2nd Electrolyser Summit

Keynote speech

Jorgo CHATZIMARKAKIS, Chief Executive Officer, Hydrogen Europe

The Electrolyser Partnership mission and members

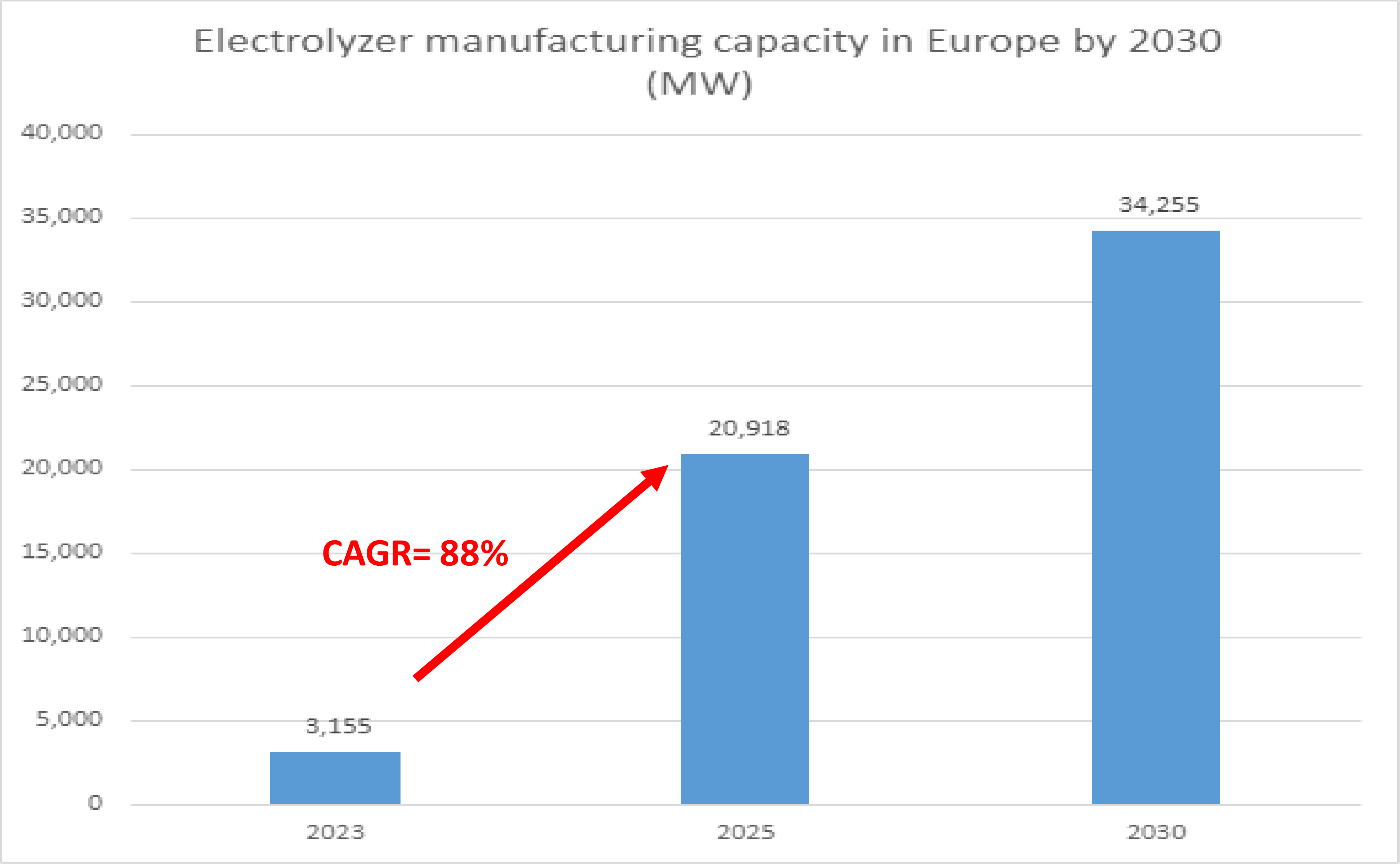
A catalyst for advancing EU industrial leadership, creating sustainable value chains and jobs.

ELYP Secretariat

Task Force Critical Raw Materials

Task Force Funding and Financing

The state of play of Europe's manufacturing capacity as of today



Source: Hydrogen Europe complemented with results of the Electrolyser Partnership survey

Enshrining the Electrolyser Partnership objectives into legislation

We must ensure European OEMs:

a) large share in the European Market

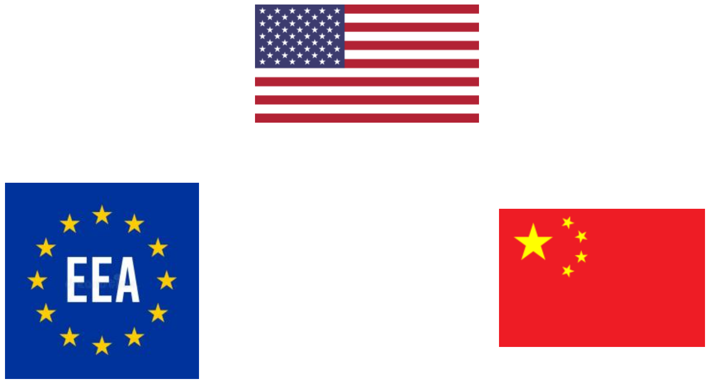
b) Competitive presence in global market

