



Hydrogen and the RED Delegated Acts

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Andrei Marcu
Olivier Imbault
Bartek Czyczerski
Antonio A. Fernández

ERCST

Roundtable on
Climate Change and
Sustainable Transition

Structure and context

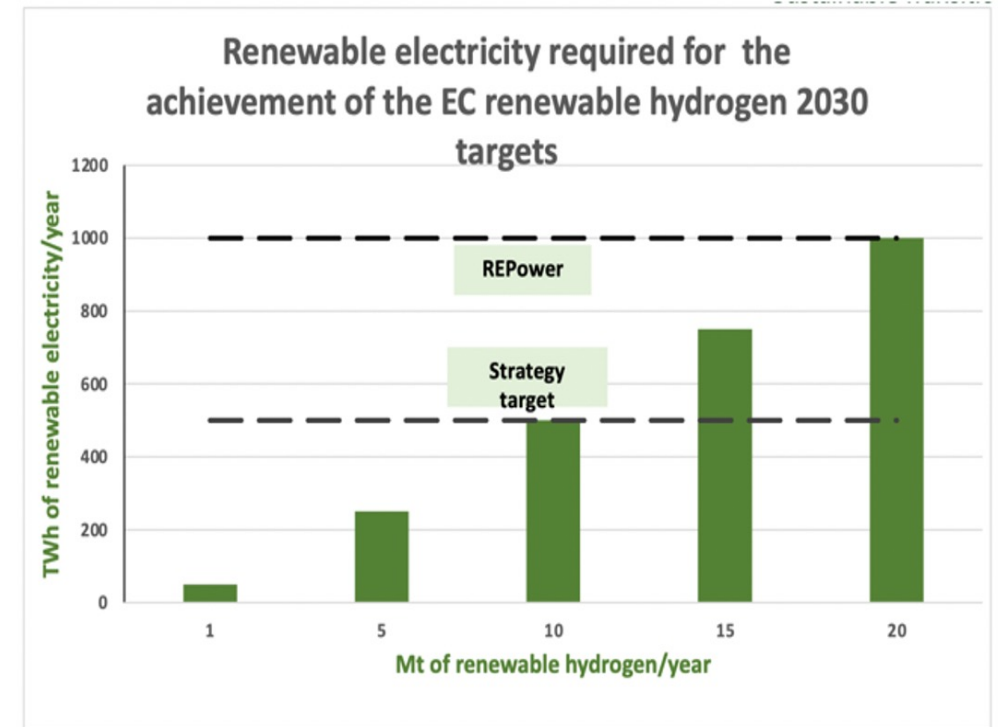
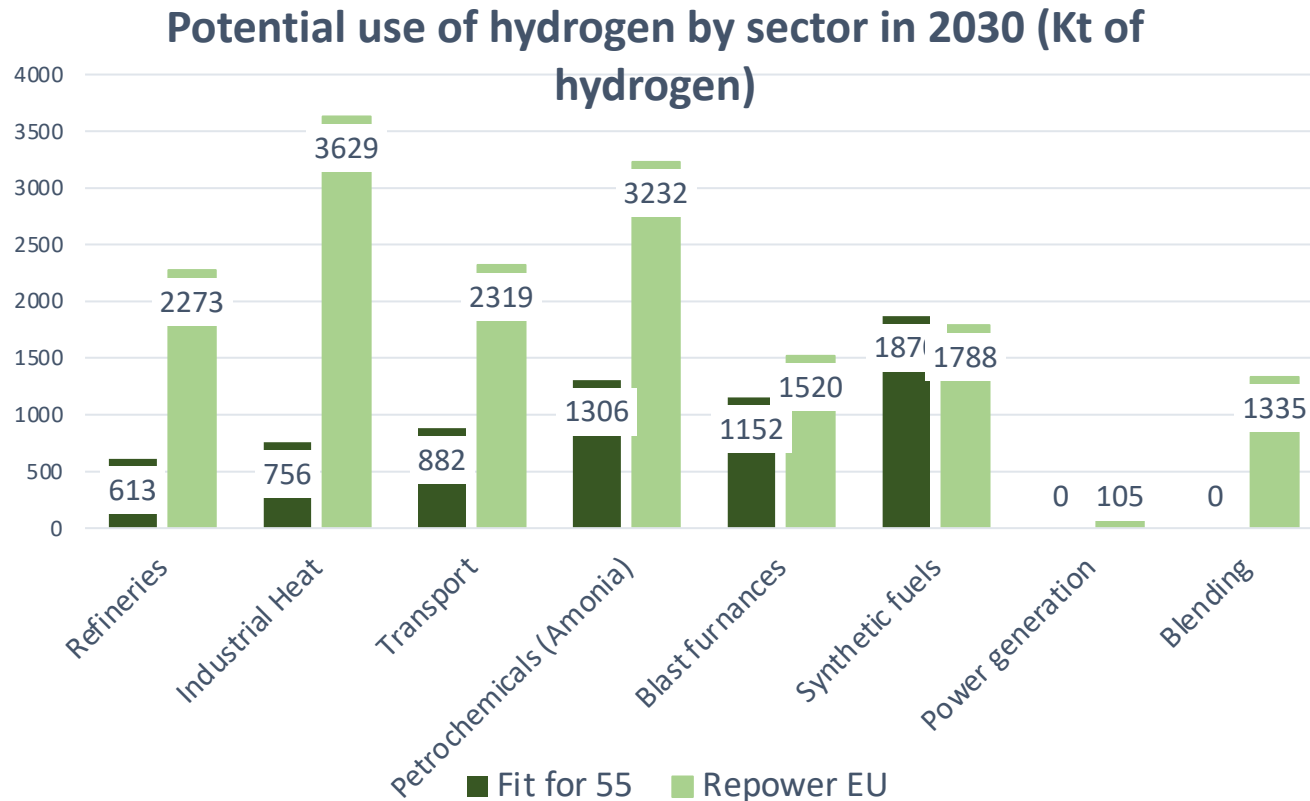
**Will the proposed
regulation help the EU
H2 market to ramp-up?**

