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MAGPIE
SMART GREEN PORTS

DEMO 3 SHORE POWER PEAK SHAVING

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TNO innovation for life

Introduction

- **Aim of demo –** The Shore power peak shaving demonstrator (demo 3) implements a battery on a heavy lift vessel for peak shaving when the crane is in operation. This demo sets out to increase utilization of an existing shore power hub facility in the Port of Rotterdam, aiming to reduce the costs and greenhouse gas emissions.
- **Value proposition –** Potential to increase the implementation of batteries on vessels, improving the shore power system architecture by lowering the overall grid demand and smart system integration within ports.

KPIs

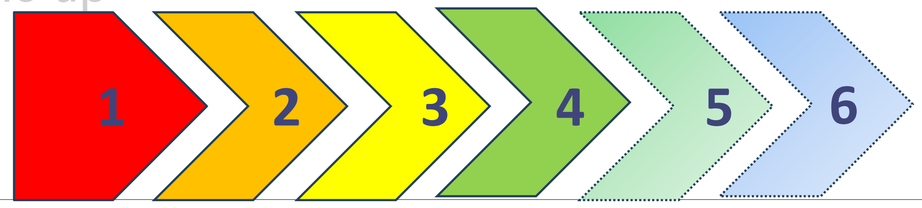
- CO2e per demo per year
- Energy use per demo per year
- Capex, Opex
- Amount of added value
- Number of jobs – direct/indirect
- Amount of added value – direct/indirect
- Social acceptance

Lessons Learned

- Including a battery on board can decrease shore power demand significantly by peak shaving
- Mock-up tests can verify peak-shaving performance, assess battery utilization and the use of locale renewable electricity
- An onshore battery – shore power combination could lower the grid requirement for vessels requiring high, but short-term peaks
- The financial benefit of an on-board battery purely for shore power is insufficient to cover the CAPEX
- Currently: Battery design for vessel implementation is ongoing

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



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