

Hydrogen Europe's contribution to EC call 'Competition Policy supporting the Green Deal'

Summary

Introduction:

1. *The European Green Deal, the European Recovery Plan and the European Hydrogen Strategy, all give a very strong political signal to kick-starting a clean hydrogen economy in Europe by 2030.*
2. *To achieve the Hydrogen Strategy vision of 6 GW by 2024 and 2x40 GW by 2030, the total investments needed are of 430Bn Euro, with an estimated necessary support of €145Bn.*

State aids:

3. *Economic incentives for hydrogen should aim at compensating the higher cost of renewable and low carbon hydrogen production, as well as end-users' higher costs due to the change to renewable hydrogen and for transforming industrial technologies and processes to hydrogen.*
4. *A dedicated framework on State aid for hydrogen technologies, including transport and storage, should be adopted and contain a possible aid intensity up to 100% of additional costs, stronger Opex support and notifications thresholds of €200M.*
5. *Provisional State aid measures for hydrogen technologies should be applied during the transition period towards the new regime to avoid disincentivizing hydrogen investments.*
6. *Need for an ambitious approach to hydrogen IPCEIs, without waiting for future improvements related to Point 23, eligibility of additional Opex and guidelines on a structured IPCEI building process.*
7. *Clearer and more favorable rules on cumulation with EU funds, and coherency with the other specific and relevant State aid regimes.*
8. *The European Clean Hydrogen Alliance is an opportunity to finetune the needed State aid framework for hydrogen, in support of the pipeline of investment projects.*

Antitrust rules and mergers control:

9. *Need for specific guidelines on the exchanges of information related to the definition of collective R&I and/or cost reduction roadmaps in view of the EU programs.*
10. *Need for specific guidelines on the exchange of information in the context of the development of hydrogen projects, and the tools that could be used.*
11. *The assessment of EU antitrust and merger control rules applicable to cooperations in the hydrogen sector should be wider and give greater prominence to long-term societal sustainability effects compared to the short-term competition effects in the specific market(s). Guidance on how this assessment would be conducted would be welcomed to provide the sector with legal certainty.*

Hydrogen Europe is the leading European Hydrogen and Fuel Cell association which promotes clean and low carbon hydrogen as the enabler of a zero-emission society. It currently represents 190 industry companies, 79 research organizations as well as 25 National Associations. Its member companies are of all sizes and represent the entire hydrogen value chain, from production to transport, distribution and final end-use of hydrogen. The association partners with the European Commission in the innovation program Fuel Cells and Hydrogen Joint Undertaking (FCH JU).

Introduction : Hydrogen a key enabler of the European Green Deal and the European Recovery Plan

The European Green Deal, the Recovery Plan and the first European Hydrogen Strategy adopted on the 8th of July, all give a very strong political signal to kick-starting a clean and low carbon hydrogen economy in Europe by 2030. The European climate strategy and the transition to a decarbonized economy will indeed imply a deep transformation of the production, storage and consumption of energy in Europe, with carbon-free power generation, increased energy efficiency, and the deep decarbonization of transport, buildings and industry. **This transition will require hydrogen at large scale, at internationally competitive prices, and in particular clean hydrogen.**

Hydrogen is an essential lever among other technologies, that offers a versatile, clean and flexible energy vector. It makes the large-scale integration of renewables possible with the conversion and storage of energy as a renewable gas. It can be used for energy distribution across sectors and regions, and it also provides a way to decarbonise segments in hard-to-abate sectors of the economy.

At the same time hydrogen opens up business opportunities for EU industry to lead the transition towards a carbon neutral future, based on EU leadership in a number of key hydrogen related technologies. However, full-scale industrial deployment requires systemic action along the whole value chain, from hydrogen production and transport to the industrial use as feedstock for energy-intensive industries or as fuel for transport or balancing the renewable electricity output.

Hydrogen Europe has estimated(i) that **in order to achieve the Hydrogen Strategy vision of 6 GW by 2024 and 2x40 GW by 2030, the total investments needed are of €430Bn, with an estimated necessary support of €145Bn.**

Economic operators are ready to launch ambitious scale up projects and investments as shows the great engagement of the hydrogen industry representing the whole value chain in the European Clean Hydrogen Alliance.

