



# Sustainability Insights

2024 REPORT



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# SUSTAINABILITY: WHERE ARE WE IN 2024?



## Where do we stand in our sustainability journey in 2024

**W**elcome to the heart of Carmeuse's sustainability journey — a path where limestone and lime meets responsibility, and progress intertwines with purpose. At Carmeuse, we don't merely extract and transform minerals; we deliver essential products and services that underpin basic needs. From construction materials to ecological transitions, our solutions play a vital role.

In 2023, we continued to face — and surmount - challenges that are very different in different parts of the globe and for different industries. But the overall vision remains the same: to reduce the overall carbon footprint while keeping the company focused and united in our commitment to contributing to a better world.

Our products matter, and so does our impact. Discover how we approach sustainability, one pragmatic step at a time. Let's explore our sustainability progress in 2023.

# A WORD FROM OUR CHAIRMAN

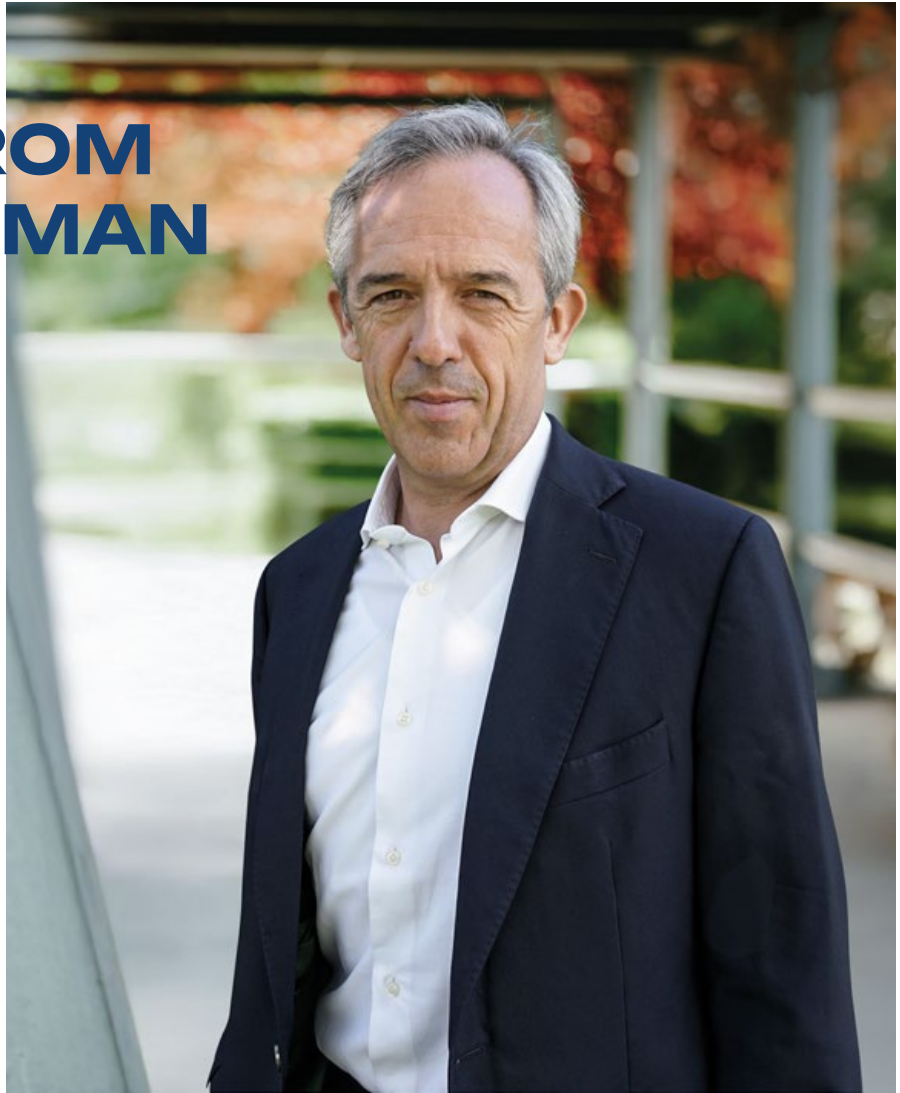
## Navigating sustainability

Over 160 years ago, our family-run business in Belgium embarked on a journey that would lead to significant transformations. Today, Carmeuse stands as a global industrial reference in our industry, with over 5,300 employees worldwide.

Amidst these changes, our heritage and core values (customer focus, efficiency, long-term vision, respect, and responsibility) remain unwavering. They define our DNA, providing a moral compass for our decisions and our actions. We know why we work, how we must work, and for whom.

Our passion to thrive has been a constant throughout the years. It fuels our commitment to better serve our customers, enhance the efficiency of our processes, expand our product applications, and minimize our impact on the environment.

Sustainability is at the heart of our journey. From the very beginning, it has been an integral part of our purpose: "We contribute to a better world."



To succeed in the long term, we must act sustainably. While Carmeuse already has a strong track record, we aim higher. Elevating our sustainability performance is essential in order to successfully pursue our journey over the long term.

