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deCarbonising sHipping by Enabling Key technology symbiosis on real vessel concept designs

A preview of the consortium CHEK / Horizon 2020

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EUROPEAN COMMISSION
Innovation and Networks Executive Agency

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About Horizon 2020

- biggest EU research & innovation programm ever

  nearly € 80 billion of funding over 7 years

  aim of combining european research and innovation to achive excellent science, industrial leadership and tackling societal challenges

This project has received funding from the *European Union's Horizon 2020 research and innovation programme* under grant agreement No 955286.

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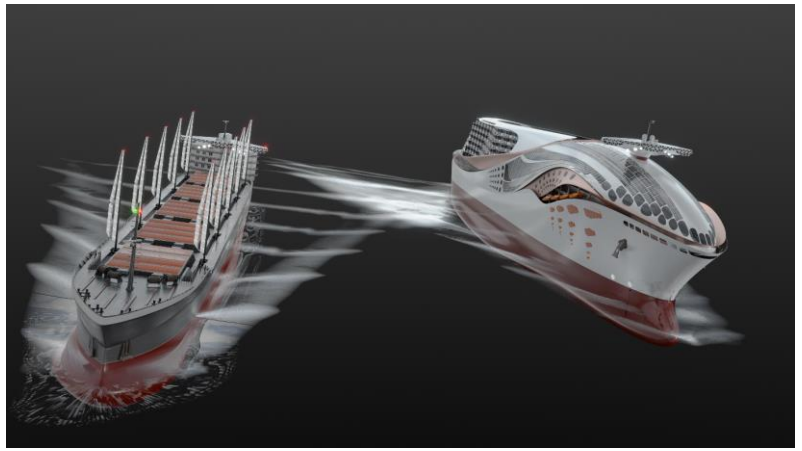
CHEK objectives



- Develop and demonstrate at full scale two first-of-a-kind vessel concept designs (Kamsarmax bulk carrier and Meraviglia class cruise)

  Based on real operational profiles

  Equipped with an interdisciplinary combination of innovative technologies working in symbiosis

  Reduce greenhouse gas emissions by 99%, achieve at least 50% energy savings and reduce black carbon emissions by over 95%.

Overview CHEK partners

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University of Vaasa (UV) is a business-oriented, multidisciplinary and international university.

Wärtsilä Marine Power leads the industry in its journey towards a decarbonised and sustainable future. With a portfolio of engines, propulsion systems, hybrid technology, and integrated powertrain systems deliver the reliability, safety, and environmental performance that Wärtsilä's Smart Marine vision encompasses. Offering customers performance-based agreements, lifecycle solutions, and an unrivalled global network of maritime expertise

Cargill Ocean Transportation is a leading freight-trading business that provides bulk shipping services to customers across the globe.

MSC Cruises is a leading global cruise line, which is part of the Cruises Division of MSC Group, the privately-held Swiss-based leading shipping and logistics conglomerate.

Lloyd's Register EMEA (LR) is part of the Lloyd's Register Group, a global independent risk management and safety assurance organisation that works to enhance safety, and improve the performance of assets and systems at sea, on land and in the air.

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Overview CHEK partners

World Maritime University (WMU) was established in 1983 by the International Maritime Organization (IMO).

Silverstream Technologies was established in 2010 and the company specialises in Air Lubrication Technology which is designed to reduce the frictional impact between the flat bottom of the ship hull and water.

