

Executive Summary

Electricity costs represent, on average, up to 40% of European primary aluminium production costs. Since last summer, such costs have increased by 400% due to a combination of economic, regulatory, and geopolitical factors. As a consequence, half of Europe's aluminium smelters have been forced to curtail or halt completely their production. In total, in 2021 and 2022, the EU is expected to lose 50% of its planned primary aluminium capacity (corresponding to approx. 1,000,000 tonnes of primary aluminium production) while production of primary aluminium in non-European countries continues to bloom all over the world¹. Europe's aluminium industry is amongst the least carbon-intensive in the world: the carbon footprint of producing primary aluminium in Europe is half the global average and three times lower than that of Chinese production, which represents 60% of total global production. This means that the ongoing replacement of European aluminium production is leading to a significant increase in global emissions, which constitutes undeniable evidence of carbon leakage. This development goes against the EU's goal of strategic autonomy and decarbonisation and increases our import dependency on raw materials and goods.

In response to the ongoing energy crisis and to accelerate the phase out of our dependency on Russian gas, the Commission published on Wednesday, 18 May 2022 its RePowerEU plan composed of several Communications: a new Solar Strategy and a proposal for amendments of the Renewable Energy Directive (RED). This followed the publication of a first RePowerEU Communication in March and a proposal for a Gas Storage Regulation outlining available measures for Member States to reduce energy costs for industrial and household consumers, while reducing dependencies on Russian gas. Together, these documents outline important actions to accelerate the roll out of renewable energy in the EU and prepare for gas shortages next winter.

However, the measures fall short on providing direct support for industrial consumers in the long-term. Currently, the actions contained only include a frontloading of the Innovation Fund, and in the short-term, a new Temporary State Aid Framework. Unfortunately, neither is sufficient to offset the massive losses incurred by the aluminium industry. Even more worryingly, the Communications place significant emphasis on a reduction of energy demand and even potential curtailments in industry. While it will be crucial to maximize energy efficiency in industry (given that electricity constitutes 40% of the cost of producing of producing primary aluminium, our producers already have the strongest economic incentive to maximize efficiency wherever possible), demand destruction cannot and should not form the basis of Europe's strategy to phase-out dependence on Russian gas. Aluminium is needed for the production of many of the technologies that will be needed for the realisation of Europe's REPowerEU goals (RES units, hydrogen electrolyzers, transmission cables, battery storage, electric vehicles, etc.), and any further reduction of Europe's aluminium production (which, as mentioned above, has already been hit hard by the ongoing crisis) would increase our need for imports, many of which would have to come from Russia.

It is positive that the Commission enacted the Temporary State Aid Framework to allow Member States to use state aid rules to their maximum and compensate industrial consumers, but the eligibility and thresholds of the measure are problematic, and do not account for either the length or the amount of our losses.

Right now, eligible costs are calculated based on the increase in monthly gas and electricity costs from 1 February 2022 in so far as this increased cost is more than double the cost incurred on average in 2021. To be effective in offsetting the massive losses the aluminium industry has incurred, the framework should be adapted in the following ways:

¹ See [SandP Global commodity insights](#), April 2022, and Annex II of our [letter to the European Commission](#) with an overview of capacity increase in other regions of the world, January 2022

- Eligible costs should be calculated based on the increase in costs since Q4 2020, as the current approach (whereby only costs exceeding 200% of the average costs faced during 2021 are deemed eligible) will prevent compensation for producers who were already facing exorbitant costs as early as last summer and have been forced to curtail their production as a result
- The requirement for an undertaking to show operating losses (i.e. a negative EBITDA) unjustifiably restricts the number of facilities eligible for aid, and should be reviewed/clarified. The current approach effectively asks undertakings to continue operating at a loss, without curtailing their production, in a hope that a fraction of these losses may be compensated via state aid.
- The cap for maximum aid for energy-intensive consumers (€50 million) should be increased to better reflect the reality of power costs and related increases we are facing.

To ensure such production losses do not continue, and are reversed in the future, European aluminium producers need efficient long-term instruments that facilitate the competitive uptake of renewable energy. In its Communication outlining best practices in RES permitting and RES PPAs, complemented by RED amendments, the Commission took a step in the right direction in encouraging the uptake of long-term renewable energy contracts. It is also positive the Commission encourages the development of instruments such as CCfDs that efficiently encourage the uptake of decarbonisation technologies in Europe.