Together, our ambition is to make a positive impact on the world, today and tomorrow through our products, our acts, and our initiatives.

**Rodolphe Collinet**  
*Chairman of the Carmeuse Board*

A handwritten signature in blue ink, appearing to be 'R. Collinet', written over a light blue grid background.

# A WORD FROM OUR CEO

## People, technology, and sustainable management

**M**ankind is facing several sustainability challenges. Firstly, there are still important discrepancies in human development across the globe. Our products and services are critical to customers that supply solutions and materials essential to human development. For example, steel and construction are key for infrastructure and household equipment. Glass, water treatment, clean air, agriculture, base metals refinement or battery production are other important areas of human development that would not exist without our products and services.

Another sustainability challenge is the impact of greenhouse gases emissions on the climate, with CO<sub>2</sub> being the main culprit.

At Carmeuse, we are targeting carbon-neutral products. We are also developing business opportunities for lime to capture CO<sub>2</sub>. Sustainability also involves looking at energy use, biodiversity and the wellbeing of our employees. That is how, with our products and services, we contribute to a better world.

To fulfill our mission of contributing to a better world, we believe in our people, technology, and sustainable management.



Therefore, we continuously develop our teams and promote the following behaviors: Collaboration, Passion, Ownership and Honest Feedback. This guides us when we interact with customers, colleagues, partners, and stakeholders. As we care about our people, we have set health and safety at the top of our agenda, and we work daily to promote a safety culture in all our locations.

Our sustainability mindset also drives us to support our nearby communities according to their local context.

Technological innovation, supported by digital acceleration, is a key lever of the decarbonization challenge. This is why we continuously invest in new solutions that will help reduce CO<sub>2</sub> emissions and support our objective of reaching net zero by 2050.

As we take sustainability to heart and act with passion and responsibility, our ambition is to be a champion of environmental stewardship.

**Sébastien Dossogne**  
*Chief Executive Officer Carmeuse*

A handwritten signature in blue ink, appearing to read 'Sébastien Dossogne'. The signature is stylized and fluid, with a prominent initial 'S' and 'D'.

