

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



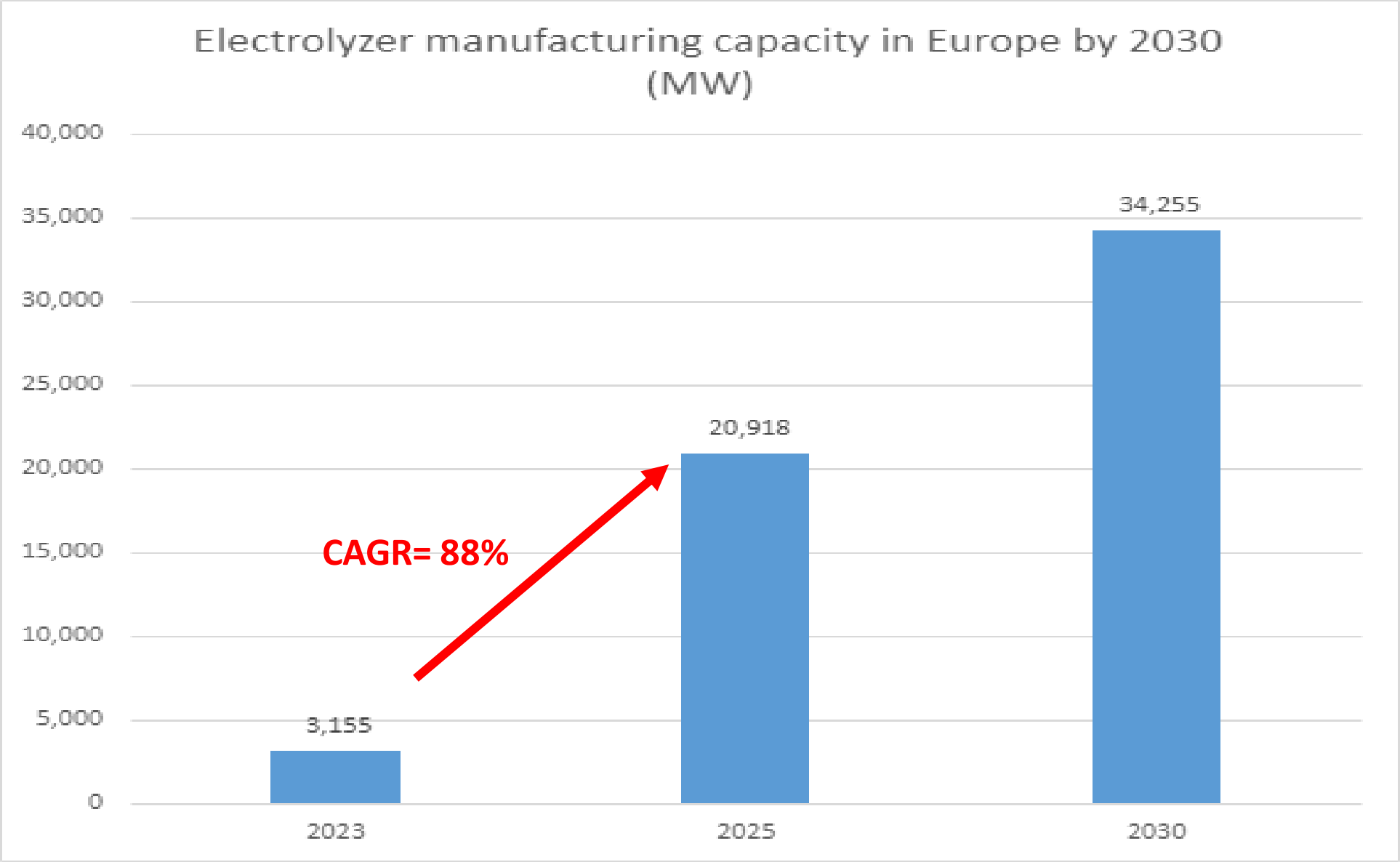
Task Force
Critical Raw Materials



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:

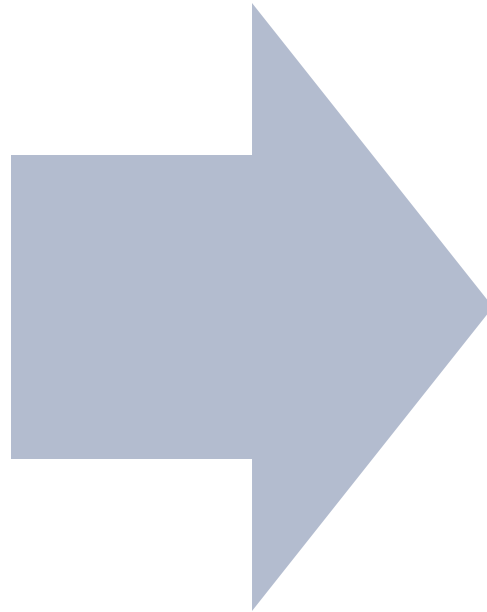
- a) large share in the European Market
- b) Competitive presence in global market