EU Electrolyser manufacturing in 2023

100%

of the EU's annual deployment needs in 2023

NZIA target



40%

of the EU's annual deployment net-zero techs needs by 2030

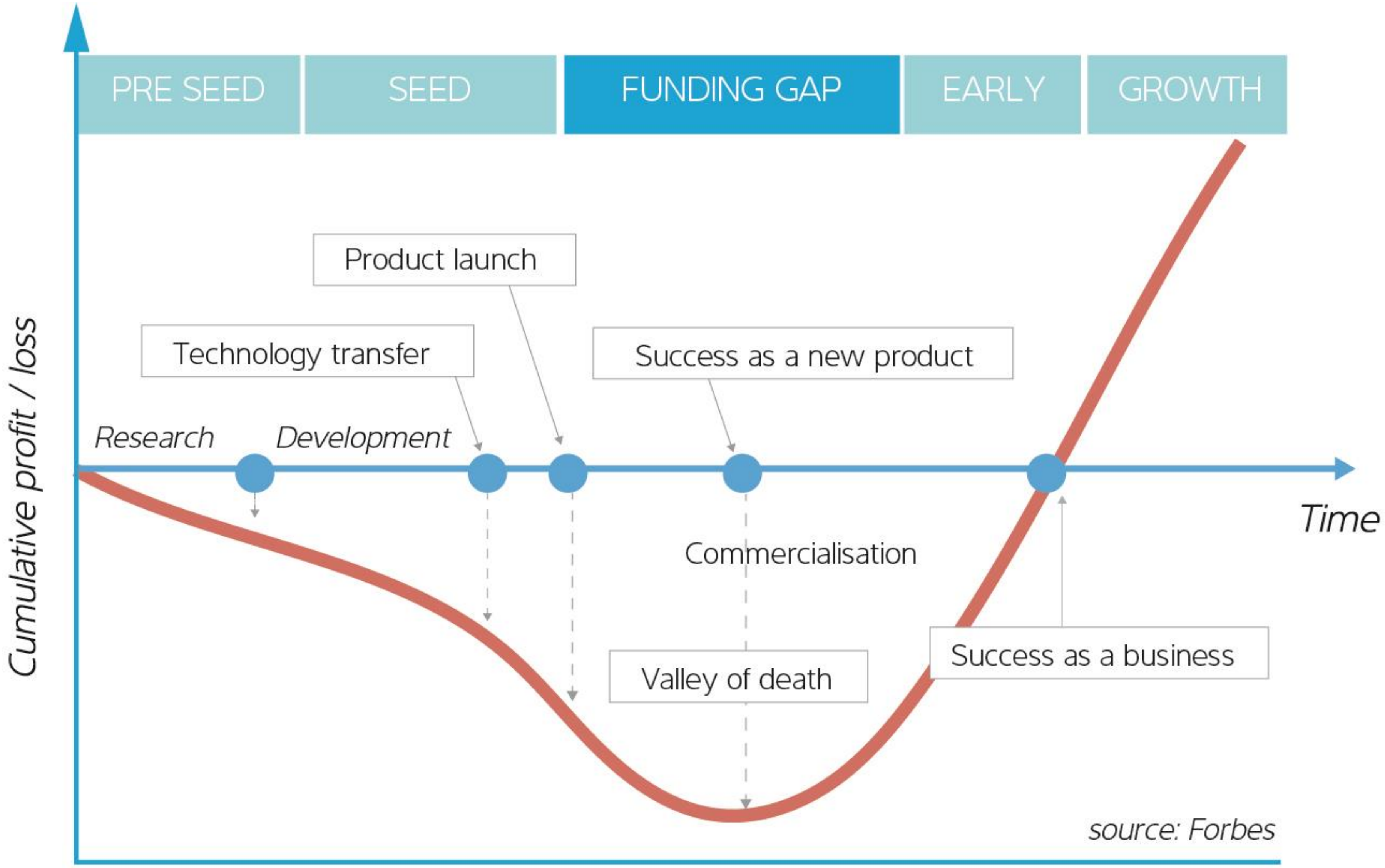
Access to EU funding is still a large bottleneck

*“It takes to **three of my people three hours** to figure out how much difference the **IRA** makes for us.*

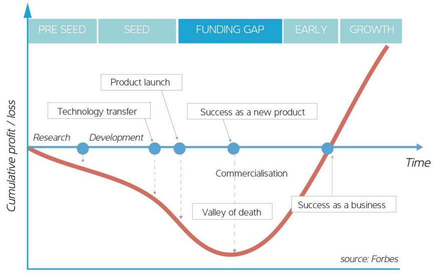
*It takes to **25 lawyers, engineers and tax professionals two years** to complete one **IPCEI application**, and in the end I still don’t know how much I will get out of it”*

-Elon Musk

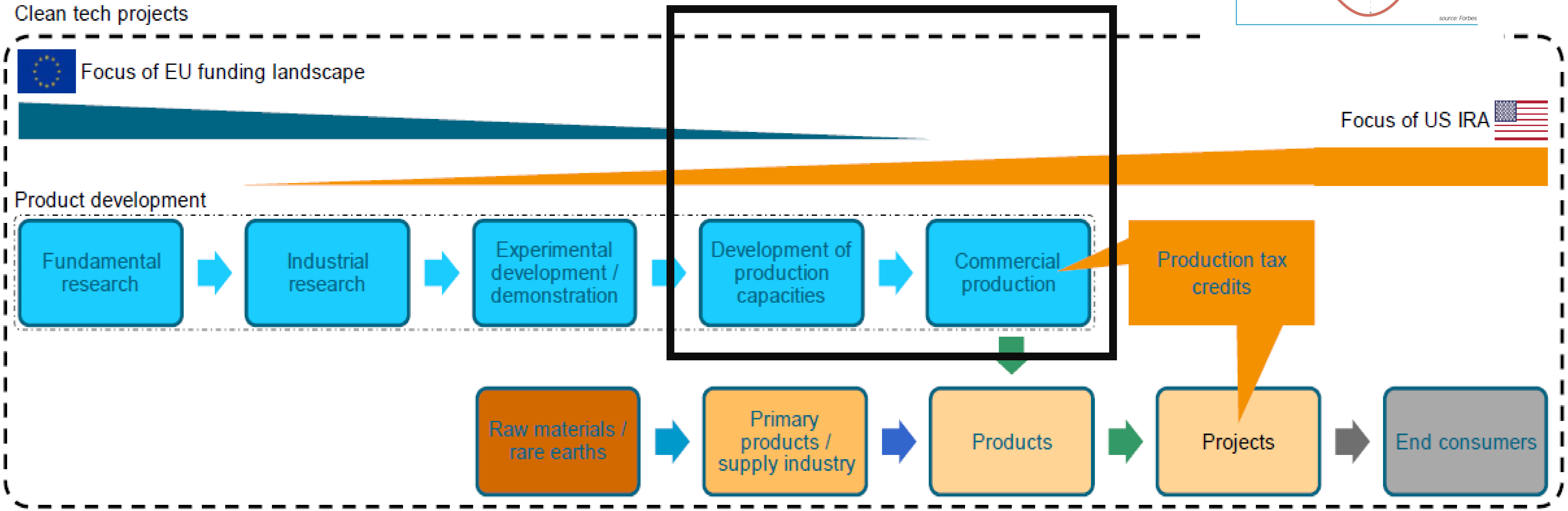
We all know the valley of death for bringing new technologies to the market



