Pathways to Decarbonization: strategies and insights

2024

AFV BELTRAME GROUP

"The use of steel products with high recycled content and low CO_2 footprint will become increasingly crucial to contain the effect of climate change for a carbon free future."

Index

01 2024 ACTIVITIES

02 REGULATORY CONTEXT AND VOLUNTARY DISCLOSURE

03 MEASUREMENT AND TARGET RENEWAL OF ISO14064-1 AND PAS2060 CERTIFICATIONS

04 OUR COMMITMENT: PAST, ONGOING AND FUTURE ACTIVITIES

05 CHALIBRIA PERIMETER

Speaker: Carlo Beltrame, Country Manager France & Romania, Group Chief Business Development Officer

01. Activities 2024

Events, round tables and workshops

In 2024 AFV Beltrame Group participated in numerous roundtables and workshops as a panelist.

Europe Steel Markets 2024 by Kallanish, Milan (IT) 12th-13th June 2024

Round table: "Europe's place in a rapidly changing global steel industry evolution."
Focus: European steel producers saw profit margins fall dramatically in 2023 after two positive years. Currently, their competitiveness is further threatened by rising carbon costs and the transition to low-emission production.
The European economy narrowly avoided recession in 2023 and the automotive industry, a major end-user of steel that recorded a solid performance in 2023, saw a major slowdown in 2024. The share of of imports to total steel consumption in Europe remained high in 2023. However, the extension of Russian slab import quotas demonstrates the dependence of Europe on raw material imports. Despite the lack of resources to produce green steel competitively, the EU is pursuing more ambitious decarbonisation targets than any other region. EU steel mills are leading the way in converting to DRI-EAF or DRI-ESF production, but will face obstacles related to renewable energy.
Meanwhile, emerging markets are rapidly expanding steel consumption to meet urbanisation and demand for consumer goods, while Australia, Brazil and the Middle East are destined to become supply hubs for low-emission metal raw materials for mature economies such as Europe, raising questions about the sustainability of the supply chain. Carlo Beltrame, Country Manager France & Romania, Group Chief Business Development Officer, discussed all this with leading representatives of the steel industry.

Green Building Council Italia

GBC, Venice (IT)
18th June - 22nd September 2024

The Venetian Green Building Cluster together with the Veneto Regional Innovative Networks has organised the seminar **"Innovative Materials for Sustainable Building",** in June, with the aim of accompanying designers, builders, materials producers and all players in the sector, who have embarked on the path of sustainability through innovation in their products and processes. The use of innovative materials in construction processes is fundamental for reducing the environmental impacts of the sector and achieving the challenging goals of national, European and international decarbonisation plans. Focus of the event: innovative materials and products designed to be produced in more efficient, with a significant recycled content, easily reusable or recyclable at end-of-life, free of toxic substances and with low VOC emissions. In addition, sustainability protocols and minimum environmental criteria set stringent constraints, and reward the best performing materials and the projects that use them.

Speaker: Giovan Battista Landra, Group EHS & Sustainability Director

Furthermore, in September, the Regional Innovative Network Venetian Green Building Cluster organised the **GREEN BUILDING CONFERENCE & EXPO** event, at the impressive Venice Heritage Tower in Marghera.
AFV Beltrame Group was present to illustrate how the CAM requirements are met for the categories of steel construction products and for the industrial aggregates from the EAF electric furnace steelmaking process as well as the opportunities of using EPDs (Environmental Product Declaration) in the construction sector.

Speaker: Alain Creteur, CEO Stahl Gerlafingen

Swiss Green Economy Symposium, Winterthur (CH) 27th-29th August 2024

The **Swiss Green Economy Symposium (SGES)** is one of the most comprehensive and inclusive conference in Switzerland focusing on the intersection of economy and sustainability. Since its inception in 2013, it has evolved into an influential event with a growing international presence, bringing together professionals from various sectors to discuss and promote sustainable economic solutions.
Over two and a half days it hosts 280 speakers, 2000 participants offering networking and exchange opportunities in 15 Innovation Forums.
Alain Creteur, CEO Stahl Gerlafingen, presented current projects at the Gerlafingen's plant in Switzerland, under the banner of sustainability and decarbonisation.

Hydrogen Expo, Piacenza (IT) 11th-13th September 2024

Hydrogen Expo is the largest Italian exhibition and conference dedicated to the technological sector for the development of the hydrogen supply chain. Italy represents an interesting market for the development of hydrogen thanks to the presence of renewable sources and a well-structured gas transport network.
During the event there was a rich programme of technical seminars and conferences, organised with the support of the main sector associations and of the most important national and international companies including AFV Beltrame Group, which updated participants on the latest technological and regulatory developments in the sector.

Hydrogen Valley Project in Villadossola

AFV Beltrame Group, in collaboration with Alperia and IIT Hydrogen, presented, during a press conference held at the municipality at the beginning of December 2024, the “Hydrogen Valley” project of Villadossola. The initiative is financed by the National Recovery and Resilience Plan (NRRP) for a total of approximately 19.5 million euro. This project will transform the disused “Ex Sisma” area into a state-of-the-art hub for the production of green hydrogen, contributing to the energy transition and the sustainable development of the local community.

Area “Ex Sisma”, Villadossola, Italy

The project in detail

The project involves the installation of an electrolysis plant for the production of green hydrogen from water and electricity. The plant will be powered by a photovoltaic system that will be located in the same area, guaranteeing a supply chain entirely based on renewable sources. It will be small and will occupy only a small part of the area, approximately 3%, the remaining portion will be occupied by the roads and photovoltaic panels.

In a first step, the hydrogen produced can be supplied to nearby companies to fuel industrial boilers by mixing hydrogen and natural gas. This will contribute significantly to the reduction of fossil fuel consumption, CO_2 emissions and PM10 particulate matter.

The project is designed to evolve over time: the area will be prepared to accommodate a hydrogen refuelling station for transport vehicles such as cars, buses and commercial vehicles in the future, thus supporting the transition to sustainable mobility at local and regional level.

Safety and sustainability at the core

Safety is a top priority for AFV Beltrame Group and the project partners.
The Villadossola plant will be designed according to the highest international safety standards and with the involvement of specialised experts, and of course the competent authorities which will issue the authorisations required by Italian law after having analysed the design details. Advanced technologies will be implemented to constantly monitor operations, minimising any risk to the environment and the community.

Low environmental impact design

The plant will be designed with extreme attention to the protection of the environment and territory.
It will have no visual impact on the landscape and will be minimised noise, odours, discharges, air emissions, waste and excavation. This approach will ensure a seamless integration of the project with the local ecosystem and the well-being of the community.

Funding and benefits for the region

Thanks to NRP funding, the Hydrogen Valley will bring numerous benefits to Villadossola and the region surrounding area:

- technological innovation: introduction of advanced technologies in the green hydrogen sector;
- real and sustainable energy transition: reduction in the use of fossil fuels and promotion of renewable energies;
- greater energy independence: development of local clean energy production;
- new opportunities for local businesses: direct involvement in project-related activities and supplies;
- new professional outlets and jobs: creation of job opportunities in various sectors;
- reduction of polluting emissions: significant reduction of CO_2 emissions;
- green image for the area: positioning the area as a model of sustainability and innovation.

Sustainability and energy efficiency in industry: taking stock, Milan (IT) 19th September 2024

ABB, as a technology leader in electrification and automation, organised, on 19 September, an event dedicated to **promoting energy efficiency and savings in the manufacturing sector** held at MADE, the Competence Centre for Industry 4.0 led by the Politecnico di Milano, inviting AFV Beltrame Group to tell its path to energy efficiency.

Gianmaria Zanni, Group Energy COO discussed how energy efficiency in an industry not only brings economic benefits in terms of energy savings, but also a series of relevant indirect benefits. Implementing optimisation measures increases safety of workers; improves the reliability and operational continuity of machinery and reduces breakdowns, accidents and unplanned downtimes.
Efficiency does not, therefore, only mean economic savings but is also sustainability, safety, competitiveness and innovation.

EURIC, Milan (IT) 26th September 2024

On 26th September 2024, the event organised by EuRIC to celebrate the association's 10-year commitment to **circularity and sustainable recycling practices** took place in Milan. EuRIC has for years been at the forefront of promoting recycling and the circular economy in Europe and beyond. Industry leaders, policy-makers and advocates gathered to reflect on actions to date and to imagine the way forward, an opportunity to participate in a transformative dialogue and network with actors committed to promoting circularity and shaping EU decision-making.

Giovan Battista Landra, Group Sustainability & Environment Director spoke explaining how the waste-to-value approach represents the group's mentality and how EAF steelmaking is a positive example of a circular value chain, as it is based on secondary raw materials such as scrap and alternative carbon carriers.
In fact, steel is a frontline contributor to a low-carbon economy and to curbing the consumption of natural resources by providing the construction market with industrial aggregate alternatives derived from scrap.

Speaker: Raffaele Ruella
Chief Financial Officer & Head of Corporate Services,
Managing Director

Steel Orbis Italy Forum, Milan (IT)
8th October 2024

Market trends, forecasts on the future of steel, comments from authoritative guests: this was the recipe for **Italy Forum 2024,** the **Steel Orbis** event, held on 8th October in Milan. The event hosted several panels of national and international speakers from leading companies and associations in the steel industry, who discussed the latest national and global economic issues.

Raffaele Ruella, the Group's CEO and CFO, participated in the workshop by presenting his speech: **"The carbon management strategy in AFV Beltrame Group".**

Produrable, Paris (FR)
8th-9th October 2024

Organised by the AEF Information Group and under the patronage of the Ministry of Ecological Transition and Territorial Cohesion, the PRODURABLE event brings together for two days: 12,000 visitors, 750 speakers, more than 250 partners and a community of 50,000 decision makers. The red thread of Produrable is open discussion and presentation with hard facts that organisations that incorporate ethical, social and environmental values are better positioned in a changing world.
Measuring and taking into account all that is relevant is also the primary objective of the dual materiality proposed by the CSRD: beyond the reporting exercise (which is also very complex), it is about radically transforming the rules of the game, to promote a new economic order more attentive to human rights and the environment, to put a price on what had none, to redefine the notion of overall performance by integrating all stakeholders. The obligation to reinvent ourselves opens up interesting opportunities to rethink our industries, businesses and organisations, and to restore value to what is real: living beings, biodiversity and water in particular. Experts, business leaders, local actors, NGOs, opinion leaders, researchers, investors debated all this together at Produrable.
Guillaume Martin, Sustainability & Energy Manager, was present for AFV Beltrame Group.

Speaker: Guillaume Martin
Sustainability & Energy Manager

Climate Change Summit, Bucarest (RO)
15th-17th October 2024

The **Climate Change Summit** in Bucharest is the largest event in Central and dedicated to addressing the challenges of climate change with innovative solutions.
A relevant platform to exchange ideas and explore sustainable paths for our future. Dan Cheroiu, Commercial Director of Donalam - Rebar, participated in the session on green materials Made in Romania. He shared valuable insights on the current context, challenges and future prospects of our industry in the green transition. The third edition of the Climate Change Summit took place from 15 to 17 October 2024 in Bucharest as a platform to connect representatives of European and CEE businesses, citizens and governments in conversations on climate policy, investment opportunities and technological innovation.
The October event brought together more than 100 speakers - experts, policymakers, public and private leaders - and more than 500 experts, scientists, entrepreneurs and business, political and civic leaders **to identify impacts, goals and solutions to climate challenges at European and regional levels.** Sustainability and climate change, food systems and sustainable agriculture, the transition to a green economy in Europe, sustainable finance and climate-related investments, green materials or how technologies such as artificial intelligence or blockchain can be used in the fight against climate change, were among the main topics discussed.

Speaker: Dan Nicolae Cheroiu
Donalam Sales Director

Prizes and awards

Trophée RSE - by Socoda
13th and 14th March 2024

On 13th and 14th March 2024, SOCODA organised its Convention at the Lyon Congress Centre, bringing together 850 participants, suppliers and customers, with the aim of strengthening business ties. On the agenda: 48 hours of meetings with members and suppliers, plenary sessions by business sector, sharing SOCODA's vision for its network and partners, and moments of conviviality. During the event AFV Beltrame Group received the RSE Trophy (Responsabilité Sociétale des Entreprises) for its commitment in sustainable projects and the carbon neutral steel of Chalibria.

SMAU Sustainability Award
29th and 30th October 2024

At SMAU, the most important trade fair dedicated to innovation of companies and start-ups, AFV Beltrame Group received the SMAU 2024 Innovation Award for Chalibria, the carbon neutral steel certified by Rina.

The SMAU award has rewarded companies that have embraced innovation as a strategy for growth and success, becoming a model for Italian and international market. It was awarded to over 50 companies of excellence, Italian companies and administrations characterized by a strong propensity to innovation, which can drive the country's growth. Innovation, digital transformation and open innovation 2024 of the award with the presentation of company projects in multiple sectors, from Agrifood to Chemistry, from Public Administration to Mobility, to Steel and Smart Manufacturing.

Phoenix Steel Alliance Meeting
19th September 2024

On 19th September 2024, more than 160 participants accepted the invitation of NORDWEST to meet in Blankenfelde-Mahlow, in the metropolitan area of Berlin/Brandenburg. The meeting was a PHOENIX steel association meeting, at which various topics were discussed. The event focused mainly on networking and information exchange. The sustainability award rewards outstanding commitment.

One of the highlights of the meeting was the award of the second edition of the PHOENIX Steel Association Sustainability Award.
The award was created for the most important supplier partners, in light of the growing importance of sustainability in the steel industry. This positive approach to the issue also provides a perspective for future challenges in the sector. The suppliers who received the award were: Marcegaglia DEUTSCHLAND GmbH, Outokumpu Nirosta GmbH and AFV Beltrame Group: "...For creating Chalibria, certified carbon neutral steel to meet regulatory standards, designed to accelerate the transition to climate neutrality. And for proposing a new vision for steel, embracing the values of sustainability and circularity while respecting the planet".

"2024 Climate Leaders" by Financial Times
29th April 2024

AFV Beltrame Group has been ranked in "2024 Europe's Climate Leaders".
"Europe's Climate Leaders" is the prestigious ranking compiled by the Financial Times in collaboration with Statista, which groups together European companies that have made the most significant progress in reducing their carbon emissions (GHG). The 2024 ranking particularly rewards the best European companies which have reduced their greenhouse gas emissions intensity more than in Scope 1 (direct emissions) and Scope 2 (emissions from the use of purchased electricity) of the Greenhouse Gas Protocol (GHG) over a period of five years, from 2017 to 2022.
Other factors are also taken into account, such as the transparency of companies on Scope 3 emissions and their collaboration with sustainability evaluators, such as CDP and the Science Based Targets (SBTi) initiative.

"The most climate-conscious companies 2024"
by Corriere della Sera - 26th January 2024

AFV Beltrame Group among the 150 most climate-conscious Italian companies, according to the ranking drawn up by Corriere della Sera, Pianeta 2030 and Statista. There were more than 600 companies registered in the territory and belonging to the companies with the highest turnover in the country or listed on the Italian stock exchange.
The research was based on CO_2 emissions, divided into Scope 1 and Scope 2 in relation to turnover for the years 2020-2022.
The ranking is a further recognition of the continuous and concrete commitment that AFV Beltrame Group demonstrates towards the themes of sustainability, decarbonization and energy efficiency.

