

June 17, 2022

Electrochaea's consultation response to:

COMMISSION DELEGATED REGULATION (EU) .../...of XXX supplementing Directive (EU) 2018/2001 of the European Parliament and of the Council by establishing a Union methodology setting out detailed rules for the production of renewable liquid and gaseous transport fuels of non-biological origin (Ref. Ares(2022)3836651)

Electrochaea GmbH (Electrochaea) appreciates the opportunity to submit the following comments to the European Commission consultation on the delegated act on Article 27(3) of the Directive and the related REPowerEU Plan.

Electrochaea is a supplier of an industrial scale power-to-methane technology that uses a biocatalyst to produce renewable methane from carbon dioxide (CO₂) and green hydrogen (H₂). The product is a renewable fuel that can be used to replace all uses of fossil-derived natural gas and can be injected into the gas infrastructure, thereby lowering the GHG impact of all uses of methane. Renewable fuels play a crucial role in the green economy, especially in hard-to-decarbonize sectors. When CO₂ is emitted from hard-to-decarbonize sectors or biological sources, the power-to-gas methanation process allows for production of low-carbon fuels from that CO₂. Thus, these renewable fuels are important for the ability of the EU to achieve climate neutrality by 2050 and contribute to the concept of circular economy, one of the EU priorities.

A renewable fuel produced using the power-to-methane technology has several advantages that play a significant role in the energy transition and in energy independence for the EU:

1. Power-to-methane recycles CO₂ from any source, producing a renewable fuel that eliminates the removal of an equal volume of natural gas from the fossil vaults. It is important that incentives for all CO₂ sources, biogenic and non-biogenic, are available to encourage capturing and converting CO₂ into renewable liquid and gaseous transport fuels of non-biological origin (RFNBO).
2. When biogas is used as the source of CO₂, power-to-methane can nearly double the amount of green methane produced by converting the CO₂ from biogas into additional grid quality methane. This is a key component in developing energy independence in the near future.
3. Power-to-methane provides a method to store excess renewable electricity for long term; months to years instead of the hours to days that can be stored in a traditional battery. This is an important mechanism to shift the seasonal availability of renewable energy.

Electrochaea fully supports the EU plans to achieve the reduction of CO₂ emissions by at least 55% by 2030 and net-zero by 2050 as outlined in the European Green Deal. Electrochaea also supports the increased ambition to develop hydrogen volumes highlighted in the REPowerEU Plan. Setting ambitious targets for usage of RFNBOs is a key incentive to produce RFNBOs despite the recent increase in the main production cost--the cost of electrical power. To accelerate the process, ambitious transitional targets for usage of RFNBOs before 2030 should also be developed.

Electrochaea welcomes the clarity brought to defining RFNBO but has concerns that aspects of the two supplementing delegated acts and the interplay between them are difficult to understand for market players (such as project developers) and will not serve to sufficiently incentivize the production of the volume of RFNBOs that are needed to deliver on the energy transition. We therefore urge the Commission to consider our recommendations for changes to the delegated act on the *Union methodology setting out detailed rules for the production of renewable liquid and gaseous transport fuels of non-biological origin*.

Electrochaea has the following comments:

Use of RFNBO beyond transportation. In the announcement of the proposed delegated act, it is stated that the initiative sets out the requirements for renewable electricity used to produce these renewable **transport** fuels so they can be classified as fully renewable. The definition of RFNBO from Article 2(36) of REDII states: “renewable liquid and gaseous transport fuels of non-biological origin’ means liquid or gaseous fuels which are used in the **transport** sector other than biofuels or biogas, the energy content of which is derived from renewable sources other than biomass”. As outlined in the REPowerEU Plan, RFNBOs are important for the decarbonization of industry as well as transport.