Important to put more focus on the commercialization stage if we wish to accelerate the growth of the European manufacturing industry

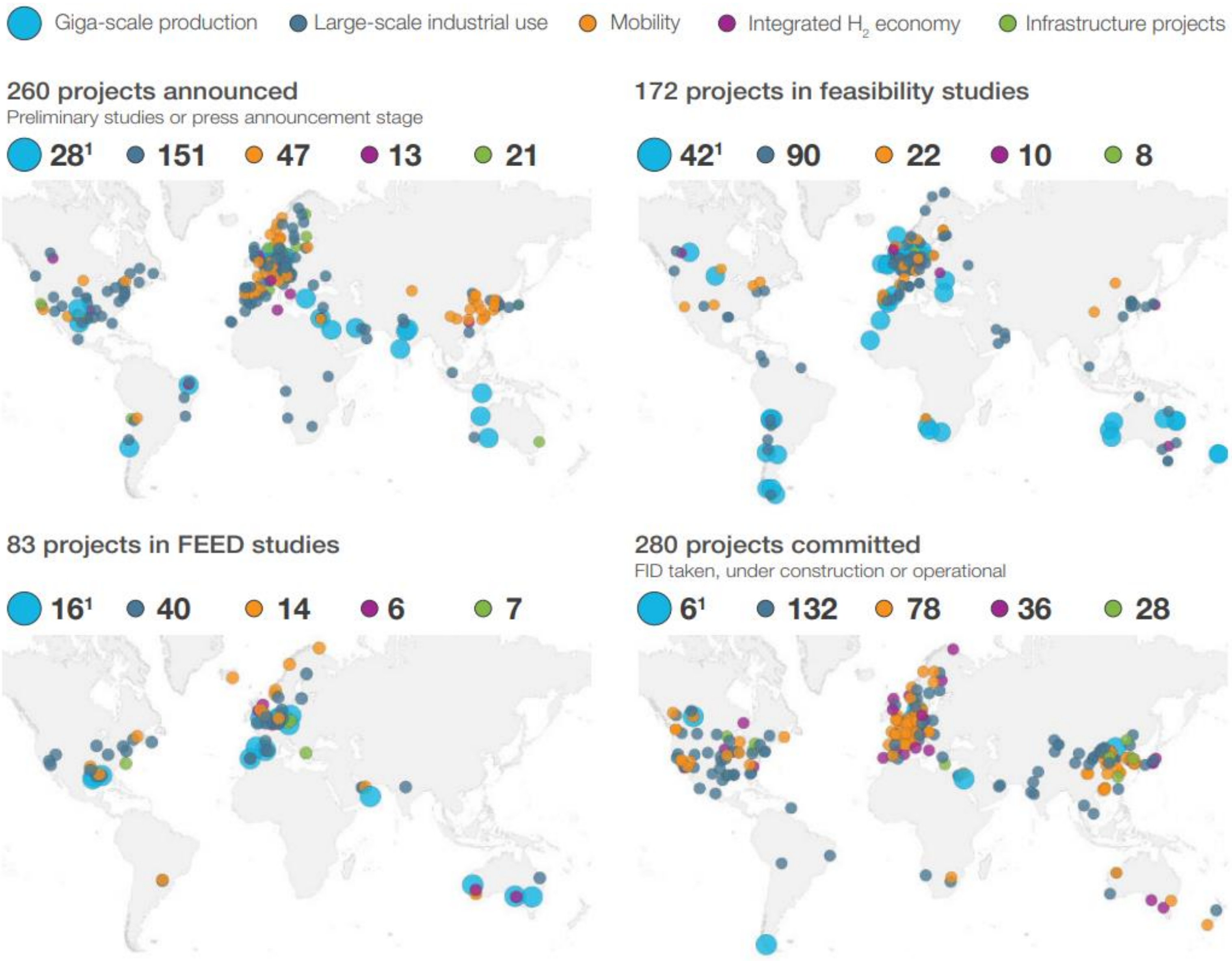


Valley of death- where EU funds phase out



Source: adapted from VDMA

Europe has a lot more projects in the pipeline but similar amounts that have found Final investment decision



