European Copper Institute
Copper Alliance

Brussels, 5th September 2015

ECI[1] input to the public consultation on the revised EU ETS Directive: COM (2015)337/F1

Safeguarding the competitiveness of the European copper sector

The European Copper Institute (ECI), headquartered in Brussels since 1998, represents the copper industry in Europe and is part of the Copper Alliance, a global network of 25 industry associations. ECI represents the EU copper sector which includes the producers of refined copper and the leading manufacturers of semi-fabricated copper and copper alloy products, such as tube, wire, sheet and strip.

In partnership with Eurometaux, the Brussels-based umbrella association of the non-ferrous metals industry, ECI has been in regular ETS dialogue with the Commission through bilateral meetings, stakeholder consultations and the completion of questionnaires. ECI acknowledges the serious efforts undertaken by the Commission to revise the ETS for the period after 2020 as part of the Climate and Energy Summer package.

In this submission, ECI wishes to highlight aspects that are specific to the European copper sector. It concludes with a list of recommendations needed to safeguard the industry's global competitiveness.

Indirect Compensation

ECI is in favour of an adequate, EU-wide harmonised compensation system which, for the most efficient installations, fully off-sets the CO_2 costs passed through in electricity prices. A clear, mandatory framework, for the whole of Phase IV, should be implemented in all Member States in order to avoid distortion in competition.

The copper industry, which is relatively electricity-intensive, is highly exposed to the carbon costs passed through via electricity prices (indirect effects). Since commodity prices are the same all round the world (discovered e.g. via the London Metal Exchange), European copper installations are unable to pass on any CO_2 costs embedded in their electricity purchase prices**.**

Europe has a very energy and resource efficient copper industry[2] employing around 50,000 people directly. With a world-class smelting and refining sector, European companies continue to pioneer many of the world's leading metallurgical processing and environmental protection technologies. The EU's six refined copper producers operate a heterogeneous set of production processes reflecting a diversity of technologies and varying raw material sources - e.g. proximity to EU mine sites, the imports of copper blister and concentrates, and complex, multi-metal bearing scrap. Most of the European copper installations are also multi-metallic in their end product offerings[3].

Copper is one of the few materials that can be recycled, again and again, without any loss in performance. However, the increasing complexity of the in-feed material, plus the copper-based alloys required to deliver miniaturisation to end–consumers and resource efficiency to the value-chain, results in higher energy requirements and CO_2 emissions.

As examples, more energy is needed to recover and recycle increasingly complex end-of-life products, such as electronic scrap, which contain less and less metal content. Burning off the organic components, such as plastics, generates CO_2. The

[1] EU Transparency Register ID 04134171823-87

[2] Aurubis Sustainability Report 2013, https://www.aurubis.com/binaries/content/assets/aurubis-en/dateien/responsibility/sustainability_report_aurubis_2013_engl_web.pdf

[3] Copper ore bodies contain many metal containing compounds, including molybdenum, precious metals and rare earths. Copper is also the majority element in a broad range of alloys. Therefore copper smelters processing either concentrates and/or recycled (secondary) raw materials will, in addition to copper, produce other metals, such as lead, tin and precious metals.

production of thinner strip[4], e.g. to make heat exchange applications more resource efficient, requires more energy and generates higher CO_2 emissions.

If Europe is to achieve its circular economy goals, it is very important that EU policy makers take into account these opposing drivers in order to avoid damaging the fragile competitiveness of the European copper producers.

Producing cathodes from recycled materials (scrap) also supports strongly the circular economy. Specific compensation measures are required to ensure that materials suitable for recycling are not exported from Europe.

It is of primary importance that the energy-intensive copper sector remains eligible for free allowances and indirect compensation. It's most efficient installations should receive full compensation for individual indirect CO_2 costs, calculated using a consistent and appropriate methodology, based on realistic fallback benchmarks and actual production levels. These carbon leakage protection measures should be granted for the entire trading period and not subject to a reduction factor over time.

Carbon leakage criteria

ECI requests that, in addition to a quantitative approach, a qualitative assessment be maintained to identify the carbon leakage exposure for any given sector. Such an assessment must include factors, such as a sector's inability to pass through carbon costs, along with the ability for a sector's products to be used by its downstream value chains to decrease overall EU CO_2 emissions.

