June 2025

Response to the IDAA Consultation

Creating low-carbon lead markets: a way to meet climate and industrial competitiveness imperatives

Introduction

Between the slow agony of its industry or the transition to a carbon-neutral industry less dependent on fossil fuels, the European Union is at a crossroads.

To commit to this second path and reconcile the imperatives of climate change and competitiveness, it must consider: the weaponization of China's and the United States' trade policies; our dependencies on fossil resources in an uncertain geopolitical context; the lack of competitiveness of the production of low-carbon products in the face of their carbon-based counterfactuals. In parallel with this observation, it is crucial to assess the issues of purchasing power of European citizens and the inability of States to assume the financial burden of the transformation of our industrial and energy system alone.

However, thanks to the Single Market – the second largest consumer market in the world – the European Union has considerable levers to reposition itself in the global market. Among them, policies must be put in place to: strengthen the framework provided by the European Carbon Market (EU-ETS) and the Carbon Border Adjustment Mechanism (CBAM) to avoid carbon leakage and circumvention strategies[1]; create a framework conducive to the development of solutions that contribute to the reduction of our fossil dependencies.

The development of an integrated hydrogen sector on a European scale is one of the key links in this transformation. Indeed, its use is essential to decarbonize the production of fuels in refineries or ammonia but also for the production of steel via direct iron reduction (DRI); the production of methanol and synthetic fuels (i.e. air; maritime) composed of hydrogen molecules.

To date, some manufacturers are willing to pay a premium to source renewable and low-carbon hydrogen products to decarbonize their production: Mercedes-Benz with the green steelmaker Stegra; Pepsico with fertilizer producer Yara; Heineken is one of the investors in the Fertig'hy low-carbon fertilizer production project (France). These sectors, which have the capacity to absorb this additional cost, would thus promote the scaling up of the sector and the reduction of production costs in the medium term. However, these cases represent insufficient volumes for most relevant projects to secure their outlets and thus move on to final investment decisions (FIDs).

Thus, a transitional policy aimed at securing demand for producers of hydrogen and its derivatives in basic industries is necessary. The EU has already initiated it by introducing a renewable hydrogen consumption target of 42% in industry by 2030, or 77% of non-fossil hydrogen, in the Renewable Energy Directive (RED3). However, industrial Member States are reluctant to transpose such objectives: without new economic regulation forcing players to absorb the premium linked to low-carbon industrial products derived from hydrogen, the achievement of these targets would rely entirely on the financial support of the public authorities. Applying the constraint at the right level of value chains will be necessary to achieve these targets. The creation of low-carbon lead markets is essential to decarbonise and maintain the European industrial base with hydrogen.

[1] in particular the sustainability of offsetting the mechanism on indirect costs of carbon post-2030 (ICC)

France Hydrogène
Engagée pour la transition écologique

Lead markets: a strategic response to the industrial and climate emergency

France Hydrogène welcomes the Commission's desire to include the creation of lead markets for low-carbon products as a vector for accelerating industrial decarbonisation in *the Industrial Decarbonisation Accelerator Act* (IDAA).

Definition of a lead market

A lead market is understood as a manufacturing sector in which decarbonisation standards will be put in place – binding or incentivising – leading the sector's players to source all or part of their inputs from low-carbon products. These standards for a downstream sector provide market depth for the low-carbon manufacturing of the inputs concerned, and can therefore be crucial for structuring low-carbon sectors upstream of the chain.

These policies can result in the application of quotas for the use of certain inputs (e.g. decarbonized H2) or the reduction of emissions related to the production of the product. These measures must target end markets *marketed* on the Single Market to avoid circumvention strategies through the import of finished products to which European constraints on the greening of components have not been applied.

