

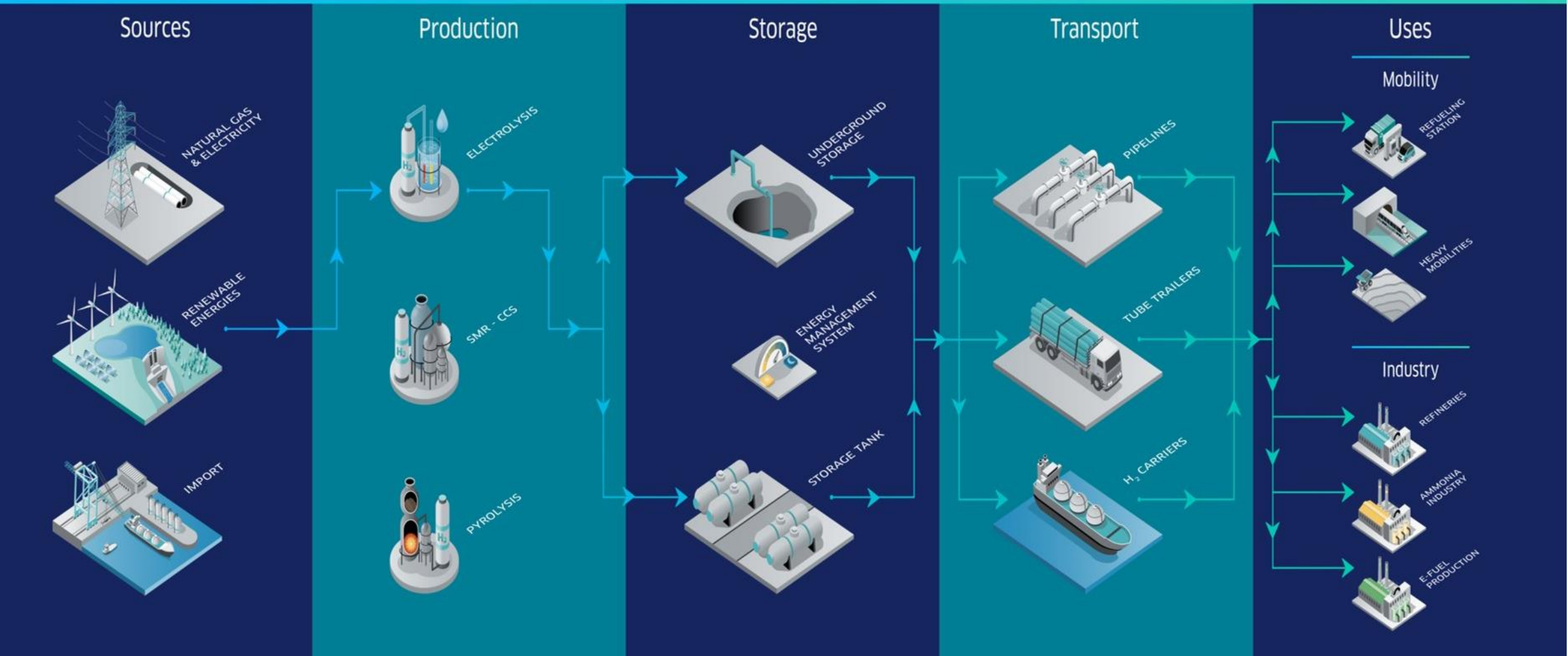
Projects status...

Are we reaching tipping point on industrial scale H₂ generation?