Membership in new associations

AFV Beltrame Group is a member of the following associations:

01

RIR: Regional Innovation Network
The Regional Innovation Network is a system of enterprises and public and private entities, present in the regional context, but not necessarily territorially contiguous. They also operate in different sectors and are able to develop a coherent set of initiatives and projects relevant to the regional economy. This is an important tool for bringing the world of small and medium-sized enterprises closer to research, also considering that RIRs are implementing subjects of the regional Intelligent Specialization Strategy.

The Regional Innovation Network is characterised by:
1. extension to the regional territory (which can also cross regional and national boundaries and in which the relational aspect becomes essential);
2. new or innovative entrepreneurship;
3. new or innovative sectors.

AFV Beltrame Group joined the RIR in 2024.

02

GBC Italy
The Green Building Council Italy is a non-profit association that includes the most competitive companies and the most qualified Italian professional associations and communities operating in the sustainable construction segment. GBC Italia is part of the World GBC, a network of national GBCs present in more than 70 countries, which represents the largest international organization active in the world for the sustainable construction market.
GBC Italia promotes a process of transformation of the Italian construction market through the promotion of third-party certification system and its own certification protocols (the GBC systems) specifically developed for the specificities of the Italian market, whose parameters establish precise criteria for the design and construction of healthy, energy-efficient buildings with low environmental impact.

03

GSCC
The Global Steel Climate Council (GSCC) is an international organisation dedicated to promoting sustainable practices in the steel industry, with a particular focus on reducing greenhouse gas (GHG) emissions. The GSCC aims to define a global standard for more sustainable steel production, supporting a transparent and scientific approach to measuring and reporting greenhouse gas emissions.
Our Group has strongly adhered to the Association, and its Standard, highlighting a number of opportunities, related to credibility and transparency in reporting emissions, international recognition of the methodology itself, Validation of CO_2 footprint reduction targets, based on scientific evidence. **The final stages are the certification activities, according to the requirements of the GCSS Standard, of our specific emissions of organization (CASEI) and reduction objectives consistent with the requirements of the same Standard (SBET), compared to a time horizon of medium (2030) and long (2050) term.** The Beltrame Group's adherence to the GSCC guiding principles is also attested by the declaration of commitment (commitment letter) signed by senior management and published on the GSCC website, which also contains the decarbonization objectives that the Group has set itself, Consistent with the conclusions of the 2015 Paris Agreement.

04

ESTEP
Established in 2003, ESTEP was one of the first European technology platforms to be created. Its members include all major European steel producers and the European Steel Association, EUROFER; academic centres and research organisations working in the R&D of the steel sector; industrial stakeholders from steel-consuming sectors such as car manufacturing and heavy engineering; and other stakeholders such as trade union representatives. The European Commission and the Member States are also represented on ESTEP's management committees.

LEED Certification Scheme

The LEED (Leadership in Energy and Environmental Design) protocol is one of the most widely used certification schemes for sustainable buildings globally, developed by the U.S. Green Building Council (USGBC). It promotes design practices building and management of buildings that meet stringent standards for environmental sustainability and energy efficiency.

The Protocol is divided into several assessment categories, which take into account site sustainability, water management, energy efficiency, use of renewable sources, use of sustainable materials and recycling of construction waste, the quality of the indoor environment and ensuring proper ventilation, natural lighting and air quality control.
The LEED certification system is divided into different types of protocols, each designed to suit specific building categories, uses or life cycle stages. The main types are summarised below.

01 **LEED BD+C:**
(Building Design and Construction) , aimed at the certification of new buildings or major renovations, which applies to residential and school buildings, health facilities, commercial spaces, date centers, warehouses and logistics centers.

02 **LEED ID+C:**
(Interior Design and Construction), for the certification of sustainable interiors, with a focus on material choices and quality of the indoor environment.

03 **LEED O+M:**
(Operations and Maintenance), used for the certification of existing buildings in use, aimed at improving day-to-day operations and maintenance, applicable to all types of buildings, including offices, schools, hospitals and residential.

04 **LEED ND:**
(Neighborhood Development), which regulates the certification of the development of entire neighborhoods or communities, within the scope of planning projects sustainable urban.

05 **LEED Homes:**
aimed at the certification of single-family homes, condominiums and multi-family homes, which takes into particular consideration aspects of energy efficiency, interior comfort, sustainable materials.

06 **LEED Cities and Communities:**
Targeted at entire cities or communities and focused on sustainability and resilience certification, which takes into account transport, energy, water consumption, waste generation and quality of life.

The application of the **LEED protocol** and its certification therefore have many environmental, economic and social benefits such as:

- reduction of impacts in the use phase, with a reduction in consumption of natural resources (energy, water), which is also reflected in an economic advantage, saving on operating costs;
- reduced impact on the ecosystem, use of materials with low environmental impact and promotion of biodiversity;
- reduction of greenhouse gas emissions, at all stages of the life cycle;
- increase in real estate value and attractiveness of LEED-certified buildings for investors;
- easier access to tax incentives and subsidies;
- improved comfort and well-being of occupants;
- building more resilient and efficient communities;
- promotion of a positive corporate image for LEED project developers and managers.

02. Regulatory context and voluntary disclosure

Steel, a strategic material for transition

Steel is a strategic element in the ecological transition, as an essential component of technologies that are indispensable for the decarbonisation of the economy. It emerges as a key player in many sectors, just to name a few:

- **renewable energies:** wind turbines require considerable amounts of steel for the construction of towers and support structures, while solar panels rely on steel for frames and mounting structures;
- **sustainable mobility and rail transport:** steel plays a key role in the production of electric vehicles, particularly for lightweight chassis and batteries;
- **green building and infrastructure:** bridges, buildings, constructions and public transport systems will have to be increasingly energy efficient and safe, and will have to rely on high-strength, long-lasting and low-carbon steels to help reduce their overall environmental impact;
- **energy transport and storage;**
- **mechanical engineering, technological equipment and industrial automation;**
- **systems for collecting and transporting water.**

But the steel industry simultaneously needs profound innovations to minimise its environmental impact and to meet the EU's emission reduction target and its binding climate neutrality goal by 2050.

Investing in the research and development of green technologies for steel production and recycling is therefore an environmental necessity, but also an economic opportunity to build a more sustainable future. Furthermore, in order to achieve the ambitious decarbonisation targets mentioned, it is essential that European and national institutions implement a coherent industrial strategy and introduce appropriate incentives. Such measures should support companies in maintaining their competitiveness during the transition and encourage the investments needed to face this epochal challenge starting with:

ENERGY

In order to ensure access to renewable and decarbonised energy on competitive terms, a structured regulatory framework that favours investment in clean technologies must be implemented. The following actions are priorities:

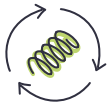
- **incentivisation of renewable energy;**
- **development of grid infrastructure;**
- **promotion of green hydrogen;**
- **support for energy-intensive sectors** by implementing instruments that balance competitiveness and sustainability:
  - **Carbon Border Adjustment Mechanism (CBAM);**
  - **preferential tariffs on renewable energy;**
  - **development of long-term supply agreements (PPAs);**
- **simplification and de-bureaucratisation of authorisation procedures** through:
  - **digitisation of processes;**
  - **clear deadlines for authorisations;**
  - **centralisation of competences** by setting up one-stop authorisation points to facilitate interaction between project promoters and competent authorities.
- **coordination at EU level** through:
  - **convergence of regulatory frameworks:** promoting common rules for state aid and green taxation.
  - **cross-border cooperation:** promote common energy infrastructure projects, co such as hydrogen networks and offshore hubs.

INTERNATIONAL TRADE

More emission-intensive products from third countries without carbon restrictions and costs must not frustrate the decarbonisation efforts of the European and Italian steel industry by leading to loss of market share.
The Carbon Border Adjustment Mechanism (CBAM) must be extended to protect exports as well, and strengthened and integrated to prevent circumvention and the transfer of carbon leakage risk to products down the supply chain.

MARKET

Develop and implement tools to stimulate demand for low-emission or carbon neutral steel. These may include the introduction of Minimum Environmental Criteria (CAM) for products, Green Procurement and green labelling systems.



RAW MATERIALS - SCRAP

Ferrous scrap must be recognised as a strategic priority material for the circular economy and the decarbonisation process.
Measures must be taken to promote its availability and improve its quality, while limiting exports to countries that do not meet EU environmental and social standards.

FINANCING AND INCENTIVES

It is imperative to allocate adequate resources to the decarbonisation of emission-intensive sectors (hard-to-abate) to support investments in the transition to climate neutrality.

RESEARCH

Provide extraordinary support for research and innovation, aimed at the development and large-scale testing of decarbonisation solutions applicable to steel processes.
In parallel, invest in the training of specialised skills needed to support the technological transition.

Fit for 55

The **"Fit for 55"** package, presented by the European Commission on 14 July 2021, aims to translate the ambitions of the Green Deal into legislation and consists of a series of proposals to revise climate legislation. This package has been the subject of several negotiations with provisional agreements that have not yet been finally approved.

The main environmental aim of the "Fit for 55" is to accelerate the decarbonisation of European companies, with an increasingly ambitious 2030 target of a 55%, or even 62%, reduction in emissions compared to 1990 levels, as stated in the latest 2022 draft.

Among the main novelties within the "Fit for 55" package that represent an element of potential risk for AFV Beltrame Group are the **revision of the EU-ETS emissions trading mechanism and the impact of the CBAM** (Carbon Border Adjustment Mechanism).

CSRD - Corporate Sustainability Reporting Directive

On 10 September 2024, Legislative Decree No. 125 of 6 September 2024, transposing Directive 2022/2464/EU, better known as the Corporate Sustainability Reporting Directive (CSRD), was published in the Official Journal.

The CSRD, which has been in force since 5 January 2023, focuses on corporate sustainability reporting, with the aim of modernising and strengthening the discipline on social and environmental as well as governance information that companies are required to disclose in order to foster a transition towards a sustainable and inclusive economic, production and financial system.
This legislation stands as one of the cornerstones of the European Green Deal and the Agenda for Sustainable Finance.

For large companies that meet two of the following criteria,

- turnover of more than € 40 million;
- equity exceeding € 20 million;
- more than 250 employees

will result in an obligation to report on issues related to sustainability performance as of 2026 (with reference to 2025).

CSRD includes the obligation to provide sustainability information to stakeholders:

1

on how sustainability developments affect and impact the company (at Climate change impacts on the business model) in terms of financial materiality;

2

on the effects of the enterprise itself on its surrounding environment (for example, the effect of emissions from production processes on air quality of local residents) in terms of materiality of impact.

These two perspectives generate the concept of "double materiality", that is to manage both the impacts and the activities of the company have on society and the environment, the impact of sustainability factors on the economic performance and on the company's own financial position.

Plant of Vicenza, Italy

CBAM
Carbon Border Adjustment Mechanism

The **Carbon Border Adjustment Mechanism (CBAM),** in force from 2023 with an initial transition period, is a tool introduced by the European Union to address the phenomenon of "carbon leakage", associated with the relocation of production to countries with less stringent climate regulations and ensure a level playing field between European and third country industries.
This mechanism, an integral part of the European Green Deal, provides for the application, under regime, of a financial valuation on emissions incorporated in imported goods, which, from 2026, will be charged to the importer of the goods concerned by the mechanism.

The CBAM requires importers to report emissions incorporated in products imported from non-EU countries, using default values (in a first step) or product-specific calculations. These emissions will have to be offset by the purchase of CBAM certificates, whose price will reflect that European ETS allowances.

Its implementation follows a precise roadmap, divided into several phases, each with specific obligations for the registrants and for the parties involved.

1

Transition period (1st October 2023 - 31st December 2025)
Registrants must provide quarterly reports on emissions incorporated in imported goods, without the need to purchase CBAM certificates.
The reports include:
- quantity of imported goods;
- direct emissions incorporated in assets (using actual data or default values);
- carbon price paid in country of origin (if applicable and available).

The reports must be submitted within the month following the reference quarter, starting from the first deadline of 31 January 2024. The aims of the transition period are essentially to:
- enable operators to become familiar with reporting requirements;
- strengthen the administrative capacity of registrants and competent authorities;
- test and improve verification and monitoring mechanisms.

2

Entry into force (1st January 2026)
Registrants must submit, by 31 May of the year following that of imports, an annual declaration showing:
- the quantities of goods imported;
- the calculated embedded emissions;
- CBAM certificates used to offset these emissions.

In fact, registrants will be obliged to buy CBAM certificates to offset emissions embedded in imported goods. The price of the certificates will be linked to the price of allowances in the European Emission Trading System (ETS).

At the same time, there will be a phase-out of the issuance of free allowances granted to certain industrial sectors under the ETS, starting gradually in 2026 and ending with their full phase-out in 2034.

A further new feature, starting in 2026, will be the need for all actual emissions data to be verified by accredited bodies according to European standards (e.g. EN ISO/IEC 14065).
To facilitate data exchange, operators from third countries will be able to register in a dedicated portal to share emission data from their installations with EU registrants.

Starting with the report for Q3 2024, it was no longer permissible to use default data (except for 20 per cent of emissions), but it was necessary to use actual data, sourced directly from the manufacturer, which includes direct emissions, from the manufacture of the good, and indirect emissions, from the use of energy required to produce the good.
Importers or manufacturers are obliged to provide this data through systems monitoring actual emissions throughout the supply chain. The reporting obligation with actual data will remain in force until the end of the transitional period.
From 1 January 2026, the reports, as mentioned, will be annual, but operators will be able to revert to default data for purchasing certificates.

Recently, the European Commission, in an FAQ (No. 74) reiterated that CBAM registrants must make every effort to obtain actual data from their suppliers or producers of CBAM commodities, demonstrating 'that they have made all efforts that may reasonably be required of them to retrieve the necessary data on actual embodied emissions from the operator, also in light of their internal operational capabilities', while admitting the possibility of using alternative values, providing exhaustive justifications, supported by adequate documentation.

State of application of CBAM

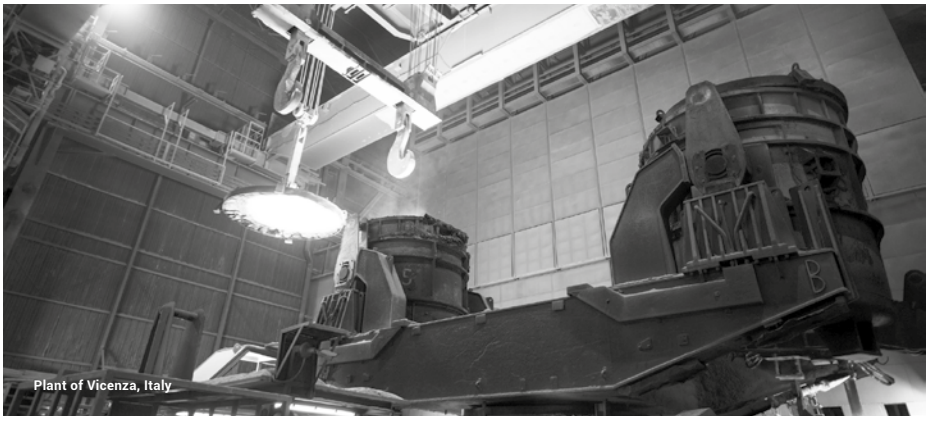
On 13 November 2024, a group of experts ('Informal Expert Group on the CBAM') examined developments in the CBAM, focusing on reporting, possible simplifications, ongoing technical studies and possible regulatory updates. The main findings of this analysis are presented below.

