



Statement on the European Commission's draft of the Delegated Act to Article 27 REDII¹

Sustainability criteria for electricity sources for the production of RFNBOs

The **Global Alliance Powerfuels** welcomes the increased regulatory certainty that will be provided by the European Commission's imminent adoption of the Delegated Act (D.A.) to Article 27 of the Renewable Energy Directive (RED II)². The D.A. will establish a Union methodology setting out rules economic operators are to comply with to meet the requirements laid down in the fifth and sixth subparagraphs of Article 27 (3) RED II. These are to ensure that the electricity used for the production of renewable liquid and gaseous fuels of non-biological origin (RFNBOs) is fully renewable and that RFNBOs effectively contribute to the goal of reaching GHG reductions of at least 55% by 2030, as laid down in the EU Climate Law.

The specification of the sustainability criteria for electricity sources for the production of RFNBOs in the draft of the D.A. published by the European Commission on May 20, 2022, matches recommendations previously outlined by the Global Alliance Powerfuels in many aspects³. In particular, we

The **Global Alliance Powerfuels** was founded in 2018 and is backed by 13 member organisations and an international network of 20 partner institutions. It is coordinated by the German Energy Agency (dena). The strategic objective of the Alliance is to foster the development of a global market for powerfuels.

The term **powerfuels** denotes not only renewable hydrogen but all gaseous and liquid fuels from power-to-X processes that draw their energy content from renewable electricity. This includes, but is not limited to, synthetic gas (e.g. methane, hydrogen) and synthetic liquid fuels (e.g. methanol, ammonia, and Fischer-Tropsch products).

Powerfuels complement the direct use of renewable energy and are crucial where direct electrification is not technologically feasible or economical. By offering climate-neutral options to applications with no viable alternatives, powerfuels allow for more far-reaching de-fossilisation of all end-use appliances, across all sectors – thus enabling system-wide emissions reductions in a technology-neutral approach. Powerfuels can also accelerate the integration of the energy system by replacing fossil energy sources in existing end-use consumer equipment in the short term and offering flexibility as a long-term storage option.

¹ The positions outlined in this statement do not necessarily reflect the view of all individual members of the Global Alliance Powerfuels

² Directive (EU) 2018/2001

³ Please refer to: Global Alliance Powerfuels, 2020, Sustainable Electricity Sources. Renewable fuels of non-biological origin in the RED II. https://www.powerfuels.org/fileadmin/powerfuels.org/Dokumente/GAP_Sustainable_Electricity_Sources_Position_Paper_2020-07.pdf as well as Global Alliance Powerfuels, 2021, Position paper on the Delegated Act of Article 27 REDII. https://www.powerfuels.org/fileadmin/powerfuels.org/Dokumente/Global_Alliance_Powerfuels_position_paper_REDII_D.A._Art._27_fin.pdf



welcome the specification of the criteria of renewability and geographical correlation in Art. 4 (1), 4 (2) and 4 (2d) of the draft, which are in many parts in line with the Alliance's prior proposals. We also support the European Commission's goal of developing additional renewable electricity generation capacity for the production of 'green' hydrogen and its derivatives to ensure that the powerfuels market ramp-up does not compete with the decarbonisation of the power sector and other applications for which direct electrification is technically and economically sensible. We approve of the proposed transitional period for phasing in the criterion of additionality and suggest extending it until 2030 to support the much-needed rapid expansion of installed electrolyser capacity. However, we advocate for it to apply for all installations, including those that came into operation until 2030, after the transitional period.

Further, we consider the criterion of temporal correlation as proposed in the current draft (hourly correlation from 2027 onwards, Art. 4 (2c)) to offer too little flexibility, which comes at the expense of high costs in the powerfuels market development phase. Requiring an hourly correlation between generation of renewable electricity under the power purchase agreement (PPA) and hydrogen production from 2027 onwards can be detrimental to the commercial viability of first large-scale powerfuels projects, which are urgently needed to achieve the goal of producing 10 million tons of renewable hydrogen within the EU by 2030, as outlined in the REPowerEU plan. We therefore recommend extending the phase-in period until 2030, and to all renewable hydrogen-producing plants, including those that directly or indirectly receive or have received state aid. In addition, to ensure that the provisions are in practice applicable to RFNBOs produced outside the territory of the EU as set out in Art. 6 of the draft of the delegated act, additional clarity needs to be provided on how to transfer the specified criteria under recognition of local circumstances, in particular with regard to defining the equivalent of a bidding zone for different electricity market models.