**Where is clarification
needed?**

**What are the missing
pieces?**

Additionality DA

- The EC is envisaging a hydrogen economy that will be ramped-up by regulation
- The level of ambition set by the targets and incentives in the regulation will determine the amount of renewable electricity required to produce RFNBOs. (REPower EU: 75% Industry, 5% Transport)



Source: ERCST own ellaboration with data from the EC

Delegated Act on Additionality

- Is additionality the best way to avoid RES electricity to be re-directed?
- A hydrogen regulatory framework which just focuses on one specific technology may increase the scarcity of renewable electricity.
- Allowing low-carbon hydrogen to play a clear role during the transition would decrease the pressure on the availability of renewable electricity and reduce the need for regulatory intervention (i.e. the additionality).
- This may also help to keep electricity prices stable.
- Broadening the technological scope for H₂ production during the transition, may also help to avoid re-directing RES electricity from other uses.

Delegated Act on additionality

- This DA establishes the requirements to consider electricity used to produce RFNBOs as 100% renewable - under three different scenarios and in two different time frames (transitional phase until 2027, final phase after 2027)
 1. RES installation is directly connected to the electrolyzer.
 2. Electrolyzer using electricity from grid through a PPA.
 3. Electrolyzer using electricity from grid with RES share of at least 90%.
- There are three main requirements to ensure that renewable electricity feeding the electrolyzer is produced with additional RES capacity
 - A 36-month time window.
 - Temporal Correlation (Just applies to number 2).
 - Geographical correlation (Just applies to number 2).

Will it serve the development of the EU H2 market?

- It may force industry in some MSs into imports and therefore help somewhere else:
 - The geographical correlation makes the production of RES H2 very challenging in countries with a low RES share in the mix.
 - MSs may be forced to import hydrogen to achieve their national RFNBOs targets.
 - Specific transportation infrastructure in the EU will probably not be deployed at scale before 2030.
 - The longer the distance the less profitable it is to transport H2 through pipelines.
 - This favours H2 imports from outside the EU. (Example Polish ammonia producer)
 - Art. 6 mentions that the regulation also apply to imports, BUT...

