



## MIIP07

Waterstofaandrijving voor de scheepvaart

9 November 2022

The logo graphic for SWIMH2 consists of three overlapping, rounded, organic shapes. The leftmost shape is a light purple gradient. The middle shape is a solid, vibrant blue. The rightmost shape is a solid, bright orange-red. The text 'SWIMH2' is centered in white, with the 'H' and '2' being smaller than the 'S', 'W', 'I', and 'M' characters.

SWIMH<sub>2</sub>

Powered by:





# Introduction

SWIM



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swim<sub>h2</sub>





# SWIM

Vessel

Designed by the swim consortium

**The world's first  
Hydrogen-electric  
water taxi**



# Design

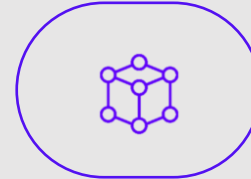
Hydrogen-electric drivetrain



# Clean & durable

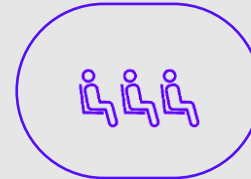
## Dimensions

Length: 8.8 m  
Width: 2.7 m  
Draft: 60 cm



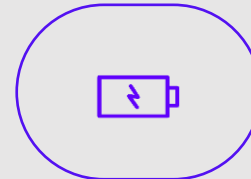
## Capacity

12 passengers



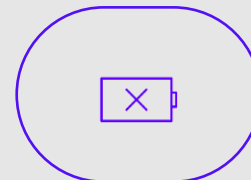
## Battery Specs

Capacity: 33kWh  
Output: 50kW  
DC voltage: 650V



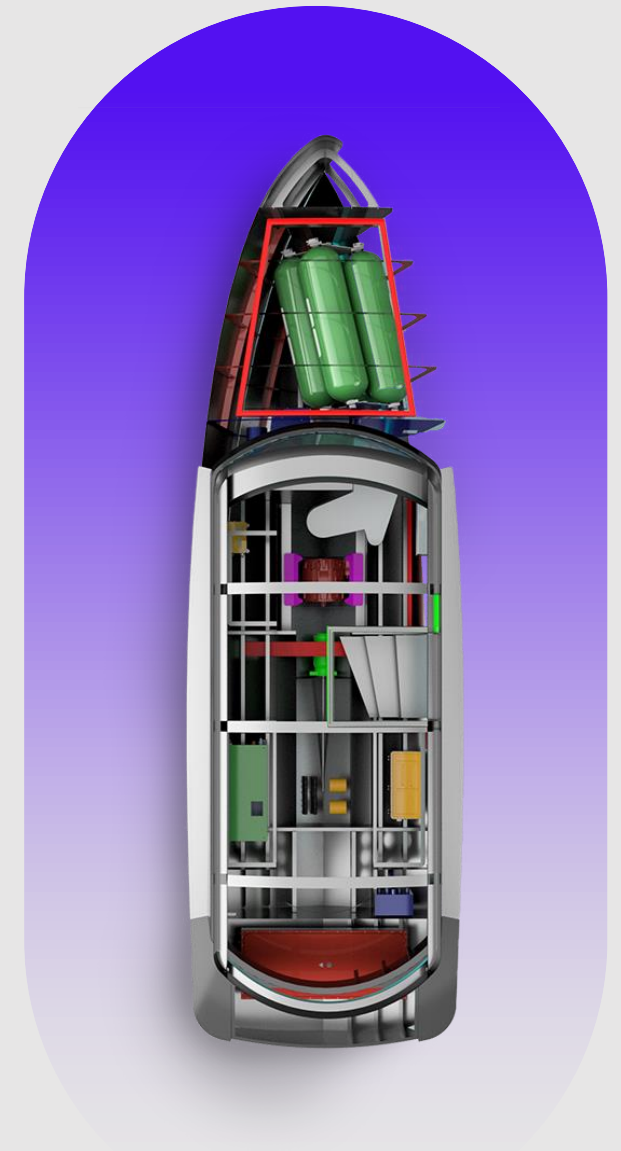
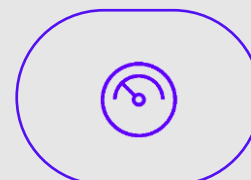
## Fuel cell specs

