

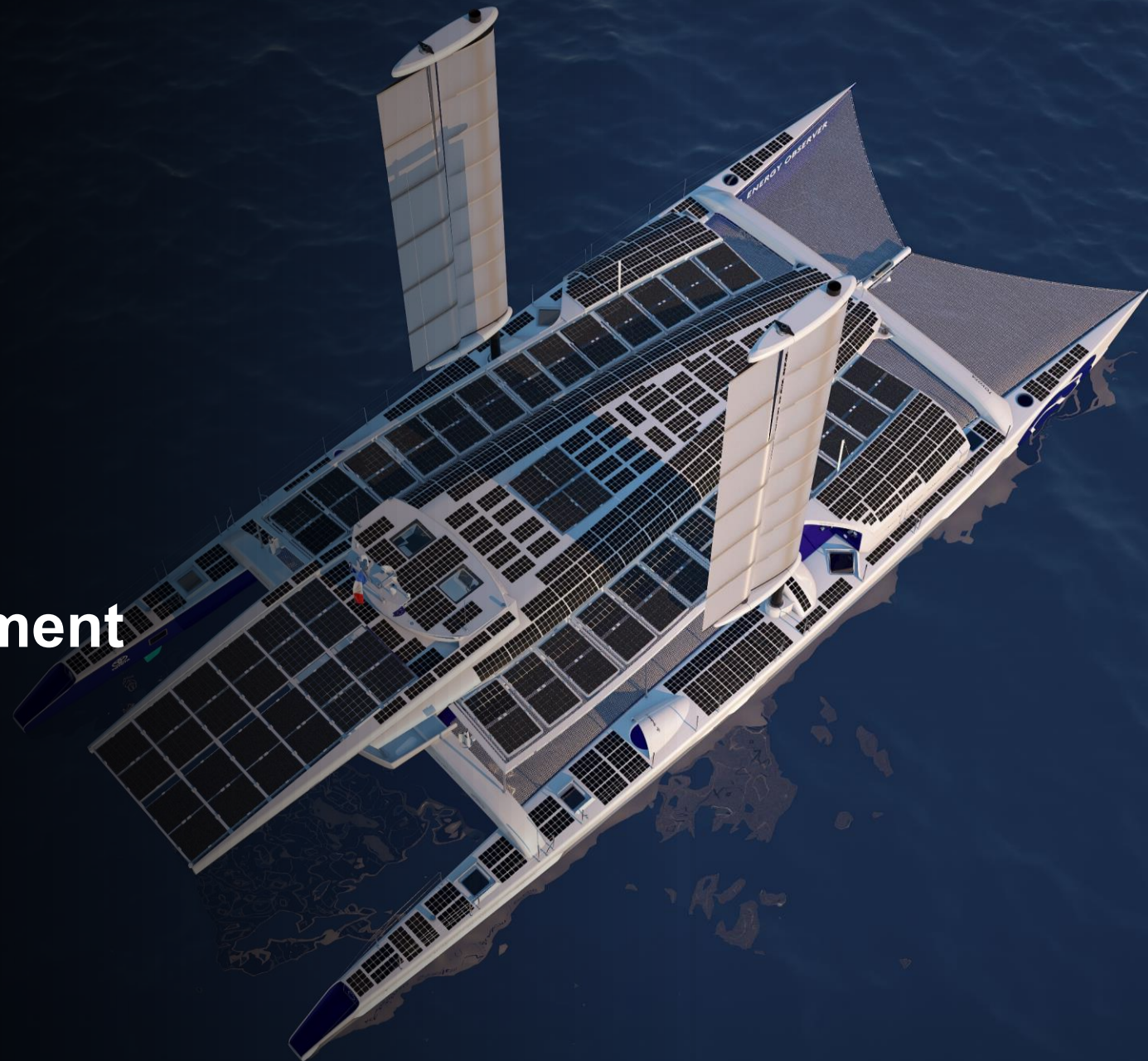


ONTO THE SEA

ENGIE's Hydrogen Development in Maritime Sector

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Key Challenge for Global Economy: **Tackle Climate Change**