Hydrogen Week ECHA – 25 November 2022



ENGIE, A KEY PARTNER ALL ALONG THE HYDROGEN VALUE CHAIN



Renewable H2: the ENGIE ambitious roadmap



Industry

- Electrolysis capacities

4 GW



Mobility

- Territorial partnerships for green H2 mobility

>100 H₂ refueling stations



Infrastructures

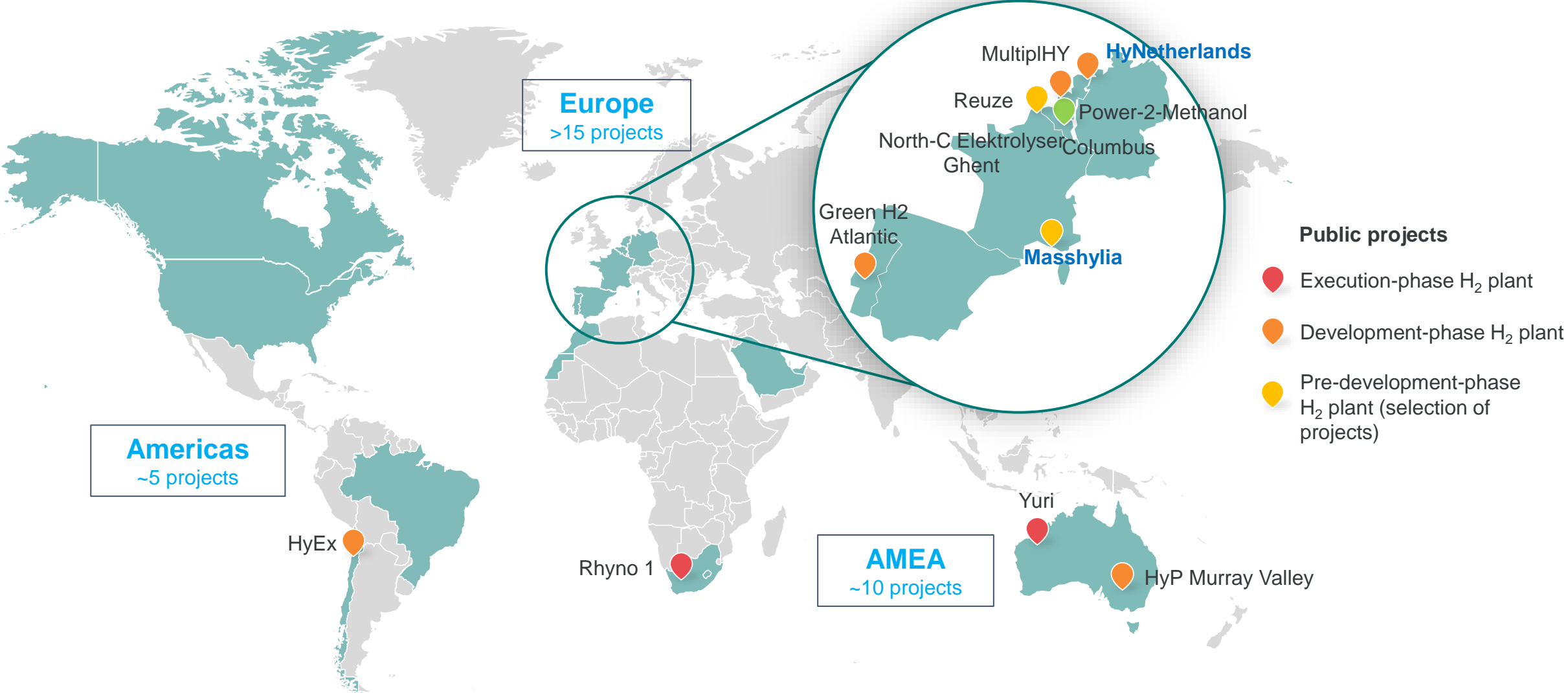
- H₂ Dedicated Pipelines
- H₂ Dedicated Storages

