

16 September 2021

HYDROGEN EUROPE

Jorgo Chatzimarkakis, CEO

HYDROGEN TAKING STOCK OF THE FIT FOR 55
What is in for Hydrogen

Fit for 55: H2 mentioned more than 1000 times

H2ero Net Zero

“The EU has come one step closer to becoming a global leader in hydrogen development. By putting targets on the use of hydrogen in industry and transport the EU stands a real chance to achieve climate objectives, create thousands of jobs and protect its industry. There is no time to lose – delivering on the Fit for 55 must start today!”

Jorgo Chatzimarkakis
Secretary-General, Hydrogen Europe



Big achievements in Fit for 55



REVISED RENEWABLE ENERGY DIRECTIVE

The revised Renewable Energy Directive promotes the use of renewable hydrogen:

- Extending the **EU-wide certification system** for renewable fuels to include hydrogen
- Decarbonising industry and heavy-duty and long-distance transport, with concrete targets

TRANSPORT



2.6%

for renewable fuels of non-biological origin

INDUSTRY



50%

renewable share in hydrogen consumption

Fit for 55: Breakthrough in road transport

CO₂ STANDARDS FOR CARS AND VANS

The CO₂ standards for cars and vans set technology neutral targets to reduce emissions by 2030 and by 2035. Hydrogen can be part of the solution, **in particular for heavy-duty vehicles**, if the industry chooses to invest in this technology.



ALTERNATIVE FUEL INFRASTRUCTURE REGULATION

The Alternative Fuel Infrastructure regulation will also support the deployment of alternative fuels infrastructure, including refuelling points for hydrogen.

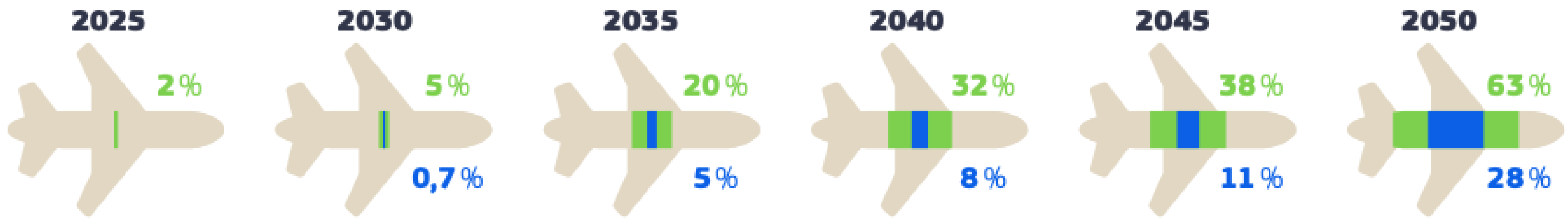
One refuelling station will be available every 150 km along the TEN-T core network and in every urban node.



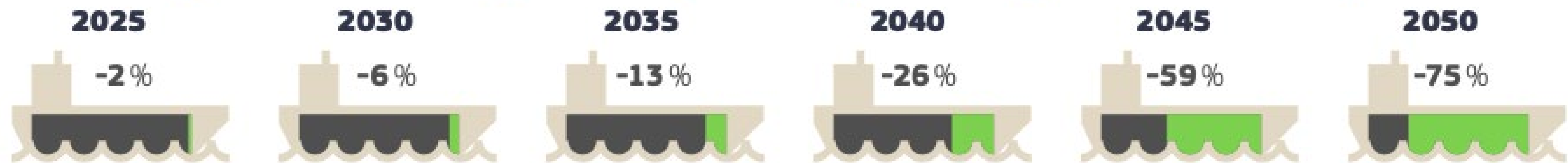
Fit for 55: Clear targets for aviation and maritime

New targets for sustainable aviation fuels (as % of fuel mix)