In the first year of transition, over 70,000 reports were received from around 10,000 registrants. Data shows a progressive decline in quarterly reporting, with an initial peak of over 19,000 reports in Q4 2023 and a decrease to 15,361 in Q3 2024. Germany, Poland and Italy were the Countries with the largest number of registrants, while China was the main country of origin of CBAM goods.

Number of CBAM Reports Submitted Quarterly	
Trimester	**Number of reports submitted**
Q4 2023	19.052
Q1 2024	19.033
Q2 2024	18.259
Q3 2024	15.361

Sectors Involved and Calculation Methodologies
CBAM declarations concentrated on four main industrial sectors: iron and steel (69% of the declarations), fertilizers (17%), cement (9%) and aluminium (5%).

Sectoral Distribution of CBAM Imports	
Sector	**Percentage (%)**
Iron and Steel	69
Fertilizers	17
Concrete	9
Aluminium	5



Plant of Vicenza, Italy

Most of the reports (95% in the first three quarters) were based on default values for calculating emissions, with a growing adoption of actual data in the third quarter 2024 (around 50%).

Trimester	Statements with Default Values	Statements with Actual Data
Q4 2023	18,099	953
Q1 2024	18,081	952
Q2 2024	17,346	913
Q3 2024	7,681	7,680

- The increase in actual data usage in Q3 2024 indicates an improvement in access to specific emissions data by registrants.
- This trend is important for the accuracy of CBAM and for reducing uncertainties related to emissions incorporated in imported products.

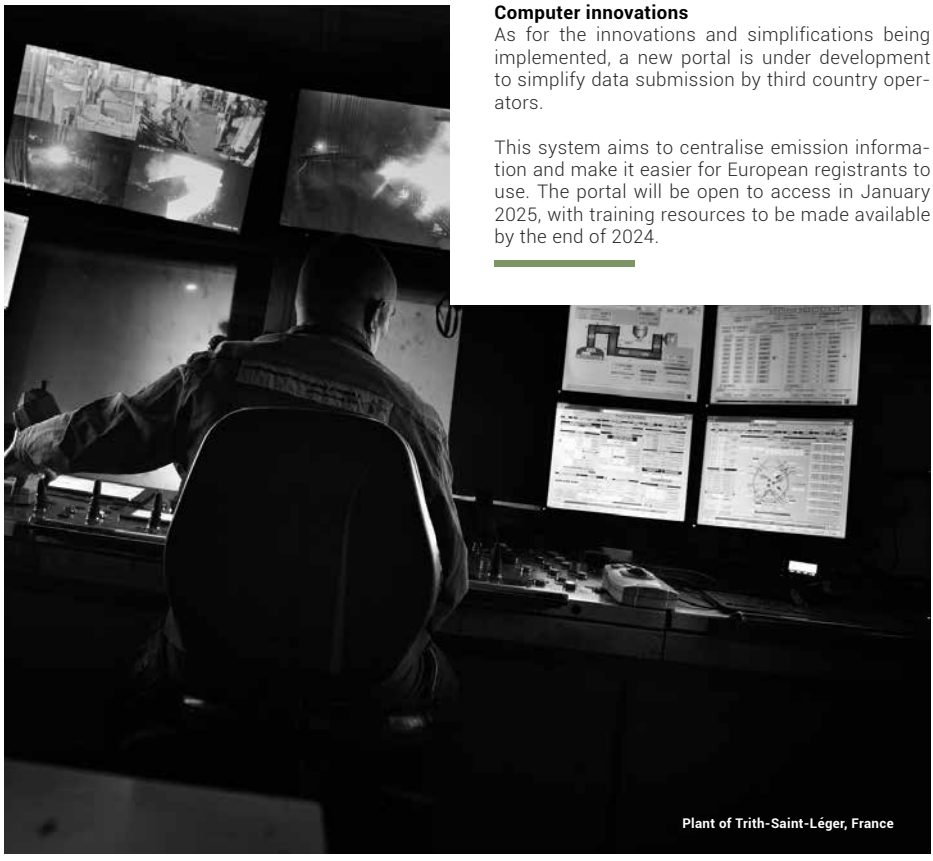
In the iron and steel sector specifically, the first year of transitional CBAM application showed some key trends:

- **prevalence of default values:** most declarations (about 95% in the first three quarters) were made using default values for emissions, suggesting a limited availability of actual data at exporters;
- **origin of goods:** the main exporting countries to the EU include China, Turkey and Ukraine, all known as major global players in steel production.

Computer innovations

As for the innovations and simplifications being implemented, a new portal is under development to simplify data submission by third country operators.

This system aims to centralise emission information and make it easier for European registrants to use. The portal will be open to access in January 2025, with training resources to be made available by the end of 2024.



Plant of Trith-Saint-Léger, France

Status of studies in the CBAM context
The ongoing CBAM studies aim to refine application methodologies, improve data quality and broaden the scope of the mechanism. The following is a descriptive overview of initiatives currently under development:

01

Carbon prices in third countries

Launched in September 2024, this 18-month study aims to examine carbon pricing systems outside the EU, such as carbon taxes and emissions trading mechanisms.
Main objectives:

- **ANALYSIS OF EXISTING SYSTEMS:** assess how third countries price carbon, taking into account legislative and operational differences;
- **COST ALLOCATION:** develop methodologies to allocate a share of the carbon price to emissions embedded in goods imported into the EU;
- **CERTIFICATION:** propose approaches to certify the carbon costs incurred, including governance rules and evidence requirements.

The results of this study will guide the implementation of legislation that will regulate the deduction of carbon costs from CBAM certificates.

02

Updating the default values

This study, which was launched in June 2024 and is expected to last for 24 months, aims to improve the parameters used to calculate embedded emissions. In particular, the following:

- **DETAILED DATA:** update the average emission intensities by customs code (CN) based on geographical and time criteria;
- **REFERENCE STANDARD:** identify the worst average emissions of installations subject to the EU ETS as a benchmark;
- **LEGISLATIVE INPUT:** provide technical input for the implementation act that will govern the default values from 2026.

These updates are essential to ensure accuracy and fairness in the calculations, reducing the risk of inconsistencies between sectors.

03

Calculation of emissions for "imported electricity"

The electricity study, which started in December 2023 and will last 18 months, supports the revision of the methodology for calculating emissions embedded in imported electricity.
The objectives include:

- **DEFAULT AND ACTUAL VALUES:** develop updated criteria to distinguish between actual emissions and default values;
- **ROLES OF ACTORS:** identify key roles in the management of imported electricity declarations;
- **CUSTOMIZED PROCEDURES:** propose ad hoc rules for the verification and customs declaration of emissions.

The study will help to create a robust and transparent system for a complex sector such as electricity.

04

Indirect emissions

Launched in September 2024, this study explores the possibility of including indirect emissions in CBAM. Among the main focus areas:

- **CALCULATION EXTENSION:** develop technical solutions to calculate the indirect emissions incorporated in all CBAM goods;
- **RULES OF EVIDENCE:** establish criteria for accepting indirect emission declarations based on actual data;
- **FUTURE IMPLICATIONS:** prepare the ground for a final implementation that also considers indirect emissions.

05

Expansion of CBAM

Two separate studies explore the potential expansion of CBAM:

- **DOWNSTREAM PRODUCTS:** launched in May 2024 (duration 14 months), focuses on processed goods, assessing their vulnerability to "carbon leakage" and the administrative feasibility of their inclusion;
- **OTHER SECTORS AND TRANSPORT:** with duration of 16 months starting from July 2024, it analyzes sectors and related.

06

Economic impact of CBAM

A larger study, launched in September 2024 (27 months), analyses the socio-economic implications of CBAM:

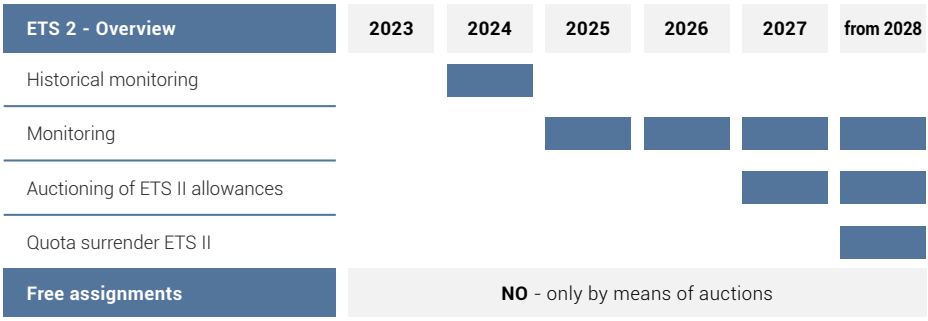
- **DEVELOPING COUNTRIES:** impact assessment on less developed economies, with a focus on the least developed countries;
- **ECONOMIC MODELS:** use of general economic equilibrium models to simulate the effects of CBAM on global trade flows and investment.

These studies together represent a scientific and multilateral approach to the definition and evolution of of CBAM, integrating technical, economic and policy aspects to improve the effectiveness and sustainability of the mechanism.

ETS2 Directive

The ETS Directive extends the European Union's Emissions Trading Scheme (ETS) to the construction, road transport and other sectors not previously included, with the aim of reducing greenhouse gas emissions in line with the EU's climate commitments, through the implementation of a trading of emission allowances with a maximum (cap) allowed, progressively reduced over time. The allowances will be allocated entirely through auctions, without free allocation.

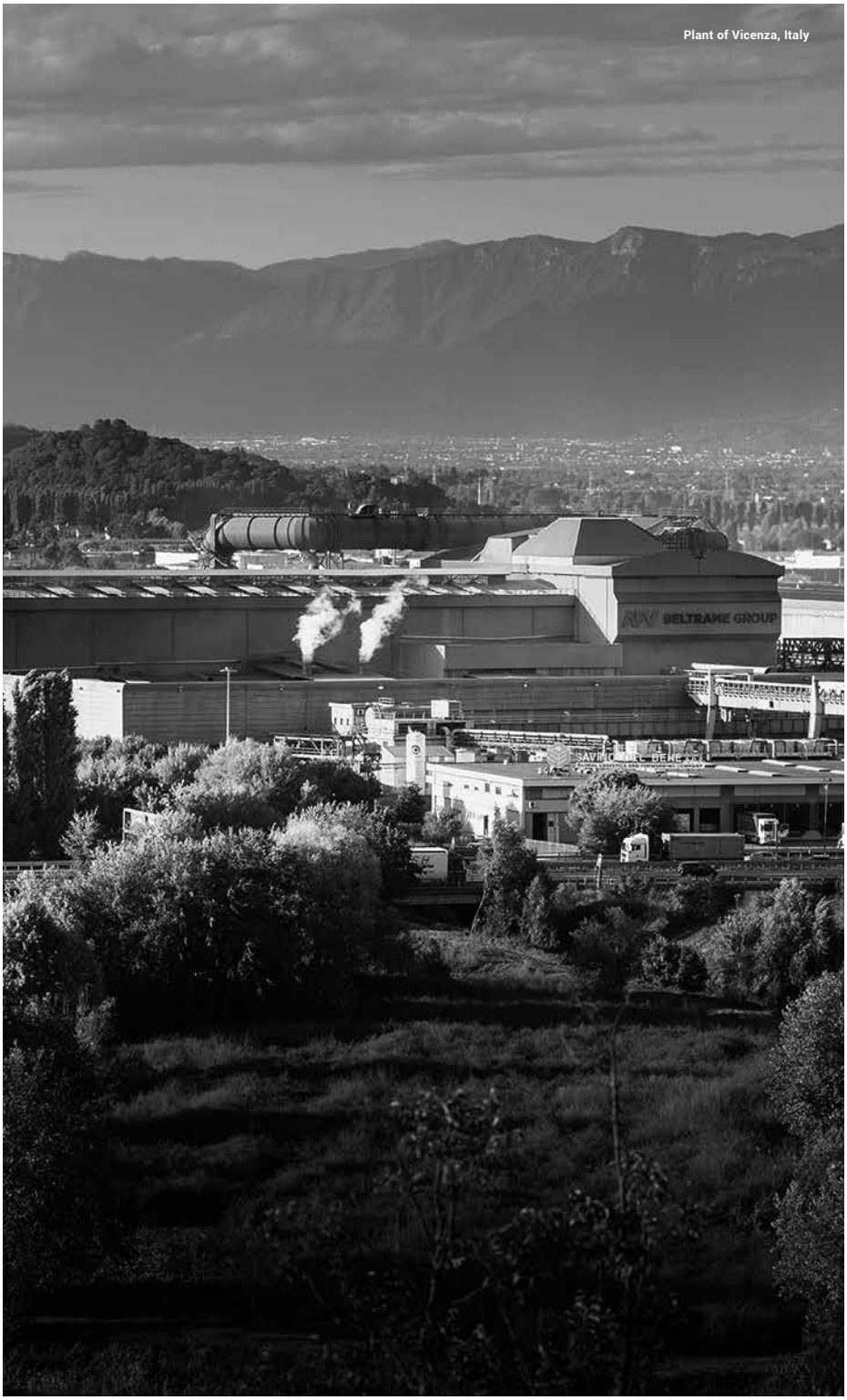
Regulated entities will have to obtain the permit for the release of fuels into consumption in specified activities by 1st January 2025 and will be required to monitor and report emissions from fuels released into consumption annually.
From 2027, the obligation to participate in auctions for the acquisition of emission allowances and to return allowances corresponding to emissions produced by 31 May of the following year will be triggered.



There are safeguard measures, in case the European Commission finds extraordinary conditions in the prices of natural gas or crude oil, by 15th July 2026, with the possibility to postpone the purchase and surrender of allowances for one year.

In Italy, the Legislative Decree of 10th September 2024, n. 147, has transposed the directives (EU) 2023/958 and 2023/959 and makes several amendments to the previous legislative decree, which regulates the national system for trading greenhouse gas emission allowances.

Since the emission allowances will be auctioned in full, without free allocations, significant costs can be expected for companies operating in the sectors covered, such as construction and road transport, also due to the need for new monitoring and reporting systems, which could be passed on to consumers, raising prices of energy goods and services.



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Sustainable finance

The sustainable finance regulatory process implemented by the EU institutions aims to ensure common rules and an organic approach to counter green washing and create dedicated funding channels for companies that can truly demonstrate be sustainable.