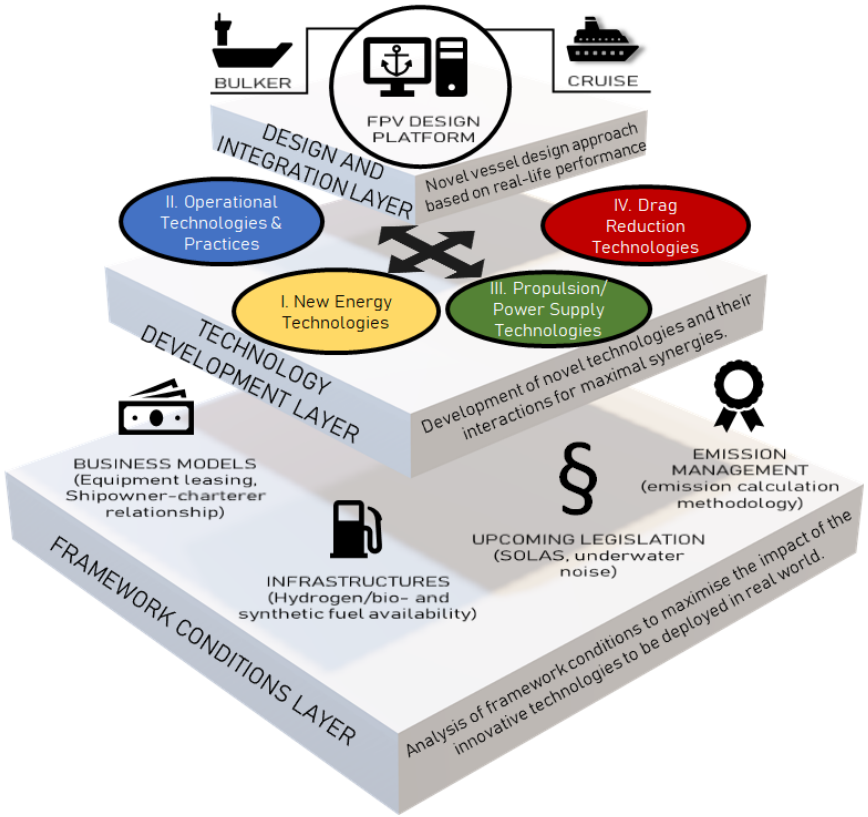
HASYTEC Electronics GmbH is market leader in ultrasound based anti-fouling technology.

Deltamarin is a leading ship engineering and design company.

Climeon AB has well proven technology convert Waste Heat to a Clean power. Connect Climeon Modules to the vessel cooling water circuits or Steam System to produce clean Power for onboard consumers. This will reduce your Emissions and fuel consumption!

BAR Technologies have utilised ShipSEAT, their own developed tool, to design and optimise their own patented and trademarked wind propulsion system called WindWings.

Considerations behind CHEK



- No existing or emerging “silver bullet” technology is single-handedly able to decarbonise long-distance shipping in light of the IMO’s ambitious 2050 goals.

  Rather than “stacking” novel technologies onto existing vessel designs, the consortium proposes to develop a unique Future-Proof Vessel (FPV) design platform.

  Future will be about combining disruptive technologies to create a fully new vessel design based on the synergy effects.

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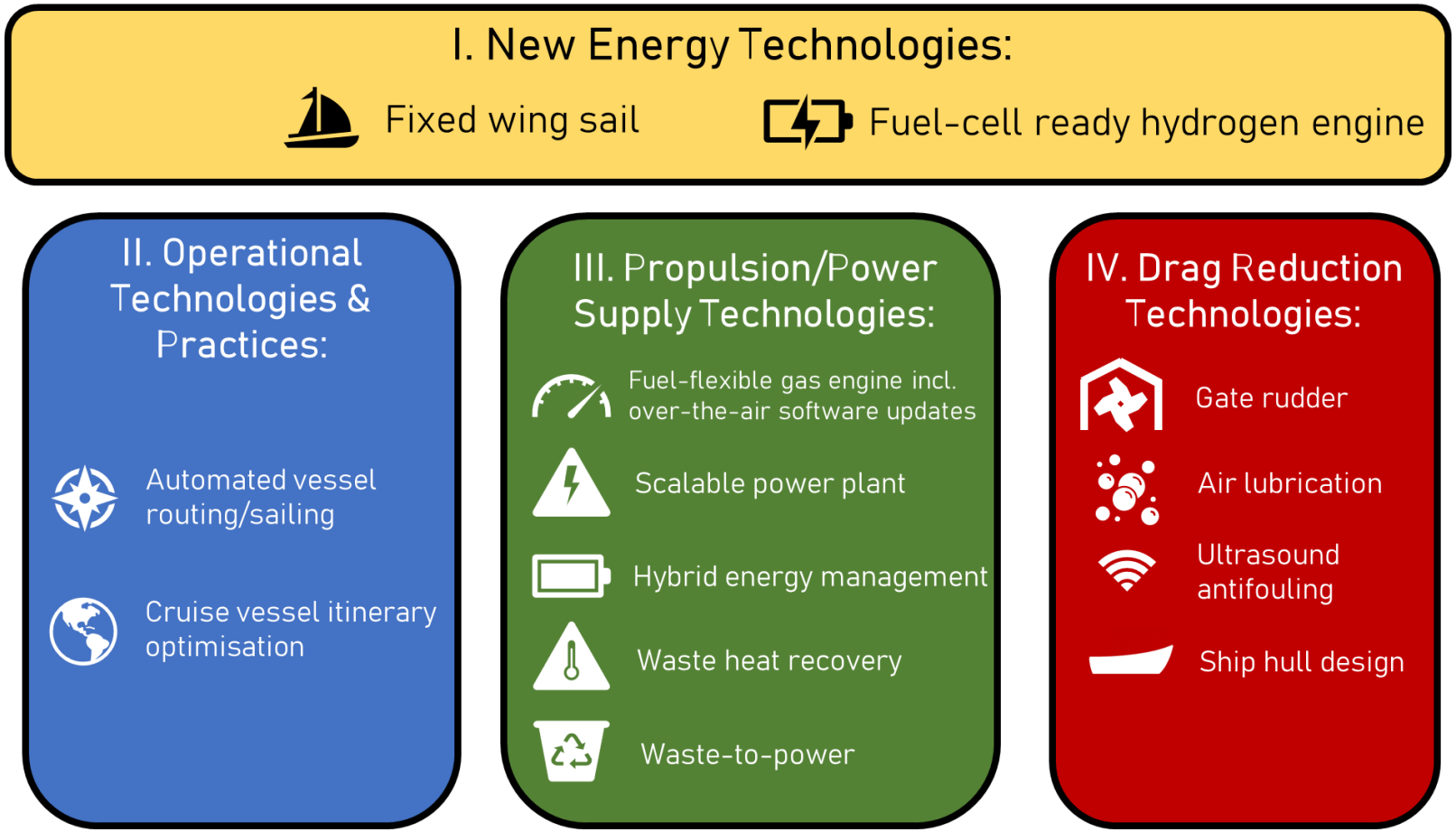
Technological synergy