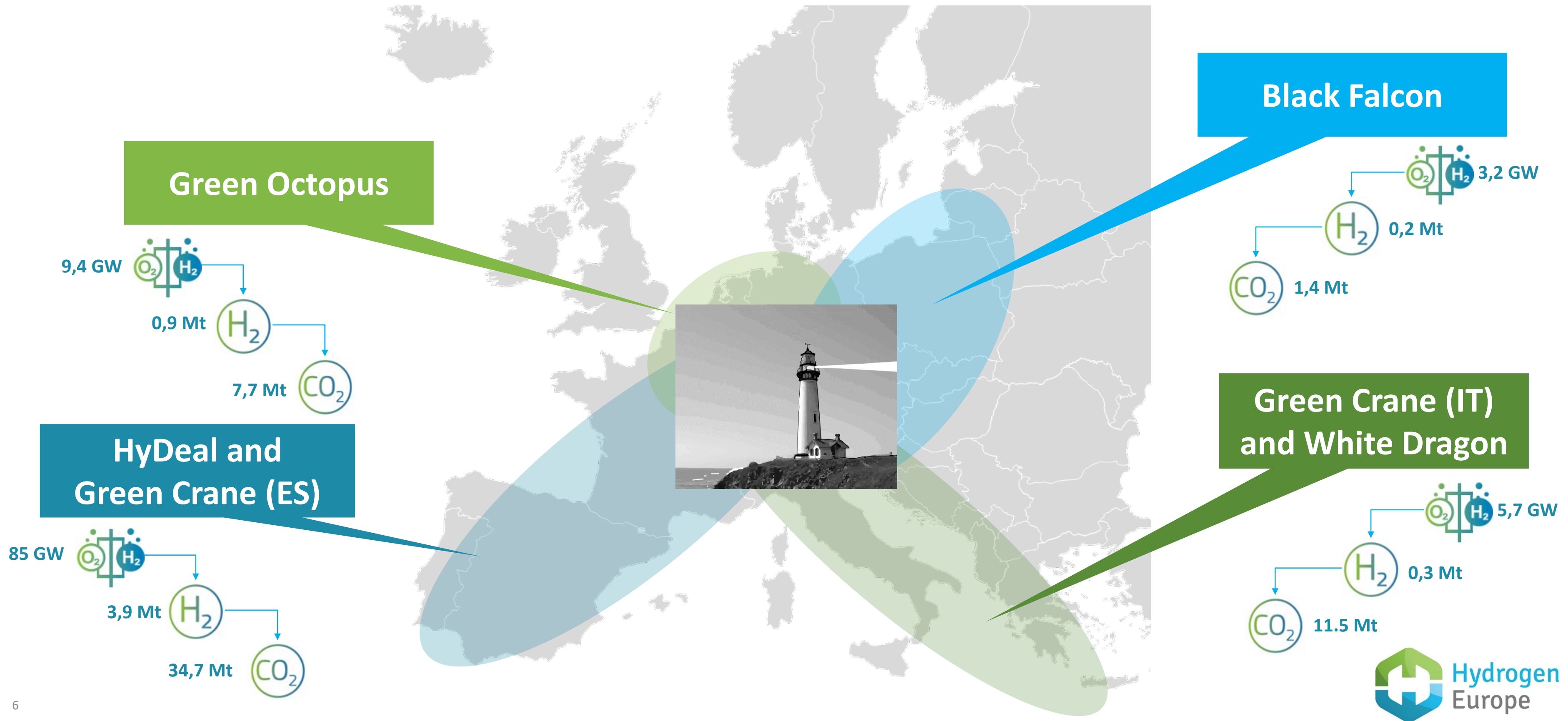
■ Sustainable aviation fuels ■ Specific sub-mandate on e-fuels



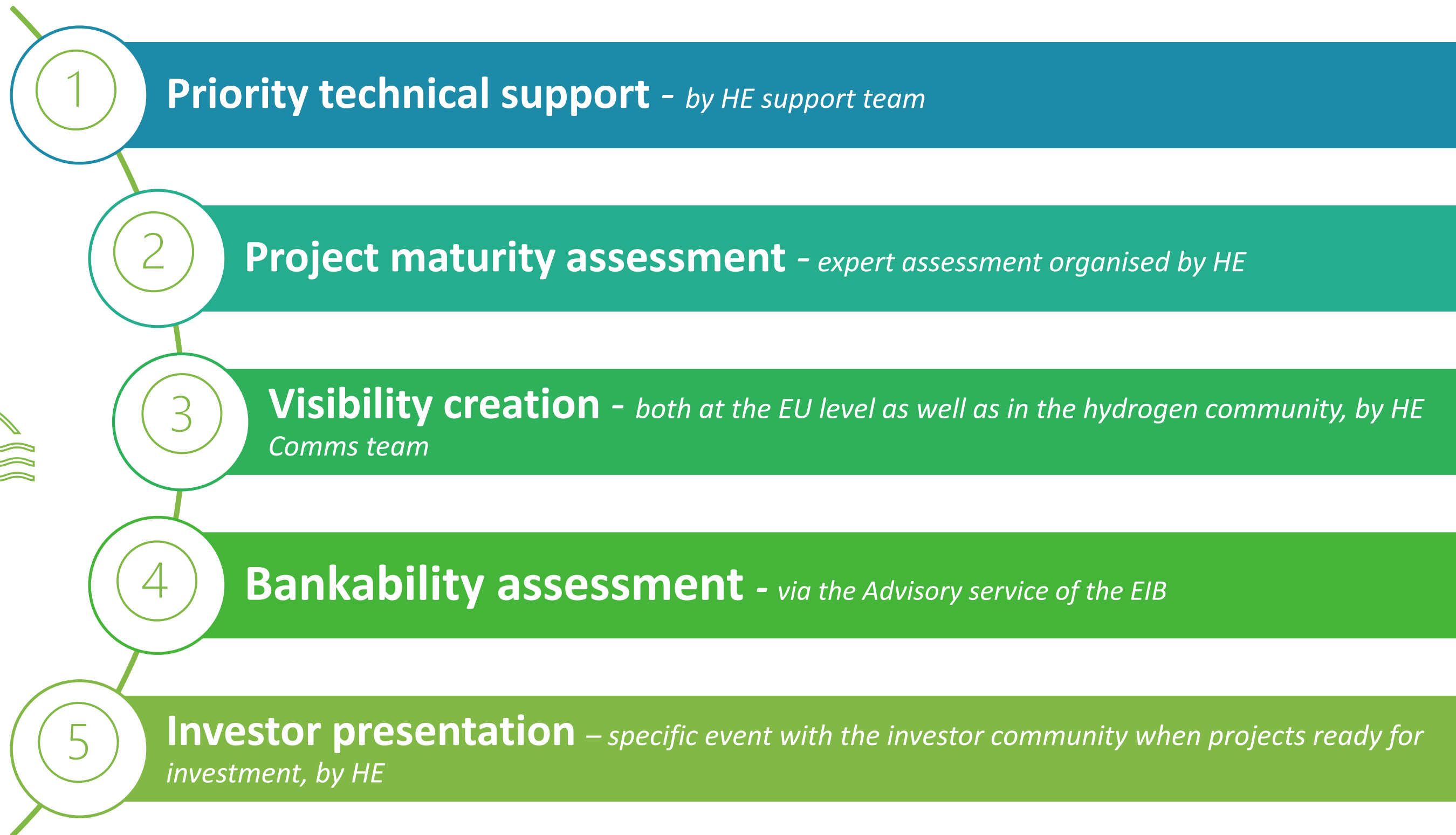
Maritime targets on the limits on greenhouse gas intensity of the energy used on-board compared to 2020



