

# NETWORK DESCRIPTION

10/4/2020



NAME OF THE NETWORK	EcoShip60
FINANCING	Funding by the "Central Innovation Programme for Small and Medium-Sized Enterprises – ZIM" of the Federal Ministry for Economic Affairs and Energy as well as own funds of the network partners.
AIM OF THE ECOSHIP60 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.
BENEFITS FOR SMEs	<p>The network will contribute to the knowledge and innovative strength of the participating SMEs through the specific R&amp;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&amp;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>
BACKGROUND	<ul style="list-style-type: none"><li>▪ 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.</li><li>▪ The automotive industry is already reacting strongly to these market developments with a large number of R&amp;D projects in the field of drive systems.</li><li>▪ 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.</li><li>▪ 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.</li></ul>
DURATION	November 2017 – October 2020 Phase 1 = 12 months   Phase 2 = 24 months

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TECHNOLOGICAL FOCUS	<p>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 (CO<sub>2</sub> and noise). Such holistic technical solutions at competitive prices still do not exist today.</p> <p>The EcoShip60 network is therefore developing three different drive systems:</p> <ul style="list-style-type: none"><li>▪ Fuel cell and electric drive</li><li>▪ Diesel engine with alternative fuels and electric drive</li><li>▪ Otto principle engine with alternative fuels and electric drive</li></ul> <p>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.</p>
FIELDS OF TECHNOLOGY	<ul style="list-style-type: none"><li>▪ Fail-safe direct drive (electric motor)</li><li>▪ Fuel cell installation</li><li>▪ Energy recovery from heat</li><li>▪ Development and use of functional laminates for lightweight construction</li><li>▪ Holistic energy management</li><li>▪ Index for the optimization of the overall system Ship with alternative propulsion</li><li>▪ Emergency shutdown</li><li>▪ Smart pump control</li><li>▪ Zero-Emission GenSet - Concept for the development of a compact generator with CO<sub>2</sub>-neutral fuel</li></ul>
PROJECT SPECIFICATIONS	<ul style="list-style-type: none"><li>▪ 8 m boat in the versions: leisure boat and work boat</li><li>▪ 16 m boat in the versions: work boat and patrol boat</li><li>▪ 26 m boat in the version: passenger ferry</li><li>▪ 45 m boat in the version: patrol boat</li></ul>
ACTIVITIES	<ul style="list-style-type: none"><li>▪ Technological Roadmap-<ul style="list-style-type: none"><li>- to develop concrete recommendations for action within the sector</li></ul></li><li>▪ Development of R&amp;D projects<ul style="list-style-type: none"><li>- to ensure further funding from the ZIM programme</li></ul></li><li>▪ Development of a prototype with a length of 8 m<ul style="list-style-type: none"><li>- to test the developed products and procedures</li></ul></li></ul>

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NETWORK STRUCTURE	The EcoShip60 network currently consists of 23 partners. There are 11 regular and 13 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.
REGULAR NETWORK PARTNERS - SME	<ol style="list-style-type: none"> <li>1. ARMATUREN-WOLFF Friedrich H. Wolff GmbH &amp; Co. KG, Hamburg</li> <li>2. DESIOS GmbH, Hamburg</li> <li>3. Friedrich Marx GmbH &amp; Co.KG, Hamburg</li> <li>4. Lübeck Yacht Trave Schiff GmbH, Lübeck</li> <li>5. Otto Piening GmbH, Glückstadt</li> <li>6. SDT - Schiffsdieseltechnik Kiel GmbH, Rendsburg</li> <li>7. S.M.I.L.E. Engineering GmbH, Heikendorf</li> <li>8. TIC Technical Innovation Consult GmbH, Kiel</li> </ol>
REGULAR NETWORK PARTNERS - RESEARCH INSTITUTIONS	<ol style="list-style-type: none"> <li>9. Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM, Bremen</li> <li>10. Flensburg University of Applied Sciences, Maritime Centre, Flensburg</li> <li>11. Kiel University, Chair of Automatic Control, Kiel</li> </ol>
ASSOCIATED NETWORK PARTNERS	<ol style="list-style-type: none"> <li>1. ABEKING &amp; RASMUSSEN Schiffs- und Yachtwerft SE</li> <li>2. AVENTICS GmbH</li> <li>3. BG Verkehr, Dienststelle Schiffssicherheit</li> <li>4. Danfoss Power Solutions GmbH &amp; Co. OHG</li> <li>5. Federal Waterways Engineering and Research Institute (Bundesanstalt für Wasserbau, BAW)</li> <li>6. Förde Reederei Seetouristik GmbH &amp; Co. KG</li> <li>7. HYDAC International GmbH</li> <li>8. Landesbetrieb für Küstenschutz, Nationalpark und Meeresschutz Schleswig-Holstein</li> <li>9. Maritimes Cluster Norddeutschland e. V.</li> <li>10. Meyer Werft GmbH &amp; Co. KG</li> <li>11. MTU Friedrichshafen GmbH</li> <li>12. RINA Germany GmbH</li> <li>13. Association for Shipbuilding and Marine Technology (Verband für Schiffbau und Meerestechnik e.V.)</li> </ol>
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