Although not explicitly named as such, policies for the creation of lead markets are already being implemented at European level. With the obligations for the use of renewable energy in transport provided for by successive versions of the Renewable Energy Directive (and their application on obligated actors with extra-budgetary mechanisms), the most successful examples at this stage are RED3 transport and the ReFuelEU Aviation regulation : SAF and e-SAF distribution quotas based on conventional fuel distributors, and dissuasive penalty amounts for non-compliance with these obligations. As a result of this policy, the hydrogen sector is structured primarily around e-SAF production projects in Europe and outside the Union. If implemented, the lead markets for fertilisers and low-carbon steel should have the same knock-on effects on production projects.

This demand-side approach can be summarised as follows: we assume that the decarbonisation of certain sectors will represent an additional cost in the medium term, but this is perfectly acceptable from a socio-economic point of view if it is targeted and passed on at the right level of the value chain. Especially since the use of non-fossil vectors presents other major gains on the security of energy supply and jobs in Europe.

So how should these lead markets for low-carbon products be targeted?

Targeting relevant lead markets

These obligations must relate to so-called "final" markets so that they apply to products placed on the European market by all producers, including those located outside the EU. It also makes it possible not to make the premium go to the basic industries currently in difficulty.

Following this end-market prerequisite, three criteria must be observed to target the relevant markets:

- **The training capacity for the scale-up of the sector:** the target market must be calibrated to secure sufficiently large volumes to allow the scaling up of the decarbonisation solutions for the inputs concerned, upstream.

- **Social acceptability:** the additional cost induced by the decarbonisation of the target market must not be prohibitive for the end consumer to purchase the product. The sectors targeted must be non-essential or with a high absorption capacity, where the impact of the additional cost of the measure remains marginal. The social sustainability of these lead markets can also be justified by the longer-term control of the economic effects of the transition on all the markets concerned as well as by the socio-economic repercussions induced by the structuring of the sectors (i.e. jobs; high added value; reduction of the trade balance deficit, etc.).

- **Administrative processing:** the application of the obligations must not lead to an increase in the administrative burden for actors who are already weakened by it. It will therefore generally be a question of targeting only industrial players of a certain size, thereby facilitating the social acceptability of these measures.

To meet our climate objectives, successfully scale up the European hydrogen sector, and maintain a base of basic industries in Europe, **it is now essential to create lead markets for steel and low-carbon fertilisers.**

Recommendations from France Hydrogène

Creating lead markets for low-carbon fertilizers

The reconquest of European sovereignty in terms of the supply of nitrogen fertilisers is a strategic and major issue for the European Union. Indeed, the EU is currently dependent on imports of 3.5 Mt of ammonia and 10 Mt of nitrogen fertilisers.

A significant share of these imports comes from third countries exposed to high geopolitical risks, notably Russia. In addition, the ammonia produced on European soil is still mainly based on the use of natural gas, which is itself largely imported. This dependence exposes European agriculture to structural vulnerabilities, which were brought to light acutely following the invasion of Ukraine in February 2022.

The establishment of a European strategic framework for the security and decarbonisation of the fertiliser sector therefore appears essential to strengthen the EU's agricultural resilience and achieve its objectives in terms of ecological transition and food security. While direct support for European production sites can be a lever, the additional cost of purchasing low-carbon ammonia, which is on average 2 to 3 times higher than its fossil counterfactual produced or imported, requires it to be supplemented by a demand policy. By spreading this additional cost over certain consumer segments of the value chain, it can be less than 0.5% when purchasing products.

The creation of "final" lead markets downstream of fertilizer production is therefore very strategic in that it ensures the maintenance of industrial sites that must make massive investments in decarbonization to position themselves in this segment and would stimulate the commissioning of new facilities (e.g. Fertig'hy in France).

Which end markets should you target?

Three end markets meet the criteria listed above:

- **1st generation (1G) biofuels:** with an average of about 500kt of ammonia consumed per year, this market represents 2.1% of the annual ammonia consumption at the European level. Questioned for its problematic consumption of biomass, the social acceptability of targeting this market would be justified by its greening as well as by the regulatory incentive framework from which they benefit. NB:

- **Industrial breweries:** with an average of just under 400kt of ammonia consumed per year, this market represents 1.6% of the annual ammonia consumption at the European level. Buying a beer would cost an average of 0.38% more, a gap that is easily bearable for the consumer. Finally, industrial producers such as Heineken are already positioning themselves as investors to supply low-carbon fertilisers to crops. Targeting this market would therefore reinforce this trend and favour producers who were the first to position themselves on a decarbonisation strategy.