Detailed position on the draft of the Delegated Act to Art. 27(3) REDII and recommendations

Direct connection to an installation generating renewable electricity (Art. 3)

The Global Alliance Powerfuels welcomes the proposed criteria for counting the drawn electricity as fully renewable when a direct connection between the installation generating renewable electricity (RE) and the electrolyser exists. The proposed maximum time interval between the commissioning of the RE generation plant and the electrolyser of 36 months takes into account possible delays in the permitting and construction process, which may make an even smaller admissible time span difficult.

However, it is not clear why adding production capacity to the electrolyser should only be admissible in a time frame of up to 24 months after it first came into operation (Art. 3(b) of the draft D.A.). We therefore suggest replacing this restriction with the general possibility of increasing the pro-



duction capacity of an existing electrolyser, provided that there is a maximum of 36 months between the moment the additional electricity capacities required come into operation and the commissioning of the additional electrolysis capacities.

Connection to the grid with a high average share of renewable electricity (Art. 4 (1))

In case an electrolyser connected to the grid is located in a bidding zone where the average share of renewable electricity exceeded 90% in the preceding year, it can be operated for as many hours per year as corresponds to the respective RE share (Art. 4 (1) of the draft D.A.). We welcome the inclusion of this option, which enables operation at a high degree of utilisation, and without the requirement of concluding power purchase agreements (PPAs) for a corresponding amount of renewable electricity. The “average proportion of renewable electricity” referred to in Art. 4 (1) of the proposed delegated act should be defined more clearly. Specifically, we propose that it should be defined as synonymous with the “average share of electricity from renewable energy sources” referenced in Art. 27 of the REDII, and interpreted in line with the definitions and calculation methodologies described in the REDII⁴.

Indirect connection to an installation generating renewable electricity (Art. 4 (2))

When RFNBOs are produced from electricity sourced from the grid that does not meet the threshold for the average proportion of renewable electricity laid out in Art. 4 (1) of the proposed D.A., four criteria must be fulfilled for hydrogen and its derivatives to be considered as fully renewable. These criteria are elaborated in Art. 4 (2) – 4 (5) of the proposed D.A. and discussed below:

1. Renewability:

For electricity taken from the grid to be counted as fully renewable, the RFNBO producer must have concluded one or more power purchase agreements (PPA) with a producer of renewable electricity for an amount of electricity at least equivalent to the amount of electricity used (Art. 4 (2))⁵. This provision matches the Global Alliance Powerfuels’ previous suggestions and can ensure that all electricity used for the production of RFNBOs is in balance of renewable origin. We therefore support the central role of PPAs in demonstrating proof of the renewability of RFNBOs.

⁴ See European Commission, 2021, The average share of electricity from renewable energy sources in the EU. https://ec.europa.eu/eurostat/documents/38154/4956088/The+average+share+of+electricity+from+renewable+energy+sources+in+the+EU_2004-2019.pdf/a338445c-2a4c-b303-aea5-5c857eb77833?t=1629797780121

⁵ PPAs concluded to prove renewability of electricity supply could be offsite PPAs, meaning that the contracted RE installation is not sited at the location of the electricity usage.



2. Temporal correlation:

Three options for operators to meet the criterion of temporal correlation are laid out in the proposed D.A.: Firstly, from 2027 onwards, the electricity used for RFNBO production would have to be consumed in the same calendar hour during which the renewable electricity supplied under the renewables PPA is generated. (Art. 4 (2ci)) Until then, only monthly correlation is required unless the project receives or has received state aid other than CAPEX funding (Art. 7). Alternatively, operators can meet the criterion by using renewable electricity from a storage facility located behind the same network connection point as the electrolyser and charged during the same one-hour period during which the electricity was generated under the PPA (Art. 4 (2cii)). As a third option, laid out in Art. 4 (2ciii) of the draft D.A., the production of hydrogen can take place in a calendar hour during which the clearing price of electricity resulting from single day-ahead market coupling in the bidding zone is lower or equal to 20€ per MWh or lower than 0,36 times the price of an allowance to emit one tonne of CO_{2eq}.

Diverging from these specifications, the Global Alliance Powerfuels previously proposed that producers should also be able to meet the criterion of temporal correlation by demonstrating based on data reported by the national transmission system operator (TSO) that the hydrogen is produced in a calendar hour during which the RE share in the bidding zone in which the electrolyser is located is higher than the average share of renewable electricity two years before. This would favour RFNBO production in countries where the share of renewable electricity is increasing in line with the mandate that the expansion of renewable electricity generation and RFNBO production capacity should go hand in hand. To avoid putting countries at a disadvantage in which the RE share has been high for years and might therefore increase at a slower rate, we suggested **specifying a minimum average share of renewable electricity for the country where the electrolyser is located** for this option to be admissible to fulfil the criterion of temporal correlation.

