

Hydrogen Europe Consultation Response

Draft Delegated Regulation on the methodology setting out the rules for RFNBOs production

June 2022

1. Introduction and summary of main recommendations

The Delegated Regulation on the methodology setting out the rules for the production of renewable liquid and gaseous transport fuels of non-biological origin (RFNBOs) is a major market design element for the hydrogen sector. Likewise, it is a deciding factor for achieving the ambitious sectorial targets set out in the Renewable Energy Directive (RED II) revision as well as the deep decarbonisation of EU's economy. Hydrogen Europe welcomes the publication of the document and thanks the European Commission for the efforts to ensure robust sustainability criteria and facilitate the fast ramp up of renewable hydrogen projects.

The following 6 topics are of maximum concern for Hydrogen Europe members. The second section of this documents provides extensive feedback on more areas that could be improved.

A. Additionality and impact on GHG emissions

The draft Delegated Regulation refers to the potential increase of GHG emissions from electricity-based hydrogen unless additionality is ensured. This will of course heavily depend on the national electricity mix, electricity prices and targeted price of hydrogen, the use of hydrogen, the flexibility from the off-taker and availability of hydrogen from storage facilities. In any case, any possible negative impacts could be easily mitigated. Furthermore, even if the effect of connecting electrolyzers to the grid would be to inadvertently generate demand for fossil-based electricity (e.g. like electric vehicles charging during hours with low renewable electricity and high demand), the net effect would be positive in a significant number of countries and the sector where the hydrogen would be used.

For example, if hydrogen was directed to the steel sector¹ and all the renewable power sourced from the grid would be replaced with the grid average of that country, one would still have a positive effect in all EU countries, except Estonia. The net effect is more nuanced if the resulting hydrogen would simply replace grey hydrogen in a refinery or diesel in trucks, but it would still be positive in a number of countries. As such, applying strong requirements blindly, across the EU, without consideration of the CO₂ intensity of e-grids in each case, closes the door on those countries who have already cleaned up their power sector ([more details available here](#)).²

(Recommendation 1) Based on the above, we welcome the proposal to exempt certain bidding zones from complying with additionally as long as the share of renewables in the power mix is above a certain threshold. However, the current 90% threshold is unnecessarily high because in most cases, an electricity mix with over 70% RES would lead to important GHG emission reductions compared to the fossil fuel comparator (assuming that the non-RES electricity is produced by gas-fired power plants). **We suggest adapting the 90% threshold to 70% and ensure that double counting of renewable electricity is avoided.**

¹ If additionality would be expanded to other sectors than transport, as the RED II revision suggests

² [Hydrogen Europe position paper. A workable approach to additionality, geographic and temporal correlation. June, 2021.](#)

B. Transitional Phase

Hydrogen Europe welcomes the European Commission's approach to include a transitional phase for additionality. This is an excellent way to significantly decrease the challenges associated to first-of-its-kind projects, including the availability of renewable energy assets, the synchronisation of the commissioning of both renewable power plants and RFBNO plants (36-month rule) and the associated costs to meet hourly temporal correlation, hourly reporting, etc.

However, we don't understand why temporal correlation is subject to the state-aid received (the connection between operational aid and temporal correlation seems arbitrary). Considering most renewable electricity projects built to date are receiving operational aid, we suggest deleting this provision as in practice would not allow projects to benefit from the intended goal. The way it is formulated now ("*projects involving state aid*") could easily mean that projects benefitting from a support or risk mitigation instrument like a CCfD will also be excluded.

(Recommendation 2) Delete the last paragraph in article 7 and **disassociate derogations on temporal correlation to projects involving state-aid.**

(Recommendation 3) We strongly recommend aligning the Delegated Regulation with the Hydrogen and gas decarbonisation package that foresees the ramp up phase for the hydrogen sector until 2030. In such scenario, **extending the phase-in period until 2030** would enable the uptake of more RFBNO projects at more competitive cost, leading to increased demand of renewable electricity and facilitating the roll out of electricity and hydrogen infrastructure.

C. Temporal correlation

Longer (than hourly) correlation timeframes will foster the optimisation of electrolyzers, increase power grids utilisation, reduce administrative and compliance-related costs, and eventually limit the cost of renewable hydrogen for the whole European economy.