Lighthouse projects as catalysts



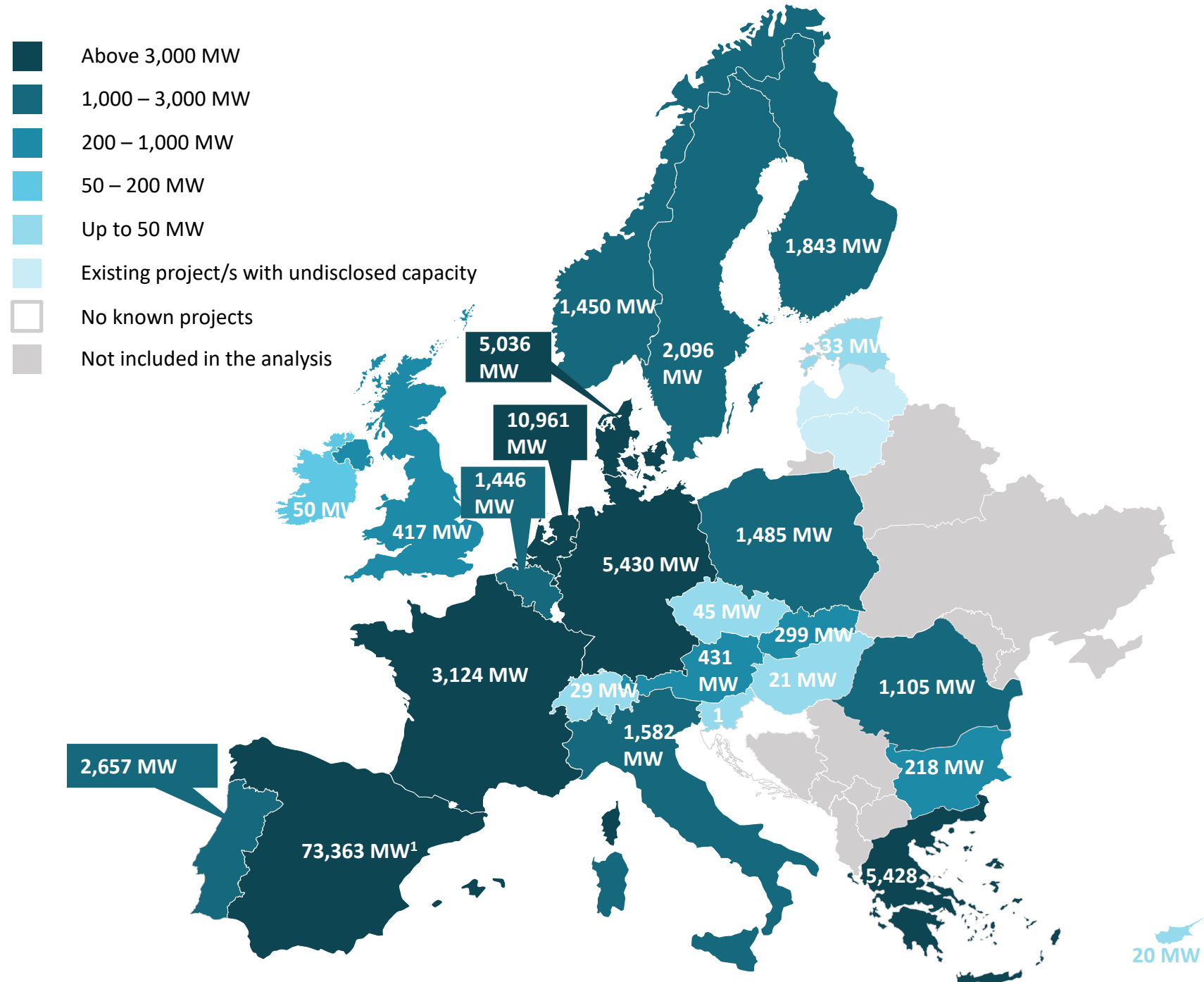
Benefits of HE Lighthouse Projects Initiative



Renewable H2 production in ALL EU Countries

Planned and operational PtH capacity by 2030 (MW)

Data as of 16/09/2021



Comments

- Industry planning renewable H2 production in **ALL** EU Countries + UK
- **Large renewable H2 production capacity planned in:**
 - Spain (73 GW)
 - Netherlands (11 GW)
 - Greece (5 GW)
 - Germany (5 GW)
 - Denmark (5 GW)
- **553** of announced and operational electrolyser projects **by 2030** in EU, EFTA, UK

