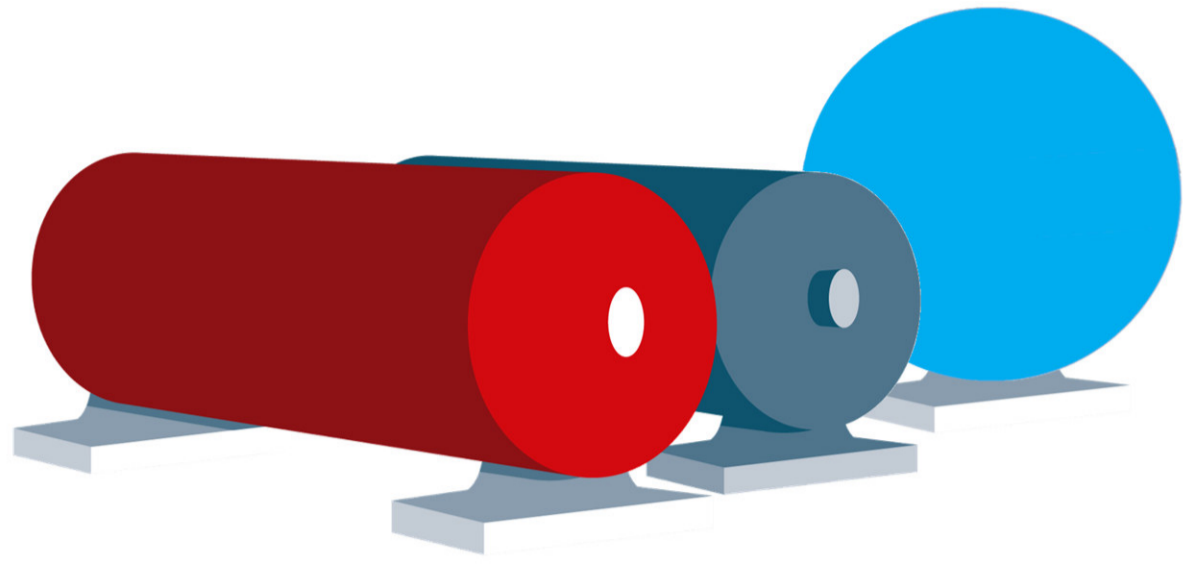


# Novel Insulation Concepts For Liquefied Hydrogen Storage Tanks

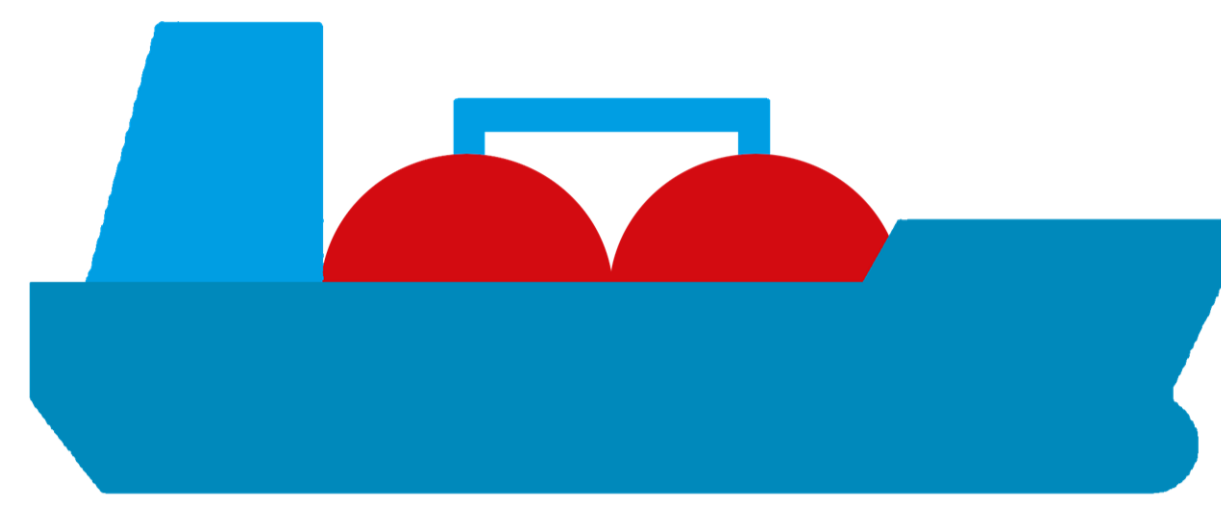


## Liquefied Hydrogen (LH2)

could enable CO<sub>2</sub>-neutral energy trading on a large scale. The storage of LH<sub>2</sub> needs temperatures of -253°C. In order to maintain this condition for a long time with low losses, LH<sub>2</sub> tanks require very good thermal insulation.