The action plan for sustainable growth from 2018 set out ten actions to be implemented at European level based on the three pillars of sustainable European finance:

- the creation of a scientifically based classification system for sustainable activities ("Taxonomy", D.C.);
- the introduction of a mandatory reporting regime for financial and non-financial companies regarding their impact on the environment and society, as well as operational and financial sustainability risks they face;
- the provision of a set of instruments to support companies, financial market participants and intermediaries in aligning their investment strategies with the Union's environmental objectives.

It is therefore "sustainable" finance that takes into account factors of type Environmental (Environmental), Social (Social) and Corporate Governance (Governance), the so-called ESG factors, in the investment decision process, directing capital towards longer-term sustainable activities and projects.

Taxonomy

The EU Regulation 2020/852 has introduced into the system European standards the taxonomy of eco-friendly economic activities, a classification of activities that can be considered sustainable based on alignment with the environmental objectives of the European Union and compliance with certain criteria.

Carturo Hydroelectric Power Plant, San Giorgio in Bosco, Padova

To be eco-friendly, an activity must meet the following criteria:

1. make a "substantial contribution" to at least one six environmental objectives:
   1. climate change mitigation;
   2. adaptation to climate change;
   3. sustainable use and protection of water and marine resources;
   4. transition to a circular economy;
   5. pollution prevention and control;
   6. the protection and restoration of biodiversity and ecosystems;
2. "do not cause significant harm" (Do No Significant Harm - DNSH) to none of the environmental objectives;
3. to be carried out in compliance with minimum social guarantees (e.g. those laid down in the OECD guidelines and UN documents);
4. be compliant with the technical screening criteria set by the European Commission.

Focus on the Commission's Communication of 8/11/2024 on the interpretation and implementation of the delegated act on EU taxonomy reporting (eligible and aligned economic activities), concerning the KPIs to be reported for non-financial corporations.

Non-financial companies, according to Article 8 of the Taxonomy Regulation (EU) 2020/852 and the related Delegated Act "Disclosures", must report specific Key Performance Indicators (KPIs) as part of their sustainability reporting, forming part of the annual report of the financial statements. These KPI measure the alignment of the company's economic activities with the environmental objectives defined by the EU taxonomy. There are mandatory KPIs, such as:

a. percentage of total turnover from economic activities aligned to the taxonomy, with the objective of measuring the proportion of revenues generated by environmentally sustainable products or services;

b. percentage of capital expenditure devoted to aligned economic activities, in order to measure the enterprise's investments in infrastructure, technology or other resources for environmentally sustainable activities;

c. percentage of operating expenses incurred for aligned economic activities, to assess the operational efforts of the enterprise to maintain or improve eco-sustainable activities.

In addition, companies must include qualitative and quantitative information, including:
- explanation of the methodology adopted and the bases used for calculating KPIs;
- description of activities aligned according to taxonomy criteria;
- verification of compliance criteria for compliance with the technical criteria established by taxonomy and absence of significant damage to other environmental objectives (DNSH criterion).

Green Claims Directive

In recent years, companies have sought to improve their behaviour and awareness of environmental issues, also in order to meet the expectations of customers and stakeholders.
However, the absence of clear and common rules on how to report the actual green footprint of products, exposes companies to potential greenwashing accusations.
On 22 March 2023, the European Commission took a step towards better consumer protection in the EU by proposing a new directive to counter the proliferation of false green claims.
The purpose of this directive is to:

- make green claims reliable, comparable and verifiable across the EU;
- protect consumers from greenwashing.

The Green Claims Directive, in addition to prohibiting the use of any product classification system that is not based on common EU standards, sets out what companies must do to demonstrate and communicate their green credentials. In other words, it defines the rules for the validation of voluntary green claims and regulates their use.

In particular, these obligations can be summarised as follows:

01 certification (Articles 3 and 4);

02 reporting requirements (Articles 5 and 6);

03 revision (Article 9);

04 verification and certification (Article 10).

CRMA - European Regulation on Critical Materials

The European Regulation on Critical Materials (CRMA), which entered into force on 23 May 2024, represents a milestone in the European Union's commitment to ensure a safe, resilient and sustainable supply of critical raw materials (CRMs). These materials, essential for the green and digital transitions, are fundamental to strategic technologies such as batteries, semiconductors, renewable energies and defence applications, constituting the backbone of the green and digital transition. They are also essential to achieving climate neutrality by 2050 and strengthening the EU's strategic autonomy.

It is important to stress that the EU is heavily dependent on imports for these strategic raw materials. For example, China supplies around 98% of rare earths to the EU, Turkey 98% of borate and South Africa 71% of platinum. This concentration of supply sources represents a significant risk to Europe's economic and industrial security.

The CRMA identifies 34 critical materials, of which 17 are defined as "strategic" for their relevance in key areas and the risks associated with their availability.
The regulation provides that the EU must draw at least 10%, process 40% and recycle 25% of its annual requirements as one of the main targets set for 2030. It is also crucial to reduce dependence on a single third country to less than 65% for each strategic material.
These targets, although ambitious, are necessary to mitigate the risks of excessive geopolitical dependence, as demonstrated by the current strong exposure of the EU to China, the main supplier of materials such as gallium and germanium.

Strategic raw material	Annual consumption in the EU (2023)	Main producer countries
Lithium	40,000 tonnes	Australia, Chile, China
Cobalt	25,000 tonnes	Democratic Republic of Congo, Russia, Australia
Natural graphite	200,000 tonnes	China, Brazil, India
Nickel	150,000 tonnes	Indonesia, Philippines, Russia
Rare Earth Elements (REE)	15,000 tonnes	China, United States, Myanmar
Platinum	10 tonnes	South Africa, Russia, Zimbabwe
Palladium	20 tonnes	Russia, South Africa, Canada
Gallium	100 tonnes	China, Germany, Ukraine
Germanium	50 tonnes	China, Russia, United States
Indium	70 tonnes	China, South Korea, Japan
Magnesium	150,000 tonnes	China, Russia, Israel
Silicon metal	300,000 tonnes	China, Norway, Brazil
Tungsten	10,000 tonnes	China, Vietnam, Russia
Vanadium	5,000 tonnes	China, Russia, South Africa

Note: annual consumption data are estimates based on industrial sources and market reports for the year 2023.

Although the CRMA was welcomed as a major step forward, several challenges remain. The lack of specific funding and doubts about the effectiveness of measures to accelerate mining projects have raised questions about the EU's ability to achieve its targets. Added to this are the difficulties of low social acceptance of mining projects, high energy costs and limited availability of geological information on European deposits.

To address these issues, the regulation introduces a number of innovative measures. Each Member State will have to designate a single authority to simplify the authorisation process for strategic projects, reducing the time needed to extract to 27 months and to 15 months for processing and recycling. In addition, initiatives are promoted to improve the sustainability of critical materials through recycling, circular design and mandatory labelling of products containing permanent magnets, with information on the composition and recovery of secondary materials.

The CRMA fits into a wider context of European efforts to strengthen industrial resilience. Among the proposals that emerged, the Draghi Report suggests the creation of an EU platform to coordinate the entire critical materials value chain and strengthen resource diplomacy. The Letta Report, on the other hand, stresses the importance of a joint approach to strategic stockpiles and stimulating demand for high quality recycled materials.

Renewability photovoltaic plant, Abruzzo, Italy

On the operational front, significant steps have already been taken. The EU has received 170 applications for strategic projects and initiated collaborations with international partners, signing 14 agreements with resource-rich countries by 2024. In addition, a €100 million fund has been set up in collaboration with the European Bank for Reconstruction and Development to support the exploration of critical materials.

In response to this European initiative, Italy has undertaken several actions to align with the objectives of CRMA. In January 2021, the Italian government set up the Technical Table on Critical Raw Materials, with the aim of strengthening national coordination on this issue and promoting regulatory and economic conditions conducive to a safe and sustainable supply.

Subsequently, with the Law n. 206 of 2023, it was created the "National Fund of made in Italy", endowed with 700 million euros for 2023 and 300 million for 2024. This fund is intended to support the growth and strengthening of national strategic supply chains, with a particular focus on the procurement, recycling and reuse of critical raw materials.

In addition, the Minister of Enterprises and Made in Italy has announced his intention to present a decree-law on mining concessions, in line with the provisions of CRMA, to facilitate the extraction and processing of critical raw materials on national territory.

In the long term, Italy therefore plans to:

01 establish a competent authority to ensure that the necessary time for issuing authorisations for strategic projects is guaranteed, with a maximum of 27 months for extraction projects and 15 months for processing or recycling projects, in line with CRMA guidelines;

02 promote strategic projects presented by companies or consortia, offering support and incentives for the development of internal extraction, processing and recycling capacities;

03 strengthen collaboration with European and international partners to diversify sources of supply and reduce dependence on individual third countries.

These initiatives reinforce Italy's commitment to contribute actively to the objectives of CRMA, recognising the strategic importance of critical raw materials for the country's industrial competitiveness and ecological transition.

Renewability photovoltaic plant, Sicily, Italy

EPBD Directive IV

The **EPBD IV** (2024/1275/EU) is a crucial update of the European legislation on energy performance of buildings. It lays the foundations for a radical transformation of Europe's real estate, with an emphasis on decarbonisation and energy efficiency as essential tools to achieve climate neutrality by 2050.

At the same time, the directive addresses social issues such as combating energy poverty, promoting actions that are fair and economically sustainable.

At the heart of the directive is the objective to ensure that by 2050 all buildings in Europe will become zero-emission buildings (ZEB), which means very low energy requirements, powered exclusively by renewable sources and with no direct carbon emissions.

This ambitious goal is reflected in a series of milestones marking the stages of transition:

- for new public buildings, the zero-emission requirement will be effective as early as 2028;
- for existing buildings, a gradual adaptation path is envisaged, with a reduction in average primary energy consumption of 16% by 2030 and 20-22% by 2035, compared to 2020 levels.

The directive recognises that the building sector accounts for a significant share of total energy consumption and greenhouse gas emissions in Europe. As a result, improved energy performance will not only reduce the environmental impact but also have positive economic and social impacts, improving citizens' quality of life and lowering energy costs, especially for vulnerable families.

In Italy, the transposition of EPBD IV represents a major challenge, requiring a substantial updating of the regulatory framework and strategic planning at national level. The deadline for transposition is May 2025, while member states must establish a national path for progressive restructuring by May 2026.

From a first analysis, in relation to the characteristics of the national building stock and the current legislation in force, it is clear that the transposition of the directive will involve several legislative and regulatory measures, such as:

1. updating of minimum energy performance requirements: Technical regulations will need to be reviewed to ensure that all new buildings meet the ZEB standards and that existing buildings follow a gradual improvement path;

2. definition of a national roadmap: the Italian government will have to outline a clear and binding plan for reducing the average energy consumption of the national building stock. This includes specific targets for the renovation of buildings with the worst energy performance, which account for at least 43% of the total;

3. development of financial incentives: the directive underlines the importance of adequate financial instruments to support the transition, in particular for vulnerable households and social housing buildings. In Italy, this will probably result in a strengthening of existing incentives and new financing mechanisms;

4. monitoring and reporting: Italy will need to establish a transparent monitoring system to track progress towards the objectives set by the directive. This will involve the use of national databases, such as the SIAPE (Energy Performance Information System), to collect and analyse data on energy consumption and renovations.

Challenges and opportunities for the Italian system

The transposition of the directive requires an integrated approach that takes into account the peculiarities of the Italian building heritage, which is characterised by a high percentage of historic buildings and fragmentation in ownership.

This will require a greater focus on sustainable interventions that are compatible with the architectural and landscape context, while providing an opportunity to promote technological innovation, Encouraging the adoption of advanced solutions such as low-impact heating and cooling systems, smart technologies, integrated renewable sources and materials with low environmental impact.

Use of low carbon footprint materials

The carbon footprint of construction products is a central element in the regulatory evolution introduced by EPBD IV (2024/1275/EU). This directive not only focuses on the energy performance of buildings during their operational phase, but extends the sustainability horizon by considering the entire life cycle of buildings, including production, the transport, installation and end of life of building materials.

To achieve the zero-emission buildings (ZEB) target, it is not enough to limit operational energy consumption: it is also necessary to address embedded emissions, that is those related to materials and construction processes. This involves a detailed life-cycle assessment of construction products, introducing specific criteria to measure and reduce the associated carbon footprint.

The directive promotes the use of low environmental impact materials, such as high recycled content and suppliers will be able to enhance their products through environmental product declarations (EPDs) to attest the environmental performance of products, including the carbon footprint.

The assessment of carbon emissions associated with construction materials should also be taken into account at the design stages, through modelling and simulation tools that integrate considerations of the overall life cycle of materials used.

The focus on carbon footprint represents a great opportunity for the development and diffusion of innovative and sustainable construction products, such as those derived from recovery or recycling processes, such as steel produced by electric furnace (EAF), high content of recycled, reclaimed and by-product material, which can benefit from growing demand stimulated by the legislation, as well as positioning themselves as key elements in achieving the EU's climate goals.

There is no doubt that cutting-edge technologies such as artificial intelligence and digital management systems (such as BIM) will allow for more precise emissions traceability throughout the supply chain, ensuring quality and comparability of monitored data.

The European Ecodesign Regulation for sustainable products (ESPR), a new paradigm for sustainability and DDP

The ESPR (Ecodesign for Sustainable Products Regulation) represents a significant breakthrough in European sustainability-oriented policies, systematically integrating the principles of the circular economy. This regulation, which entered into force in 2024, extends and deepens the regulatory framework for ecodesign, previously limited to energy-consuming products, involving a much wider range of goods and setting stringent requirements to reduce the environmental impact throughout the life cycle.

The regulation expands the ecodesign approach to include all non-food products placed on the European market, with some exceptions (e.g. medicines, vehicles). The most important innovations include:

1. **PRODUCT LIFE CYCLE REQUIREMENTS:** every stage of the life cycle - from raw material extraction to production, distribution, use and end-of-life - is regulated to maximize resource efficiency and minimize environmental impact. This includes the mandatory use of recycled materials, reduction of hazardous substances and design for repairability and recycling;

2. **DURABILITY REQUIREMENTS:** products must ensure an extended life, through stricter quality standards and the availability of spare parts for defined periods;

3. **MODULAR DESIGN:** goods should be designed to facilitate maintenance and recycling. For example, electronic devices with easily replaceable batteries or mobile devices built to be disassembled and re-used;

4. **MONITORING AND TRANSPARENCY:** the digitisation of environmental data through the Digital Product Passport (DPP) allows for full traceability along the value chain.

The JRC has provided scientific analysis to identify product categories with the greatest potential for improvement in sustainability. The study assessed the environmental impact of various assets, taking into account factors such as:

- energy consumption and production resources;
- life-cycle CO_2 emissions;
- availability and criticality of raw materials used;
- potential for recyclability and re-use.

This analysis led to the selection of priority categories, including building materials, steel, aluminium, textiles, electronics and furniture, with specific ecodesign requirements tailored to the characteristics of each sector.

The Digital Product Passport (DPP) is one of the key innovations in the ESPR. This tool provides a complete digital record accompanying each product throughout its life cycle.
Some of the data included in the DPP are:

- **origin of raw materials:**
  full traceability to ensure sustainability and compliance with ethical standards;
- **composition of the product:**
  details of the materials and chemicals used;
- **production processes:**
  information on technologies used and energy efficiency of production;
- **durability and repairability:**
  specifications on estimated life-time and repair options;
- **end of life:**
  guidelines for disposal and recycling, including the potential recovery of critical materials.