700 km

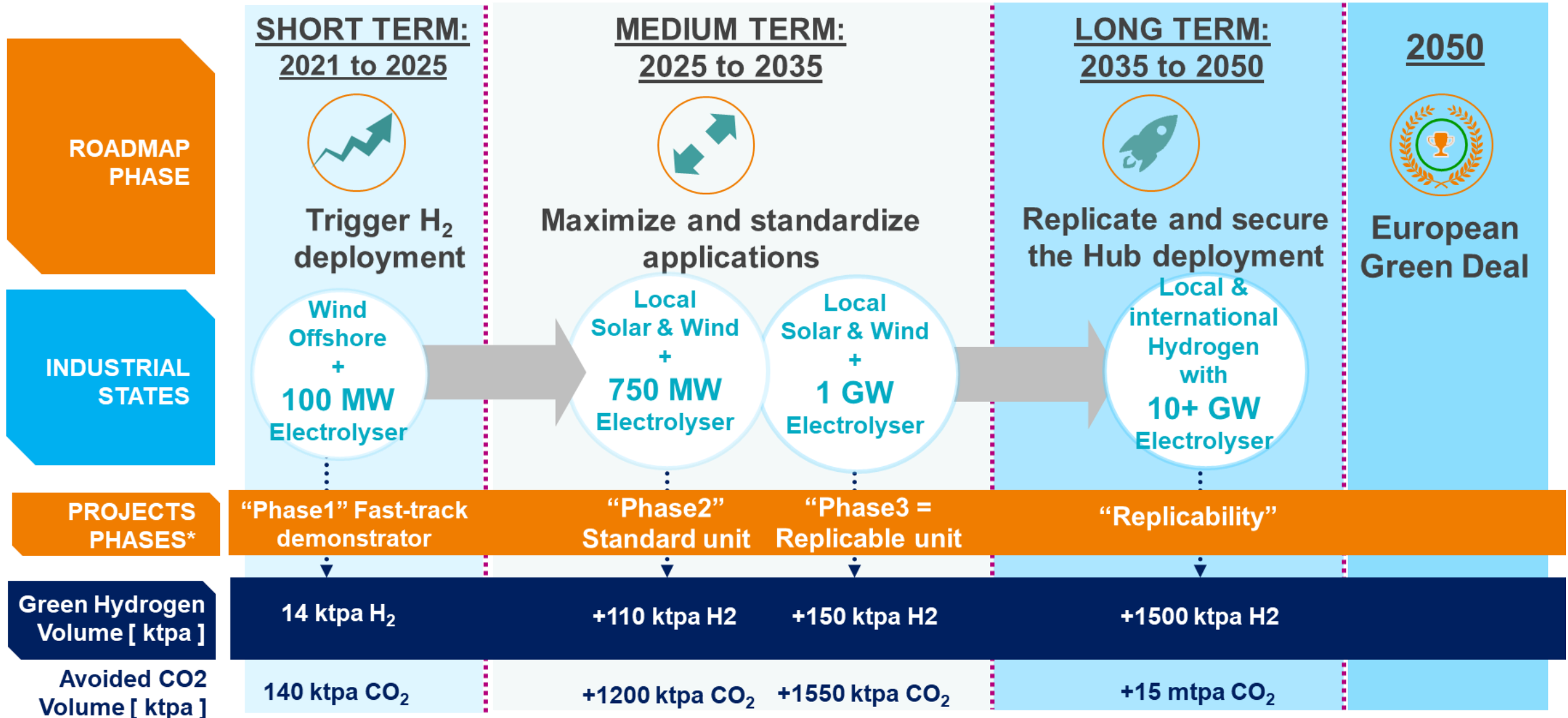
1 TWh

How to reach these goals?

