



# Advancing the Green Deal

ECGA Annual Report 2022

## About ECGA

**The European Carbon and Graphite Association (ECGA)** is the representative association of EU carbon and graphite producers, including the EU based graphite electrode producers going into Europe's steel and foundry industry, electrodes and cathodes for the aluminium and ferroalloy industry as well as a wide variety of specialty graphite and carbon products for applications ranging from electric motors to modern battery and fuel cell technology.

## Our Mission

**ECGA** is the Carbon and Graphite Industry's **recognized voice** on all Europe related issues.

## Location

Brussels, Belgium

## Secretariat

<b>Dr. Corina Hebestreit</b>	Secretary General
<b>Ms. Catherine Conty</b>	Assistant
<b>Ms. Mirona Coropciuc</b>	Energy and Climate Change Director
<b>Ms. Katarzyna Palaczanis</b>	EHS, REACH and Communication Manager
<b>Dr. Xavier Gillard</b>	Markets and Competitiveness Manager

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## Foreword

2022 was a very difficult year in many ways. Economic recovery after the Covid pandemic had not really set in yet when the geopolitical changes created completely new challenges. In addition to Europe's efforts to address the climate change challenges Europe's drive for sustainable energy and transport was accelerated in the wake of Russia's invasion of Ukraine which started in February 2022. The Russian invasion of Ukraine has highlighted Europe's energy dependencies. In the effort to reach energy independence through the deployment of green technologies, European policymakers have become more conscious of the vulnerabilities of existing supply chains and wary not to create new dependencies.

The European Green Deal aims to transform the EU into a modern, resource-efficient, competitive and resilient economy. The European carbon and graphite industry is an integral part of this green and digital transition which requires the rapid deployment of new green and digital technologies, implying significant growth in the demand for materials such as natural and synthetic graphite, which is vital and often irreplaceable in many applications, from steel recycling to batteries for energy storage and electric mobility, from renewable energy generation to chips production. Undisrupted supply chains and in-time delivery of materials will contribute to reaching the climate goals but also ensure the resilience of the European economy in these changed political and economic constellations.

The European carbon and graphite industry is able to increase its support for the EU economy if the investment climate and political support is there to bring new production in both areas, natural graphite and synthetic graphite on stream.

However, the rise in electricity and energy prices in general became a major challenge for the synthetic graphite industry, to the point that at least three older sites have been closed. In this context, the industry welcomed the Commission's decision to implement major anti-dumping duties for Chinese producers of electrodes and hopes that the duties against Indian producers will be continued.

Still, brand new synthetic graphite capacity has come on stream in 2023 in Norway and others are planned for the coming years. New synthetic production is coming on stream and existing capacities are being extended and adapted to changing demands.

Several exploration, mining and processing projects for natural graphite are under way.

In 2022 our association continued to enlarge its membership, also up and downstream of the supply chain, as well as its network with its customer industries.

ECGA joined the Global Steel Climate Council (GSCC) to address the challenge of establishing a global steel standard recognising the contribution of steel recycling in Electric Arc Furnaces.

In addition to the European Battery Alliance ECGA also joined the Global Battery Alliance (GBA), a public-private collaboration platform founded in 2017 at the World Economic Forum to help establish a sustainable battery value chain by 2030.

ECGA joined the Global Hydrogen Leaders, a network of experts of the global hydrogen supply chain since graphite is being used in one of the technologies producing hydrogen.

The Secretariat also welcomed Dr. Xavier Gillard replacing Mrs Lentini and reinforcing the association, now being responsible for carbon and graphite's markets and competitiveness aspects.

We would like to thank all our members and the Secretariat for the work carried out in 2022 and are looking forward to the challenges of 2023.



*Juan Antonio Aranzabal  
President*

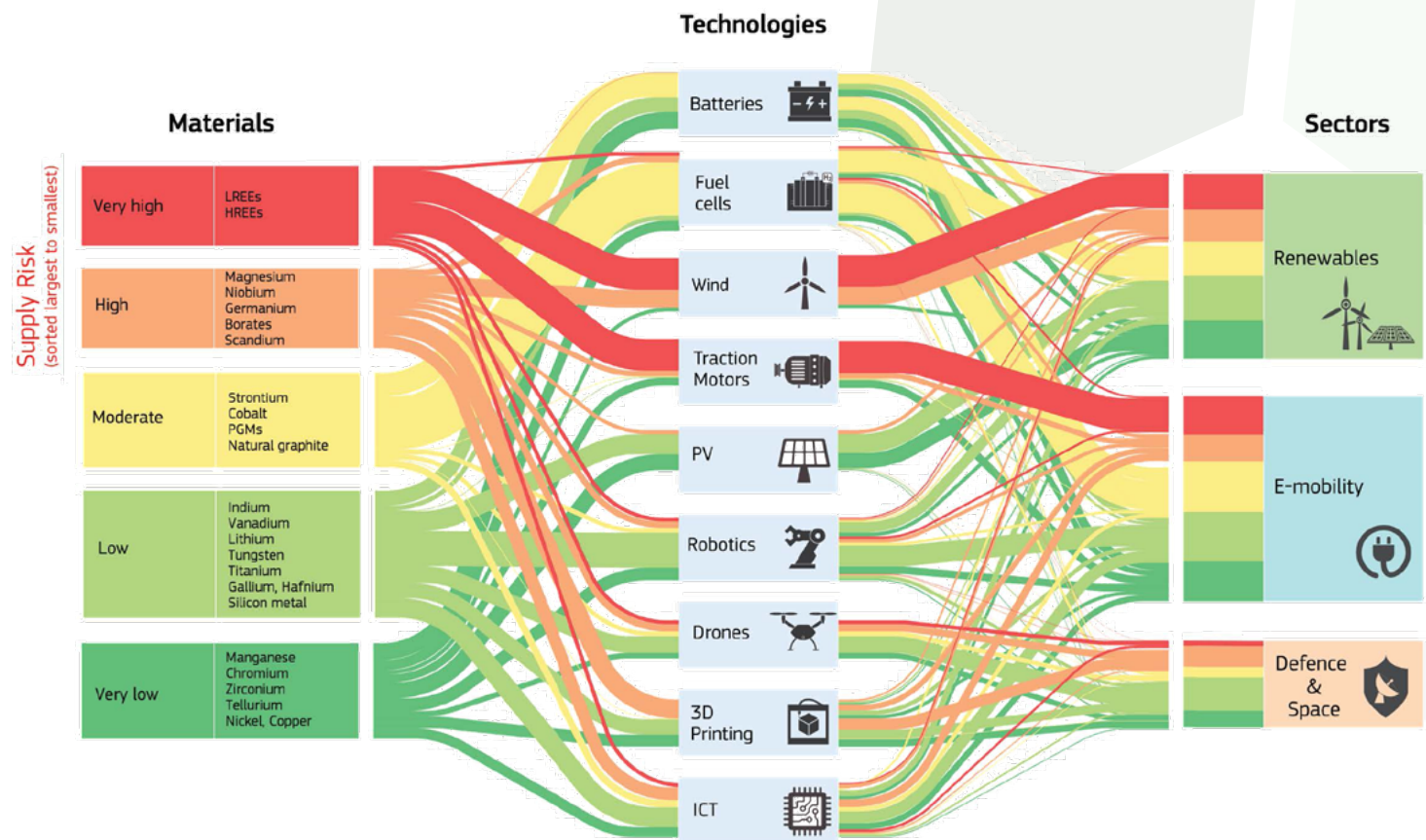
A handwritten signature in blue ink, which appears to be 'J. Aranzabal'. The signature is stylized and fluid, with a long horizontal stroke at the end.

# The European Carbon and Graphite sector key facts and figures

## GRAPHITE DEMAND FORECAST

The European carbon and graphite sector employs around 35000 people and creates three times as many jobs in other sectors. It serves a wide variety of sectors and applications and is key to many strategic goals of the EU in terms of Climate Change and resilience of the EU economy.

Source: JRC: Study on the EU's list of Critical Raw Materials (2020). Critical Raw Materials Factsheets (Final), Luxembourg 2020

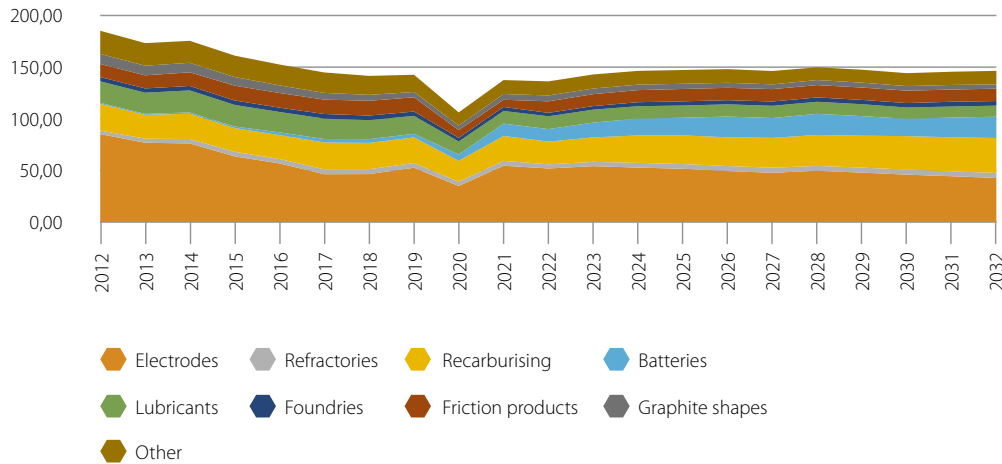


Forecasts for the various types of graphite indicate a worldwide growth in many areas and applications, with Europe taking a steady pace over the coming years. According to Wood Mackenzie global total graphite demand is forecast to grow at a CAGR of 6.7% over the next decade, with automotive, PE, and ESS leading future growth in batteries. Demand from steel-based applications will grow slower as China's steel industry has slowed down.

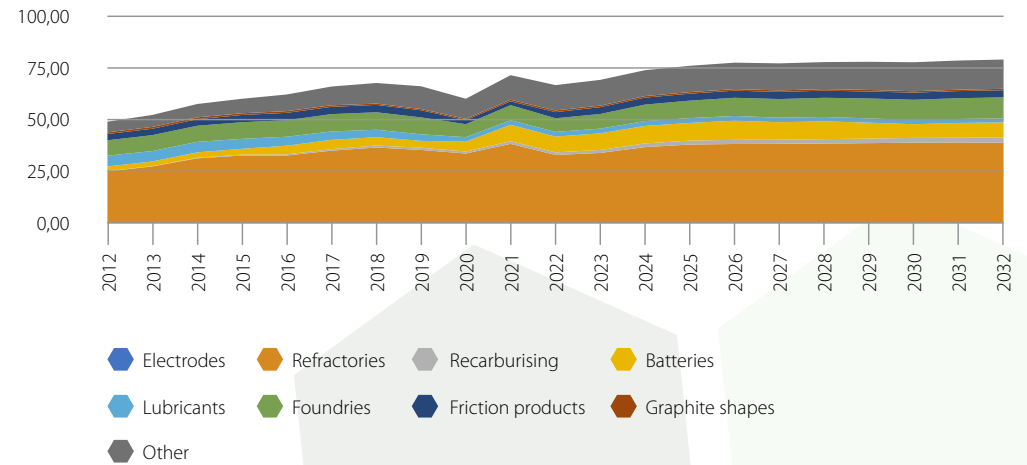
Natural graphite itself is forecast to grow by 7.4% and synthetic graphite by 6.2% per year up to 2032.

Global demand for natural graphite is forecast to grow from 1.44 Mt in 2022 to 2.94 Mt in 2032 with batteries accounting for 43% of demand in 2022, and expected to rise to 70% in 2032.

