



Navigating the EU's Leading Role towards a Climate Club of Green Hydrogen in a Polarized World

Governance Innovation *or* Imagination?

Meng Zhang (Postdoc Fellow)
Centre for Climate Change Law & Governance
mzh@jur.ku.dk

UNIVERSITY OF COPENHAGEN

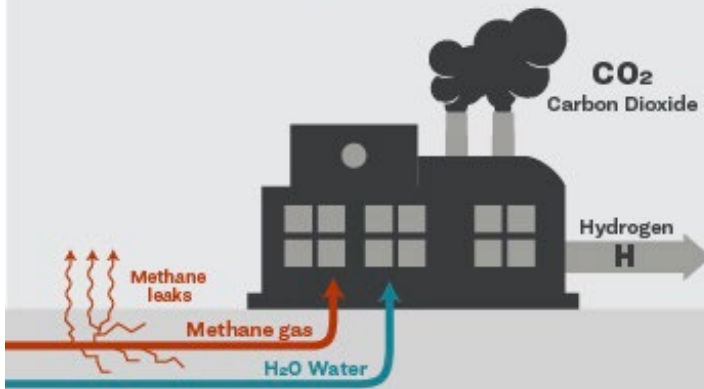


Hydrogen Production: another fruit of the poisonous tree?

Three ways to make hydrogen

Gray hydrogen plant

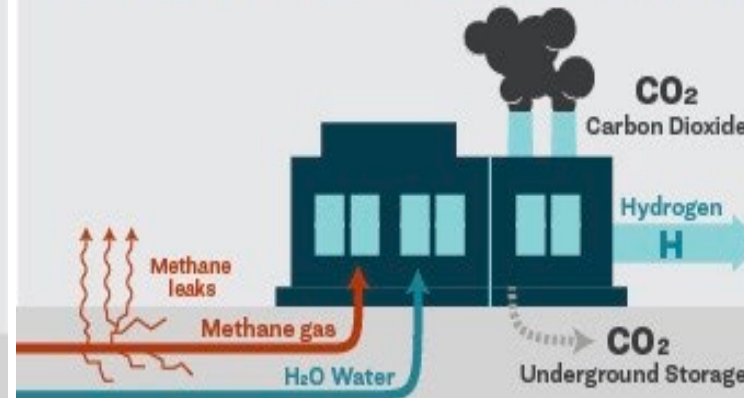
Steam methane reforming process uses methane gas and creates a reaction that results in hydrogen and carbon dioxide, which is released into the atmosphere.



Blue hydrogen plant

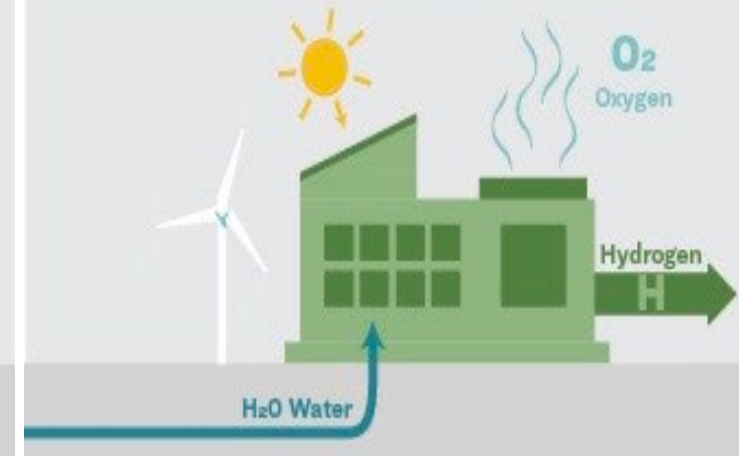
Steam methane reforming process uses methane gas and creates a reaction that results in hydrogen and carbon dioxide. Some of the carbon is captured and stored, while some is released into the atmosphere.