A pipe of more than 30 large scale green H2 projects worldwide



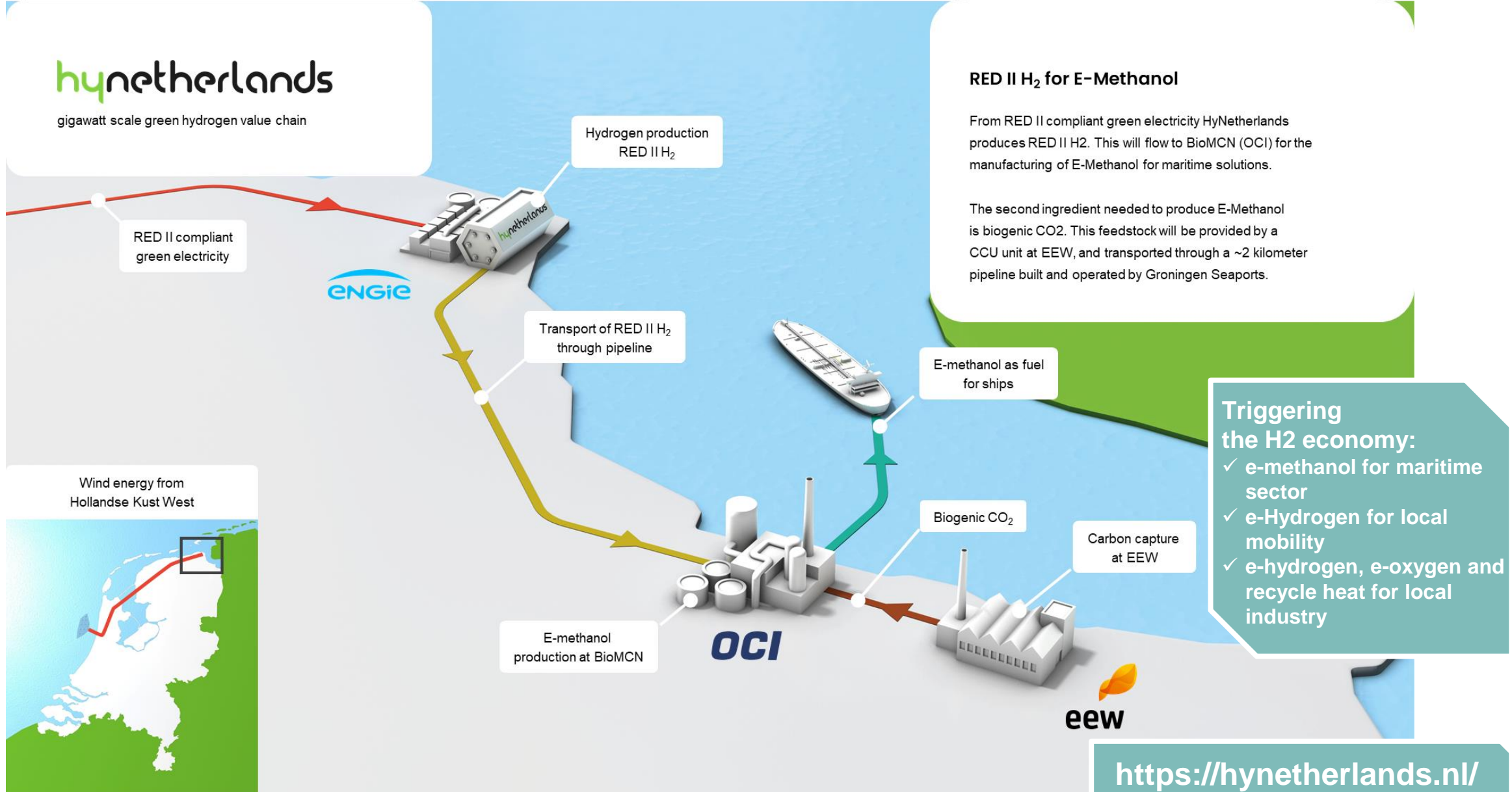
Focus on HyNetherlands project: a fast-track roadmap to manage industrial & investment risks towards bankability on GW-scale H2 production...



From a regional, towards a national and European hydrogen economy... through an alignment between HyNL and infrastructure roadmap



HyNetherlands, towards the next generation of energy carriers (hydrogen and e-methanol)



HyNetherlands, towards the next generation of energy carriers (hydrogen and e-methanol)