Capacity: 45kW  
H2 storage: 14 kg  
Endurance: 9 hours (cruising speed)



## Performance

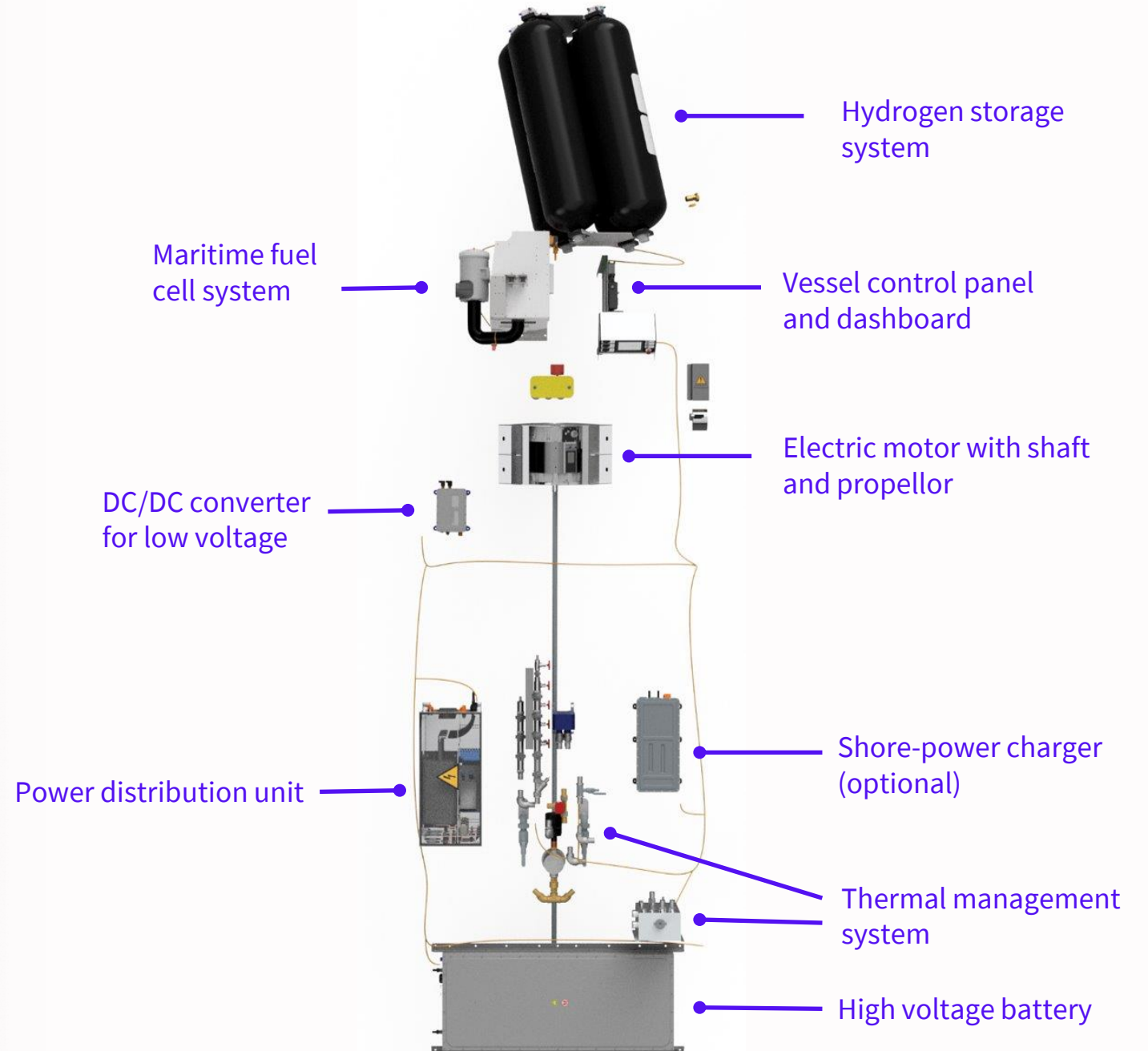