*Underground storage of carbon poses additional environmental issues

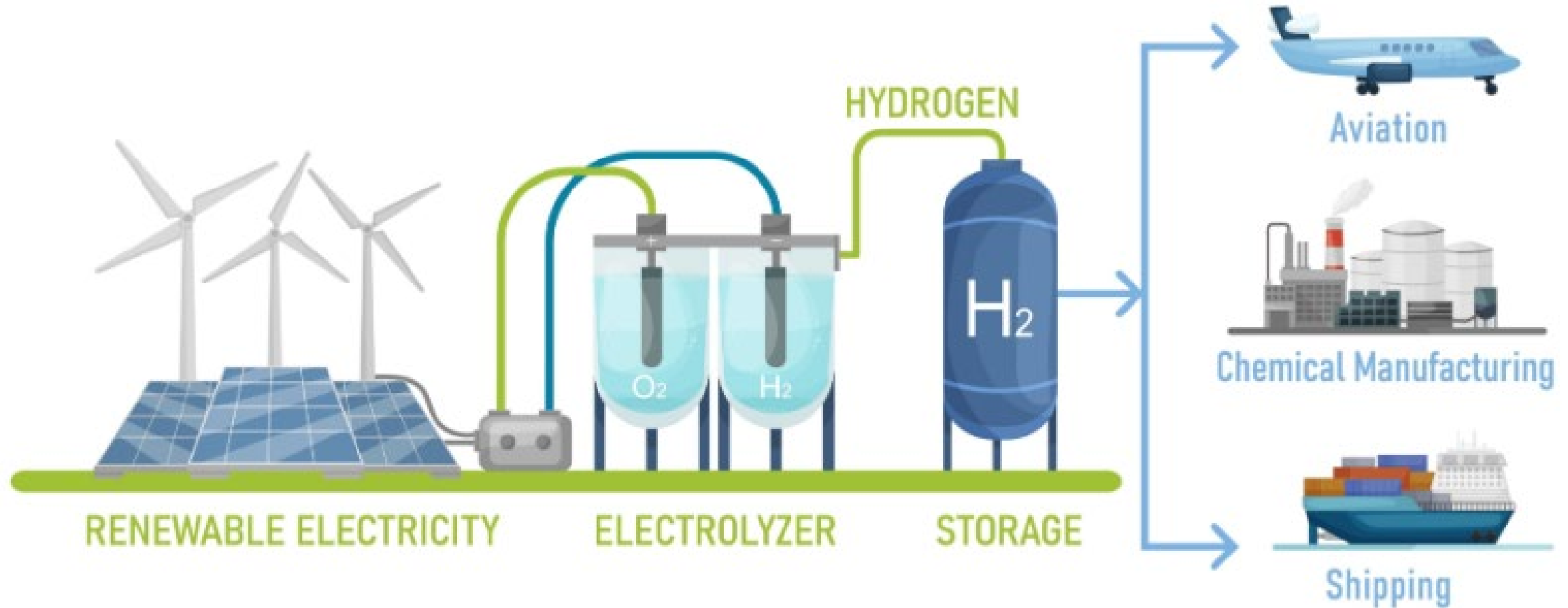


Green hydrogen plant

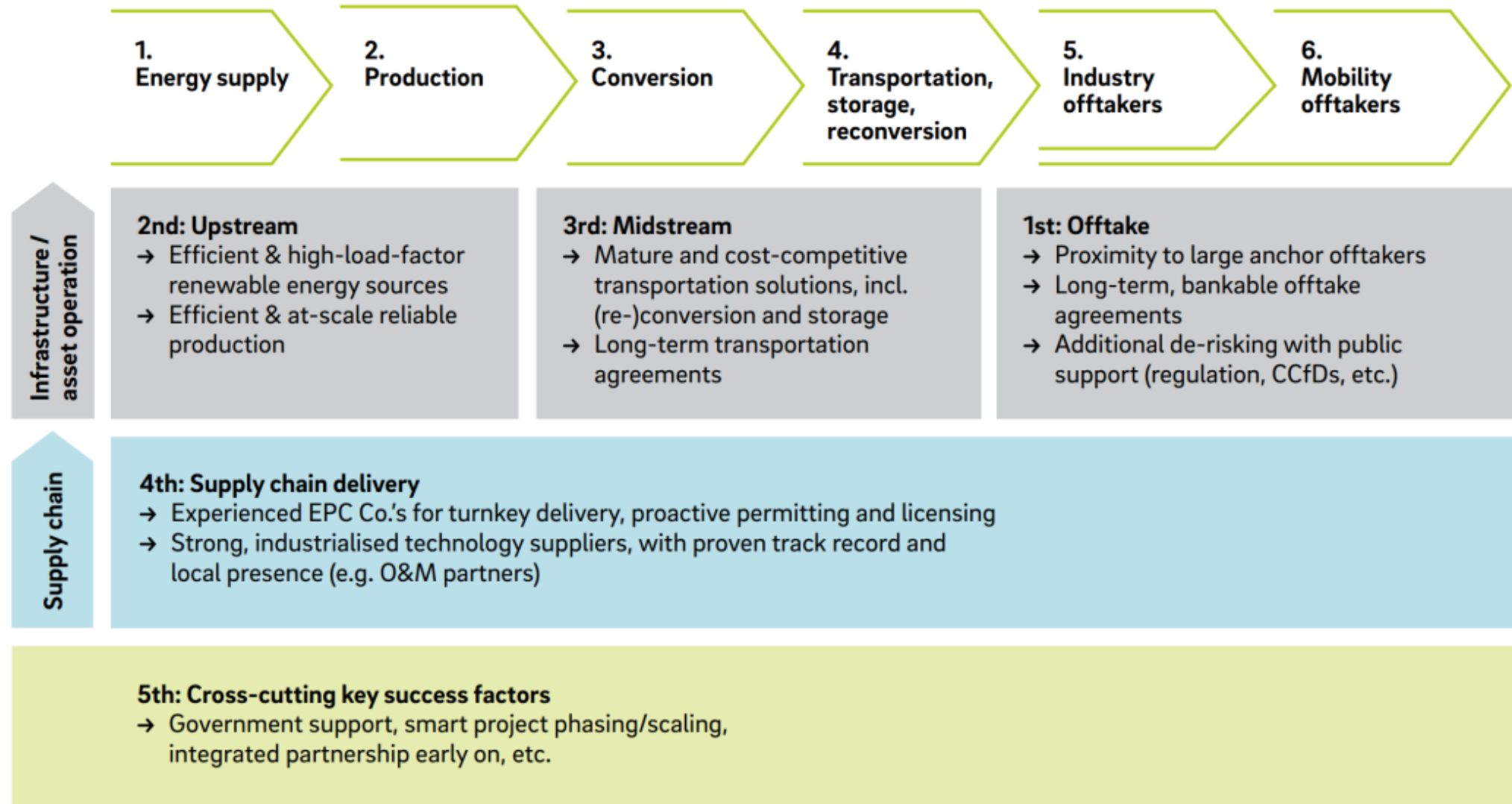
Process uses electrolysis to separate the hydrogen from oxygen in water and is powered with some form of renewable energy. No fossil fuels are used.



GREEN HYDROGEN PRODUCTION AND USE



M: Key success factors for integrated green hydrogen projects



Revised Renewable Energy Directive: Providing legal basis (Inserted Art. 22a)

3. Member States shall report the amount of renewable fuels of non-biological origin that they expect to import and export in their integrated national energy and climate plans submitted pursuant to Articles 3 and 14 of Regulation (EU) 2018/1999 and in their integrated national energy and climate progress reports submitted pursuant to Article 17 of that Regulation. On the basis of that reporting, the Commission shall develop a Union strategy for imported and domestic hydrogen with the aim of promoting the European hydrogen market as well as domestic hydrogen production within the Union, supporting the implementation of this Directive and the achievement of the

ELI: <http://data.europa.eu/eli/dir/2023/2413/oj>

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targets laid down herein, while having due regard to security of supply and the Union's strategic autonomy in energy and level playing field on the global hydrogen market. Member States shall indicate in their integrated national energy and climate plans submitted pursuant to Articles 3 and 14 of Regulation (EU) 2018/1999 and in their integrated national energy and climate progress reports submitted pursuant to Article 17 of that Regulation how they intend to contribute to that strategy.

