

e4ships

Fuel Cells for maritime applications

Venice Fuel Cells and Hydrogen for maritime and harbour applications, 2013/06/14



About the project

- ≡ Funded by the German Federal Ministry of Transport, Building and Urban Development (BMVBS)
- ≡ Part of the National Innovation Programme for Hydrogen and Fuel Cell Technology (NIP).
- ≡ Cooperation of partners like leading German shipyards and shipping companies, leading manufacturers of fuel cells as well as classification societies.
- ≡ The total budget for the project is 50 million € (48 % funding)



Partners



Why the project has been set up



20/06/2013

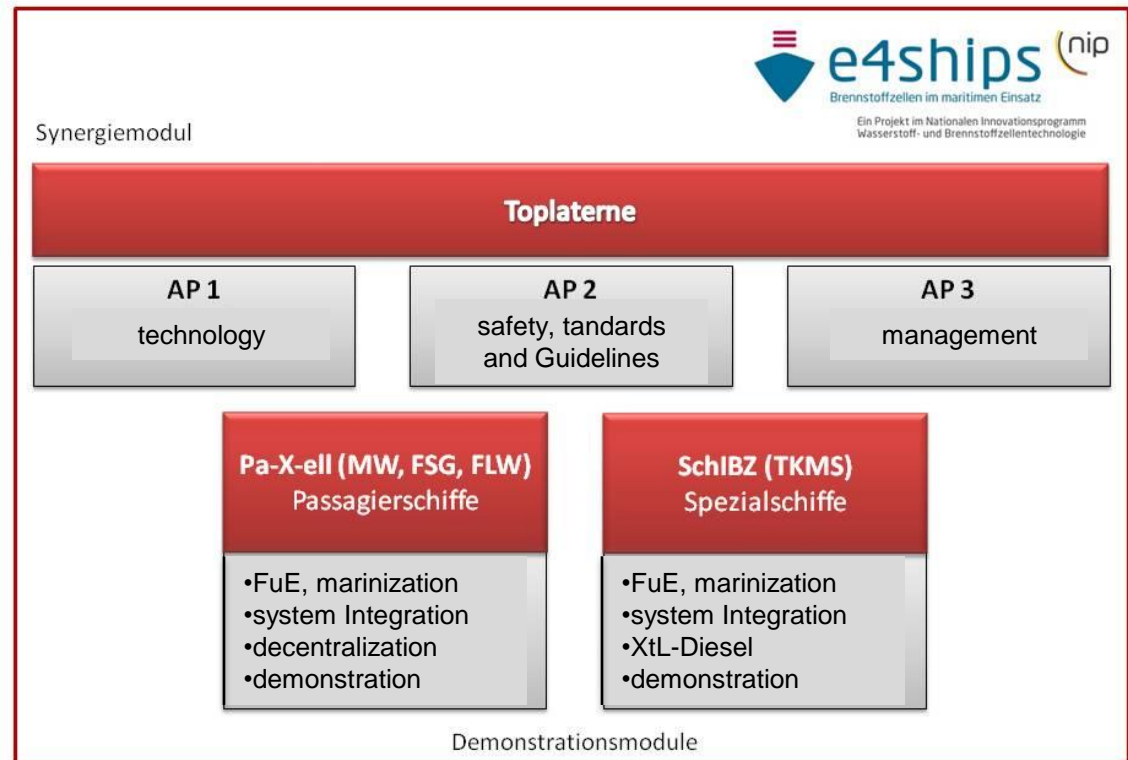
Markus Hollwedel

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Structure

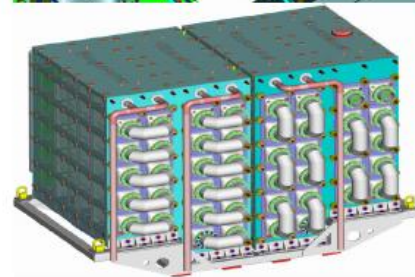
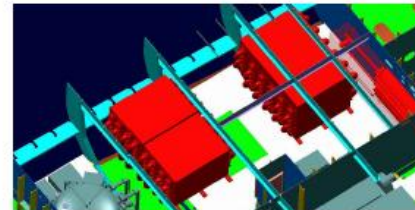
≡ Divided in three Sub-Projects:

- ≡ Toplaterne: Central, and so called „Synergy-module“
- ≡ Pa-X-ell: Passenger Vessels
- ≡ SchIBZ: Special ships



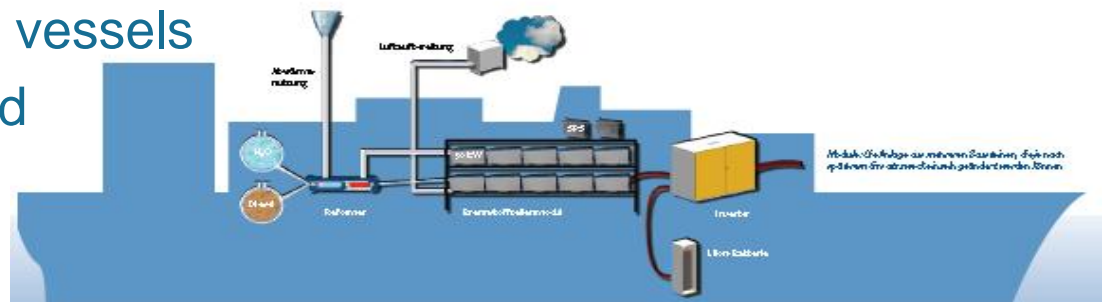
The Demonstrators

- ≡ **Project Pa-X-ell**
- ≡ intensive investigation of new marine fuels
- ≡ development of a decentralized energy network layouts (electrical and thermal)
- ≡ high-temperature PEM-Fuel-Cell development including:
 - ≡ cell stack development (Basic Module)
 - ≡ complete development of a methanol reformer
 - ≡ Rack design (19 “)
 - ≡ Natural gas reformation



The Demonstrators II

- ≡ **Project SchIBZ**
- ≡ Development of a generating set with 500 kW of electrical power on the basis of high-temperature fuel cell (SOFC)
- ≡ Pre-Reformer development (Diesel Fuel with sulfur content as in automotive diesel)
- ≡ Decentralized concept, especially for compact vessels such as mega yachts and specialized vessels
- ≡ Supply of electricity and heat



Synergy-module „Toplaterne“

- ≡ All questions concerning the ecological, technological and commercial evaluation of the use of fuel cells on ships will be dealt with here.
- ≡ The project's tasks will also include cooperation in the formulation of regulations and standards for the certification and installation of fuel cells on ships and the use of low-emission fuels.
- ≡ Administrative Tasks. (Dissemination Cooperation, Coordination)



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Thank you!

www.e4ships.de



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Germanischer Lloyd | hySOLUTIONS | HAW Hamburg | HDW Howaldtswerke-Deutsche Werft | Helmut-Schmidt Universität | Imtech Marine Germany |
INVEN Engineering | MEYER WERFT | OWI Öl-Wärme-Institut | Reederei Röd Braren | Serenergy | Topsoe Fuell Cell | VSM Verband für Schiffbau und Meerestechnik |
ZBT Zentrum für BrennstoffzellenTechnik