



# Recent EU strategies for energy (including hydrogen) and ports

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# Comprehensive hydrogen policy put in place since 2020

- Criteria for hydrogen certification
  - RFNBO DAs
  - Draft Low-carbon DA
- Permitting for manufacturing (NZIA)

- Market rules and infrastructure planning (Hydrogen market package and TEN-E)
- Targets for hydrogen refuel stations (AFIR)

- Targets for renewable hydrogen in industry & transport (RED)
- Renewable and low-carbon hydrogen in maritime & aviation sector (ReFuel)

**Hydrogen production**

**Hydrogen infrastructure & markets**

**Hydrogen consumption**

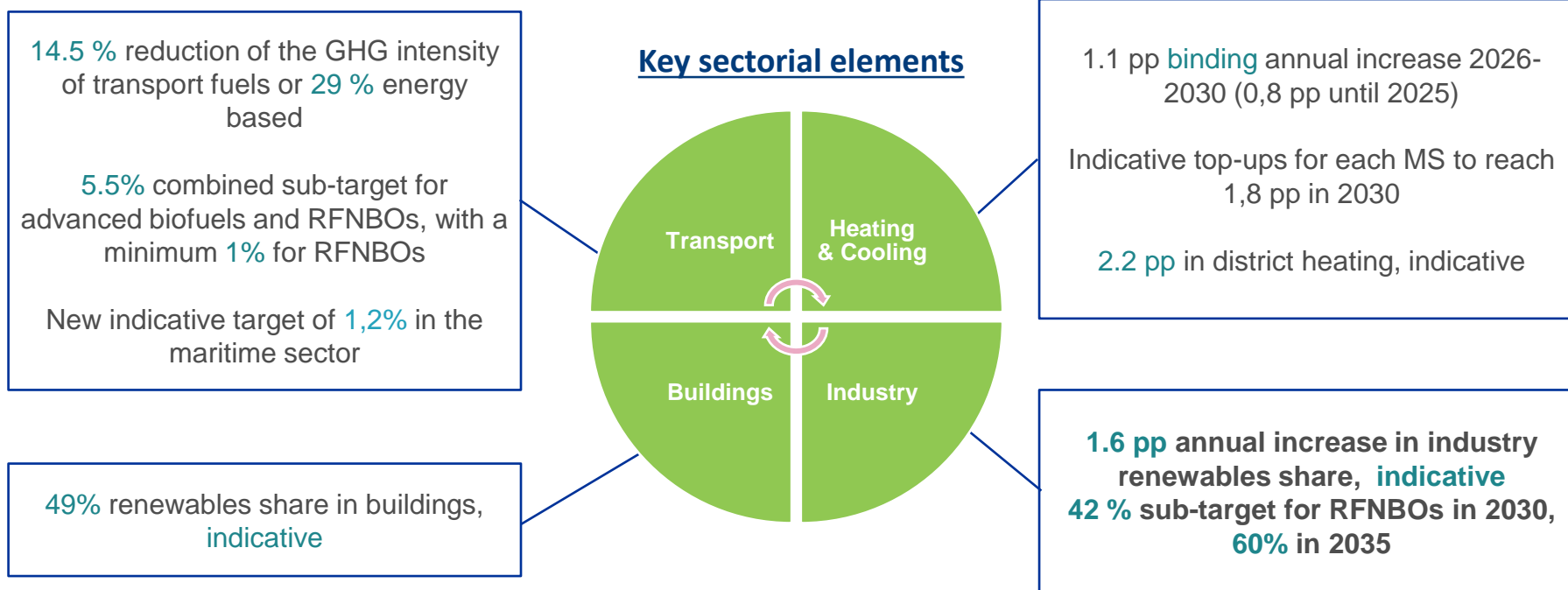
**Hydrogen financing**

- Rules for state aid for renewable and low-carbon hydrogen
- Cross-border hydrogen infrastructure (CEF) & hydrogen refuelling stations (CEF)
- Regional development programmes and recovery fund
- European Hydrogen Bank
- InvestEU / international EU development aid



# Revised Renewable Energy Directive targets

2030 overall EU binding renewables target: 42.5%, aspiring to reach 45%  
doubling the current renewables share (22 % in 2021)



- + **Acceleration of the permit-granting process** of renewable projects
- + Fostering **energy system integration**
- + Strengthened sustainability criteria for **forest biomass**
- + Strengthened provisions to promote **power purchase agreements** and **guarantees of origin**



# Renewable and low-carbon hydrogen

## Renewable Energy Directive:

- Definition of renewable fuels of non-biological origin (RFNBOs)
- Robust certification system of voluntary schemes verifying compliance along the supply – consumption chain
- Delegated Act on additionality
- Delegated Act setting out methodology to assess greenhouse gas emissions saving – at least 70%

