

Hydrogen and additionality

Position paper in relation to delegated act RED II Art. 27.3

Authors: Davine Janssen & Isabel François (WaterstofNet)

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GLOSSARY

PPA	Power Purchase Agreement
RED	Renewable Energy Directive
RFNBO's	Renewable Fuels of Non-Biological Origin (i.e. hydrogen derivatives such as synthetic methane, ammonia etc.)

1 INTRODUCTION

As a Hydrogen Industry Cluster, we (the “Waterstof Industrie Cluster”) unite 120 companies, based mainly in Belgium but also partly based in the Netherlands, which are already actively investing in hydrogen technology or are investigating how they can develop activities in this sector in the future.

It is widely recognised that hydrogen and hydrogen-derived energy carriers will play an important role in the energy transition. European legislation, which is currently being developed, is also increasingly providing the necessary impulses for this.

The Renewable Energy Directive (REDII, 2018 revision) creates a number of incentives for hydrogen fuels (or “Renewable Fuels of non-Biological origin” – RFNBO's), by explicitly including them as a possible category for achieving the target of 14% renewable fuels for transport applications in 2030, next to biofuels and recycled carbon fuels. The recently published REPower EU plan further increases the political ambitions for renewable hydrogen as well as the velocity at which they need to be achieved. We as hydrogen industry cluster welcome the ambitions, and the appreciation of the important role hydrogen can play in the European energy system of the future.

On the other hand, the REPower EU initiative was accompanied by the publication of a Delegated Act of RED II that imposes a number of administrative requirements on the origin of the electricity used for the production of these RFNBO's. These requirements stem from the “additionality” principle, which literally means that additional consumption of renewable energy must always be compensated for by additional production capacity.

Although the principle of additionality is sensible, its **proposed implementation is based on a number of incomplete assumptions and, in its current form, runs the risk of seriously slowing down or even preventing developments in the hydrogen sector.** Especially in a small country like Belgium with relatively limited renewable production capacity in absolute terms, the strict rules are worrying.

The Delegated Act threatens to form a significant barrier for the first hydrogen projects – which are still in the innovation phase. Also, insufficient account has been taken of the sector coupling synergies and benefits that green hydrogen production can bring as a molecular storage medium which cannot be developed or can be developed to a limited with these rules. Furthermore, the requirements do not reflect consideration of the fact that the Emission Trading Scheme already caps the carbon emissions of all applications of the electricity sector, resulting in higher electricity prices for electricity with higher emission levels. The ETS thus already protects against “excessive” production of hydrogen relative to the available renewable electricity, based on this market

mechanism. Additional requirements, beyond Power Purchase Agreements and Guarantees of origin to proof the use of renewable electricity, thus creates a disadvantaged position for hydrogen as opposed to other industrial sectors under the ETS. Other sectors of electricity demand do not abide to these rules of additionality either.

Our Belgian investors have to rely mainly on income from green hydrogen and with the current (proposed) rules, the economic conditions in Belgium are near to unfeasible. As a result, the wide potential of hydrogen projects and sites will remain unexploited, and it will be difficult or impossible for Belgium to meet its targets for green hydrogen. Moreover, an impact assessment for the whole of Europe on an energy-system level should form the basis for drawing up realistic rules.

WaterstofNet, as coordinator of the Benelux Hydrogen Industry Cluster (WIC), therefore calls on the Commission to suspend all requirements laid out in this Delegated Act until an Impact Assessment has been made. To avoid slowing down the roll-out of pioneering electrolyzers, we urge the Commission to exclude installations built before 2030 from the requirements for their entire lifetime, or, at least, to extend the grandfathering clause to the contents of the transitional clause (monthly temporal correlation) and to projects built before 2030 instead of 2027. A review of the Delegated Act by 2030 could then re-evaluate the need for and impact of the delegated act based on experiences from the first projects. **Additionally, a general exception for small installations (e.g. up to 25 MW) for compliance with all rules should be considered,** because the administrative burden would be disproportionately large for smaller projects, especially compared to the relatively small impact on the energy mix and its emissions.