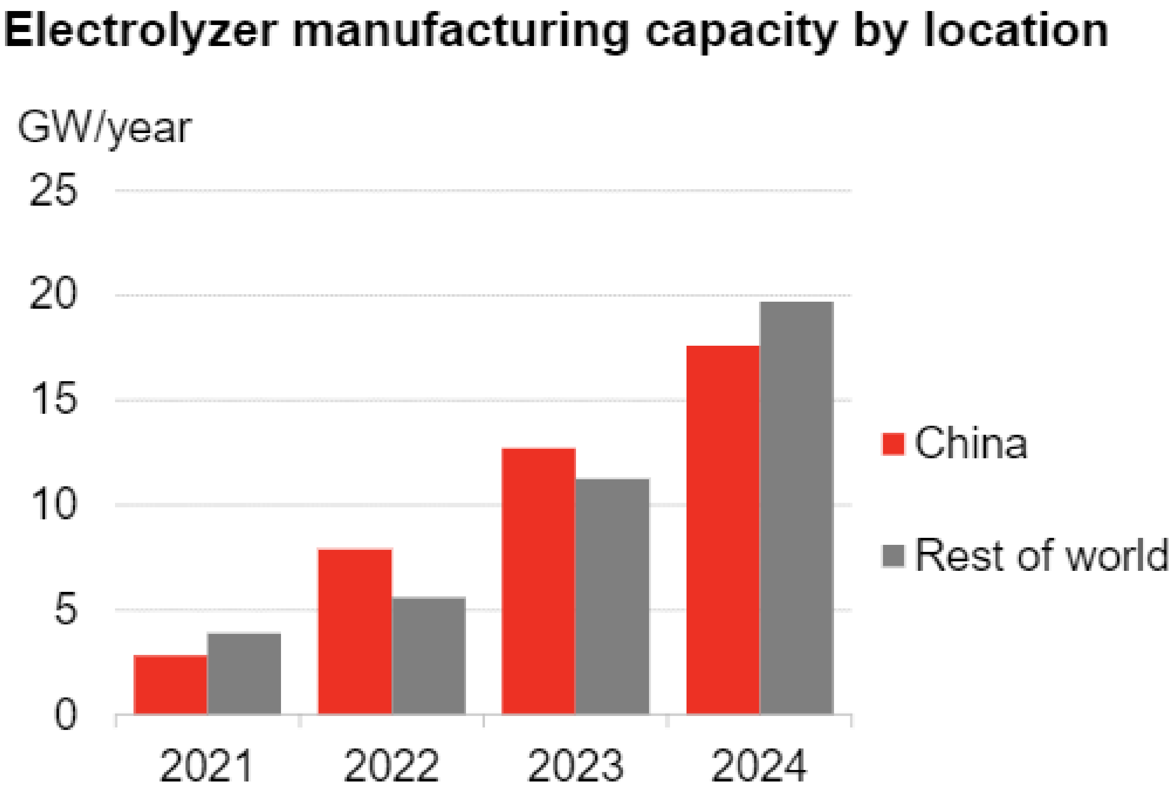
795 projects with full or partial commissioning (COD) by 2030

1. For multiphase projects, phase 1 decides the project maturity

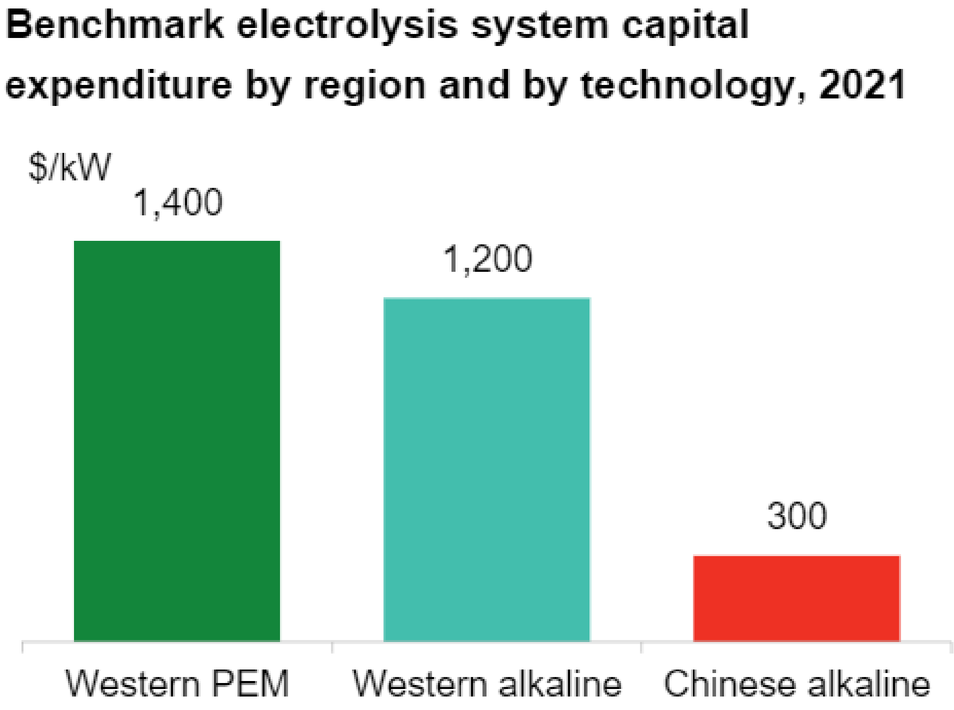
Source: Project & Investment tracker, as of Jan 31, 2023

+251 projects without specified COD or COD post-2030 (not shown)