However, the Communication on RES permitting and RES PPAs only includes two paragraphs on how PPAs can be facilitated, whereas the Annex in which more details are meant to be given (as mentioned in the text of the Communication) seems to be missing. Therefore, European Aluminium believes those instruments should go one step further:

PPAs should be encouraged at European level via²:

- Accelerated and increased roll-out of renewable electricity generation.
- Incentives for electricity producers to use PPAs with industry as a hedging instrument,
- Mechanisms to deal with shaping/firming costs, such as the Green Pool concept.
- Guarantee of full compensation of indirect costs of the EU ETS.
- Urging TSOs to grant longer-term cross border transmission rights, where necessary.

Carbon Contract for Difference (CCfDs) schemes should be redesigned:

- They should factor in the lack of a global playing field compared to third countries not subject to similar EU carbon costs.
- They should compensate for full abatement costs via remuneration of the difference between low-carbon technology production costs and conventional ones.

Nuclear energy is capable of providing decarbonised baseload power, at least until cost-effective and fully decarbonized backup capacity/energy is available at sufficient scale to address RES volatility and grid limitations.

Also, aluminium smelters can play a crucial role in short-term demand response schemes, given their possibility to reduce electricity consumption during peak hours in response to hourly based rates, capacity payments (often in the form of Interruptibility schemes) and/or other forms of financial incentives. These should therefore be encouraged and facilitated at both national and European level.

² See our [Response](#) to EU public consultation on RES permit granting processes and Power Purchase Agreements (PPAs), April 2022

Furthermore, any adaptation of the electricity market design aimed at addressing the current crisis should be temporary and ensure security of supply and affordability for price sensitive consumers. We support the conclusions of the Agency for the Cooperation of Energy Regulators (ACER)³ and welcome its solutions proposed by the Commission to shield those consumers that need the most protection against price volatility and uncertainty such as energy-intensive industries. This should be done in a careful and prudent manner to ensure it does not affect long-term security of supply and the efficient functioning of the electricity market.

Finally, our industry stands ready to work with national governments and the Commission on the proposed revision of the Security of Supply Regulation, and in particular on the national contingency plans. As an electricity-intensive industry and also heavily reliant on gas for other segments down the value chain, any measures proposing reducing energy consumption or alternative supply will have to be carefully tailored to the specificities of our sector.

Background

Energy prices have been reaching historical levels since last summer. Half of the European aluminium smelters were forced to curtail or stop completely their production, working at reduced capacity⁴ even before the war in Ukraine. Because of the coupling of gas and electricity prices, and Russia's strategic withholding of gas supplies among other reasons, the prices have further increased over the course of autumn 2021 and the first months of 2022. The current **power** costs to produce one tonne of aluminium are now higher than the global selling price for aluminium (as shown by the LME spot aluminium prices⁵).

This has led to further curtailments of aluminium smelters⁶. Based on our latest figures:

- In total, in 2021 and 2022, the EU is expected to lose approximately 50% of its primary aluminium capacity ($\pm 1.000.000$ tn).
- The EU is the **only region** in the world with such a drop in primary production in 2021-2022. In the rest of the world, **new primary aluminium production is being added, including restarts and considerable expansions in many of our traditional trading partners**, aimed at covering rising global demand for the commodity and benefitting from historically high aluminium prices. Curtailments and shutdowns in Europe, coupled with increased output elsewhere in the world, is bound to make it **extremely difficult** for domestic production to reclaim its market share, **unless drastic and immediate action at EU level is undertaken to reverse this trend, which is detrimental to the EU's strategic autonomy.**

The war has also hit trade flows which, in turn, made aluminium LME prices reach record highs of around \$3800 per ton in March 2022. This is also due to Australia deciding to ban alumina and bauxite exports to Russia and new announced lockdowns in China due to COVID19. To remedy the energy crisis and respond to the European Aluminium industry's call for action, the EU Commission published and announced policies to support and guide EU Member States in alleviating energy costs for consumers, including industry:

- 8 March 2022: RePower EU plan outlines future roll out of renewable energy in Europe, diversifying gas supply to cut dependencies on Russian gas, and temporary emergency measures to alleviate costs for customers.
- 23 March 2022: A follow-up Communication outlines options to mitigate high energy prices with common gas purchases and minimum gas storage obligations.

