



The international dimension of hydrogen

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Andrei Marcu
Olivier Imbault
Bartek Czyczerski
Antonio A. Fernández

ERCST

Roundtable on
Climate Change and
Sustainable Transition

Structure and context

- The international landscape for hydrogen
- Does the EU need to import hydrogen?
- Do we endanger EU Industry by importing hydrogen?
- Should CBAM cover hydrogen imports?

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POLICY BRIEF

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*The hydrogen and decarbonized gas
market package*

Highlights

There is a mismatch with the hydrogen strategy when it comes to the role of low carbon hydrogen in the transition. The proposed definitions for renewable and low carbon hydrogen are not aligned. The proposed definitions for renewable and low carbon hydrogen are not aligned with the EU's target of 10% of the electricity production from renewable sources by 2030. The proposed definitions for renewable and low carbon hydrogen are not aligned with the EU's target of 10% of the electricity production from renewable sources by 2030. The proposed definitions for renewable and low carbon hydrogen are not aligned with the EU's target of 10% of the electricity production from renewable sources by 2030.

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FEEDBACK

ERCST FEEDBACK

*The hydrogen and decarbonized gas
market package – focus on hydrogen*

Highlights

- **General remarks:** technology neutral and market driven approaches are the first choice, with other policies and measures to be considered only if there are compelling reasons.
- **Definitions:** a complete definition for low-carbon hydrogen is needed as soon as possible to enable investment decisions.
- **Hydrogen as replacement for natural gas:** further explanations are needed to several aspects of the REPower EU Communication. (i.e. assumptions behind the proposed target of 20% of domestic production and imports of renewable hydrogen by 2030)
- **Financing of hydrogen networks and cross-subsidization:** this requires a very nuanced approach.
- **Blending:** 5% blending cap is a balanced compromise between conflicting needs
- **Unbundling:** certain degree of flexibility in approaching unbundling until 2030 is justified
- **Governance:** an independent framework for hydrogen will help to develop the market meeting hydrogen users' needs
- **Incentives:** during the transition the EU should favor an EU ETS driven, technology neutral approach to incentives, where all decarbonized hydrogen types get the same level of support.

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What to improve for H2 in the H2 and gas proposals?

A complete definition for low-carbon hydrogen is needed as soon as possible to enable investment decisions.

The 20 mt of renewable hydrogen included in the REPowerEU communication require a detailed impact assessment.

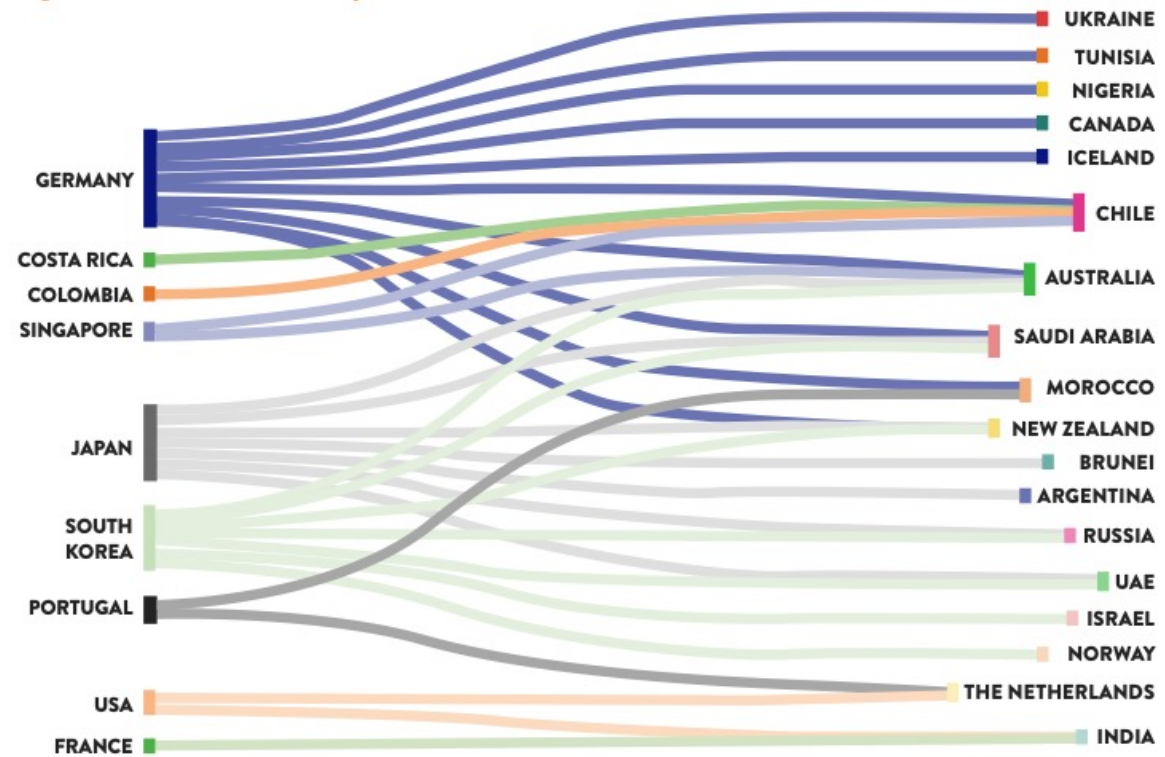
Certain degree of flexibility in approaching unbundling until 2030 is justified.