# CARMEUSE IN 2023 AT A GLANCE

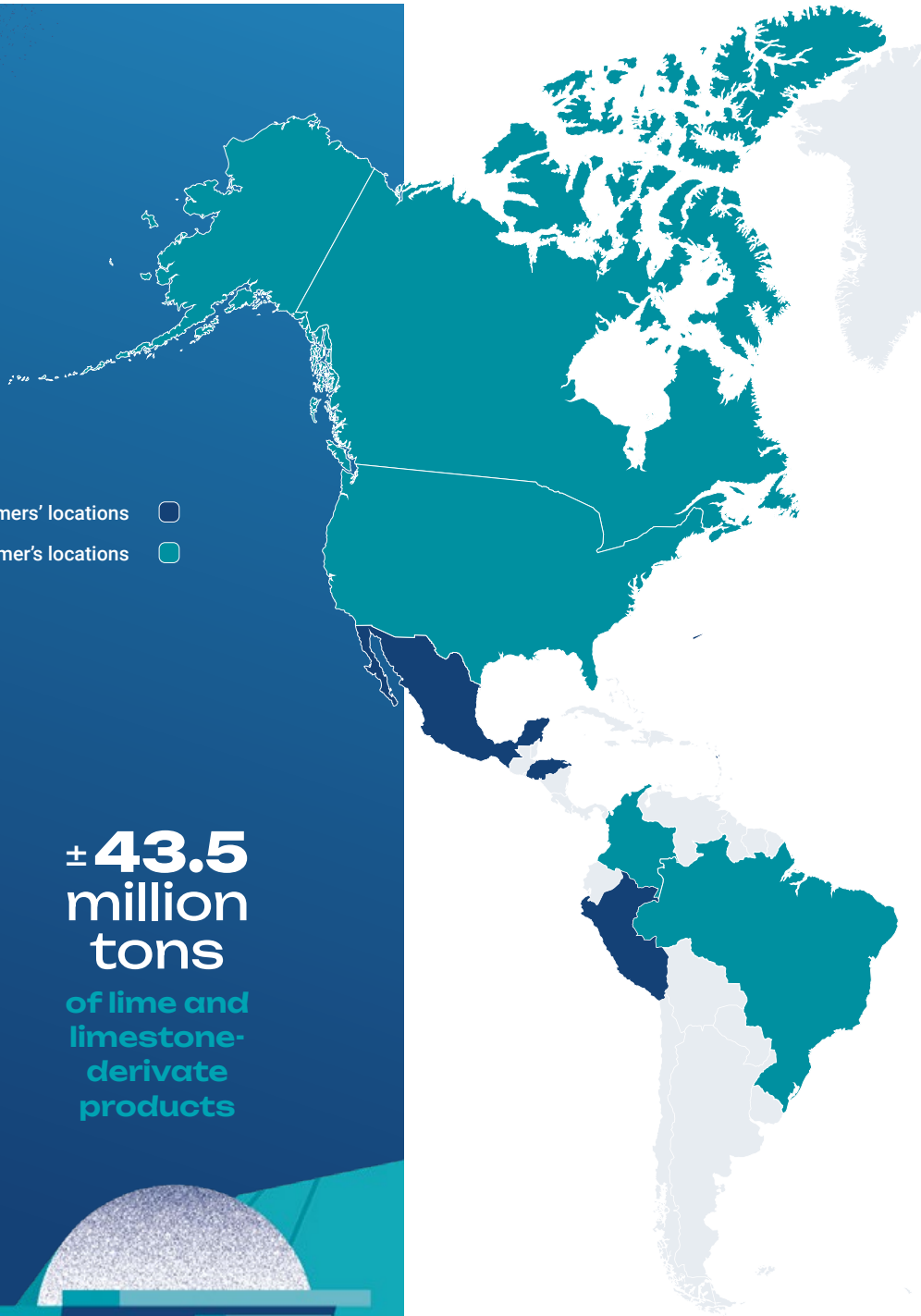
Rounded figures

Customers' locations

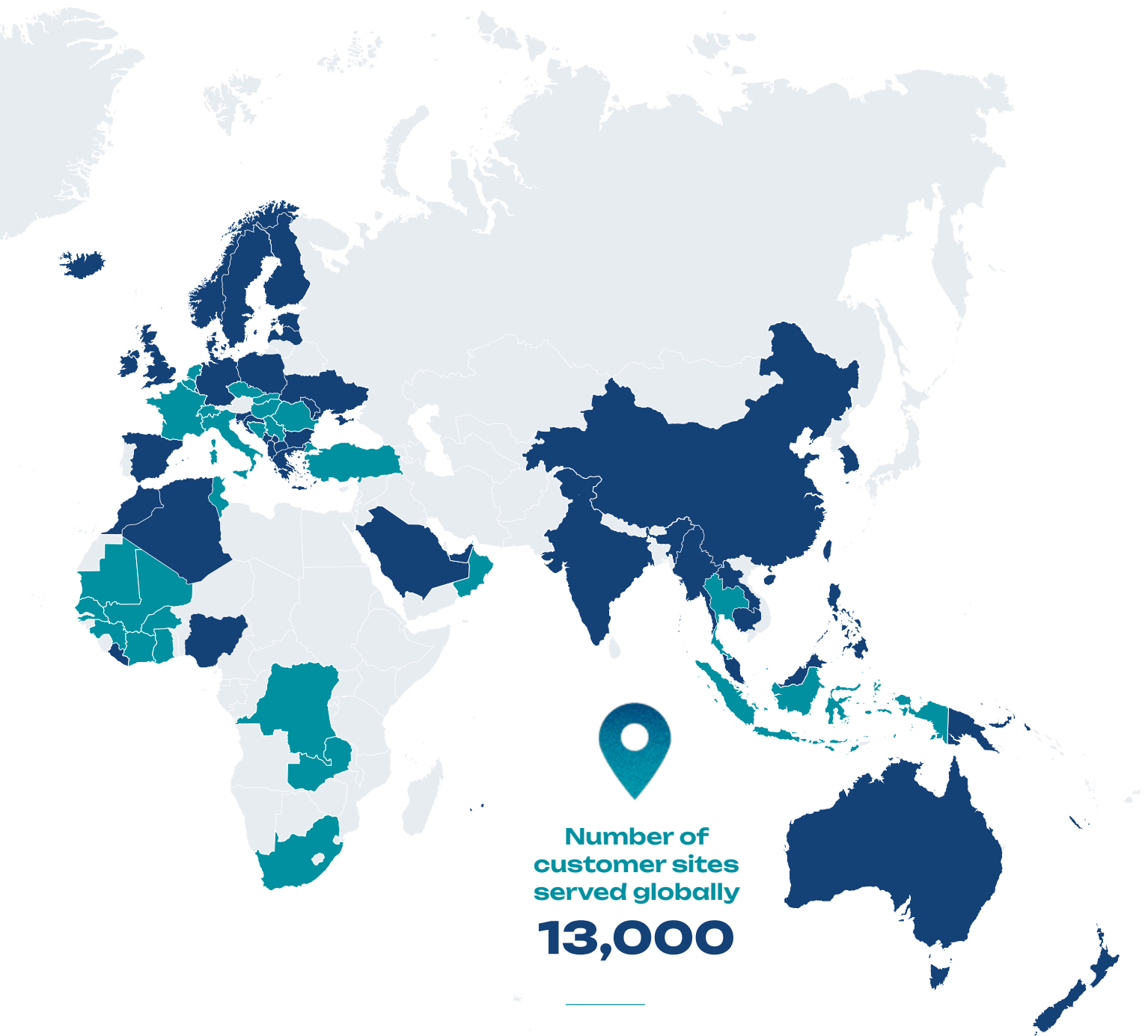
Carmeuse and customer's locations

**5,300**  
employees  
of  
**50**  
nationalities

**± 43.5**  
million  
tons  
of lime and  
limestone-  
derivate  
products



Founded in  
**1860**



Number of  
customer sites  
served globally  
**13,000**



Turnover  
**€2 billion**



**90**  
Plants



**60**  
Quarries

# SPOTLIGHT ON 2023

## Safety: zero Injury

Site safety plans were completed across all our sites in the Americas. Europe, Middle East, and Asia adopted 10 Life-Saving Rules (see p.19). Five sites boasted over 15 years without accidents at the end of 2023 (see p.21).