- **Industrial meat:** The meat market is one of the main sources of fertilizer consumption in Europe. Animal proteins produced on the continent mobilise about 72 Mt of plant raw materials, divided between fodder (41%), oilseed meal – including a large share of soybeans (27%) and cereals (21%). These crops alone account for about 57% of total mineral fertilizer consumption, a figure to which must be added inputs for meadows and pastures (about 16% more). In this context, it seems logical to consider industrial meat production as one of the main sources of fertiliser consumption in Europe. From an economic point of view, initial estimates indicate that the additional cost associated with the maximum use of low-carbon fertilisers in this segment would be relatively limited for the end consumer. From a social and industrial point of view, this effort is all the more relevant as the volumes needed to decarbonise the meat sector could not be fully covered by the low-carbon fertiliser production projects currently under development. It would therefore be possible to adopt a gradual emission reduction trajectory, which would be sufficient to secure critical demand to trigger industrial scale effects, and which would lead to a very marginal increase in consumer prices.

Note: The volumes mentioned here correspond to fertilizers used in Europe. But the volumes induced by an obligation on these markets are higher, since imports of finished or intermediate products must be taken into account. Europe imports 1G biofuels, meat, and animal feed for farms located in Europe. An in-depth impact study on the volumes induced in low-carbon fertilisers will be necessary.

In order to avoid the risk of stranded assets (i.e. low-carbon fertilizer production sites), the sizing of these markets will also have to be anchored in a longer-term perspective and take into account the different scenarios for reducing fertilizer use by 2050. While the European Commission's "*farm to fork*" strategy provides for a 20% reduction by 2030[2], the scenarios anticipate a decrease in nitrogen fertilisers per capita of between 68 and 91% by 2050 (e.g. ADEME, Transitions 2050).[3] Lead markets for low-carbon fertilisers must therefore catalyse investments in factories (new and/or decarbonisation of existing sites), but without inducing low-carbon production capacities greater than the needs identified for 2040-2050.

It is imperative to put the size of the markets concerned into perspective in the light of the European objective of reducing net greenhouse gas emissions by 90% by 2040. For example, the only lead markets currently targeted — first-generation biofuels and industrial breweries — account for only 3.7% of emissions, and could be decarbonized by up to 90% by 2035. If such an initiative, with limited socio-economic impacts, is already arousing strong opposition, what can we expect when it comes to addressing the remaining 86.3%? The success of the transition will depend on the collective ability to take on the first stages of this structural industrial transformation today.

Setting a trajectory for reducing GHG emissions

France Hydrogène proposes to impose a maximum carbon content on nitrogen fertilisers used in crops for first-generation biofuels, industrial beers and industrial meats. This standard would only be applied to large manufacturers, who have the capacity to manage it administratively (see next section).

This requirement would be based on a current baseline of 4,5 tCO_2/tonne of nitrogen, corresponding to the median of emissions associated with the production of ammonium nitrates and nitrogen solutions. An increasing reduction target over time would then be applied to gradually reduce the carbon footprint of the inputs.

However, the first industrial projects to produce low-carbon nitrogen fertilizers will not come into service until 2028–2029. Introducing an obligation as early as 2026 would be premature and counterproductive: in the absence of a sufficient supply, it would amount to blocking the marketing of final products (1G biofuels) or overinflating it by paying penalties (breweries) without climate benefit.

France Hydrogène therefore recommends that the effective start of this obligation be set at 2029 for 1G biofuels and industrial beers, at which time the low-carbon industrial offer will begin to be structured. This deadline would not only support the emergence of these sectors, but also provide a strong and necessary signal of an outlet, a catalyst for investment in new low-emission production sites.