But they will not solve the equation alone. The EU political signals need now to be translated into concrete measures that support the creation of a European competitive hydrogen economy, able to face growing international competition.

In order to create the adequate market conditions for the new decarbonised technologies, and, in particular, for clean hydrogen, the essential rise of the carbon price and the adjustment border tax, will need to be accompanied by a supportive regulatory framework as well as strong economic incentives.

In the coming years, EU and national sustainable funding will be key in supporting the production of affordable clean hydrogen, securing the needed infrastructure, and covering the higher operating costs of clean hydrogen in the end use sectors. At a moment where Member states are finalising their Resilience and Recovery Plans, and that the EU is heading towards a higher CO2 reduction target for 2030, **State aid rules should play an essential role in the acceleration of the European hydrogen industry adaptation efforts until the market develops and costs become competitive.**

Finally, **antitrust and merger rules will also be an important lever to the European Green Deal goals, and the objectives of the Hydrogen Strategy.**

I. State aid review

1. Need for a shift in the State aid approach in relation with hydrogen

Hydrogen Europe welcomes the upcoming review of the State aid rules and the opportunity provided for public funds to further contribute to the European Green Deal objectives.

Hydrogen Europe acknowledges the global results of the recent EC evaluation of the State aid rules which concludes that, if the State aid control system and rules are to be fit for purpose, individual rules will need some adaptation, also in the light of the Green Deal and the EU's industrial and Digital Strategies.

State aid rules on IPCEIs, environment protection and energy, transport, RDI and regional aids, amongst others, need indeed to be tailored to support the deployment of the new Recovery and Resilience facility and its objective to dedicate more than one third to green projects.

But business as usual might not be enough. Hydrogen Europe is convinced that a **real shift will be needed to unlock the potential of the National Resilience and Recovery plans in the light of the European Green Deal. This is particularly important for the development of the clean hydrogen sector while a European supportive regulatory framework is not yet in place.**

An enhanced regime is therefore needed -and is essential in an early stage- to allow State aid into renewable hydrogen projects -individually or through dedicated Member state schemes- relating to the production, transmission and use of clean and low carbon hydrogen.

The enhanced investment support should namely aim at:

- **compensating the higher cost of renewable and low carbon hydrogen production and transport in comparison with existing hydrogen and other fuel prices**

Example:

Currently, the production of green hydrogen is +/-6 €/kg compared to existing hydrogen (1 €/kg). In order to reduce the costs to 1'5€/kg in Southern Europe and 3€/kg in Northern Europe volumes need to be increased to Gigawatt scale.

Scaling up and creating large scale electrolyser manufacturing plants, green hydrogen production sites and renewable generation projects to supply electrolysers should therefore be, as an example, adequately supported.

- **compensating end users for the higher costs due to the change to renewable and low carbon hydrogen -compared to existing hydrogen and other fuels prices- and for transforming industrial technologies and processes to hydrogen, creating thereby an additional demand**

Examples :

1.The development of clean and low carbon hydrogen in the industry, mobility and building sectors generates additional operational expenditures due to the higher cost of fuel, that are not always eligible to State aid. For instance, only around 20% of levelised costs of renewable hydrogen

production is made up by initial Capex. As a result even subsidising 100% of initial investment will not provide sufficient incentive for industry to result in a fuel switch.