## Community initiatives across the world

We continue to support initiatives worldwide, tailored to community needs (see p.22-24).



## Sustaining biodiversity in our quarries

Carmeuse in Belgium finalized the restoration of around 20 ha of land (see p.33). In Canada, the Beachville quarry rehabilitation plan is nearing completion, enhancing biodiversity for different species (see p.34).

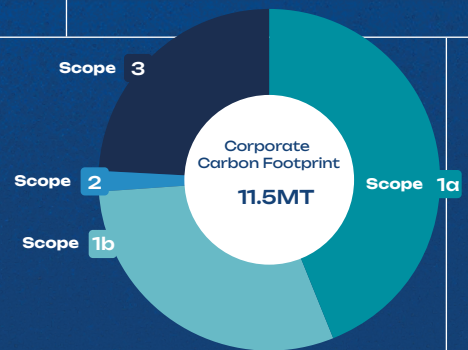
## Top workplace in Pittsburgh

Pittsburgh Post-Gazette awarded Carmeuse the 'Workplace Award for Mid-Sized Companies' in 2023 (see p.26).



## Supporting education via our Foundation

The Carmeuse Foundation supported over 30 non-profit organizations, impacting the lives of over 22,000 children. For example, 22 Carmeuse volunteers worked with the Turkish National Education Directorate to create a training program (see p.29-30).



## Our climate impact – Scope 1-2-3 CO<sub>2</sub>

We have been calculating the carbon footprint (scopes 1-2-3) at the group level since 2019. The global Carbon Footprint in 2023 represents 11.5MT of scope 1-2-3 CO<sub>2</sub> emissions (see p.40).

## Combustion emissions

Five kilns were converted to biomass in Central and Eastern Europe. Decarbonization of the industrial fleet and on-site transportation continues with examples in Turkey, the United States and Thailand (see p.45).

## Carmeuse's CO<sub>2</sub> Roadmap: GLOBAL TRANSITION TOWARDS NET-ZERO

Our primary focus with the CO<sub>2</sub> roadmap lies on the direct (scope 1) emissions from our own operations to reduce the global combustion emission intensity by 25% by 2030 and be ready to implement carbon capture technologies by 2030 (see p.41-43).

## EcoVadis

14 EcoVadis country assessments were carried out across the group (Brazil and Italy for the first time). Eight countries attained or maintained a platinum medal. Carmeuse operations in Canada and the Czech Republic received the EcoVadis Global Leadership Award 2024 (see p.13).



## Process emissions

We have set up a carbon capture technology development program with the objective to be CCS techno-ready by 2028. The Butterfly project will capture and concentrate CO<sub>2</sub> directly during lime manufacturing. Construction began in June 2023. (see p.46-47).

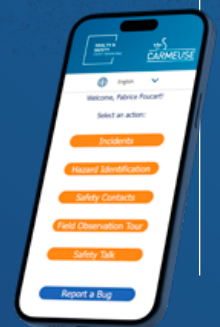


## A customer-oriented decarbonization approach – MoL

We often partner with key customers to reduce their footprint and meet climate goals. As an example, Carmeuse built a dedicated Milk of Lime production unit on a customer's premises, resulting in multiple benefits (see p.49-51).

## Digitalization: industry 4.0

We have begun to upscale our operations' digital tools. A global Safety App was launched to record safety events and review performance (see p.31).





# THE VISION: PEOPLE, PLANET AND PROSPERITY

## Defining the scope

Since 2020, Carmeuse has been implementing the Group Sustainability Vision 2030, defining where we want to be by the end of the decade. We had identified nine sustainability focus areas for our company under the three pillars: People, Planet and Prosperity.

The Vision provided the guiding framework for all our activities, with the aim of fostering sustainable and responsible behaviors, and anchoring corporate social responsibility considerations in our company operations and corporate governance.

The Vision was originally developed in line with the UN Sustainable Development Goals (SDGs) to ensure it is consistent with the global society's priorities in sustainable development.

# EXTERNAL SUSTAINABLE COMMUNICATIONS

## EcoVadis: a compass for mapping progress

**E**coVadis has been assessing Carmeuse’s sustainability policies, actions and results since 2017. On the one hand, EcoVadis is a communication tool with customers and on the other a compass for internal progress on sustainability practices.