# LH<sub>2</sub>



## State of the Art

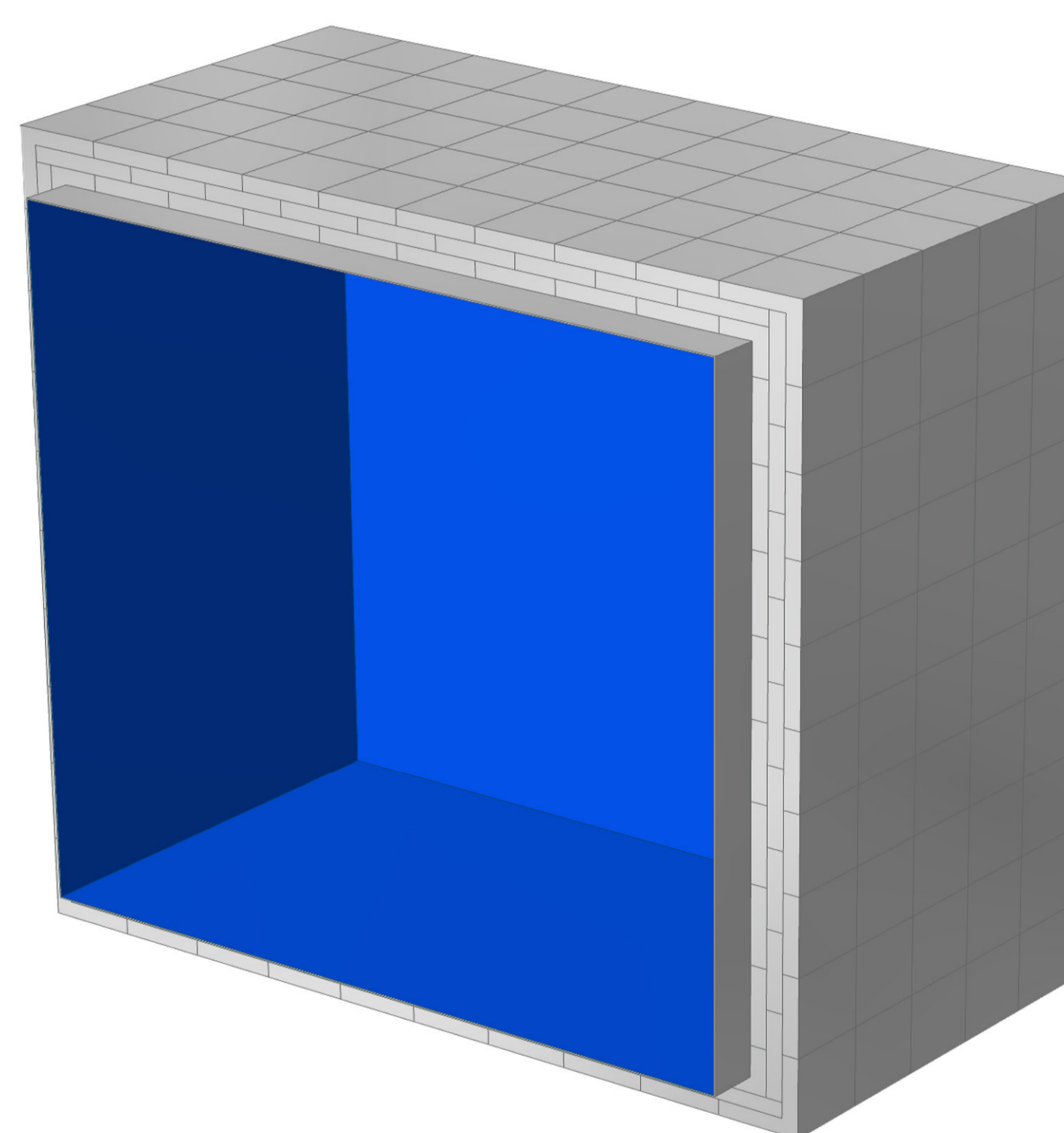