Both this suggested alternative fulfilment option and the option proposed in Art. 4 (2ciii) aim to enable the production of hydrogen classified as renewable in hours during which the effect on electricity markets and emissions in the power sector is likely to be positive (i.e. would reduce them). When electricity is drawn from the grid in hours during which the RE share is higher than average but the RE generation installation is not running at the same time, it will then at other times feed renewable electricity into the grid while the electrolyser is not operating given that the total amount of electricity used would still be restricted by what is supplied under the PPA. It is hence likely that with the suggested alternative option, the GHG intensity of the additional electricity required to run the electrolyser in hours the coupled installation is not generating electricity is below that of the electricity displaced by feeding additional RE into the grid at times the electrolyser is not operating.

Allowing for hydrogen production in hours with low electricity prices, on the other hand, aims to deduce signals about availability or scarcity of electricity during certain hours from market



prices. However, it is unclear how the thresholds laid out in Art. 4 (2ciii) of the draft D.A were defined, and the applicability of this option would be limited. In Germany, for example, there were only about 980h out of a total of 8784h on average in the years 2019–2021 where the electricity price was less than or exactly 20 €/MWh, and approximately 1870h with an electricity price less than or equal to 28 €/MWh (corresponding to 0.36 times the current CO₂ price in the ETS of 78€/t CO₂).

The obligation for an hourly correlation with limited applicability of the alternative option of Art. 4 (2ciii) is likely to result in considerably higher costs, as powerfuels plant operators will have to contract PPAs of significantly higher capacity in order to achieve high load factors, leading to increased capital requirements for the renewables assets.

Recognising the trade-off between ensuring full sustainability and economic viability faced by regulators when defining the degree of temporal correlation, **we suggest extending the phase-in period during which only monthly correlation applies until 2030, and introducing the additional fulfilment option outlined above under the condition of a minimum RE share in the country where the electrolyser is located.** In addition, the more flexible temporal correlation requirement during the phase-in period should apply to all installations producing RFNBOs. This should include those that have directly received state aid or have concluded a PPA with a RE generation installation that received state aid other than CAPEX funding. By providing that Art. 4 (2b) does not apply until 2027, Art. 7 explicitly permits sourcing electricity from such installations via a PPA during the transitional phase. It is therefore not clear why the additional flexibility for meeting the criterion of temporal correlation should not apply in this case. We thus suggest removing the restriction of monthly correlation during the phase-in to projects not receiving state aid other than CAPEX funding in Art. 7.

Further, powerfuels plant operators should be allowed to flexibly switch between and combine possible sources of electricity. Specifically, the different ways of sourcing electricity (both from direct connection and the grid, as described in Art. 3 and Art. 4 of the D.A.) should work together. **Operators should be able to combine sourcing electricity from a direct connection, from RE installations contracted via PPAs, and from the electricity mix in the grid as long as it can be demonstrated for the respective hour that only renewable electricity was used for RFNBO production, and that the required 70% GHG emission savings compared to the fossil baseline (Art. 25) are achieved.** To provide clarity on how emission reductions are to be computed and traced in such a case, the rules for attributing emissions of zero to the electricity used for RFNBO production laid out in D.A. to Art. 28 REDII should be harmonised with these options of classifying the drawn electricity as fully renewable⁶.

⁶ See statement of the Global Alliance Powerfuels on the draft of the Delegated Act to Art. 28 REDII for more details.

3. Geographical correlation:

The specification of the draft D.A. provides that the electrolyser and contracted power plants should be located in the same bidding zone (Art. 4 (2da)). Alternatively, the RE installation can also be located in an offshore bidding zone adjacent to the bidding zone where the electrolyser is located (Art. 4 (2dc)), or in a neighbouring bidding zone (Art. 4 (2db)). However, the latter option is only admissible when electricity prices on the day-ahead market are equal or higher in the relevant period in the neighbouring bidding zone than in the bidding zone where the hydrogen is produced.

We generally support the specification of this criterion for electrolysers located in the territory of the European Union, as it leaves sufficient flexibility while taking into account the need to avoid adding to existing grid congestion between bidding zones. However, regarding the provisions in Art. 4 (2db), it remains unclear to what extent the absence of a systematic grid congestion can be deduced from higher electricity prices in the bidding zone where the RE plant is located. This option could have the consequence that producers in different member states purchase their electricity from the same neighbouring countries if these – independent of potential grid congestion – generally have a higher price level. To avoid such unintended negative effects, we suggest restricting the possibility to draw electricity from installations located in a neighbouring bidding zone to times when electricity prices on the day-ahead market are equal.