³ See [here](#) ACER's Final Assessment of the EU Wholesale Electricity Market Design.pdf, April 2022

⁴ See [European Aluminium letter](#) on global energy crisis and impact on European aluminium primary production capacity, 14 January 2022

⁵ See ECRA [press release](#) « Expected supply disruption from Russia and rising energy costs in Europe to keep the aluminium prices elevated, 10 March 2022

⁶ See recent announcements by Trimet and Slovalco, announcing respectively a [50% production curtailment](#) and a [60% curtailment](#)

- 18 May 2022: RePowerEU Communication, Communication on Short- and Long-term Energy Market Interventions on the Electricity Market Design, EU Solar Energy Strategy further accelerating the roll out of RES in the EU, Communication outlining best practice for RES PPAs and permitting.

These were accompanied by:

- A [Proposal for a Regulation on Gas Storage](#) on diversifying gas imports to cut EU dependency on Russian gas.
- A [Temporary State Aid Framework](#) allowing Member States to deviate from EU state aid rules to support industries suffering from the high energy prices.
- A Proposal for amendments to the RED to facilitate RES permitting and PPAs.

The Temporary State Aid Framework:

The European aluminium industry welcomes the Commission's efforts to guide and support EU Member States and industries in navigating this crisis. The wide array of short-term financial compensation and regulatory measures outlined by the Commission to address the high electricity prices as well as the legislative and non-legislative actions to ensure security of gas supply for the next winter are crucial for the aluminium value chain.

We welcome in the proposed Temporary Emergency State Aid Framework the possibility for EU Member States to grant before the end of the year a maximum aid of EUR 400 000 per undertaking and, specifically for aluminium producing installations, a maximum aid of EUR 50 million to cover up to 70% of the eligible energy costs and 80% of the operating losses.

However, the guidelines are insufficient to offset the immense cost increase faced by the aluminium industry. The shortcomings are exacerbated further by DG COMPETITON and EU Member States' delays in approving national ETS compensation schemes to partly reimburse the EU-exclusive impact of CO2 costs on power prices⁷.

Eligibility criteria: Operating losses

According to the Framework⁸ (paragraph 53(b)), energy-intensive businesses are eligible for aid if they incur operating losses, i.e., their EBITDA during the eligible period is negative. This criterion of operating losses is inaccurate for three reasons:

- First, it is very possible for a company's EBITDA to be positive, while the company is making a net loss. Even in such a case, the company's continued operation would quickly become unviable. However, the company would not be eligible for support under the Framework, due to having a positive EBITDA. More importantly, it is unrealistic to expect an undertaking not to curtail operations while faced with "operational losses", e.g. a negative EBITDA, under the assumption that partial offsetting of the cost elements having led to this situation might take place, provided approval is granted.
- Second, given that a company's EBITDA (as well as the net profit/loss) is evidenced by financial reports, a question arises as to how -and when- an undertaking will be able to evidence the negative EBITDA (or net losses) during the eligible period. This is especially important for companies that are not listed and only publish financial accounts on an annual basis. **The Commission should provide further guidance on how undertakings will be able to provide evidence for aid within a shorter timeframe, for example via using an external auditor to evidence the net loss on a monthly basis.**

⁷ The proposed schemes by France and Slovenia, including updated market-based CO2 pass-through factors, are still awaiting for DG COMPETITON's greenlight

⁸ See [here](#) Temporary Crisis Framework for State Aid measures to support the economy following the aggression against Ukraine by Russia, March 2022

- Finally, the framework should clarify what can be considered as an undertaking, and on which level the losses should be calculated. An undertaking may well have different installations, even different NACE code activities falling under the same VAT number. The requirement to have incurred losses at undertaking level may therefore lead to distortions from company to company. In the case of an integrated undertaking, it should be defined at the installation level (1 installation = 1 undertaking).

