

# MAGpie

SMART GREEN PORTS

## DEMO 5 OFFSHORE CHARGING BUOY

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### Introduction

**Aim** - The goal of Demo 5 is to demonstrate offshore charging of electricity to vessels moored in waiting areas or near offshore wind farms. This will be demonstrated in a model basin mimicking the North Sea extreme environments and at full-scale at the offshore anchorage area of the Port of Rotterdam. A 1-20MW offshore charging buoy will be designed followed by model tests and a test offshore Rotterdam to develop connection and charging procedures. An analysis of the upscaling potential will be done for application in mooring/waiting areas at ports.

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Van Oord

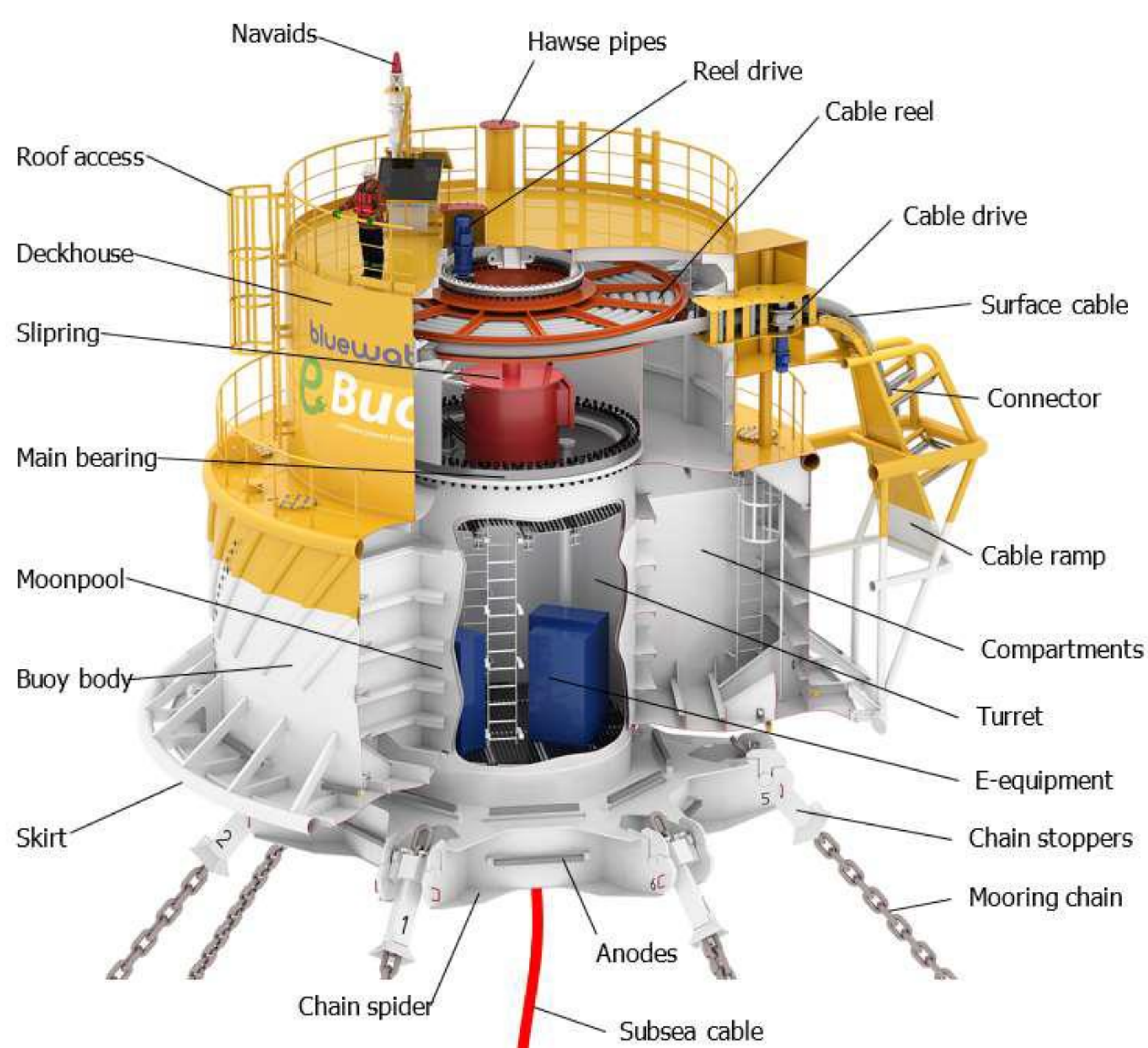


### KPIs

- Demonstrate offshore charging for vessels (TRL 6)
- Reduce Co2 emission for waiting area
- Improve port energy efficiency by >30%

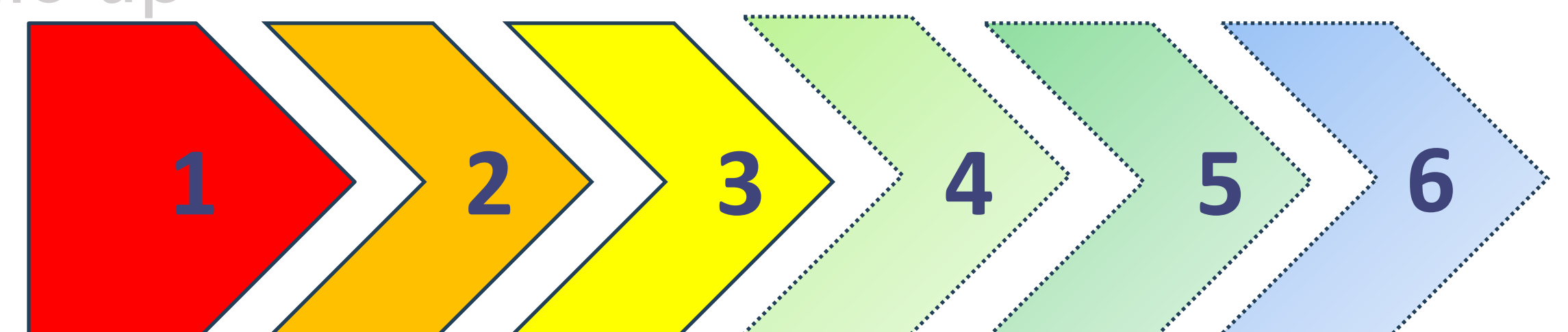
### Lessons Learned

- **Barriers** - (1) Motions analysis of tested E-buoy not suitable for North Sea, (2) Power cables to be located well below the seabed. (3) Demand scenario analysis from with respect to business case report to offshore recharging unclear. (4) No standard for offshore charging
- **Scalability** - alternative solution to ebuoy for harsh environment, locations for waiting ships, available electric grid, charging standard for ships



### 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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