In 2023, we met several notable milestones:

- 14 EcoVadis country assessments across the group
- Brazil and Italy were assessed for the first time
- 8 countries attained or maintained a platinum medal, placing them among the top 1% of organizations across all industries
- JV operations in Oman achieved an impressive score increase (11 points), one point short of platinum
- EcoVadis Global Leadership Award 2024 for our operations in Canada and Czechia (the Czech Republic)

Carmeuse North America has been a signatory of the UN Global Compact Initiative since 2021, aligning with ten universal principles in the areas of human rights, labor, environment and anti-corruption.



**“As the assessment evolves year on year, EcoVadis acts like a sort of dynamic compass that helps Carmeuse to continuously improve, raise its ambition and adapt to the transformation of sustainability.”**

**Veronica Tojal**  
Sustainability Planning Lead,  
Group Coordinator EcoVadis  
assessment - Group



**“Since we started participating in EcoVadis in 2017, it has greatly helped us to identify gaps and areas for improvement in order to achieve better sustainability standards locally in the Environmental, Health & Safety, Human Resources, and Procurement departments.”**

**Ahmed Al Naqeeb**  
Director HR & HSS Carmeuse  
Majan LLC. (SFZ), Oman Coordinator  
EcoVadis assessment - Oman



**First report in  
2026**

## Moving towards CSRD compliance

**T**he European Corporate Sustainability Reporting Directives (CSRD) aims at enhancing companies' transparency in sustainability matters, notably through yearly reporting on Environmental, Social and Governance topics (ESG).

In the case of Carmeuse, a large EU-domiciled company, we will issue the first report in 2026, in parallel with the yearly financial reporting. All our companies (even those not based in

the EU) fall within the scope of CSRD and will be part of the report.

In 2023, we worked on the Double Materiality Assessment, to evaluate and prioritize sustainability topics, considering both the financial risks and opportunities for the company but also our impact on the environment and society. This essential first step towards CSRD compliance allows Carmeuse to focus subsequent efforts on the process.

## Business ethics: activating the whole value chain



**Internal employees  
trained on  
the Code of Ethics:  
100%**

**B**usiness ethics are important for a company's sustainable growth. And it is important that they permeate through every level of the operations. They enable us to conduct our business in a way that is both ethical and responsible in a rapidly evolving context.

The company's principles of ethical behavior are spelled out in the Carmeuse Code of Ethics. It explains the human rights and labor practices that the Group expects of all its employees, suppliers, and other partners. Employees commit to the Code with regular training to keep it fresh.

As the goal is to maintain the highest standards in environmental and social governance, the Group also expects its suppliers to adhere to equivalent principles set in the Carmeuse Supplier Code of Conduct. To help with compliance, an anonymous "Speak Up" process was set up where internal and external stakeholders can raise concerns about suspected breaches of the Code, our values and/or relevant laws and regulations.



# HUMAN AND NATURE SUSTAINABILITY



**A** look at the activities shows that Carmeuse has been purposefully progressing in its sustainable reach in 2023. Both at a global and a local level, we have been seeking to make a positive impact on the world around us. We are proud of our achievements in health & safety and personal development, while recognizing that these are also areas that we can never take for granted and must continue to monitor and improve. People, after all, drive our progress as a company and act as custodians for the communities we work in.



# PRIORITIZING SAFETY AND WELLBEING



## Getting to zero

Safety is Carmeuse's #1 priority, with the ultimate target of reaching zero accidents. This can only be achieved when people are continuously engaged – whether they work at or are visiting our premises.

# Programs across the regions

**K**icked off in 2015, the Zero Injury Initiative at Carmeuse Americas is supported by regular initiatives, programs, and the realignment of culture with the goal of sending everyone home in the same condition they came to work.

Field observation tours and management safety tours drive in-the-field leadership engagement, as they are conducted by front line leadership and above. They ensure

regular contact with employees to observe both behaviors and working conditions. Site safety plans were completed across all sites by 2023 with an auditing system in place. In 2023, new applications were developed that facilitate the entry, tracking, and feedback required of these engagements.

Targeted programs to reduce hand and finger as well as eye injuries were one of the focuses in 2023,

through the standardization of gloves that provide cut, puncture, and impact resistance and glasses that are gasketed to further reduce the chance of eye injuries.

In 2023, Carmeuse Europe, Middle East and Asia evolved the former Safety Golden Rules into 10 Life-Saving Rules. They provide a stronger reminder of general safety rules, notably ones linked to the most significant hazards within the business.

## LIFE-SAVING RULES



**Always perform a risk assessment before starting a work**



**Always ensure that all energies are isolated before starting to work**



**Always wear seats belts and respect circulation rules while driving**



**Always wear required Personal Protective Equipment**



**Always protect yourself against risk from fall when working at height**



**Always stop the work and report any unsafe condition, act and near miss**



**Always stay away from the path of moving machines or vehicles**



**Never remove, bypass or modify safety devices without being authorize**



**Never enter in a confined space without having be authorized and in place control measures**



**Never work or drive while under the influence of drug or alcohol**

Another essential event in 2023 was the Safety Day in Kosice (SK), a working session with the regional leadership team members, area managers, plant managers and

H&S managers to define the next safety milestone. Various areas were identified including safety as everyone's responsibility with strong leadership engagement, mandatory

training on risk assessments, and standardization of the production process so that we can act safely.