(Recommendation 4) We strongly recommend keeping temporal correlation at monthly resolution. The flexibility granted in the transition period should be allowed to all hydrogen producers independent from receiving operating aid.

D. Grandfathering

We welcome the grandfathering clause (Article 8) allowing projects that become operational before 1 January 2027 not having to comply with additionality of power plants (e.g. 36 Month rule) and being able to obtain power under a PPA with a RES Plant that receives state aid. Indeed, this will facilitate the development of renewable hydrogen projects in record time.

(Recommendation 5) **Grandfathering rules should also include temporal correlation** on top of additionality to ensure projects can be built with a clear and stable business case for a sufficiently long period.

E. Combining PPA RES and grid electricity

It should be made explicitly clear that fuel producers can combine two different sources of electricity at any given time, provided the average GHG emission intensity of fuels produced during the same period is still low enough to meet the 70% emission reduction target. Excluding such an option would have a significant negative effect on hydrogen production profitability. An onshore wind park with a capacity factor of 2,000 full load hours will still produce some electricity for more than 6000-7000 hours per year

(albeit not at full capacity), making it impossible to increase the electrolyser utilization even at times when the marginal generation source in the grid is renewable. We also highlight that from a certain installed capacity size all installations are obliged to be grid connected (should there be a grid) for backup and safety issues.

F. Ensure that RFNBOs producers can combine two different sources of electricity

Recommendation 6: It should be made explicitly clear that fuel producers can combine two different sources of electricity at any given time, provided the average GHG emission intensity of fuels produced during the same period is still low enough to meet the 70% emission reduction target. Excluding such an option would have a significant negative effect on hydrogen production profitability. An onshore wind park with a capacity factor of 2,000 full load hours will still produce some electricity for more than 6000-7000 hours per year (albeit not at full capacity), making it impossible to increase the electrolyser utilisation even at times when the marginal generation source in the grid is renewable.

2. Detailed recommendations

2.1. Definitions (Article 2)

A. Repowering definition

The definition of ‘coming into operation’ refers to starting production of renewable electricity for the first time or following a repowering as defined under Article 2(10) of Directive 2018/2001 requiring investments exceeding 30% of the investment that would be needed to build a similar new installation.

We think this definition is insufficient as ‘repowering’ can involve the addition of new elements to the original park. For example, adding a battery or additional generation technologies to create a hybrid asset such as solar panels to a windfarm. Very often it is precisely the addition of new elements what drives the business case for a repowering. Alternatively, we suggest comparing the new investments to the cost of the original project and define the ‘repowered’ asset as the same site, rather than as a ‘similar’ new installation.

Clarification is also required if ‘starting production of renewable electricity for the first time’ means the first power delivered on the grid by the installation regardless to what extent the installation is fully commissioned, or if it refers to the first power produced starting at the commercial operations date of the installation.

B. Definition of the installation producing RFNBOs/electrolysers

The Delegated Regulation should define the “installation producing renewable liquid and gaseous transport fuel of non-biological origin’ in order to understand which components are within/outside its scope. It can be assumed that an “electrolyser producing renewable hydrogen” focusses on the so-called stack, however it could also include the safety systems that run 24 h a day and 365 days per year, compressors and others. Having clarity on those components (and their demand) is critical for ensuring the compliance with temporal correlation requirements.

2.2. Rules for counting electricity sourced from directly connected installations as fully renewable (Article 3)

Article 3 b states that *additional production capacity can be added to an existing installation producing RFNBOs and that the added capacity will be considered to be part of the existing installation. This is applicable if the capacity is added at the same site and the addition takes place no later than 24 months after the initial installation came into operation.*

Considering that Article 4.a envisages a period of 36 months, we question why direct lines and PPAs should be treated differently in this respect. As such, **we suggest adjusting Article 3.b to 36 months to ensure the same rules apply for directly connected installations and for those connected to the grid.**

Hydrogen Europe highlights that a number of existing projects cannot comply with the criteria of this Article and as such strongly recommend applying a grandfathering clause to such projects (See comment on Article 8).