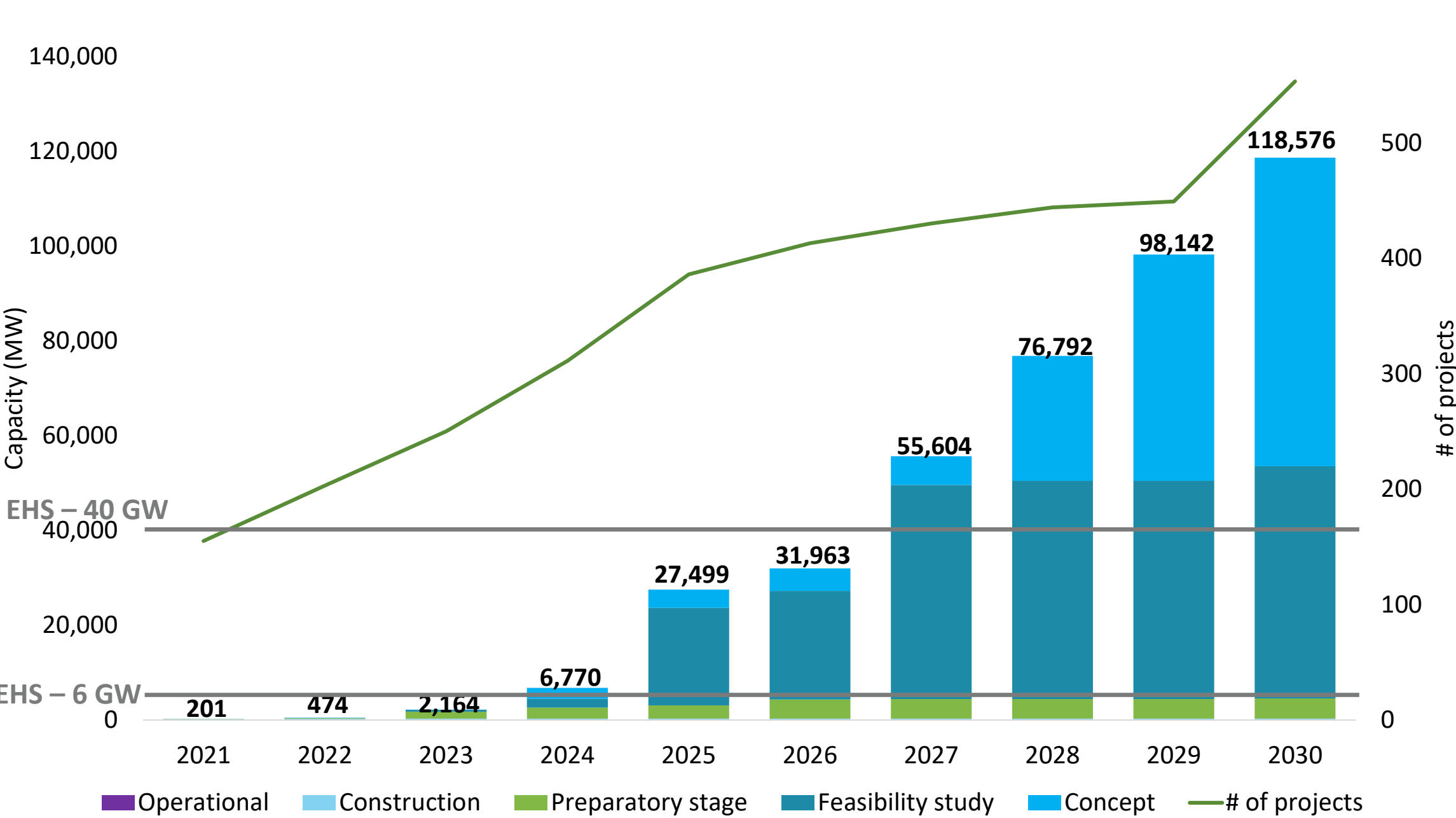
Notes: Displayed electrolyser capacities reflect projects that have an official starting date by 2030. There are numerous other projects with unknown starting dates that could be finished by 2030, but are not included in this analysis; Projects refer to either individual projects or project phases with separate investment decisions.

1. While Spain has numerous sizeable projects, there is a single project with multiple phases contributing 67 GW of the planned PtH capacity in Spain by 2030.

Source: Hydrogen Europe

Despite impressive announcements, regulation does not help renewable H2 right now!