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

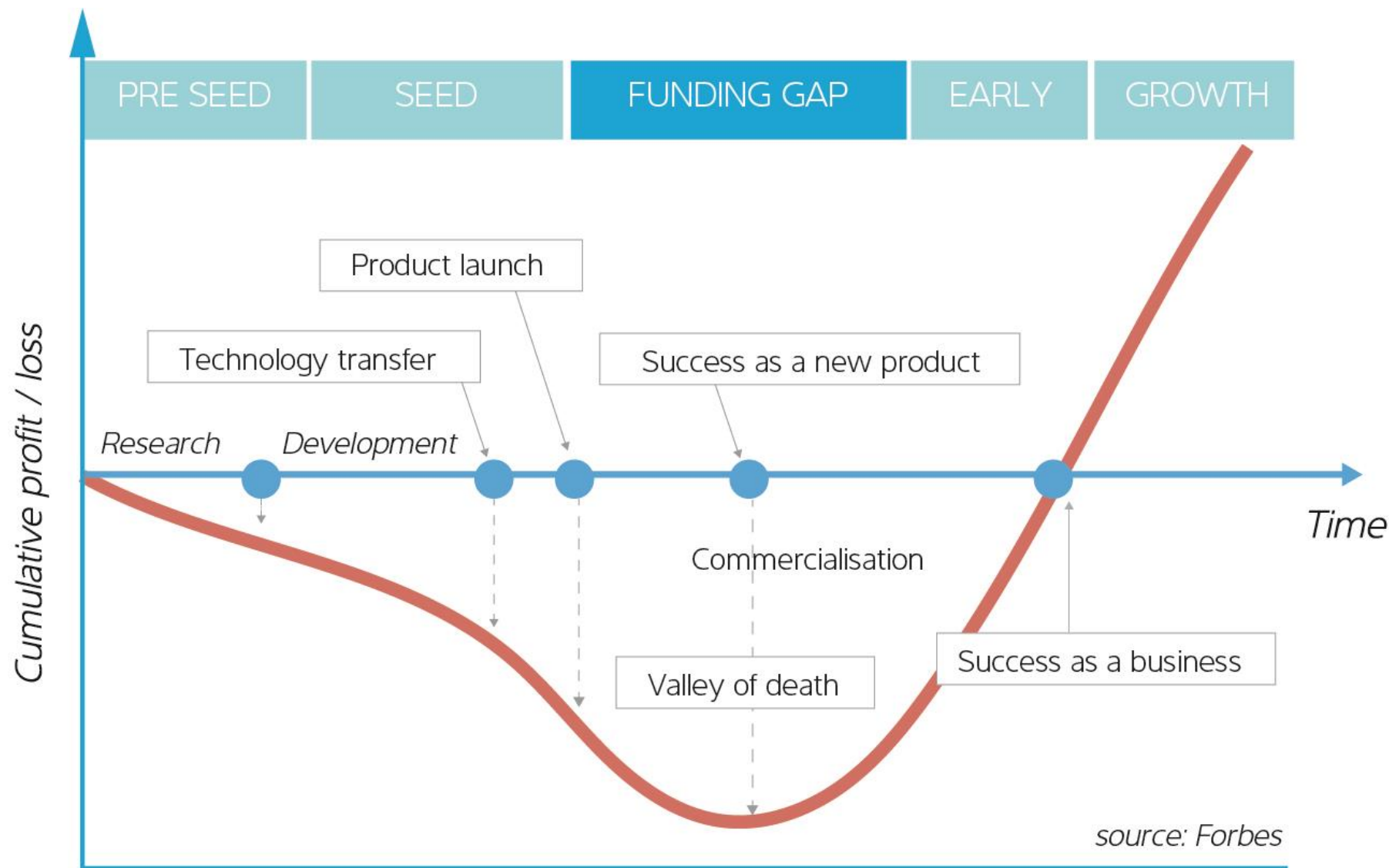


*“It takes to **three of my people three hours** to figure out how much difference the **IRA** makes for us.*

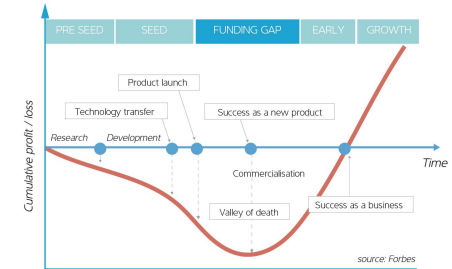
*It takes to **25 lawyers, engineers and tax professionals two years** to complete one **IPCEI application**, and in the end I still don't know how much I will get out of it”*