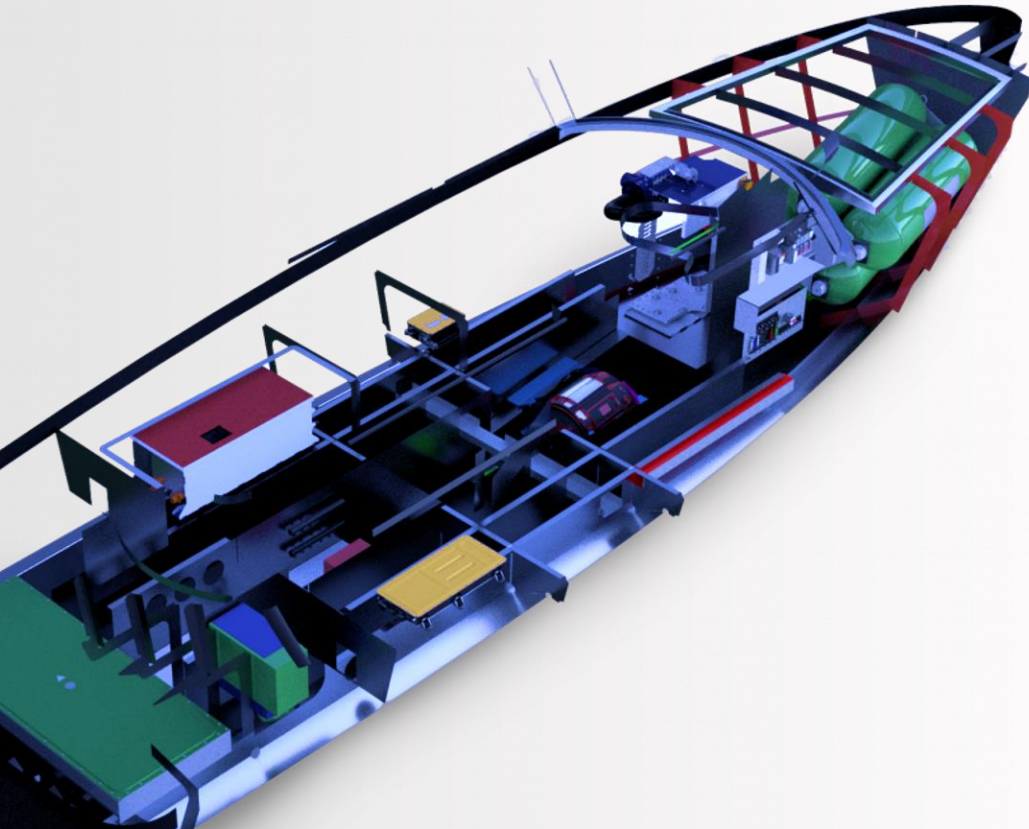
Cruising speed: 16 km/h (8.8 knots)  
Max speed: 25 km/h (13 knots)  
Motor power: 95kW





