Position paper on the Delegated Act of Article 27 REDII

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. The D.A. will establish a Union methodology that sets out rules by which economic operators are to comply with the requirements laid down in the fifth and sixth subparagraphs of Article 27 (3) of the Renewable Energy Directive (RED II)[1]. 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 new goal of reaching GHG reductions of at least 55% by 2030, as laid down in the EU Climate Law.

The currently discussed elaboration of the sustainability criteria specified in Recital 90 and Article 27 of the RED II matches recommendations outlined by the Global Alliance Powerfuels in many aspects[2]. In particular, we welcome the specification of the criteria of renewability and geographical correlation, which are in line with the Alliance's prior proposal. However, we believe that the criterion of temporal correlation as discussed in the current discourse (15 minutes) offers too little flexibility and causes too high costs for the initial powerfuels market development. Immediately requiring temporal correlation of 15 minutes is detrimental to the commercial viability of first large-scale powerfuels projects, which are urgently needed to achieve the goal of 40GW electrolyser capacity

The **Global Alliance Powerfuels** was founded in 2018 and is backed by 16 member organisations and an international network of 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 also 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] Directive (EU) 2018/2001

[2] 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

by 2030, as formulated in the EU hydrogen strategy. We therefore recommend that policy measures be added to compensate for this, e.g. Contracts for Difference for powerfuels plants or other support mechanisms bridging the gap to commercial viability.

Position on the REDII Delegated Act to Art. 27(3) and recommendations

As laid out in Art. 27 of the RED II, when RFNBOs are produced from electricity sourced from the grid, four criteria must be fulfilled for the fuels to be considered as fully renewable. These criteria are to be elaborated in the D.A. and discussed below:

1. **Renewability:**

   According to current discussions around the specification of the D.A., for electricity taken from the grid to be counted as fully renewable, the RFNBO producer must have concluded a power purchase agreement (PPA) with a producer of renewable electricity for the equivalent amount of electricity used (Art. 4 (1) a))[3]. This provision matches the Global Alliance Powerfuels' suggestion and will ensure that all electricity used for the production of RFNBOs is of renewable origin.

2. **Temporal correlation:**

   Two options for operators to meet the criterion of temporal correlation are currently discussed: Firstly, the electricity used for RFNBO production would have to be consumed in the same quarter of an hour (15 min) during which the renewable electricity supplied under the renewables PPA is generated. Alternatively, producers could also fulfil the criterion by demonstrating that in the 15 minutes the electricity is supplied, the share of renewable electricity in the bidding zone in which the electrolyser is located is higher than the average share of renewable electricity in the country where the electrolyser is located two years before. This demonstration is to be based on data reported by the national transmission system operator (TSO).

   Diverging from these specifications for temporal correlation, the Global Alliance Powerfuels has proposed phase-in time with more flexible temporal matching until 2030. The options described in the previous paragraph would not allow for a phase-in and the strict time window of 15 minutes correlation would apply immediately.

   Immediately applying a 15-minute time window will require TSOs as well as verification registries to adjust. In addition, state-of-the-art off-site PPAs usually do not include provisions on

[3] This applies only to countries where the grid is not exclusively supplied by renewable electricity. 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.

providing real-time data of electricity supply volumes from the renewables assets under contract. What is more, the obligation for a sharp correlation of 15 minutes is likely to result in much 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 including a phase-in period of hourly correlation until 2026, and introducing additional market-based instruments to incentivise the uptake of powerfuels**. This could counterbalance the increased costs caused once operators are obliged to meet the narrow time span of 15 minutes correlation.

Further, a strict implementation of the criterion of temporal correlation would make it all the more important that powerfuels plant operators can 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 PPAs and from the electricity mix in the grid as long as it can still be demonstrated that only renewable electricity is used for the RFNBO production, and the required 70% GHG emissions reduction compared to the fossil baseline (Art. 25) is achieved.** The D.A. to Art. 28 on the methodology of calculating emissions savings from powerfuels, due in December 2021, should specify how emission reductions are to be computed and traced in such a case.

Regarding the second fulfilment option discussed to be included in the D.A., we welcome the added flexibility this would provide. In line with the mandate that the expansion of renewable electricity generation and RFNBO production capacity should go hand in hand, this option favours RFNBO production in countries where the share of renewable electricity is increasing. At the same time, however, it puts countries at a disadvantage in which the share of renewable electricity has been high for years and might therefore increase at a slower rate. **The D.A. should thus specify 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.

Another point to consider is that providing data on the share of renewable electricity in the system every 15 minutes will challenge existing data processing capacities. **In case of lack of technical and practical feasibility to prove 15-minute time intervals in Member States today, the D.A. should define a phase-in period until such instruments become available.** During that period, temporal correlation should be demonstrated either as specified above, or, for the second fulfilment option, with state-of-the-art PPAs in combination with hourly data provided by TSOs on the share of renewable electricity in the bidding zone in which the electrolyser is located.