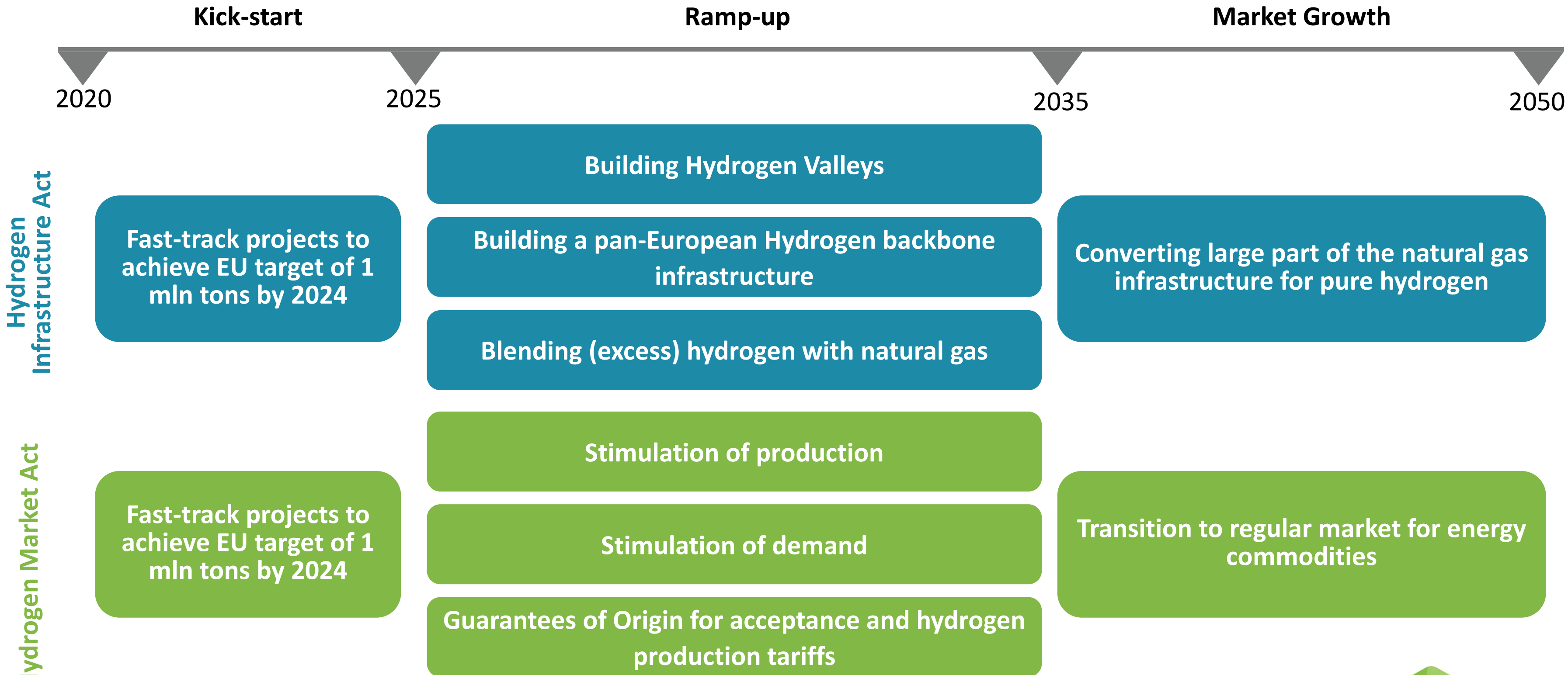
Planned and operational PtH projects by 2030 (MW and # of projects)



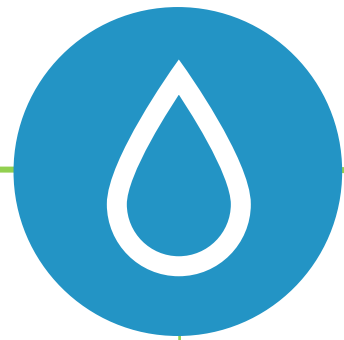
Solutions

1. Dedicated legislation to govern hydrogen and hydrogen networks
2. Remove barriers to hydrogen investment
3. Create a level playing field with other net-zero technologies
4. Promote a harmonized approach to hydrogen

Harmonized approach to regulatory development via H2 Act



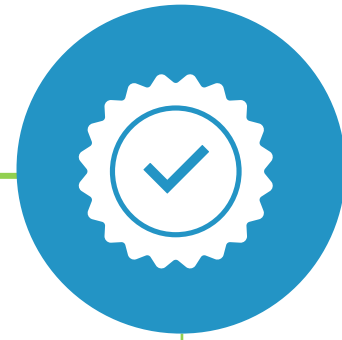
Guarantees of Origin: key to market clean hydrogen



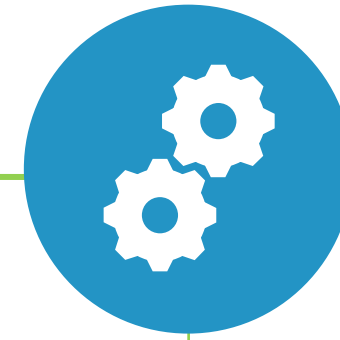
Hydrogen as a distinct energy carrier, separate from electricity and gas.



GO must include *inter alia* (1) the primary energy sources and (2) the GHG footprint.



- 5 Ts – GOs must be
- Trackable,
- Traceable,
- Tradeable,
- Transparent and
- Trustworthy.



GOs need to capture the attributes resulting from different production pathways.



An international GO system is required for import and export of hydrogen.

Global auctioning and levelising OPEX

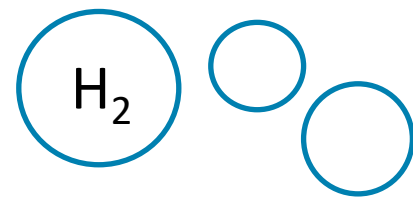


EU

Global auctioning system to accelerate the ramp-up of clean hydrogen projects.



Incentive
for
SUPPLY

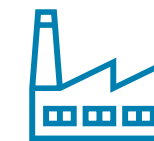


Supplier

Long-term purchase contracts are formed between supplier and consumer – reliable future.



