

*WPLT: Long Term Employment of
Project Results*

Talking about Training, Networking and Public Outreach

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University of Birmingham
29-06-2023 Delft

Main Activities



- Activity LT.1:
 - Knowledge exchange platform ... h2ships.org
 - Resource centre ... h2ships.org/Reports
- Activity LT.2:
 - Transferability, Manual/Action plans
- Activity LT.3:
 - Training & Education
- Activity LT.4
 - Webinars & Seminars

Web Platform

The Platform is developed by



[Home](#) [News & Events](#) [Get Involved](#) [Projects database](#) [Resources](#) 

[H2SHIPS DESIGN TOOL](#)



THE H2SHIPS PLATFORM

System-Based Solutions for H2-Fuelled Water Transport in North-West Europe

Web Platform (2)



How to get involved

If you want to upload new online resources such as news, events, project descriptions and publications please feel free to [register](#) and you will be able to add new contents that will be reviewed by one of our moderators. We make our best to ensure that new content is reviewed and published as soon as possible.

Contents of the platform

[News](#) related to Hydrogen applications in shipping

[Events](#) related to Hydrogen and the

Descriptions of [projects and demonstration cases](#) including [the presentation of the H2SHIPS project](#)

[Networks](#) promoting H2 in shipping

Various publications to be found in our resources centre (learning and teaching material, legal texts, [scientific and strategic publications](#))

A [tool](#) developed within H2SHIPS that provides insights into the characteristics and benefits of H2-based propulsion systems

This webpage is maintained by University of Birmingham.

For any question, please use the [contact form](#)

Data Bases

Search by filter

RESET ALL

Ships

Search by projects

SEARCH

- All
- Belgium
- Collaborative (Europe)
- Finland
- France
- Germany
- Italy
- Japan
- Netherlands
- Norway
- Spain
- United Kingdom
- United States



Project: Zemship
 Country: Germany
 Project time: 2006 to 2010
 Description: FCS Alsterwasser was one of the first examples of a hydrogen-based propulsion system designed for a passenger vessel. The fuel cell system installed onboard is made up of two PEMFC units (intermediate storage of 238 kWh and overall output up to 100 kW).
 Fuel: Compressed Hydrogen 350bar Power Generation System: PEMFC
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Project: WEVA
 Country: Netherlands
 Project time: 2021 to 2023
 Description: The vessel is a Dutch shipyard Concordi launch (2023). The fuel cell 300-500 kW power. The ship 3700tons payload (~120 tons and the Nobian factory.
 Fuel: Compressed Hydrogen Power Generation System: PEMFC
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Search by filter

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- All
- Case Studies
- Clean Fuels
- Economics and Markets
- Emissions and Conventional Fuels
- Environmental Impact
- Fuel Cell Technology
- Hydrogen Technology
- Innovative Ship Designs
- Port Technology
- Project deliverable
- Roadmaps
- Ship Propulsion



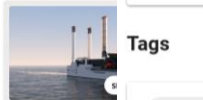
Project: Pa-X-eil2
 Country: Germany
 Project time: - to 2021
 Description: AIDANOVA is the first big passenger vessel to be powered by LNG. The ship is also equipped with a High Temperature Fuel Cell of 250 kW running with Methanol used to supply auxiliary power onboard the ship.
 Fuel: Methanol Power Generation System: HT-PEMFC
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Project: Rivercell
 Country: Germany
 Project time: 2019 to 2021
 Description: Elektra is the first hydrogen-electric hybrid electric engines of 200 kW e 1276 kWh and a fuel cell unit
 Fuel: Compressed Hydrogen 500 bar Power Generation System: PEMFC
[Read More](#)



Project: Energy Observer
 Country: France
 Project time: - to 2017
 Description: Energy Observer is a catamaran used to test and share promising solutions for greening the shipping sector. The boat is equipped with 2 wing sails, vertical axis wind turbines (2kW) and solar panels (21 kW power peak).
 Fuel: Compressed Hydrogen 350 bar Power Generation System: PEMFC
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Project: Energy Observer 2
 Country: France
 Project time: 2022 to 2025
 Description: The target of En develop a pilot project for the hydrogen-based propulsion of 5000 dwt. The propulsion by hydrogen stored in a 70to
 Fuel: Liquid Hydrogen Power Generation System: PEMFC
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Tags