Eligible costs

According to the Framework (paragraph 53(e)), eligible costs are calculated on the basis of the increase in monthly gas and electricity costs from 1 February 2022 in so far as this increased cost is more than double the cost incurred on average in 2021. However:

- The energy costs crisis has been affecting the European Aluminium industry well before the invasion of Ukraine by Russia. Therefore, the cost increase should be calculated based on values from Q4 2020, otherwise, some undertakings, which have been forced into curtailment by record high costs since last summer, will not be eligible. As outlined above, eligible costs under the Temporary Crisis Framework are calculated based on the difference between (i) the current energy costs, and (ii) 200% of the average energy costs during the reference period.
- According to DG ENERGY, the average electricity price over the course of the reference period (2021) actually exceeded 100 €/MWh in most European markets. Therefore, for a Member State in which the average electricity price over the course of the reference period was around 100€/MWh (e.g. The Netherlands), the eligible costs would be limited to the difference between 200 €/MWh (100€/MWh * 200%) and the current electricity price (+250€/MWh). **This leads to a maximum compensation of 50€/MWh, even though electricity prices have actually increased by over 200€/MWh.** For countries that had even higher electricity prices during the reference period (e.g., Italy, Greece), the eligible costs might even amount to zero, preventing these Member States from supporting their industries.

Aid cap

Finally, paragraph 53(e) of the Framework foresees that the overall aid provided to highly energy-intensive undertakings may not exceed €50 million per undertaking. If we use the 2019 average power cost at EU primary smelters indicated in the Energy Prices and Costs Report⁹ (≈40€/MWh) and multiply it by the annual consumption of an average EU smelter (≈3TWh/year), the average annual power cost under normal conditions is approximately **€120 million/y**. With power prices rising by more than 200% (in some cases even 400%), the **additional** annual cost in the generic example above ranges between €240 and €480 million. For this reason:

- Capping support per **installation** at €50 million may be sufficient for other sectors but not the primary aluminium industry. If we assume that a smelter consumes around 14.5 MWh to produce a tonne of aluminium, then a 200€/MWh increase in the electricity price translates into an additional cost of €2,900 per tonne of aluminium. If a smelter produces 100,000 tonnes of aluminium, then that translates into an **additional** cost of €290 million (100,000 * €2,900).
- Instead, aligned with the considerations outlined in the recently approved CEEAG and the ETS Guidelines, a relevant cap could be calculated on the basis of the impact on the undertaking's GVA (e.g. "limit the amount of the 'cost increase' at undertaking level to 1.5% of the gross value added of the undertaking concerned"). A

⁹ See [here](#) DG ENER Report composition and drivers of energy prices and costs in energy-intensive industries, 2019

proportional cap for electro-intensive businesses should be introduced, limiting the amount of the cost increase at undertaking level to 1.5% of the gross value added of the undertaking concerned.

In the longer-term, the aluminium value chain needs measures that can enable cost-competitive consumption of decarbonised energy and more availability of low-carbon fuels to truly decarbonise the entire value chain. The existing measures under the EU State Aid Framework, such as the ETS Guidelines and the reformed Guidelines on Climate, Energy and Environment (CEEAG), represent a positive first step. However, to ensure the global competitiveness of our industry while ensuring fair competition across the internal market, the Commission must reflect upon ways to protect trade intensive industries both via European solutions as well as within the existing regulatory framework, currently being negotiated by the co-legislators.

Towards a reformed, competitive and decarbonised energy market

The EU Commission announced several new initiatives along with its RePowerEU Plan. These include a detailed plan to address the Union's energy dependencies from Russia, scaled up renewable energy production for industry as well as possible short- and long-term measures to adapt the electricity market design.

These initiatives are a positive step forward but fall short of providing reliable investment sources and solutions for long-term access to RES. They should have included the following elements:

Power Purchase Agreements

The primary cause of the high electricity prices is the natural gas prices. Further and increased investments in renewable energy (RES) capacities following considerable expansion, modernization and digitalization of grids and solid adequacy and flexibility assessments is the first and primary step to ensure that Europe efficiently and cost-effectively reduces its electricity system's reliance on natural gas and increases domestic production of energy, thereby also helping to suppress prices for private consumers and industry. This is why it is very positive that the Commission aims to outline best practices in its Communication on accelerating permitting for renewable energy projects, facilitating Power Purchase Agreements (PPAs) and followed through with a proposal for a revision of the Renewable Energy Directive (RED). However, the Annex to the PPA Communication detailing measures to facilitate the uptake of PPAs seems to be missing.