-Elon Musk

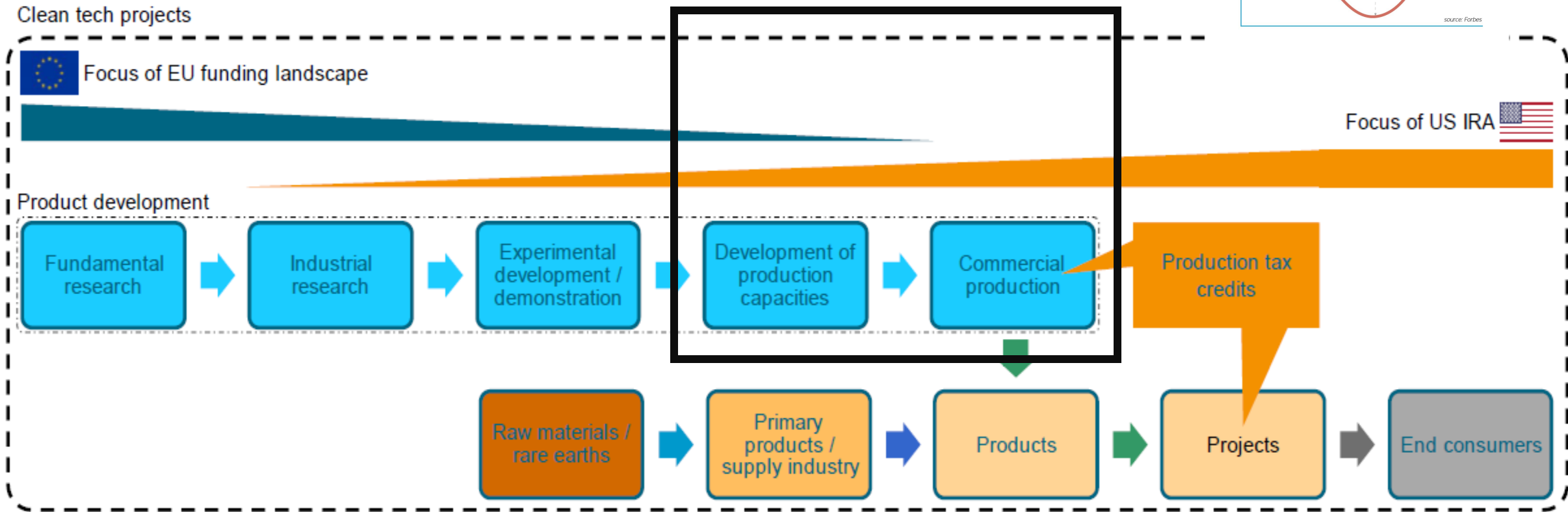
We all know the valley of death for bringing new technologies to the market



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



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



● Giga-scale production ● Large-scale industrial use ● Mobility ● Integrated H₂ economy ● Infrastructure projects

