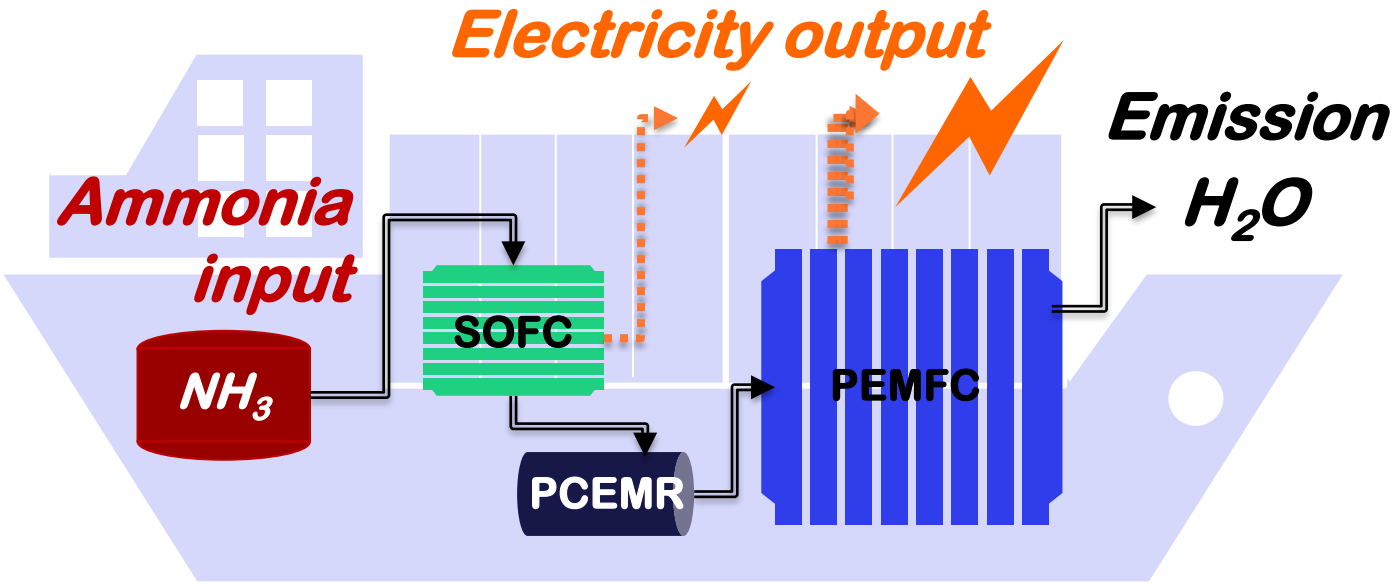
AEGIR – Project overview

AEGIR – Overall project

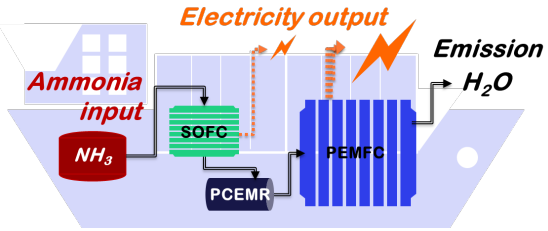
- Ammonia electric marine power for GHG emission reduction



AEGIR - Partners

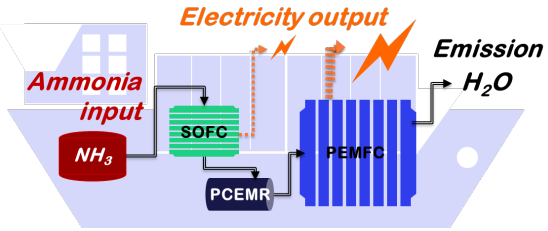
Partner	Country
DTU-Technical University of Denmark	DK
Ballard Power Systems Europe A/S	DK
SINTEF	N
CoorsTEK	N
Vard	N
VTT	F

AEGIR - Objectives



- Establish a design concept for a fully electric ammonia-fueled ship powertrain without CO_2-emissions and having a tank-to-electricity **efficiency >60%**
- Demonstrate a **reduction of GHG emissions >90%** compared to current SoA LNG fueled marine engines in a well-to-tank (including emissions from electricity production and ammonia synthesis and logistics) and tank-to-propeller (including the use of the fuel onboard) analysis
- Experimentally validate the three key enabling technologies for the integrated concept aiming at:
  - a **degradation rate below 0.3%/1000 h** to enable 40000 h lifetime of the **SOFC** system at >95% ammonia conversion,
  - a hydrogen output from the **PCEMR** fulfilling the **ISO 14687** specifications in terms of NH_3, N_2 and O_2 concentration, and
  - a **degradation rate below 0.3%/1000 h** to enable 40000 h lifetime of the **PEMFC** system using the hydrogen purity specifications from the PCEMR.
- Identify potential scale up issues for 20 MW maritime system in a concept study.

AEGIR - Activities



- **Design concept of** the main system for using NH_3 in marine applications building on integrating the three technologies SOFC, PCEMR, and PEMFC
- **GHG emission reduction** analysis
- **Experimental validation** of the three key technologies under the conditions defined in the system layout
- **Concept study on scale up issues** for large marine vessels requiring electrical power in the range of ca. 20 MW

Aegir – WP structure