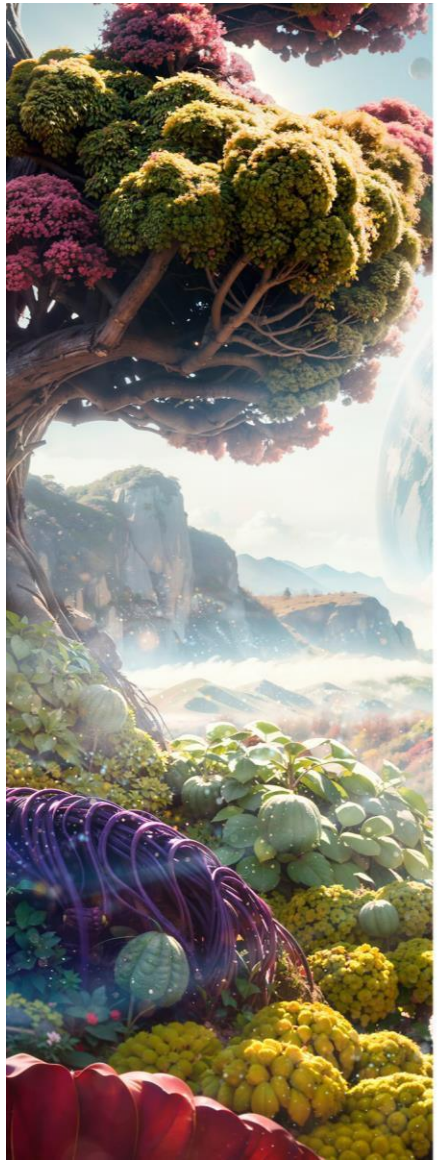
Challenges for advanced materials R&D

EUIndTech 2025 conference

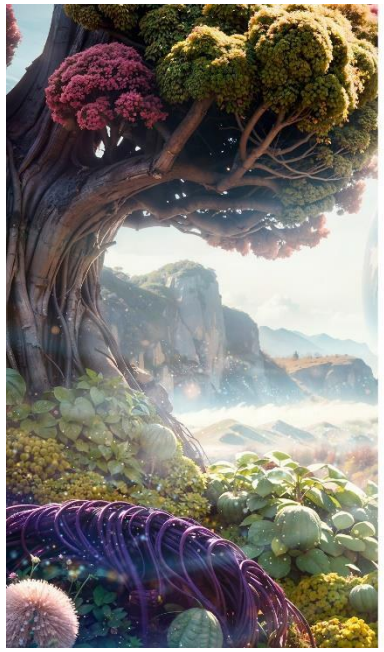


Gerd Loehden
Senior Vice President
Research, Development & Innovation at Evonik
June 2nd 2025

EVONIK
Leading Beyond Chemistry

Evonik defined three Innovation Growth Areas to focus its R&D

WE GO BEYOND TO ENABLE THE GREEN TRANSFORMATION

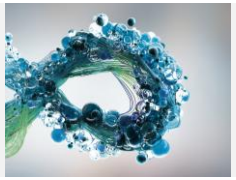


Advance Precision Biosolutions

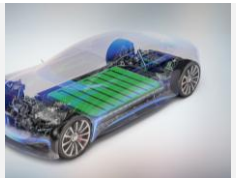
Enable Circular Economy

Accelerate Energy Transition

Accelerate Energy Transition



Membranes, Hydrogen Generation and Transport



Future Mobility and Battery Solutions

Carbon Capture and Storage

Renewable Energy and Energy Efficiency

EVONIK Leading Beyond Chemistry

Evonik's broad variety of advanced materials are crucial key components to enable a green transformation – but we are facing increasing obstacles

Advanced materials for:

Hydrogen production

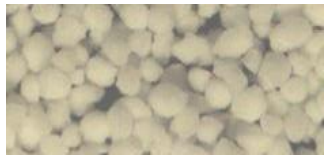
Hydrogen transport

Lightweight

Batteries

Energy effic. construction

Carbon capture



CO_2 use/art. photosynth.