3. **Geographical correlation:**

   In our 2020 position paper, the Global Alliance Powerfuels suggested that the electrolyser and power plants should be located in the same bidding zone, and should not be separated by permanent grid congestion. The specification of the D.A. currently discussed follows this suggestion but adds another fulfilment option. According to this second option, electrolyser and power plants can also be located in neighbouring bidding zones as long as national authorities assess that there is no systematic grid congestion between the zones, and that market prices are equal in the relevant quarter of an hour.[4] We support the specification of this criterion, which leaves sufficient flexibility while taking into account the need to avoid adding to existing grid congestion between bidding zones. However, we still see some challenges when applying this criterion to RFNBO production outside the EU (see below).

4. **Additionality:**

   The prior proposal of the Global Alliance Powerfuels suggests that a power plant is to be counted as additional if it is newly built and does not receive any financial support (e.g. through a feed-in tariff or a market premium) aimed at the power market. This is based on the rationale that if a renewables plant can demonstrate commercial viability without requiring offtake support, it is built in addition to the renewables that do require such financial support. The production of RFNBOs thus does not compete with efforts to decarbonise the power sector. The currently discussed specification of the D.A. follows this principle but further extends it to renewable power plants that have received financial support in the past (CAPEX or OPEX).

   The Global Alliance Powerfuels opposes an exclusion of renewable power plants that no longer receive financial support. Allowing to contract such plants for the production of RFNBOs could provide a viable business case for its operator and hence prevent a renewable power plant that no longer receives subsidies from being decommissioned. **As the plant would otherwise go out of business, contracting it for RFNBOs would fulfil the purpose of additionality.** RFNBO producers should thus be able to contract renewable power plants that received subsidies in the past as long as they do not receive state support at present.

[4] Avoiding grid congestion is only specified in Article 4 (1) e) for renewable energy installations and electrolysers located in *neighbouring* bidding zones. When located in the same bidding zone, this specification is not required as internal grid management through targeted interventions by the transmission system operator eliminates overload (e.g. using redispatch).

It is currently discussed that any existing renewable power plant could be considered as "new" (or "coming into operation") if it has been refurbished considerably, the cost of investment being more than 30% of the cost required to build a new plant. This provision theoretically offers the possibility for the continued use of existing plants. In reality, however, it still does not offer sufficient economic incentive for refurbishment in many cases, as the minimum investment ratio is still too high. It therefore does not adequately facilitate the continued use of existing plants. **We thus suggest lowering the threshold for refurbishment to 10% of the cost required to build a new plant.**

Applicability of criteria for production of RFNBOs in non-EU countries and import into the EU

Total demand for RFNBOs in the EU across all Member States will likely not be met by domestic production in the EU internal market alone, making imports necessary. For example, the expected demand for renewable hydrogen in Germany in 2030 of 90-110 TWh, as foreseen in the German hydrogen strategy[5], would only just be covered by the total planned production capacities across the entire EU of 40GW by 2030 (or app. 112 TWh[6]), as stipulated in the EU's hydrogen strategy. Moreover, we expect some of the most suitable supplier countries in terms of renewable electricity generation potential and levelised costs of powerfuels production to be outside the EU.

Given that the rules set out by the D.A. will also extend to importers of RFNBOs into the EU, global applicability and implementability of the criteria needs to be taken into account. We currently do not see this sufficiently reflected in the proposal discussed for the D.A. today. Even though imports of RFNBOs will presumably only make up a small fraction of total RFNBO consumption in the EU over the next years, developing production capacities in potential supplier countries outside the EU will have to start as soon as possible in order to ensure that the growing demand in the EU expected for 2030 and beyond will be met.

In this context, we would like to point out that the currently discussed suggestion of electricity sourcing criteria outlined in the 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 regulation of bidding zones in the EU as 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

[5] German Federal Ministry for Economic Affairs and Energy, The National Hydrogen Strategy (2020), https://www.bmwi.de/Redaktion/EN/Publikationen/Energie/the-national-hydrogen-strategy.pdf?__blob=publicationFile&v=6

[6] Assumptions: 4,000 full-load hours, 70% electrolyser efficiency

market design, especially the absence of restrictions on electricity trade between European bidding zones/ Member States[7] , and the specific challenges inherent to the EU market model make it questionable whether criteria for electricity sources for RFNBO production designed under consideration of European regulatory conditions should be universally applicable in importing countries as well.

To account for the different properties of energy market models around the world, the Global Alliance Powerfuels proposes to refer to electricity price areas, throughout which wholesale prices are uniform, instead of bidding zones, in the D.A., and to add specific provisions for RFNBOs produced in non-EU member states and designated for import into the EU. In particular, amendments should be made to the criteria of temporal and geographical correlation in consideration of the particularities of nodal markets and regional electricity markets with a lower degree of harmonisation than the Internal Electricity Market in the EU.

Contact:

Deutsche Energie-Agentur GmbH (dena)
German Energy Agency
Johanna Friese
Friederike Altgelt
Chausseestrasse 128 a
10115 Berlin, Germany

Tel: +49 (0)30 66 777-108/160
Fax: +49 (0)30 66 777-699

powerfuels@dena.de | friese@dena.de | altgelt@dena.de
www.powerfuels.org. | www.dena.de

Date: 07/2021

Please quote as: German Energy Agency (dena, 2021) "Position paper of the Global Alliance Powerfuels regarding the Delegated Act of Article 27 in the REDII on sustainability criteria for electricity sources for the production of RFNBOs"

[7] except for the availability of cross-border transmission capacity