REPowerEU Plan

In line with the REPowerEU Plan, by 2030, the EU aims to

- **reach 10 million tonnes of **domestic** renewable hydrogen production**
- **and 10 million tonnes of **imported** renewable hydrogen.**

Delegated Acts on Renewable Hydrogen: concrete legal certainty

Delegated Act (EU) 2023/1184 on a methodology for renewable fuels of non-biological origin

Delegated Act (EU) 2023/1185 a minimum threshold for GHG emissions savings of recycled carbon fuels

They will ensure that all **renewable hydrogen** are produced from **renewable electricity (sources)**.

Detailed rules on the **EU definition** of renewable hydrogen

Principle of "Additionality": the increased hydrogen production goes hand in hand with new renewable electricity generation capacities through "power purchase agreements (PPAs)"

Hydrogen and Decarbonized Gas Market Package



Revised Regulation on 'the internal markets for renewable gas, natural gas and hydrogen' (Gas Regulation) (EU) 2024/1789



Revised Directive on 'common rules for the internal markets for renewable gas, natural gas and hydrogen' (Gas Directive) (EU) 2024/1788



Provide the conditions for facilitating the rapid and sustained uptake of renewable hydrogen



Enhance market conditions and increase engagement of consumers



Better account for contemporary security of supply concerns



Deal with price and supply concerns at the EU level



Restructure and upgrade regulatory bodies.

Hydrogen in the EU CBAM storyline

Sectors covered in the first phase of the CBAM - our environmental policy tool to help maximise the European and global impact of our fight against climate change.