2.3. Rules for counting electricity taken from the grid as fully renewable (Article 4)

A. Making use of the renewable electricity mix

Article 4.1 indicates that *electricity taken from the grid can be considered fully renewable if the installation producing RFNBOs is located in the same bidding zone where the average proportion of renewable electricity equals minimum 90% in the previous calendar year. In addition, RFNBOs production is limited to a maximum number of hours which is calculated by multiplying the share of renewable electricity by the hours in a year.*

This provision might favour countries that enjoy very large shares of renewables such as Norway, Austria and Sweden. Whilst it is admiring that some Member States have already decarbonised their power systems, we are concerned that countries making impressive efforts to increase their renewable energy share in the power mix will have to comply with the strict rules under articles 3 and 4.2. We consider these Member States should be recognised for their efforts and allow them flexibility to adapt their power mix accordingly. We also note that hydrogen production will support the integration of larger share of variable renewable energy and that electricity mixes with over 60% RES would results in RFBNO production with GHG emission reductions in comparison to the fossil fuel alternative (Considering that the non-RES electricity is produced by gas-fired power plants), as shown in figure 1. In the case of steel production, under the same considerations, RFNBOs will reduce significant GHG emissions regardless of the share of renewable electricity in the mix.

As such, we suggest adapting the 90% threshold to 70%.

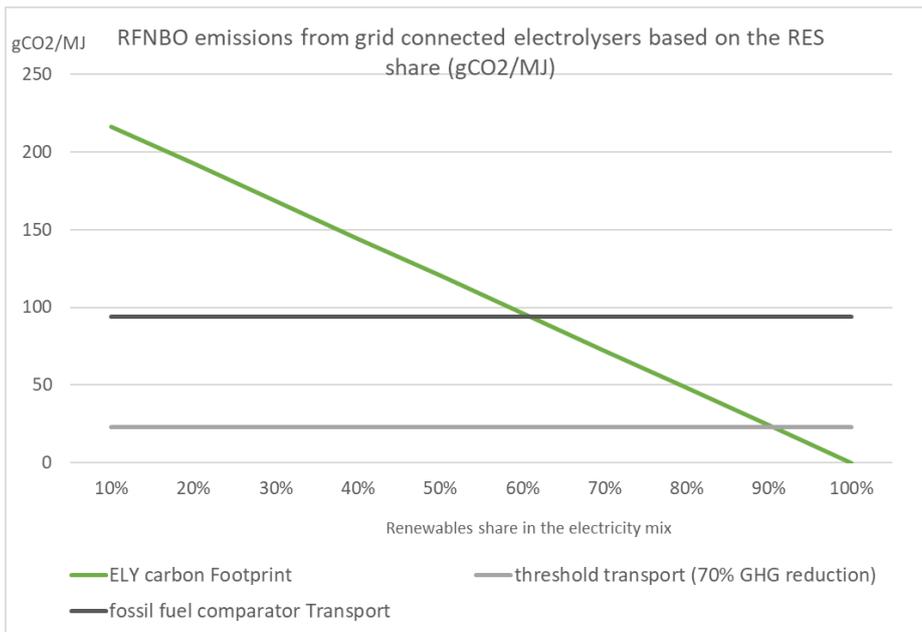


Figure 1 RFNBO emissions from grid-connected electrolyzers depending on the share of renewable electricity. Source: Hydrogen Europe

In addition, we would welcome a clarification if in a bidding zone the renewable electricity share is >90% (or >70% as recommended) in one year and slightly less than 90% (or less than 70%) in the following year due to weather conditions, would article 4.2 apply then?

Consequently, we would also ask for clarification to which calendar year the article refers to.

We ask for more clarity on the wording “has not received”, for example would a case where the RES installation obtains support after signing the PPA be included in the scope?