To be truly effective, prevent future energy crises, and provide for long-term security of supply, further improvements are needed, in particular, the development of storage technologies or other forms of dispatchable low-carbon electricity generation, which are needed in order to address the challenge of intermittent wind/solar generation. The most efficient instrument to add new RES capacity to the grid is via renewable PPAs.

PPAs should be encouraged even further at the European level via:

- **Mechanisms to encourage renewable electricity producers to use PPAs with industry** to secure their revenue stream instead of or in addition to government subsidies.
- **Mechanisms to deal with shaping/firming costs**, which are caused by the fluctuating production of wind/solar generation and constitute significant additional costs for electro-intensive consumers. The Big Buyer Initiative announced in the EU Solar Strategy should be constructed on this model. The 'Green Pool' concept¹⁰ has, for example, conceptualised an efficient aggregator model. Electricity produced by RES units would be 'pooled' together by an aggregator. The aggregator would undertake all shaping risks and supply the consumer with baseload power. As a result of production and consumption aggregation and a competitive tendering process

¹⁰ Please find [here](#) the detailed green pool proposal by ENERVIS, March 2021

for the assignment of the aggregator, shaping costs would be reduced considerably, whereas partial state support for these costs will allow the rapid growth of this market.

- **Full compensation of the indirect costs of the EU ETS:** Due to marginal pricing in European electricity markets, a consumer who signs a PPA for renewables will still face carbon costs. At the current carbon price (€80/tonne) this will represent €50/MWh (ETS price * average of the pass-through factors from the ETS guidelines (0.63)). Without adequate compensation, electro-intensive industries cannot be competitive on the global market.
- **Long-term cross-border transmission rights:** Signing PPAs with a producer in a different price area is very difficult where there are no cross-border risk mechanisms. To make long-term cross-border PPAs available in these areas, cross-border transmission rights, physical and financial, need to be made available.
- **Reorganization of administrative processes:** As identified in the Communication on best practices relating to PPAs and RES permitting, the development of RES and PPAs is handicapped in Europe. Licensing procedures for a new RES project can take up to 8 years to complete, limiting the rate at which new RES capacities enter the system. The limitations of our current electricity grids also constitute significant barriers to new RES investments. In addition to what is proposed in the Communication and proposed amendments, prioritization of RES projects should be re-organized, and the current energy infrastructure should be better used and expanded.

Carbon Contracts for Difference

A Carbon Contract for Difference (CCfD) gives assurance to the contracting party about the future trajectory of carbon prices in the form of a fixed price for certain emission reductions. The contract is between the State and an industrial actor.

Currently, CCfDs are designed to cover the difference between a variable reference price of European Emission Trading Scheme Allowances (ETS EUAs) and a fixed competitive strike price (determined via auction). When the allowance price falls below the strike price, the CCfD is triggered, resulting in a payment from the national government to the beneficiary. The ideal strike price differs between and within industrial sectors. The RePowerEU plan has identified CCfDs as a key instrument to encourage decarbonisation.

They could represent a key instrument to secure energy prices for producers on a long-term basis but they are also costly and rely on public funds: the contract will cover costs associated to the hedging of carbon price **and** exogenous risks¹¹. Moreover, as designed as of now, CCfDs do not offer a sufficiently comprehensive commercial risk mitigation for projects. Hedging carbon abatement costs will not, by itself, ensure commercial viability of low-carbon projects sold on global markets where willingness to pay for these low-carbon projects does not always match the cost of developing them, even with CCfDs. The way they are designed should factor in the lack of a global level playing field compared to third countries where producers are not subject to similar carbon costs. An effective CCfD would be one that compensates the full abatement costs in the EU. E.g., the difference should be calculated between production costs of low-carbon technologies and production costs of conventional ones. Indeed, if the CCfD only compensates the difference with the EU ETS price, it fails to provide an actual incentive in investments in high-risk low-carbon technologies leading to decarbonization.

As part of the revision of the ETS Directive, the Commission proposed to enlarge the scope of the Innovation Fund to CCfDs. This would be a good development, as it would create a European approach to CCfDs, allow the use of ETS

¹¹ See Climate Friendly Materials Platform [report](#): Carbon Contracts for Differences: their role in European industrial decarbonisation, September 2020

revenues for CCfDs and complement other forms of support under the Innovation Fund. The accelerated roll out of the Innovation Fund via CCfDs proposed in the RePowerEU plan is also a positive step forward.