# Product

- Complete marine propulsion system
- Emission free and silent operation
- Designed to meet Port of Rotterdam regulatory framework



Hydrogen storage system

Maritime fuel cell system

Vessel control panel and dashboard

Electric motor with shaft and propellor

DC/DC converter for low voltage

Shore-power charger (optional)

Power distribution unit

Thermal management system

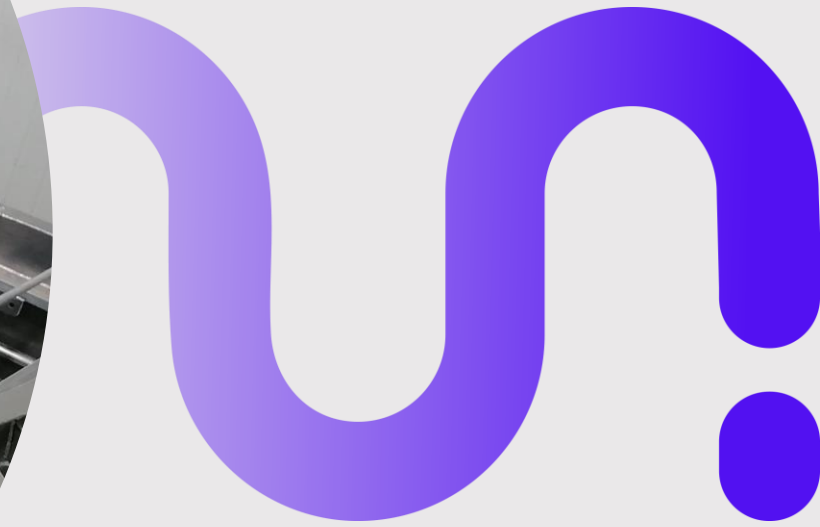
High voltage battery

# Realization

Assembly & Integration of the water taxi