In this paper it is explained why the Delegated Act in its current form forms a significant burden to the roll-out of hydrogen production facilities in Belgium in particular. In addition, we are already formulating concrete recommendations to adjust various points in the case of an adapted proposal for the Delegated Act (after impact assessment) in order to achieve a workable implementation of additionality, taking into account the specific preconditions for renewable energy production in Belgium.

2 CONDITIONS FOR RFNBO'S AS PROPOSED IN THE DELEGATED ACT RED II ART. 27.3 - GENERAL REFLECTION AND SPECIFIC IMPLICATIONS FOR BELGIUM

In the delegated act on art. 27.3 of REDII, the additionality principle has been translated into a number of requirements that the installation for the production of hydrogen-based fuels must meet, so that the transport fuels produced can be counted towards the 14% target for renewable energy in the transport sector.

2.1 Additionality in case of directly connected installations

If the installation has a direct connection to a renewable energy production unit, the requirement applies that the hydrogen produced may only be called "green" if the electricity production unit has been put into operation up to a **maximum of 36 months** before the production of the fuel. To ensure this is the case, the timing of the development, construction and realization of both components must thus coincide almost perfectly. **Given the very different application processes for permits for, for example, a wind farm (which can take several years) and an electrolysis installation (typically**

within a year), this requirement would mean a huge delay for the first hydrogen projects of which the produced hydrogen could be used for transport.

Implication for Belgium: In combination with the geographical correlation requirements, and given the complex permit processes for new wind energy projects, it is extremely challenging to be able to align the construction of electrolysis projects with the construction of renewable energy production in terms of timing. The decision to finance/build an electrolysis installation will (have to) be postponed until it is certain that the wind farm is licensed. That causes enormous delays and this will paralyse implementation. The permitting frameworks in Belgium (federal and regional) are an additional stumbling block here. As such, **the inclusion of this requirement in the grandfathering clause of the Delegated Act is a step in the right direction**, but its scope too limited. **We call on the commission to extend the grandfathering clause to all projects built before 2030 instead of 2027.**

2.2 Geographical and temporal correlation

If the electrolysis installation is connected to the electricity grid, proof must be provided that the used electricity was produced entirely from renewable sources. Instead of accepting PPAs in combination with Guarantees of Origin as a proof for this, the Delegated Act imposes additional requirements on the demonstration **geographical and temporal correlation** between renewable hydrogen production and renewable energy production.

2.2.1 Temporal correlation

Three options are given for proving temporal correlation to demonstrate that the electrical production plant produces within the **same hour** as the hydrogen production plant:

1. An **actual temporal similarity** to the hourly electricity produced under the PPA
2. **Intermediate placement of a storage medium** charged in the same hour as the renewable electricity is produced
3. Production during an hour in which the **electricity price is below 20€/Mwh or 0.36 of the CO2 price/tonne.**

The maximum time interval of only one hour between the generation of renewable electricity production and the production of the renewable hydrogen **greatly limits the commercial flexibility of the electrolyser that is necessary for its business model** and an on-line operation on this time basis is not realistic. On the other hand, **guarantees of origin for renewable electricity are given ex-post and do not currently have exact time labelling**, nor is there a system in place to accurately determine this correlation. Guarantees of origin are sufficient to certify electricity, hence should suffice to certify hydrogen too.

As of today **it would be reasonable to work with a temporal correlation of a month.** This time base also applies, among other things, to certification of biomethane by European recognized voluntary schemes and would contribute to a 'level playing field' between energy carriers.

At the least, **this requirement of hourly correlation should be grandfathered until 2030**, to kick-start the hydrogen economy in the coming years and ensure alignment with the timing of the broader regulatory framework for gases.

2.2.2 Geographical correlation

Geographical correlation is ensured in the Delegated Act by permitting the use of electricity from adjacent bidding zones is only **if the electricity prices there are equal or higher**, or it is an **offshore bidding zone**.

This requirement to essentially limit the production and consumption of hydrogen to the same bidding zone prevents efficient integration of renewable energy from abroad. Although exceptions are possible for contracting RES from neighbouring bidding zones when prices are low, this possibility is virtually destroyed because of the unpredictability of hourly tariffs. It is therefore near impossible to consider this option in a business model.

