

**HYPRAEL tackles 4 of the 17 existent Sustainable Development Goals (SDGs):**



**It indirectly contributes also to:**



[www.hyprael.eu](http://www.hyprael.eu)



# HYPRÆL

Advanced alkaline electrolysis technology for pressurized H<sub>2</sub> production with potential for near-zero energy loss.

# What is HYPRAEL?

*HYPRAEL is focused on developing advanced technologies for energy and cost-efficient compressed hydrogen production by looking at key developments to avoid expensive downstream mechanical compression processes along with cutting-edge cell, stack, and balance of plant designs.*

## Objectives:

**01**  
*Improve energy efficiency.*

**02**  
*Long-term stable and highly active materials.*

**03**  
*Increase system and component's reliability.*

**04**  
*Evaluate the potential value of H<sub>2</sub> produced.*

**05**  
*Strengthen circular economy.*

**06**  
*Direct scalability to MW electrolyser operation.*

**07**  
*Contribution to renewable energy share growth.*

**08**  
*Keep European leadership in the front of innovation.*

**09**  
*Awareness increases of HYPRAEL findings, outcomes and key exploitable results.*

*HYPRAEL will achieve these goals and move beyond the SoA by performing research from the design and the advanced assessment of electrocatalysts and polymers to the engineering and process intensification of an innovative cell design in 4 phases:*

**01**

*Materials development for pressurized electrolysis with elevated temperature.*

**02**

*Screening of materials for applicability in pressurized electrolysers – both phases will be performed at lab scale/single cell 10 cm<sup>2</sup>, 1-80 bar, 80-120 °C.*

**03**

*Upscaling of the most promising developed materials in Phase 1 and 2.*

**04**

*Upscaling of developed materials and integration into an advanced stack validated first at pilot scale and demonstrated later at industrial scale (50 kW).*



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