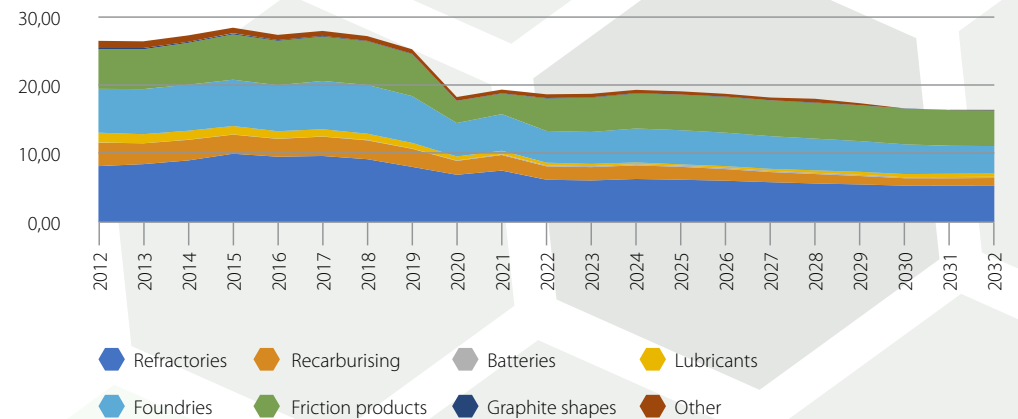
### Applications of Synthetic Graphite in the EU / 2012–2032



### Applications of Flake Graphite in the EU / 2012–2032

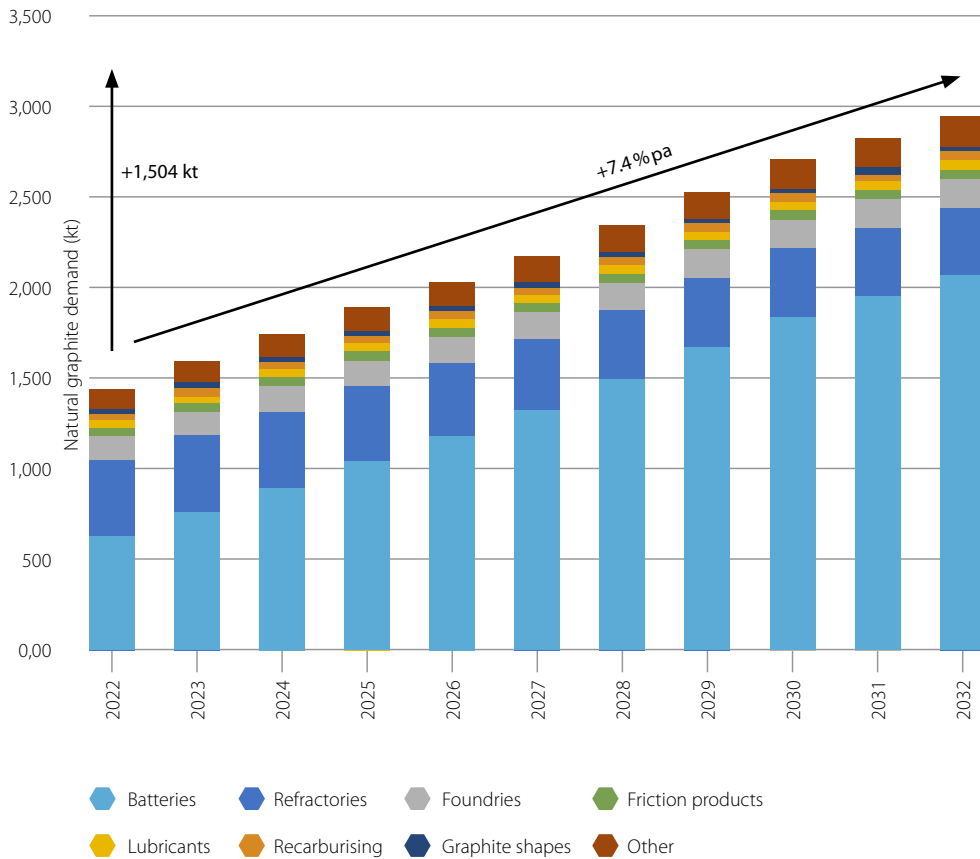


### Applications of Amorphous Graphite in the EU / 2012–2032



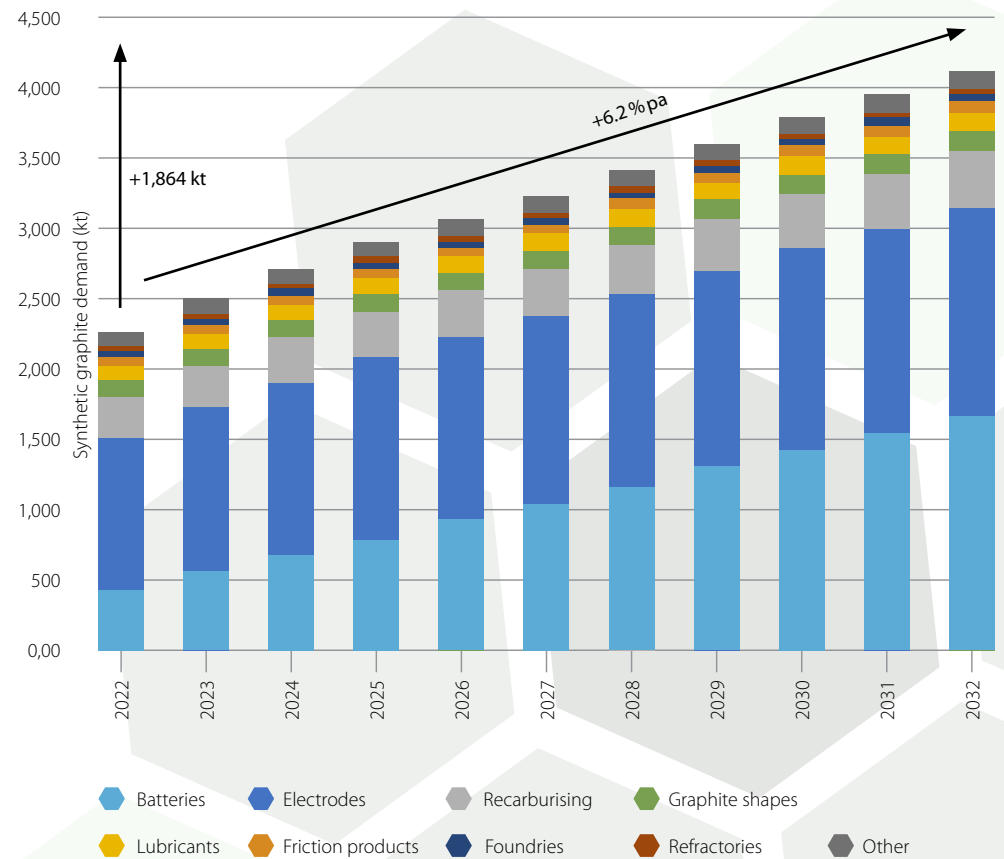
However, when looking at individual sectors one can see that one of the biggest growth rate for both natural and synthetic graphite will come from battery applications for e-mobility and energy storage.

Global demand of natural graphite



Source: Wood Mackenzie

Global demand of synthetic graphite

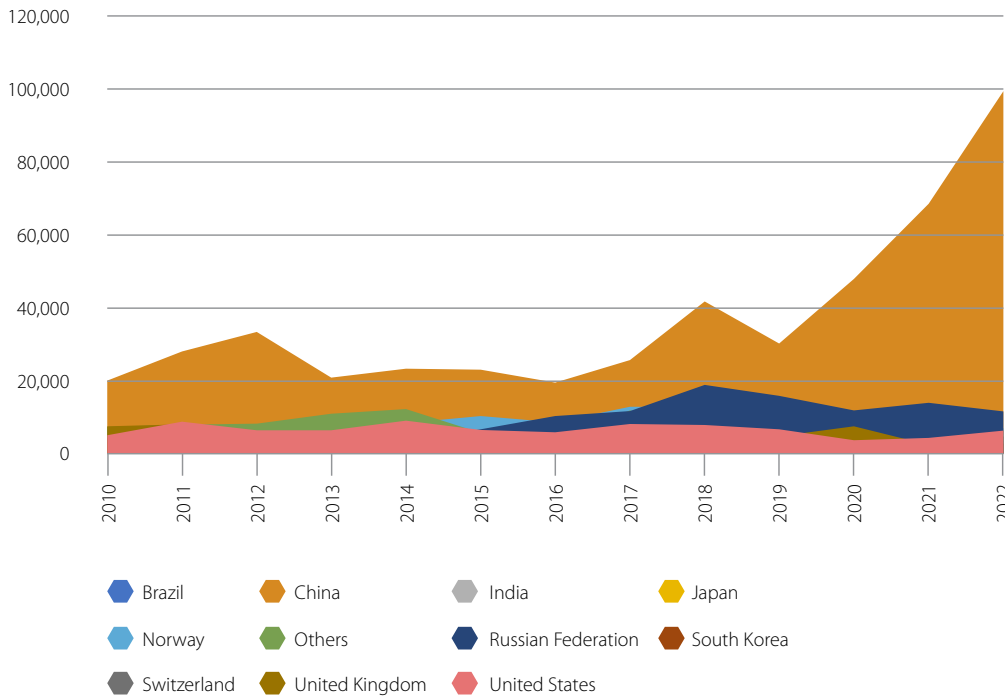


Source: Wood Mackenzie

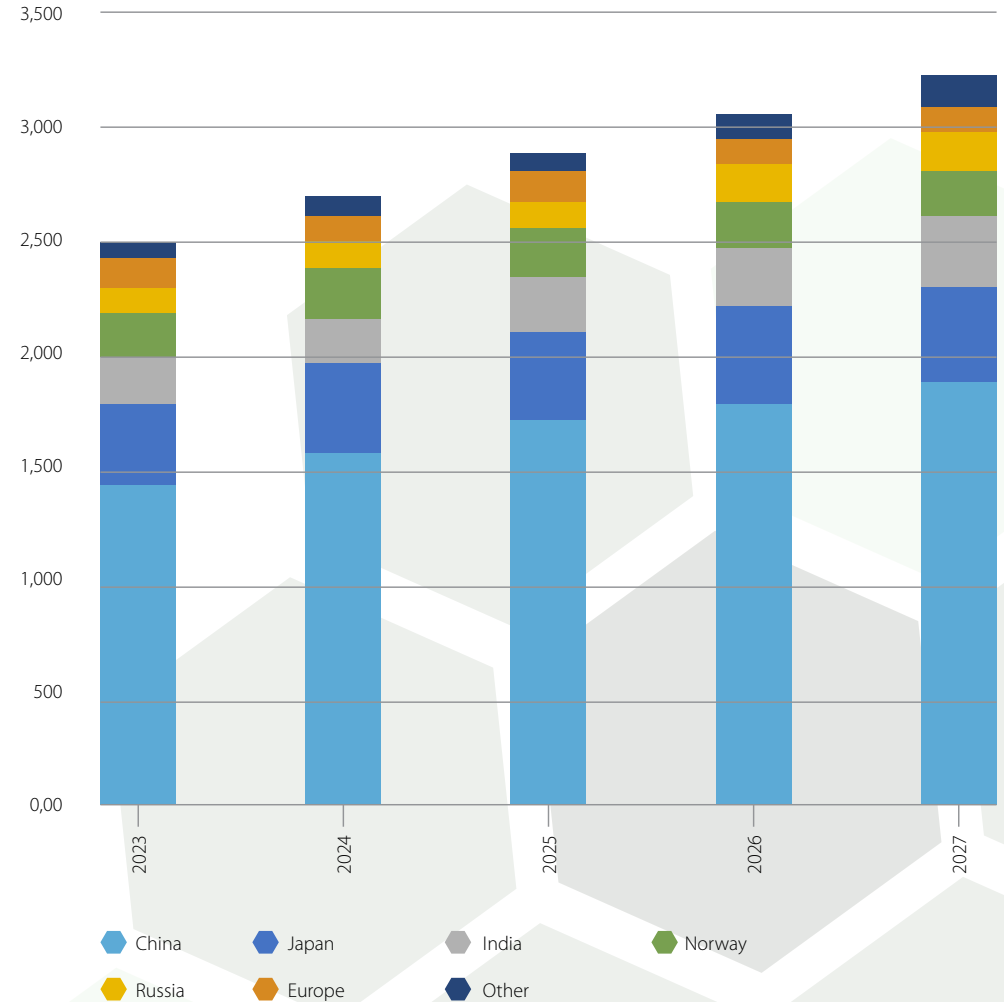
Global demand for synthetic graphite is forecast to grow from 2.26 Mt in 2022 to 4.12 Mt in 2032. Globally synthetic graphite for batteries accounted for 18% of demand in 2022, rising to 40% in 2032. Electrodes accounted for 49% in 2022 and is expected to fall to 36% over the next 10 years.