8% Emission Reduction
Registered during COVID-19
period

We need to continue,
collectively



Maritime Sector Needs Decarbonization

30% fleet = **78%** fuel consumption

Container Ships

Bulk Carriers

Oil Tankers

2.5%

Total CO₂ emission
940m tons/year,
continues to
increase

IMO Goal of
CO₂
Reduction

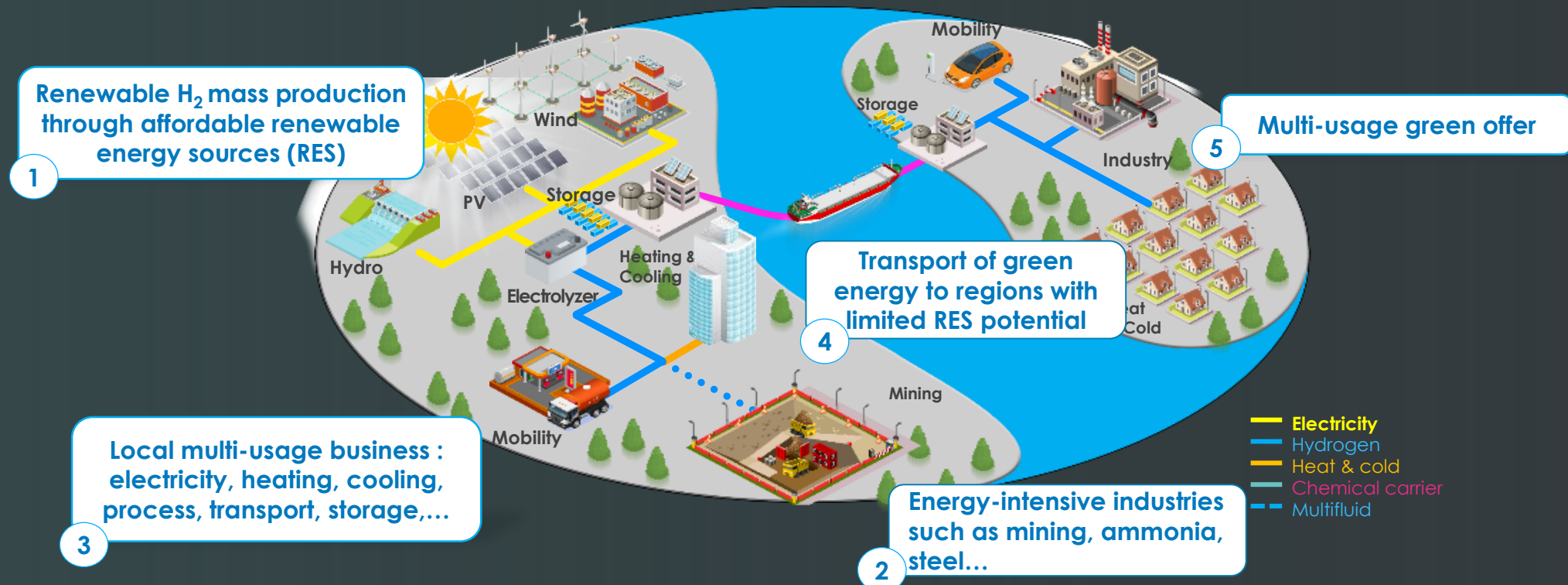
50%

2008

2050

ENGIE: at the Heart of Decarbonization

- ENGIE provides turnkey solutions to accompany zero-carbon journey of businesses, regions and countries
- Renewable H₂ is among the suite of ENGIE's solutions & requires new infrastructures
- It is the missing link to full decarbonization by unlocking renewables' potential



ENGIE in Action: Renewable H₂ Project Portfolio

Industrial-scale projects





Mobility

Port

Logistics

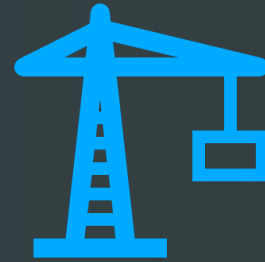
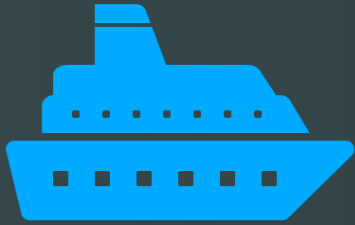
Industry

Energy



H₂ System Play in Maritime Sector

Activate H₂ Maritime Market



S...

M

I

L

E

Ship propulsion
Onboard electrical needs

...

Refineries

...

Material/container
handling equipment

...

Onshore power supply,
replacing diesel

...

Phased approach, start with piloting, explore multiple usages in an ecosystem

Industry



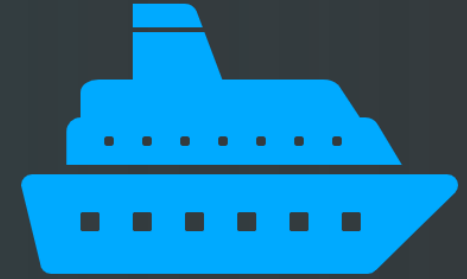
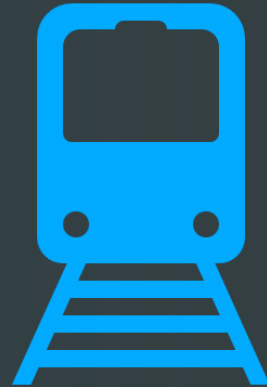
HyNetherlands: Eemshaven, **chemical** cluster



1



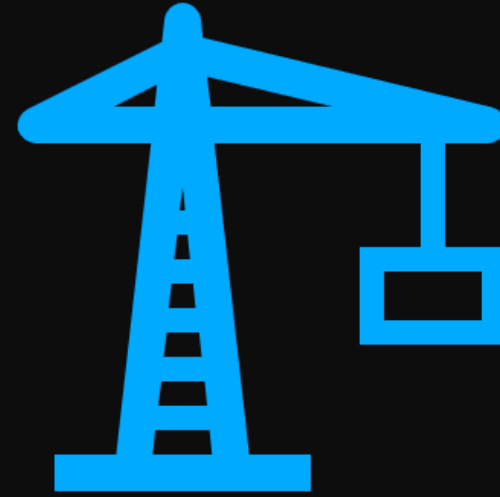
Mobility



Logistics

Co-create solutions with:

- Material handling equipment manufactures
- Terminal operators
- Port authorities
- ...



REN H₂ Production from Land to Sea

- DOLPHYN
- 400-MW Platform





Let's join forces for a better future. Thank you!