An independent framework for hydrogen's governance will help to develop the market meeting hydrogen users' needs.

All decarbonized hydrogen types should get the same level of support.

The international hydrogen landscape

| Strategy & Policy Statement & Planning Document | | | |
|---|--|--|---------------------|
| <,2019 | 2020 | 2021 | 2022 |
| Australia, Japan, South Korea, Belgium, | European Union, France, Germany, Netherlands, Norway, Portugal, Spain, Chile, Canada, Finland, New Zealand, USA, | Hungary, UK, Czech Republic, Colombia, Denmark, India, Morocco, Paraguay, Singapore, Sweden, | China, Saudi Arabia |



Source: World Energy Council, modified from German Member Committee map, 2021⁷

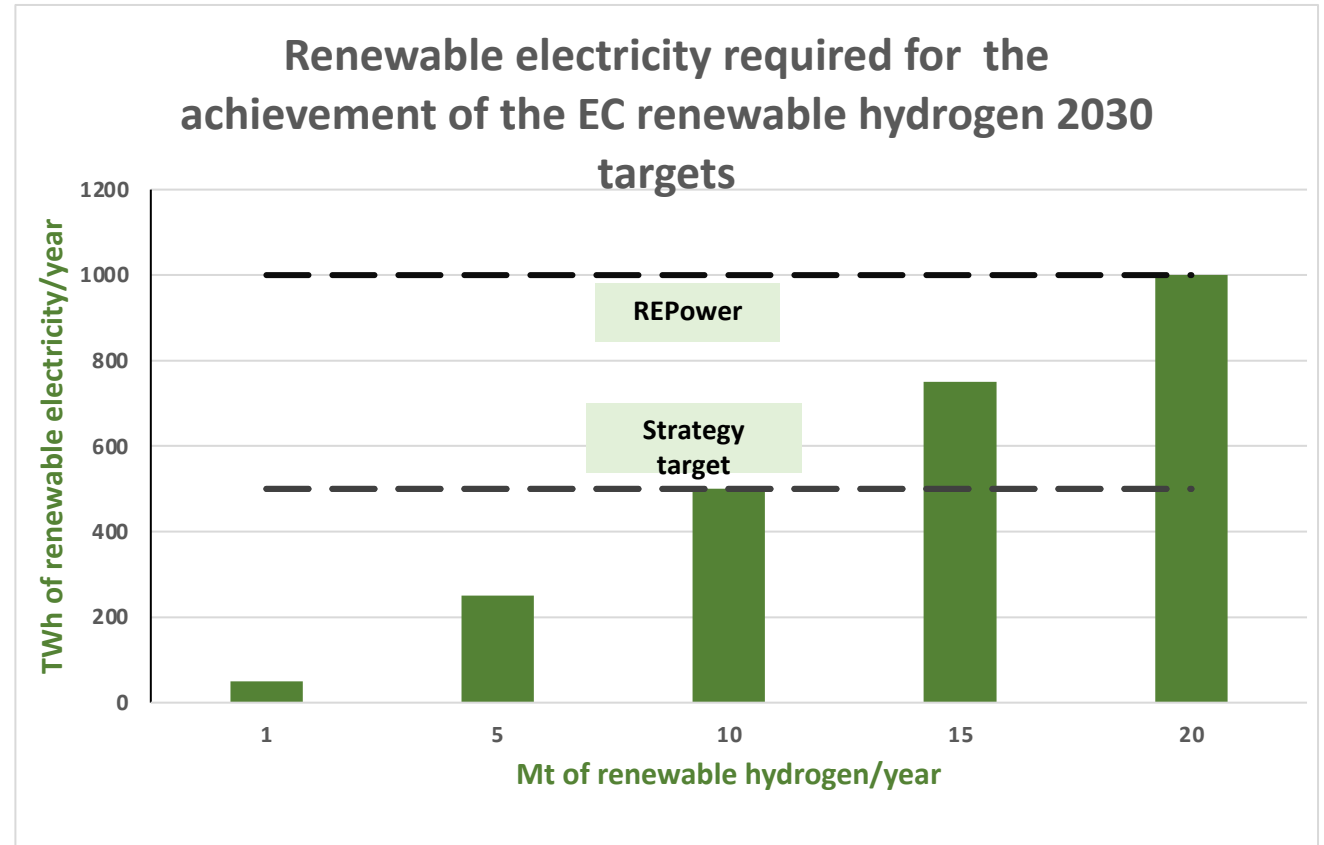
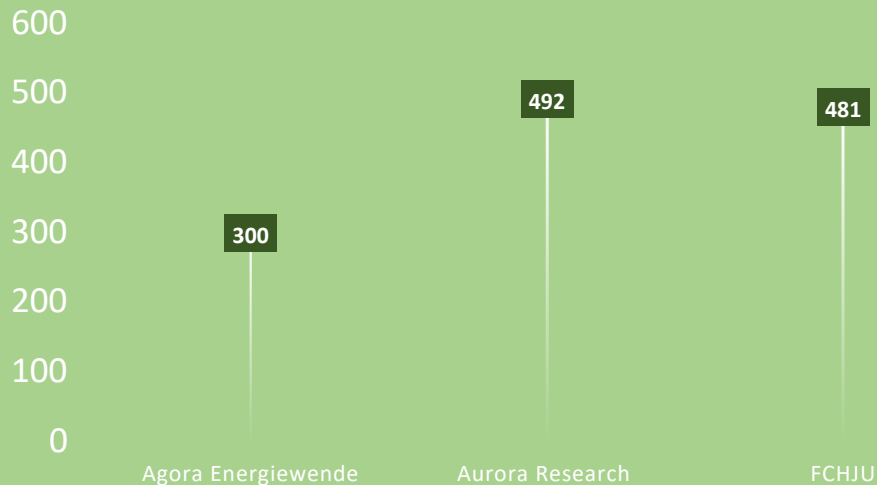
Does the EU need to import hydrogen