- AMMONIA
 - ENGLISH
 - EU
 - FUEL CELL TECHNOLOGY
 - GERMAN
 - GRAY HYDROGEN
 - GREEN
 - GREEN HYDROGEN
- Scroll Down ↓

Reports

Search by title

SEARCH

Title	Author (Copyright)	Sub category	Publish Date	READ MORE	DOWNLOAD
2030 Hydrogen Demand in the Norwegian Domestic Maritime Sector		Roadmaps	2020	READ MORE	DOWNLOAD
A Global Maritime Emissions Trading System	CE Delft	Economics and Markets	2022	READ MORE	DOWNLOAD
A Preliminary Study on an Alternative Ship Propulsion System Fueled by Ammonia: Environmental and Economic Assessments	MPDI	Ship Propulsion	2022	READ MORE	DOWNLOAD
Air Quality Strategy for the Tidal Thames		Emissions and Conventional Fuels	2022	READ MORE	DOWNLOAD
Alternative fuels for shipping in the Baltic Sea Region	HELCOM	Clean Fuels	2019	READ MORE	DOWNLOAD
Ammonfuel- an industrial view of ammonia as a marine fuel		Clean Fuels	2022	READ MORE	DOWNLOAD
Ammonia as a marine fuel Whitepaper	American Bureau of Shipping	Clean Fuels	2020	READ MORE	DOWNLOAD
Assessment and comparison of alternative marine fuels towards the decarbonisation of the Port of Amstrdam	Thomas van der Maas	Case Studies	2022	READ MORE	DOWNLOAD
Availability and costs of liquefied bio-and synthetic methane	CE Delft	Economics and Markets	2022	READ MORE	DOWNLOAD
Clean Maritime Plan	DFT/OGI Crown	Roadmaps	2022	READ MORE	DOWNLOAD

H2Ships Calculator

Select user Type

- Standard User
 Advanced User

Propulsion Power

Operational Profile

Capacity Dimensioning

RESET

Propulsion Power

Disclaimer: The User is hereby notified that the information contained herein may not meet the user's needs. The User is advised that, although the information is derived from research and literature we cannot guarantee either its correctness, comprehensiveness or currency. The User of H2SHIPS DESIGN TOOL assumes sole responsibility for any decisions made or actions taken based on the information concluded here.

Boat Type

Select Boat Type
Cargo

Do you know installed power of the boat?

- Yes No

Boat Size

Length * meter

Breadth * meter

Draught * meter

Max Speed * Km/h

Keeping At Least During * h

Please Insert Installed Power

Installed Power

Resistance Coefficient

(Optional)

PREV

NEXT

Calculation Tool

The Platform is developed by



Useful links

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Network Building

- exchange of knowledge and expertise through the H2SHIPS Platform
- linking interested parties (and beyond) and building a community
- collecting declarations of interest
- Transferability Manual

Search by filter


- All
- Belgium
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- Norway
- Spain
- United Kingdom
- United States

Research projects




Project: Clean Shipping Project Platform
 Country: Collaborative (Europe)
 Project time: 2018 to 2021
 Description: Clean Shipping Project Platform, CSHIPP, brings together projects and organisations focused on enhancing and promoting clean shipping in the Baltic Sea region.

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Project: Decarbonising Ports & Harbours
 Country: United Kingdom
 Project time: to current
 Description: The Decarbonising of Ports & Harbours Innovation Network aims to convene a community that addresses the challenges of decarbonising, reducing emissions of greenhouse gases and improving localised air quality.

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Project: Dual Ports
 Country: Collaborative (Europe)
 Project time: 2026 to 2021
 Description: DUAL Ports aims to decarbonise Regional Entrepreneurial Ports resources through a shared eco-innovation port programme that minimises their environmental footprint.