260 projects announced

Preliminary studies or press announcement stage

● 28¹ ● 151 ● 47 ● 13 ● 21



172 projects in feasibility studies

● 42¹ ● 90 ● 22 ● 10 ● 8



83 projects in FEED studies

● 16¹ ● 40 ● 14 ● 6 ● 7



280 projects committed

FID taken, under construction or operational

● 6¹ ● 132 ● 78 ● 36 ● 28

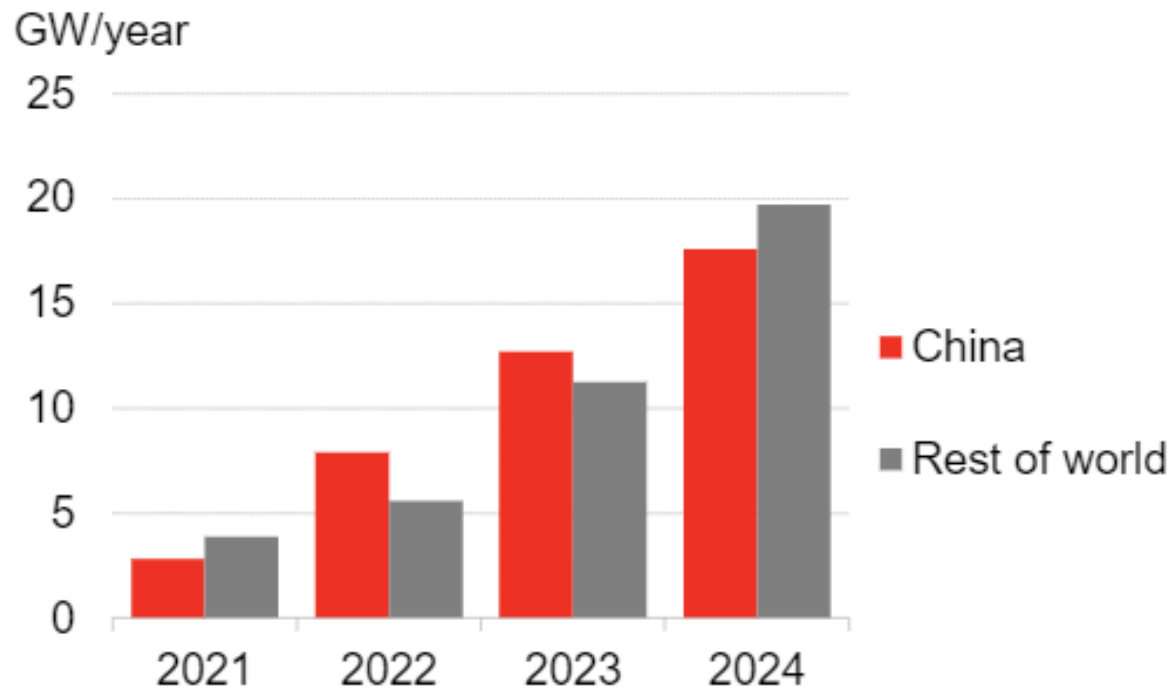


795 projects with full or partial commissioning (COD) by 2030

1. For multiphase projects, phase 1 decides the project maturity
Source: Project & Investment tracker, as of Jan 31, 2023

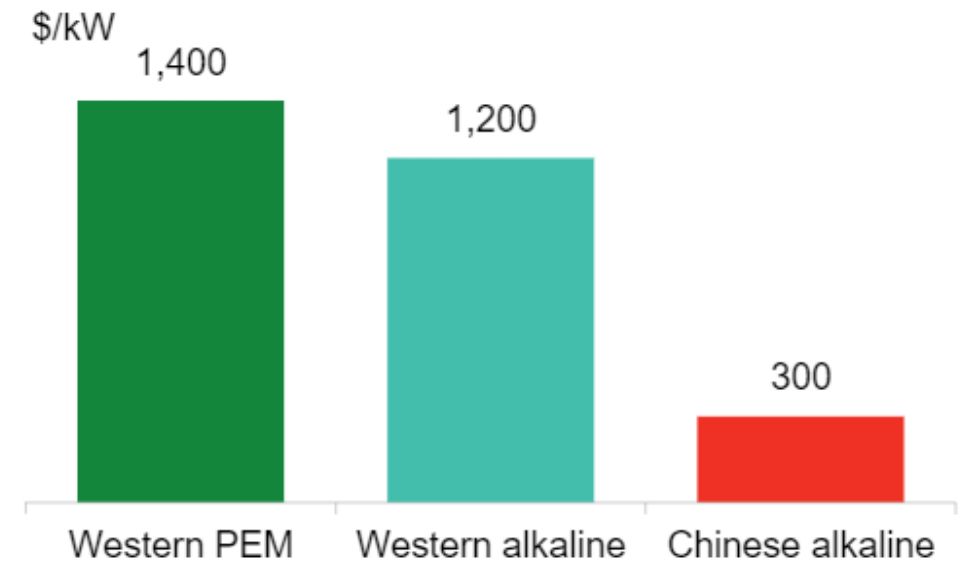
+251 projects without specified COD or COD post-2030 (not shown)

Electrolyzer manufacturing capacity by location



Source: BloombergNEF, company filings, industry sources

Benchmark electrolysis system capital expenditure by region and by technology, 2021