- *Industry:
Decarbonising energy-intensive industries requires massive investments, but the current aid intensities (often only around 20-30 %) are too low to trigger these high-volume investments. Considerable funding gaps remain uncovered, which inhibits the required decarbonisation projects necessary to enable the Green Deal. Decarbonising processes and products often requires more expensive input materials and/or energy mixes. Therefore it is crucial to allow funding for additional operation costs beyond the investment, until a working market for 'green products' is in place.
Next to the review of State aid, it will therefore be necessary to adopt supportive legal measures (eg. obligatory quotas for green-products; enhancing green public procurement...) to establish a "lead market for green products".*
- *Mobility:
The inclusion of additional operational expenditures is especially important for rolling out alternative fuels fleets, where the sustainable fuel is usually more expensive than its fossil competitor. For example for long haul, only 21% of the TCO is made up by the initial Capex and often haulers have access to competitive diesel prices at their depots thanks to special agreements.
Besides, a combined approach in support of both fleets (eg: vehicles/vessels) and infrastructure could significantly help accelerate the market uptake, including on corridors (eg: road, inland shipping...). An option would be to designate technologies/types of projects that qualify for state aid and base the assessment on strong business cases that include externalities.*
- *Buildings:
There is also a clear gap between renewable hydrogen and natural gas that is used for heating in buildings, and that State aids need to address.*

2. The transformation of industrial technologies and processes to clean and low carbon hydrogen though promising in the steel, chemicals, cement and glass sectors, is still into an exploration phase.

- *Steel:
In relation with the switch from coal based blast furnace route steel production to hydrogen based direct reduction steel making, the production cost of the GHG lean route for a site in middle Europe (Capex and Opex) amounts to roughly 170% of the conventional production (ii).
The support to pilot tests, demonstration plants and then ramp up needs to be accelerated so as to allow these energy intensive sectors to rapidly decrease CO2 emissions. When technology is already largely available, State aid should no longer consider the degree of innovation, but rather the far-reaching reduction in greenhouse gases. Compatibility of Carbon Contracts for Difference (CCfD) can also clearly play a role in promoting the uptake of low-carbon production processes.*

In view of the presented challenges it is clear that limiting support for hydrogen technologies just to Capex will not create a big enough incentive to result in deployments on a big enough scale needed to reach the EU Hydrogen Strategy targets. **The eligible costs should therefore be defined as the funding gap, calculated based on a counterfactual scenario, presumed to be the situation in which the project would not take place.** The funding gap should be calculated as the difference between the positive and negative cash flows over the entire lifetime of the investment (i.e. covering both Capex as well as Opex and revenues), discounted to their current value.

Finally, infrastructure is another key element that the state aid framework needs to further consider to ensure the transmission, distribution and storage of H₂, including the import of H₂, and connect offer and demand.

2. A dedicated State aid framework for hydrogen

Considering the challenges the hydrogen sector is confronted with in the context of the European Green Deal and the Hydrogen Strategy, and, as a newly recognised European strategic value chain, it is important to underline that **the current State aid framework is not fit for the purpose of hydrogen technologies and the development that the hydrogen market will undergo in the coming years.**

As an example, the current Energy and Environmental State Aid framework focusses mainly on the production of renewable electricity and electro-intensive sectors and has stricter rules for Member states in the RES non electricity category, covering thereby a limited part of projects (and eligible costs) key to clean hydrogen deployment. Manufacturing of electrolyzers or fuel cells, use of hydrogen in current infrastructure and a dedicated hydrogen infrastructure, and use of hydrogen in energy intensive industries aren't therefore directly eligible. Other possible supports are scattered across the State aid rules, but there is clearly lack of visibility and a coherent approach is missing.

In the light of the above, Hydrogen Europe supports the **adoption of dedicated guidelines on State aid for hydrogen technologies, including transport and storage, with more tailored and flexible eligibility conditions, more favourable maximum aid intensities and higher aid amounts.**

Priorities :

- **eligibility of large-scale demonstrations projects and roll-out of hydrogen production, transmission/distribution and end-use applications in line with the Hydrogen Strategy and EU Recovery Plan objectives and expectations,**
- **aid intensity up to 100% of additional costs for hydrogen technologies in first-of-its-kind large scale installations,**
- **a more flexible definition of eligible costs, with a stronger Opex support, including in hydrogen production/conversion and end-use application projects,**
- **presumption of market failure for hydrogen projects,**
- **notification thresholds for hydrogen technologies increased to €200M,**
- **faster and simpler notification procedures,**
- **need for clearer rules on the cumulation of aid namely with EU funding, and coherent approach of the available tools with higher funding and larger eligibility costs on Opex (eg : ETS Innovation Fund, Invest EU, CEF, Horizon Europe...).**

