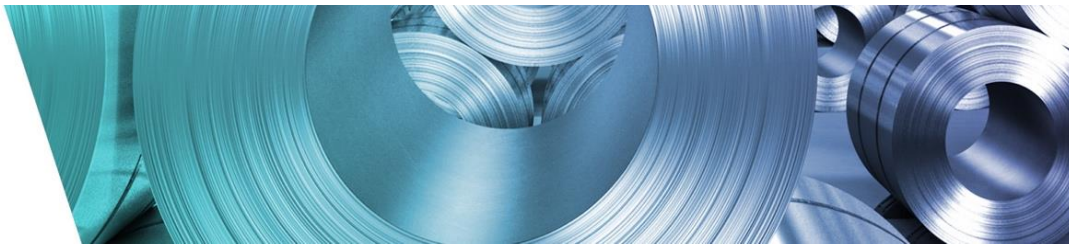
ETS GUIDELINES TECHNICAL UPDATE

RESPONSE TO CALL FOR EVIDENCE CONSULTATION



September 2025

Background & general remarks

The ETS Guidelines allow EU Member states to partially compensate aluminium producers for the CO_2 costs power generators pass on to consumers via the electricity price, giving EU-based aluminium producers an indirect emission costs that no other aluminium producers pay. According to the 2020 Impact Assessment[1], aluminium production - with a carbon leakage indicator (CLI) set at 1.062 - is correctly listed among the top sectors at the highest risk of carbon leakage, due to its electro-intensity and trade intensity, making its ability to compete highly exposed to the risk of EU-unique indirect emission costs.

This compensation is crucial for the preservation of a level playing field, given that European aluminium producers compete in global markets against third-country producers who do not face these costs. Given that electricity accounts for approximately 40% of the cost of producing primary aluminium[2], fully exposing European aluminium producers to these indirect costs would instantly render them uncompetitive. **To date, primary aluminium production has shut down in all European countries where ETS indirect costs compensation was terminated. This means that where there is no adequate ETS indirect costs compensation scheme in place, an Aluminium smelter cannot operate.** A stark example is Slovalco, Hydro's partly owned smelter in Slovakia, which ceased primary production in 2022 after decades of operation. The decision was driven by uncompetitive electricity prices and the absence of an adequate Indirect CO2 cost compensation. Slovalco's closure illustrates the real-world consequences of insufficient protection: the loss of skilled jobs, erosion of regional industrial ecosystems, and increased reliance on imported aluminium with a higher carbon footprint.

The average CO2 emission factor from the Guidelines (representing the pass-through of indirect costs) was 0.63 tCO2/MWh for the period 2021-2025. Assuming an ETS price of 70 EUR/t and given that an aluminium smelter needs to consume ~14 MWh electricity to produce one tonne of aluminium, indirect costs amount to **617.4 EUR** per tonne of aluminium. This is equal to an incredible **27.6%** of the global price for aluminium set at the LME (2600 $/t = 2233 EUR/t[3]), a cost that aluminium producers in other countries do not face, and it is therefore completely clear that no aluminium smelter can exist in Europe without indirect cost compensation. The global aluminium price is cyclical; during periods where the aluminium price is lower (e.g. 2200 $/t = 1890 EUR/t), indirect ETS costs alone represent a massive 32.7% of the sale price.

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[1] https://op.europa.eu/en/publication-detail/-/publication/1685cb63-f6fc-11ea-991b-01aa75ed71a1

[2] See DG ENER 2024 Study on energy prices and cost: https://op.europa.eu/en/publication-detail/-/publication/78756c15-f263-11ef-981b-01aa75ed71a1

[3] LME price as of 5 September 2025

Aluminium is a commodity which is traded globally with a price set by the LME. This means that European primary producers cannot pass on unilateral costs imposed on them by European regulation, without losing market share to competitors from other countries who do not face the same costs. As the primary objective of indirect compensation is to reduce carbon leakage, it must preserve a level playing field for the European aluminium industry to allow us to compete in a global market. The carbon footprint of aluminium produced in Europe is two times lower than the global average[4], and around three times lower than the new investments happening in countries like China, Vietnam and Indonesia, which run almost exclusively on coal power (often with a direct line connecting the coal plant to the aluminium smelter).

Before the energy crisis, the EU had already lost around one third of its primary aluminium production capacity **since the year 2000. Europe's share of global aluminium production has decreased from 10% in the year 2000 to just 1% today.** As European aluminium producers shut down, our production is directly replaced by producers in other countries with a much higher carbon footprint. The additional loss of 1 million tonnes of annual EU aluminium production as a result of the energy crisis increased global CO2 emissions by 13 million tonnes (equivalent to the annual emissions of entire countries like Slovenia and Lithuania) due to the replacement of European production by more polluting processes in other countries. **This means that carbon leakage is already a documented reality in our sector**.