Chemical recycling

…and more

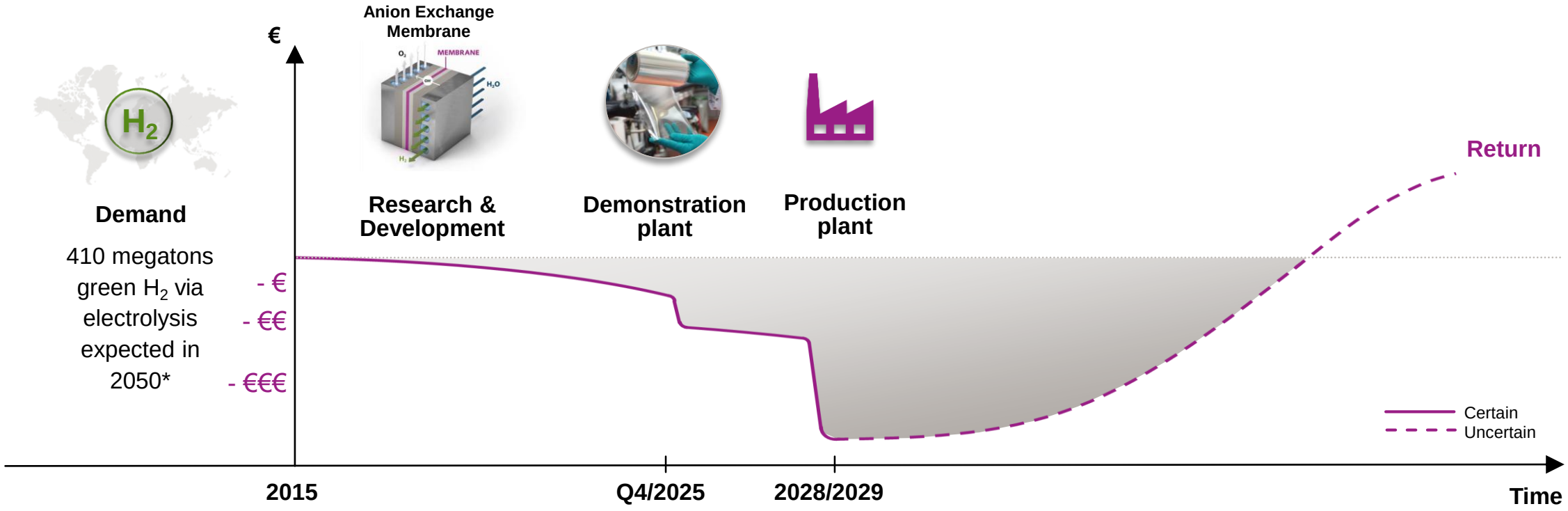
Evonik as enabler

Being at the beginning of the value chain, we develop and produce tailor-made materials which are key components to design solutions for decarbonisation

Each of these topics faces similar challenges:

- Development of new materials is associated with high risks
- Being early in the value chain, we are the first to invest significantly
- Markets develop with high uncertainty – both in size and time

Example Membrane for H_2 production
Our real challenge starts with high TRL in highly uncertain markets



Green H_2: yes, but with **low costs**

Materials must be **offered very early** to be considered in new production plants

Big and early **investments** necessary in combination with **high-risk** potential and **great uncertainty**

Market is expected to come **slowly** and **subsequent**

Competitiveness: even in production phase, system competes with conventional solutions

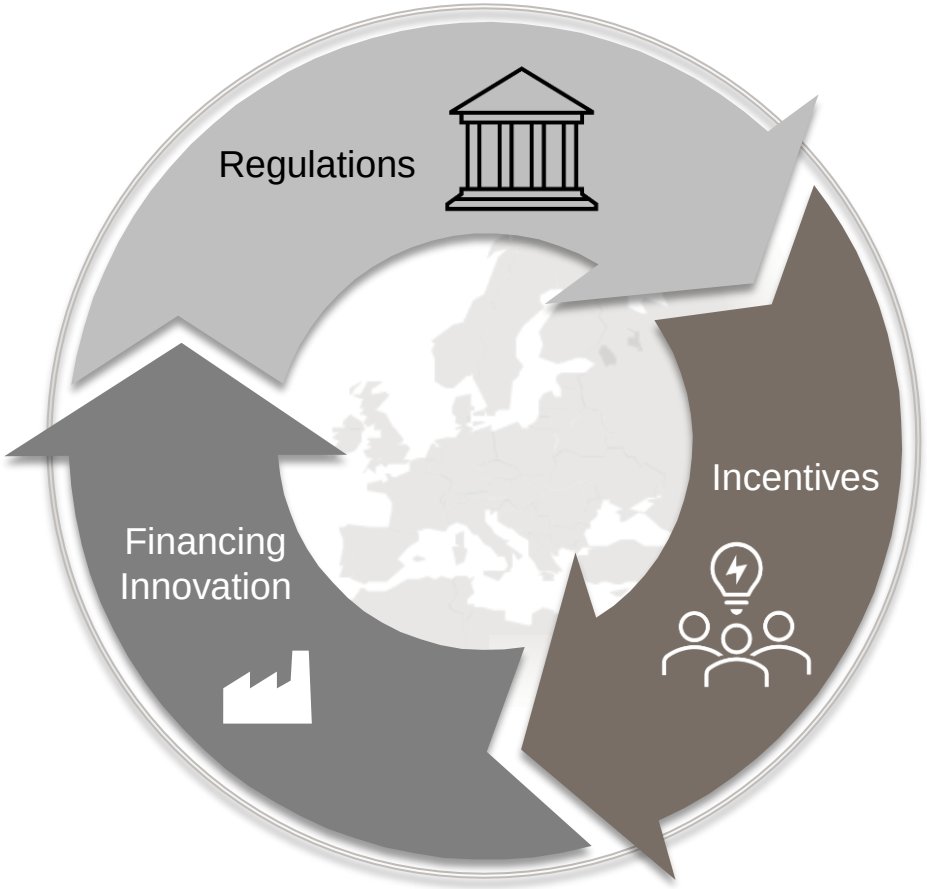
*Source: Global Energy Perspective 2023: Hydrogen outlook (McKinsey & Company) | Hydrogen for Net-Zero (Hydrogen Council, McKinsey & Company)

Main challenges of the advanced materials industry can be addressed by the Clean Industrial Deal

Summary

- **The clean transformation** is one of the greatest challenges of our time
- Evonik's advanced materials are **enabler** for a sustainable future
- But the path is affected by **many obstacles**, **high risks** and long preliminary **lead time**
- Even in production phase, green solutions are always competing with conventional systems with lower costs

Being at the beginning of the value chain, we need the right conditions to contribute



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