Power production from biogenic fuels. In relation to Article 2 (4), which states that “*renewable hydrogen means hydrogen derived only from renewable energy sources other than biomass*”, Electrochaea finds it counterproductive that energy used to produce an RFNBO cannot include energy derived from renewable biomass under certain circumstances. Biogenic CO₂ can be derived from renewable biomass used to fuel combined heat and power generation (CHP) and waste incineration plants. When this CO₂ is captured, it can be used as a feedstock for a power-to-gas plant in the production of synthetic methane. By not giving CHPs, waste incineration and other CO₂ sources the possibility and flexibility to use their own renewable power supply, a major incentive for such GHG emitters to invest in CO₂ capture and production of RFNBO is removed. Importantly, when sufficient intermittent renewable power sources are not available to meet power-to-gas facility operational targets, increased costs for complex duty cycles and reduced revenues from RFNBO production can jeopardize project economic viability. Allowing use of renewable electricity directly from biomass-fueled electricity generation, or commingled with available power from other renewable generation sources, would provide flexible and “best use” of available renewable power, helping secure economic returns for project investors and

delivering the volume of renewable fuels required to meet the ambitious goals of REPowerEU. Electrochaea suggests that electricity generated from renewable biomass that is the CO₂ source for a power-to-gas plant and is directly connected to the plant should be eligible for production of renewable hydrogen. We propose such use should be limited to no more than 25% of full electrolyzer power consumption in a year for the power derived from the same plant where the CO₂ is captured and used to produce the RFNBO product.

Extend monthly temporal correlation to 2030. We support the temporal correlation requirement on a monthly basis in a transition period before introducing hourly requirement. However, we suggest that the transition period in Article 7 be extended to 31 December 2029 to allow for sufficient time to align markets and generation capacity with the new requirements. New software needs to be developed and operators of power-to-x plants, and energy traders need to align on the new market conditions for trading of electricity. To introduce hourly correlation already by 2027 would be insufficient time for the market players to align.

Share of renewable energy. Article 4(1) states that RFNBO producers can count electricity taken from the grid as renewable if the facility “is located in a bidding zone where the average proportion of renewable electricity exceeded 90% in the previous calendar year.” The 90% threshold, while also looking back one year, is too stringent. A 70% threshold applied until 2030 would be a strong incentive for member states to achieve the goal of a renewable grid. This would serve to accelerate investments in renewable power and allow time for permitting to occur. Article 4 (1) should be revisited after 2030.

Grandfathering of additionality requirement to 2030. Electrochaea finds that the cut-off date for the exemption from additionality requirement should be extended to 2030 to cover investments in power-to-x investments brought into operation before 2030. Investments in additional renewable electricity production have a long planning time and are outside the control of developers for power-to-x projects. To meet the expected demand for RFNBO in both transport and industry, there is a need to accelerate investments through significant incentives to invest in power-to-x projects at an early stage and give flexibility to the power supply. Another major challenge for power-to-x project developers is related to supply chain issues. The availability of electrolyzers needs to be accelerated through investment that is likely to take more time than the suggested 2027 deadline. Together with other material supply, this is not controlled by the power-to-x project developer. We therefore recommend extending the transition phase in Article 8 from 1 January 2027 to 1 January 2030.

Renewable electricity with state aid. In relation to exclusion of renewable electricity projects that had received state aid, we fully support the suggestion for introduction of net support in Article 4 (2)(b). This will allow for usage of renewable electricity from installations that at times produce with support from the state, but overall produce without or with negative net support. To accelerate power-to-x project investments, we suggest deleting the last paragraph of Article

7: “For projects involving State aid, other than where the aid remunerates only capital expenditure, the derogations in the 2nd paragraph shall not apply”. This will allow for power-to-x projects to operate in a transitional period with renewable power that has previously received state aid and is now operating without additional support. Additionally, we propose to exempt the IPCEI projects and projects that received support according to the CEEAG guidelines.

Electricity sourced from directly connected installations. For installations that utilize renewable electricity from directly connected installations (behind-the-meter), the wording of Article 3(c) “no electricity has been taken from the grid” does not make it clear that grid-sourced renewable electricity can also be used for that same RFNBO-producing installation to supplement the behind-the-meter electricity. It would be useful to ensure the applicability of Article 4 when a behind-the-meter renewable electricity source exists.

We therefore suggest the following addition (noted in bold) to Article 3(c):

*“the installation producing electricity is not connected to the grid, or the installation producing electricity is connected to the grid but a smart metering system that measures all electricity flows from the grid shows that no electricity has been taken from the grid **or that electricity has been taken from the grid according to the conditions set out in Article 4** to produce renewable liquid and gaseous transport fuels of non- biological origin.”*

Electrochaea appreciates the opportunity to participate in this important step towards a net-zero EU.

Sincerely,



Mich Hein, Managing Director
Electrochaea GmbH