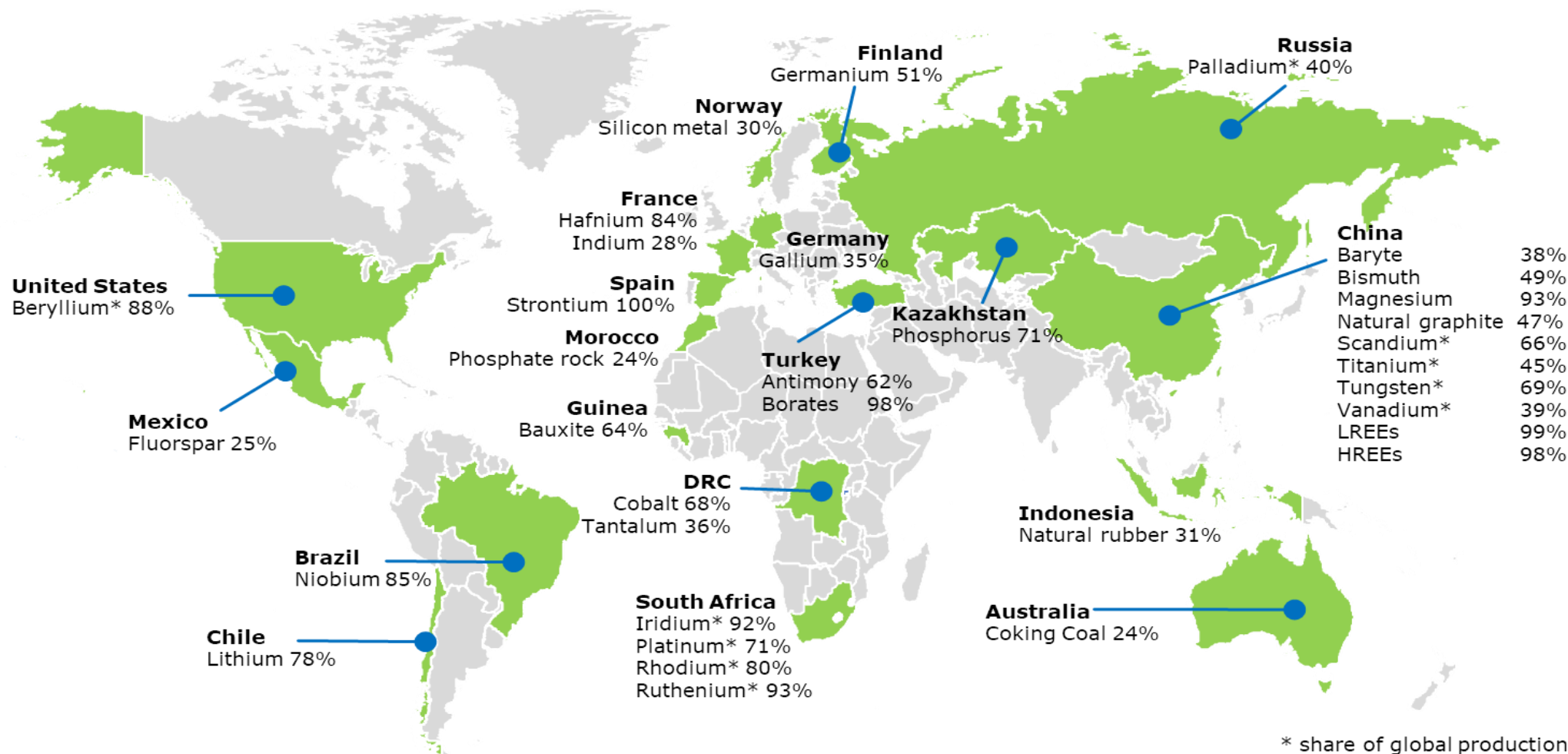
Source: BloombergNEF



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