CCfDs can represent a good instrument for stable access to competitively priced clean electricity. They are a good hedging instrument for future carbon prices and stabilize revenue streams for low-emission projects, and would, by their function, reduce financing cost.

Nuclear energy as baseload option

In view of current developments of European energy market dynamics, nuclear energy can be a crucial temporary provider of baseload power in such challenging times where our industry's energy security and affordability is at risk. As we transition away from fossil-based energy, nuclear power plants provide a reliable option for decarbonized baseload electricity and will continue to do so until massive volumes of cost-effective and carbon-free reserves and flexibility-providing electricity generation is available. Nuclear power plants represent high fixed costs but once built, generate a reliable and affordable supply of energy.

In addition, they can adapt their output to varying market dynamics. On the contrary, and as demonstrated by the already high energy prices last summer, RES represent volatile sources of energy (as very dependent on weather) and cannot be considered yet as a realistic baseload option in the short term.

Options to adapt the electricity market design

At the beginning of the year, the [IEA](#) and the [Commission](#) have both proposed to review the electricity market design. As a result, the Agency for the Cooperation of Energy Regulators (ACER) organized a consultation of stakeholders last February¹² and published on the 29th of April¹³ its report on the assessment of the electricity market design¹⁴. Based on this report and the measures undertaken by the EU Member States to react to the energy crisis, the Commission outlined in its Communication on Short-Term and Long-Term Electricity Market Design available options for the Member States to adapt the current market design.

In its assessment, ACER concluded that the current spot market design was worth keeping, as it was the most efficient way to produce valid spot price signals. They also identified key short- and long-term improvements to be considered to better the market design, including boosting investments in PPAs. Finally, they recommend addressing gas supply directly, in line with the Commission's recommendations. This is more or less what is reflected in the Commission's Communication.

The Communication also indicates that the Commission will launch an impact assessment on making the necessary adjustments to the EU electricity market. As ACER mentioned in its assessment, we believe that:

- Changes to the current market design could be risky, as they could endanger the security of supply and some of the current market participants are likely to be unable to recover their full costs over time.
- As the share of RES in the energy mix increases, volatility of wholesale prices in certain time intervals is likely to increase rather than decrease.
- Unbalanced solutions might lead to risks of fragmentation of a relatively well integrated European market.

¹² See Stakeholder Workshop [webpage](#) and [presentations](#) on the ACER Assessment on Electricity Market Design, 10 February 2022

¹³ See [here](#) ACER's Final Assessment of the EU Wholesale Electricity Market Design.pdf, April 2022

¹⁴ See [here](#) ACER's Final Assessment of the EU Wholesale Electricity Market Design, 29 April 2022

- European policy makers should not forget about the advantages linked to the marginal pricing system, which is widely regarded as the most efficient way to establish prices in electricity markets (although it does lead to indirect EU ETS costs even when consuming decarbonized energy, which is why indirect cost compensation is absolutely necessary).

Any changes to the existing market design in response to the current energy price crisis should be temporary in nature and ensure security of supply and affordability to long-term consumers.

Furthermore, to ensure the integrity of the internal electricity market and the benefits it provides, any modifications to the market design must be coordinated at the European level, avoiding market-distorting national measures.

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About European Aluminium

European Aluminium, founded in 1981 and based in Brussels, is the voice of the aluminium value chain in Europe. We actively engage with decision makers and the wider stakeholder community to promote aluminium's strategic role, secure growth, and stress our metal's contribution to meeting Europe's sustainability challenges. We do this through environmental and technical expertise, economic and statistical analysis, scientific research, sharing of best practices, and public affairs and communication activities. Our 100+ members include alumina refiners and primary aluminium producers; downstream manufacturers of extruded, rolled and cast aluminium; aluminium recyclers and national aluminium associations, representing together more than 600 plants and 1 million (direct and indirect) jobs in 30 European countries. Aluminium products are used in a wide range of markets, including mobility, aerospace, transport, clean tech, building and construction as well as packaging and consumer goods.