The EU economy is highly dependent on imports from various parts of the world but has been dominated by imports from China in the raw material sector, but increasingly also by downstream products derived from natural and synthetic graphite.

Synthetic Graphite Imports to the EU (top 10 countries) in kt



Synthetic Graphite Supply by Region



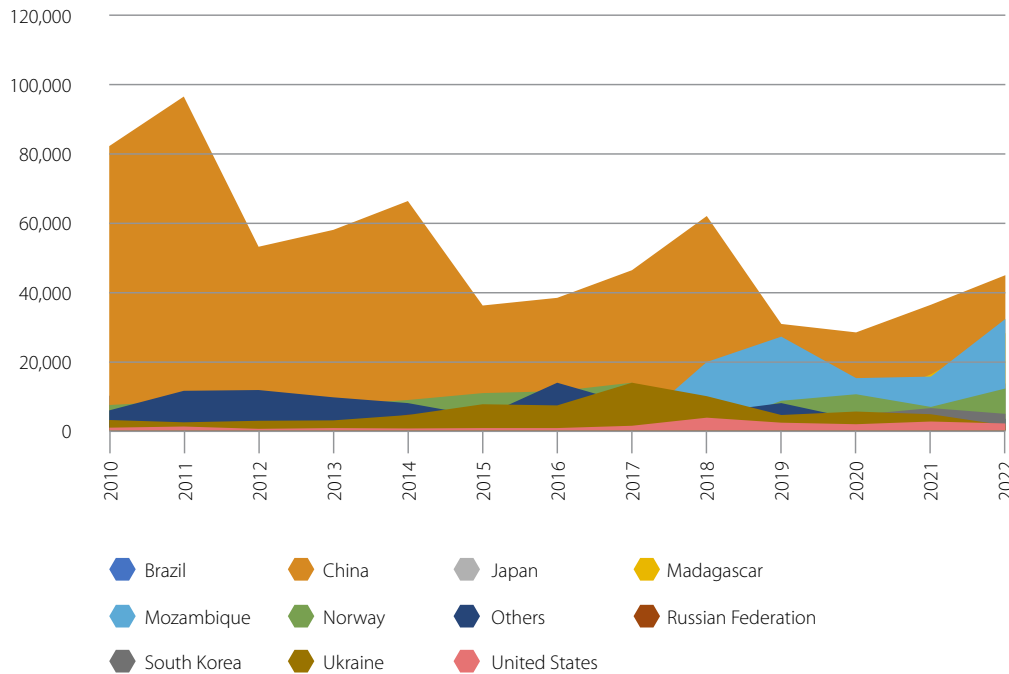
Source: Wood Mackenzie

The imports from China particularly in the graphite electrode sector were carried out under unfair market practices and therefore lead to anti-dumping duties at the beginning of 2022.

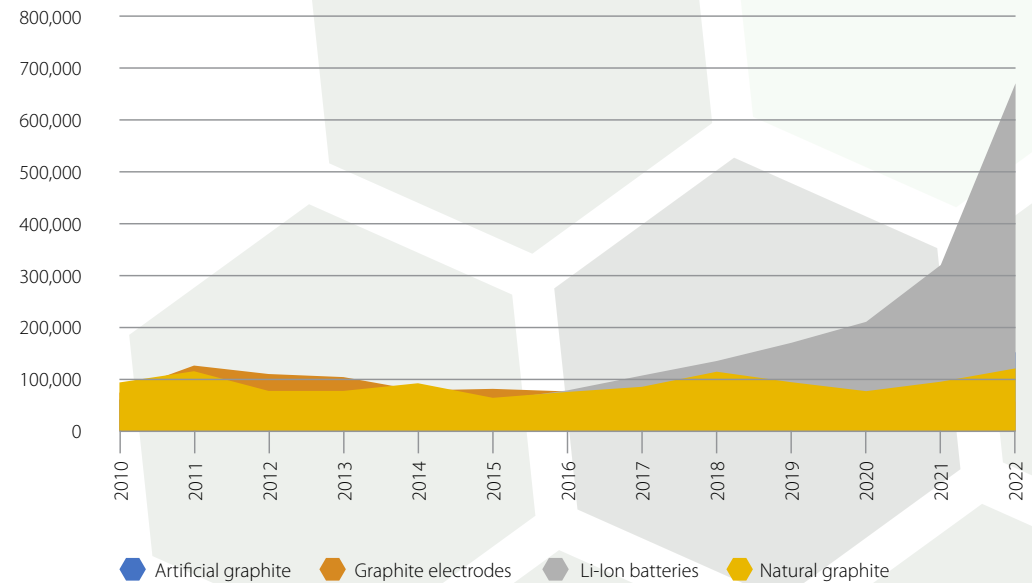
The imports of natural graphite are also at least subsidised by the Chinese government. However, due to the overwhelming dependency and currently limited supply from EU sources, the impact of such subsidisation cannot be well proven as an injury to the European industry. In light of the intentions to decrease such dependency, the development of European sources should therefore be protected by measures from the Commission and Member States.

But looking at the key products under discussion currently, not only the raw material but also the product imports should be considered to understand the impact on the EU economy. If the development of a resilient supply chain is the EU's target it needs to prevent not only such import but also the investment of China into the European battery industry.

Natural Graphite Imports to the EU (top 10 countries) in kt



Total Imports per Key Products related to Graphite (kt)





## EU initiatives not to lose the global race for Critical Raw Materials

### *Assessment of the Status Quo: The EU's Critical Raw Materials Assessment*

In 2022 the Commission carried out a criticality assessment at EU level on a wide range of non-energy and non-agricultural raw materials in order to update the criticality list. The present level of raw material criticality is defined by two key factors: economic importance (EI) and supply risk (SR). The outcomes of the EU CRM assessment methodology remain robust under changed data inputs for the SR calculation, reflecting the changed geopolitical situation.

SCRREEN, a network supported DG-GROW and EC JRC in the previous criticality assessment exercise collected and analysed data to keep the CRM assessment updated. The Network also supports the Commission in the foresight analysis of the future supply and demand of raw materials, policy and technology gaps and innovation potential along the raw materials value chains. The ECGA is part of the Experts Network of the SCRREEN project and contributed to the information collected about graphite.

### The EU's Critical Raw Materials Act – expected in March 2023

On 14 September, President Ursula von der Leyen announced a “European Critical Raw Materials Act” during her State of the Union address. The act will identify strategic projects all along the supply chain, from extraction to refining, from processing to recycling aiming at building up strategic reserves where supply is at risk. ECGA welcomed this announcement.

Graphite is a critical material, strategic to Europe's economy and vital to the implementation of the Joint European action for more affordable, secure energy, the increased resilience of EU economy as well as of EU Green Deal objectives.

Not only did ECGA respond to the public consultation, but in 2022 prepared a comprehensive document illustrating the varied uses and importance of graphite (both natural and synthetic) and why it should be considered a strategic raw material, indispensable to implementing the EU, regional and national policies, achieving the climate targets and overcoming the current energy-related crisis.

### EU Strategic Partnerships – diversification of supply

As part of the Action Plan on Critical Raw Materials, the European Commission is working to build partnerships with resource-rich third countries, making use of all external policy instruments and respecting its international obligations. Several partnerships of relevance to the carbon and graphite industry were followed up or newly signed in 2022:

#### EU–Canada:

In March 2022 the EU and Canada continued their dialogue on raw materials in Brussels discussing different aspects of their trade relations and the questions of due diligence and certification. Since Canada has an interest in supplying critical raw materials, including graphite, to Europe ECGA participated in the meeting.

#### EU–Norway:

In June 2022 a cooperation agreement was announced. It looks in particular at an increase in cooperation in the area of raw materials and battery development. The Partnership is shaped around 5 main areas of cooperation, such as closer economic and industrial integration of Norway-EU in the strategic value chains of raw materials, closer bilateral cooperation on research and innovation, alignment on high environmental, social and governance (ESG) standards, identification and deployment of financial and investment de-risking instruments, and the development of the necessary skills for high-quality jobs in these clean technology sectors.

#### EU–Kazakhstan:

On 7 November, a Memorandum of Understanding establishing a partnership between the EU and Kazakhstan has been signed. The agreement aims to ensure the development of a secure and sustainable supply of raw materials and refined materials. It also aims to develop renewable hydrogen and battery value chains, to boost the green and digital transformation of both economies.

#### EU–Namibia:

On 8 November Commission President Ursula von der Leyen and President of Namibia Hage Geingob signed a Memorandum of Understanding establishing a strategic partnership between the EU and Namibia at the COP27 in Egypt. The partnership aims to ensure the development of a secure and sustainable supply of raw materials, refined materials and renewable hydrogen to support the green and digital transformation of the partners' economies.

In trying to secure alternative access to critical raw materials via its strategic partnerships European policymakers should ensure a sustainable supply of such minerals for the future. At the same time, European policymakers should protect investments into European production capacities and jobs against unfair competition. With the expected growth in demand for natural graphite, particularly for the battery sector, this will require a diversification of resources including the development of EU resources. Increased capacity of natural graphite mining and synthetic graphite production needs to be built from EU sources.

# Contributing to EU's Energy and Climate Change Policies

Arturo Gonzalez, RESONAC/ Chair of ECGA Energy Committee:

*With recent electricity prices skyrocketing and access to sustainable, affordable energy and raw materials in jeopardy, our main task in 2022 was to jointly ensure that our industry continues to develop and contribute to a coherent, achievable environmental and socio-economic policy framework, allowing the implementation of most efficient measures to reduce greenhouse gas emissions while ensuring that long-term goals, as well as the international competitiveness of EU industry is not undermined.*

