

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 minimum threshold for greenhouse gas emissions savings of recycled carbon fuels and by specifying a methodology for assessing greenhouse gas emissions savings from renewable liquid and gaseous transport fuels of non-biological origin and from recycled carbon fuels (Ref. Ares(2022)3836721)*

Electrochaea GmbH (Electrochaea) appreciates the opportunity to submit the following comments to the European Commission consultation on the delegated act on Articles 25(2) and 28(5) 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 (CO<sub>2</sub>) and green hydrogen (H<sub>2</sub>). 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 CO<sub>2</sub> 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 CO<sub>2</sub>. 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 CO<sub>2</sub> 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 CO<sub>2</sub> sources, biogenic and non-biogenic, are available to encourage capturing and converting CO<sub>2</sub> into renewable liquid and gaseous transport fuels of non-biological origin (RFNBO).
2. When biogas is used as the source of CO<sub>2</sub>, power-to-methane can nearly double the amount of green methane produced by converting the CO<sub>2</sub> 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 CO<sub>2</sub> 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 the 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 *methodology for assessing greenhouse gas emissions savings from renewable liquid and gaseous transport fuels of non-biological origin and from recycled carbon fuels*.

Electrochaea has the following comments:

**Clearly define each component of the formula.** Electrochaea finds the delegated act on the methodology to calculate the GHG savings difficult to understand and therefore difficult to make business decisions to comply with or provide benefits intended by the delegated act. The formula Annex A (1) provides much uncertainty. The level of guidance varies significantly for each component of the formula, which in some cases will force RFNBO producers to make some guesses, creating uncertainty and roadblocks for investment decisions.

Additionally, we find that more guidance is needed for default values within every variable of the formula. We would strongly prefer a table that clearly sets out the locations of each value in the formula in the same fashion as the disaggregated values of Annex V of the Renewable Energy (Directive 2018/2001). Specifically, the “existing use” of inputs is uncertain and should be clearly stated. Examples of some existing uses of CO<sub>2</sub> inputs are crucial in understanding how that value can be deducted from the overall emission carbon intensity of the product fuel. These values are important for both biogenic and “non-sustainable” fossil-derived sources and can help drive decisions for sourcing CO<sub>2</sub>.

**Clearly define rigid and elastic.** We also find that there is insufficient definition of “rigid” and “elastic” in Annex A (4). Better definitions and a longer list of examples would be useful.

**Clearly indicate that all electricity used for fuel production is derived from renewable resources.** We also see inconsistencies between the methodologies associated with electricity consumption between the Delegated Acts referring to Articles 27 and 28 of Directive 2018/2001.

Namely, Annex A (6) and paragraph 11, of this Delegated Act, contains wording that brings uncertainty about the eligibility of a fuel as an RFNBO when not produced with fully renewable electricity. There is ambiguity around the meaning of “production process”, especially in cases where the renewable hydrogen is used as a feedstock. This ambiguity includes whether or not electrolysis is considered within the boundary of the production process, and therefore is included as a part of the production process of the fuel. If electrolysis is included within the “production process,” we fear that under Annex A (6) it can be interpreted that a fuel can be considered an RFNBO even if not produced with fully renewable electricity such as nuclear power. A better demarcation between electricity used for electrolysis and the process energy requirements for final fuel production process is necessary.

**Eliminate 2035 restriction for capture and use of industrial CO<sub>2</sub>.** In part (11) of the delegated act, it is stated “*Capturing of emissions from non-sustainable sources can only be considered as avoiding emissions until 2035.*” While the definition of non-sustainable sources is unclear, we assume that the non-sustainable sources are defined as in Annex A (11) (a). We propose the end date for using fossil fuels as feedstocks should be deleted. The arbitrary date of 2035 will discourage investment in carbon capture and utilization (CCU) projects. These projects are generally designed to operate for more than 20 years to provide long term returns on capital aligned with long term production of much needed renewable energy resources. If the end date is 2035, CCU projects will not be initiated, and a valuable method of recycling CO<sub>2</sub> will not be implemented. As drafted, the delegated act is too restrictive and will result in an insufficient supply of necessary and affordable CO<sub>2</sub> from carbon capture solutions.

**Further clarity is needed on the definition and mechanisms of “effective carbon pricing”.** In Annex A (11)(a) it is indicated that emissions from existing use or fate of an input are the emissions that are avoided when the input is used for fuel production. It is further stated that in order to include the CO<sub>2</sub> that was captured from an activity listed in Annex I of Directive 2003/87/EC, the CO<sub>2</sub> “*has been taken into account upstream in an effective carbon pricing*”. A clear definition of the effective carbon pricing must be included. Methods of “*effective carbon pricing*” should be defined. In addition, mechanisms to certify that any original emitter of CO<sub>2</sub> has completed the “*effective carbon pricing*” and transferred it to the RFNBO producer should also be defined.

**Include CO<sub>2</sub> from hazardous or municipal waste installations.** CO<sub>2</sub> captured from municipal waste sites is an important source of CO<sub>2</sub> for power-to-x processes. This is a source of CO<sub>2</sub> that is not covered by the EU ETS. Annex A paragraph 11, should include CO<sub>2</sub> waste from hazardous or municipal waste sites as shown below:

**(e) The captured CO<sub>2</sub> stems from a hazardous or municipal waste installations;**

Electrochaea is also a member of Hydrogen Denmark and has consulted them to gain a better understanding of the delegated acts. We encourage the Commission to look further into the comments presented by Hydrogen Denmark and aim for a revised delegated act on greenhouse gas emissions savings of recycled carbon fuels that is better aligned with the delegated act on production of RFNBO. The aim must be to create a clear framework that can better be understood by businesses with plans for investing in power-to-x projects that will contribute to reaching the EU climate and energy objectives and aid circular economy objectives.

Sincerely,



Mich Hein, Managing Director  
Electrochaea GmbH