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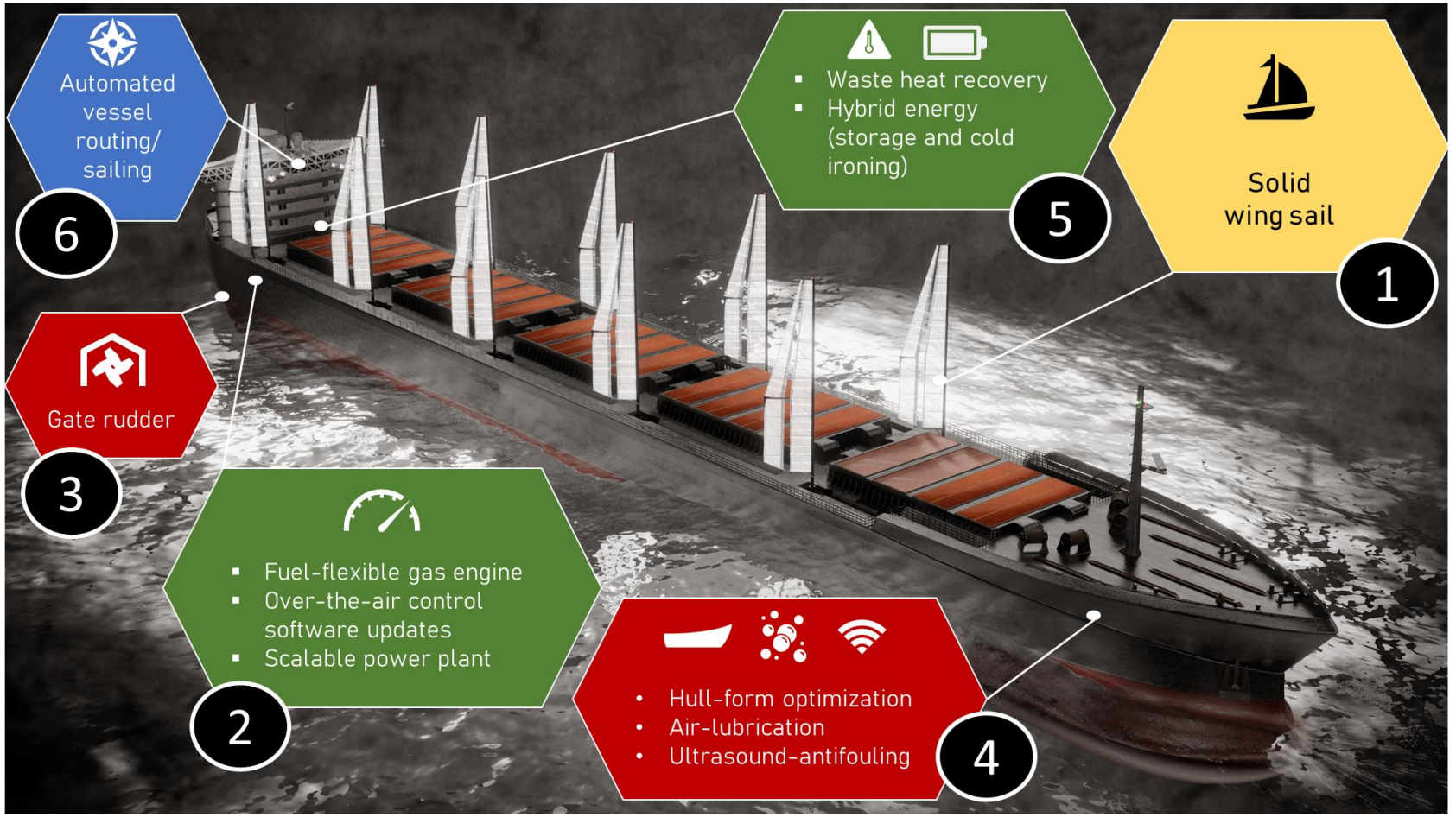