Chinese Manufacturing capacity catching up both on volume and in cost



Source: BloombergNEF, company filings, industry sources



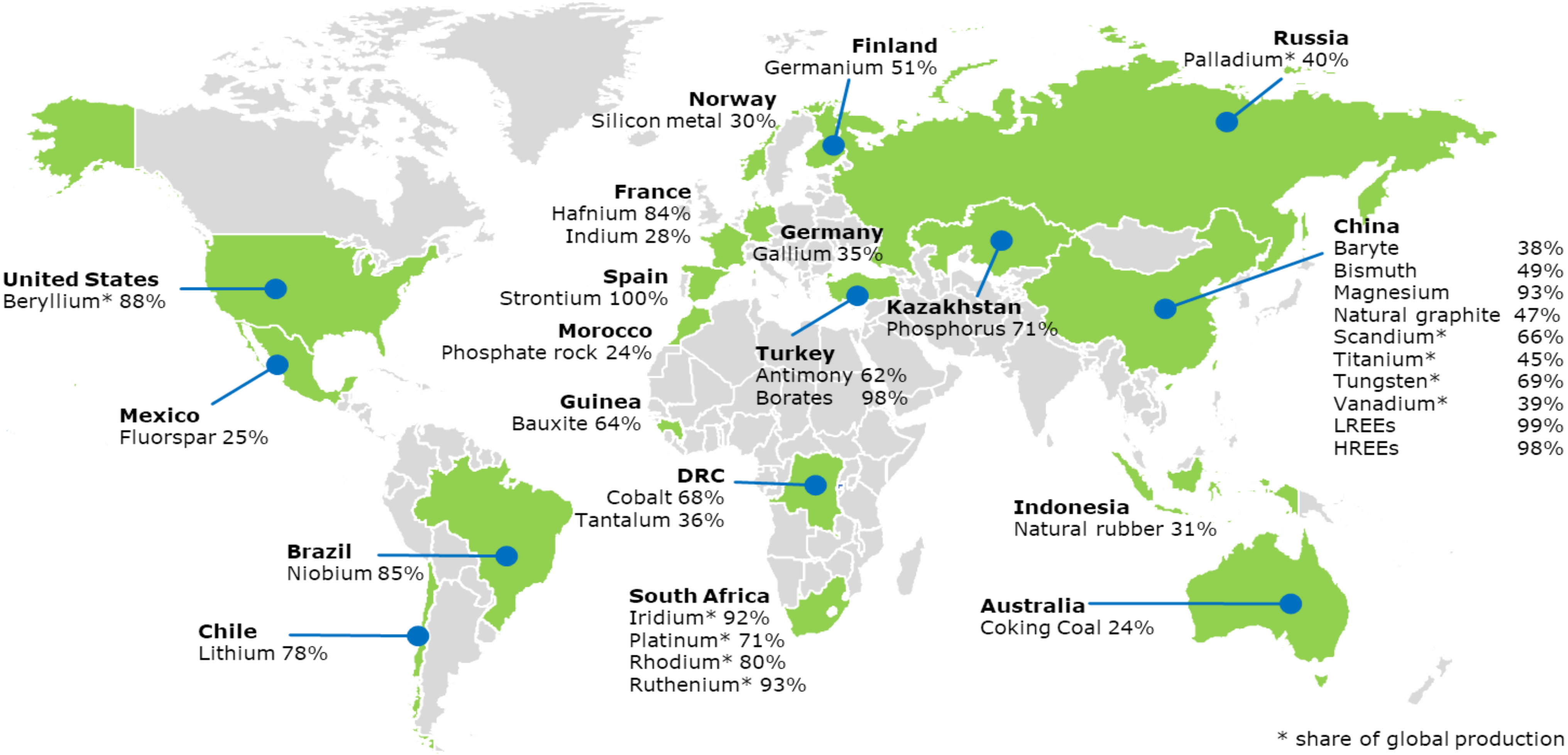
Source: BloombergNEF

EU-US IRA

Exporting electrolysis technologies around the globe, potential for a huge market

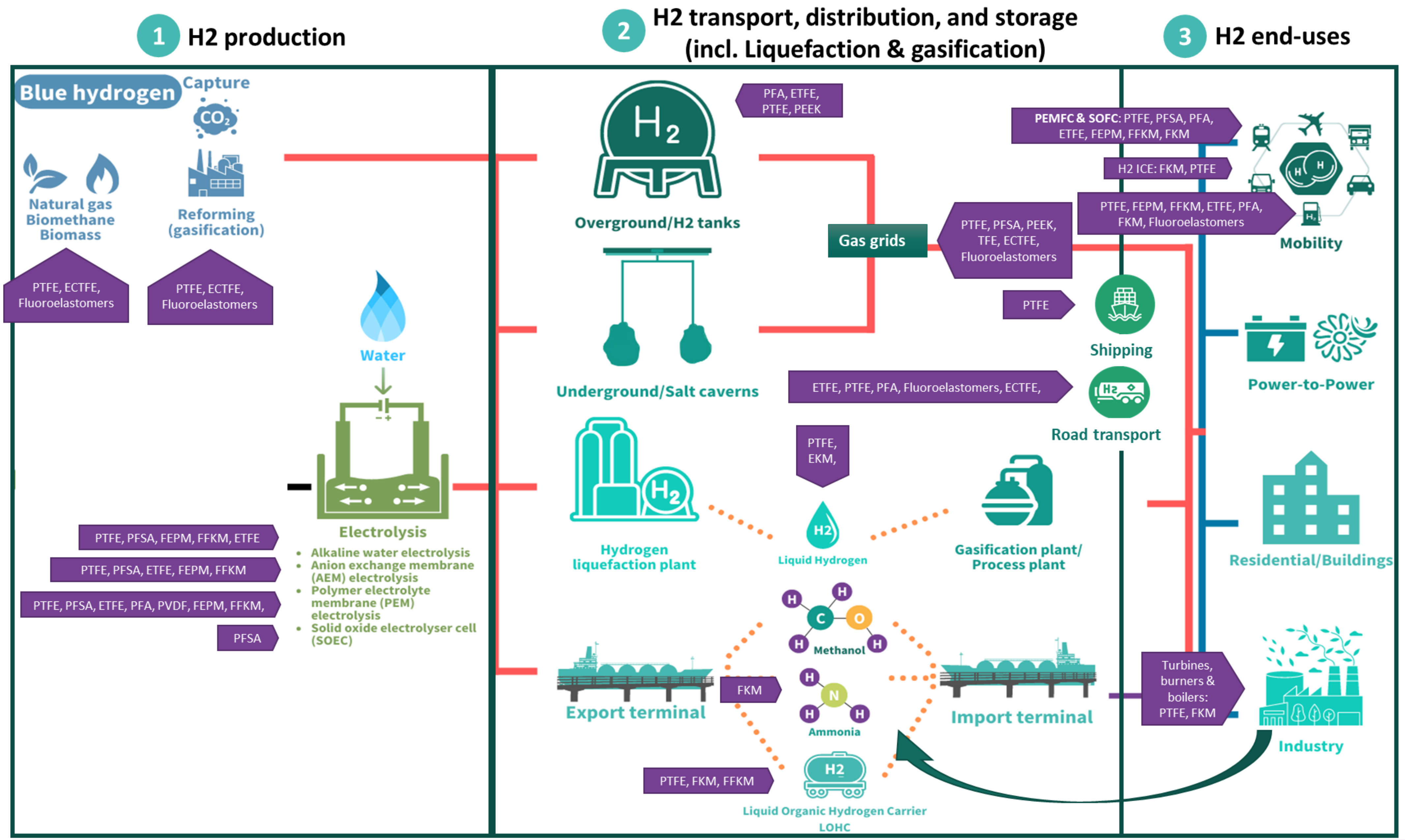
Electrolyser sector highly dependent on China and south Africa

