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Position paper

Carbon Contracts for Difference

How to facilitate a viable business model to start commercial scale production of low-carbon steel before 2030

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Overview

Project-specific long-term Carbon Contracts for Difference (CCfD) can be an important tool to facilitate a viable business model and to launch large scale, innovative projects to reduce emissions in industrial sectors such as steel.

The European steel industry is keen to start the transformation. Our ambition is – under the right conditions - to reduce CO_2 emissions by 2030 by 30% compared to 2018 (which equates to 55% compared to 1990) and towards carbon neutrality by 2050. The sector is able to significantly advance the EU's climate objectives as CO_2 emissions are concentrated in a limited number of installations that cover about 25% of EU industrial and almost 6% of EU total CO_2 emissions. These could have the **highest abatement potential in volume amongst all industrial sectors** if our projects can be implemented successfully and low-carbon steel finds its way into the market.

However, companies cannot invest today in low-carbon technologies that will entail higher production costs as there is no market which would pay a premium accounting for the additional cost of low-carbon steel vis-à-vis conventional steel products with similar properties. This is particularly true for steel, a trade-intense material, exposed to a very high risk of carbon leakage and significant overcapacities in third countries.

The difficulty of investing stems from the fact that steel is characterised by high capital and operational costs and very long investment cycles, a situation aggravated by historically low profitability. Low-carbon technologies entail for example the use of new energy carriers and feedstocks such as renewable energy and hydrogen, which would substantially increase operational costs. Such investment needs to constitute a sustainable business case in order to be able to compete with conventional steel.

CCfDs could be a game-changer, kickstarting this transformation. If well designed, CCfDs could provide substantial financial resources and underpin a **viable business model to help scale-up projects and produce low-carbon steel at a commercial scale in Europe**.

Importantly, the EU needs a supportive regulatory framework and enabling policies to empower the European steel industry to contribute to the EU's climate objectives and sustainable growth targets; a holistic approach in terms of policy solutions is necessary, ranging from proposals to

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ensure free and fair international trade, to R&D support, financing solutions, climate and energy policy, circular economy and environmental policies[1].

As a frontrunner, the EU has the opportunity to set ambitious benchmarks on low-carbon steel globally, driving the transition of other regions in the world that today lag behind. From a long-term perspective, the EU will benefit from greater market share, once the demand for low-carbon products takes up, provided that it supports the industry addressing the technological and financial risks.

The upcoming revision of **the Guidelines on State Aid for environmental protection and energy 2014-2020 (EEAG) should set the right framework for effective CCfDs** to be implemented at national level. In this context, the EEAG shall be revised and introduce CCfDs, factoring in criteria that are necessary for the transformation of industrial sectors such as steel, namely:

1. recognise the greater added value for society from investing in low-carbon steel, by allowing **dedicated sector and project-specific CCfD for steel**. Auctioning procedures, especially if organised across different industries, are not a viable solution for the steel industry.
2. allow CCfDs to cover the **full abatement costs of the new low-carbon processes** (i.e. the "difference" should be calculated between production costs of low carbon technologies and production costs of conventional ones, without discounting the avoided ETS-related costs)
3. **accept long-term duration of CCfDs**, tailored to the specific characteristics of industrial sectors with very long investment cycles such as steel (duration of projects up to 20 years)
4. adopt an adequate **methodology for the calculation of emission reductions** volumes achieved by a company via the investment in the project.
5. provide **sufficient and complementary funding**, and further **de-risk CCfDs** (ex-post evaluation and indexation)

How would a CCfD work?

The original concept for a 'Carbon Contract for Difference' is to compensate for the difference between the 'strike' price (i.e. the agreed price in the contract) and the yearly average price of emissions allowances (EUAs). Yet, as explained below, this design would not contribute to a viable business case which would be required to compete with conventional steel.

An effective CCfD design for low-carbon steel

Carbon Contracts for Difference need to **cover the full abatement costs of the new low-carbon processes**, as this is the only way to create a concrete business case ensuring that projects on low-carbon steel are implemented. An improper design could otherwise result in a CCfD that would fail to make low-carbon production process economically viable.

[1] https://www.eurofer.eu/assets/publications/position-papers/a-green-deal-on-steel-update/2020-10-14-EUROFER-Policy-paper-A-Green-Deal-on-Steel_V5.pdf

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CCfD require also to factor in the **lack of a global-level playing field compared to third countries where steel production is not subject to similar CO_2 costs constraint** as production in the EU. This is particularly true for materials such as steel where the pass-through of unilateral regulatory costs is not possible due to fierce international competition, as also confirmed by the low profit margins registered by the European sector.

Therefore, an effective CCfD – one that makes low-carbon steel internationally competitive – necessitates **aid at the level of the full abatement costs in the EU, i.e. the "difference" should be calculated between production costs of low carbon technologies and production costs of conventional ones, without discounting the avoided ETS-related costs**. As an example, a project that delivers emissions reductions of 2 tonnes of CO_2 per tonne of steel while entailing total costs of €700 per tonne of steel (after deducting possible benefits) compared to production costs of €500 per tonne of steel for conventional production (without considering ETS costs) would be granted a CCfD of €100 per tonne of abated CO_2 (i.e. €200€ / 2 tonnes of CO_2).

