January 2023

France Hydrogène's position paper

On the Delegated Act defining a method for assessing GHG emission savings for RFNBOs – *assigning a consistent carbon content value for the French electricity mix*

Summary

The French hydrogen industry is in the starting blocks to scale up. For now, a majority of electrolysis projects in the pipe is based upon an operation profile with a very high load factor (>7000h/p.a), thanks to the ability to use the decarbonized electricity of the national grid. Using the "electricity mix method" defined at the Article 4(1) of the DA from Article 27(3) of RED II should allow fuel producers to deliver 40% of RFNBOs and 60% of low carbon hydrogen, in France, by 2030.
However, the average carbon content value considered by the European Commission for France (70,56gCO_2/kWh) in its last DA28(5) proposal (December 2022) will make ineligible French projects for using this method, while not justified by any physical reality. It would severely hinder the rollout of the French hydrogen industry.

Therefore, regarding the DA from Article 28(5) of RED II, France Hydrogène stands for:

1. **Adopting a relevant average carbon content for the French electricity mix. It can be done:**
   - Either by making an exception for France, given its specificity with overseas territories, and considering only the annual average carbon content of the Metropolitan Area. Then the average carbon content for French electricity would be **51,93gCO_2eq/kWh (2020)**.
   - Or by taking the bidding zone as a reference, and not the country, or by leaving at the discretion of Member States the possibility to refer to the country or to the bidding zone. The annual carbon content of the French bidding zone is **54,25gCO_2eq/kWh (2020).**

2. Adding an alternative method to assess the average carbon content of the electricity mix. **The possibility should be left to use, when available, the data of TSO/DSOs on the average hourly carbon content of the electricity mix, what would pave the way for a consistent subsequent method to asses greenhouse gases emissions of low carbon hydrogen.**

The French hydrogen industry is looking forward to the publication of both Delegated Acts defining the rules for the production of renewable hydrogen, and the methodology for assessing GHG emission savings for renewable fuels of non-biological origin (RFNBOs). **Regulatory certainty is imperative to unlock the massive needed final investment decisions**, as already stated in October[1].

Projects are in the pipe. While the French Hydrogen Strategy (2020) sets out an ambitious objective of 6,5GW of electrolysis capacity by 2030, which corresponds to 620-680kt of decarbonized hydrogen (depending on the considered load factor), the *on-the-ground reality of projects* already begun or planned by the industrial sector should lead us well beyond. Indeed, **the unprecedented data collection carried out by France Hydrogène[2] evaluates the roll-out of the French hydrogen sector by 2030 to 1070kt of decarbonized domestic hydrogen production and use**.

[1] *France Hydrogène's position on the rules governing the production of renewable hydrogen*, October 2022
[2] *A road-map for an ambitious hydrogen strategy by 2030*, France Hydrogène, December 2022

	Estimated production by 2030 (tH_2/p.a.) – December 2022
Industry	815,000
Mobility	230,000
Energy	25,000
Total	1,070,000

Production and uses of decarbonized hydrogen in France, 2030 – "in the pipe" projects (industry includes the production of e-fuels)

▪ *Refining*	50,000
▪ *'Conventional' ammonia*	20,000
▪ *Synthetic molecules*	425,000
e-methanol	*205,000*
e-fuels such as SAF and e-kerosene	*165,000*
other needs (e-methane, etc.)	*55,000*
▪ *Steel-making*	250,000
▪ *Decentralized industry*	12,000
▪ *Process heat*	6,500
▪ *Not specified*	51,500

Industry uses (815kt) of decarbonized hydrogen in France by 2030

Among this aggregate of project, electrolysis is by far the most popular approach taken by industry players, representing more than 95% of production capacity. And a **large majority of French electrolysis projects are based on an operation profile with a very high load factor (>7000h/p.a), thanks to the ability to use the decarbonized electricity of the national grid**. Indeed, this grid electricity allows to produce hydrogen compliant with the carbon content cap set for RFNBOs (3,38kg CO_2eq/kg H_2) about 95% of the yearly hours. By 2030, thanks to the increased share of renewables in the mix and the complementarity with nuclear energy, French electrolyzers *connected on the grid* will be able to produce renewable or low carbon hydrogen during 100% of the yearly hours.

Therefore, regarding the rules for the production of RFNBOs and without presuming the needed simultaneous development of PPAs, **the electricity mix method defined at the Article 4(1) of the DA from Article 27(3) of RED II is especially relevant for the French hydrogen industry**. This one set that fuel producers may count renewable electricity, when connected to the grid, up to the proportion of renewable electricity in the previous calendar year for this bidding zone. **In France, by 2030, this method should allow fuel producers to deliver 40% of RFNBOs and 60% of low carbon hydrogen**.

The possibility to use this method is rightly conditioned by the compliance with a carbon content cap for the electricity from the grid. Data used to define this compliance or non-compliance is given in the annexes of the

DA from Article 28(5) of RED II. Yet, the considered average carbon content for the French electricity mix is particularly high and, if adopted as it stood, it would hinder French stakeholders to use the mentioned electricity mix method.

This value of 19,6gCO_2/MJ (i.e 70,56gCO_2eq/kWh) is not justified by any physical reality. Indeed, this value includes the carbon content of the electricity production within all the French overseas territories. This data is of course not relevant for the **French Metropolitan Area, for which the average carbon content is 51,93gCO_2eq/kWh (2020)**. A value which complies largely with the legitimate conditions set by the European Commission to use the electricity mix method for producing RFNBOs.

However, France Hydrogène is aware of the methodological difficulties that can bring this consideration of the French Metropolitan Area only, which may be a specific (but not least important) case. Considering the average carbon content of the bidding zone, instead of the country, would give a consistent basis to the used data. Furthermore, this approach is more coherent with the Article 4(1) of the DA 27(3), that refers to the bidding zone and not to the country. In that sense, **using the bidding zone as reference (which includes Corsica and Ponant islands), the average carbon content of the French electricity mix is 54,25gCO_2/kWh (2020)**. Here again, a compliant value to produce RFNBOs using the electricity mix method.

Last but not least, France Hydrogène is calling for the addition of an alternative method, that Member States could decide to use or not, at their discretion: **when available, taking into account the data from TSO and/or DSOs to asses the average hourly carbon content of the electricity mix where the electrolyzer is located**. This method would allow a fair acknowledgement of the real level of decarbonization achieved by electrolytic hydrogen production, and would allow to pave the way for a relevant methodology in the DA from Article8 of the Hydrogen and Gas Directive (under negotiations). **It is necessary to prepare immediately the "bridges" between the RFNBO's production methodology (and especially the electricity mix method), and the one which will be applied to electrolytic low-carbon hydrogen**.

Therefore, to unlock investments and create the needed framework to scale up, regarding the DA from Article 28(5) of RED II, France Hydrogène stands for:

1. **Adopting a relevant average carbon content for the French electricity mix. It can be done:**
   - Either by making an exception for France, given its specificity with overseas territories, and considering only the annual average carbon content of the Metropolitan Area. Then the average carbon content for French electricity would be 51,93gCO_2eq/kWh (2020).
   - Or by taking the bidding zone as a reference, and not the country, or by leaving at the discretion of Member States the possibility to refer to the country or to the bidding zone. The annual carbon content of the French bidding zone is 54,25gCO_2eq/kWh (2020).

2. Adding an alternative method to assess the average carbon content of the electricity mix. **The possibility should be left to use, when available, the data of TSO/DSOs on the average hourly carbon content of the electricity mix, what would pave the way for a consistent subsequent method to asses greenhouse gases emissions of low carbon hydrogen.**