- **The European Commission Hydrogen Strategy:** 10 Mt of hydrogen, 5 Mt domestic production and 5 Mt imports.
- **Fit for 55 ambition:** 50% renewable hydrogen in industry and 2,6 RFNBOs in transport.
- **REPowerEU:** 20 Mt, 10 Mt imported and 10 Mt domestic production.

Does the EU need to import 10 Mt of renewable hydrogen

- Demand forecasts for 2030 considerably vary
- 10 Mt of hydrogen equals 333 TWh of energy leaving limited room for imports

FORECASTED HYDROGEN DEMAND 2030 IN TWH



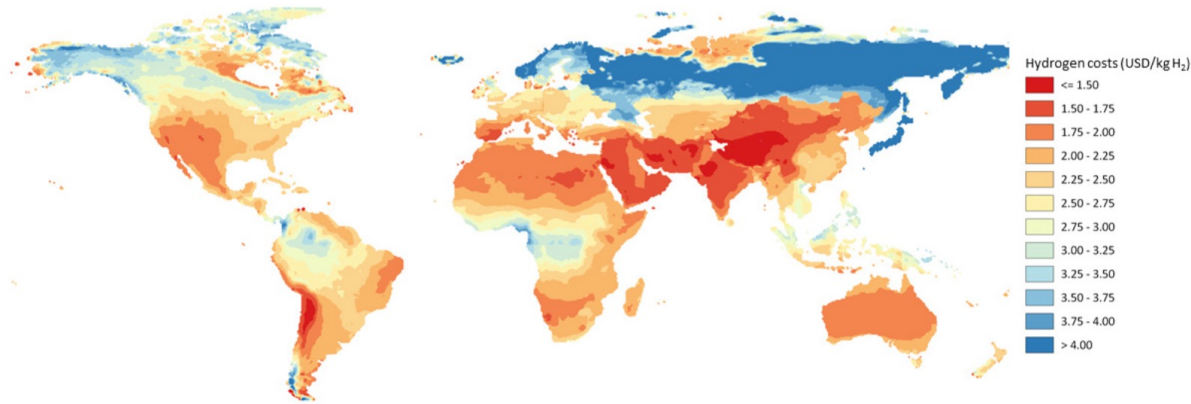
- 500 TWh of renewable electricity equals half of the total renewable generation
- Scarcity of renewable electricity increases
- Why not to open the technological landscape?