A CCfD that compensates only for the difference with the EU ETS price would fail to provide sufficient incentives in high-risk investment in low-carbon technologies since they would remain exposed to international competition not subject to any carbon constraints. The strike price in a CCfD should cover the full cost-difference of the transformation, including operational costs and the additional investment costs (i.e. financial services for interest and depreciation), if funds for the latter are not made available under different funding instruments. It must be ensured under State Aid law that different instruments can be combined.

Since the partial compensation of the additional abatement costs would not be sufficient as an investment incentive, restrictions on the possibility to grant subsidies up to 100% of the eligible costs must be avoided under State Aid law, and it should be possible to combine funding from other instruments under the same CCfD where necessary.

All costs and benefits should be taken into account in the contract in order to address risks of under or over compensation. Regarding free allocation, only allowances that are actually granted to the installation after the implementation of the project (i.e. taking into account the possible cross sectoral reduction factor and any other possible reduction) and available to be sold on the market should be accounted for and deducted in the calculation. Yet, it should be noted that according to the current ETS rules, free allocation for low-carbon technologies would be significantly reduced compared to the conventional technologies.

Therefore, **a separate chapter on Carbon Contracts for Difference with EU-wide harmonised criteria should be included under revised "Guidelines on State Aid for environmental protection and energy**".

Low-carbon steel produced with the support of CCfDs will co-exist with conventionally produced steel for decades to come as the transition of the European steel industry will be gradual. It is therefore necessary to complement measures to stimulate lead markets for low-carbon steel with effective measures against carbon leakage.

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Emission reductions calculation methodology

The contract would only apply to the **emission reduction volumes achieved by a company via the investment in the project**.

An agreed methodology at EU level with clear accounting rules representing the systemic operation of steel production is necessary. In steel production, single production processes are connected into a process chain and optimised in order to achieve the highest efficiency/highest performance of the overall system (highest efficiency/highest performance of the process chain or value chain).

Hence, using single product benchmarks, such as ETS benchmarks, could be very problematic. For example, for the integrated production route a single benchmark cannot capture all process emissions that are part of primary steel production. In fact, different product benchmarks would need to be integrated – at least benchmarks on hot metal, coke and sinter. Transfer rules need to be applied (among others for the transfer of waste gases) to obtain a reliable methodology that covers all emissions of an installation, especially those of the project under consideration. Otherwise, there would be a **serious risk of miscalculation of the emissions**.

Therefore, internationally or regionally recognised standards or protocols which define clear accounting rules reflecting those interconnections (connections of the above production processes) with the aim of providing transparent and comparable assessments should be used for calculating the emissions reductions related to the project.

Funding and de-risking

Sufficient financial resources need to be made available for CCfDs to ensure that initial projects can be launched in a short timeframe. It should be possible to **complement Carbon Contracts for Difference with other types of European and national funding** (for example, innovation funding such as the European Innovation Fund, Just Transition Fund etc.), by authorising the offset of costs via grants from such instruments in the calculation. This would allow companies and Member States to maximise the use of available resources and reduce the financial burden on national budgets. Any potential risk of competition distortion should be addressed.

Energy prices (e.g. electricity and hydrogen), but also raw material prices for the conventional production processes (e.g. iron ore, coke and coking coal, scrap) are fluctuating; the strike price (as the cost difference between the new and the reference production process) will be very volatile and difficult to predict.

Adjusting some elements of the CCfD would be advisable. For example, by introducing the **possibility of a yearly ex-post correction of the strike price under a CCfD** both sides of the contract could further alleviate the investment risk. To minimise the administrative burden, the central parameters like prices for ore, coke, coal, scrap, electricity and hydrogen, could be indexed.

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Duration of a CCfD

Certain industrial sectors such as steel have very long investment cycles. Given the high technological and financial risk that is intrinsic to projects introducing new process technologies at such a massive scale as is required in the steel industry, it is particularly important to **allow CCfDs to cover the entire period of the investment** (economical lifetime of a project), which for steel is usually up to 20 years.

Ideally, in this timeframe, reliable political framework conditions enabling internationally competitive production of low-carbon steel in the EU will be introduced and the new low-carbon processes will become economically viable and operate without CCfDs. However, should this not happen, the possibility of prolonging the support of the instrument – a checkpoint - should be considered.

Allocation of CCfDs

Steel is considered as a 'hard to abate' sector and is recognised as being at very high risk of carbon leakage. At the same time, because of its large production volumes, steel is responsible for one quarter of industrial emissions in the EU.

The greater added value for society from investment in low-carbon steel production should be recognised in the allocation procedure for CCfDs. Considering the significant environmental and economic added value of investments in low-carbon steel technologies, **dedicated sector and project-specific CCfDs for steel** should be designed to untap the full potential of these technologies.

Auctioning procedures, especially if organised across different industries, are not a viable solution for the steel industry, due to different strike price possibilities and different market realities. This is also the case for CCfDs developed for energy providers, where in addition there is also the elevated risk that consumers could end in a captive to providers in ownership of the CCfDs, which must be avoided at all means.

Ultimately, it will be the successful deployment of low-carbon technologies in the steel sector that will create demand for such new energy sources; hence, CCfDs for manufacturing sectors, including steel, should be prioritised.

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