B. Temporal correlation

We suggest defining temporal correlation to monthly resolution. Longer correlation timeframes will foster the optimisation of electrolyzers, increase power grids utilisation, reduce administrative and compliance-related costs, and eventually limit the cost of renewable hydrogen for the whole European economy. For example, steel manufacturers in countries outside the Nordics are hesitant to make the switch from traditional blast furnaces to DRI processes, hourly correlation would be catastrophic to developing business case. The load factor of electrolyzers would be limited to around 25-30% which would dramatically increase the cost of hydrogen. In order to create a business case and ensure competitive RFNBOs costs, the industry needs to maximise load hours of the electrolyser. An increase in temporal correlation does not necessarily lead to an increase in GHG emissions.³

C. Matching of PPAs in day ahead markets

Article 4.2.c) iii) states that *the clearing price of electricity should result from single day-ahead market coupling in the bidding zone.*

Whilst we welcome this provision, we question why the same is not applied to Article 4.2.c.i) in order to allow the matching in PPAs based on day-ahead forecasts.

³ [Flexible green hydrogen: Economic benefits without increasing emissions. Ruhнау, Oliver; Schiele, Johanna. \(2022\)](#)

In addition, the link between 4.2.c) iii) with the other provisions of Art. 4(2) needs to be clarified. For instance, is Art. 4 (2) (c) (iii) a “stand-alone option” (such as Art. 4(1)) or does it only apply to temporal correlation as one of three options and the remaining provision of Art. 4(2) on additionality and geographical correlation need to be fulfilled.

D. Complementary approaches to meet temporal correlation

We welcome the provisions to allow temporal correlation if DA prices are below 0.36* EU ETS price (€/ton) or €20 per MWh.

However, we believe these provisions should not be linked to article 4.2 but rather be presented as it is done in article 4.4 (outside a PPA, sourcing electricity from the grid during downward re-dispatching periods i.e., when a lot of renewable assets are producing at the same time). This would help to disassociate the uncertainty on forecasting these hours and the need to have PPAs contracted for that electricity.

E. Research and demonstration installations

Article 4.3 provides a derogation from a number of provisions of Article 4.2 in the case of installations used for research, testing and demonstration. We would welcome more clarity on the scope of this paragraph, for example whether a first of its kind projects would be included.

F. Storage

Article 4.4.c) ii) states that *the storage asset needs to be located behind the same network connection point as the electrolyser and that has been charged during the same one-hour period in which the electricity under the renewables power purchase agreement has been produced.*

It is unclear why the Delegated Act aims to limit the storage based on its physical location, especially considering the storage facility may be located in front of the meter and still directly supply renewable electricity to the electrolyser. If the energy storage facility has been charged using renewable energy sources based on a renewable PPA, the discharged energy should always be considered additional. The physical location of the energy storage facility should not be a requirement. We suggest indicating the storage facility should be located in the same bidding zone or use a smart meter indicating no electricity was taken from the grid for the production of renewable hydrogen.

G. Geographic correlation

Article 4.5 allows Member States to introduce additional criteria concerning the location of electrolysers and criteria set out in this Delegated Regulation.

Such an approach could hinder cross-border trade of hydrogen if hydrogen produced in Country A (exporter) doesn't meet the location criteria of Country B (importer). Furthermore, this might severely limit the options to contract RES for electrolysers and discriminate electrolysis in some Member States compared to others. In addition, we note that the wording clearly states the criteria should ‘have no negative impact on the functioning of the internal electricity market’, however fails to factor in the potential negative impact on the hydrogen market.

We strongly suggest maintaining the scope of this Delegated Regulation at EU level, therefore, we propose to remove Article 4.5. If not removed, we would welcome the addition of the following wording at the end of the paragraph: ‘or of the internal hydrogen market’.

H. Combining directly connected and grid-connected Electrolyser installations

Art. 3 and Art. 4 provide different rules for counting electricity as fully renewable if taken from directly connected installations or from the grid, respectively. From a technical perspective, an electrolyser can be both directly connected to a RES installation and connected to the electricity grid. Therefore, we assume that it can operate consuming electricity from both the RES installation it is directly connected to and from the grid. In this respect, we ask for confirmation that the provisions of Art. 3 and Art. 4 can be combined in the operation of an electrolyser.

It should be made explicitly clear that fuel producers can combine two different sources of electricity at any given time, provided the average GHG emission intensity of fuels produced during the same period is still low enough to meet the 70% emission reduction target. Excluding such an option would have a significant negative effect on hydrogen production profitability. An onshore wind park with a capacity factor of 2,000 full load hours will still produce some electricity for more than 6000-7000 hours per year (albeit not at full capacity), making it impossible to increase the electrolyser utilization even at times when the marginal generation source in the grid is renewable.