## Hydrogen & Gas market package

- **Definition of low-carbon hydrogen (non-renewable):**
  - Greenhouse gas emission savings of at least 70%
- **Robust certification system using the tools of the Renewable Energy Directive (voluntary schemes)**
  - Life-cycle emission approach, methodology to be set out in a delegated act



65 PCI/PMI  
Hydrogen and  
electrolysers  
projects  
on the 1<sup>st</sup> Union  
PCI/PMI list

100 Hydrogen and  
electrolysers  
projects out of 235  
PCI/PMI on the 2<sup>nd</sup>  
list



[For more details: 166 cross-border energy projects for EU support \(europa.eu\)](https://europa.eu)

# Clear rules are set for hydrogen imports from third countries to facilitate trade

## Hydrogen Imports

- REPowerEU envisions that up to 50% of EU hydrogen demand will be covered by imports
- More than 10 MoUs related to hydrogen signed with e.g. Morocco, Ukraine and Namibia

## Regulatory framework

- Obligation to conclude bilateral or EU-level agreements for hydrogen import pipelines to ensure EU rules are applied
- Importers face the same requirements regarding e.g. certification of renewable and low-carbon hydrogen as domestic producers



Source: HySTRA



# Hydrogen infrastructure will expand significantly, creating a European hydrogen network



## Need for hydrogen transmission

- Production costs of renewable hydrogen vary significantly between locations depending on RES availability
- Hydrogen demand centres in central Europe will require significant volumes of hydrogen imports

## Infrastructure expansion

- Existing pipelines only cover 1,600 km – all privately operated and not interconnected
- REPowerEU envisions 7 potential hydrogen corridors and an integrated European network
- Infrastructure includes pipelines, storage and terminals

# FuelEU Maritime, boosting production & uptake of renewable low-carbon maritime fuels

- Measures to ensure that the greenhouse gas intensity of fuels used by the shipping sector will gradually decrease over time, by 2% in 2025 to as much as 80% by 2050
- A special incentive regime to support the uptake of the so-called renewable fuels of non biological origin (RFNBO) with a high decarbonisation potential
- An exclusion of fossil fuels from the regulation's certification process
- Revenues generated from the regulation's implementation ('FuelEU penalties') should be used for projects in support of the maritime sector's decarbonisation with an enhanced transparency mechanism
- Monitoring of the regulation's implementation through the Commission's reporting and review process.





# Energy in the Clean Industrial Deal

- 1 Lowering energy bills**
  - **Action Plan on Affordable Energy**
  - **State aid rules** for RES roll out, industrial decarbonization & clean tech manufacturing
  - **Decarbonisation Accelerator Bank** and act
- 2 Lead Markets**
  - **Public procurement** for clean tech
  - H2 mechanism & CO2 regulatory framework
  - **Labelling of carbon intensity** of industrial products
  - **Low carbon delegated act**
  - Life cycle assessment and carbon accounting
- 3 Investments**
  - InvestEU to boost green industry funding
- 4 Circular Economy**
  - **Eco-design for sustainable products**
  - Critical Raw Materials mechanism for resource efficiency
- 5 Global Markets**
  - Trans-Med energy cooperation
  - Foreign subsidies regulation
  - **CBAM**
- 6 Skills**
  - European Fair Transition Observatory
  - Social leasing for **zero-emission vehicles, heat pumps and other clean products**
- 7 Sectoral Action Plans**
  - Automotive, steel and metals, chemicals, transport investment and bioeconomy



# Grid Package



Announced by the CID and AEAP to come out at the end of this year. Goal:

- ❖ strengthening **cross-border energy infrastructure** planning
- ❖ more effective **cost and benefit sharing mechanisms** for infrastructure of cross-border relevance, including for offshore projects
- ❖ **shorter permitting process** for networks, renewables and storage by streamlining and simplifying procedures
- ❖ more efficient use of existing infrastructure with **digitalisation and innovation**
- ❖ better **protection of critical energy infrastructure** and reinforced **supply chains**



# Electrification

AEAP → Electrification Action Plan :