hynetherlands
gigawatt-schaal groene waterstof waardeketen

hynl
Ph1 - 100MW
COD 2025

hynl
Ph2 - 750MW
by 2030

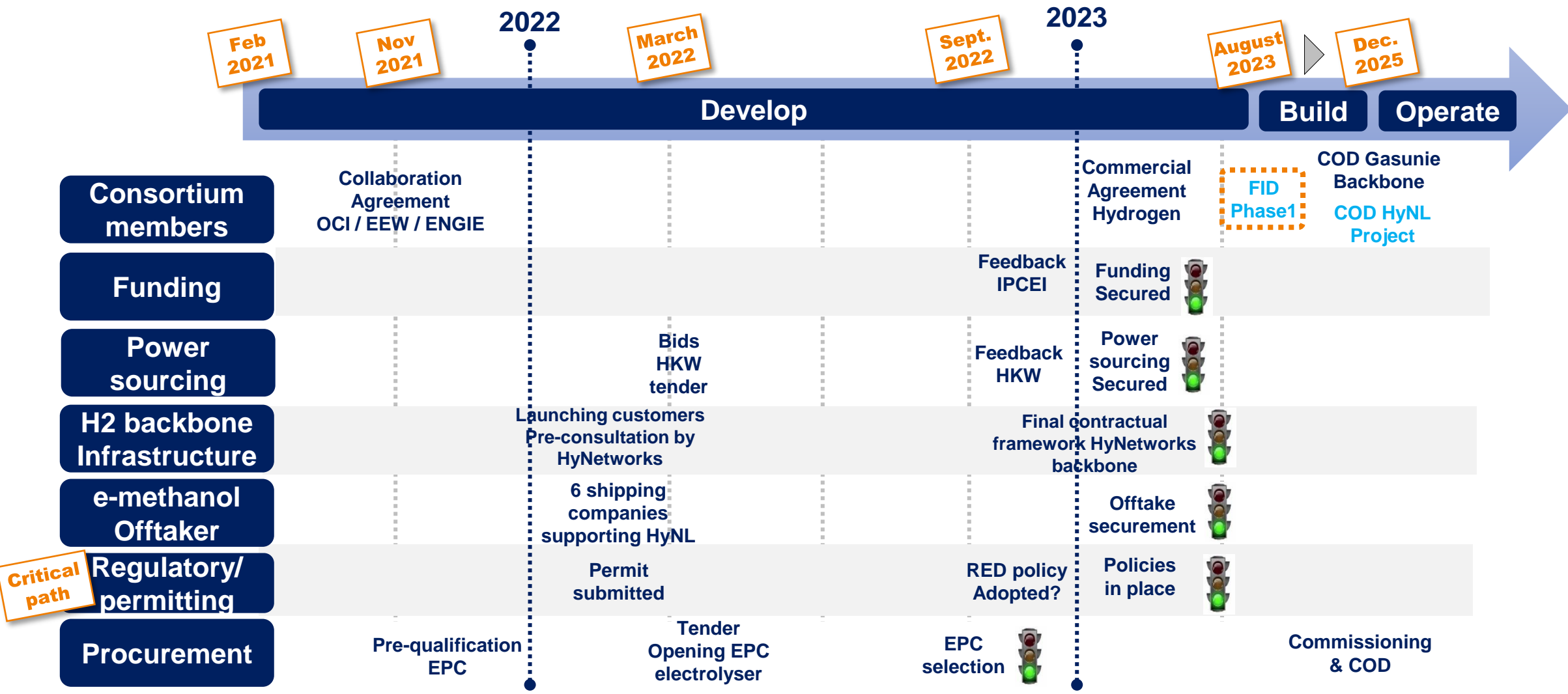
hynl
Ph3 - 1 GW
by 2035

- HyNetherlands project Phase1 targets the production of 14 ktpa renewable hydrogen and 53 ktpa e-methanol based on biogenic CO₂
- Objective is start construction August 2023 and operation End 2025
- Envisioned capacity of the entire hydrogen plant is 1,85 GW