The DPP is designed to promote efficiency in supply chains and support the choice of sustainable materials, while also providing added value for consumers and investors, thereby increasing the value of the product on the market.

Plant of Vicenza, Italy

Focus on steel products
Steel is a core priority product, the first intermediate product to be regulated by a specific delegated act, expected by 2026. This act will define both informative and performance requirements for steel products, with a focus on 16 environmental aspects such as durability, recyclability, energy and water efficiency, and overall environmental impacts, including the carbon footprint.

To support the development of the delegated act, the European Commission has commissioned the Joint Research Centre (JRC) to prepare a preparatory study, which aims to provide a detailed analysis of the techno-economic and environmental aspects of steel products. This study, currently under development, will include in-depth assessments based on the LCA (Life Cycle Assessment) and LCC (Life Cycle Costing) methodology to identify the best options for environmental improvement.

The selection of five representative products, chosen on the basis of criteria such as apparent consumption in the EU, local production, import dependence and carbon footprint per tonne, is a crucial part of the study. Selected products include hot rolled coils, galvanized cold rolled coils, wire rod, stainless steel and electric steel. These will be used as case studies to assess environmental impact and propose optimisation measures.

The public consultation, launched to collect comments on the first results of the JRC study, highlighted some key issues. These include the need to adequately represent long products used in the construction sector, given their economic and environmental relevance, and to clarify the criteria used to calculate the carbon intensity associated with steel products.

The ESPR also defines specific requirements for the steel production process, such as:

1. decarbonisation of production processes, through the priority use of low-emission technologies, such as the use of green hydrogen in direct iron reduction (DRI) processes;
2. use of recycled materials and promotion of secondary cycle steel (electric furnace), which involves the use of recycled scrap, characterized by a carbon footprint up to 70% lower than primary production, made from iron ore and coke;
3. optimisation of plant energy efficiency to reduce consumption during melting, rolling and heat treatment;
4. development of steel components to facilitate maintenance, replacement and recycling through modular design.

The ESPR is therefore a true transformative strategy for the European economy. Integrating the full product life cycle, tools like the DPP and stringent requirements for key sectors such as steel, promotes a holistic approach to sustainability. Although its implementation requires significant investment, the benefits in terms of competitiveness, innovation and environmental impact make it a model for global economies that aspire to sustainable growth.

Minimum Environmental Criteria (CAM) in construction and road sector

Steel is one of the fundamental materials for modern infrastructures due to its strength, ductility and recyclability. With a view to environmental sustainability, the role of steel is of central importance, especially in the context of road and building infrastructure.
The implementation of the Minimum Environmental Criteria (CAM) at national level, which are mandatory for public contracts and increasingly required also in the private sector, represents a significant change in the construction sector. The CAM, as defined in Legislative Decree 36/2023 (Public Procurement Code) aim to promote the use of more sustainable materials, enhancing the characteristics of steel produced with circular processes, such as those based on the electric arc furnace (EAF).

The Public Procurement Code obliges contracting and awarding authorities to include design and technical criteria based on CAM in their calls for tenders, with the aim of reducing the environmental impact of the materials used. This is embodied in a number of key provisions, such as:

1

Technical specifications for construction products
Materials must include a minimum percentage of recycled, recovered or by-product materials, calculated on the total weight. For steel, the recycled content must be demonstrated through Environmental Product Declarations (EPDs), which comply with ISO 14025 and EN 15804 standards;

2

Special tender documents
The CAM specifications must be integrated into the construction project and contain clear requirements for materials and means of testing to be provided to the construction management;

3

Environmental bonus
A bonus score is awarded to economic operators who use materials produced in installations subject to the EU ETS or equivalent, thus ensuring a reduction in greenhouse gas emissions;

4

Calculation of recycled content
The calculation method, based on physical material flows, must follow recognised standards such as UNI/PdR 88:2020 and ISO 14021, distinguishing between "pre-consumer" and "post-consumer" materials.

In detail, the CAM defines specific requirements for the use of steel products and inert materials, summarised schematically in the following points:

ROAD INFRASTRUCTURES:
For road bodies, construction materials must include a minimum percentage of recycled material, ensuring performance equivalent to that of virgin materials, giving preference to the use of material from the intervention itself whenever possible.
For backfill works, mixtures bound with hydraulic binders must contain at least 50 per cent recycled material. For steel products, unalloyed and alloyed steels must meet regulatory standards such as EN 10025-2 and EN 10020, with the obligation to document the recycled content.

IN CONSTRUCTION:
In site-made or ready-mixed concretes, the minimum recycled content must be at least 5%.
If structural steels are used, environmental performance must be declared through third-party declarations, such as EPD certifications, in which the recycled content is highlighted.

Even in private projects, the principles contained in CAM can be applied through sustainable building protocols such as LEED and BREEAM. In particular:

- the LEED protocol, in the Material & Resources section, rewards the use of materials with a low environmental impact, with particular attention to the GWP (Global Warming Potential) calculated over the entire life cycle;
- the EPBD IV Directive (2024/1275) introduces the obligation to consider the carbon embedded in building materials, promoting the adoption of steels with a low carbon footprint.

The production of steel products by means of electric arc furnace (EAF) is a technology that therefore allows maximising the use of recycled materials, using ferrous scrap as raw material and producing steel with a low carbon footprint and industrial aggregates derived from smelting slag, which can be used in construction and infrastructure to replace natural resources. Great opportunities can also be developed through industrial symbiosis practices, through collaborations between different sectors for the reuse of by-products.

Participation in calls for tenders

AFV Beltrame Group, as a member of ESTEP (European Steel Technology Platform), actively contributes to the Clean Steel Partnership (CSP), a European co-programmed public-private partnership established between ESTEP and the European Commission in the context of Cluster 4 (Digital, Industry and Space) of the Horizon Europe funding programme and the RFCS Research Fund for Coal and Steel. The CSP is a key instrument to support the EU's strategic objectives of decarbonisation and technological innovation in the steel sector.

1. Structure and Objectives of the CSP

The CSP focuses on promoting sustainable technologies and processes to reduce carbon emissions in steel production, aligning with the European Green Deal and climate neutrality by 2050.

It aims to:

- **promote technological development:** promote innovative research projects to decarbonise steel production;
- **optimising financial resources:** maximising the impact of available funds through synergies between European institutions and industry;
- **accelerate industrial implementation:** facilitate technology transfer and adoption of solutions at production sites.

2. Role of Horizon Europe and RFCS

The CSP is financially supported through the Horizon Europe and Research Fund for Coal and Steel (RFCS) programmes. These funds are a crucial source of funding for R&D activities within the partnership.

- **Horizon Europe:** supports projects that address cross-cutting challenges, including sustainability, digitisation and the circular economy.
- **RFCS:** is specifically focused on the steel and coal sector, financing innovative technologies that improve the competitiveness and sustainability of these industries.

3. Public-Private Synergy

The CSP model is distinguished by its ability to integrate public and private resources, ensuring a joint commitment to common goals. This synergy:

- **mobilises private expertise and capital:** companies contribute technical know-how and resources, amplifying the effectiveness of public funds.
- **strengthens European industrial competitiveness:** innovation co-funded through CSP supports the development of cutting-edge technologies, keeping the European steel sector at the global forefront.

Participation in projects funded by European calls, such as the Research Fund for Coal and Steel (RFCS), represents a strategic opportunity for our Group to develop technological innovations, optimise production processes and improve environmental sustainability. These instruments are particularly relevant for the sector, considering the regulatory and market pressure towards decarbonisation and the circular economy.

Through consortia created ad hoc, it is possible to develop industrial projects, with a series of advantages, linked to access to dedicated funding, specific support for technological innovation, the possibility of international cooperation and the creation of synergies between steel companies, research centres, universities and technology suppliers.

Also not to be underestimated is the regulatory compliance aspect, as participation in co-funded projects allows companies to anticipate European regulations, such as those under the European Green Deal. AFV Beltrame Group has identified some strategic opportunities in recently published calls for tenders and has joined a number of consortia for the development of the following projects:

1

DevH2forEAF Project
The main objective of the project is the development and integration of innovative technologies for the use of hydrogen as an alternative fuel to natural gas in electric arc furnace (EAF) steel production.

The main objectives of the project are:
1. design and realisation of hydrogen burners, capable of operating with gas/H2 mixtures up to 100% hydrogen, withstanding the severe operating conditions of EAFs;
2. evaluation and mitigation of hydrogen storage, transport and injection risks to ensure process safety;
3. testing the performance of hydrogen burners under pilot and industrial conditions at two steelworks sites to validate their applicability;
4. elaboration of a feasibility study for the industrial and commercial dissemination of the developed technology, a phase in which the Beltrame plant in Vicenza will actively participate.

To date, the project has seen the completion of the pilot phase, with the design of a fuel supply and regulation system (FSRS) and pilot-scale testing at the RINA-CSM site and industrial-scale testing at a steelmaking site. The project is scheduled to be completed by the end of 2025.

2

SLAG2BUILD Project
The SLAG2BUILD project aims to demonstrate the feasibility of an innovative dry granulation technology for the utilisation of refining slag, from ladle furnaces, produced in the steelmaking process.

This technology makes it possible to transform slag into a by-product with improved hydraulic properties, which can be used as a substitute for Portland cement in the building and construction sectors. The main objective is to significantly reduce the use of landfill and related environmental impacts, promoting a circular economy and industrial symbiosis model.

Following the installation of an industrial dry granulation demonstrator, subsequent steps of process optimisation and life cycle analysis (LCA) and cost analysis (LCC) will be carried out to demonstrate economic and environmental sustainability.
The project, which is expected to last 36 months, is in the start-up phase, with initial focus on the design of the demonstrator and the definition of the reference scenario. Our LME steel plant will be involved in the study for a replicability plan to extend the technology to other steel plants in Europe.

3

CROSSCUT Project
The CROSSCUT project (Carbon Reduction in production routes Operations based on Smart Carbon Usage and digitalisation Techniques) aims to significantly reduce CO_2 emissions in steel production processes through the use of Secondary Carbon Carriers (SCCs).

SCCs include materials such as biomass, biochar, polymers and rubber granules, which can replace coal and coke as reducing agents and energy carriers. The main innovation lies in the integration of flexible, multi-material utilisation of SCCs into production cycles with the support of advanced digital platforms.

The project is at an early stage, aiming to reach a level of technological maturity in material injection and digital platform development, through long-term industrial testing, development of flexible injection systems and digital platforms, simulations and LCA/LCC analysis to quantify environmental and economic benefits. Our French LME steel plant will actively participate in the project, in the phase of evaluating the replicability of the results in other industrial configurations.

Plant of Stahl Gerlafingen, Switzerland

03. Measurement and Target renewal of ISO14064-1 and PAS2060 certifications

New measures 2024

Absolute emissions and specific emissions

In 2023, AFV Beltrame Group renewed its commitment to monitor and quantify its greenhouse gas emissions generated throughout the value chain in both absolute [tCO_2] and specific [tCO_2/t] terms. The detail is available for all emission categories: Scope 1, 2 and 3. It showed that the Group performed better in each of the emission categories (Scope 1, 2 and 3 upstream) than in 2022, and reduced absolute emissions by 2% overall.

CO_2 in absolute terms: Scope 1+2+3 (upstream) emissions for steel mill and rolling mill [2023; tCO_2].

1,151,766

		2023
Scope 1	Direct CO_2 emissions	**296,158**
Scope 2	Indirect CO_2 emissions from imported energy (market-based)	**171,950**
Scope 3	Indirect CO_2 emissions from transport (upstream)	**61,380**
Scope 3	Indirect CO_2 emissions from used goods	**622,152**
Scope 3	Other indirect CO_2 emissions	**125**
Scope 3 partial	Scope 3 Chalibria border	**683,658**
Total		**1,151,766**

-2%
Change % ('22-'23)

At the end of the accounting, the data were audited by the RINA Certification Body, which issued a conformity opinion on the methodology used and the results shown. The AFV Beltrame Group obtained in March 2024 the renewal of the certificate of conformity according to the ISO 14064-1 standard, which defines and regulates the rules of GHG emission accounting at an organisation level.

AFV Beltrame Group has also quantified specific emissions by relating the tonnes of CO_2 emitted to the tonnes of finished product. These indicators were calculated for each of the three Scopes, in order to identify the most impactful.

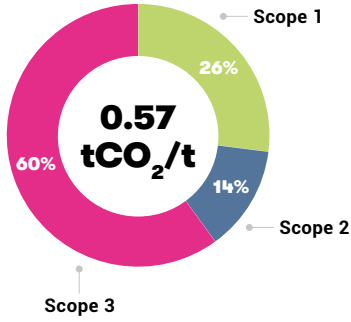
The following graph shows the specific indicators for 2023 and their breakdown:

Scope 1	0.15	tCO_2/t
Scope 2	0.08	tCO_2/t
Scope 3	0.34	tCO_2/t
Scope 3	0.57	tCO_2/t

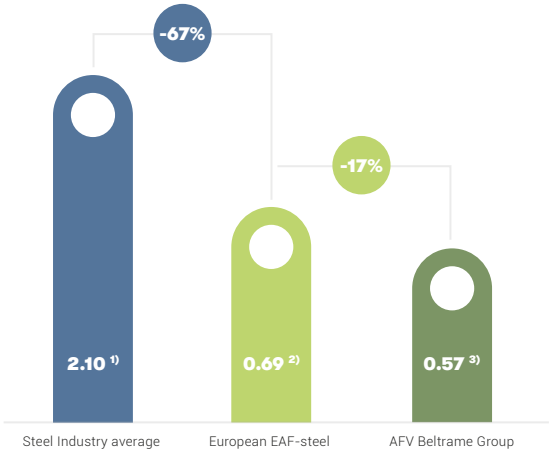
CO_2 intensity: Scope 1+2+3 (upstream) emissions for steel mill and rolling mill [2023; tCO_2/ t of finished steel product].

Group average emissions according to ISO 14064-1 (2023)

Notes: Scope 1 includes the following emissions outside the ETS: fuel combustion from company cars and fugitive emissions; Scope 2 is calculated by applying a market-based approach, using the AIB 2023 residual mix factors per country.



AFV Beltrame Group's Scope 1+2+3 (upstream) emissions are 0.57 tCO_2 per tonne of finished product. Overall, the Group's KPI remained substantially the same as in 2022. The scope of carbon footprint measurement and calculation is "cradle to gate": Scope 1, 2 and 3 (upstream).
AFV Beltrame Group's emissions are lower than both the average emissions of the global steel industry and the European average emissions of electric arc furnace (EAF) steel, the same production technology used by AFV Beltrame Group.



1. Word Steel Association average CO_2 emissions from steelmaking (Scope 1,2,3) integrated with data processing from external database for emissions (Scope 1,2,3) from rolling mill;
2. European Commission benchmark for electric furnace steel ('21-'25 values for Scope 1+2 of steelmaking) integrated with data processing from external database for Scope 3 of steelmaking and Scope 1+2+3 of rolling mill emissions;
3. for the group indicator, the market-based approach was used for the calculation of Scope 2.