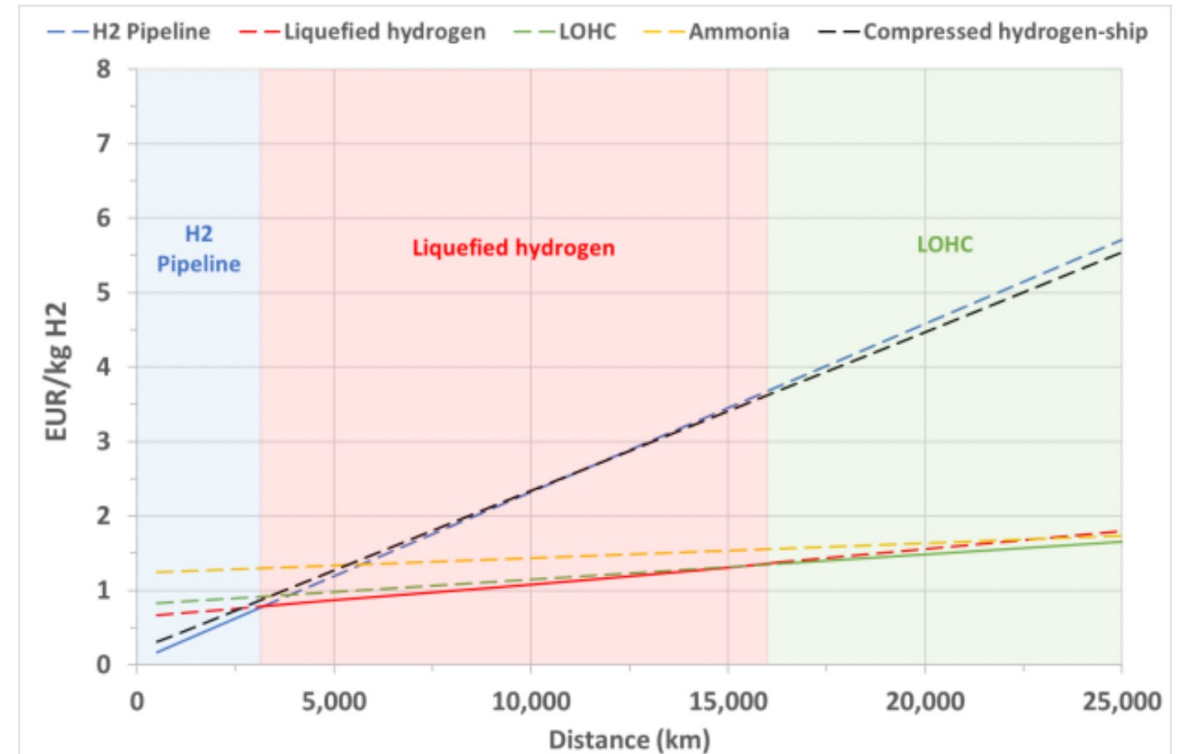


Figure 2 Hydrogen delivery costs for a simple (point to point) transport route, for 1 Mt H₂ and low electricity cost scenario.

Will it serve the development of the EU H2 market?

- Transitional phase (Art. 7): Market players will benefit from the relaxation of some of the requirements in Art. 4 (existing RES facilities with PPA).
 - Industrial applications require a stable and continuous (24/7) supply. Without this flexibility, for instance, the one-month temporal correlation, industry will not be able to comply with the targets.
 - Flexibility in the transition phase is therefore a positive step.
- Grandfathering (Art. 8): RFNBOs producers connected with existing RES facilities with PPAs, starting operations before 2027 will be forever exempted from the additionality requirement.
 - This may pose a risk if the market gets to ramp-up quickly, which is unlikely.
 - Regulatory uncertainty, time required for project development etc.

Where is clarification needed?

- Why provisions in Art. 7 (transitional phase) and Art. 8 (grandfathering) do not apply to direct-connected installations, for instance the 36-month window? Is this to incentivize hydrogen production close to consumption during the transition phase? (H2 backbone before 2030?)
- Why Art. 3 (b) provides for a 24-month period to add additional capacity to an electrolyzer while the period for grid connected installations is 36 months?

Delegated Act on the production of RFNBOs and RCFs

Fossil fuel comparator

The recently proposed delegated act refers to a FFC for RFNBOs and RCFs of:

94 gCO₂eq/MJ

% Emissions' reduction

For both RFNBOs and RCF= 70% / 30% of 11.28 tCO₂e/tH₂

3,38 tCO₂e/tH₂

Methodology and emissions scope

$$E = e_i + e_p + e_{td} + e_u - e_{ccs}$$

$e_{in} = e_{l\ elastic} + e_{l\ rigid} - e_{ex-use}$: emissions from **supply of inputs** (gCO₂eq / MJ fuel)

e_p = **emissions from processing** (gCO₂eq / MJ fuel)

e_{td} = **emissions from transport and distribution** (gCO₂eq / MJ fuel)

e_u = **emissions from combusting** the fuel in its end-use (gCO₂eq / MJ fuel)

e_{ccs} = **emission savings from carbon capture and geological storage** (gCO₂eq / MJ fuel)

* Emissions from the manufacture of machinery and equipment and emissions from compressing and distribution of hydrogen are not accounted.

Will it serve the development of the H2 market

- Very difficult to assess because the full picture is incomplete.
- The elephant in the room is the lack of a complete definition for low-carbon hydrogen whose methodology should have been published together with the RFNBOs and RCFs. This would have decreased regulatory risks.
- This DA expands the scope of the 1st DA and establishes that if electricity can not be accounted as 100% renewable according to the previous DA, there is still the possibility that at least some share of the H2 produced with electricity from the grid can be accounted either as renewable or low-carbon.

Will it serve the development of the H2 market

- Three different options:
 - Electricity taken from the grid based on the average carbon intensity of electricity during the previous two years.
 - Electricity taken from the grid with GHG emissions values given in the Annex part C. Both renewable and low-carbon hydrogen can be produced for an equivalent amount of the number of hours where renewables or nuclear set the marginal price.
 - GHG emissions value of the marginal unit generating electricity at the time of production of RFNBOs.
- Flexibility should be seen in a positive light, however it should be preferable and much more straight forward for market players to give a clear role to low-carbon hydrogen than to produce an extremely complex (full of exemptions, transitional phases, grandfathering closes...) regulatory framework for RES hydrogen.

Where is clarification needed?

- Should we understand this DA as the basis for a methodology for low-carbon hydrogen?
- How this DA interacts with the Additionality DA?
- How can we make sure double counting is avoided?
- Recital (7) establishes a sunset-clause for captured emissions from non-sustainable sources by 2035. Is this aligned with the revision of the EU-ETS Directive?