## Focus on training

Also at the cornerstone of safety is training, whether through on- or off-the-job training, lunch and learns, safety alerts, safety talks, simulators (in the US), online on-demand topics and virtual reality (in Turkey and Oman).

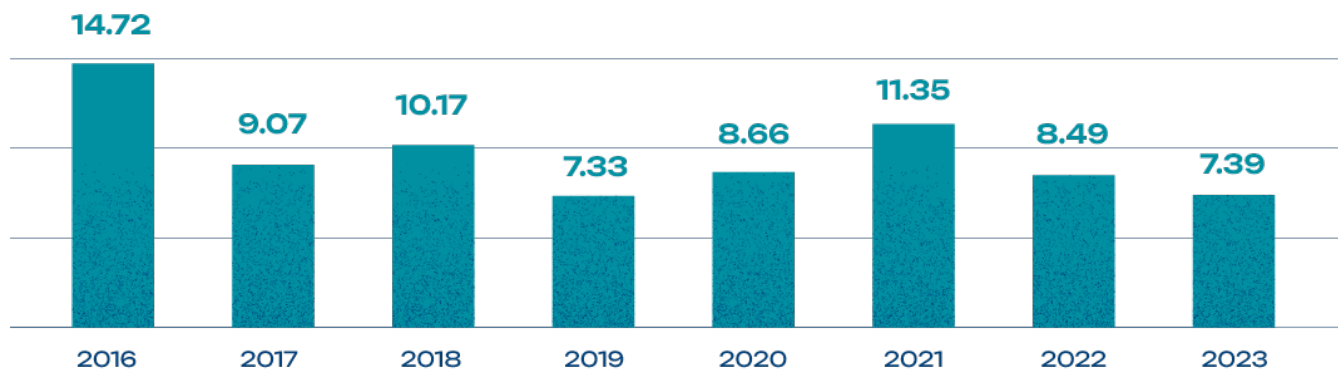
All employees, contractors, subcontractors and visitors that enter a Carmeuse plant need to follow safety training. In Europe, a new safety video was developed to this end and the control system has been digitalized. Trained people are given a 'Safety passport' valid for one year.



Safety assessment being done in a US plant

## Safety in numbers

Carmeuse tracks several safety KPIs, among them recordable injury rate (RIR). The RIR looks at the number of total recordable incidents and compares it to the number of total hours worked by all employees in a year.



For reporting purposes, the numbers used for Americas are converted to the European formula.

< 2022: Carmeuse North America, Carmeuse Europe, Middle East and Asia.

2023: Scope has been enlarged to include: Carmeuse South America (Columbia, Brazil), Carmeuse Overseas, Italy and Headquarters. On the similar scope as < 2022: 7.84

Several sites have been running without accidents (Lost Time Accidents) for a number of years. At the end of 2023, 68% had a track record of more than one year without accidents.

## At the end of 2023

Years without Lost Time Accidents (LTA)	Sites*
<b>&gt;15</b>	<ul style="list-style-type: none"> <li>▶ Pelican (US) <b>20y</b></li> <li>▶ Yager Materials Corp. (US) <b>20y</b></li> <li>▶ Deva (RO) <b>18y</b></li> <li>▶ Trebejov (SK) <b>18y</b></li> <li>▶ Tavaux (FR) <b>16y</b></li> </ul>
<b>&gt;10</b>	<ul style="list-style-type: none"> <li>▶ Fieni (RO) <b>12y</b></li> <li>▶ Mokra (CZ) <b>11y</b></li> </ul>
<b>&gt;5</b>	<ul style="list-style-type: none"> <li>▶ Beachville (CA) <b>9y</b></li> <li>▶ Madonna Scoperta (US) <b>8y</b></li> <li>▶ Dundas (CA) <b>8y</b></li> <li>▶ Middletown (US) <b>8y</b></li> <li>▶ River Rouge (US) <b>7y</b></li> <li>▶ Bois Bernard (FR) <b>7y</b></li> <li>▶ Annville (US) <b>7y</b></li> <li>▶ Itri (IT) <b>6y</b></li> <li>▶ Gouda (NL) <b>5y</b></li> </ul>

\*Including quarries, lime manufacturing and processing sites



**“At the end of May 2023, our colleagues from Deva plant in Romania, celebrated 18 years without accidents. This remarkable achievement is not just represented by the approximately 6,580 days in which, each day, our colleagues returned home healthy. Above all, it shows that they managed to create a sustainable safety culture, a solid system transmitted over several generations.”**

**Daniel-Leonard Stoi**  
Operational Excellence Manager - Eastern Europe



Aisemont Plant in Belgium

## Health Day events

Several locations organize Health Day events. This was the case in Tunisia, Senegal, Ghana, Côte d'Ivoire, and Zambia. On these days, employees enjoy a variety of sport activities together to encourage them to be more active and create more team cohesion.