Incentive
for
DEMAND



Consumer

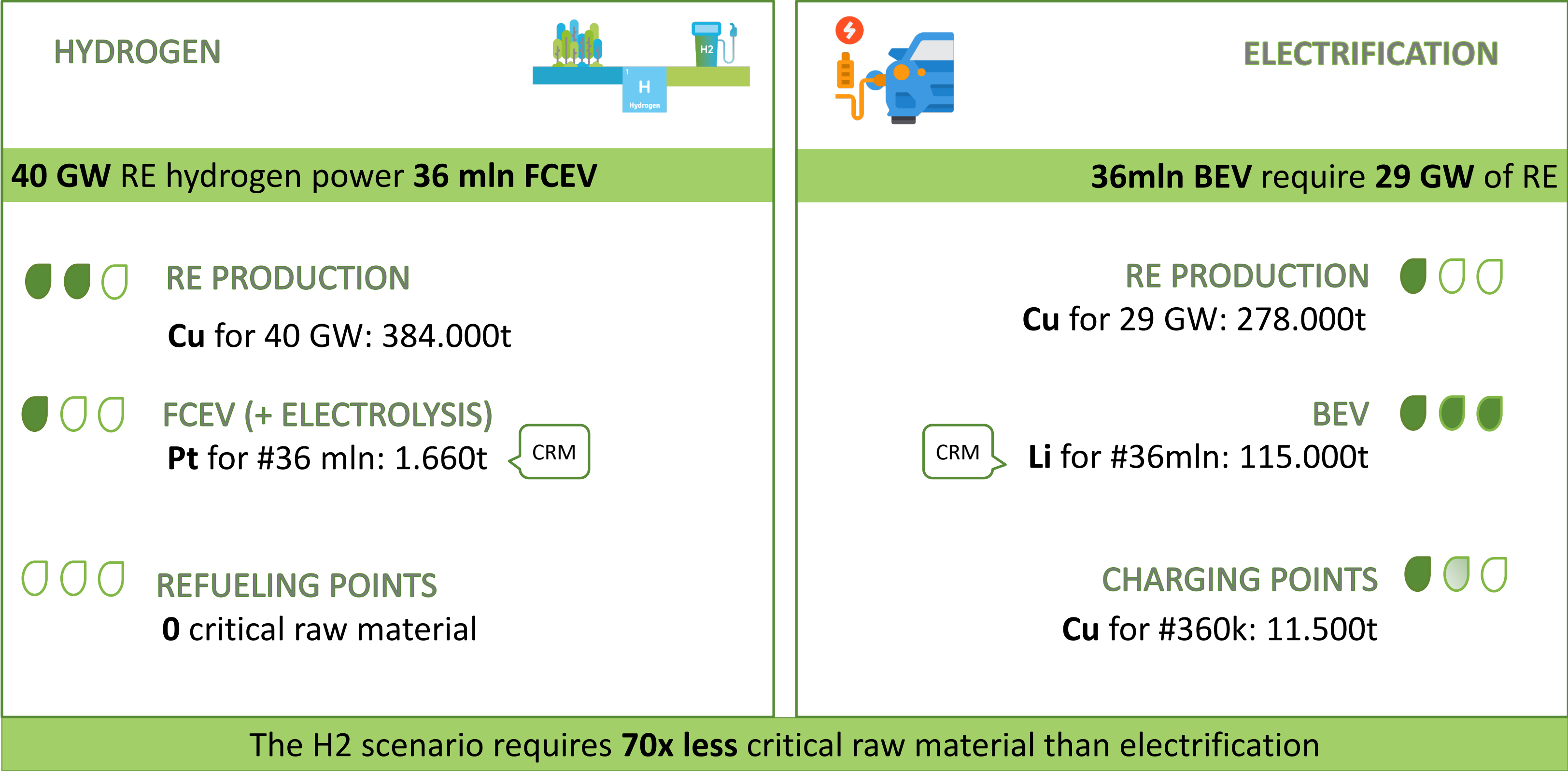
Carbon Contracts for Difference

Bid	Carbon price	Public funds
70	— 40	= 30

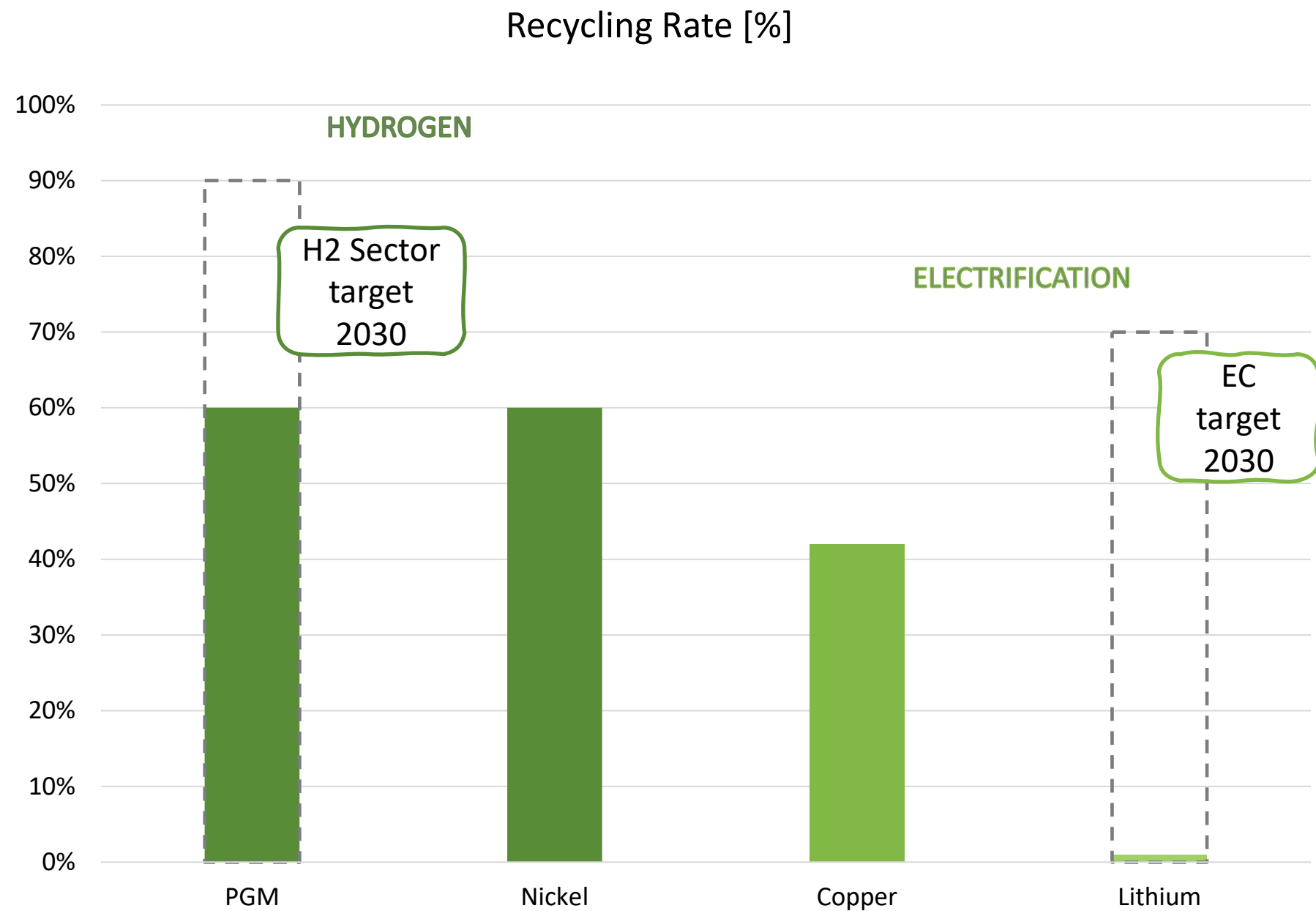
Over the years, the bid price drops and carbon costs rise and such payments cease to exist.



Facilitating renewable H2 reduces mineral demand