Structural dependencies in the EU supply of CRMs



Source: "European Commission, Study on the EU's list of Critical Raw Materials – Final Report (2020)"

The H2 industry uses fluoropolymers all across its value chain



Thank You

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Electrolyser Partnership

Session 1 – Europe's state of play: ramping up ELY manufacturing capacities and ambitions

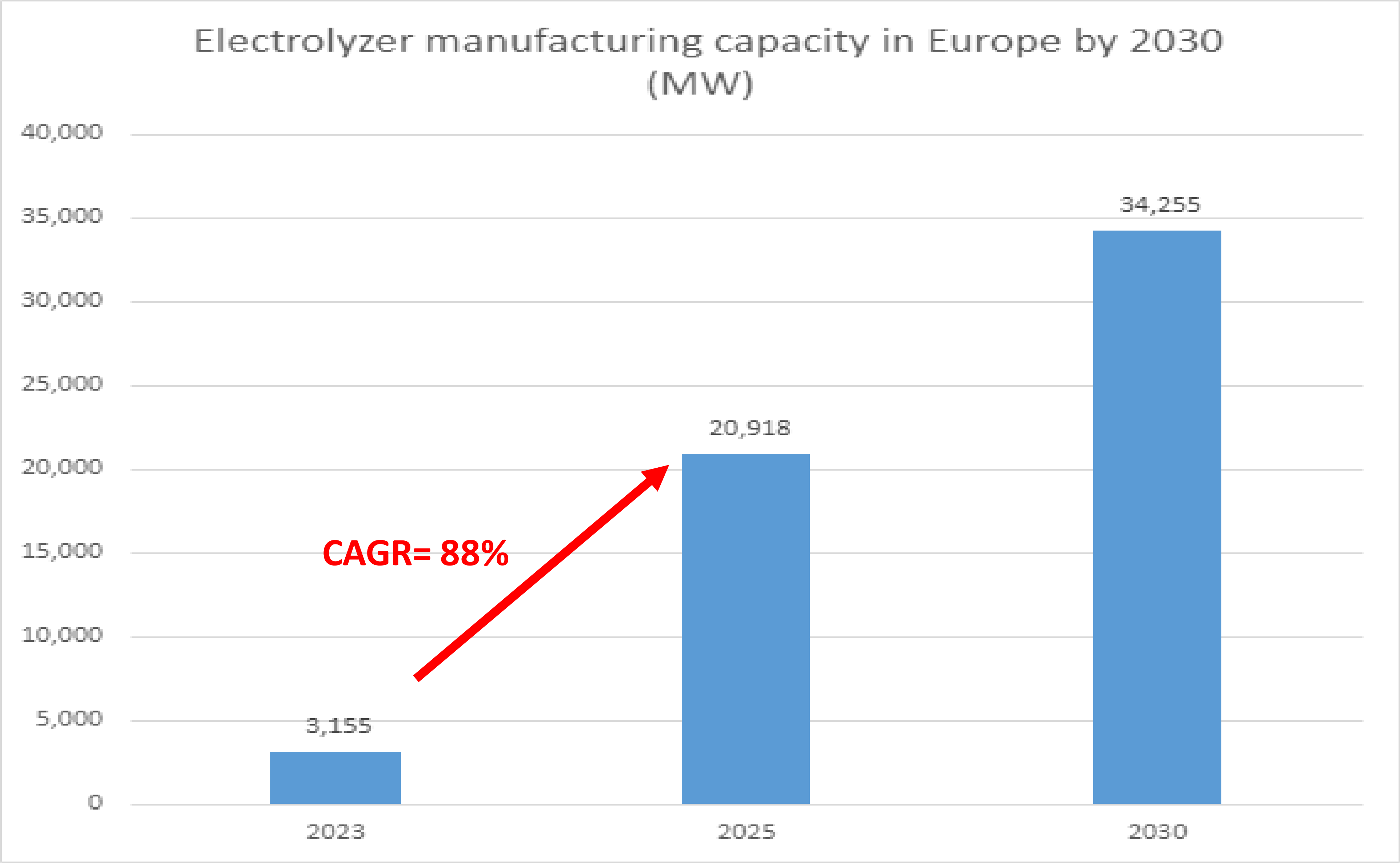
Florence LAMBERT-HOGNON
Genvia

Kim S. HEDEGAARD
Topsoe Power-to-X

Paolo Enrico DELLACHÀ
Industrie De Nora

Jean-Baptiste LUCAS
McPhy

The state of play of Europe's manufacturing capacity as of today



Source: Hydrogen Europe complemented with results of the Electrolyser Partnership survey