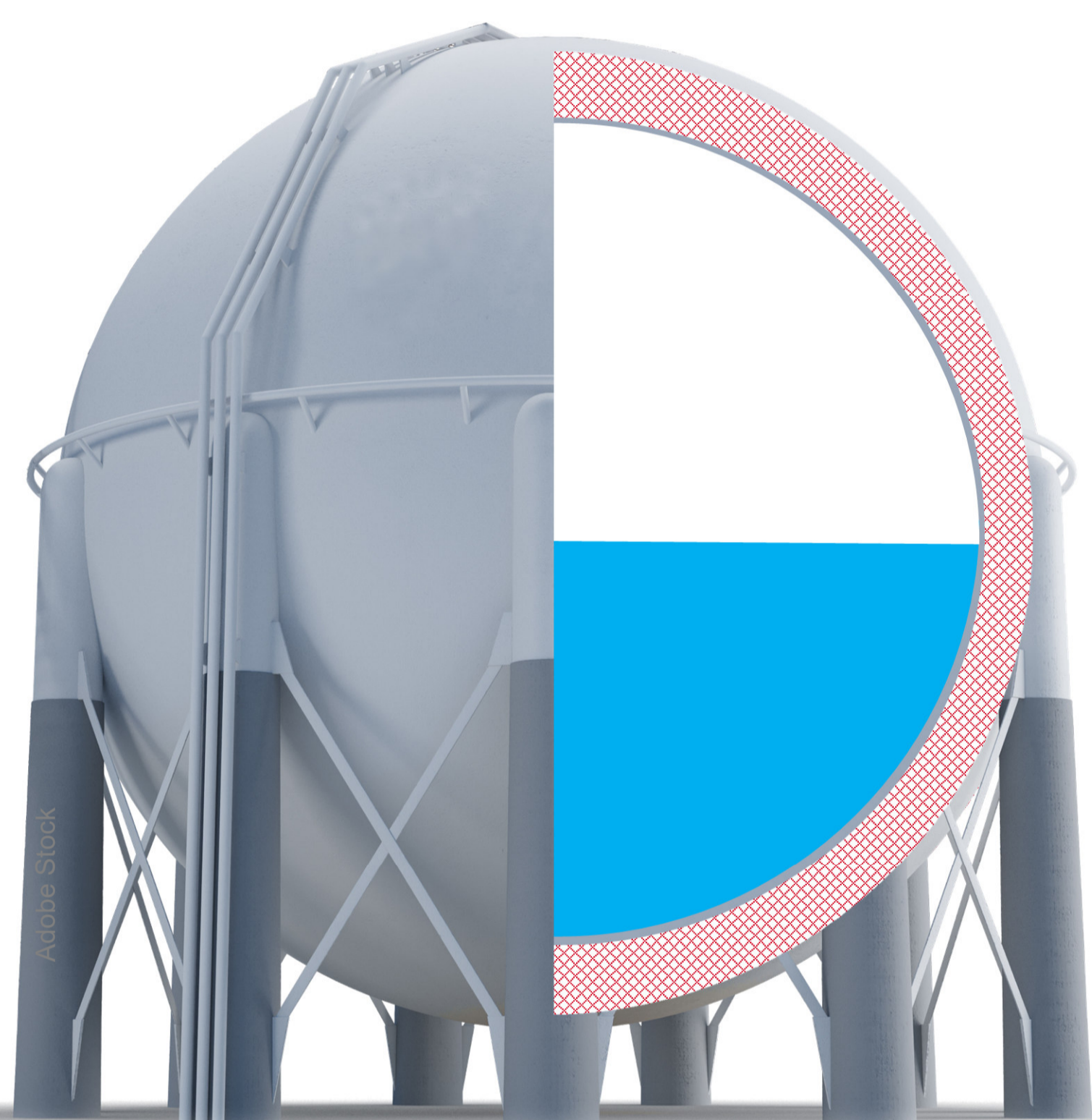