Pros and cons for H2 imports from third countries

| Pros | Cons |
|--|--|
| <p data-bbox="509 311 1146 464">Foster the development of an international hydrogen market in euro</p> <p data-bbox="611 549 1044 585">Greater cost efficiency</p> <p data-bbox="535 664 1121 816">Solving the bottleneck when it comes of renewable electricity scarcity</p> <p data-bbox="586 899 1070 935">Sustainable development</p> <p data-bbox="649 1021 1006 1056">Commercial tights</p> | <p data-bbox="1324 311 1796 406">Substitution of strategic dependencies</p> <p data-bbox="1248 492 1872 699">Cannibalization of renewable electricity in third countries, thus leading to substantial price increases</p> <p data-bbox="1235 778 1885 931">Decarbonisation illusion if the hydrogen imported is not certified according to EU standards</p> <p data-bbox="1235 1006 1885 1213">Export of the final product (green ammonia, green steel, green fertilizers) putting some industries at risk</p> |

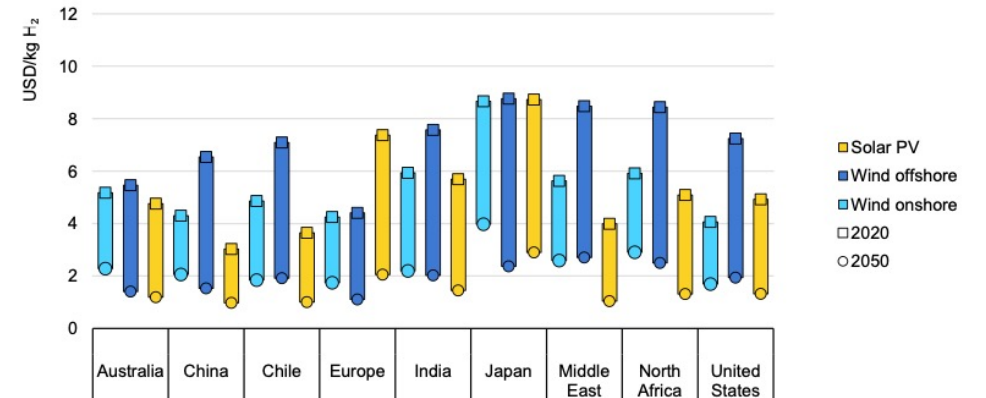
Do we endanger EU Industry by importing H2

Hydrogen production cost from hybrid solar PV and wind systems in 2030



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Levelised cost of hydrogen production from renewables by technology and region in the Net zero Emissions Scenario, 2020 and 2050



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Notes: Higher values of the ranges correspond to 2020, lower values to 2050.

Sources: Based on data from McKinsey & Company and the Hydrogen Council; [IRENA \(2020\)](#).

EU industry shall comply with the 50% RES H2 target

However renewable hydrogen will be expensive / scarce during the transition which may encourage imports

Strategic dependency and encouragement of down stream offshore production

Hydrogen and CBAM - general remarks

CBAM is intended to prevent carbon leakage

- High targets of H2 imports proposed by the EC
- Direct competition between imported and EU made H2

CBAM will reflect in the imported products the cost of ETS for EU producers

- Renewable H2 is emission free and does not bear the cost of the EU-ETS
- The EC intends to introduce one benchmark for all types of H2
- Introduction of separate benchmarks for renewable H2 is unlikely

Hydrogen is not included in the original CBAM proposal

- Covered in the ENVI draft report

Hydrogen and CBAM - possible implications

CBAM could provide protection against carbon leakage for all types of H₂ by equalizing the carbon cost of domestic and imported H₂

- One ETS benchmark for all types of H₂: will make imports of grey H₂ more competitive than domestic production
- Separate ETS benchmarks for renewable H₂ (unlikely): EU producers of H₂ will continue to receive free allowances

Electricity is the main cost factor for renewable hydrogen

- Covering of indirect emissions?

In case of imports of green H₂ there will be no need to surrender CBAM certificates

- But it will create an administrative burden

Key questions for the discussion

- To what extent does the EU need to import hydrogen?
- Do we endanger EU industry by supporting hydrogen production in third countries?
- How will the landscape in terms of hydrogen global production look like in the future?
- Should CBAM cover hydrogen imports? Why yes, why not.