Key recommendations on behalf of the ELY Partnership

Align NZIA targets with joint declaration, increasing the ambition of 40%. Make NZIA targets specific for electrolysers (and fuel cells) and consider the technological export potential

Consider the whole supply chain of electrolyser when developing favourable policies for clean technologies

EU market and legislation on carbon and carbon footprint should be clear, streamlined and fit-for-purpose to ensure EU standards as the global ones

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Session 2 – Funding and financing: opportunities and challenges for electrolyser manufacturing, and its innovation

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Nils ALDAG
Sunfire GmbH

Amy ADAMS
Cummins Inc.

Nuno SILVA
EFACEC Power Solutions SGPS

Africa CASTRO
H2B2 Electrolysis Technologies

Draft Session 2 – The Big Picture: Funding Streams for the Electrolyser Industry

R&D and Innovation
Asserting technology leadership

Horizon Europe

Demonstration
Showing that it works

Clean Hydrogen Partnership

Scale-Up
Securing sufficient capacity

IPCEI
Important Projects of Common European Interest

INNOVATION FUND
Driving clean innovative technologies towards the market

OPEX funding
Creating demand

European Hydrogen Bank

Continuous support is needed across all three dimensions, with an increased focus on scaling manufacturing to reach EU targets

Scaling risks are not yet sufficiently adressed (role for EIB in de-risking)

Getting us close to 10 Mt/y of green hydrogen requires a considerable increase in funding for years ahead

Key recommendations on behalf of the ELY Partnership

Continuous funding is needed for all electrolyser manufacturing dimensions, from R&I to industrialisation. The latter needs to be enhanced to reach EU's targets

Not only cash support for electrolyser industrialisation, but also strong backing from guarantees and de-risking measures are a must

More support is needed for tier 2 suppliers, to scale up manufacturing capacities for components contended across all clean technologies

Application procedures for EU funding instruments should be accelerated and streamlined

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Session 3 – International Competition: lessons from partners and competitors, the EU response

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Matthias ZIEBELL
Robert Bosch GmbH

Raphael TILOT
John Cockerill

Håkon VOLLDAL
Nel Hydrogen

Alexander Habeder
Siemens Energy

International competition for hydrogen – the EU perspective

Hydrogen exporter

High standards commitment

Tech competition with EU, full value chain risk

Market attractiveness, US IRA

Highest manufacturing and production standards

Biggest market in the world

Regulatory burdens & uncertainties

High CAPEX and OPEX

Complementary supply of hydrogen components

Huge market for EU hydrogen technologies

Less environmental/labour constraints

CRMs main player

Key recommendations on behalf of the ELY Partnership

A specific target for electrolysers should be established in NZIA, to maintain high expectations and to encourage EU manufacturing capacity to lead on a global scale

Expansion of international platforms for dialogues with like-minded partners

Streamlined funding opportunities in the EU, to be clearer and quicker in allocating resources

EU standards and qualitative requirements to be promoted on a global scale, while limiting unfair competition on imports though coherent mechanisms (e.g., CBAM)

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Session 4 – CRMs and advanced materials for a coherent EU's ELY expansion

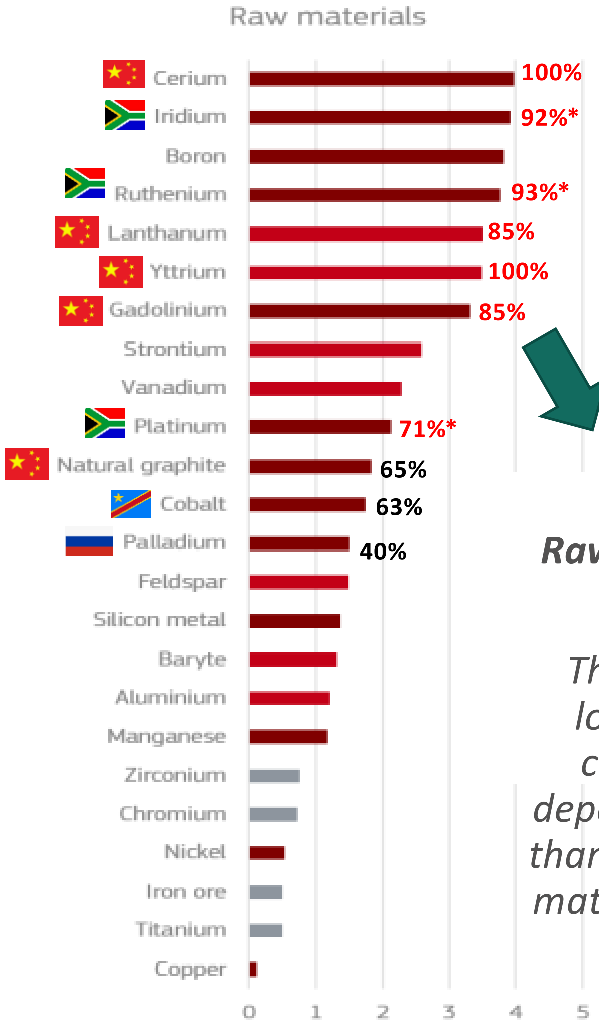
Luigi CREMA
Hydrogen Europe Research

Mark E. NEWMAN
The Chemours company

Vincent WILLE
Agfa-Gevaert

Damien LENOBLE
Luxembourg Institute of Science and Technology

Dependency on raw materials (extraction and processing) for electrolyser and fuel cells



Critical Raw Materials Act proposal

The EU wants to lower its supply chain risks and dependencies of less than 65% on a single material, on a single country