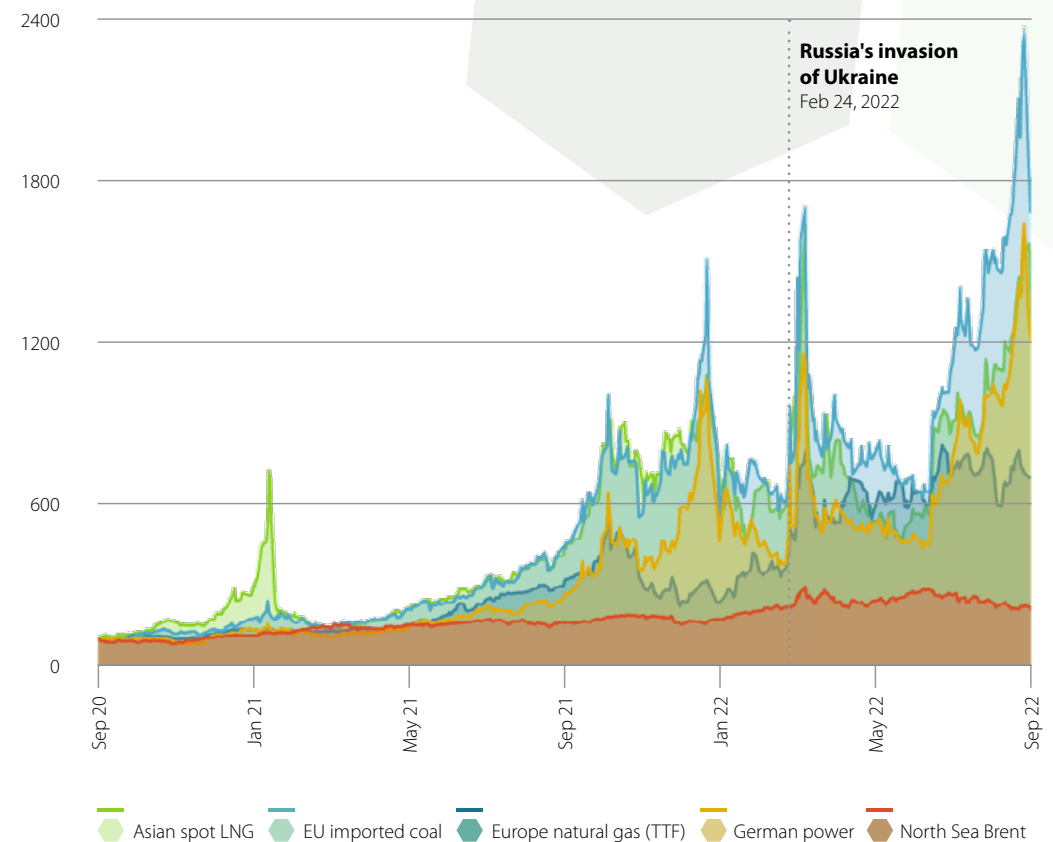
*Losing market share and profit margins to competitors who do not face the same costs or forcing companies to reduce production or even shut down was not an option for our sector, as a direct provider a green technology raw materials provider to critical downstream European industries amongst which the steel, the renewable energy, batteries, defence, and semiconductors related sectors.*

## GENERAL INFORMATION ON THE ENERGY SUPPLY SITUATION

According to the International Energy Agency (IEA), the global energy crisis generated by Russia's invasion of Ukraine has had negative implications for businesses and entire economies, prompting short-term responses from the worldwide, EU as well as national level governments. High fuel prices have accounted for 90% of the rise in the average costs of electricity generation worldwide, natural gas alone for more than 50%. The costs of renewables and carbon dioxide have played only a marginal role, underscoring that this is a crisis where energy transitions are the solution, rather than the problem.

### Change in Key Energy Prices

Index (1 September 2020 = 100)



The turbulence in energy markets, price volatility and energy insecurity has had a huge impact on the EU's energy system. To reflect the new geopolitical realities and to address the need for affordable energy, the EU and its Member States have been developing a system aiming at reshaping and accelerating their energy and climate strategies, amongst which:

- National level measures to tackle higher energy prices,
- Surpassing 91% of gas in storage at EU level,
- Decreasing the share of Russian pipeline gas in EU imports from 41% in 2021 to 9% in September 2022,
- The EU generating a record 12% of its electricity from solar from May to August 2022, and 13% from wind,
- Increasing the share of renewables in the electricity mix from 37% in 2021 to 69% in 2030,
- Increasing the EU level capacity to manufacture electrolyzers tenfold: to 17.5 GW by 2025, with the EU pledging more than EUR 21 billion in the coming years for hydrogen (from Important Projects of Common European Interest mechanism IPCEI and Recovery and Resilience Facility RRF),
- Decreasing fossil fuel subsidies.

## ENERGY PRICES

The ECGA has been legitimately concerned about the steep increase in electricity prices registered in recent months as these surges cannot be passed onto consumers. ECGA has been afraid that, if the current trend continued, without any support, the industry would lose its market share and profit margins to competitors who do not face the same costs abroad.

The future of global energy policies has remained unpredictable and measures around the world, even if they decreased the impact of the crisis, have been fragmented and varied significantly between different regions. Even more, in most countries beyond Europe, competitors took advantage of regulated tariffs set by local authorities or from favourable electrical energy agreements which protected them against the recent price increases.

In this context, ECGA has called upon the EU level and Member States decision makers several times in 2022 to address the current electricity price emergency and take the necessary measures to:

- set up the basis of a coherent, environmental, socio-economic support framework allowing the international competitiveness of the industry not to be undermined;
- ensure that the Emissions Trading System (2021 – 2030) remains the main market instrument for Europe's industries to cost-effectively reduce their emissions.
- ensure that the European carbon and graphite industry, as one of the most electrified industries in the global industrial production, is eligible for indirect emission costs compensation;
- keep carbon and graphite - related mineralogical processes, such as artificial graphite, colloidal, semi-colloidal graphite, and preparations industry outside the scope of the Energy Taxation Directive;
- ensure competitive energy prices in Europe or protection against imports from countries that have lower energy prices;
- stimulate investments in low-carbon products and technologies.

### *State Aid Guidelines for Environment and Energy (CEEAG)*

The Commission Communication on the Climate, Energy and Environmental State Aid Guidelines 2022 was published in the EU Official Journal on 18 February 2022. The Communication was formally adopted by the Commission on 27 January 2022 and became applicable on the same day.

The Guidelines include a wider range of investments and technologies relevant for the European Green Deal, which the Member States can support, in some cases, up to 100% of the costs. A new section is introduced focusing on decarbonisation of various sectors of the economy, mainly through the utilisation of renewable energy, energy efficiency and industrial decarbonisation.

Changes were also included in the Guidelines for schemes on reducing electricity levies for energy-intensive users, to better prevent industries to move locations to where less stringent environmental standards are in place. At the same time, stronger links are made between commitments for efforts to decarbonisation and reduced levies.

Through concerted efforts, ECGA managed to secure the state aid eligibility for NACE code 23.99 so that the document published includes artificial graphite, colloidal, semi-colloidal graphite, and preparations as qualified to receive aid in the form of reductions from electricity levies for energy-intensive users as it meets all necessary criteria.

#### *State aid: The Temporary Crisis Framework*

On 23 March 2022, the European Commission adopted a Temporary Crisis Framework to enable Member States to support the economy in the context of Russia's invasion of Ukraine. The Temporary Crisis Framework complements the existing State aid toolbox with many other possibilities already available to Member States, such as measures providing compensation to companies for damages directly suffered due to exceptional circumstances, and measures outlined in the Commission Communications on energy market developments (REPowerEU Communication).

On October 28th, the European Commission has adopted an amendment to the State aid Temporary Crisis Framework (TCF) that enables Member States to continue to use the flexibility foreseen under State aid rules to support the economy in the context of Russia's war against Ukraine.

With regards to ECGA, as a direct result of the secretariat's and members' concerted advocacy efforts the NACE code 23.99: Manufacture of other non-metallic mineral products n.e.c. is now part of Annex 1 - beneficiaries qualifying as 'energy-intensive businesses' for which the overall aid per beneficiary may be increased to a maximum of 80% of the eligible costs and the overall aid per undertaking may not exceed EUR 150 million.

## CO<sub>2</sub> COSTS AND ETS

The proposal was presented as part of the Fit for 55 Package on 14 July 2021, a broader legislative platform aimed at aligning relevant legislation to an increased 2030 emissions reduction target. The proposal would revise the EU Emissions Trading System (EU ETS) to ensure achieving net emission reductions of at least 55% by 2030, compared to 1990 levels. It will also seek to ensure a continued protection for the sectors exposed to a significant risk of carbon leakage, while incentivising the uptake of low-carbon technologies, as well as include other sectors in the EU ETS in order to increase their contribution to decarbonisation objectives. On 18 December 2022, the European Parliament and the Council reached a provisional agreement on ETS, including the following key points of interest to ECGA which were to continue to be included on the Carbon Leakage List and be eligible to receive free allowances, to receive as many free allowances as possible by keeping benchmarks & process emissions allocation factor at 97%, and to be eligible for indirect costs reimbursement (electricity costs).

- Co-legislators agreed to a 62% reduction of emissions covered by the EU ETS by 2030, compared to 2005. This represents an increase of 18% compared to the current -43% contribution from the system to the EU's climate target. In addition, the EU-wide quantity of allowances will be rebased to 90 Mt CO<sub>2</sub> equivalents in 2024 and 27 Mt in 2026 while the annual reduction rate of the cap will be 4,3 % per year from 2024 to 2027 and 4,4 from 2028 to 2030.
- All free allowances given to industries included in the EU ETS Carbon Leakage List will be phased out as follows: 2026: 2.5%, 2027: 5%, 2028: 10%, 2029: 22.5%, 2030: 48.5%, 2031: 61%, 2032: 73.5%, 2033: 86%, 2034: 100%. As per below, for the sectors covered by the Carbon Border Adjustment Mechanism (CBAM) will be phased in at the same speed as the free allowances in the ETS, from 2026 to 2034.
- The basic rules for calculating the free allocation remained unchanged; free allocation will continue to be based on benchmarks representing the level of performance of the best installations. The maximum annual reduction rate of the benchmark values will increase from 2026 onwards, shifting more free allocation to sectors that are harder to decarbonise.

- Installations still benefitting from free allocations under the ETS would be required to comply with certain requirements, including energy audits and, “for certain installations,” climate neutrality plans (although what installations would be covered by this obligation to draw climate neutrality plans is unknown at this point).
- Regarding the Market Stability Reserve, 24% of all ETS allowances will be placed in the reserve to address possible imbalances while co-legislators agreed to reinforce the mechanism on excessive price fluctuations.
- To finance the green transition, the volume of the Modernisation Fund will be increased through the auctioning of an additional 2.5% of allowances while three additional Member States - Greece, Portugal and Slovenia - would be eligible to receive funding. The Innovation Fund will be increased from 450 to 575 million allowances while an 86,7-billion-euro Social Climate Fund was agreed upon to help the most vulnerable Europeans.
- The final text of ETS directive requires formal adoption by both the Parliament and the Council and will be published in the Official Journal of the European Union. These agreements will not be final until early-to-mid 2023.

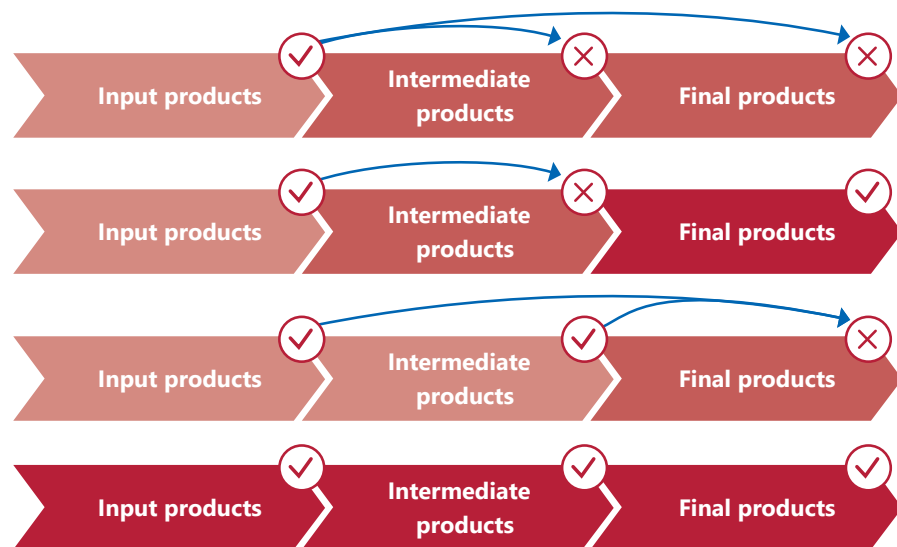
## MAINTAINING INTERNATIONAL COMPETITIVENESS

The Commission published a proposal to establish a carbon border adjustment mechanism (CBAM) as part of its Fit for 55 package on 14 July 2021. The package aims to align key climate and energy files with a raised 2030 greenhouse gas emissions reduction target of 55%. The proposal aims to set up a mechanism to address the greenhouse gas emissions of certain goods imported into the EU and to prevent carbon leakage. The system will aim to eventually become an alternative to the elements of the EU ETS that prevent carbon leakage, notably the allocation of free allowances.

