

# Topics in the call 2023

## Strategic Research Challenges

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# Strategic Research Challenges Overview



## Main Focus

- Generate continuous innovation and long-term knowledge on early-stage research:
  - Multidisciplinary investigations, gathering the expertise across the EU research community
  - Covering most relevant research challenges identified in the SRIA
  - Development of multi-functional materials for hydrogen storage tanks
  - Understanding degradation mechanism and improve the stability of electrolyzers



## What is new

- Addressing sustainability and circularity
- Public annual progress reports

# Strategic Research Challenges

## Topics overview

Topic	Type of Action	Ind. Budget (M€)
HORIZON-JTI-CLEANH2-2023-07-01: Advanced materials for hydrogen storage tanks	RIA	10
HORIZON-JTI-CLEANH2-2023-07-02: Increasing the lifetime of electrolyser stacks	RIA	10

# Strategic Research Challenges Topics

## HORIZON-JTI-CLEANH2-2022-07-01: Advanced materials for hydrogen storage tanks



Early-stage research (TRL 2 - 4) on materials for hydrogen storage in tanks for static storage and mobility applications



- Increase the storage size, gravimetric capacity, operating pressure, lifetime, safety and reduce in capital cost in line with SRIAKPIs
- Hydrogen storage as high-pressure gas, liquid and cryo-compressed, while materials as hydrogen carriers are out of the scope
- 4 tanks (TRL-4): aboveground (>300kg H<sub>2</sub>), road transport (>150kg H<sub>2</sub>) and onboard (heavy-duty (>40kg H<sub>2</sub>) and aviation (>100kg H<sub>2</sub>))
- Sustainable, high-performance materials enabling recyclability and circular design

## HORIZON-JTI-CLEANH2-2022-07-02: Increasing the lifetime of electrolyser stacks



Early-stage research (TRL 2 – 4/5) on improving electrolysers stability over long-time operation



- Understanding of the degradation mechanisms of electrolyser (alkaline, PEM, SO, AEM, PCC) at stack level in line with SRIAKPIs
- Durability tests >10,000 hours (extrapolation to >40,000 hours) without compromising the performance
- Collaboration with JRC for developing harmonised testing protocols



Questions?  
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