Hull production @ Alumax Boats, Meppel

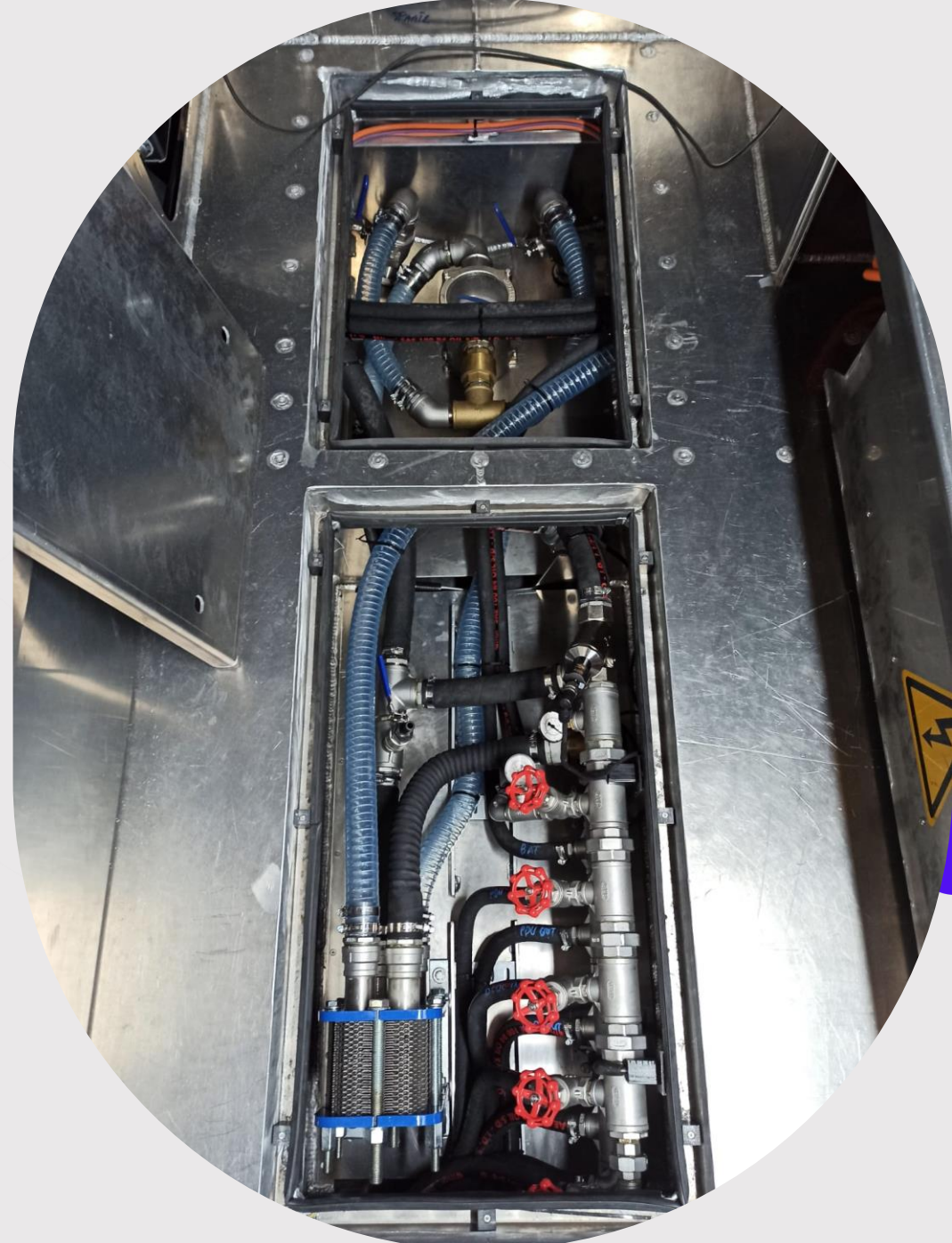


Test setup in workshop





Integration of Power Distribution Unit  
and Thermal Management System







Installation of dashboard, safety systems and vessel control unit



Commissioning of high voltage  
powertrain



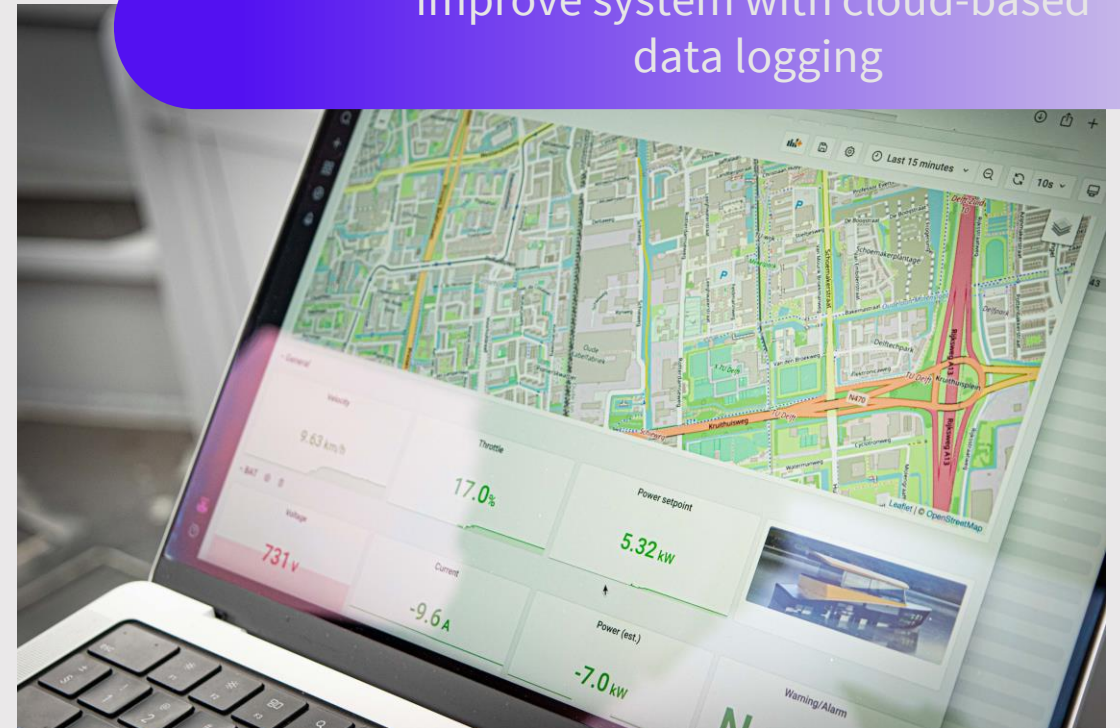


# Testing



Sailing tests in Rotterdam

Improve system with cloud-based data logging



# Christening and first use



Christened by councillor Zeegers