For industrial beers and first-generation biofuels, this trajectory is expected to reach -90% (0.45tCO2/t N) in 2035. This would imply an annual decrease of 9% in the GHG ceiling of the fertilizers used, from 2026.

[2] https://eur-lex.europa.eu/legal-content/FR/ALL/?uri=celex:52020DC0381
[3] https://www.ademe.fr/les-futurs-en-transition/

Year	2029	2030	2031	2032	2033	2034	2035
% GHG reduction compared to baseline	-36%	-45%	-54%	-63%	-72%	-81%	-90%
Maximum carbon content (in tCO2 / t N)	2,88	2,48	2,07	1,67	1,26	0,86	0,45

CO2 reduction trajectory for 1st generation biofuels and industrial beers

For industrial meat, the obligation could start to apply later (than 2029), and follow a softer incorporation trajectory, in order to take into account the industrial capacities (production of low-carbon fertilisers) to meet the induced demand and to ensure a minimum pass-through on to the final price for consumers (<1%). The right levels of bonds in this sector can be proposed with a better understanding of the volumes involved.

Setting up a certificate exchange system at the right level

The practical implementation of the obligation for the fertilizer sector must respect one imperative: not to place the administrative burden on farmers and local distributors (i.e. micro-breweries; butchers).

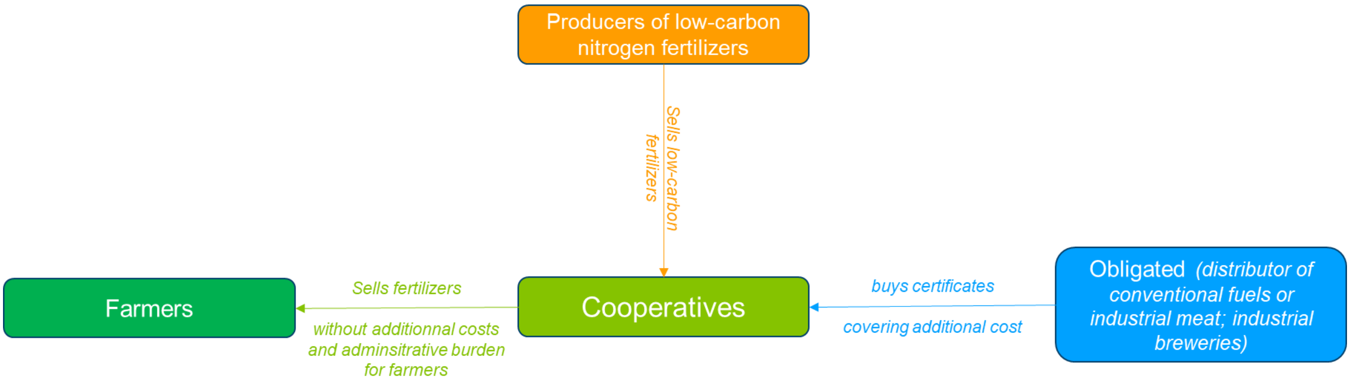
Based on this imperative, the challenge of this methodology will not be to ensure that low-carbon nitrogen fertilizers are physically distributed in the crops intended for the targeted markets, but to pass on the additional cost of using these fertilizers to the sectors concerned via a system of certificates.

The principle of this certificate system is based directly on certain players capable of taking on the administrative burden – industrial breweries; agricultural cooperatives; industrial meat distributors – who will buy the certificates:

1. The cooperative buys volumes of nitrogen fertilisers with a carbon content lower than the above-mentioned Baseline (4.5t CO2/t N). This makes it possible to generate certificates on the avoided emissions[4].

2. The cooperative resells these fertilizers to farmers, mixed with conventionally produced fertilizers / carbon-free, regardless of their type of cultivation. At the same price as conventional, carbon-based fertilizers.