Implication for Belgium: The bidding zone for Belgium is as such limited to Belgium itself, so that the number of possible new projects is by definition limited. In concrete terms, **many parties are in favour of using a capacity zone for Belgium that would extend to the neighbouring bidding zones (NL, DE, FR)**. This would broaden the possibilities for Belgian hydrogen producers and make more optimal use of the interconnections between bidding zones (as is the case for electricity markets too). This approach is in line with the general aspiration in Europe to develop a single market, but is still hampered by national interests, such as bidding zones.

The requirement, as designed, is incompatible with the integration of the European energy market. What is more, in a future in which Europe is evolving more and more towards a 'copper-plate' model due to extensive electrical connections and the market coupling extension, the extra requirement for geographical correlation between electricity and hydrogen production would become even less relevant.

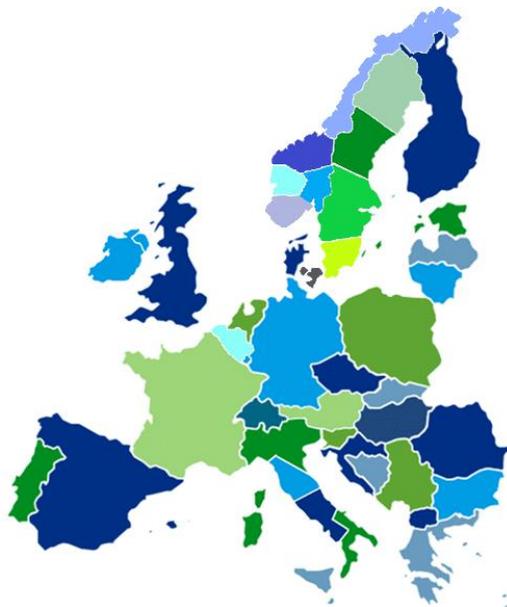


Figure 1 The bidding zone configuration of Europe (September 2020), Source: Florence School of Regulation, <https://fsr.eui.eu/electricity-markets-in-the-eu/>

2.3 Investment support renewable electricity

Additionally, the renewable electricity installation **may not receive operational or investment support** unless large repowering has been done or the support does not constitute net support, such as support that is fully repaid.

Implication for Belgium: In combination with the issue of additionality in Belgium, **this excludes a large number of existing renewable electricity production**. After all, in Belgium, **the vast majority of all renewable energy production is supported today**. Operational support is also still foreseen in the current plans that are being developed for the new, additional offshore wind production in Belgium. This requirement would therefore mean that all hydrogen production linked to existing or new renewable energy production would not be eligible for use in the transport sector.

2.4 Transitional and grandfathering clause

Finally, two clauses are included that create a more tempered framework for electrolyser installations, a transitional clause (Art. 7) that states that until 31 December 2026 temporal correlation should only be proven on a monthly basis (instead of hourly) and a grandfathering clause (Art. 8) that allows installations built before 2027 to keep the exemption from the 36-month rule as well as operational or investment aid.

These clauses reflect a laudable recognition of the need for exempting the projects in the years to come from the strict requirements proposed. However, in the current form these are too limited in scope and time. In order to give the first hydrogen projects the opportunity to get off the starting blocks with minimum valorisation opportunities, **the grandfathering should be extended to the contents of the transitional clause (monthly temporal correlation) and extended to projects built before 2030 instead of 2027**. Apart from kick-starting the hydrogen economy, such an extension of the clause would also ensure alignment with the timing of the broader regulatory framework for gases.

This start-up period allows the Commission to evaluate the extent to which there are real problems, and then to make targeted adjustments. **Specifically, we propose to allow the use of green PPAs between hydrogen producers and renewable energy producers during this start-up period and to document the origin of consumed energy using the existing system of guarantees of origin.** Such a postponement of the implementation of these restrictive rules, until 2030, would furthermore form an incentive for the investors and project developers to invest in hydrogen now, thereby possibly accelerating the developments.

2.5 Exceptions

Some limited exceptions to the strict rules were proposed in RED II. Namely, with regards to the production of RFNBO's, it was stated that **the average energy mix of the two preceding years may be used as a proof for the renewable origin of the respective share of RFNBO's produced**.