Rides for everyone at Wereld Haven Dagen in Rotterdam



# Next steps

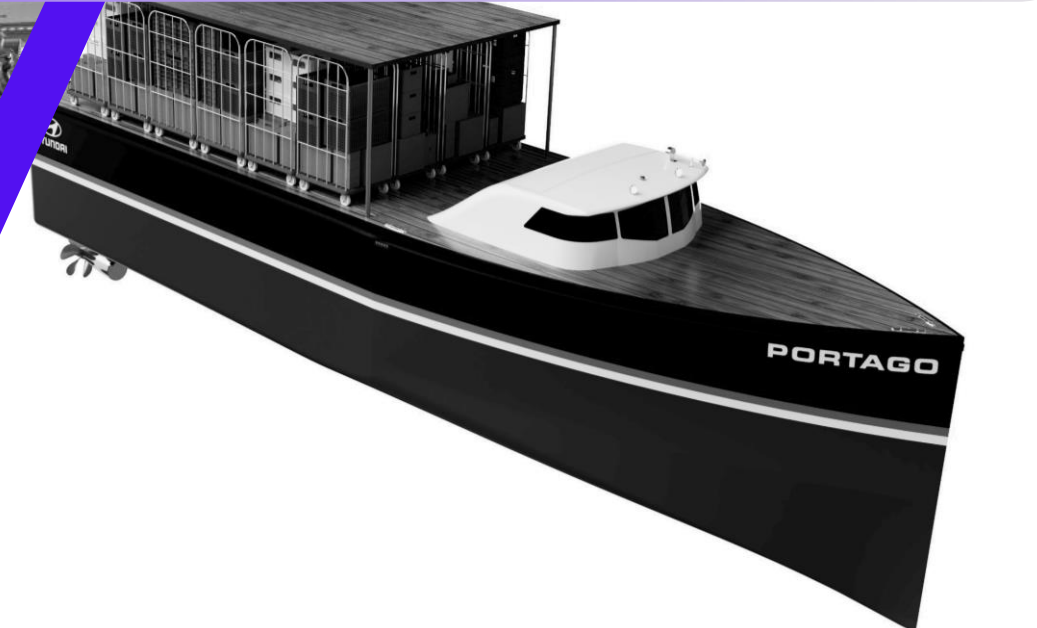
More commercial applications.

Bigger, Faster, Longer Range





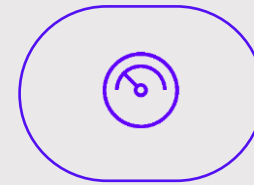
**Fit for mission:** new & retrofit



# Drivetrain towards:

## Performance

Power output: 1MW  
Fuel cell power: 150kw (stackable)  
Multiple energy sources hybrid



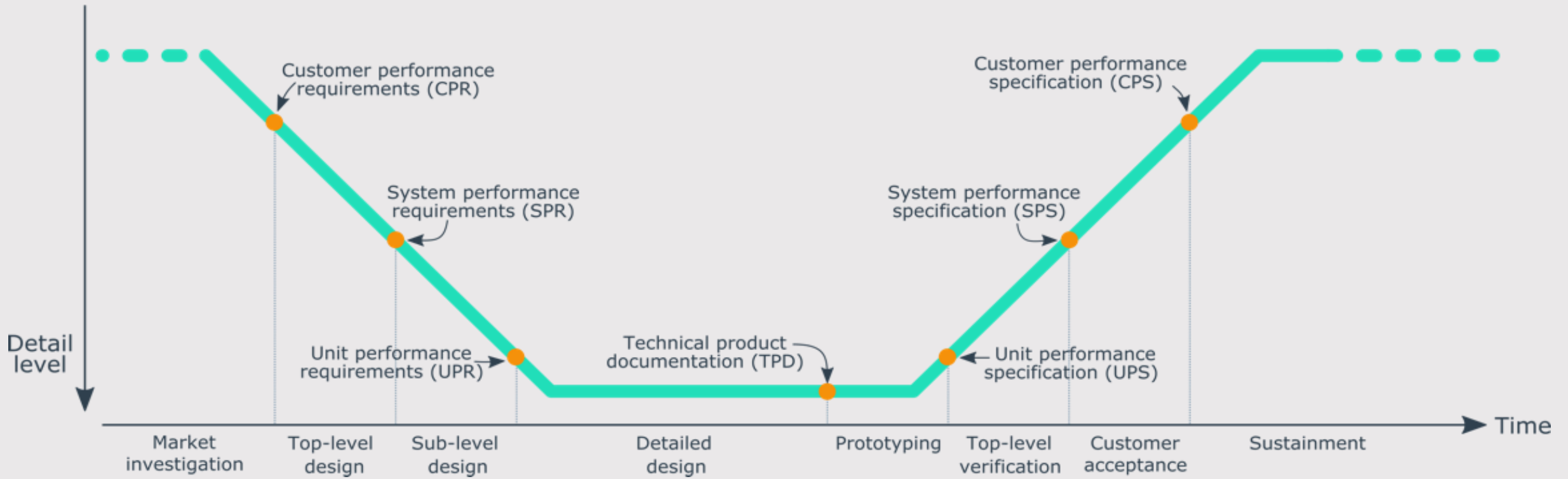


# Need: ESTRIN compliance



# V-model

## Development project V-model



# MIIP

## Development project V-model

