



# MAGPie

SMART GREEN PORTS

## DEMO 7 GREEN ENERGY CONTAINER

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### Introduction

- **Aim of demo** - The objective of Demo 7 is to demonstrate the feasibility and effectiveness of green energy containers, specifically lithium-ion batteries and low-pressure hydrogen, in real port operations. This includes safety assessments, technical requirements, and the interoperability of both energy sources. Demo 7 aims to implement a certification process for green hydrogen and optimize container usage in the logistics chain. Additionally, develop a rollout plan that incorporates potential scalability
- **Value proposition** - Electrification of intraport container traffic is highly visible in a port and a flywheel for more zero-emission shipping. CO2 emission reduction in port area is potentially comparable to shorepower in the Rotterdam port area: ~800,000 tonnes/yr\*. Demonstrating the practical application and interoperability of green energy containers, specifically lithium-ion batteries and low-pressure hydrogen, will prove the viability of these technologies and will pave the way for greener and more efficient port operations



HTS GROUP

### KPIs

- TCO
- Co2 emission reduction
- Other GHG emission reduction
- Port readiness level
- Social acceptance

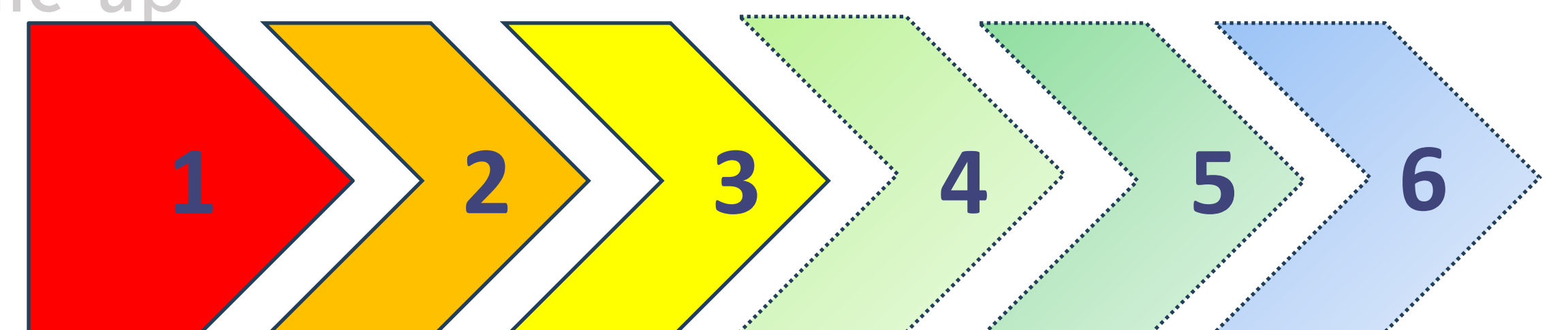
### Lessons Learned

#### Barriers:

- **Challenging Demo:** The demo has faced significant challenges due to changing economic and geopolitical conditions since its design.
- **Investment Impact:** Investment costs in renewable technology have been heavily impacted over the last 4 years.
- **Opex Difference:** The operational cost difference between MGO (diesel) and renewables (hydrogen/electricity) has worsened, contrary to expectations.
- **Private Partner Difficulty:** Difficulty in finding private partners willing to invest in electric drivetrains and green containers.
- **Vessel Owner Risks:** Finding vessel owners/entrepreneurs willing to take risks has been more difficult than anticipated.
- **Strategic Reconsideration:** Strategic reconsideration of the shipping technology partner (Wartsila), leading to a search for new partners within the MAGPIE consortium
- **Scalability:** TBD in the Roll out Plan

### Current Progress Status

1. Launch of demonstrator; 2. Elaboration of KPIs, Operation characterization and modelling, and ongoing studies; 3. Testing phase in lab and data collection; 4. simulations and testing phase in pilot area; 5. results and commercially available; 6. ready to scale up



- Heuvelman Transport Services
- 'Letitia', 135 x 17,5m 575 TEU
- Sailing profile
  - Intraport operations
  - Rotterdam Duisburg