Further, we see challenges when applying this criterion to RFNBO production outside the EU. Given that the rules set out by the D.A. will also extend to importers of RFNBOs into the EU (Art. 6) and taking into account the EU's goal of importing 10 million tonnes of renewable hydrogen by 2030 under the REPowerEU plan, global applicability and implementability of the criteria needs to be safeguarded.

The specification of options to meet the criterion of geographical correlation outlined in the draft D.A. is based on the European market model, characterised by the division of the electricity market into bidding zones – usually geographically equal to country borders – for which a uniform price of electricity applies. However, while the zonal model is also used in many other regions of the world, the specific configuration of bidding zones in the EU (geographical areas within which market participants are able to exchange energy without capacity allocation) is not directly transferable to the electricity market models in other countries. Not only do nodal instead of zonal markets exist in some countries, e.g. in the United States, Australia, and New Zealand. More generally, the particularities of the European market design, especially the absence of restrictions on electricity trade between European bidding zones/ Member States⁷, and the specific challenges inherent to the EU market model make it necessary to clearly specify which of the criteria should be universally applicable in importing countries.

⁷ except for the availability of cross-border transmission capacity

To account for the different properties of energy market models around the world, the Global Alliance Powerfuels proposes to define the equivalent of a bidding zone for each electricity market design (e.g. nodes) so as not to inhibit the development of production capacities in third countries. To avoid delays in transposing the requirements, definitions of the equivalent of a bidding zone in markets outside the EU could be developed by voluntary schemes that can apply for recognition by the European Commission to provide verification that imported RFNBOs were produced in compliance with the EU sustainability criteria.

4. **Additionality:**

The Global Alliance Powerfuels previously suggested that a power plant should be counted as additional if it was newly built and has not received any financial support (CAPEX or OPEX), or if it was refurbished, the cost of investment being more than 10% of the cost required to build a new plant. The draft D.A., which specifies the requirements for meeting the criterion of additionality in Art. 4 (2a) and 4 (2b), follows this principle by providing that the electrolyser came into operation max. 36 months after the coupled RE generating installation either first came into operation or was re-commissioned after being refurbished. However, it sets the threshold for refurbished installations to be considered “new” or “coming into operation” at 30% of the cost required to build a new plant (Art. 2 (6)).

While this provision theoretically offers the possibility for the continued use of existing RE generating plants, it does not offer sufficient economic incentive for refurbishment in many cases. In order to adequately facilitate the continued use of existing plants, we would thus like to reiterate our suggestion to **lower the threshold for refurbishment to 10% of the cost required to build a new plant.**

We support the European Commission's proposal to introduce a transitional period for the criterion of additionality to enter into force, in particular to take account of the time needed for planning and implementing projects to build new renewable electricity generation capacities, and to ensure that the timely ramp-up of the market is not impeded. In order to provide planning and investment security for first movers and to simplify the implementation of powerfuels projects, the Global Alliance Powerfuels recommends **extending the transitional period until 2030**, in line with the suggestions made for the phase-in of temporal correlation above.

We are critical, however, of the proposal to extend the suspension of the additionality criterion beyond the phase-in period for plants that came into operation by then (“**grandfathering**”). We therefore call for **removing Article 8** of the draft D.A.



Additional comments

We welcome the fact that a system-friendly operation of the electrolyser is facilitated through a dedicated verification option in Art. 4 (4), which allows operators to draw electricity from the grid during an imbalance settlement period for which the national TSO can attest that RE installations were downward redispatched, provided that the amount of electricity consumed during this period is reducing the need for redispatching by a corresponding amount. We support the fact that plants are not subject to the additionality criterion in times during which this option is used, i.e. existing plants can also be used in the corresponding hours of electricity consumption. This flexibility is important in the context of the hydrogen market ramp-up and at the same time supports the integration of renewable electricity capacities / the avoidance of their curtailment or downregulation.

It is not clear in the present draft whether the terms "electrolyser" and "installation producing RFNBOs" are used as synonyms, nor are the system boundaries of the electricity consumption of electrolysers defined. The Global Alliance Powerfuels suggests specifying that the criteria for electricity sources defined in the D.A. refer to the amount of electricity needed for the process of electrolysis, but not to downstream synthesis installations or to CCU installations for the provision of CO₂ as a raw material for the production of carbon-based RFNBOs. However, these plants should be required to draw 100% renewable electricity.

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