



For Immediate Release

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Current Direct, a new research and innovation project funded by the European Commission's Horizon 2020 program, will revolutionize the way we move goods and people by water. The vast majority of water transport in Europe is propelled by diesel engines. Electrification offers premium efficiency, particularly when combined with energy storage and renewable power from shore. This improves not only the economic impact, but the environmental impact of transports as well. By cutting the cost of today's marine battery electric drivetrains in half and relieving ship owners of the burden of capital expense, Current Direct will enable rapid adoption to reduce greenhouse emissions by 482.000 MT of CO₂ equivalents per year.

Current Direct's innovative Energy as a Service platform will enable ship owners to accelerate their participation in the shift to clean energy while creating new business opportunities for shipyards and local entrepreneurs. By changing the model for acquiring and storing energy aboard vessels, Current Direct will create a new energy economy, adding thousands of new jobs. Current Direct provides a vehicle for energy companies, institutional investors, and government stakeholders to participate in the green transformation of Europe's merchant and passenger fleet.

Current Direct brings together thirteen dynamic partners from across Europe's marine electrification value chain. The project is led by Spear Power Systems, makers of the world's lightest, most flexible marine batteries certified to the most stringent international safety standards. Blackstone Technology is lowering the cost of manufacturing tomorrow's 3D printed lithium-ion cells using state of the art active materials from Umicore. The University of Hasselt will use its electrochemical expertise to develop physics-based models of the Current Direct cells that will help optimize the life and return on investment of battery systems deployed across Europe as part of the Current Direct Energy as a Service platform developed by the accomplished engineers and data scientists at Rhoé Urban Technologies and Aviloo. Naval architecture and marine engineering company Foreship will

lend its expertise to EDP CNET's in depth knowledge of electrical markets to ensure the Current Direct platform targets optimal vessels and locations maximizing reductions in emissions. VUB's material science experts are creating low-cost composites to improve the safety of battery packs that are designed for recyclability and feature VITO's smart cell monitoring electronics. Wärtsilä will develop modular battery containers and charging infrastructure that will be certified to innovative standards developed together with Lloyd's Register. The project will culminate in a demonstration of the Current Direct battery, shore charging, and asset management platform by Kotug in Rotterdam.

Vessel operators, ports, shipyards, naval architects, energy companies, certification bodies, regulators, and sustainability focused investors are invited to join us in a series of virtual workshops to share your ideas and learn about how Current Direct can change the way you do business. Contact CurrentDirect@spearps.com to learn more.

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Partner Websites in order of mention:

Spear: spearpowersystems.com

Blackstone Technology: <http://www.blackstoneresources.ch/>

Umicore: umicore.com

University of Hasselt: <https://www.uhasselt.be/>

Rhoé Urban Technologies: <https://rhoe.gr/en/index.html>

Aviloo: aviloo.com

Foreship: www.foreship.com

EDP CNET: <https://www.edp.com/en/new-rd>

VUB: <https://www.vub.be/MACH/FYSC/>

VITO: <https://vito.be/en/subtheme/interfaces-electrical-storage>

Wartsila: wartsila.com

Lloyd's Register: lr.org

Kotug: kotug.com

Partner Background



About Spear Power Systems

Founded in 2014 by experienced energy storage entrepreneurs Jeff Kostos, President & CEO, and Dr. Joon Kim, CTO, Spear designs and manufactures safe, high performance energy storage systems (ESS) for clients with some of the world's most demanding industrial and defense applications. Spear takes a chemistry independent approach towards integrating its in-house, designed, scalable electronics, software, and mechanical systems with the most application-appropriate chemistry in order to maximize the value for its clients. For more information, visit SPEARPOWERSYSTEMS.COM.

About Blackstone Resources AG & Blackstone Technology GmbH

Blackstone Resources is a Swiss Holding Company, with its legal domicile in Baar, Kanton Zug and is concentrating on the battery technology revolution and metals market. In addition, it sets up, develops and manages refineries used for gold and battery metals. It offers direct exposure to the battery technology and battery metals that is being driven by the demand of electric vehicles that need vast quantities of these metals. These include cobalt, manganese, molybdenum, graphite and lithium. Blackstone Technology GmbH is a 100% subsidiary of Blackstone Resources AG and produces cutting edge 3D printed battery cells in Saxony/Germany



About Rhoe

Rhoe is an award-winning Greek technology startup that develops state-of-the-art products for the transportation and energy sectors. Rhoe's in-house experts work with cities, businesses, and research institutions to help them bring cutting-edge products to market, cut down on red tape and drastically improve productivity.



About Aviloo

AVILOO is a start-up based in Austria that has developed the first independent State of Health battery test for Electric vehicles for which it has won major European research funding projects. AVILOO further provides sophisticated battery monitoring services for battery installations of all kinds. AVILOO's core technology consists of the AVILOO-Box, a high performing IoT Monitoring device, the AVILOO Battery Data Cloud Platform able to handle extremely large data sets and a deep data analytics and battery know how.



About Foreship

Foreship is an independent company specializing in ship design and engineering. Employing more than 100 naval architects, marine & structural engineers, interior & HVAC designers and electrical engineers, Foreship provides a complete range of solutions. Customers include the world's largest cruise lines as well as passenger, cargo and offshore shipowners, leading shipyards and maritime suppliers.



About EDP CNET

EDP CNET - Center for New Energy Technologies, founded in 2014, is a R&D Centre of the EDP Group aimed at creating possibilities to lead the energy transition. It is fully committed to research and development with a strong focus in technology demonstration projects. EDP CNET is organized in 5 knowledge areas each representing a crucial future innovation pillar for the EDP Group: Interoperable Smart Energy Grids, Positive Energy Communities, RES technologies, RES integration and Flexibility and Digital Energy. EDP CNET has carried out work in several R&D projects in all the energy value chain, most of them financed by the EU H2020, adopting an integrated and sustainable approach towards disruptive solutions that empower its partners and bring value to the shareholders.



Research Group:



About VUB's FYSC research group

The research unit 'Physical Chemistry and Polymer Science' (FYSC, headed by H. Rahier) of the Vrije Universiteit Brussel is part of the Department 'Materials and Chemistry' (MACH) of the Faculty of Engineering. The research activities of FYSC are focused on '(molecular and supra-molecular) structure - processing - property' relations in polymers for developing materials with improved performance.



About Vito

VITO is an independent Flemish research organisation in the area of cleantech and sustainable development. Within the EnergyVille partnership, VITO has further expanded its renowned expertise in the field of batteries, based on long-standing activities on battery testing, modelling and the development of advanced battery management system technology. VITO is well represented and embedded in both national and international battery projects and initiatives and is a member of the Batteries European Partnership.



About Wärtsilä

Global leader in smart technologies and complete lifecycle solutions for marine and energy markets.



About Lloyd's Register

Lloyd's Register EMEA is part of the Lloyd's Register Group, a global independent risk management and safety assurance organisation.