3. The cooperative sells its certificates to an obligated party, who needs a certain quantity (corresponding to a volume of GHGs avoided) for its production to be in line with the obligation → *, so the additional cost is transferred, for example, to 1G biofuels, and does not impact farmers (both economically and administratively).*



[4] Methodology explained in France Hydrogen's note on biofuels

Creating a Lead Market for Steel in Cars

Threatened by high energy costs, Indian and Chinese overcapacity combined with low-cost steel imports and a lack of domestic demand, the European steel industry is facing an unprecedented crisis. Indeed, most analyses converge to note that the competitiveness of Europeans is largely insufficient.

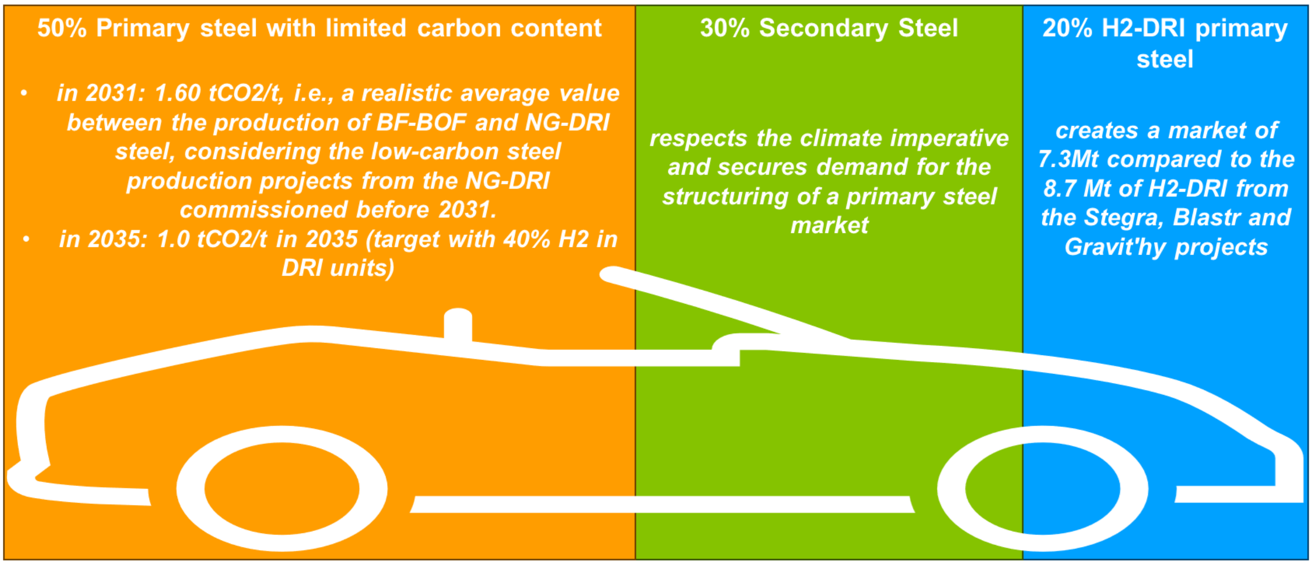
However, maintaining steel production sites on European soil is a quasi-security imperative at a time when the threat of conflict is multiplying. In addition, with nearly 3 billion tons of CO_2 emitted each year worldwide, or nearly 8% of global emissions, the steel industry is the largest non-energy emitting industrial sector. In Europe, it accounts for around 150 $MtCO_2$ per year, or more than 20% of industrial emissions and around 6% of total emissions.

But the European steel industry has a lead in the "green" steel segment (produced via DRI from natural gas and/or hydrogen; scrap metal; or relevant decarbonised inputs). **If the regulatory framework opens up reserved markets for low-carbon steel, the European steel industry will have a major lever for differentiation vis-à-vis the rest of the world, allowing it to protect itself from its lack of price competitiveness, and to make investments that will ensure the long-term preservation of a steel base in Europe.**

For France Hydrogène, the architecture of a clean lead market for steel contained in cars must ensure a threefold objective : to offer sufficient outlets for steel production via H2-DRI; to secure transition investments from historic European sites (i.e. transition from blast furnaces to DRI-EAF, with a DRI initially operating on natural gas, and gradually using hydrogen); maximize the share of scrap metal.