CEMENT

IRON & STEEL

ALUMINIUM

FERTILISERS

ELECTRICITY

HYDROGEN



CEMENT



IRON & STEEL



ALUMINIUM



FERTILISERS

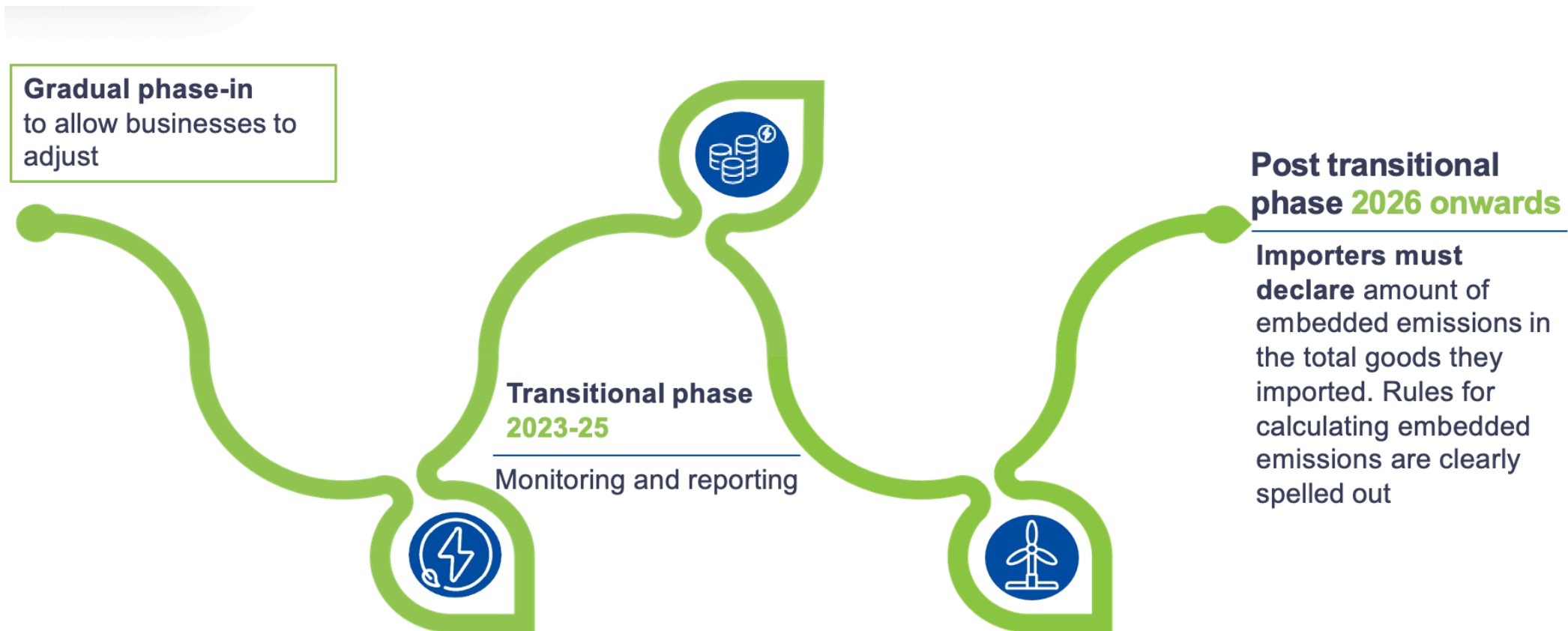


ELECTRICITY

Selected on basis of 3 criteria:

- ✓ High risk of carbon leakage (High carbon emissions; High level of trade)
- ✓ Covering more than >45% of CO₂ emissions of ETS sectors
- ✓ Practical feasibility

Hydrogen in the EU CBAM storyline



The *world's very first* International Climate Club

- ❖ It was first proposed by the German Chancellor Olaf Scholz, then further initiated by the German G7 presidency in 2022, and **officially launched on the 1st of December 2023 at COP28**.
- ❖ It is designed as an open, cooperative, and inclusive high-ambition intergovernmental forum of like-minded countries with a focus on industrial decarbonization.
- ❖ Led by Germany and Chile, the Club has currently garnered support from 36 member states including both developed countries such as G7 states, the EU, Switzerland, and developing countries such as Kenya and Mozambique, representing 55% of the global economy and over 30% of global emissions.
- ❖ Focus: transforming and decarbonizing industries, especially the hard-to-abate sectors such as steel and cement



A Geopolitical Commission:



Strategic Autonomy

Energy is a politically-loaded sector and Energy transition is studied through politics and policy.

EU STRATEGIC AUTONOMY



Facing this polarized world, the EU's policies are conditioned by the doctrine of Strategic Autonomy which refers to the EU's capacity to act without being dependent on other countries in strategically important policy areas such as security, economic competitiveness and climate actions

MAKING IT HAPPEN

Hydrogen Valleys –
Progress in an evolving sector



Clean Hydrogen
Partnership

MI MISSION
INNOVATION



MISSION INNOVATION Hydrogen Valley Platform

Showcasing hydrogen
flagship projects around the
world: A platform for project
developers

LEARN MORE

Join The Hydrogen Valley Members
Area

Join The Hydrogen Valley Platform

98 Hydrogen
Valleys

36 Countries

173,429 Total investment
(M€)

Our Mission

Our mission is to create a global
collaboration and go-to-platform for all
information on large-scale hydrogen flagship
projects (Hydrogen Valleys – H2Vs).

By promoting the emergence and
implementation of value chain integrating
hydrogen projects, as well as raising
awareness among policy makers, we aim to
facilitate the clean energy transition.

EU Hydrogen Valley Platform

Clean Hydrogen
Partnership



MI MISSION
INNOVATION

Small-scale, mobility-driven



Medium-scale, industry-driven



Large-scale, supra-regional



How far are we from a Climate Club of Green Hydrogen?

- **Unified Standards**
- **Shared Facilities**
- **Interlinked Markets**



The Next Big Thing will be lots of Small Things



3 in 1

- **2019 – 2020:**

The concept of **climate club** was proposed by German Chancellor Olaf Scholz in 2019.

The concept of an **EU CBAM** was first put forward in the European Green Deal in December 2019.

The **EU hydrogen strategy** was adopted in 2020

- **2021-2022:**

Climate club was further initiated by the German G7 presidency in 2022

EU CBAM was proposed by the Commission's 'Fit for 55 Package' in July 2021

The EU hydrogen regulatory framework was included in Commission's 'Fit for 55 Package' in July 2021

- **2023- 2024:**

Climate club was officially launched in December 2023

EU CBAM entered into application in its transitional phase on 1 October 2023

Delegated Acts on Renewable Hydrogen were formally adopted in June 2023;

The **EU hydrogen and gas decarbonisation package** was adopted in May 2024.