Facilitating renewable H2 enhances circularity

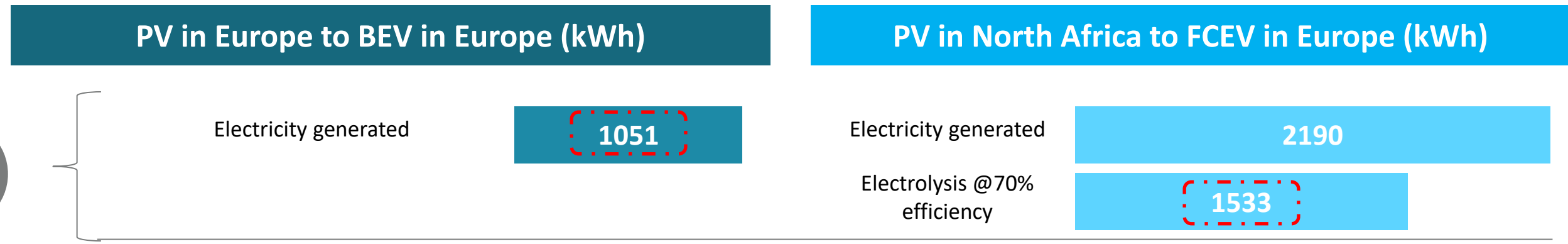
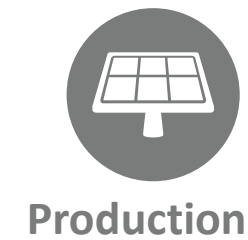
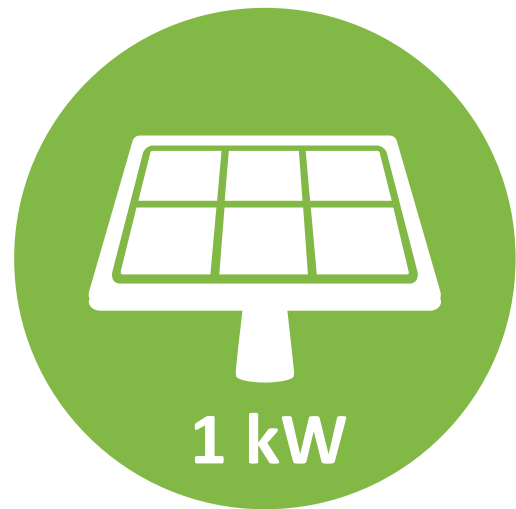


Recycling targets for *critical raw materials* highlight **hydrogen** as clean technology with **much better circularity**.