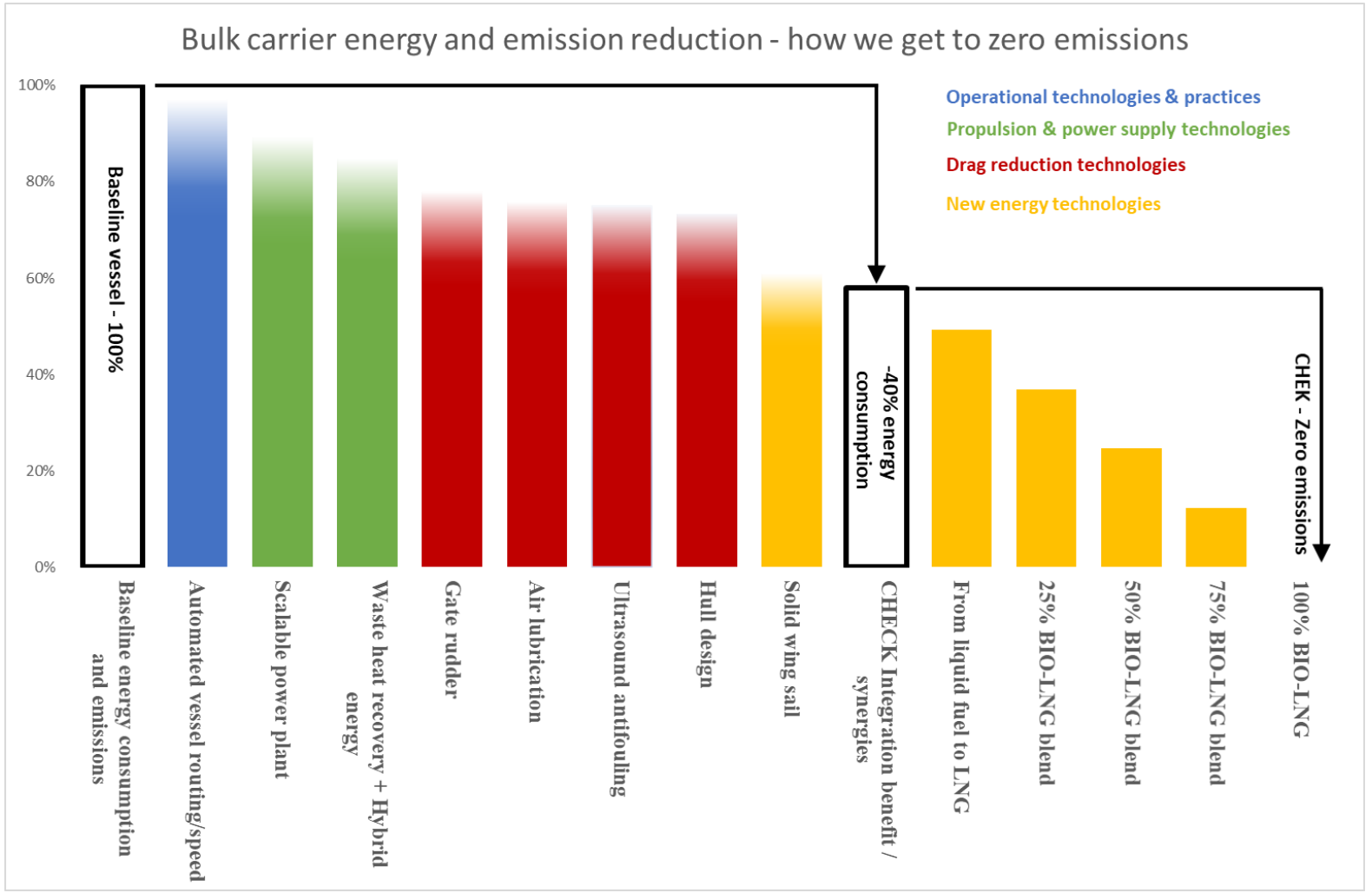
CHEK bulk carrier