Although limited in scope for Belgium (the current share of renewable energy for Belgium is about 20%), this rule creates slight additional opportunities for the kick-start of RFNBO production without an excessive administrative burden. **We assume that this exception remains the default option.**

2.6 General remarks

We are convinced that **the development and construction of renewable hydrogen will automatically lead to additional investments in electricity production** and thus also contribute to the renewable energy targets for Belgium (via the energy, certificate and emission markets). However, the current proposed measures will not incentivise investments – especially in Belgium which is a small bidding zone in comparison to most of its closest neighbours (UK, France, Germany) – and thus automatically not create an additional incentive for the construction of new renewable electricity production either. **These additionality rules are not only a major barrier to the development of the already planned hydrogen projects but also to renewable electricity production** as highlighted in the regional and federal hydrogen visions of Belgium.

Our industry is ready to realize projects in our home market in the coming years, starting today. But, if these projects that are currently under construction are immediately subjected to very strict requirements, their feasibility will be greatly compromised.

All these requirements make the start-up of hydrogen projects that can contribute to the REDII objective of using renewable energy in transport very difficult. This will put the EU in trouble to meet its 40GW ambition for 2030 and 17.5GW ambition for 2025, announced under the hydrogen strategy and the hydrogen accelerator respectively, and for the member states to meet 2.6% RFNBO target under REDIII, which has been raised to 5% in recent proposals. It is also important for Flanders, Wallonia and Belgium, which have put forward clear ambitions in their hydrogen strategy, that the roll-out of the first projects is not hindered by unachievable requirements.

In general, **the rules used should be primarily aimed at efficient system integration and technology neutrality should be ensured in all cases (the same rules for all energy carriers)**. For example, electricity for mobility applications is not subject to the same kind of strict conditions, while green hydrogen is a derivative of green electricity. **In addition, the conditions must guarantee a feasible investment climate**, especially if the objective is to produce substantial amounts of hydrogen in Europe, and specifically in Belgium for its own objective.

Furthermore, the future **scope of application of the Delegated Act should be clarified**. Although the act would, in line with RED II apply exclusively to "Renewable liquid and gaseous **transport fuels**", the RED-III has an extended scope of sub-targets for renewable hydrogen, covering also industry. It is unclear whether these same rules will also apply to RFNBOs that are now used for transport purposes.

3 RECOMMENDATIONS

In drafting this Delegated Act, the Commission stated that it has not carried out a customary impact assessment. The failure to do so has clearly led to an unrealistic proposal, which has so far received a great deal of reaction from all over Europe. Certainly for Belgium, the impact of the proposed measures is substantial considering that green hydrogen is seen as an essential route for decarbonisation of our industry and ports and for the competitiveness of the local industry.

The Belgian hydrogen industry, united under the Hydrogen Industry Cluster, therefore calls on the European Commission **to suspend the current proposal and carry out an impact assessment**, taking

into account the specific situation in each Member State. However, considering the need for rapid progress on energy transition and climate goals, this should quickly lead to a new realistic proposal to provide investors with the necessary security and avoid further delays

In addition, we are already formulating concrete recommendations to adjust various points in the case of an adapted proposal for the Delegated Act (after impact assessment) in order to achieve a workable implementation of additionality, with some of the main requirements, to:

- **Accept renewable guarantees of origin and PPA agreements as sufficient evidence for renewable hydrogen**, without further additionality requirements.
- **Exclude pioneering electrolysers** (built before finalisation of the impact assessment and DA) from further requirements **for their entire lifetime**, or, at least;
- **Extend the grandfathering clause to the contents of the transitional clause (monthly temporal correlation) and to projects built before 2030 instead of 2027**. A review of the Delegated Act by 2030 could then re-evaluate the need for and impact of the delegated act based on experiences from the first projects.
- **Eliminate the strict rules on cross-border use of electricity related to geographical correlation** as Belgium depends on market integration and sector coupling more than other areas due to its reduced size.
- **Include an exception for small installations (e.g. up to 25 MW)** because the administrative burden would be disproportionately large for smaller projects, especially compared to the relatively small impact on the energy mix and its emissions.

For the Belgian situation in particular, we can only endorse the importance of these adjustments, as the proposed rules on additionality, subsidies and geographical and temporal correlation are counterproductive to the development of green energy (hydrogen and electricity) and the objectives that the Commission itself formulates in the RED II.