For example, ECI has identified, through a series of studies, seven copper-based technologies where early adoption or conversion to higher performing equipment and processes could unlock important downstream CO_2 emission reductions across the industrial and residential sectors. ECI estimates that, in 2050, these copper-based technologies could reduce total EU CO_2 emissions by 25% - or 1,100 million tonnes per year (versus 2011 levels).

Share of auctioned vs. free allowances

Free allocations must be designed in such a way that carbon leakage can be avoided effectively. This requires sufficient free allowances to be allocated to the most efficient manufacturers. The concepts of reducing free allocations, based on unrealistic benchmarks, cross-sectoral correction and/or linear reduction factors are contrary to this and will add cost burdens even for the most efficient installations.

Driven by the need to remain globally competitive, the European copper industry has, over the past two decades, invested aggressively in improving the energy efficiency of its production, waste heat recovery and recycling processes. This has resulted in the industry reducing its own unit energy consumption by 60% since 1990. Today, European copper producers are amongst the most resource and energy efficient in the world[5].

Since refined copper is produced by electrolysis, Faraday's Law[6] requires a theoretical minimum quantity of electricity consumption per tonne of metal produced. This, plus the management of responses to societal challenges (see above) on resource efficiency, material complexity and the impurities contained in complex scrap, would make even the most efficient European producers unable to further reduce their CO_2 emissions. On the contrary, recently strengthened environmental emission limits (e.g. NFM BREF), plus likely tougher chemicals management obligations (e.g. recycling under REACH), will require copper producers to use more energy and to increase CO_2 emissions. These complex factors must be addressed in the final allocation methodologies.

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[4] See Annex 1

[5] UNEP, International Resourc Panel, "Metal Recycling: Opportunities, Limits,Infrastructure" (2013); http://www.unep.org/resourcepanel-old/Publications/AreasofAssessment/Metals/tabid/106450/Default.aspx

[6] The mass of a substance deposited or liberated at any electrode is directly proportional to the amount of charge passed.

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Benchmarks

Given the very small number of installations and the different core production processes, a benchmark system, based on the average of the 10% most efficient installations, is not possible for the copper sector. Therefore, back in 2009 and following recommendations from Ecofys and the Fraunhofer Institute[7], the Commission applied a fallback approach (for process, heat and fuel) to the copper sector. ECI urges that, if fallback benchmarks are updated, these are based on the sector's actual technological status and on actual data.

Production growth

ECI requests that the Commission provides carbon leakage protection measures to support the growth in copper demand that we expect to see as downstream value chains adopt the technologies required to achieve the EU's ambitious climate goals (on CO_2 emission reduction, energy efficiency and renewables).

Innovation fund

ECI welcomes the Commission's focus on support for innovation in energy intensive industries. However, pioneering internal, and/or cross value chain, approaches aimed at continuous innovation in low-carbon technologies and processes should also be eligible for such funding.

Recommendations

The European copper industry has made significant progress in reducing its own unit energy usage over recent decades and will continue to make economically justified investments in order to remain competitive in the global markets.

In order for the copper sector to continue to play a strong role in both decarbonising and enabling industrial growth in Europe, the following modifications of the ETS reform proposal are recommended:

1. Best performers should receive 100% protection at the benchmark level, including fallback benchmark, with no reduction factors (such as CSCF);
2. Realistic benchmarks for both product-specific as well as fallback (heat, fuel and process) benchmarks are needed. If these are updated, they should recognise theoretical lower limits, the sector's actual technology status and actual data, without an arbitrary benchmark updating factor;
3. Free allocations should be based on actual production data, without any thresholds;
4. The copper sector must remain on the carbon leakage list. The quantitative criterion of 0.2 should be adjusted in order to provide appropriate levels of support for sectors at risk of losing global competitiveness. For qualitative assessment (e.g. price taker), there should be no threshold at all;
5. There needs to be an adequate, EU-wide harmonised compensation system for indirect costs that fully off-sets the CO_2 cost pass through in the electricity prices for the most efficient installations;

ECI and its member companies look forward to a constructive exchange and welcome the opportunity for a meeting to clarify the specific challenges and opportunities for the copper sector.