On 18 December 2022, the European Parliament and the Council have agreed on the CBAM Regulation entering into force on October 1, 2023, with a three-year transition period following during which only reporting obligations will apply. After the transition period, the CBAM will be gradually phased-in, as ETS free allowances in sectors covered by the CBAM will be gradually phased-out. The CBAM should first enter into force in 2026 and become fully operational in 2034. During the time that free allowances for sectors covered by the CBAM (as well as all other ETS CLL free allowances) will be progressively phased out, the CBAM will only apply to the proportion of emissions not benefitting from free allowances under the ETS. That means indirect emissions should also be covered.

The initial scope of the CBAM would include iron and steel, cement, fertilisers, aluminium, electricity, and hydrogen production. An extension of the CBAM to other products at risk of carbon leakage will need to be evaluated by the Commission before the end of the transitional period for implementing the carbon border tax. In particular, the future revision of the CBAM scope will have the objective of including all goods covered under the EU ETS in the carbon mechanism by 2030. Also, where an explicit carbon price has been paid in the country of production, an importer would be exempted from the CBAM. It is expected that the final text will explain in more detail the mechanism of this key provision.





✓ In CBAM scope    ✗ Out of CBAM scope  
 Non-European production     Non-European export     European production

**Scenario 1: Only input products are in CBAM scope**

- Importers are incentivised to purchase intermediate or final products
- Production is unlikely to be done in Europe

**Scenario 2: Input and final products are in CBAM scope**

- Importers are incentivised to purchase intermediate products
- Production of final products may be done in Europe

**Scenario 3: Upstream products are in CBAM scope**

- Importers are incentivised to purchase final products
- Production of final products may be done in Europe

**Scenario 4: Products along the value chain are in CBAM scope**

- European products compete against non-European products bearing comparable carbon mechanisms

However, there are still issues to be resolved to address the competitiveness of European sectors in this context:

- Exports have not yet been included. As the CBAM is progressively implemented, the EU is considering a progressive phase-out of free allowances for EU manufacturers to increase the price signal to manufacturers of energy-intensive products.
- As long as few equivalent mechanisms exist in non-EU countries (e.g., ETS in China), this phasing-out is likely to increase carbon leakage related to exports.
- Assuming CO<sub>2</sub> costs are passed through to intermediaries and finally to end-customers, and bearing in mind the expected increase in carbon costs over the next decade, the end of EU ETS free allowances and the implementation of the CBAM could translate into a significant increase in prices of construction materials and consumer goods.

Therefore the ECGA is not really considering this in its current state to be a viable regime to maintain Europe's competitiveness.

**AVOIDING FURTHER ENERGY TAXATION AND KEEPING THE COSTS DOWN**

On 14 July 2021, the Commission published a proposal to revise the Energy Taxation Directive as part of its Fit for 55 package which aims to align key climate and energy files with a raised 2030 greenhouse gas emissions reduction target of 55% for the EU. The Energy Taxation Directive imposes minimum tax rates on all energy products, including coal, natural gas, electricity, as well as motor and heating fuels. It also foresees partial refunds of energy-related taxes for energy-intensive industries, in addition to several tax exemptions for different industries and sectors.

The ECGA objective here is to keep mineralogical processes outside the scope of the Energy Taxation Directive, by including them in the list of exemptions to which the Directive shall not apply. The mineralogical processes sector should avoid paying an additional tax. The ECGA Secretariat will continue its communication with the European Parliament as well as the Council to raise awareness on the ECGA objectives in 2023.

## CONTRIBUTING TO THE ENERGY EFFICIENCY DIRECTIVE

Ahead of discussions on the proposal in COREPER (17 June) and the Energy Council (27 June), the French Presidency had published the latest draft General Approach on the proposal to revise the Energy Efficiency Directive, which included several of the points included in the ECGA position and listed below. According to the document, discussions at both the technical and political levels have made significant progress in the negotiations towards finalising a General Approach in the Council. Progress was achieved on the issues of flexibility by considering national energy and climate plans as well as the energy saving obligation by introducing into the calculation methodology. The latest draft General Approach includes the following changes to the proposal:

ECGA has continued to raise awareness on the main aspects impacting the carbon and graphite sector, including:

- Introducing an absolute value-cap on energy consumption should be avoided since it will jeopardise the future development of industrial needs and potential trade-offs between decarbonisation and energy consumption should be considered instead.
- The scope and application of the “Energy efficiency first” principle should be clarified and always taken into consideration when applied to energy intense sectors, such as the carbon and graphite one. In some sectors the quality of products is closely related to the energy throughput.
- Ensure that energy savings are both technically and economically feasible when raising the annual energy savings obligation to be applied on Member States between 2024 – 2030.
- The Energy Efficiency Directive should avoid overlapping with other EU Fit for 55 Package elements, such as ETS, CBAM or ETD.

# Committed to circular economy – graphite electrodes for steel recycling

Didier Potey, Graftech/ Chair of ECGA Steel Committee

*Amid the international energy crisis, the Ukraine war and inflationary pressure, 2022 saw a decrease in global steel production. Nonetheless, the market trend for graphite electrodes remains positive. The proportion of steel produced by Electric Arc Furnaces (EAFs) reached an all times record of 563 million metric tons (MT) during 2021. While European EAF steel producers suffered from high energy prices during 2022, the future of EAFs does look bright. As noticed by the International Agency for Energy in its latest report on Energy Technologies, over 124 million MT of additional EAF capacities have been announced for 2030 driven by decarbonization initiatives. About half of these are scrap-based and the other half will rely on Direct Reduced Iron, with natural gas or hydrogen as reductants. Thus, worldwide EAF capacity could reach close to 900 million MT by 2030 if announced plans materialize. Low-emission steel production through EAFs has a very large growth potential if sufficient economic and political incentives are provided.*



## MARKET OUTLOOK FOR GRAPHITE ELECTRODES

The World Steel Association estimated that global steel production contracted by 4.2% in 2022 and reached 1,878,5 Mt. In 2021, global steel demand had increased 2.2% to reach 1,952 Mt. The 2022 slowdown reflected mostly the impact of high inflation, rising interest rates, and a drastic cooling of the Chinese economy. In China, steel demand decreased by 5.4% in 2021, and decreased again by 4% in 2022, but should remain stable through 2023. The Chinese construction sector has been undergoing a slow-motion crash due to a liquidity crash. This crash is the major driver behind the decrease of Chinese steel demand, since the construction sector accounts for 70% of total Chinese steel demand.

Within the EU, steel production decreased by 10.5% in 2022. The negative performance of the steel industry became particularly obvious during summer 2022. After the rebound experienced throughout the year 2021 (+18.1%) following the pandemic, the domestic demand of the second quarter of 2022 declined sharply (-4.8%, at 38,6 Mt) in comparison with the first quarter. That slowdown was due to the hike in energy prices resulting from the Russian war in Ukraine. Energy prices continued to weigh heavily on demand until the end of 2022. That trend is not expected to abate during the first quarter of 2023.

Accordingly, the European steel industry revised downwards its prediction of steel-using sectors' output for 2023, to -0.9% in comparison with the year 2022. Nonetheless, the output of the European construction sector is expected to grow by 2.3% in 2022 supported by governmental housing and public construction schemes. Likewise, global infrastructure demand is expected to lift slightly global steel demand during 2023, recovering 1.0% to reach 1,814.7 Mt.<sup>1</sup>

<sup>1</sup> <https://www.eurofer.eu/press-releases/economic-recession-hits-industry-downsizing-steel-demand-expectations-for-2022-2023/>



## EUROPEAN STRATEGIES FOR CLEAN STEEL

70% of steel production in the USA is already based on EAFs, as opposed to only 46% in the EU. As a result, most of American steel is already more sustainable from a CO<sub>2</sub> perspective.

Still 54% of EU steel capacity follows the traditional Blast Furnace route. According to a report published by the Joint Research Center of the European Commission<sup>2</sup> last June, the EU steel industry is mainly betting on hydrogen-based steelmaking as a decarbonisation strategy. This shift requires huge CAPEX investment given the prevalence of Blast Furnaces (BFs) and Basic Oxygen Furnaces (BOFs) in the EU.

So far, this technology has relied on coke or coal as a feedstock and emits up to 1,6-2,0 tons of CO<sub>2</sub> per ton of crude steel produced. This is four to five times more than the emissions from Electric Arc furnaces. And, moreover, when EAFs start running on green electricity and there infeed comes from iron and steel that has been directly reduced with green hydrogen, then the emissions of that alternative route (called H-DRI+EAF) can be around 98% lower than the traditional BF-BOF route<sup>3</sup>. However, an EU-funded Green Steel project back in 2021 found that it is very costly to altogether replace BF-BOFs by H-DRI+EAFs<sup>4</sup>.

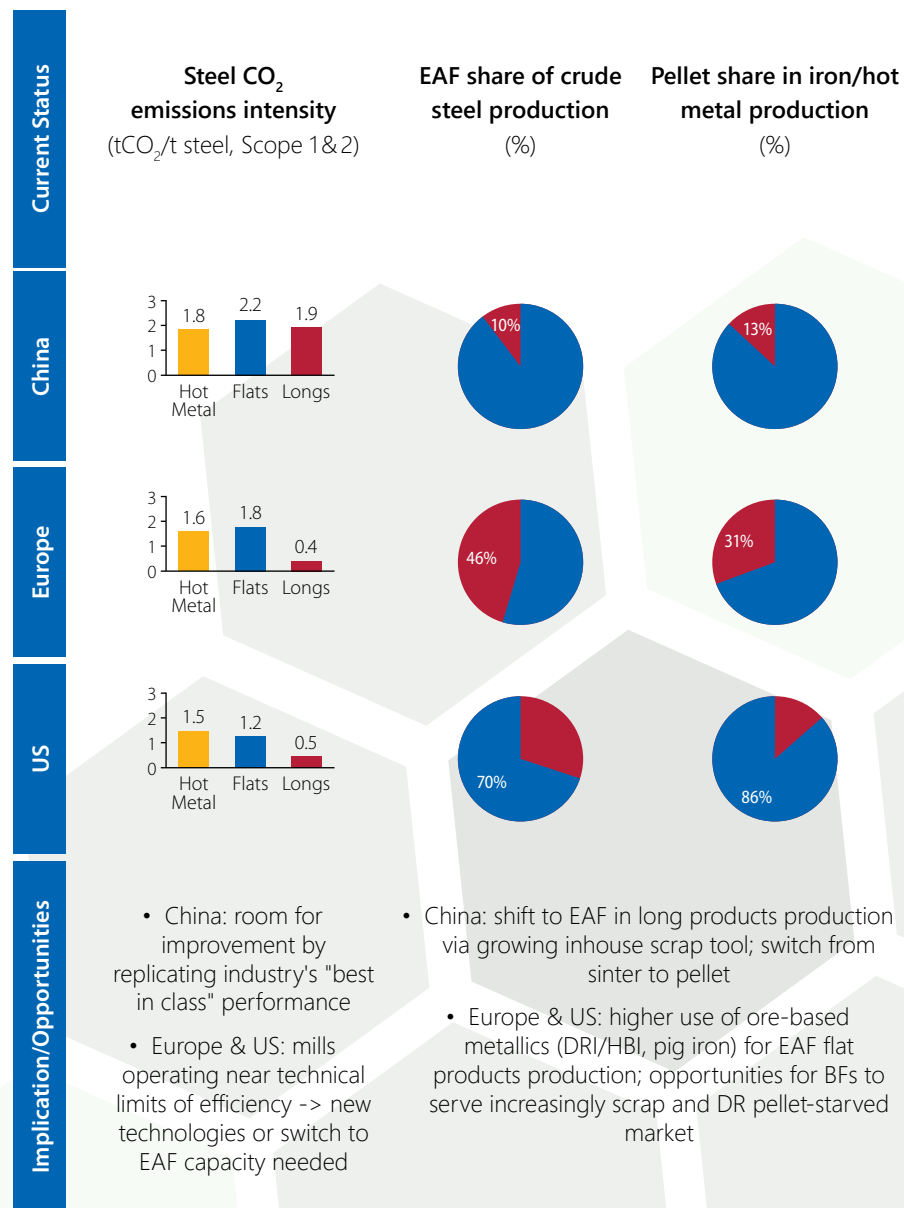
As calculated by the JRC, if all current primary production of steel in the EU (92 Mt in 2019) were to be replaced by a 100% hydrogen route, this would represent some 5,5 Mt of annual hydrogen demand. As a comparison, the Commission’s Hydrogen Strategy foresees the production of up to 10 Mt annually by 2030 and the chemical industry currently already consumes 9 Mt of hydrogen annually, made from fossil fuels, in refineries and fertiliser production<sup>5</sup>.