Despite the massive deployment of renewables, in 2030 fossil fuels will still be setting the price for the majority of hours – thus indirect carbon costs will continue to severely impact the final electricity price paid by European consumers beyond 2030. According to the JRC[5], although electricity generation from renewable sources is expected to increase from 46% in 2022 to 67% in 2030, the number of hours where fossil fuels set the price will remain at 2022 levels.

While renewable-based electricity rarely determines the power price, it frequently makes up a large share of total electricity generation and consumption. EU-based aluminium producers, therefore, have a considerably lower carbon footprint than most producers elsewhere. Yet, the marginal pricing power markets in Europe cause a considerable difference between indirect emissions (low) and indirect emission *costs* (high). With Europe's high import dependency, a reduction in aluminium production or curtailment in one European country, due to lower or lack of indirect cost compensation will not be replaced by increased production in another Member State. It will be instead most likely replaced by increased imports from countries outside the EU, which have most often a much higher carbon footprint and no embedded carbon cost.

Given the above, we urge the European Commission to **encourage all EU Member States to:**

- **Make full use of the indirect carbon cost compensation tool, including by applying the supercap (i.e. limiting the amount of the indirect costs to be paid at undertaking level to 1.5 % of the gross value added of the undertaking concerned);**
- **and to go beyond the threshold of 25% of ETS revenues where necessary**.

Looking beyond 2030[6], to ensure carbon leakage protection, indirect cost compensation must be maintained until the European electricity grid is fully decarbonised and electricity prices in Europe reach a level playing field with global competitors.

[4] See here European Aluminium latest Environmental Profile Report: https://european-aluminium.eu/blog/environmental-profile-reports/
[5] JRC Publications Repository - The Merit Order and Price-Setting Dynamics in European Electricity Markets
[6] See also p.2 European Aluminium position paper on the ETS & MSR Review post 2030 here

On the proposed sectorial expansion to chemicals and other sectors

The present list of eligible sectors as set by Annex I of the Guidelines was shaped by Option A4 of the 2020 Impact Assessment, which builds on the following cumulative parameters:

- Quantitative criteria: indirect carbon leakage indicator (ICLI), trade intensity, emission intensity of sectors
- Qualitative criteria: ability to pass on indirect ETS costs (price-taker status), profit margins, abatement potential and fuel/electricity substitutability
- And minimum threshold for:
- trade intensity of at least 20%
- an indirect emission intensity of at least 1kgCO2/EUR
- Sectors' sensitivity to carbon prices

We consider this methodology to be best reflective of the impact of indirect emissions costs and the criteria are most accurate. Therefore, the update of the price sensitivity analysis (price scenarios were below 35€/tCO!) for the aluminium industry will reflect and confirm the importance of compensation for the sector.

We however caution the Commission against the risk of compromising the carbon leakage protection of existing eligible sectors through the expansion of the list, as the amount of compensation gets heavily under the pressure of newly added sectors. In recent years, budget constraints have already led various Member States to reduce the amount of compensation given to eligible sectors, below the maximum possible. These budgetary constraints will only increase as more sectors are added to the eligibility list.

The addition of new sectors must not at any rate have a negative impact on the level of compensation received by the already eligible sectors, given that they are the most vulnerable to indirect carbon costs even in the lower prices scenarios of the 2020 Impact Assessment.

In this regard, it is positive that the Guidelines (para.22) already foresee the possibility of granting aid to only some eligible sectors and not others **based on objective, non-discriminatory and transparent criteria** (whereby the level of exposure to indirect costs should be considered such a criterion). However, it should also be possible for Member States to offer **different aid intensities** to different sectors based on objective, non-discriminatory and transparent criteria (instead of approaching this in a 'black or white' manner, whereby a sector is either in or out).

It is also very important to distinguish between sectors genuinely exposed to indirect carbon costs and those whose challenges stem primarily from other factors. **Indirect cost compensation must remain a tool to preserve a level playing field for the sectors most exposed to indirect carbon costs, rather than being morphed into a tool that aims to increase the overall profitability of European industry.**

Technical updates (Electricity Efficiency Benchmarks & National/Regional CO2 pass through factors)

Electricity Efficiency Benchmarks (EEB) Update

The call for evidence document indicates that for sectors like aluminium that are already eligible, the update will be done based "*on the most recent and available data*" and not involve a third-party study.