In addition, Hydrogen Europe is very much **concerned by the current legal vacuum and its negative impact on hydrogen investments until the new State aid framework applies.** Despite the current available EU funding tools, hydrogen projects adopted before the reviewed framework will be in a fragile position. If the retroactive application of State aid rules can be a solution, this option remains too uncertain for businesses. Hydrogen Europe proposes therefore the European Commission to consider additional **provisional measures for hydrogen projects.**

Finally, as an active member of the European Clean Hydrogen Alliance, Hydrogen Europe expects the Alliance to properly address the funding and financing support to the pipeline projects and other enabling conditions. In this context, Hydrogen Europe supports a thorough discussion on the State aid rules needed to further enhance the investments in scale up projects.

3. A coherent approach with specific State aid rules:

- ***Environment protection and Energy State aids***

The support to a dedicated hydrogen framework, needs to be completed by the search for synergies with the Environment protection and Energy State aid rules, particularly where continuity of projects is at stake (eg: energy from renewable resources, energy efficiency – including cogeneration and district heating-, energy infrastructure, CCS...).

Investments that do not meet the technical criteria to be qualified as contributing substantially to climate change mitigation under the EU Taxonomy on Sustainable finance should be:

- In determining the “green bonus” for meeting the sustainability criteria, all the sustainability criteria should be considered. Allowing green bonus to be applicable just for “any kind of environmental benefit” is clearly not enough, as it would allow for fossil fuels to obtain such bonus – for example, replacing diesel with natural gas for passenger cars, creates an environmental benefit in the form of air pollution reduction, but since the GHG emission reduction is limited, it should not receive a green bonus on the same level as a zero-emission solution.
- As for all projects involving fuel switch from fossil fuels towards a more sustainable options, Capex is only a small part of overall additional costs, Hydrogen Europe strongly suggests that additional operational costs (additional compared to the fossil fuel option) over at least the first 10 years of operation should be counted towards the eligible costs.

- ***IPCEIs State aids***

As a facilitator of the IPCEI process, Hydrogen Europe understands that the scope of the IPCEI Communication urgently needs to be clarified and reinforced in relation with two issues extremely relevant for the development of the hydrogen sector:

- **the interpretation of Point 23 (environmental, energy and transport projects of great importance) and the possibility to cover large scale demonstration and ramp up projects,**
- **the eligibility of additional Opex** in the above-mentioned and FID projects.

In order to have more visibility on the complex building process of IPCEIs between economic operators, Members States and the European Commission, Hydrogen Europe would also welcome the adoption by the European Commission of a **non-paper proposing a structured working process** for interested stakeholders.

Until the IPCEIs framework is finetuned, Hydrogen Europe supports an ambitious and forward-looking interpretation of the current IPCEIs rules to deploy IPCEIs full effects in the roll out integrated hydrogen projects across the EU. There is a clear potential for hydrogen IPCEIs to go beyond the practice and **use all the flexibilities that the 2014 Communication offers in terms of support to transport and energy projects, coverage of 100% of the funding gap and also in terms of Opex eligibility.**

Alternatively **provisional measures** could be analysed to provide extra incentive to first hydrogen IPCEIs.

- **State aid on EU Emission Trading System**

Hydrogen Europe takes note of the newly revised EU Emission Trading System State aid Guidelines. Within the context of the EU Green Deal and establishing a robust system of carbon reduction, it is important to settle the principle of “Carbon content as the currency of the energy system and EU economic recovery”. This principle should govern all EU policies relative to climate and energy and the EU economic recovery.

- **Regional State aid**

Regional aid is also a lever for the European Green Deal objectives and job creation in the European Union. It currently excludes the energy, transport steel and shipbuilding sectors, but regional aid can potentially provide a complementary support to hydrogen projects in disadvantaged areas (eg: electrolyser/FC manufacturing plants, chemicals and building projects...). In the future review these synergies need to be further enhanced, including on large hydrogen investment projects.

- **State aid for transport**

In line with the GBER provisions that incentivise investments beyond regulations applicable to the different transport sectors, in the context of the Green Deal these aids could specifically be conditioned to the uptake of cleaner , notably H2 in the road, rail, maritime and aviation applications.