<sup>2</sup> Somers, J., *Technologies to decarbonise the EU steel industry*, EUR 30982 EN, Publications Office of the European Union, Luxembourg, 2022, ISBN 978-92-76-47147-9, doi:10.2760/069150, JRC127468.

<sup>3</sup> *Emissions Analysis Report, prepared for the American Steel Manufacturing Association*, 14 June 2022, CRU Consultancy

<sup>4</sup> <https://www.estep.eu/green-steel-for-europe/publications/>

<sup>5</sup> Source: SMS group + JRC report.



## ELECTRIC ARC FURNACES VERSUS OPEN BATH FURNACES

In 2022 the ECGA Steel committee looked at the development of alternative technologies and welcomed a speaker from SMS Group elaborating on the retrofitting of existing installations to hydrogen or biomass as well as the new Open Bath Furnace (OBF) technologies requiring Soderberg electrodes. OBFs accept lower quality iron ore pellets previously reduced with either natural gas or hydrogen. However, they differ from EAFs on several counts. First, they operate continuously and use a large bath surface area and a lower power density. Second, they do not use graphite electrodes, but Söderberg electrodes. Third, according to the technology provider they could emit about 25% more CO<sub>2</sub> than EAFs.

For European steelmakers, OBFs currently constitute a competitive alternative to EAFs, because they do not require them to change their supply chains. However, they do not guarantee that the European steel making industry will remain competitive against its American counterpart.

The US Inflation Reduction Act contains a series of tax credits that will further entrench this advantage by (1) driving down the costs of clean electricity and hydrogen, and (2) favouring low-CO<sub>2</sub> building and transportation materials, such as US-made steel.

Still, the OBF route might help palliate potential supply issues with DRI grade iron ore.

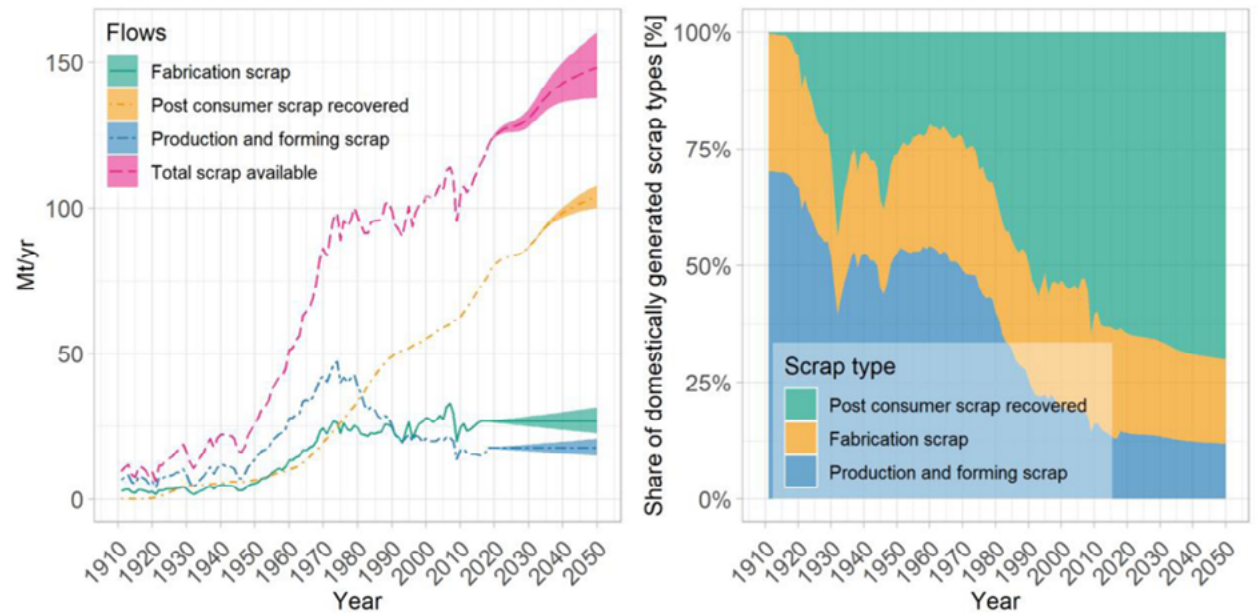
## STEEL SCRAP AVAILABILITY

To fulfill the objectives of the Circular economy and resource efficiency recycling steel scrap is a must and has been carried out for decades. Besides lower CO<sub>2</sub> emissions, every ton of scrap used for steel production avoids the consumption of 1,4 ton of iron ore, 740 kg of coal and 120 kg of limestone.

Yet large quantities of quality scrap can be hard to come by, particularly if it is exported from Europe and processed somewhere else. According to Eurostat, ferrous scrap is by far the most exported type of secondary raw material/waste from the EU: 19,5 Mt in 2021, equal to 59% of all EU “waste” exports destined for recycling. These numbers should become lower in the future, as the Parliament wishes to limit such exports.

The December report from the European Parliament's Environmental Committee proposed to restrict the export of all waste to non-OECD countries which would include steel scrap. This in turn should boost the processing of scrap in the EU and the increase of EAFs which in turn will require graphite electrodes.<sup>6</sup>

<sup>6</sup> Source: Eurofer + JRC Report + Dworak, S., Rechberger, H., & Fellner, J. (2022). How will tramp elements affect future steel recycling in Europe? – A dynamic material flow model for steel in the EU-28 for the period 1910 to 2050. Resources, Conservation and Recycling, 179



# Speciality graphites for the EU's Green Deal objectives

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Graphite's unique properties make it an essential component of many green energy technologies and hence for many GREEN DEAL policies:

Apart from contributing to clean and recycled steel and the production of aluminium and ferro-alloys the carbon and graphite specialties are in particular contributing to

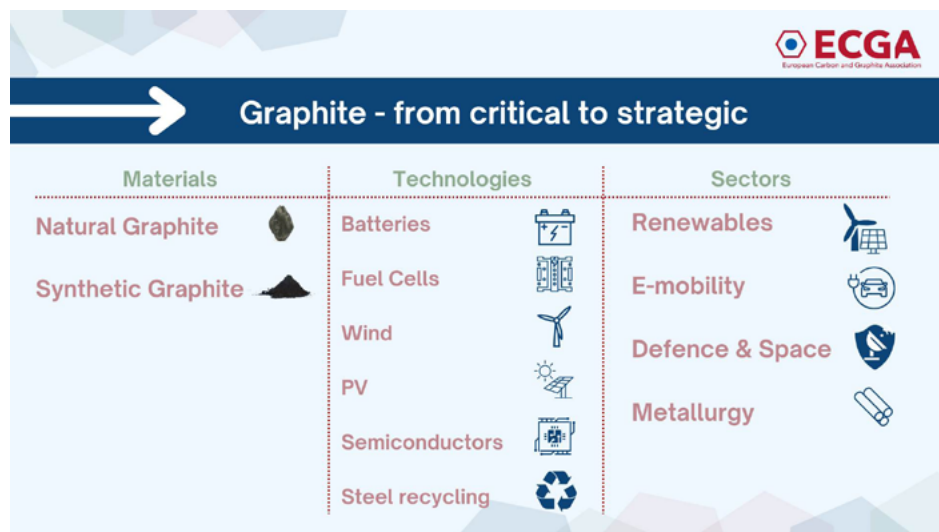
- Renewable energy: Graphite is essential to silicon production used in solar panels. Because it is resistant to extreme heat it is perfect for the crucibles and moulds used to cast the silicon in solar panels, and in use it works as heat shield and thermal insulation;
- Energy storage: Graphite is the anode material and the single-largest component of lithium-ion batteries;
- Fuel cells: Graphite is the leading material for the construction of bipolar plates in fuel cells;
- Digitisation: Graphite is providing the tools to grow silicon crystals for the semiconductor industry
- Construction business: graphite provides a resource efficient material for improving insulation material;
- Lightweight construction: Carbon fiber is a low-density material with a very high strength to weight ratio. This means that carbon fiber is tough without getting bogged down like steel or aluminum, making it perfect for applications such as cars or airliners.

Fabrizio Corti, Imerys Carbon and Graphite / Chair of ECGA  
Graphite Powder Committee

*"2022 was a very dynamic year for the graphite powder business due to the developments triggered by the disruptions in the energy markets and the politics' responses on the one hand leading to material demand forecasts for the battery sector previously unheard of.*

*At the same time a whole range of EU policies have been updated and legislation is supposed to follow suit. However, it is hoped that the European legislator does not only implement further requirements and administrative burdens but also takes more serious measures to support the development of more resilient and sustainable European based supply chains."*





In 2022 the European Commission adopted a number of key strategies to which ECGA contributed through the public consultations and position papers.

### EU STRATEGIES TO HARNESS THE POTENTIAL OF RENEWABLE ENERGY FOR A CLIMATE NEUTRAL FUTURE

#### The EU's renewable strategy

- The strategy sets targets for an installed capacity of at least 60 GW of off-shore wind and 1 GW of ocean energy by 2030, and 300 GW and 40 GW, respectively, by 2050.

#### The EU Solar Strategy

- The first-of-its-kind EU Solar Strategy increasing solar ambition in Europe by 43% and uncovering several steps to speed up solar deployment: new guidance on permitting, a Solar Rooftops Initiative, a Solar PV Industry Alliance and a Solar Skills Partnership.

### ADVANCING SUSTAINABLE AND SMART MOBILITY GOALS

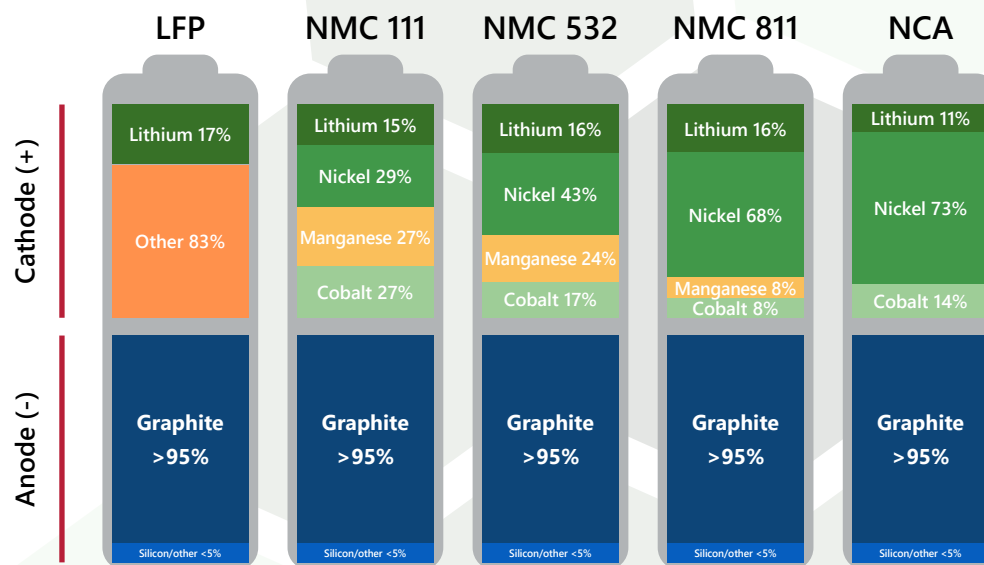
#### The EU e-mobility strategy

- By 2050: nearly all cars, vans, buses as well as new heavyduty vehicles will be achieving "zero-emission". Rail freight traffic will double. A fully operational, multimodal Trans-European Transport Network (TEN-T) for sustainable and smart transport with high speed connectivity will be established.