Back in 2020, the values were set based on data collected by European Aluminium[7]:

- **For Primary Aluminium, the EEB was set at 13.90 MWh/**t aluminium: *"the sum of the lowest value of the range given in Cusano et al. (2017) report for electrolysis (13.60 MWh/t) and the values given by the European Aluminium for anode production (0.178 MWh/t) and electricity consumption in the cast house (0.1235 MWh/t), all given relative to the tonne of liquid aluminium".*

- **For aluminium oxide (alumina), it was set at 0.20 MWh/t:** European Aluminium provided data from all five of their members producing alumina in Europe. The data was provided by the companies, extracted from their internal data systems and externally verified on a yearly basis, in the context of the EU ETS verification process. The average specific consumption from the data collection (2017-2019, all five installations) was 0.251MWh/t. The lowest value from this data collection (average 2017-2019) was at 0.20 MWh/t, which was chosen as the benchmark.

Based on technical discussions and feedback from our membership, there has been no significant technological breakthrough that would justify a reduction of the EEBs applicable to aluminium production.

Furthermore, given the impacts of the energy crisis which led to the curtailment of over 50% of EU27 primary aluminium production and full curtailment of one of the 5 remaining alumina refineries in Europe**, an update of the electricity consumption efficiency benchmarks, based on production levels over the last 5 years would not reflect improved energy efficiency, given that the vast majority of plants were forced to at least partially curtail their production, leading to suboptimal operation.**

Considering these production losses, the annual reduction rates of the existing benchmarks set by Communication 2021/C 528/01 in Annex II table 10[8] of the guidelines and at point 15 number 15 (fall-back) have no technical foundation. They should be removed for the post-2025 period. It unfoundedly reduces the amount of granted aid, thus undermining the very aim of the Guidelines, namely "reducing carbon leakage risk".

Update of national/regional CO2 pass-through factors

The electricity market prices are increased by ETS costs of the price setting technology in the respective markets. Even in markets that are based heavily on renewable or nuclear energy, the ETS costs of the price setting technology in the merit order increases the market price, regardless of the average generation mix, since the EU electricity market is interconnected and prices in one country (with generation running on fossil fuels) also impact prices in other countries with more a more decarbonised generation mix.

[7] See consultant report : https://competition-policy.ec.europa.eu/system/files/2021-11/kd0121322enn_ETS_efficiency_benchmarks.pdf

[8] For Primary Aluminium: annual reduction rate of 0,25% ; For alumina : 1,11% ; Fallback : 1,09% ;. See point 15 & table 10 in annex II of the ETS Guideliens

For example, the Nordic market with large share of non-emitting generation (nuclear, hydro with reservoirs and intermittent renewables) is strongly impacted by ETS through the marginal producers and interconnectors to neighbouring markets with fossil generation.

An increasing share of intermittent generation means that the share of fossil-based power declines. However the fossil-based generation's influence on prices will not diminish accordingly (see JRC study referenced above). In most periods renewables cannot cover all demand, and fossil-based power will remain the marginal technology to clear the market, at least until the end of the next decade. Even during periods when there is surplus RES generation, Transmission System Operators (TSO) tend to require that some dispatchable generation remains online in order to preserve the stability of the system.

To avoid under- or over-compensation, the applied pass-through factor (the influence of CO2 costs on power prices) should be as accurate as possible. To achieve this, we strongly recommend continuing the existing approach to calculating the CO2 emission factors, while also allowing the use of market-based CO2 emission factors for the Member States that consider this more appropriate[9].

All data related to the elements above is thoroughly collected by national TSOs and regulators. We therefore recommend the European Commission to reach out to the Member States' authorities to obtain the necessary information for this part of the update. Member States are best placed to provide the necessary data to reach an informed conclusion. We thus urge the Commission to work closely with them for this purpose.

On a related note, regarding the evolution of the price setting technology on the EU power market, we would like to point out the conclusion of the 2023 JRC study[10]: fossil fuels were the dominant price setter in 2022 and they remain in this role until 2030 and beyond, primarily gas-fired plants as natural gas plants which in part are expected to displace the more polluting lignite and coal power plants.

According to the JRC, electricity generation from renewable sources greatly expands at EU level from 2022 until 2030, growing from 46% to 67%. **This increase will not, however, be reflected in the fossil fuel-based price-setting hours, which remain at 2022 levels.** This counter-intuitive effect is due to the marginal setting role of gas and the increasing EU interconnections.

Despite the gradual phase-out of coal and lignite, renewable energy sources alone do not meet the entirety of the EU's electricity demand. **In both 2022 and 2030, at EU level fossil fuel-based plants set the price around 86% of the time, while generating 34% of electricity in 2022, and only 16% in 2030** (Figure 17 of the JRC study). In both years, the hours natural gas is setting the price in wholesale electricity markets far exceeds its proportional generation share.

For more information on European Aluminium's work on climate and energy related policies, all papers, external studies and memos are available at the "Climate & Energy Section" of our Website.

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