EPD - Environmental Product Declaration

AFV Beltrame Group has developed and has several Environmental Product Declarations (EPD® - Environmental Product Declarations) validated by independent third party bodies for its rolled merchant profiles, for reinforcing bar in coils, for SBQ profiles and for industrial aggregates, **Beltreco** and shortly **Ruvido.** EPD refers to a voluntary product certification scheme, developed in application of ISO 14025 (Type III environmental labelling), according to the International EPD System.

These declarations are related to the environmental impacts that can be associated with a product's life cycle and that are assessed through Life Cycle Assessment (LCA), so as to guarantee transparency, objectivity and comparability of the results expressed, related to the environmental performance of products.

EPD - Product	AFV Beltrame Group plant	Date of issue
Merchant bar	Vicenza	2023
Beltreco inert aggregate	Vicenza	2023
Merchant bar	San Didero	2023
Merchant bar	San Giovanni Valdarno	2023
Merchant bar	Stahl Gerlafingen	2022
Rebars	Stahl Gerlafingen	2022 (being updated)
Ruvido inert aggregate	Stahl Gerlafingen	Ex-novo - in progress
Merchant bar	LME	2023
Rebars	LME	2023
Special steels - SBQ Bars	Donalam	2021 (rev. 2023)

The EPD declarations of the Group's products have been validated and registered within the main international schemes (International EPD® System and IBU - Institut Bauen und Umwelt).
A further fundamental element supporting the peculiar circularity of the electric furnace steel supply chain is the declaration of the recycled content of finished products.
This declaration, which is consistent with the UNI EN ISO 14021 standard, identifies the percentage of materials from recovery cycles used in the production process of the rolled products of the AFV Beltrame Group, which, also for the year 2023, was higher than 95%. It should also be noted that, within the EPDs published in 2023, information on the recycled content of merchantable laminates and bars has been included in the "Additional information" section. This information, validated by a third party, meets the needs of economic operators/designers who need to have a certified data to demonstrate compliance with the requirements of the CAM-Building. By virtue of the high percentage of recycled material (>95%), **all Beltrame AFV products fully meet the criteria defined by CAM.**

At the beginning of November 2024, the Gerlafingen plant completed the eco-balance study for reinforcing bar in accordance with the **KBOB*** rules. After validation of the study by an external certification body, Gerlafingen registered the resulting values in the **KBOB** register. This registration, which includes CO_2 emission values, represents a process of documenting and calculating the environmental impact of materials, processes and constructions, according to KBOB standards and guidelines. This approach is aimed at promoting sustainable building practices and reducing the environmental impact of public buildings in Switzerland.

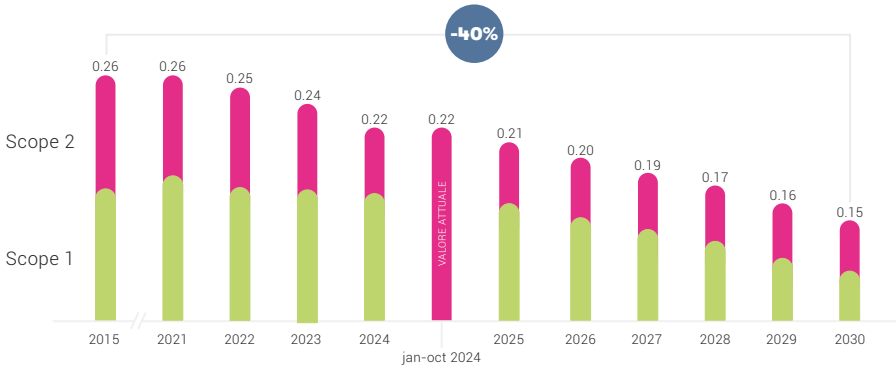
*KBOB: Coordination Conference of Construction and Real Estate Agencies of Public Contractors Switzerland.

Reduction targets and current level of emissions

AFV Beltrame Group defined a Decarbonisation Plan in which a target was set to reduce Scope 1 and 2 emissions by 40% in 2030, compared to the 2015 level. According to the downward trend identified in the Decarbonisation Plan, in 2024 the KPI of Scope 1 and 2 should have been 0.22 (expressed in tCO_2/t).
The group's decarbonisation strategy in the first 10 months (Jan-Oct 2024) remains in line with the target set. However, it should be noted that the indicator is influenced by two variables: production volumes (endogenous variable), which improve KPIs as production increases, and electricity emission factors (exogenous variable).

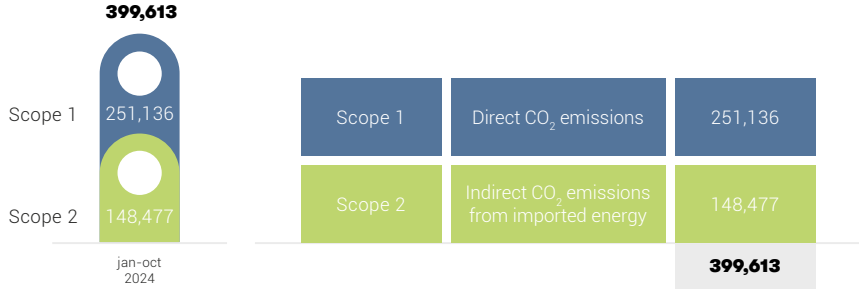
It should be noted that France's electricity emission factor (source: AIB 2023) is back in line with the historical averages of previous years.

While the strategy for reporting self-consumed renewable energy will soon be defined, which could positively influence the value of the 2024 indicator. The graph below depicts the reduction path, with the annual target value set.



*The Scope 1+2 value indicated for the first 10 months has not yet been certified by a third party and may therefore be subject to change.

CO_2 in absolute value: Scope 1+2 (upstream) emissions for steel mill and rolling mill [Jan-Oct '24; tCO_2]



Photovoltaic plant Renewability, Abruzzo, Italy

04. Our commitment: past, ongoing and future activities

Commissioning of furnaces in France, Switzerland and Romania

Furnace in Stahl Gerlafingen, CH - KOMBI

In March 2023, Stahl Gerlafingen started up the new reheating furnace for the Kombi rolling mill, replacing the previous one.
The new plant was located in a different area than before, a move that minimised production interruptions and created space for possible future developments.
The foundation and preparatory work took about a year. This state-of-the-art furnace will allow AFV Beltrame Group to optimise the productivity of the rolling mill and reduce natural gas consumption, combining operational efficiency and environmental sustainability.

Thanks to the use of regenerative burners, the heat generated is recovered to pre-heat the combustion air, guaranteeing energy savings of 15-20% on both natural gas consumption and direct CO_2 emissions. In addition, waste heat from the cooling circuit and flue gases is re-used to heat water in the district heating network.

Furnace in LME, FR - TGP

At the end of February 2023, the LME plant commissioned the new reheating furnace for the TGP rolling mill, replacing the previous plant. The construction of the new furnace took about a year, during which time ancillary works were also carried out, such as the relocation of underground networks and the construction of a new building.
The project aims to improve the reliability and sustainability of the production line, while optimising natural gas consumption. The new furnace is equipped with advanced regenerative burner technology, which recovers heat through ceramic systems on each burner. This innovation allows energy savings estimated at between 10 and 15% in natural gas consumption and CO_2 emissions associated with the rolling oven.

Furnace in Donalam, RO

In June 2023, the Călărași (Donalam) plant inaugurated a new rolling furnace, replacing the previous plant. The investment represents a significant step towards energy savings and decarbonisation.
The new moving bar furnace, equipped with state-of-the-art technologies such as hot air recirculation, regenerative burners, and advanced material loading and unloading systems, not only allows us to expand the range of products offered to customers and improve production efficiency, but also guarantees a reduction in methane gas consumption of around 30% compared to the past, contributing significantly to the reduction of CO_2 emissions.

Plant of Stahl Gerlafingen, Switzerland

New ladle burners

Ladle reheating and drying burners

As part of the decarbonisation plan, major work was carried out on the ladle reheating and drying burners at the Stahl Gerlafingen steelworks in 2024.

The ladle burners are equipped with methane gas-fuelled burners and are used to dry the ladles after replacing the internal refractory state or to heat them up to a temperature suitable for receiving the molten steel coming out of the electric arc furnace. As part of the project, all equipment was replaced with new or upgraded models according to the latest technology.

The new machines are now equipped with heat recuperators or burners fuelled by a mixture of natural gas and oxygen. This improvement has reduced the consumption of natural gas, the main contributor to direct CO_2 emissions, in this production process by around 30%.

Polymer Project

Reducing the carbon footprint is not only an environmental commitment, but also a strategic choice that helps to ensure the sustainability and competitiveness of companies in the long term.

Use of secondary reducing agent

The Vicenza plant continued to use SRA (secondary reducing agent) as a partial substitute for anthracite coal throughout 2024. This initiative is part of the decarbonisation strategies and is important in the circular economy.
SRA, certified as a "secondary raw material", is a technopolymer obtained from the mechanical processing of plastic waste. It acts as a reducing agent in the EAF furnace, enabling it to partially replace blown carbon. Compared to hard coal, the technopolymer, which complies with UNI 10667, contains less hard carbon, thus presenting a significantly lower emission factor.

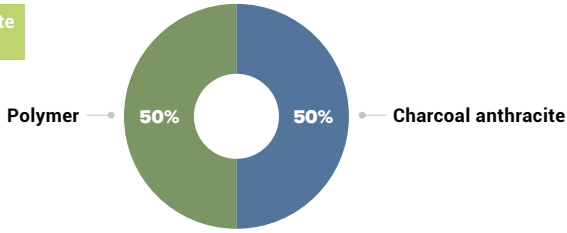
The use of SRA helps to reduce CO_2 emissions and the carbon footprint of the steel produced. In addition, the polymer includes a non-negligible percentage of biogenic carbon, which has a neutral impact in the context of the EU-ETS, thanks to precise and compliant measurements.

Below are some results obtained through the introduction of the polymer:

1

the amount of fine coal blown into the EAF furnace has already been reduced by 50% compared to 2023. This achievement not only promotes circular economy practices, but also helps to decrease the use of natural resources and reduce dependence on imported material from abroad;

Distribution of anthracite vs. polymer use

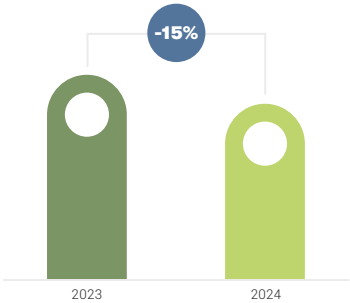


2

The use of polymer has already reduced CO_2 emissions related to the use of carbon in the process by 15%, compared to 2023, when considering only the fossil carbon component in the material.

These results are consistent with the project objectives and will be continuously monitored for CO_2 emissions reporting. AFV Beltrame Group is also considering extending this ambitious project to the Swiss Stahl Gerlafingen and French LME plants.

Specific CO_2 emissions (SRA project)



Renewable energy plants

AFV Beltrame Group is committed to developing initiatives for the procurement of green energy, both through direct investments in renewable energy production plants intended for self-consumption, and through the signing of green power purchase agreements (PPAs).
AFV Beltrame Group's ongoing investments in renewable plants are part of a more general strategy aimed at achieving two ambitious goals by 2030: to reach 40% renewable energy in total supply for AFV Acciaierie Beltrame (Italy) and Donalam-Călărași (Romania) and to significantly increase the use of fossil fuel-free energy sources for L.M.E. (France) and Stahl Gerlafingen (Switzerland).

In 2024, thanks to the coming on stream of the photovoltaic plants and the contribution of the hydroelectric plants, the share of renewable energy covered about 35% of the energy needs of the Italian plants. In addition, as of 2024, AFV Beltrame Group has signed an innovative contract with its supplier, which allows it to remotely self-consume the energy produced by its own hydroelectric plants located in Piemonte and Veneto. In order to continue to reduce indirect Scope 2 emissions in the coming years and to maintain its decarbonisation objectives, AFV Beltrame Group will continue along the path it has undertaken, developing and investing in new power generation capacity from renewable sources and/or entering into PPA-type supply contracts.

Finally, it will be increasingly essential to support the development of a regulatory framework that simplifies bureaucratic procedures for new plants, promotes revamping and repowering of existing plants, with the aim of increasing competitiveness and facilitating the identification of suitable areas. Below is a description of AFV Beltrame Group's renewable projects, some of which have been commissioned since the end of 2023, that are contributing to the reduction of indirect Scope 2 emissions.

Stahl Gerlafingen photovoltaic plant

A future with more green energy

At the Swiss Stahl Gerlafingen plant, the construction of a photovoltaic plant on the roof of the profile rolling mill and on the roof of the Kombi rolling mill furnace, began at the beginning of February 2024. As planned, the commissioning took place in May 2024.
The supplier ADEV installed around 5,000 modules on 10,000 m^2, which have a maximum output of 2.2 MWp and generate two million kilowatt hours of electricity per year, corresponding to the electricity consumption of around 500 single-family homes. The system thus contributes to climate-friendly domestic steel production. In just four months, ADEV built the plant.

Photovoltaic system in Stahl Gerlafingen, Switzerland

Solar energy for sustainable production

Because of its extraordinary size, the regional energy supplier has integrated the solar plant directly into its control system. Although the plant is connected to the distribution network, Stahl Gerlafingen uses all the solar energy produced for its own consumption.

The ADEV Group, based in Liestal, has been a qualified partner for many years for green electricity production and sustainable supply of electricity to buildings. This solar plant is a great example of creating and transferring value for all local stakeholders and for even more sustainable steel production in Switzerland.

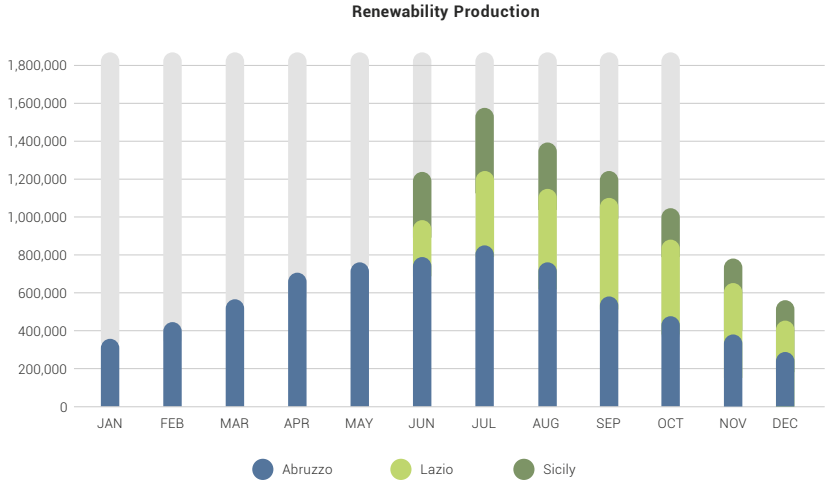
In November, a further large solar plant was commissioned on the roof of the south warehouse in Stahl Gerlafingen. The plant consists of about 6300 panels, has a power of 2.8 MWp and produces an amount of energy equivalent to the annual consumption of 650 families. All the energy produced is used locally for steel production.