## Initiatives across the world

Carmeuse continues to support health initiatives across the globe, adapted to community requests:



### Information session about diabetes in Mauritania:

Type-2 diabetes is rising due to changing lifestyles. Together with *SOS Diabète*, Carmeuse has been sharing information, promoting free screenings and consultations, and distributing screening kits with glucometers.



### Health Day in Colombia:

Without Carmeuse's sponsorship of Santiaguitos Children's Center, some children would likely only eat one meal a day. The sponsorship of this Health Day and food distribution provided information about nutrition as well as a medical check-up for children.





**Carmeuse employees in the US** have been supporting the 'United Way' community program for years. In 2023, 36 employees from Pittsburgh donated more than \$21K to twelve non-profits.



**HIV sessions in Ghana:** 200 members of the Sofokrom community (including high school students) were given information about symptoms, prevention, and the importance of knowing your HIV/AIDS status.



**Swimming lessons for 20 autistic children** from the Maria Reconfort Center (Ivory Coast). Studies show that swimming improves motor functions, communication, and emotional response. Our team introduced 20 autistic children to swimming by touching the water or daring to float with a teacher.

**192**  
Community projects for the Carmeuse Group





## Food programs for our communities

The key to providing effective support is to understand genuine needs. Carmeuse and its employees worked alongside various communities. Here are two examples:



**“Since Carmeuse Senegal started its activities, we have felt a genuine desire to change things and have a positive impact on the village. In addition to enabling us to sell products from their harvest, they support women in the field of health and especially in the education of their children.”**

**Khady Sène**

Member of the community of  
Bandia - Senegal

### Bandia (Senegal)

Two projects in **Bandia (Senegal)** that provide much-needed food to local children and income to mothers are an example of this.



To combat malnutrition, the association of mothers of the village of Bandia and Carmeuse have been offering monthly food packs since 2020. Weekly meals go to about 100 malnourished children up to the age of five. In 2023, Carmeuse started sponsoring a cereal processing unit to enable them to be self-sufficient and develop an income-generating activity.

Next to the factory, we also employ a team to manage 4.74 hectares of land, supervised by an agricultural engineer from Carmeuse.



Food initiative  
in Brazil



## Pittsburgh (USA)

For several years, Carmeuse employees in **Pittsburgh (USA)** have been donating money to the non-profit SEED (Something to Eat Every Day) so that they can purchase food and help them pack the food to be put in kids' backpacks.



The food is provided to students who qualify for low-income assistance who already receive a free breakfast and lunch at school from the government. The Project SEED food ensures they have enough food over the weekend. They are also working on a way to assist them over the summer break as well.

The volunteers discreetly put the food in the children's backpacks when they are not in the classroom to avoid the stigma of food insecurity. They choose non-perishable food that can be easily eaten as is or put in the microwave.



**“Carmeuse is proud to partner with other Pittsburgh-based companies to support Earth Day as we are committed to fostering sustainability and environmental stewardship everywhere we operate. Our participation connects us with the local community and our stakeholders. It raises awareness about sustainability, allows us to learn from our neighbors' efforts and inspires others to take action. Sustainability will always necessarily be a collective effort.”**

**Nicholas Bonarrigo**  
VP, Legal & Environmental - Americas

# EMPOWERMENT THROUGH EDUCATION & DEVELOPMENT

## Top workplace in Pittsburgh

**F**or the third time in four years, the Pittsburgh Post-Gazette awarded Carmeuse the 'Workplace Award for Mid-Sized Companies' in 2023. The honor is based on employee surveys conducted by the

Gazette that underlined the long-lasting, team-oriented culture at Carmeuse, showing it to be a highly collaborative, supportive, and fun place to work.



Part of the Carmeuse Pittsburgh team

# Understanding employee engagement



Every year, Carmeuse organizes an engagement survey that covers four dimensions: happiness, feeling valued, energy & morale, and purpose & meaning. Our 2023 employee engagement rate was higher (+14%) compared to our internal benchmark from 2022.

We also looked at the Employee Net Promoter Score (eNPS) to better understand how employees feel about the company.

Our highest-scoring areas include:

- Role Clarity
- Relationship with Peers
- Autonomy & Ownership

In 2024, a new engagement and listening tool will help us to better understand the needs and act upon the feedback received.



**57%**

**is the survey participation rate**

(global responses, white and blue collars, December 2023)

**People setting their goals**

Once a year, all our employees have a development discussion with their managers leading to personalized development plans.



**Employee engagement rate 2023**

**+14%**  
compared to 2022



**25**

**Training hours/  
employee**

## Training: continuous learning in action

The Carmeuse training program is directly based on feedback from the engagement survey and requests based on development goals. As such, it represents employee priorities from the previous year. In 2023, this included:

### Go Fluent

This pilot project allows 60 people from European countries to feel more comfortable speaking English. They can be more involved in projects, initiatives and other trainings opportunities. This is an asset for their evolution in the company.

### Process Engineer Academy

Since its inception (in the 90s), the Engineer Academy has trained more than 200 process engineers. It now offers blended training that consists of:

- Five months of online training
- A mid-course team exercise related to topics learned during the online session
- An individual project completed by each participant
- A full week-long face-to-face workshop to apply the various skills learned online and to enhance team building between engineers

Attendees come from the Group or its partners worldwide.