II. Review of antitrust rules and merger control

1. Cooperation among hydrogen companies to develop the Strategic Research and Innovation agenda (SRIA):

The hydrogen sector, like other sectors, has been requested by the European Commission to develop a multi-annual Strategic Research and Innovation agenda (SRIA). This collective and sectoral roadmap guides the innovation effort of the sector and is the reference to the R&I framework program and the dedicated public private partnership in the hydrogen and fuel cell sector.

To develop a genuine SRIA, the sector needs to agree on key performance indicators (KPIs) reflecting the state of the art, medium term targets (eg. 2025) and long-term targets (eg. 2030). These KPIs refer to:

a) increasing technology performances:

- eg. the energy efficiency of a PEM fuel cell today is 45%, it should be 50% in 2025 and 55% in 2030.
- eg. the durability of a PEM fuel cell used in transport is 5000 hours today, it should be 15.000 hours in 2025 and 40.000 in 2030

b) reducing costs (possibly in relation with a volume of sales):

- eg. the costs of an alkaline electrolyser are today around 800€/ KW, it should be at 600€/KW in 2025 if we assume a volume of 5GW and at 450€/KW in 2030 if we assume a volume of 50GW.

Despite the fact this work is done at the invitation of the European Commission to collectively reduce costs, industry operators perceive these exchanges as potentially falling in the scope of EU antitrust

rules. A solution is needed to keep industry fully involved in this process and guarantee the accuracy and representativeness of R&I hydrogen roadmaps in the future.

Hydrogen Europe asks the European Commission to adopt specific guidelines on the exchanges of information related to the definition of collective R&I and/or cost reduction roadmaps in view of the EU programs. Antitrust should prohibit agreements that would artificially increase costs, but it should also favor information exchanges that enable costs reduction of new technologies necessary to achieve the EU climate ambitions.

2. Cooperation among companies in view of developing hydrogen projects:

Companies encounter a similar problem when it comes to developing hydrogen projects as their exchanges fall within the scope of antitrust rules and this might have an impact on the preparation and future roll-out of the project. In practice, parties are reluctant to cooperate with other companies, and when they do, they mostly settle a 'competition meeting protocol' just in case, which involves the presence of lawyers in all meetings and is extremely costly. This may discourage companies from cooperating.

This was the case in some IPCEI pre-application processes, for direct competitors and for vertical collaboration through the value chain.

Hydrogen Europe asks therefore the European Commission **to provide guidelines on the exchange of information in the context of the development of hydrogen projects** and clarify what is allowed and not, including the tools that could be used (eg: standardised agreements, intermediary organisations that bring parties together on an 'open access' basis and receive the sensitive information, etc...).

3. JV as a tool to reach viable scale in the hydrogen sector:

Hydrogen Europe expects cooperation among companies of the hydrogen value chain to increase in the coming months/years as a means of ensuring a viable scale to hydrogen projects.

Recent months have already been quite rich in announcements of cooperations through the creation of JV, in several domains such as hydrogen production and in the mobility sector. This trend is expected to strengthen.

The search for a feasible scale, together with the alternative offered by hydrogen projects to energy and carbon intensive production and uses, should both be better taken into account by the European Commission in its analysis concerning the need of both horizontal and vertical cooperation, and where applicable mergers control.

The assessment of EU antitrust and merger control rules should indeed be wider. The long-term societal sustainability effects should have a greater prominence compared to the short-term competition effects in the specific market(s).

Hydrogen Europe supports therefore the review of the rules and guidelines on horizontal cooperation and mergers control accordingly. In addition, guidance on how this assessment would be conducted (quantitatively/qualitatively) would be much welcomed, to provide the sector with as much legal certainty as possible.

(i) 'Hydrogen 2030 : The Blueprint'

https://hydgeneurope.eu/sites/default/files/Hydrogen%202030_The%20Blueprint.pdf

(ii) "Macroeconomic implications of switching to process-emission-free iron and steel production in Europe";

Mayer et al., Department of Economics at the University of Graz; November 2017