Source: IEA, Hydrogen Europe, T&E

Energy Efficiency – debunking myths

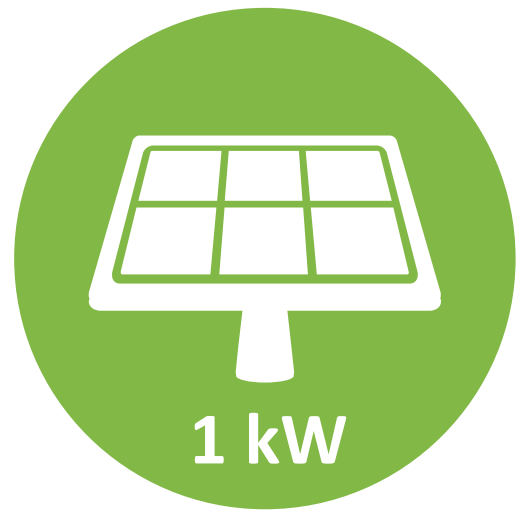
Energy efficiency: you **HAVE** to start from the **REAL INPUT**



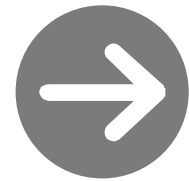
Even with the electrolysis conversion loss, you still have **MORE** Energy

Energy Efficiency – debunking myths

Energy efficiency: you **HAVE** to start from the **REAL INPUT**



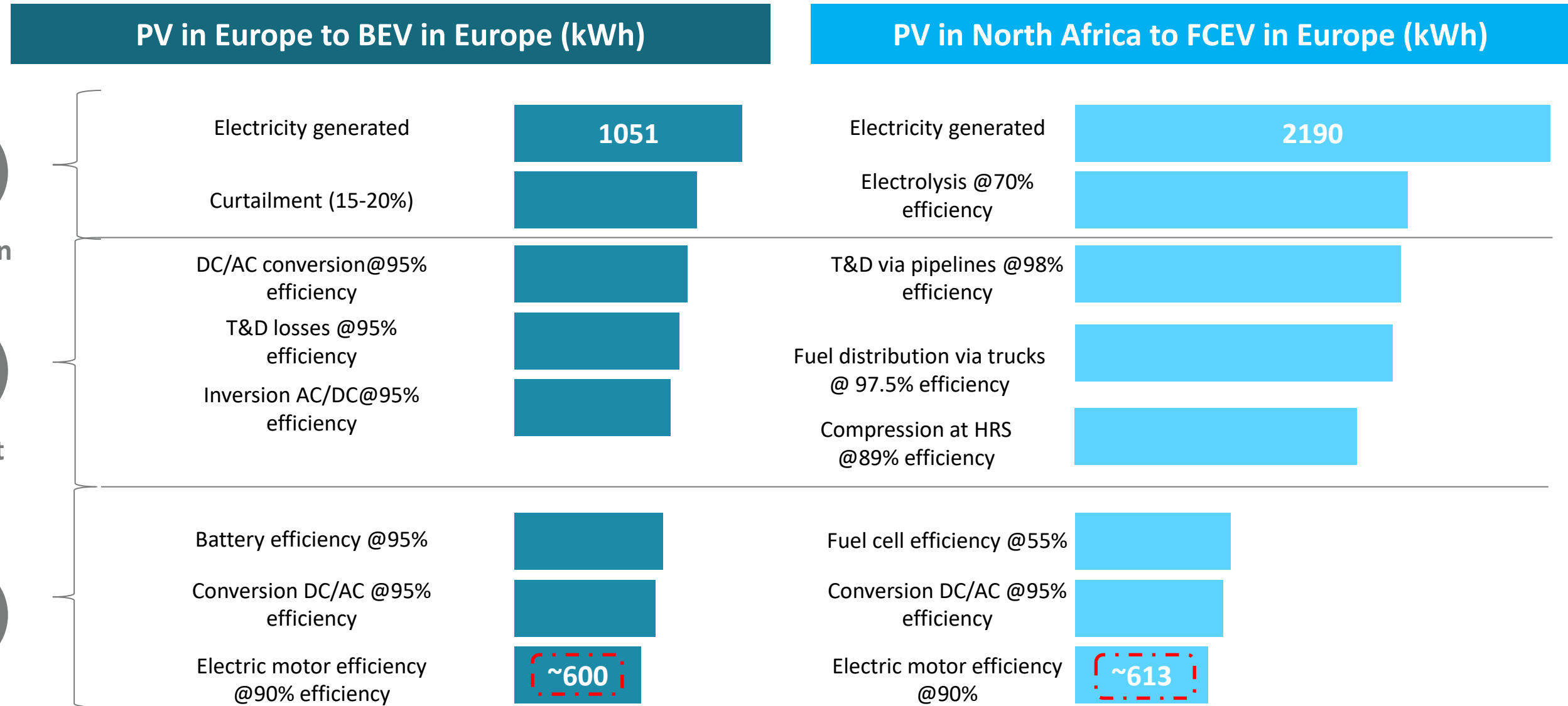
Production



Transport



Vehicle



Counting all conversion losses, you actually get **similar (or even more) useful renewable energy**, when using H2 in an FCEV compared to a BEV, if RE is produced in the right conditions!

Thank you for your attention!



Avenue de la Toison d'Or 56-60
BE-1060 Brussels
secretariat@hydrogeneurope.eu
+32 (0) 2 540 87 75
www.hydrogeneurope.eu