#### The EU Battery Regulation

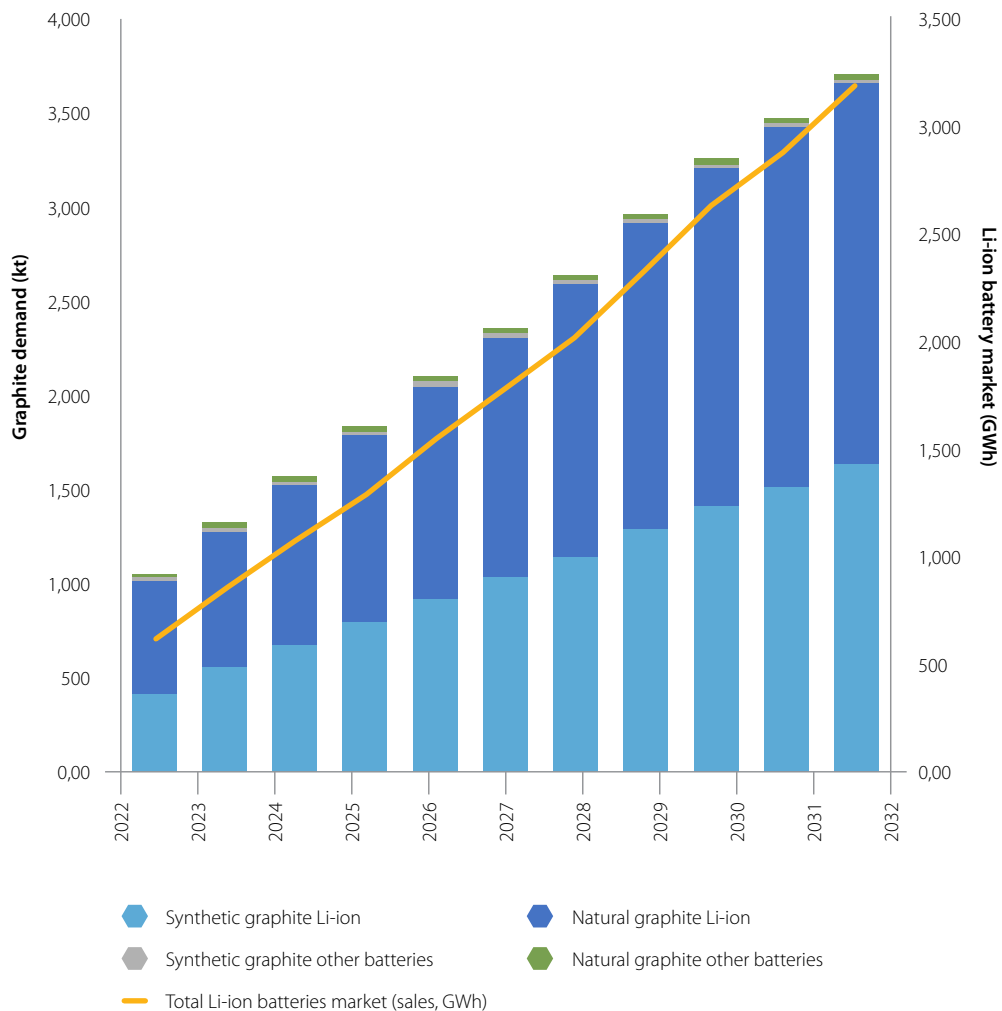
However, with the expected growth in the lithium-ion battery graphite will remain the key raw material for anodes to 2032 and beyond, and demand will rise rapidly with growth in batteries for EVs and energy storage. In 2022 graphite accounted for more than 94% of all anode materials.

#### Graphite is fundamental to every battery



Source: Pallinghurst – Traxys battery analysis. %s represent the proportions of cathode and anode in each battery respectively / NCA batteries contain 2% aluminium (not shown).

Raw material demand for graphite in batteries



Source: Wood MacKenzie

In 2022 one of the ECGA Graphite Powder Committee's priorities was of course also the discussion on the EU's battery strategy and the revision of the battery regulation.

The Commission published its proposal for a Regulation concerning batteries and waste batteries back in December 2020. The primary objective of the proposal is to provide solutions for three concrete and interlinked problems, namely:

- The lack of framework conditions enabling investment in production capacity for sustainable batteries;
- The sub-optimal functioning of recycling markets and the insufficiently closed material loops limiting the capability of mitigating supply risks for raw materials;
- The social and environmental risks not covered by EU environmental law due to lack of transparency on sourcing materials, hazardous substances and the unexploited potential for offsetting the impact of the battery lifecycle.

The Commission's proposal is expected to replace the Batteries Directive in line with the one-in-one-out principle. The last trilogue, held on 9 December 2022, concluded with a provisional agreement, which now needs to be formally approved by the Council and Parliament.

Within the regulation, the requirement to report the lifecycle CO<sub>2</sub> footprint for every battery model, batch and plant is a giant step forward for carbon accounting that will help industries worldwide better mitigate the emissions of their products. It also raises the bar for responsible sourcing of raw materials.

The new regulation includes rules designed to keep batteries in service for longer, as well as ambitious, material-specific recycling quotas that should ensure the recovery of high-value metals from end-of-life batteries – essential for an ever-expanding array of cleantech applications.

The negotiations in the European Parliament and the Council continued in 2022 and will be concluded in 2023. Noticeable the regulation will foresee recycling rates and recycled content rates for a series of battery components and materials, but not for graphite.

ECGA also participated in a JRC project on the development of the assessment methodology for recycling rates and recycled content securing that the calorific value of graphite in the recycling process would be taken into consideration.

### Stakeholder engagement

ECGA welcomed an Irish stagiaire from Trinity College Dublin writing a M.A. thesis on stakeholder consultation on graphite in Ireland.

Ireland is one of the countries that does not have its own graphite production, only some further manufacturing. However, also Ireland is discussing the energy and mobility transition and will have to address battery recycling. In July, ECGA had the pleasure of welcoming Ms. Claire Earley, who worked on the project about the participation of Ireland in the graphite value chain for energy security and the energy transition. During her stay, ECGA staff provided her with information on carbon and graphite material and products and Ms. Earley had the chance to visit the EU institutions. The M.A. thesis was successfully submitted at the end of August.

### Research and Innovation – BEPA activities

The European Commission adopted the Horizon Europe Work Programme for 2023-2024 on 6 December 2022. Horizon Europe – the EU's funding programme for research and innovation. With a budget of around €13.5 billion, this will enable researchers and innovators in Europe to pursue breakthrough solutions for the big environmental, energy, digital and geopolitical challenges facing our economies and societies today. This includes the specific work programme for Cluster 5-Climate, Energy and Mobility for available translations of the preceding, the part of Horizon Europe managed by CINEA. The cluster aims to tackle climate change by improving understanding of its causes and impacts, and by making the energy and transport sectors more climate and environment-friendly, efficient and competitive, smarter, safer and more resilient. As a member of the BEPA working groups ECGA contributed to the establishment of the work programme.



### THE EUROPEAN CHIPS ACT

The European Chips Act proposal, adopted by the Commission in February 2022, is a flagship project for the EU's transformation. There is no digital future without chips. They are in our phones, computers, cars, medical devices and all connected appliances. The ongoing supply-chain disruptions caused by the pandemic have reinforced the need to invest, building on Europe's world-class semiconductor research base to return to the cutting edge of design and production.

### THE NEW EU'S DEFENCE STRATEGY

In order to be able to act rapidly and robustly whenever a crisis erupts, with partners if possible and alone when necessary, the EU will:

- establish a strong EU Rapid Deployment Capacity of up to 5000 troops for different types of crises
- be ready to deploy 200 fully equipped CSDP mission experts within 30 days, including in complex environments
- conduct regular live exercises on land and at sea
- enhance military mobility
- reinforce the EU's civilian and military CSDP (Common Defence and Security Policy) missions and operations by promoting a rapid and more flexible decision-making process, acting in a more robust way and ensuring greater financial solidarity
- make full use of the European Peace Facility to support partners.



## TOWARDS MORE ENVIRONMENTALLY SUSTAINABLE AND CIRCULAR PRODUCTS

### The Sustainable Products Initiative/Passport

The proposal for a new Ecodesign for Sustainable Products Regulation (ESPR), published on 30 March 2022, is the cornerstone of the Commission's approach to more environmentally sustainable and circular products. The proposal builds on the existing Ecodesign Directive, which currently only covers energy-consuming products.

The ESPR regulation is of importance for all manufacturers since it creates a whole new series of reporting obligations. The goal of the European institutions is to create a new "Sustainability Label", akin to the current Energy label that you can find on washing machines or house boilers.



In the draft proposal, the "sustainability" of a product goes far beyond its energy efficiency. It should be based on information such as its carbon footprint, its ease of repair, disassembly, recycling of the product, the presence of "substances of concern," meaning substances that hamper recyclability.

ECGA published its position paper and engaged with the Council, the Parliament and the Commission on the issue of this regulation.

### Documenting sustainability along the life cycle for graphite products

In 2022 the Product Category Rules (PCR) for graphite project was finalised. It was developed to enable the publication of Environmental Product Declarations for a range of graphite products based on the standards ISO 14025, ISO 14040/14044 and EN15804. The PCR enables Life Cycle Analysis and EPR practitioners to generate consistent and comparable results when assessing the environmental impact of products of the same product category, and thereby it supports comparability of products in the market. ECGA and its members actively participated in the development of PCR for Graphite. Its publication in the International EPD® System<sup>7</sup> is expected for 2023.

<sup>7</sup> The International EPD® System is a global programme for voluntary and transparent communication of the life cycle environmental impacts of goods and services. Since the publication of the first EPD in 1999, the database at [www.environdec.com](http://www.environdec.com) has grown to consist of more than 2000 certified environmental product declarations from organisations in more than 48 countries.

