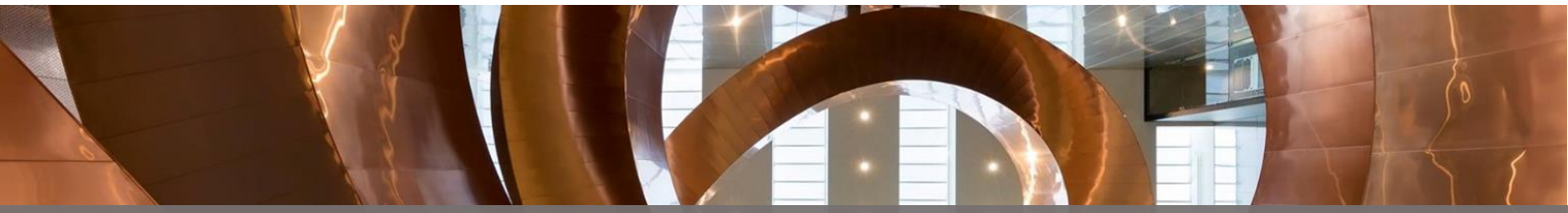
European Copper Institute
Copper Alliance



Revision of EU Electricity Market Design

European Copper Institute position

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The current situation of sustained high electricity prices is having a devastating impact on the competitiveness of electro-intensive industries in the EU. It has substantially increased the operational costs of copper smelters and refiners in Europe, and is causing a competitive disadvantage vis-à-vis producers in other regions of the world where electricity prices remain considerably lower. The unpredictability of prices is also heavily impacting on the ability of copper producers to make investments.

Copper is a crucial raw material to achieve the EU's objective of a carbon-neutral economy and Europe will need more copper to enable the fast deployment of the technologies needed to decarbonise its economy in the coming years.

The copper producers that the European Copper Institute represents in Europe[1] have committed to a goal of reducing the scope 1 and 2 GHG emissions from their copper production to net zero by 2050. Access to competitively priced fossil-free electricity in sufficient quantity is a pre-condition for reaching this decarbonisation goal.

The revision of EU Electricity market design must seek to ensure internationally competitive prices for industrial electricity supply to maintain strategic energy-intensive industries in the EU and to support decarbonization through electrification.

Measures should be introduced to:

- **In the short-term**: **Introduce a price shock absorber mechanism** that would be automatically triggered in situations of extraordinarily high prices to limit the ability of fossil generation to set wholesale electricity clearing prices in the EU. This would lower electricity prices for all consumers with immediate effect, while preserving the merit order curve.

[1] ECI represents approximately 85 percent of the copper production capacity in the EU, based on the International Copper Study Group's 2021 directory of mines and plants.

- **In the medium term:**
  (1) Incentivise investments in additional generation capacity, including dispatchable supply and flexibility solutions that will help balance intermittent renewable generation;
  (2) facilitate the use of renewable PPAs by electro-intensive consumers by addressing shaping risk in view of their global competitiveness; and
  (3) Until such time that sufficient and competitive renewable generation capacity will have been installed, put in place support schemes to help the EU's electro-intensive industry remain globally competitive.

Access to competitively priced, fossil-free electricity is a prerequisite for decarbonising copper production in Europe

European power prices have risen dramatically in the last 18 months. Electricity supply has been low due to the reduced EU imports of Russian gas, as well as other factors such as reduced nuclear and hydropower generation. The current situation of sustained high electricity prices is having a devastating impact on the global competitiveness of electro-intensive industries in the EU. It has substantially increased the operational costs of copper smelters and refiners in Europe, and is causing a competitive disadvantage vis-à-vis producers in other regions where electricity prices remain considerably lower. The unpredictability of prices is also impacting on the ability of copper producers to make investments – in the current situation many investment decisions are being postponed.

Copper is a crucial raw material to achieve the EU's objective of a carbon-neutral economy, given its importance for electrification and its widespread use in the main decarbonisation technologies. With the increasing demand for wind farms, solar PV, heat pumps, electric vehicles and other net zero technologies, global copper demand is forecast to double by 2050[2]. Europe will therefore need more copper to enable the fast deployment of the technologies needed to decarbonise its economy.