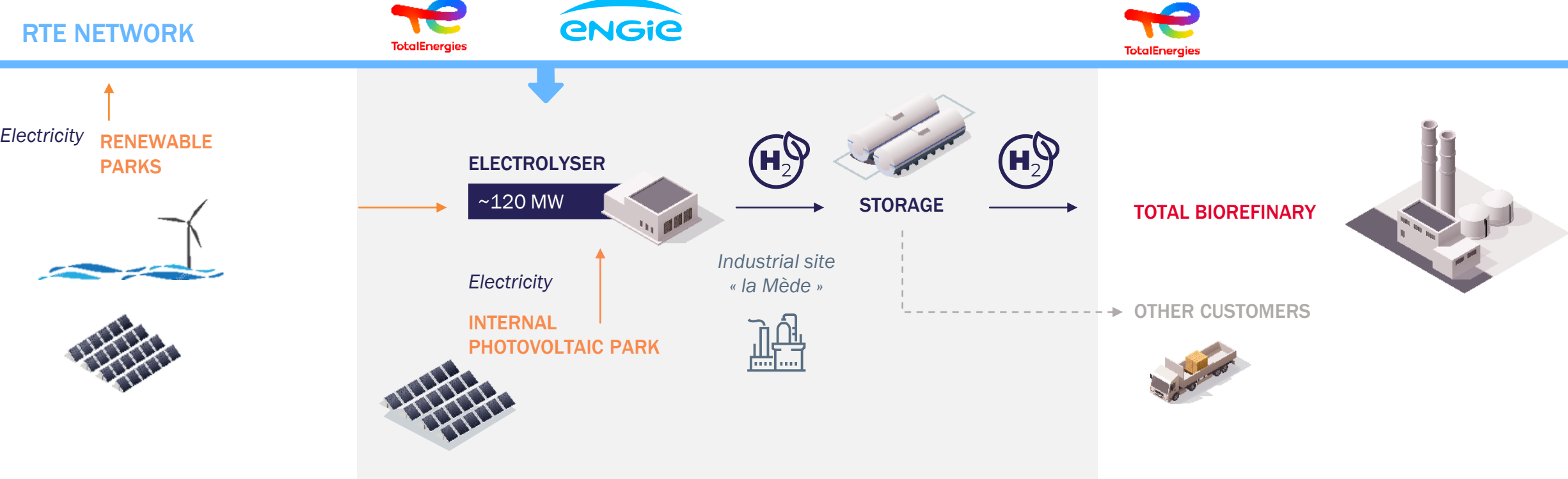
- Mature project:**
- ✓ Target FID August 2023
 - ✓ EPC selected
 - ✓ Submitted to 2 funding sources:
 - ✓ Pre-notified IPCEI Wave 2
 - ✓ Breakthrough Energy Catalyst
 - ✓ Permits request ongoing
 - ✓ Launching customer for H2 backbone North

HyNetherlands – Timeline equation

Fast-track development in EU = regulatory clarity + renewable + funding



Masshyla project: an innovative renewable hydrogen project



50 TONS
renewable hydrogen produced per day

> 140 000 TONS
Avoided CO₂ emissions per year

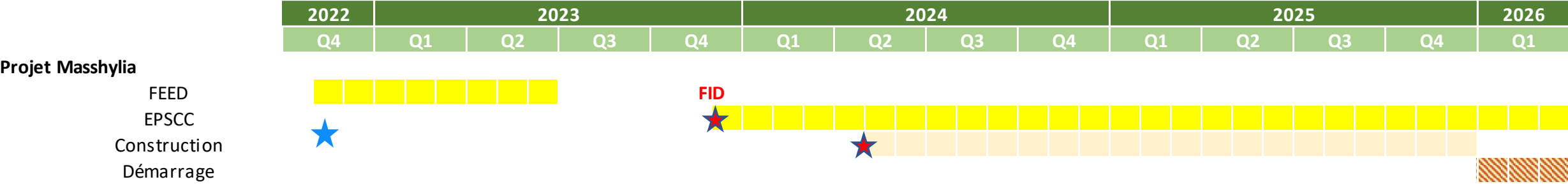


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AN INNOVATIVE
RENEWABLE HYDROGEN
PROJECT

Masshylia project: progress and status

- ❑ Target to reach Final Investment Decision (FID) in Q4 2023 / Commercial Operation Date (COD) in Q1 2026
- ❑ Technical studies :
 - Selection of the electrolysis technology provider
 - Permitting: ongoing
 - Selection of the Owner Engineer : ongoing
 - Securing Renewable capacity
- ❑ Subsidies: notification under IPCEI Wave2



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AN INNOVATIVE RENEWABLE HYDROGEN PROJECT



Thank you very much!

GBU Thermal & Supply