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Project: FLAGSHIPS
 Country: Collaborative (Europe)
 Project time: 2021 to 2023
 Description: Raising the readiness of zero-emission waterborne transport

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Project: Fuel Cells and Hydrogen Joint Undertaking
 Country:
 Project time: 2018 to now
 Description: FCH JU is a unique public private partnership supporting research, technological development and demonstration (RTD) activities in fuel cell and hydrogen energy technologies in Europe.

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Project: H2PORTS
 Country: Spain
 Project time: 2019 to
 Description: First application of hydrogen technologies in port handling equipment. The H2Ports project will demonstrate and validate the Port of Valencia in real port operations two innovative solutions based on FC technologies and a hydrogen mobile supply station

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Project: HyDIME
 Country: United Kingdom
 Project time: 2018 to 2021
 Description: Hydrogen Diesel Injection in a Marine Environment. HyDIME is focussed on the use of hydrogen as a fuel in marine transport and will see the design and integration of a hydrogen/diesel dual fuel conversion system on a commercial ferry operating

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Project: HyMethShip
 Country: Collaborative (Europe)
 Project time: 2018 to
 Description: HyMethShip system innovatively combines a membrane reactor, a CO2 capture system, a storage system for CO2 and methanol as well as a hydrogen-fueled combustion engine into one system

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Project: ISHY
 Country: Belgium
 Project time: 2019 to 2022
 Description: Implementation of Ship HYbridisation. Project lead by Port of Ostende. Partners from NL, BE, FR, UK developing pilots for low-carbon shipping: ship, bunkering station, Fuel Cell Module

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Workshop Series: Fuel Cell Systems
13th Workshop 2021

Progress in maritime and port fuel cell
systems, and hydrogen applications

17-18.05.2021 ZOOM CALL (not in Brugge)



UNIVERSITY OF
BIRMINGHAM

EERA: European Energy Research Alliance



Interreg 
North-West Europe
H2SHIPS
European Regional Development Fund

Interreg 
2 Seas Mers Zeeën
ISHY
European Regional Development Fund

A meeting conducted in cooperation with the projects:

H2SHIPS (Interreg VB NW E): <https://h2ships.org>

And

ISHY (Interreg VA 2 seas): <https://ishy.eu>

Interreg 
North-West Europe
H2SHIPS
European Regional Development Fund

Annual 'Bruges
Workshop on Fuel Cell
Systems' 18/19 May
2021

focus on 'Fuel Cells in
Shipping'

back-to-back with
H2SHIPS – ISHY

workshop on Hydrogen
in Ports 19/20 May 2021

Education & Training

- educational material in database
- CPD course material available at UoB on alternative fuels in shipping
- incl. ammonia and other 'alternative' fuels
- cooperation with other suppliers of naval and maritime training

Materials

	Author (Copyright)		
of Hydrogen based Fuels in shipping	H2SHIPS	READ MORE	DOWNLOAD
Hydrogen Technologies Masters/MSc	University of Birmingham	READ MORE	DOWNLOAD
ols	Pacific Northwest National Laboratory	READ MORE	DOWNLOAD
owered ship - Wikipedia	Wikipedia	READ MORE	DOWNLOAD
iel Cells and their Applications MRes	University of Birmingham	READ MORE	DOWNLOAD
in Summer School on Fuel Cell, Electrolyser and Battery	Jess-summerschool	READ MORE	DOWNLOAD
oving the Knowledge in Hydrogen and Fuel Cell Technology rs	knowhy	READ MORE	DOWNLOAD
iel Cells and Hydrogen	University of Birmingham	READ MORE	DOWNLOAD
ing Fuel Cell and Hydrogen Science and Engineering Across n Horizon 2020	Teachy	READ MORE	DOWNLOAD

Education & Training (2)

- Joint European Summer School in Fuel Cell, electrolyser and Battery Technologies
- Week 2:
18 to 22 Sept 2023
- 2023 = 20th event
- linking to other activities:
KnowHy & Train-the-Trainer courses



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Business
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Interreg



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THANK YOU !