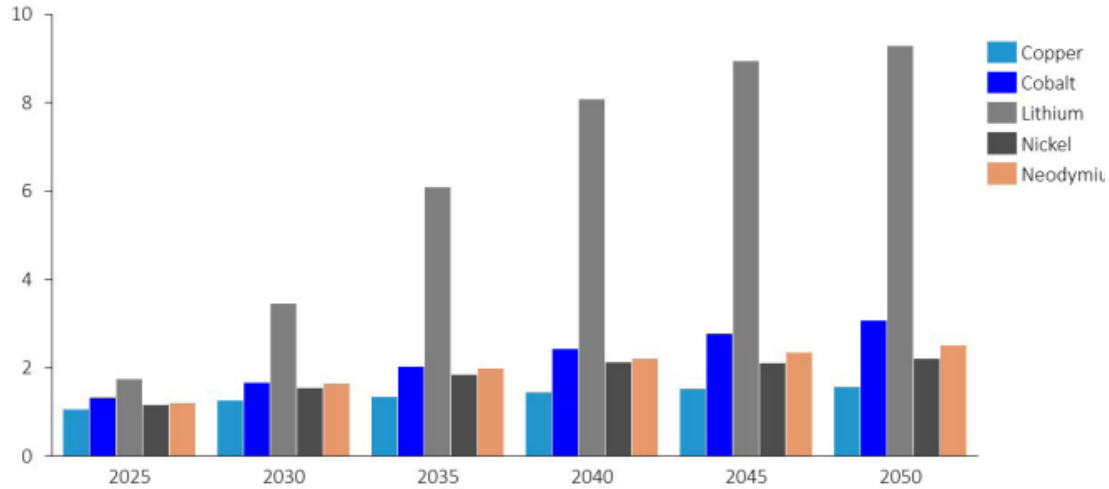
- address **horizontal barriers** to electrification (taxes, access to grids and grid costs)
- provide a way forward for **different sectors**: households, companies, electro-mobility, heating, industrial processes
- **recommendation to ensure that the tax treatment of electricity** compared to other energy carriers **creates incentives** to electrification
- encourage Member States to **remove non-energy cost components** from electricity bills



# Green Tech value chains: Critical Raw Materials (CRMs)

## Relative demand growth for selected critical and strategic minerals

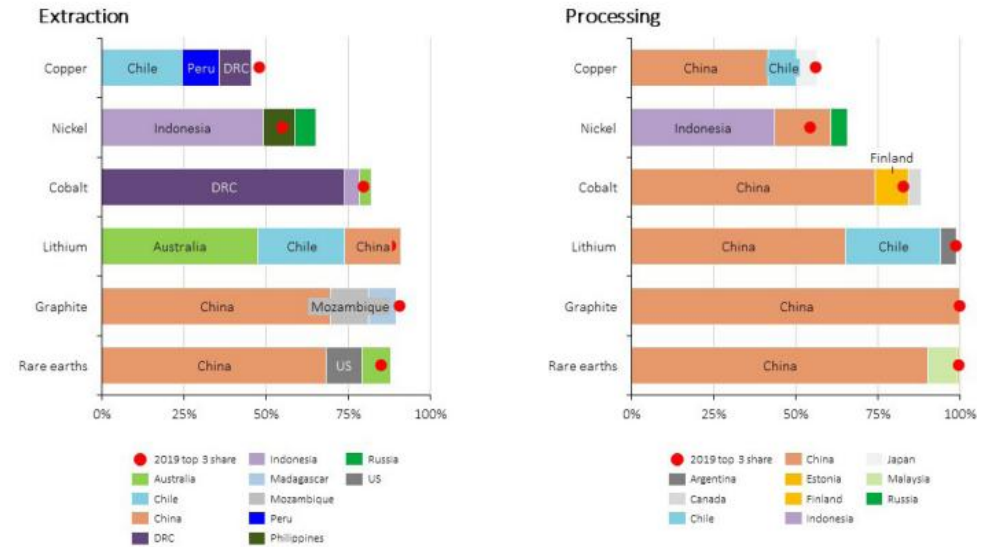
Growth factor (base=2022), IEA Announced Pledges Scenario



Source: European Commission (based on IEA), 2023.

## Concentration of the extraction and processing of critical resources

Share of top-three producing countries in total production for selected resources and minerals, 2022