LH<sub>2</sub> tanks have been approved as small and medium-scale storage facilities for several decades.



The State of the Art comes with several disadvantages which are exemplary:

- A long production time of more than 3 year based on the production chain,
- Difficult to scale & expensive,
- Low fault tolerance.



**NTNU**

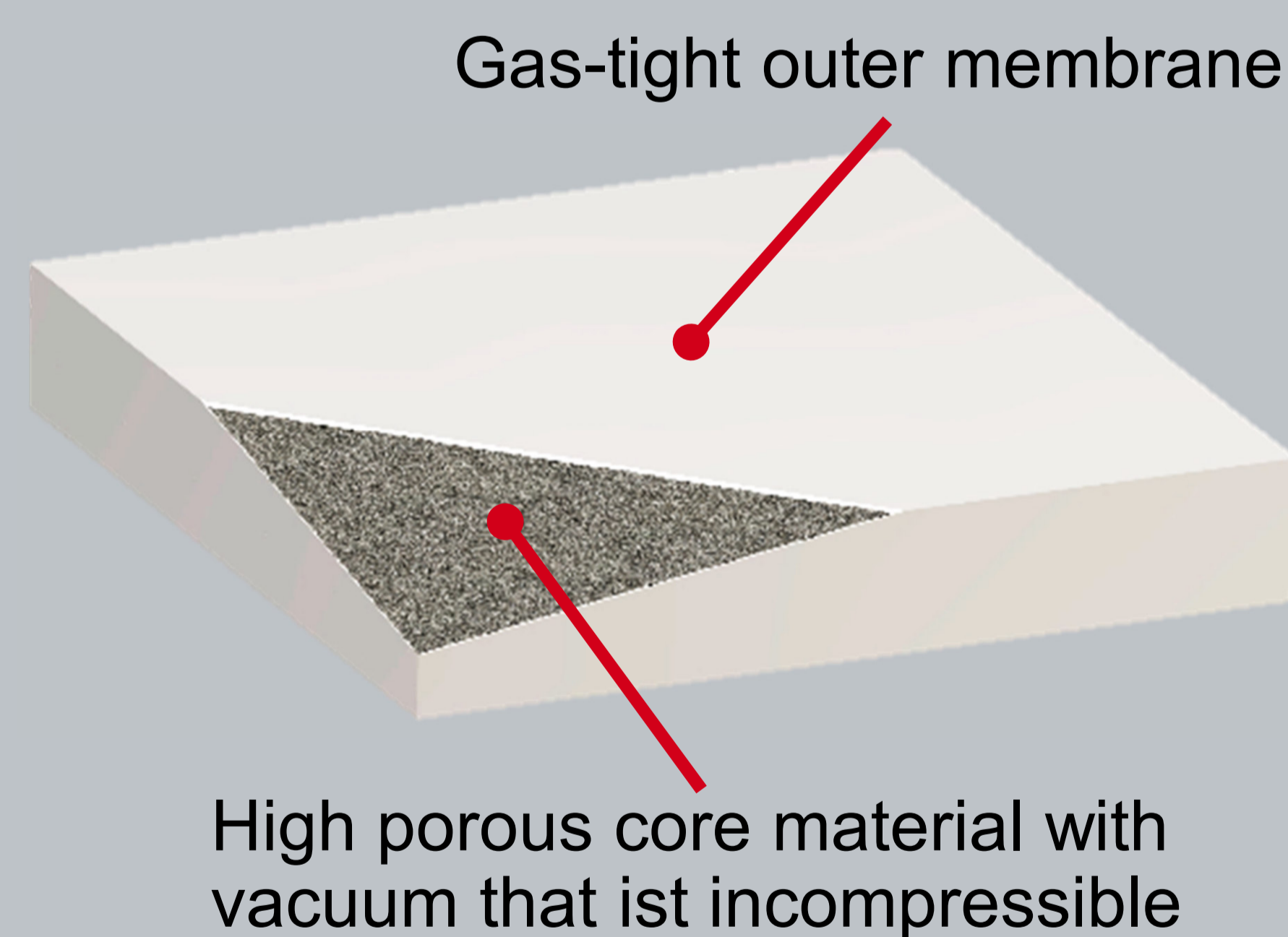
Norwegian University of Science and Technology

## The NICOLHy Approach

In NICOLHy novel thermal insulation concept for LH<sub>2</sub> storages, that based on Vacuum Insulation Panels (VIPs) will be researched and tested.

This approach increases the:

- Energetic and economic efficiency,
- Safety and fault tolerance,
- Scalability,
- Availability, of tanks.



**National Technical University of Athens**



## Project Targets

Application	Targeted tank size	KPI	2020	2030
Stationary offshore tank	200,000 m <sup>3</sup>	LH <sub>2</sub> tank capex offshore	100 €/kg	<20 €/kg
Ship	40,000 m <sup>3</sup>	LH <sub>2</sub> boil-off	0.3 %	<0.1 %



**Co-funded by the European Union**