



1. Project description

Project “Green Ports and Airports”

Ports and airports are globally gaining increased focus on reducing carbon emissions. The focus is not only on the fuels used for shipping and aviation itself, but also on the logistic operations and functions that are the main activities of the infrastructural junction. Moving of goods and material, loading-unloading, fuelling, shore-to-ship power for docked ships, taxiing of aircrafts are all energy intensive operations.

The project will focus on transferring all operations to low-carbon or zero-carbon solutions. Handling equipment, drive trains, power supply can all be operated on green fuels e.g. methanol or hydrogen from electrolysis and power-to-x synthesis. The selected solutions should be integrated, also with adjacent energy systems such as PV, batteries, cooling and heating to support each other for better security of supply, higher efficiency, and maximum utilisation. Safety aspects and solutions for storage and distribution of hydrogen and e-fuels have utmost priority. Cross-border collaboration will accelerate the implementation of new technology and transition to sustainable solutions.

Ramboll is an international engineering consultancy company providing solutions within energy, transport, and sustainable transformation. The company is involved in major European projects with hydrogen and e-fuels (power-to-x technology), distribution, storage, safety, and environmental assessments. Typically, the assignments involve concept study, engineering design, and the role of engineering, procurement, and construction management (EPCM). Ramboll has a long track record of successfully managing large project consortia and complex projects, which includes strategy and implementation of hydrogen and sustainable transition in airports and ports in both Europe and the United States. Ramboll may assist in identifying opportunities, specifying, and successfully implementing hydrogen solutions in more EU ports and airports and ensure cooperation, knowledge-sharing, and implementation of best practise.

Please select which part of the value chain for hydrogen your project focuses on (select one or more, where applicable):

Production	Transmission	Industrial application	Mobility	Energy	Housing application	Other
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



2. Partnerships and spillover effects

Partners. Ramboll seek partners across the value chain:

- **Owners and operators of ports and airports** dedicated to decarbonising their operation.
- **Manufacturers of equipment**, e.g. material handling equipment operating in ports and airports.
- **Suppliers of hydrogen or green fuels.**
- Providers of **storage and distribution** solutions for hydrogen and hydrogen-based energy carriers.

Ramboll may take the lead in projects and in formation of consortia. **Coordination** regarding selected solutions, possibilities for coordinated upscaling in the supply chain is key.

Knowledge-sharing regarding solutions and knowledge transfer from first movers to followers will play a major role in the wide implementation of green solutions.

Spillover effects: The transition of energy supply and equipment throughout ports and airports will form the basis for creating a whole new supply chain or new product line at existing suppliers.

Quality of life: Besides leading to a significant reduction of CO₂ emissions, the project has further positive impact on the quality of life. Air quality will be improved (no particles from engines and generators) and noise levels will be reduced to the benefits of the citizens in the cities where the ports and airports are located.