



7 Shipping industry

<Main future efforts>

- Promoting technology development for the practical use of zero-emission ships.
 - Spreading hydrogen fuel cell systems and battery propulsion systems for short-distance and small ships.
 - During FY2021, starting the development of core technologies, such as hydrogen/ammonia-fueled engines, fuel tanks and fuel supply systems for long-distance and large ships.
 - Starting a demonstration project of zero-emission ships by 2025, and realizing the commercial operation of zero-emission ships before the conventional target year of 2028.
- Promoting technology development to improve energy efficiency of LNG-fueled ships.
 - Achieving a CO₂ emission reduction rate of 86% by using a combination of LNG fuel and low-speed operation and wind propulsion systems.
 - During FY2021, starting the development of technologies, such as engines which emit less greenhouse gas (GHG). Promoting to develop space-efficient, innovative fuel tanks and fuel supply systems and to establish production infrastructures.
- Developing frameworks to promote low-carbon ships.
 - In 2023, the implementation of the energy efficiency existing ship index (EEXI) and the annual operational carbon intensity indicator rating (CII rating) will require existing ships to achieve the same level of energy efficiency performance with the new greener ships, and will incentivize replacement of old inefficient ships with new greener ships.
 - By the end of 2021, formulating a roadmap for promoting greener coastal shipping to achieve carbon neutrality and leading necessary efforts including the establishment of systems following the roadmap.

Conceptual Drawings of Zero Emission Ships