Photovoltaic plant Renewability, Abruzzo, Italy

Consortium Renewability

In 2022, AFV Beltrame Group joined the Renewability Consortium, a community of renewable energy consumers engaged in the construction of photovoltaic plants and distribution of the energy produced to members. This project offers a strategic advantage, reducing exposure to energy market price volatility by bearing only the industrial costs of the initiative and accessing renewable energy.

AFV Beltrame Group uses renewable energy generated by the consortium's photovoltaic plants, located in Lazio, Abruzzo and Sicily. The company has been allocated a power share of 9 MW, which will ensure an estimated annual output of about 14 GWh. These plants were commissioned between the end of 2023 and the beginning of 2024, further consolidating the Group's commitment to energy sustainability.



The main alternatives currently available to fossil fuels come from renewable sources, such as hydroelectric, photovoltaic and wind power plants.


Photovoltaic plant, San Giovanni Valdarno, Italy

San Giovanni Valdarno

A 1.6 MW photovoltaic system was installed on the roof of the San Giovanni Valdarno factory. Consisting of 2,970 photovoltaic modules, it covers a total area of 11,000 m².

This plant is able to generate around 2 GWh per year of renewable energy, over 70% of which is self-consumed by the plant. This configuration will allow a reduction of energy withdrawal from the grid by approximately 20%. The plant has been commissioned in January 2024.

Sirio

In the province of Mantua was built a 3.3 MW ground-mounted photovoltaic plant, comprising more than 7,300 high-efficiency photovoltaic modules, equipped with horizontal-axis tracker technology.
The plant, which took into operations in July 2023, will produce around 5 GWh per year of renewable electricity.
The energy generated will be supplied to AFV Beltrame Group through a PPA contract signed with the company that owns the plant.

Other photovoltaic installations

AFV Beltrame Group is planning to develop new owned photovoltaic plants, evaluating the use of materials of its own production for the structures, after a comparative analysis of the emission impact compared to other solutions. Furthermore, the search for new PPA contracts continues, with the aim of increasing the share of renewable energy in its energy mix, in line with recent legislative developments in the energy sector and national decarbonization objectives.

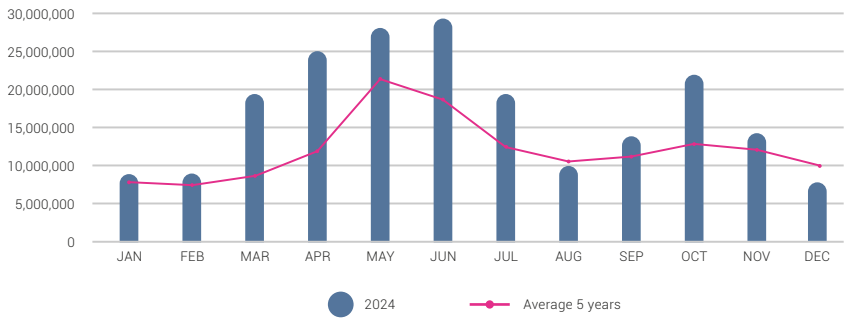

Photovoltaic plant, Ceresara, Italy

Hydroelectric power plants

The ongoing climate change and the progressive rise in energy prices over recent years make it increasingly urgent to adopt solutions that accelerate the energy transition. Among these, clean energy production is a priority, gradually and steadily replacing fossil fuels.
There are now many systems for exploiting renewable energy, many of which have been in operation for some time. Among these, hydroelectric power plants play a leading role, contributing in Italy to just over 17% of the total energy produced and about 40% of production from renewable sources. Their main advantage is the absence of greenhouse gas emissions, as they produce energy by exploiting the force of moving water.

With the aim of increasing the supply of clean energy to meet its own energy needs, in 2023 AFV Beltrame Group acquired and subsequently incorporated **Idroelettriche Riunite S.p.A.,** a company active in renewable energy production. This investment is part of a tradition begun in the first decades of the last century by Antonio Beltrame, founder of the group, who saw the potential of hydroelectric power plants to directly feed the family steelworks at lower costs than the energy purchased from the grid.
Over time, Beltrame built or acquired several power plants, mainly located in northern Italy, taking advantage of the favourable geographical characteristics of the Apennine ridge and the Alpine arc, where high slopes guarantee optimal productivity.
Currently, AFV Beltrame Group owns 12 hydroelectric plants spread over 10 sites in Piemonte and Veneto. These plants, both small and large, produce an average of 160 GWh per year of renewable energy, covering about 35% of the Italian plants' energy needs and reducing annual CO_2 emissions by about 36,000 tonnes. The incorporation of Idroelettriche Riunite represents a major step forward in reducing Scope 2 emissions. To maximise the value of this transaction, the company worked with an energy supplier to develop an innovative contract that allows it to share the energy produced by its hydroelectric and photovoltaic plants with its production facilities in Italy from 2024.

Production of hydroelectric power 2024



Valstagna Hydroelectric Power Plant, Vicenza, Italy

The hydroelectric power plants operated are:

Carturo plant

Location: San Giorgio in bosco (PD)
Water: River Brenta
Year of construction: 1989-1992
Turbines: 2 Kaplan
Power: 4,000 kW
Average output: 16,400,000 kWh/year

Collicello plant

Location: Valstagna (VI)
Water: River Brenta
Year of manufacture: 2017
Turbines: 1 Kaplan
Power: 130 kW
Average output: 1,000,000 kWh/year

Colzè plant

Location: Longare (VI)
Waters: River Bacchiglione
Year of construction: 1937-1939
Turbines: 1 Kaplan
Power: 750 kW
Average production: 3,500,000 kWh/year

Debba plant

Location: Longare (VI)
Water: River Bacchiglione
Year of construction: 1943
Turbines: 2 Kaplan
Power: 400 kW
Average production: 1,600,000 kWh/year

Valstagna plant

Location: Valstagna (VI)
Water: River Brenta
Year of construction: 1942-1951
Turbines: 2 Kaplan and 1 Francis
Power: 7,000 kW
Average production: 33,800,000 kWh/year

Agrasina plant

Location: Montecrestese (VB)
Water: Larecchio dam, Isorno stream
Year of construction: 2009-2013
Turbines: 1 Pelton and 2 Francis
Power: 5,100 kW
Average production: 7,500,000 kWh/year

Cipata plant

Location: Montecrestese (VB)
Water: Agrasina dam, Isorno stream,
Rio Tomello, Rio Nocca, Rio Gillino
Year of construction: 1950-1953
Turbines: 2 Pelton - Power: 10.600 kW
Average production: 31,600,000 kWh/year

Montecretese plant

Location: Montecrestese (VB)
Water: Isorno Stream, Melezzo Stream
Year of construction: 1940-1946
Turbines: 2 Francis
Power: 700 kW
Average output: 4,100,000 kWh/year

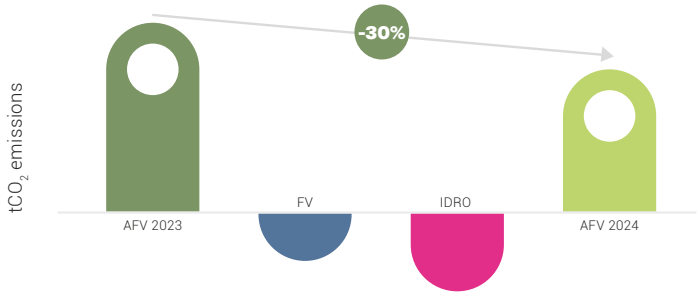
Nuova Ceretti plant

Location: Montecrestese (VB)
Water: Larecchio dam, Isorno stream
Year of construction: 1927; 1995-1998
Turbines: 1 Pelton
Power: 10,500 kW
Average output: 40,300,000 kWh/year

Pontetto plant

Location: Montecrestese (VB)
Water: Melezzo Stream, Rio Molini, Stream
Isorno, Torrente Fenecchio
Year of construction: 1925-1926
Turbines: 2 Pelton and 2 Francis - Power: 8.800 kW
Average production: 20,500,000 kWh/year

AFV Beltrame Group Italy - trend emissions Scope 2



Data 2024: jan-nov: cons. + dec: prev.

Scope 3 - Supply Chain

In early 2024, the AFV Beltrame Group completed an update of its greenhouse gas (GHG) emissions analysis, including all its plants. This study, referring to the emission performance of 2023, has led to the maintenance of the ISO 14064-1 certification, issued in March 2024 by the RINA certification body.

The Group's total emissions are quantified at almost 1.3 million tonnes of CO_2, with the main contribution coming from Scope 3, which measures emissions related to indirect activities along the entire value chain, representing over 60% of the total, with over 800 thousand tons of CO_2.

The following approaches were used in calculating Scope 3 emissions for the reporting period:

- use of the Ecoinvent coefficients in version 3.10, that is the most up-to-date version as required by the ISO standard and which, for many materials, has led to an increase in the emissive values compared to the previous version;
- use of GLEC v 3.0 coefficients, applied for the calculation of upstream and downstream transport emissions, in line with those used by major carriers and recognised by ISO 14083;
- where available, use of supplier-specific factors, corresponding to 26% of the n. 6 macro categories of raw materials in purchase most impacting in terms of CO_2, namely lime, coal, electrodes, iron/steel, ferroalloys, refractories.

Also with reference to the Group's commitment to improving its emissions performance, **the stakeholder engagement process,** launched last year, continued with the main suppliers of raw materials and transport upstream (upstream) and downstream (downstream), the most impactful items within Scope 3.

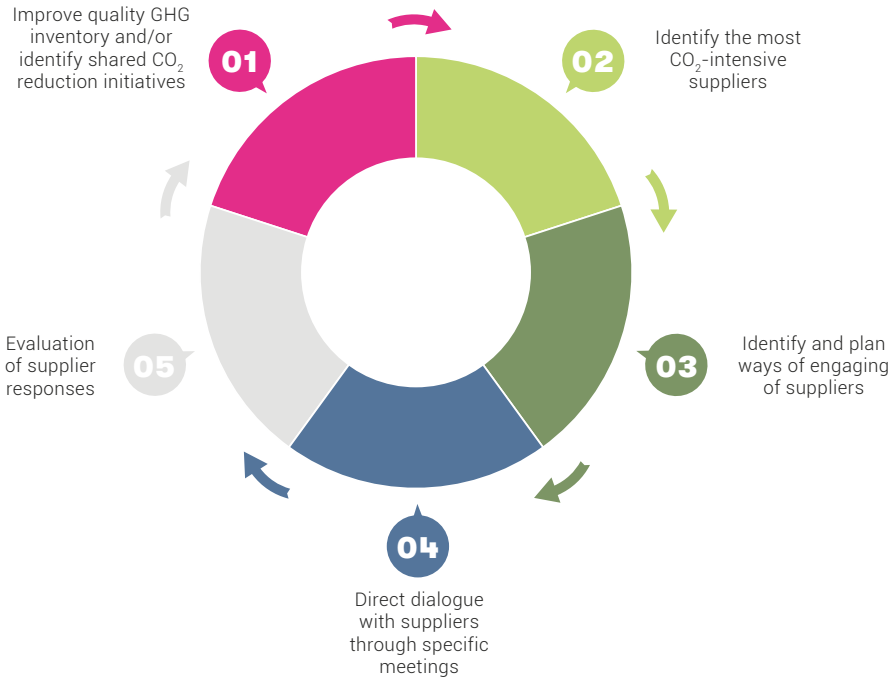
In the last months of 2024, in particular, in addition to the information exchanges that take place continuously at meetings in presence and/or remotely, as a result of last year's work, a questionnaire was developed and sent to the suppliers of raw materials with the greatest impact for the purpose of CO_2 mapping, which, besides ensuring continuity in the process of primary data acquisition.The objective is to obtain additional information relevant for emission reporting.

Once the relevant feedback from suppliers is received, an analysis and evaluation of the possible need for further information will be carried out through interviews and/or face-to-face meetings in order to:

- investigate the level of customer awareness on sustainability and decarbonisation;
- check for specific data (e.g. CO_2 emissions), calculation methods adopted and/or any certification (e.g. ISO14064-1) to improve the quality of the GHG emissions inventory;
- promote improved supplier awareness of environmental issues with the possibility to consider future partnerships.

The project aims to improve the quality of the GHG emissions inventory by acquiring primary data from suppliers, reaching a 40% Scope 3 share, using specific emission factors instead of average values from databases.

The initiative represents a fundamental step to strengthen dialogue with suppliers and promote an increasingly sustainable supply chain, consolidating the commitment towards reducing emissions and improving the Group's environmental performance.

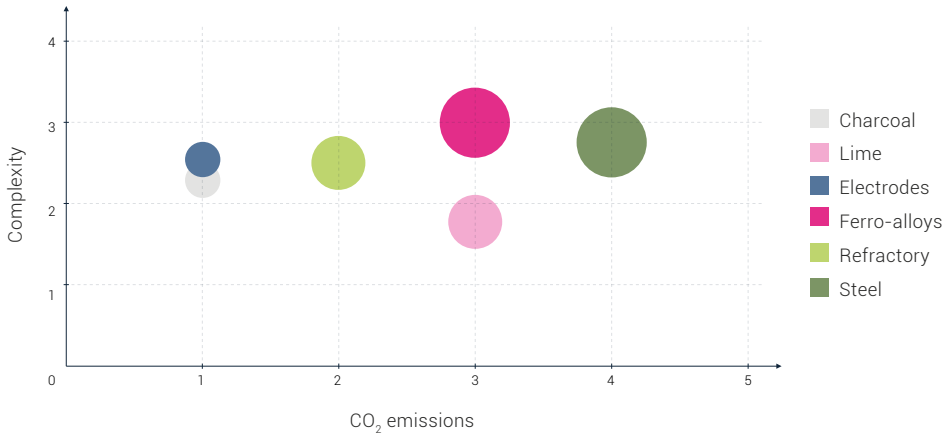


Focus on raw materials

As part of its Scope 3 activities involving its supply chain, AFV Beltrame Group is working actively with raw material suppliers. The screening and identification of the most emission-relevant categories, carried out last year, continues to develop a qualitative method for rating based on the level of supplier commitment and awareness of sustainability and decarbonisation.

In addition, a significance matrix has been constructed to represent the relevance of the various raw materials with respect to the Group's business; this matrix correlates the "emission class" of the product category purchased with the "complexity" of the manufacturing sector.
The main focus areas are on the production process of lime, ferro-alloys and iron/steel, which have a significant impact. Other materials, such as coal, electrodes and refractories, while relevant, have less impact on the overall assessment because of their lower contribution to absolute CO_2 emissions.

Matrix of significance



Focus on transport

In 2024, AFV Beltrame Group further improved the collection and processing of data on CO_2 emissions from upstream (mainly scrap) and downstream transport.
Thanks to the work of the in-house multidisciplinary team, the "dB Atlas" database has been optimised and can now map more precisely:

- volumes transported;
- mode of transport (i.e. intermodal);
- split between routes, each with its own specific mileage.