The copper production process is electro-intensive: before the crisis, electricity costs typically accounted for 15-25% of copper production costs. Electricity is already the most important energy source for copper smelting and refining in Europe and European copper production sites consumed 14 000 GWh of electricity in 2018. This number is increasing as the sector decarbonises, given that increasing the use of fossil-free electricity is the main way for copper miners, smelters and refiners to reduce the CO2 emissions from their operations.

The copper producers that the European Copper Institute represents in Europe have committed to a goal of reducing the scope 1 and 2 GHG emissions from their copper production to net zero by 2050. Access to competitively priced fossil-free electricity in sufficient quantity is a pre-condition for reaching this decarbonisation goal.

Changes must be made in the EU's electricity market design to address the high cost of electricity for consumers and to ensure investment predictability. Steps should be taken urgently to ensure that the price of electricity is no longer directly tied to the price of natural gas. This can be achieved through the implementation of a price shock absorber mechanism that would apply in moments of extraordinarily high prices. At the same time, the deployment of additional fossil-free generation capacity must be accelerated and member states must be allowed to put support schemes in place to

[2] MineSpans Copper Demand Model Q3 2021

help energy-intensive industries in the EU remain competitive until new decarbonized electricity generation capacity is deployed.

In the following we provide our views on improvements that are needed (1) in the short-term, to future-proof EU electricity market design for future crises; and (2) in the medium- to long-term, to lower prices for energy-intensive industrial consumers to a globally competitive level.

Action must be taken now to reduce prices for consumers and avoid a repetition of the current price crisis

1. Short-term fix: Introduction of a Price shock absorber mechanism

Following the marginal pricing system, the role of gas as the prevalent marginal generation capacity in many member states has meant that sky high gas prices have led to sky high electricity prices. Some analysts predict that while electrification is driving an increase in electricity demand in Europe and Russian gas imports are expected to reduce further, wholesale power prices may not reduce substantially until at least 2027.[3] Going forward, electricity price volatility is also expected to grow as the system has to manage a larger share of intermittent renewable generation.

In our view, action must be taken now to reduce electricity prices for consumers and to avoid that the current crisis is repeated in future situations of prolonged price spikes.

The failure to take effective action to reduce prices and mitigate future price spikes could put in question the support of European citizens for policies driving the energy transition, as well as seriously hindering the competitiveness of the EU's energy-intensive industries and their ability to decarbonise production processes. In the case of copper and other metals needed for the energy transition, decreasing the competitiveness of these industries in Europe will also reduce the availability of these strategic materials to European manufacturers of net zero technologies.

Therefore, we believe that as an immediate remedy, the resilience of EU electricity market design to future crises should be improved by building in a **price shock absorber mechanism** – a market emergency mechanism that would be automatically triggered in situations of extraordinarily high prices. This suggestion is in line with ACER's assessment of EU Wholesale electricity market design in April 2022, where it put forward the possibility of establishing a temporary price limitation mechanism or "relief valve", inspired by experience of such mechanisms in the US and Australia[4].

2. How would a price shock absorber mechanism work?

The objective of such a mechanism would be to **limit the ability of fossil generation to set wholesale electricity clearing prices in the EU in situations of extraordinarily high market prices**. The mechanism would be technology neutral and it would preserve the merit order curve. It would be established ex ante and triggered automatically in pre-defined circumstances. Once triggered, the price shock absorber mechanism would combine 'pay as clear' and 'pay as bid' clearing methods, so that a large percentage (e.g. 90%) of the load volume with the lowest cost would be cleared with the 'pay as clear' model, while a small percentage (e.g. 10%) of the highest cost load volume would be cleared with the 'pay as bid' system.

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[3] McKinsey projections based on futures from Bloomberg, EEX, Nasdaq and PEGAS, January 2023 [Link]
[4] ACER assessment of the EU Wholesale electricity market design in April 2022, pp 49.