Emissions savings targets



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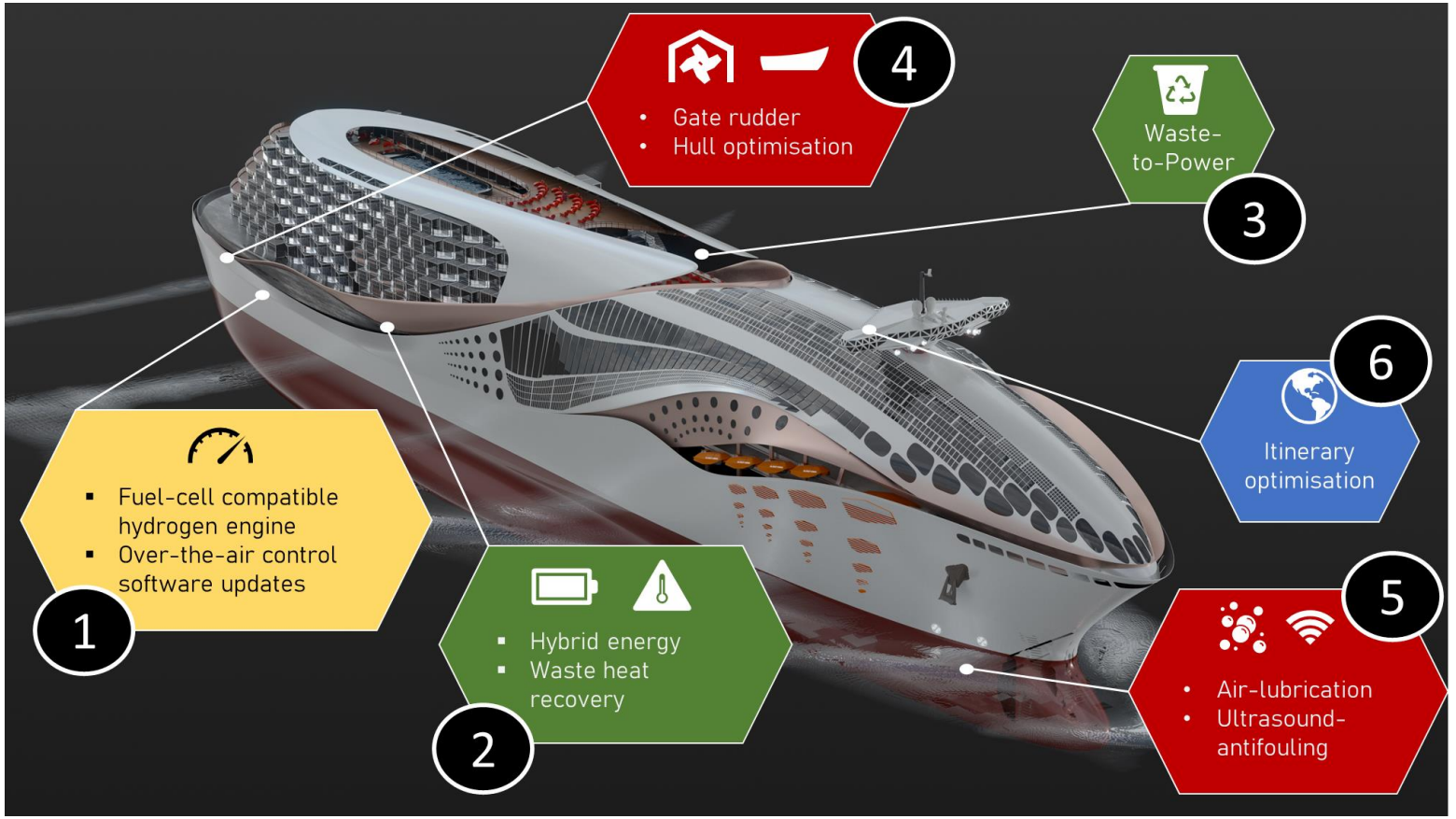
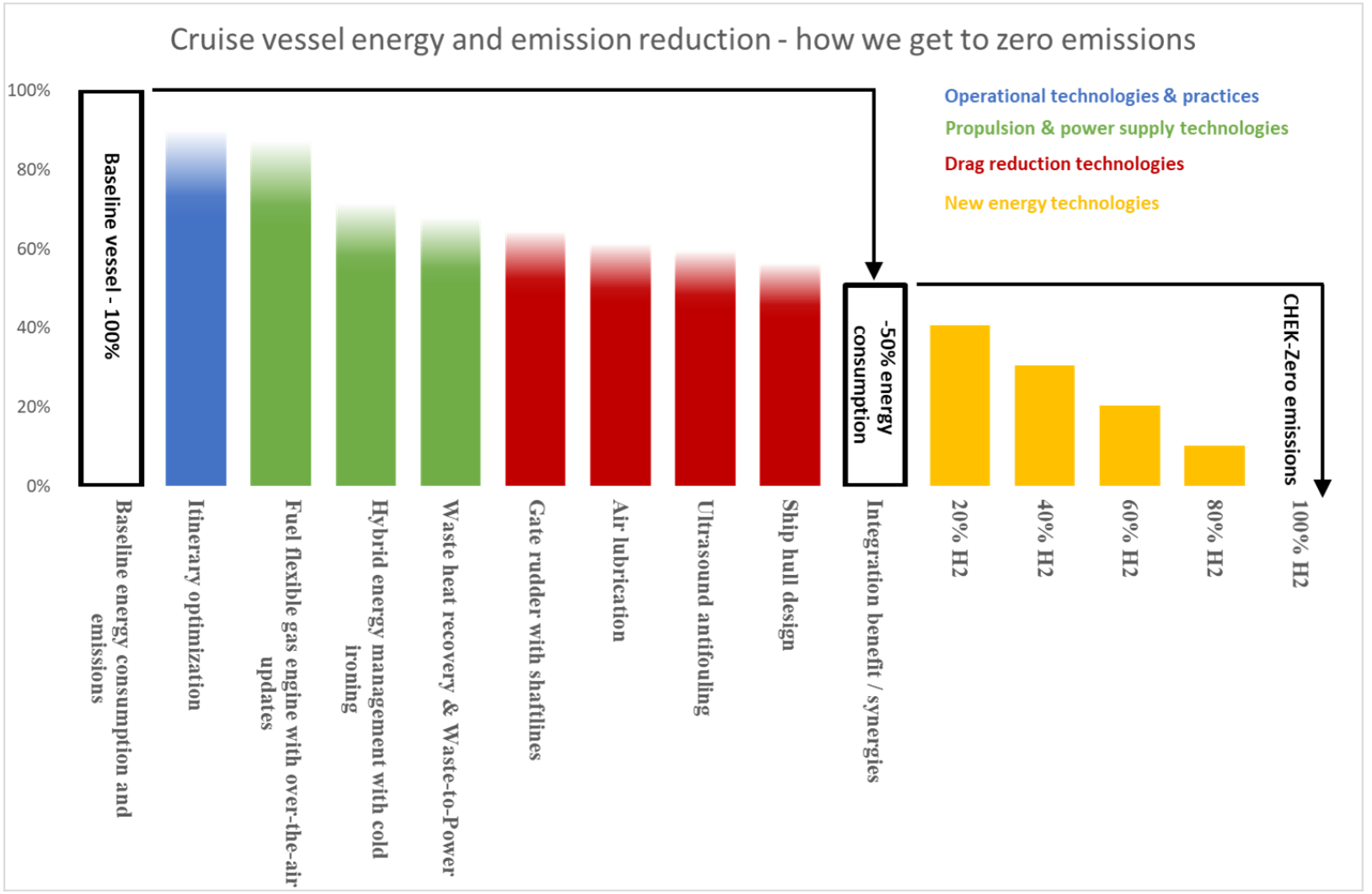
CHEK Cruise ship



Emissions savings targets



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Schedule of CHEK

- For 3 years time concept design will be developed and tested on vessels in operation

  Combination of mentioned technologies will play the game of reduction of CO_2 emission.

  CHEK starts in June 2021, duration 36 months

……more to come……..

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Thank you very much for your attention