This refinement allows to improve the quality of the data, a fundamental step in defining and implementing policies aimed at reducing emissions in transport. In addition, AFV Beltrame Group has started to provide detailed self-declarations to customers on request, including the annual quantities of material transported, the means of transport used and the related total CO_2 emissions.

The work started last year, based on questionnaires and targeted interviews, continues with the integration of new information. A qualitative methodology has been developed to score carriers, highlighting their commitment to environmental sustainability. The evaluation criteria include:

01 mode of transport for goods (e.g. intermodal, rail or rubber);

02 emission class of the fleet used;

03 Calculation of CO_2 emissions carried out by the haulier;

04 direct involvement in sustainability actions.

In order to improve stakeholder engagement, AFV Beltrame Group has established a strategy that is developed on two axes:

01 map possible initiatives to collaborate with transport operators on sustainability issues, such as the switch to an intermodal mode of transport or alternative fuels;

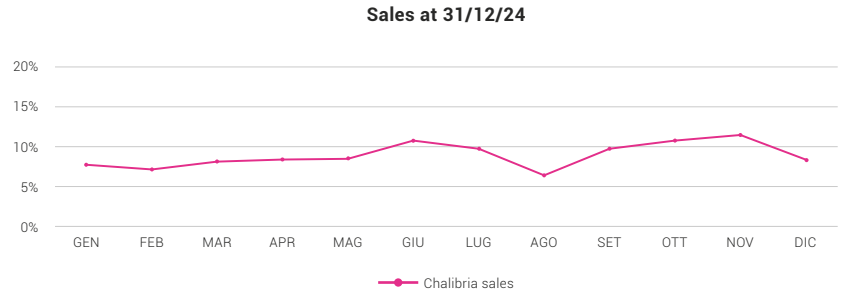
02 strengthen collaboration with transporters to encourage them to improve the accuracy of the emission data provided.

These actions confirm the Group's commitment to promoting a more sustainable and responsible transport chain, in line with the objectives of decarbonisation and continuous improvement.

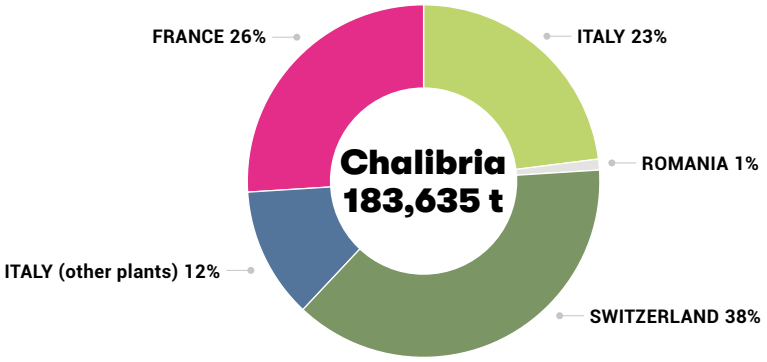
05. Chalibria Perimeter

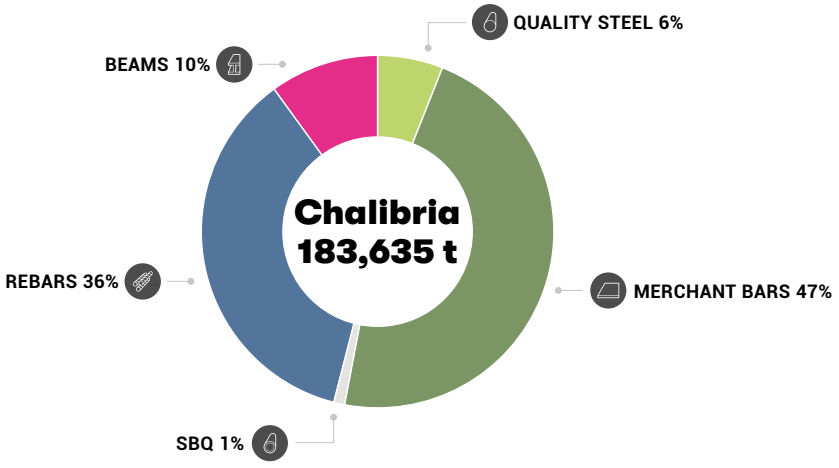
Chalibria market analysis

In the two years since November 2022 when Chalibria, our carbon-neutral certified steel, was launched, sales have increased steadily and significantly to around 10% of the total. Switzerland, Germany, Italy and the Netherlands are the market areas that have shown the highest receptivity for sustainable steel. Below are some graphs on sales trends:



CHALIBRIA WHOLE GROUP - Sales at 30/11/24





Sales at 30/11/24

Nation	Tons	%
Switzerland	68,176	37.13%
Germany	53,510	29.14%
Italy	24,001	13.07%
Netherlands	16,459	8.96%
Nordic Count.	11,241	6.12%
France	8,925	4.86%
Others	1,323	0.71%
Total	**183,635**	**100%**

Business activity and training in 2024

In 2024, our customers across Europe confirmed their commitment to decarbonisation by choosing Chalibria, our carbon-neutral steel. Despite the lack of unambiguous European legislation regulating emission levels for steel according to different uses, the market response was significant.
Chalibria's sales represented about 10% of those of the entire Group, split between: 50% merchant rolled, 35% rebars, 15% SBQ.

In addition, to implementing concrete projects to reduce CO_2 emissions, AFV Beltrame Group is actively engaged in creating synergies with its customers. During 2024, numerous meetings were organized, both in-person and remotely, involving the sales network, business contacts and ESG managers. These sessions were designed to provide specific training and to encourage a fruitful exchange of experience. In addition, AFV Beltrame Group has provided support to customers for the calculation of their carbon footprint and for the adoption of strategies aimed at reducing their emissions impact.
The meetings have shown a growing interest on the part of stakeholders towards the purchase of carbon-neutral materials.

In particular, the high-voltage electrical grid infrastructure sector has proved highly sensitive: in some European countries, tenders award points to materials with lower emission levels.

This year, to further enhance the results achieved by "Chalibria" partners, AFV Beltrame Group introduced a certified purchase attestation for its customers. Produced in cooperation with the certification body RINA, the certificates show both the quantities purchased and the total carbon footprint of the supply, certifying its complete neutralisation.

AFV Beltrame Group looks to the future with confidence, convinced that the positive trend of Chalibria's sales will increase further, thanks to the evolution of European regulations and the growing sensitivity towards ESG issues. Collaboration with our partners will be essential to improve emissions performance, supporting sustainable growth through concrete and synergistic projects.

Perimeter and boundaries of Chalibria steel

AFV Beltrame Group offers to its customers products with a carbon footprint verified by a third party according to international standards. Today, the company has two different proposals available to the market:

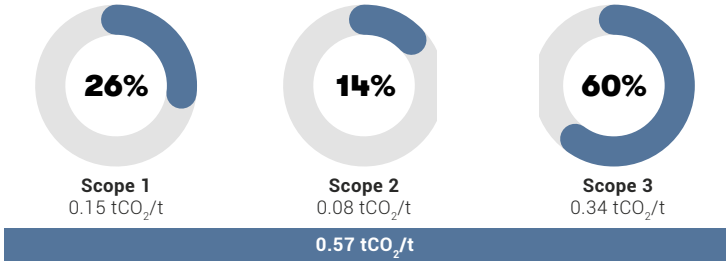
1

steel with lower Scope 1+2+3 (upstream) certified emission values than European average of EAF furnaces. The value represents the weighted average of the group and evaluates the path taken by the company over the years in terms of efficiency;

2

carbon neutral steel (Chalibria) in relation to the Scope 1+2+3 (upstream) certified emissions, which enhances the decarbonization plan adopted by the company and will constitute an added value in competitive terms for the coming years.

Emission intensity of AFV Beltrame Group: Scope 1+2+3 (upstream) for steelworks and rolling mill [tCO_2/t finished steel product, 2022].



Chalibria, carbon-neutral certified steel

The Group has been offering Chalibria, carbon neutral steel since autumn 2022 and continues its efforts to implement projects that will reduce CO_2 emissions.

Chalibria is the carbon neutral steel of AFV Beltrame Group in relation to Scope 1+2+3 (upstream) emissions along the value chain "cradle-to-gate".

Chalibria is the carbon neutral steel of AFV Beltrame Group in relation to Scope 1+2+3 (upstream) emissions along the "cradle-to-gate" value chain.

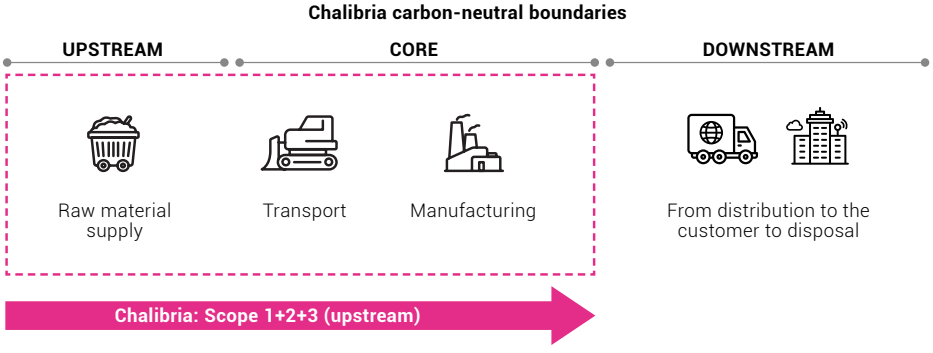
Carbon footprint calculation for Scope 1+2+3 (upstream) is verified by the RINA accredited Certification Body in accordance with ISO14064-1 (Specification with organisational guidelines for quantifying and reporting greenhouse gas emissions and removals).
AFV Beltrame Group uses "DIAS" (Data Integrity Audit Services platform), the digital platform of RINA that supports the audit activity: **this platform guarantees traceability, integrity and transparency of the data along the value chain "cradle-to-gate" Chalibria steel, zero emission.**

A new, more advanced version of the DIAS digital platform from RINA is currently being tested and will feature important developments such as multi-claim management related to the product (e.g. percentage of recycled content) and multilingual certificates, which will be adopted in 2025.

AFV Beltrame Group quantifies, for each of its plants, the emissions for Scope 1+2+3 (upstream) by steel-works, rolling mill and upstream transport (including material transport between plants) across the platform. This allows for specific CO_2 KPIs for the "cradle-to-gate" value chain for all plants.

The approach used for Chalibria products ensures that more than 80% of CO_2 emissions from the entire product life cycle are covered (cradle to grave)[1].

This is supported by the fact that downstream emissions of products have also been quantified and, where not available, estimated and this contribution has been less than 20% of total group-level emissions.



[1] Exclusions from the Chalibria perimeter:
- downstream transport from the gate to the AFV Beltrame Group customer has been calculated in the ISO 14064-1 inventory;
- the transport phases from AFV Beltrame Group customer to end user and those related to the end of life of the product have been estimated for the calculation of the contribution in cradle-to-grave optics but excluded from the inventory according to ISO 140641 because of their low significance and high uncertainty about the asset data.

New products in progress and new carbon credit projects

The possibility of extending Chalibria's carbon neutrality perimeter beyond the AFV Beltrame Group's company gate is being analysed for the future.
In particular, this extension could take place in two ways:

1

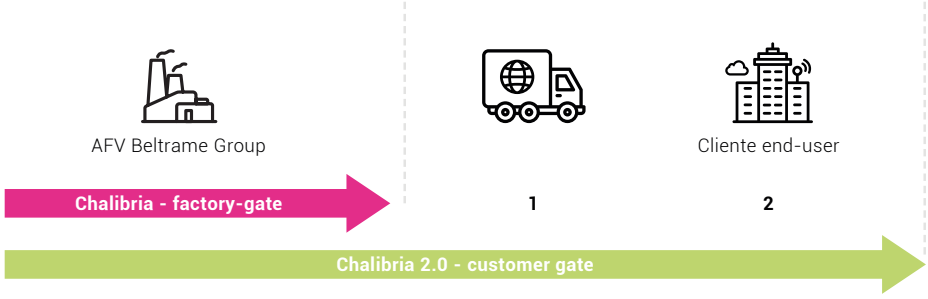
extension of carbon neutrality to the transport of finished products: thanks to the availability of transport data, customise the KPI including also the emission data of the transport to the end customer of AFV Beltrame Group;

2

extension of carbon neutrality to the end-user's gate: work with partner companies to extend the Chalibria boundary to the customer's gate, after calculation and certification of the emitter data by the latter. This approach aims to create a virtuous carbon-neutral chain.

This perspective reinforces AFV Beltrame Group's commitment to customised solutions and moves towards shared sustainability along the entire value chain.

Illustrative example of the extension of the Chalibria perimeter



For emissions, which the Group is not yet able to reduce through projects included in the Decarbonization Plan, Chalibria's carbon neutrality is achieved by offsetting CO_2 emissions through the purchase of carbon credits on a voluntary basis, in line with PAS2060 (Specification for the demonstration of Carbon Neutrality).

The commitment of AFV Beltrame Group, through the investments of the Decarbonization Plan, will allow the reduction of emissions from the "cradle-to-gate" value chain and consequently a decreasing purchase of carbon credits.
This commitment was revised in 2024 through the update of the GHG inventory and third parties verification of the overall emission reductions resulting from the implementation of the projects carried out.

Voluntary carbon credits are certificate[2] that can be purchased by companies to offset residual CO_2 emissions generated by their activities. These credits are generated by projects that help remove or reduce the amount of CO_2 in the atmosphere.

AFV Beltrame Group carefully selects projects that generate carbon credits, focusing its purchasing process on evaluation criteria that ensure the integrity and quality of the project, in particular:

01 procurement of CO_2 credits from Program Operators included in the IETA-ICROA code of conduct (e.g. VCS - Verified Carbon Standard, CDM - Clean Development Mechanism, GS - Gold Standard), validated and verified by independent and reliable third parties;

02 selection of projects that meet the minimum eligibility criteria (additionality, permanence, no-double counting), preferring those subject to a robust system for quantifying CO_2 emissions (reduction and/or removal);

03 ensure that projects contribute not only to CO_2 emissions reduction, but also to a wider positive impact on the environment, local communities and sustainable development (SDGs).

In the certificate attesting to the carbon neutrality of Chalibria steel, sent to our customers, it is reported which is the reference project for the carbon credit used for the compensation, together with the verification of the conformity of carbon credits issued by RINA in line with the certification PAS2060.

In 2024, the carbon credits used by the AFV Beltrame Group were generated by two separate projects: the first supported the construction of a 32 MW geothermal plant, while the second financed the development of a project that includes several photovoltaic plants for a total installed capacity of 480 MW. Both projects contribute to the achievement of the Sustainable Development Goals (SDGs) defined in Agenda 2030, in line with the priority objectives defined by AFV Beltrame Group and reported in its Sustainability Report.

[2] The purchase of carbon credits is classified according to different price classes: A) less than 10 €/tCO_2; B) between 10 and 40 €/tCO_2 and C) more than 40 €/tCO_2. The project purchased by AFV Beltrame Group is in class A). All purchase and cancellation transactions are recorded and stored by AFV Beltrame Group as evidence in the case of controls.

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