Structural dependencies in the EU supply of CRMs



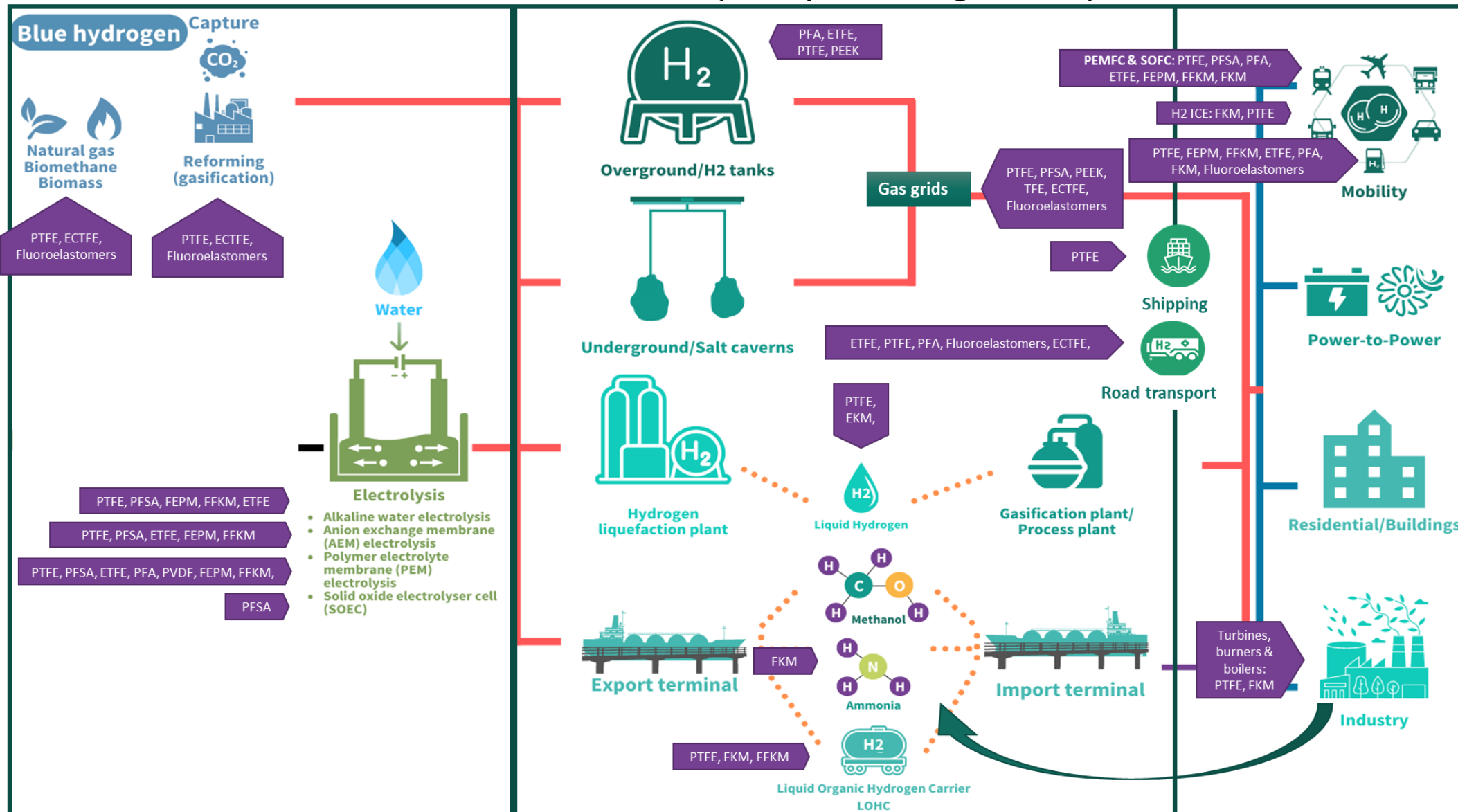
The H2 industry uses fluoropolymers all across its value chain



