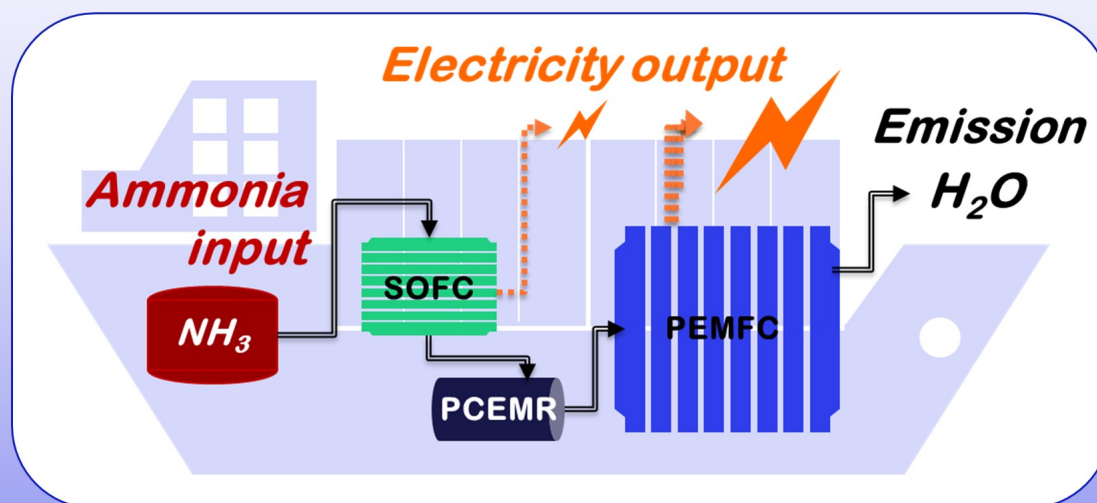


- Ships are responsible for 90% of international transport, their CO₂ emissions accounting for approximately 2.2% of the global total of such emissions
- **The overall target of the Aegir project is to develop, test and evaluate an environmentally friendly technological solution to power large marine vessels by using green ammonia as primary fuel.**

➤ The Aegir concept:



- I. Ammonia is cracked to H₂ and N₂ using a solid oxide fuel cell (SOFC);
- II. H₂ is extracted and purified using a proton conducting electrochemical membrane (PCEMR)
- III. Converted to electricity using a polymer exchange membrane fuel cell (PEM).



- By combining these three technologies, AEGIR aims at developing an ammonia-fueled ship propulsion system that offers high efficiency in combination with a low total system volume and weight, which is the key innovation of the project.
- The Aegir concept avoids emissions of NO_x and allows for a drastic reduction of CO₂ emissions; the product of the fuel cell electricity process is water.
- The Aegir project will
 - Design the integrated concept,
 - Experimentally validate the three key enabling technologies
 - Demonstrate a reduction of greenhouse gas emissions by 90% compared to current state in a well-to-propeller analysis, and
 - Identify potential scale up issues for a 20 MW maritime system in a concept study.



Project partners

Technical University of Denmark	DK	
Ballard Power Systems Europe	DK	
SINTEF	N	
CoorsTek Membrane Sciences	N	
VARD	N	
VTT	FIN	



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AEGIR

Ammonia electric marine power for GHG emission reduction

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