2.4. Common rules (Article 5)

Article 5 refers to the amount of electricity used to produce RFNBOs, however it is unclear if this applies exclusively to the electricity needed for the RFNBO or if it also the auxiliary and ancillary power needs. In other words, it is not clear how the amount of non-renewable fuel can be determined by each project.

Article 5 b puts very high burden on the reporting of electricity production even if it was not use for the RFNBO production and that, in a way, is out the control of RFNBO producer (if he/she is not the same owner than the renewable energy assets).

2.5. Transitional phase (Article 7)

A. Additionality

Hydrogen Europe welcomes and strongly supports the concept of a transitional period for additionality for electrolysers directly connected to the grid (Article 4) A transitional phase along with the grandfathering clause (Article 8) will facilitate the development of the renewable hydrogen sector. We strongly recommend aligning the Delegated Regulation with the Hydrogen and gas decarbonisation package that foresees the ramp up phase for the hydrogen sector until 2030. As such, we think all projects commissioned before 2030 should benefit from this grandfathering clause to reduce regulatory risk and incentivise first movers in a nascent market.

B. Temporal correlation

We also welcome the notion of a transitional phase for the application of temporal correlation with monthly resolution if monthly correlation was not accepted as a general rule as strongly recommended by us. However, we don't understand why temporal correlation is subject to the state-aid received (the connection between operational aid and temporal correlation seems arbitrary) and **strongly recommend the conditionality regarding OPEX support is removed from Article 7.**

Considering most renewable electricity projects built to date are receiving operational aid, we suggest deleting this provision as in practice would not allow projects to benefit from the intended goal. The way

it is formulated now (“*projects involving state aid*”) could easily mean that projects benefitting from a support or risk mitigation instrument like a CCfD will also be excluded.

C. Transition phase for directly connected electrolyzers

We question why the same transitional phase is not applied to directly connected installations (Article 3). Therefore, we suggest including a derogation of article 3. b) during the transitional phase.

D. Reporting obligations

If hourly matching can be derogated during the transitional phase, it seems appropriate to do the same with regards to the timeframe defined for reporting in Article 5.

E. Extension of transition phase to geographic correlation

We would also welcome the transition phase and grandfathering to be extended to geographical correlation. The key goal of this requirement is to avoid congestion issues between bidding zones. However, congestion can also take place within bidding zones. Geographic correlation will put at a disadvantage Member States with multiple bidding zones, such as Sweden, which has a high price differential between its bidding zones but also a high penetration of renewable and zero-carbon electricity. As such, projects located in countries with multiple bidding zones such as Sweden should be fully exempted from this requirement. More generally, Member States and not RFNBOs producers should be made responsible for solving grid congestion issues.

In addition, the notion of an ‘adjacent offshore bidding zone’ should be further clarified. For example, would a plant in Germany source electricity from a Danish or Dutch offshore park?

2.6. Scope of application (Article 8)

A. Grandfathering of temporal correlation

We ask the European Commission to include a grandfathering clause on temporal correlation for those projects commissioned during the transitional phase, along with the grandfathering on additionality. This is key for ensuring projects can be built with a clear and stable business case for a sufficiently long period.

B. Grandfathering for directly connected electrolyzers

In line with an extension of scope in article 7 and the transitional phase, we believe a grandfathering clause for article 7.b) should be included, aligning different type of projects to compete in a similar set of market conditions. This is especially worrying as there are several such projects (Directly connected) already or about to come into operation and will torpedo first movers rendering projects uneconomical in the long term. **We strongly recommend extending Article 8 to also cover projects with a direct connection.**

C. Better defining the scope of application

We would also welcome further clarification on the scope of application as it is unclear whether an electrolyser that became operational before 01.01.2027 shall respect the additionality rule (and being backed by a PPA with assets which are not 36 months older) or shall the electrolyser benefit from the grandfathering clause.



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Avenue de la Toison d'or 56-60
BE-1060 Brussels
+32 2 540 87 75



[@h2europe](#)



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[Hydrogen Europe](#)



secretariat@hydrogeneurope.eu



[@H2Europe](#)