In addition, the automotive sector ticks all the boxes of the priority lead markets:

- **Volume:** it represented nearly 20% of European steel outlets in 2023[5], i.e. sufficient volumes to cover the majority of European green steel production targeted for 2030-2035;
- **Final price impact:** the additional cost of using green steel in the production of a car would be less than 1% according to T&E[6] ;
- **Administrative processing capacity**: As a highly regulated and concentrated market, the automotive sector offers optimal conditions in terms of administrative processing.



[5] https://www.transportenvironment.org/uploads/files/2025_04_Report_Recycled_steel_EU_automotive_industry_final.pdf

[6] https://www.transportenvironment.org/articles/green-steel-can-cut-climate-impact-of-car-production-for-just-eur57-a-vehicle

Thus, France Hydrogène proposes in a detailed note[7] the introduction of criteria that would apply to car manufacturers on the steel contained in cars placed on the European market.

Protecting low-carbon lead markets from unfair international competition

Due to the implementation of such obligations and therefore the capacity of the European market to absorb *green premium*, industrial projects located outside the EU are turning to the continent to sell their low-carbon production. **With a schematic risk: that European consumers will be the only ones to bear the additional cost of decarbonisation through sectoral bond systems, but that the socio-economic value of these low-carbon productions will be realised outside the continent.**

It is not a question of opposing future imports of low-carbon industrial molecules or products, but **of establishing conditions so that this is done in an industrially equitable framework, and beneficial for the climate, by bringing trading partners in the wake of our sectoral regulations**.

This principle will have to be applied differently in the regulation depending on the market/type of property concerned.

For e-SAFs via the lead market set up by Refuel EU Aviation

Synthetic fuels – and even other sustainable fuels – are new goods that are almost non-existent, whose production must increase and whose trade will emerge as a result of the regulated market. In this sense, **it seems essential to us to condition access to the European market for production of eSAF from a third country A by the fact that country A applies the same eSAF quotas on its internal market**.

It is a legitimate regulatory tool, which does not conflict with the principles of free competition and trade. Countries positioning themselves on the production of e-SAF such as Morocco should remain committed, and apply the sub-quota on their market: the volumes of e-SAF concerned by this domestic market would be low compared to the size of the projects, whose production would thus remain mainly intended for export to the European market. Conversely, it will block the possibility of exporting eSAF production projects located in the United States to the EU: firstly because there is little chance that the USA will deploy a twin of ReFuelEU in its area; secondly, because, if they did, domestic needs would be so great that production projects located in the USA would focus on the US market.

For steel in the automotive sector

Steel from countries outside the Union and used in the European automotive industry would be assigned an average country carbon content, by default. The same applies to cars from third countries: it will have to be considered by default that they use steel with the average carbon content of the defined country. Each third country must have an option to avoid having the default country value applied to the carbon content of its steel: to apply the same low-carbon steel quotas as the EU for vehicles marketed on its internal market.

In this way, the European market is structurally protected, because the overcapacity states (India, China) will take at least 15 years before competing with the EU on the average carbon content of their steel. **But this protection is carried out on legitimate, constructive bases, which must become a bridge in European ecological diplomacy: to lay the foundations for a renewed climate discussion with these powers, on sectoral issues but with massive impacts** *(India and China account for about 60% of world steel production, itself responsible for about 8% of greenhouse gas emissions).*

On all these markets to be regulated to enable their decarbonisation, the cardinal principle must be to condition access to the European market – which accepts to absorb certain sectoral additional costs induced by decarbonisation – on the application of the same level of climate ambition in the exporting country.

***The Industrial Decarbonisation Accelerator Act* must implement this principle in practice.**

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[7] France Hydrogène, Note on the steel contained in cars