiency in combustion processes and sewage treatment plants. A comprehensive network of filling stations across Europe enables public transport in topologically and climatologically challenging environments, heavy goods transport, and also shipping and aviation based on hydrogen and its derivatives, produced using the collected CO<sub>2</sub>.**

***The gradual development of regional ecosystems (hydrogen valleys), resilient production and consumption structures, the introduction of standards, and supraregional links to large-scale hydrogen unions are paving the way toward FREE H.***

***Research***

- ***HyCentA - Hydrogen Technology Research Center:***  
<https://www.hycenta.at/en/>