*Please visit **www.copperalliance.eu** or contact us for more information*

[7] European Commission - 2009: http://www.ecofys.com/files/files/091102_nonferrousmetals.pdf and European Commission - 2011: http://ec.europa.eu/enterprise/sectors/metals-minerals/files/fn97624_nfm_final_report_5_april_en.pdf

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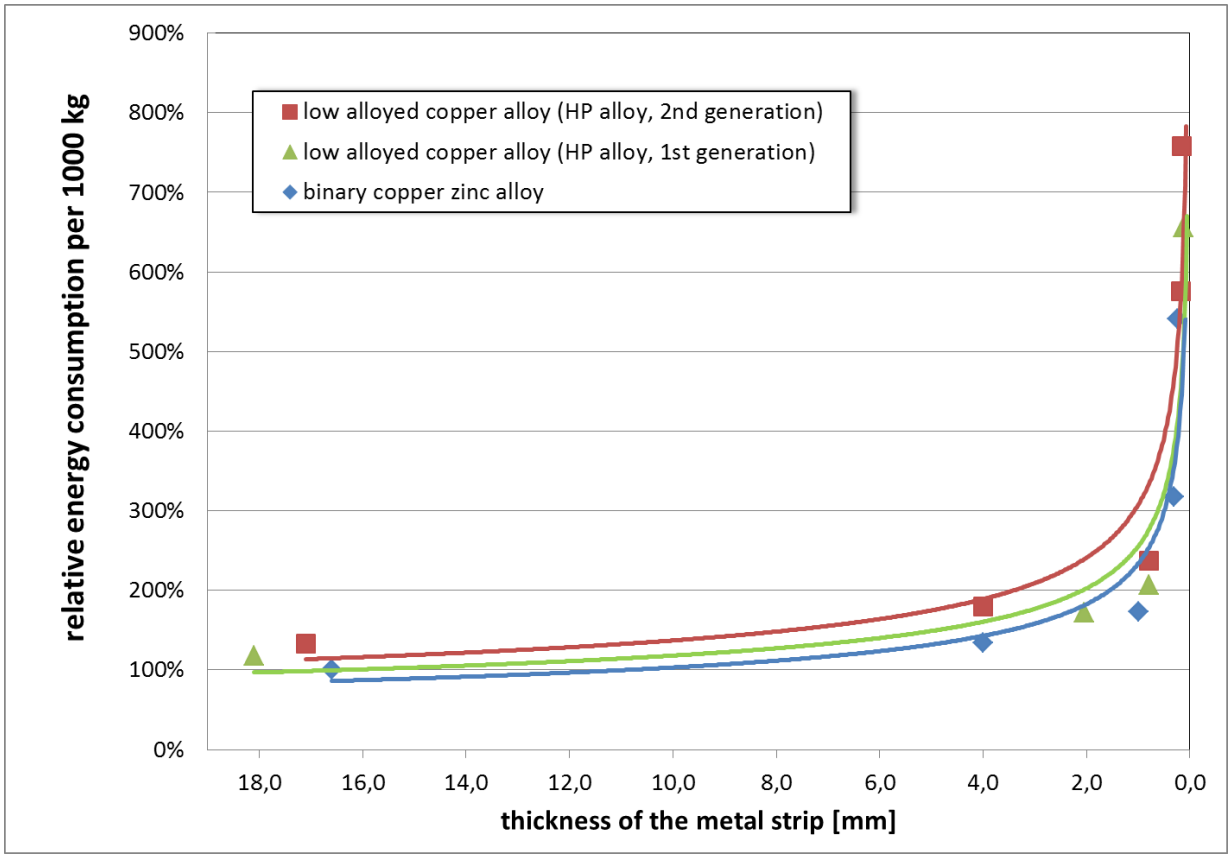
Annex 1

Energy Consequences of Miniaturisation

Miniaturisation is a two-step process. For some applications "thinner" materials are sufficient. More sophisticated ones require higher performing copper-based alloys. In order for the downstream value chain to provide its customers with products that are smaller and/or use less energy, the producers of copper alloy strip need to use more energy.

The following examples are based on real production data. The materials evaluated are:

- a strip (coil) of a binary copper zinc (brass) alloy, end thickness 0.254 mm
- a strip (coil) of a 1st generation, high performance copper alloy, end thickness 0.127 mm
- a strip (coil) of a 2nd generation high performance copper alloy, end thickness 0.150 mm

Only the differing energy demands, normalised to 1,000 kg of material, for the rolling operations are considered since miniaturisation doesn't affect up-stream processes.

The graph clearly shows the exponential increases in energy demand as thicknesses decrease.