1 H2 production

2 H2 transport, distribution, and storage (incl. Liquefaction & gasification)

3 H2 end-uses



Thank You



Hydrogen
Europe

Avenue Marnix 23, BE-1000
Brussels / Belgium

secretariat@hydrogeneurope.eu
hydrogeneurope.eu



Electrolyser Partnership

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





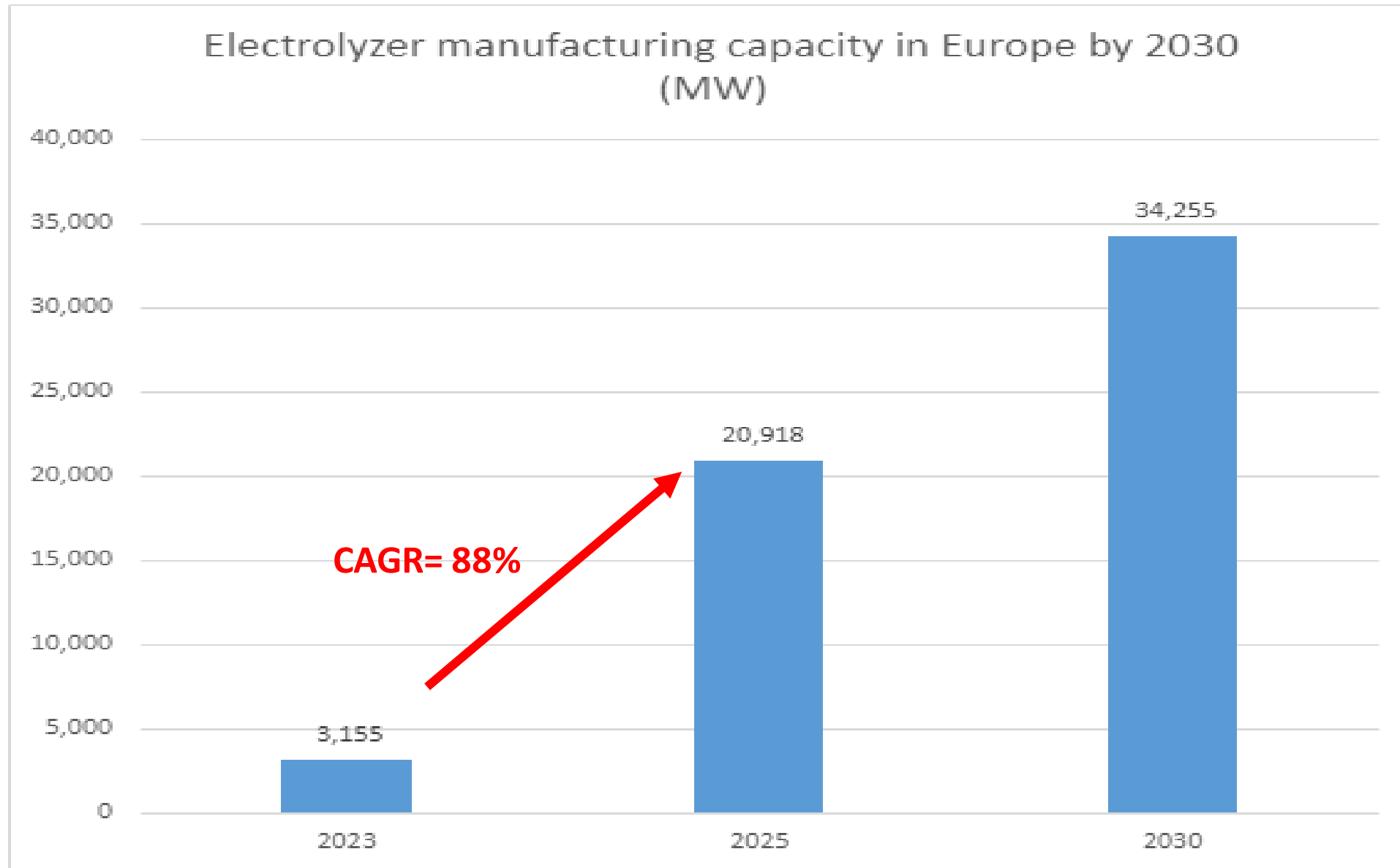
Florence LAMBERT-HOGNON
Genvia

Kim S. HEDEGAARD
Topsoe Power-to-X

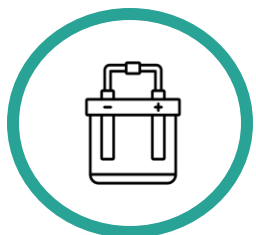
Paolo Enrico DELLACHÀ
Industrie De Nora

Jean-Baptiste LUCAS
McPhy

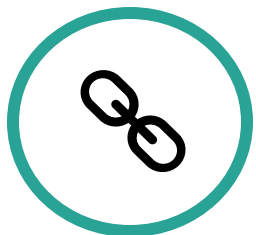
The state of play of Europe's manufacturing capacity as of today



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



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

Thank You



Hydrogen
Europe

Avenue Marnix 23, BE-1000
Brussels / Belgium

secretariat@hydrogeneurope.eu
hydrogeneurope.eu



Electrolyser Partnership

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





Nils ALDAG
Sunfire GmbH

Amy ADAMS
Cummins Inc.

Nuno SILVA
EFACEC Power Solutions SGPS

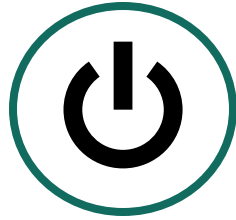
Africa CASTRO
H2B2 Electrolysis Technologies

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



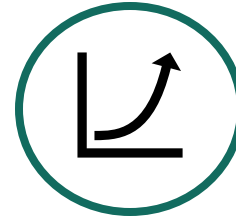
R&D and Innovation

Asserting technology leadership



Demonstration

Showing that it works



Scale-Up

Securing sufficient capacity



OPEX funding

Creating demand

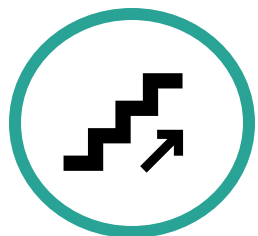
**European
Hydrogen Bank**



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 addressed (role for EIB in de-risking)

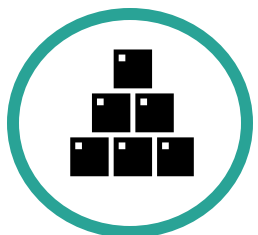
Getting us close to 10 Mt/y of green hydrogen requires a considerable increase in funding for years ahead



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

Thank You



Hydrogen
Europe

Avenue Marnix 23, BE-1000
Brussels / Belgium

secretariat@hydrogeneurope.eu
hydrogeneurope.eu



Electrolyser Partnership

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





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



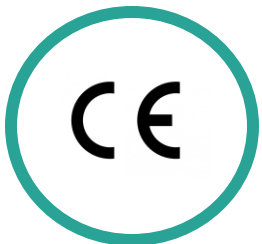
A specific target for electrolyzers should be established in NZIA, to maintain high expectations and to encourage EU manufacturing capacity to lead on a global scale



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 through coherent mechanisms (e.g., CBAM)