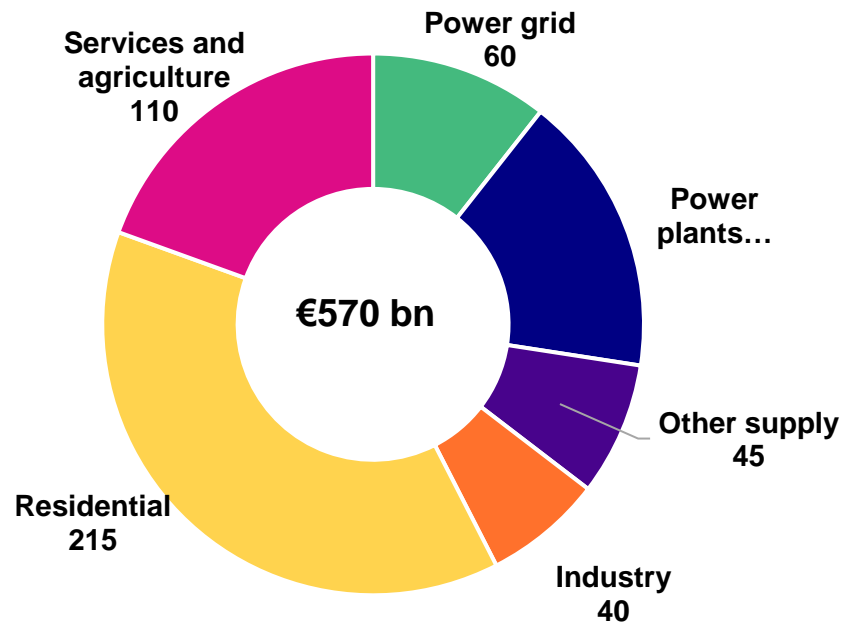
IEA. Based on S&P Global, USGS, Mineral Commodity Summaries and Wood Mackenzie, 2024.

- **Mineral demand** for clean energy technologies specifically is expected to increase with a factor of 4 to 6 by 2040
- **EU reliance on imports** (a concern where those imports are concentrated in a single supplier) - For example:
  - **China** provides nearly **100%** of the EU's supply of rare **earth elements**
  - **South Africa** provides **71%** of the EU's needs for **platinum**
  - **Chile** provides **79%** of the EU's **lithium** supply.
- In certain cases, the EU is heavily dependent on one or two countries.



# Investment needs

Over **€570 billion** in investment needed annually towards 2030 (**€690 billion** for next decade)



- Most of the funding needs to come from **private capital**.
- **Clean Energy Investment Strategy** will address investment barriers and provide policy and financial support to mobilise the required capital.



# H2 EU Financing Options

RRF

IPCEIs

Cohesion  
funds and  
JTF

ETS  
innovation  
fund

Clean  
Hydrogen  
Partnership

European  
Hydrogen  
Bank



# The International Dimension

## ❖ Diversifying our energy supplies

- Working with reliable **international partners** to diversify supplies, e.g., Norway, U.S., Egypt, Qatar, Azerbaijan, Japan, South Korea
- MoU's

## ❖ Accelerating the global clean and just energy transition by building long lasting partnerships

- Global Gateway
- Clean Trade and Investment Partnerships

## ❖ Supporting Ukraine and others affected by Russian aggression



# Creating a Global Hydrogen Market

- New **Carbon Border Adjustment Mechanism**: Carbon price on imports of steel & fertilisers to prevent 'carbon leakage'
- **Bilateral and regional cooperation**, i.e. through Neighbourhood Investment Platform and Africa-EU Green Energy Initiative
- Sharing of best practices in technologies, standards and policies in **multilateral forum**, such as CEM, MI, IPHE, IEA and IRENA
- Facilitate emergence of rules-based **hydrogen market**, common standards, and euro denominated transactions





# Global Ports Hydrogen Coalition

- **Why a Global Hydrogen Ports Coalition?**
  - Ports are under pressure to decarbonise their operations – hydrogen can be an opportunity.
  - There are already several hydrogen and fuel cell projects under development in many ports around the world.
  - Ports are critical for the decarbonisation of the maritime sector but can also be a cornerstone to facilitate the adoption of hydrogen technologies in their surrounding industries and communities.
- **The CEM Global Ports Hydrogen Coalition therefore aims to:**
  - Establish a platform for collaboration between ports around the world.
  - Facilitate policy discussion between ports and national authorities
  - Open doors for port authorities to other hydrogen stakeholders.
  - 60 Ports already engaged



# Persistent Bottlenecks and actions to address them in ports

- Weak demand creation and limited port–industry integration within industrial clusters
- Investment risk and lack of financial de-risking mechanisms or incentives
- Complex and lengthy permitting and administrative procedures
- Absence of a coherent international framework for maritime hydrogen and hydrogen-derivative fuels

## □ Proposed actions:

Deliver actionable guidance for accelerating hydrogen integration in ports — combining planning, strategic financial support, international collaboration, and policy coordination to build a resilient, sustainable ecosystem and interconnected European maritime ecosystem.

- Assess the investment needs, financial bottlenecks, and enabling mechanisms required for European and other CEM ports to develop plans and implement hydrogen projects.
- Foster and strengthen international port-to-port cooperation to accelerate the deployment of renewable and low carbon hydrogen
- Support dialogue with policy makers and coordination with stakeholders



Thank you!

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