

SHORT DESCRIPTION

08/04/2019



NAME OF THE NETWORK	EcoShip60
FINANCING	Funding by the "Central Innovation Programme for Small and Medium-Sized Enterprises - ZIM" as well as own funds of the network partners.
DURATION	<ul style="list-style-type: none">Phase 1: November 2017 – October 2018Phase 2: November 2018 – October 2020
NETWORK STRUCTURE	The EcoShip60 network currently comprises 17 partners. It consists of 11 regular (including 8 SMEs) and 10 associated partners, who will contribute their specialised knowledge to the network in an advisory capacity. The EcoShip60 network is managed by the cooperation agency DSN Connecting Knowledge.
NETWORK MANAGEMENT	DSN Connecting Knowledge, Kiel, Germany, dsn-online.de/english
REGULAR NETWORK PARTNERS - SME	<ol style="list-style-type: none">1. ARMATUREN-WOLFF Friedrich H. Wolff GmbH & Co. KG, Hamburg2. Friedrich Marx GmbH & Co.KG, Hamburg3. Lübeck Yacht Trave Schiff GmbH, Lübeck4. Otto Piening GmbH, Glückstadt5. SDT - Schiffsdieseltechnik Kiel GmbH, Rendsburg6. S.M.I.L.E. Engineering GmbH, Heikendorf7. TIC Technical Innovation Consult GmbH, Kiel8. TRIK-Pumpen GmbH, Kiel
REGULAR NETWORK PARTNERS - RESEARCH INSTITUTIONS	<ol style="list-style-type: none">9. Chair of Automatic Control, Kiel University10. Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM, Bremen11. Maritime Centre of the Flensburg University of Applied Sciences, Flensburg
ASSOCIATED NETWORK PARTNERS	<ol style="list-style-type: none">1. ABEKING & RASMUSSEN Schiffs- und Yachtwerft SE2. AVENTICS GmbH3. BG Verkehr, Dienststelle Schiffssicherheit4. Danfoss Power Solutions GmbH & Co. OHG5. Federal Waterways Engineering and Research Institute (Bundesanstalt für Wasserbau, BAW)6. Förde Reederei Seetouristik GmbH & Co. KG7. HYDAC International GmbH8. Landesbetrieb für Küstenschutz, Nationalpark und Meeresschutz Schleswig-Holstein9. Maritime Cluster Norddeutschland e. V.10. Meyer Werft GmbH & Co. KG11. RINA Germany GmbH12. Association for Shipbuilding and Marine Technology (Verband für Schiffbau und Meerestechnik e.V.)

- BACKGROUND**
- The reduction of Germany's CO₂ emissions by 40 percent by 2020 is a goal to which the German government is committed with approaches such as the energy concept for the expansion and integration of renewable energies and the mobility and fuel strategy to promote the electrification of transport using fuel cells.
 - The automotive industry is already reacting strongly to these market developments with a large number of R&D projects in the field of drive systems.
 - Alternatives to conventional diesel and gasoline engines are also becoming increasingly attractive for ship operators due to the limitation of allowable exhaust emissions in certain waters, the finite nature of fossil fuels and the resulting increase in oil prices.
 - In shipbuilding, much of the current research concentrates exclusively on alternative propulsion systems for larger ship types with an output of approx. 4,000 kW or more. There are no systematic, holistic and sustainable approaches to developing alternative propulsion systems for smaller types of vessels with a length of up to 60 metres and a significantly lower performance. The EcoShip60 network wants to help close this gap.

AIM OF THE NETWORK The EcoShip60 network aims at developing more environmentally friendly alternative propulsion systems for small to medium-sized work and patrol boats that allow users to drive at low cost with high performance and long range.

TECHNOLOGICAL FOCUS Existing technical solutions will be transformed into new holistic solutions in order to optimise the overall ship system and achieve a significant reduction in environmental pollution (CO₂ and noise). Such holistic technical solutions at competitive prices still do not exist today.

The EcoShip60 network is therefore developing three different drive systems:

- Fuel cell and electric drive
- Diesel engine with alternative fuels and electric drive
- Otto principle engine with alternative fuels and electric drive

The special feature of the network approach is the holistic consideration of all technological sub-areas and their interdependencies, e.g. the determination of the consequences of the choice of a propulsion system on the hull and space concept of a ship.

A prototype with a length of 8 m is developed for testing under realistic conditions.

FIELDS OF TECHNOLOGY	<ul style="list-style-type: none"> ▪ Index for the optimization of the overall system Ship with alternative propulsion ▪ Development and use of functional laminates for lightweight construction ▪ Energy recovery from heat ▪ Energy recovery from ship movements ▪ Zero-Emission GenSet - Concept for the development of a compact generator with CO₂-neutral fuel ▪ Smart pump control ▪ Fuel cell installation ▪ Fail-safe direct drive (electric motor) ▪ Holistic energy management ▪ Emergency shutdown ▪ Cooling of alternative drives ▪ Ship safety through forecasting procedures ▪ Interface fuselage and shaft ▪ Coating system
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ACTIVITIES	<ul style="list-style-type: none"> ▪ Technological Roadmap ▪ Network Building ▪ Marketing and Public Relations ▪ Development of R&D projects ▪ Development of a prototype with a length of 8 m ▪ R&D projects will develop technologies, components and concepts for three alternative propulsion systems for ships up to 60 m in length.
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PROJECT SPECIFICATIONS	<ul style="list-style-type: none"> ▪ 8 m boat in the versions: leisure boat and work boat ▪ 16 m boat in the versions: in workboat and patrol boat ▪ 26 m boat in the version: passenger ferry ▪ 45 m boat in the version: patrol boat
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BENEFITS FOR SME	<p>The network will contribute to the knowledge and innovative strength of the participating SMEs through the specific R&D projects and the cross-project exchange. With the network, SMEs are pursuing the goal of reacting more flexibly to customer wishes in the future and thus increasing the competitiveness of their companies.</p> <p>With the help of the network and the R&D projects, the project partners will establish themselves in a market for alternative maritime propulsion systems in which only a few suitable products and solutions have been offered to date. In this way, SMEs expand their know-how and range of services and open up new economic potential.</p>
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