Thank You



Hydrogen
Europe

Avenue Marnix 23, BE-1000
Brussels / Belgium

secretariat@hydrogeneurope.eu
hydrogeneurope.eu



Electrolyser Partnership

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

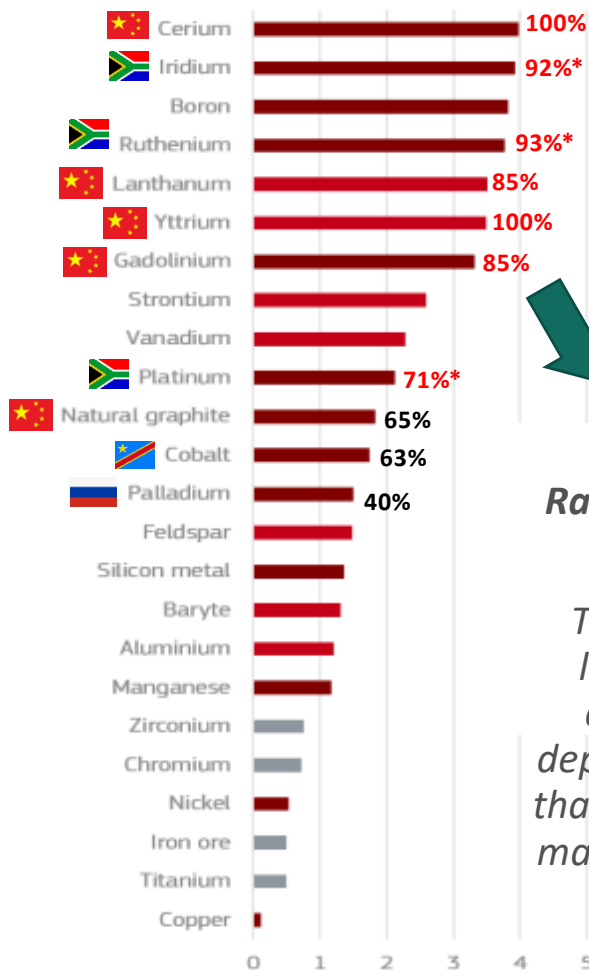
Agfa-Gevaert

Damien LENOBLE

Luxembourg Institute of Science and
Technology

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

Raw materials



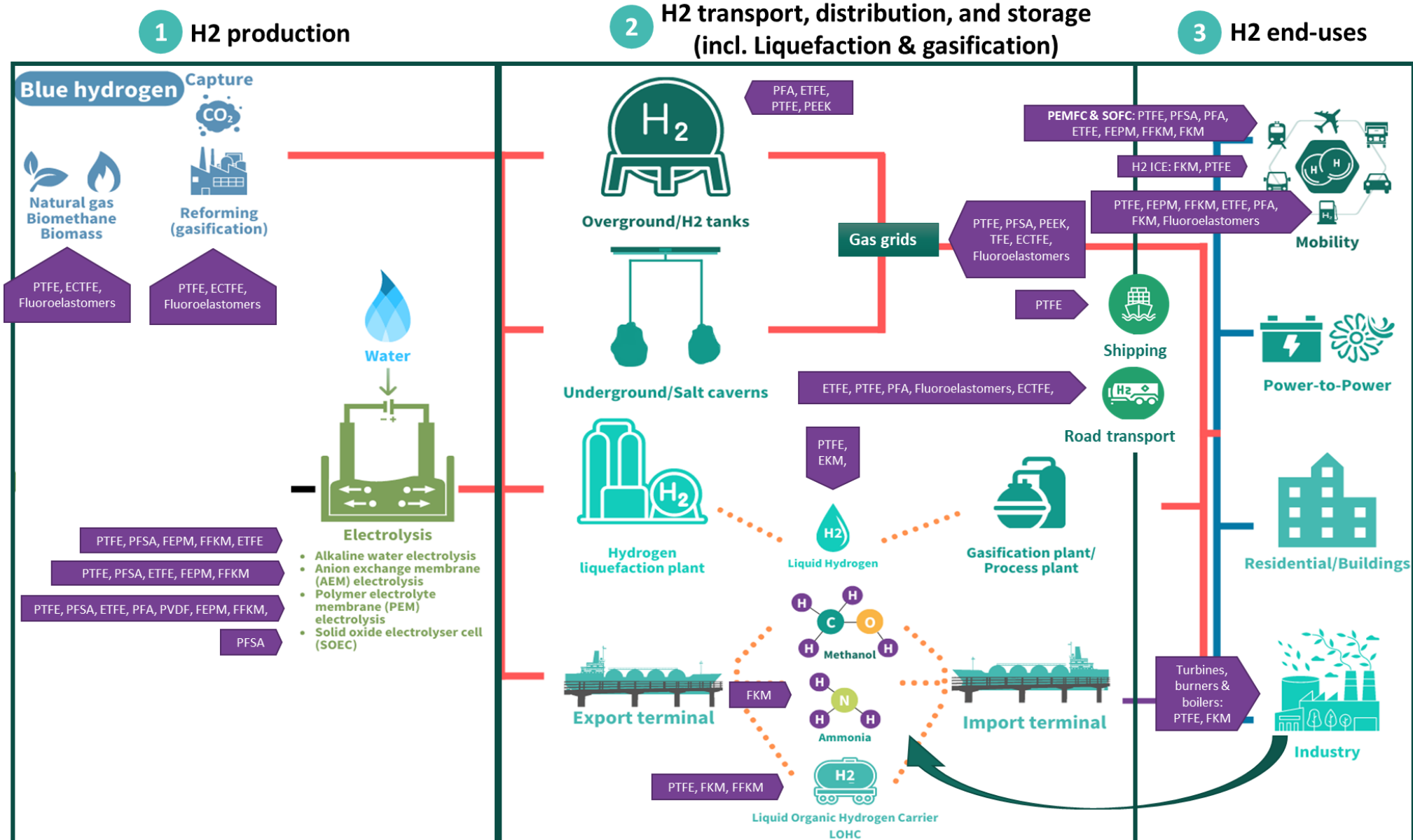
Critical Raw Materials Act proposal

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 fossil 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,

The hydrogen industry uses fluoropolymers across its whole value chain





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

Thank You



Hydrogen
Europe

Avenue Marnix 23, BE-1000
Brussels / Belgium

secretariat@hydrogeneurope.eu
hydrogeneurope.eu