Total metals required for one generation of technology to phase out fossel fuels

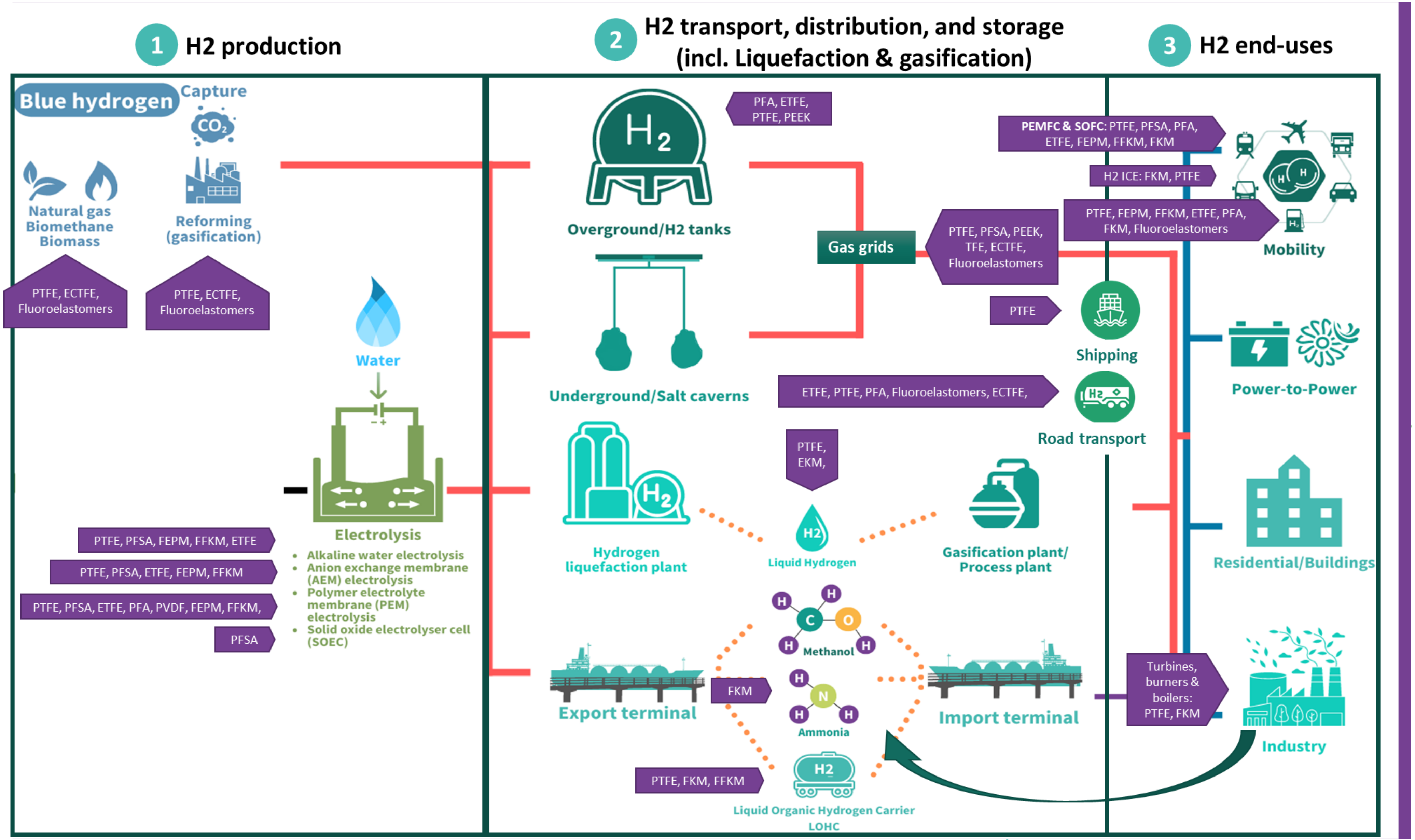
Metal	Required Production (tons)	Known Reserves (tons)	Comment
Copper	4,575,523,,674	880,000,000	Reserves cover 20% of requirements
Cobalt	218,396,990	7,600,000	Reserves cover 3.48% of requirements
Graphite	8,973,640,257	320,000,000	Reserves cover 3.57% of requirements
Lithium	944,150,293	95,000,000	Reserves cover 10% of requirements
Manganese	227,889,504	15,000,000,000	Adequate reserves
Nickel	940,578,114	95,000,000	Reserves cover 10% of requirements
Silicon (metal)	49,571,460		Adequate reserves
Silver	145,579	530,000	Adequate reserves
Vanadium	681,865,986	24,000,000	Reserves cover 3.52% of requirements
Zinc	35,704,918	250,000,000	Adequate reserves
Zirconium	2,614,126	70,000,000	Adequate reserves

Fonte: Michaux, S.P. (2023 Feb): Material Supply Challenges for the Green Transition to Phase out Fossil Fuels, SEB's The Green Bond report: Raised forecasts for transition investment, Page 11,

Source: JRC Supply chain analysis and material demand forecast in strategic technologies and sectors in the EU – A foresight study (2023)

** Of total global supply (2021)*

The hydrogen industry uses fluoropolymers across its whole value chain



Key recommendations on behalf of the ELY Partnership

Hydrogen Europe

Define CRMA targets accordingly to each materials/family of materials, otherwise measures on PGMs will be overlooked. On the 65% import dependency on a single country, re-consider it for PGMs as there are no alternatives

Consider material scarcity/competition with other clean sectors in the long-term

Increase and accelerate R&I capacities on strategic material performance and their circularity by connecting interdisciplinary pillars

Commission to consider an exclusion for the manufacturing and the use of fluoropolymers in electrolyser and fuel cell components from a potential general PFAS ban

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