The overall demand price would be a weighted average of the 'pay as clear' and 'pay as bid' prices, thereby resulting in a much lower price for consumers than under the current market design. **While the price shock absorber would significantly lower market prices during price spikes, it would have very limited impact when the supply curve is flat.**

The percentage split and the conditions for triggering the mechanism should be determined in advance and set out in a transparent way, in order to provide certainty and predictability to the markets. Marginal generators would be able to continue bidding at their marginal cost, but the impact of their high fuel costs on the market clearing price would be limited. To prevent circumvention and speculation, the mechanism would be equipped with ex-ante market power mitigation measures to avoid changed bidding behaviour of power generators.

The introduction of the price shock absorber mechanism would lower electricity prices for all consumers with immediate effect, while preserving the merit order curve. This will help guard against the destructive impacts of price spikes on European electro-intensive industry as well as households, thereby avoiding the need for state support schemes and interventionist measures to claw back windfall profits from intramarginal producers that hamper investor confidence. It would also bring more predictability for all market participants, without endangering security of supply.

Advantages of the price shock absorber mechanism:

- Lower electricity prices for all consumers with immediate effect
- Transparent, predictable system
- Avoids need for disruptive emergency measures that erode investor confidence
- Avoids need for subsidies or funding from the state / EU
- Limited change to current market design, preserves the merit order curve
- Without negative impacts on security of supply given that marginal generators are remunerated based on their costs
- Can be implemented uniformly across the EU

3. In the medium term: Incentivise new generation capacity and facilitate the use of PPAs by electro-intensive industry

A price shock absorber mechanism will only lower electricity prices in extreme situations, so it will not be sufficient on its own to reduce prices overall and help electro-intensive industries in the EU remain competitive. In the medium and long-term, Europe will only achieve security and affordability of electricity supply by increasing generation capacity, including dispatchable supply and flexibility solutions that will help balance intermittent renewable generation. As the penetration of wind and solar generation grows, this need for dispatchable capacity will increase.

In the meantime, **until sufficient fossil-free generation capacity will have been installed, the EU and member states must support European electro-intensive industry face the high electricity costs**. The transition towards a low carbon economy will need accelerated investments in green technologies and fossil free electricity. It is in the EU's interest to keep a competitive raw materials industry in Europe to provide secure access to the strategic raw materials needed for windmills, batteries, solar panels, electrolysers and other key net zero technologies.

The revision of EU electricity market design should:

- **Incentivise investments in additional generation capacity, including dispatchable supply and flexibility solutions** that will help balance intermittent renewable generation, for instance through capacity mechanisms and accelerating permitting procedures for private investments in generation capacity in member states.

- **Facilitate the use of renewable PPAs by electro-intensive consumers by addressing shaping risk.** The usability of renewable PPAs by copper producers today is greatly diminished because of high shaping risk due to the variable nature of renewable generation, i.e. the risk of having to make up on the spot market for the difference between contracted RES capacity and real consumption, which can significantly increase the cost of entering into a PPA. Given the need for variable renewable generation to be backed up with dispatchable supply, PPAs are currently often balanced by natural gas. Options to reduce shaping risk of renewable PPAs for energy-intensive consumers should be put forward as an urgency to facilitate the use of these contracts by energy-intensive industry.

- **Incentivise electricity generators to enter into corporate PPAs with energy-intensive industry**. In the current market conditions, electricity producers are not incentivized to sign PPAs because they can benefit from volatility and higher prices on the short-term markets, or have access to support schemes which guarantee a sufficient level of revenue in the long term. Renewable generation plants participating in auctions for state-backed PPAs could be incentivised to contract a significant share of their output through long-term corporate PPAs.

- **Encourage member states to put in place well-designed support schemes to help the electro-intensive industry remain competitive until sufficient and competitive renewable generation capacity is in place**. This could include access to a transitional electricity price from baseload power plants.

About the European Copper Institute

The European Copper Institute (ECI) is the leading advocate for the copper industry in Europe and the European arm of the International Copper Association (ICA). Our members mine, smelt, refine and recycle copper for use across the economy, in the electricity system, buildings, transport and industry.

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