# Contributing to social and environmental sustainability

Hubert Malik, SGL Carbon / Chair of ECGA EHSA Committee



*"Committed to attentive and careful chemicals management the carbon and graphite industry continued its work on its obligations under the EU's Sustainable Chemicals Strategy with updating its REACH dossiers on its own products, but also contributing to the discussions on essential and strategic uses of raw materials, precursors and chemicals to achieve Europe's Green Deal. We also are increasingly involved in providing up-to-date substance relevant information to other jurisdictions introducing REACH-like requirements across the globe, such as for example UK, Turkey, and South Korea. This is part of our ongoing responsible care for our people and the users of our products."*

## DUE DILIGENCE

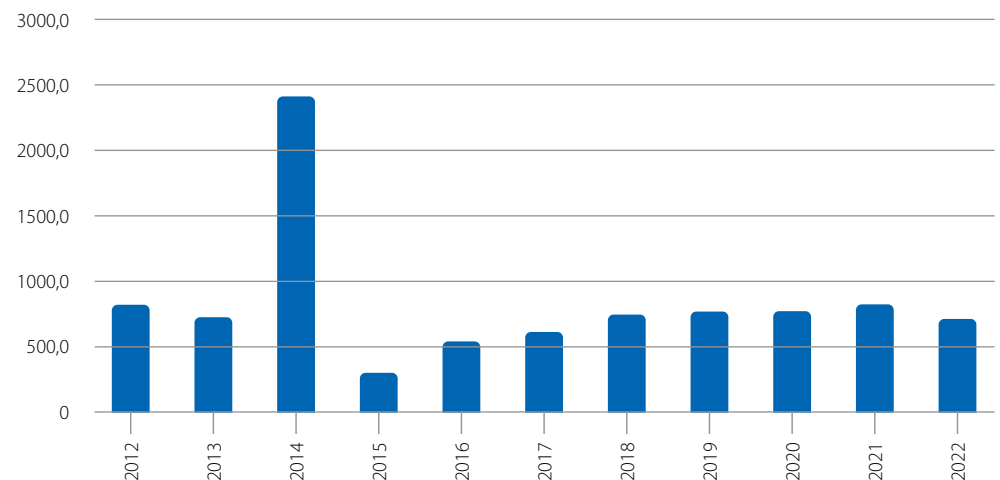
Following the documentation on the sector's achievements with regard to the ESGs in 2021, the sector turned to developing its own guidance on Due Diligence. The sector was reviewing the general OECD guidances as well as the LME specific guides of other materials to assess the potential benefits for the graphite industry. Many ECGA members have been addressing such issues, however there would be a benefit by presenting a joined approach. Navigating between the requirements of the EU Directives on Corporate Sustainability Reporting, Corporate Sustainability Due Diligence, the Sustainable Finance Disclosures Regulation, the Forced Labour Regulation, the Battery Regulation, and the Critical Materials Act will be a challenge and ECGA members are preparing themselves for complying with all of these new reporting requirements.

## SAFETY PERFORMANCE FOR ECGA MEMBERS

Safety comes first in the carbon and graphite industry and hence a lot of effort is spent on maintaining and improving the safety of work places.

### Safety Performance Index for ECGA members

(the overall performance independently of the number of employees)





## ACHIEVING A SUSTAINABLE CHEMICALS POLICY

One of the important issues in this industry is the safe use of chemicals and products in this industry. Therefore the industry is giving a lot of attention to the EU's chemicals policy and its implementation.

### *REACH revision – status of “intermediates”*

Under the current planned REACH revision, the expert committee (CARACAL) has been discussing in 2022 the change of the status of “intermediates” in the context of REACH authorisation/restriction and some Member States have been suggesting the introduction of a new category “essential use” and combine it with “strictly controlled conditions” as a criterion to grant further use of the substances concerned. ECGA has issued its position paper in which we inform the Commission that for the intermediate use of High Temperature Coal Tar Pitch (CTPht) during the manufacture of synthetic graphite ECGA believes that the introduction of additional or redefined “strictly controlled conditions” as a criterion would not bring any benefit to workers or the environment but will cause immense costs and therefore will leave the industry with only two options: apply for authorisations and have higher investment risks or migrate the strategically important European graphite industry to other parts of the world. The issue will be followed up in 2023.

### *Creating synergies: Turkish REACH*

The KKDİK's registration deadline is 31 December 2023. And many of the approximately 18,000 preregistered substances are currently starting to undergo or are already undergoing, a joint registration effort whereby existing data is collected and compiled into the lead registration dossier. Because its data requirements are the same as for EU REACH, all the data are essentially already available albeit its ownership sits predominantly outside of Turkey. A number of ECGA members have preregistered in Turkey and Elkem has been offering to take over the role of Lead registrant with the assistance of their Turkish consultant. The ECGA Secretariat has been assessing the potential costs of sharing datapoints for the graphite dossiers.

### *Maintaining REACH dossiers up-to-date*

**HT CTPht:** The coal tar pitch producers have requested assistance with updating the EU REACH dossier on HT CTPht and the ECGA EHSA chair has been in contact with the consultant chosen by the pitch producers who was preparing a questionnaire to collect respective data. The data have been collected and aggregated by the ECGA Secretariat.

**Graphite:** Following the request from the European Chemicals Agency (ECHA), the Graphite REACH consortium has performed the requested toxicological 90-days study, and the update of the REACH dossier was finalized in December 2022. ECGA appointed the laboratory responsible for performance of the study as well as the consultant in charge of conducting the full REACH dossier update. The Secretariat coordinated the work process and ensured that the tasks were completed on time. The dossier was submitted to ECHA.

**SAT Graphite:** In 2022 the update of the SAT Graphite REACH dossier was conducted. Once the update of the dossier finalised, the change of the Lead Registrant's role will be executed. The new LR for SAT Graphite will be SGL Carbon GmbH. At the occasion of the REACH dossier update, the cost-sharing calculation resulting in revised LoA pricing was performed. ECGA coordinated the works, supported the consultant and ensured the adequate communication towards the consortium members.

## REVISION OF THE INDUSTRIAL EMISSIONS DIRECTIVE (IED)

On 5 April 2022, the Commission adopted proposals for revised EU measures to address pollution from large industrial installations. These proposals concern revision of the IED and the revision of the E-PRTR Regulation (to create the Industrial Emissions Portal).

In line with the European Green Deal, the overall aim of these proposals is to progress towards the EU's zero pollution ambition for a toxic-free environment and to support climate, energy and circular economy policies.

For the carbon and graphite industry there are two main aspects of this revision: the potential scope extension to the extractive industry and mineral processing as well as the inclusion of more environmental parameters such as CO<sub>2</sub> emissions which will have to be included in existing BREF notes, that is here the non-ferrous metals BREF which covers the synthetic graphite production already today.

# Raising awareness about sustainable advanced material solutions

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During 2022 various communication activities were undertaken by the ECGA secretariat with the objective of highlighting the importance and strategic nature of graphite for the EU economy and presenting our sector as sustainable industry and one that enables Europe's Green Deal through our products' applications.

## REINFORCING DIGITAL COMMUNICATION

From smartphones to social media, digital is the number one way many of us communicate with each other and interact with brands and causes. With that in mind, ECGA put more effort in 2022 in upgrading its digital communication tools which help to communicate more efficiently towards the policymakers and general public. A new ECGA website was launched in June and provides quick access to key important information on our industry, products, and its applications. Intuitive, easy-to navigate, a modern look and attractive images and visuals help providing the information on our sector.

The association has also stepped up its presence on the social media accounts and as a result we have multiplied the number of followers throughout the year and have reached new audiences. In the second half of 2022, in addition to our regular messages linking with our activities, ECGA executed digital awareness campaign which aimed at promoting graphite, its applications, properties and contribution to the green technology.



## ISSUING NEW PUBLICATIONS AND EDITORIAL PIECES

Our collaboration with influential media outlets allowed for publishing the editorial pieces about our sector and its material. From our articles published in Innovation News Network, one could find out about innovation in [Europe's graphite supply for the battery value chain](#), [Why the renewable energy industry requires carbon and graphite](#), whether [Europe is shifting towards the domestic production of critical raw materials](#) and on [Graphite as the essential ingredient of hydrogen fuel cell technologies](#).



**"People don't want a mine in their back yard, although they want to drive electric cars. And processing has developed a bad image, which presents a challenge in the public perception that we need to get over."**

Corina Hebestreit  
secretary general of the European Carbon Graphite Association (ECGA)

Interesting articles linking to our sector were also published in EURACTIV – an independent pan-European media network specialized in EU affairs. On 18 November EURACTIV published the interview with ECGA's President Mr. Juan Antonio Aranzabal about critical and strategic graphite in search of the right investment conditions. Mr. Aranzabal spoke about the graphite industry's contribution to Europe's economy, the sector's sustainability efforts and upcoming challenges. The article on EU's efforts in identifying policy actions necessary for developing strategic projects to strengthen the EU supply chains while maintaining a sustainable level playing field has been published by EURACTIV on 16 November.

Apart from the above-mentioned media outlets, ECGA has also tightened its relation with other organisations like Fastmarkets – one of the most trusted cross-commodity reporting agency in the field of metals and mining and energy markets (among others). Dr. Hebestreit gave an [interview to Fastmarkets](#) in November 2022.

In our efforts to promote carbon and graphite materials, we use several communication channels: from in-person meetings, participation in events to preparation/coordination of editorial pieces for magazines, news outlets and social media channels. However, we have also seen the increasing need for content which is informative and at the same time concise in its format. That is why we have prepared few infosheets on graphite-related topics which also link to the current overall economic and political initiatives and trends. First three infosheets finalized in 2022 concern the following topics: [General infosheet on Carbon and Graphite](#) / [Graphite and Raw Materials](#) / [Graphite in Circular Economy](#). They are accessible via ECGA website.

## PARTICIPATING IN KEY EVENTS

An important part of our communication activities was dedicated to active participation in key events of importance for our sector. ECGA attended and engaged in many events: from those focused on exchange with policy makers to industry-driven conference and academia ones.

Since the fastest growing application for demand in graphite is anode material for lithium-ion batteries, ECGA attended Stuttgart's Battery Show in June and became a bronze sponsor of European Battery Raw Materials Conference 2022 which took place in Barcelona, Spain in September. This conference organized by Fastmarkets is one of the leading, go-to event for those involved in the production and procurement of battery raw materials. Across the two-day event, insights on the latest supply and demand trends for critical battery raw materials including graphite were

presented as well as exclusive industry updates on a wide range of topics (from supply chain risks to battery innovation and recycling). Dr. Hebestreit participated in the panel discussion: *Graphite: Are we heading from oversupply to undersupply?* on the second day of the conference.

As per policy-oriented large events, ECGA attended the EIT Raw Materials Summit in Berlin, Germany in June and participated in various events organized during Commission's Raw Materials Week in November which allowed for interactions and discussions with policy makers responsible for legislative dossiers of importance to our sector and the creation of synergies with other stakeholders in the area of strategic and critical raw materials.



European Battery Raw Materials Conference 2022





## ECGA MEMBERS

(EU headquarters or main offices)

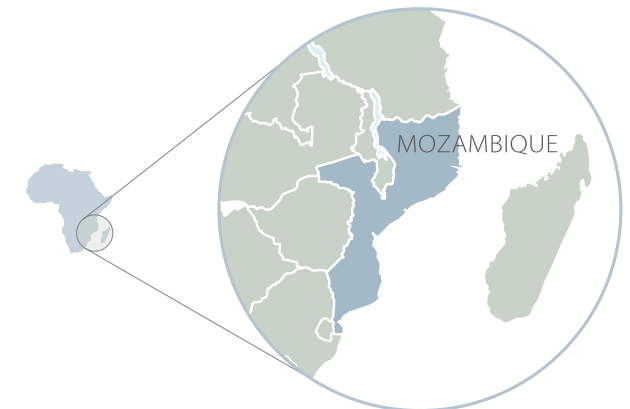


### ECGA MEMBERS:

- ASBURY CARBONS
- ELKEM ASA CARBON
- ELSID CARBON ENGINEERING S.A.
- GRAFTECH INTERNATIONAL Ltd.
- GRAPHITE COVA GMBH
- GRAPHIT KROPFMUHL GMBH
- IMERYS GRAPHITE & CARBON SWITZERLAND LTD.
- MERSEN CORPORATE SERVICES SAS
- MORGAN ADVANCED MATERIALS
- RHEINFELDEN CARBON GMBH&CO.KG
- SANGRAF ITALY
- SCHUNK KOHLENSTOFFTECHNIK GMBH
- RESONAC EUROPE
- SUPERIOR GRAPHITE EUROPE LTD
- SGL CARBON GMBH
- TOKAI COBEX GMBH
- TOKAI COBEX SAVOIE
- TOKAI COBEX POLSKA sp. z o. o.
- TOKAI ERFTCARBON GMBH
- VIANODE
- VUM a.s.

### ASSOCIATE MEMBERS:

- BAWTRY CARBON LIMITED
- BEOWULF MINING PLC
- BGV GROUP MANAGEMENT
- PHILLIPS 66
- SYRAH GLOBAL DMCC



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