### US Youth Apprentice

High school students interested in skilled trades now have an opportunity to learn and earn at Carmeuse. Selected students spend the first half of their school day learning a skill taught by retired Carmeuse employees. The goal is to develop skills and build a relationship in our community so that upon graduation, Carmeuse is able to hire them.

### US LEAD (Leadership Exploration and Development)

In 2020, Carmeuse identified a challenge of ensuring that new managers have the tools they need to be successful. LEAD is a comprehensive program that provides leadership and management skills, as well as general Carmeuse knowledge. We are currently training our sixth cohort, and are already planning the future editions.



**“I had the opportunity to attend Kiln Training at Sioux city as a part of my development. I learned which daily preventive maintenance at the kiln can prevent bigger mechanical issues. I am using that knowledge to drive precision maintenance at our lime plants to increase equipment reliability.”**

**Harsh Murria**

Regional Reliability Engineer -  
Canada

# Supporting education via our Foundation

Carmeuse is a strong believer that education is an important step towards a better world. This is why all over the globe we run initiatives to improve kids' chances of success in life.

In 2023, the Carmeuse Foundation supported over 30 different non-profit organizations, impacting the lives of over 22,000 children across five continents (NA, SA, Europe, Asia and Africa). Tutoring and mentoring opportunities are offered by many of these organizations and their annual reports support the increased academic level of the children enrolled in their programs. The funding also reached the children through the supply of school kits,

PCs, hygiene products, lunches/ snacks at school, mental health services, playground equipment and much more.

### Concrete example:

Teacher housing can play a crucial role in attracting and retaining educators, especially in rural and remote areas in Africa. The Carmeuse Foundation in Zambia assisted the Muwaya Primary School by constructing teachers' houses.

## The Carmeuse Foundation

Every child deserves the opportunity to learn, grow, live and thrive. The Carmeuse Foundation, guided by an internal committee and an external expert, supports children and young people, living near our operations, that require support for family situations, their social and material environment, their disability or health concerns. The Board determines the budget for these initiatives.

The Carmeuse Foundation works closely with local non-profits, while also boasting a global philanthropic partnership with JA Worldwide.



Students at BizTown (junior achievement initiative in the USA)



Over  
**17,000**  
youth  
impacted by  
our Foundation's  
actions



As part of the Carmeuse Foundation's partnership with Junior Achievement, more than 17,000 children took part in educational projects. Here are 4 out of the 15 projects that were implemented.



**"I had the opportunity to accompany students with innovative ideas for a year. Guiding them towards their entrepreneurial goals was an extremely motivating experience."**

**Charles Garot**  
Head of Design Engineering -  
Group

- **Brazil:** a financial training class in underprivileged schools. The goal is to teach them financial literacy. Eleven volunteers worked very hard to make this subject tangible and understandable to 90 students
- **Oman:** ten volunteers organized a "Challenge Camp" for 200 male and female university students. The problem they had to solve was technical and they were helped by Carmeuse volunteers as well as university teachers. The teachers were glad as it was not the kind of teaching they usually do in class

- **Turkey:** 22 Carmeuse volunteers started a program from scratch in collaboration with the Turkish National Education Directorate. It was a mix of online soft skills (including Design Thinking) with 80 students and five days of technical training sessions with 20 of them. Finally, ten students of the 80 from the first round were selected for a two-week internship in a Carmeuse plant
- **USA:** volunteers from the Carmeuse Foundation allowed 10,000 elementary school students to operate banks, manage restaurants, write checks, and vote for a mayor. Students were able to connect the dots between what they learn in school and the real world

# DIGITALIZATION OF OUR COMPANY: INDUSTRY 4.0

## Getting to sustainable innovation faster

2023 marked the first year of our initiative to upscale our operations' digital tools. A multidisciplinary team of business and operations process leaders, IT and digital experts – alongside vendors and consultants – reviewed the way we currently process information from the mine up.

One of the end goals is to provide more useful tools to our operation teams, facilitating the way our process data are gathered for review. Analyses provide further insights to guide our decisions, and free up time to do what matters most: ensure the safety of our operations team members.

One of the first tools to be rolled out is a global Safety App that records hazards, near misses, incidents, or safety touchpoints. It also offers a unique portal to

review our performance and find avenues of improvement to progress towards zero injuries. The app is readily available to most Carmeuse employees, has been translated into most of our plants' local languages, and will be continuously improved based on our users' feedback.

We are also progressing towards the digitalization of our company, driving alignment and integration across and between systems, regions, and departments. This will create a robust operational data infrastructure that



**“This project gives us a unique opportunity to collaborate with our passionate colleagues across functions to simplify the way we do business. It’s a first step toward a greater integration and standardization of our processes, and will empower our users by bringing as much information they need at their fingertips.”**

**Donald Lhoest**

Digital Transformation Project  
Director - Group

will facilitate the way we control our operations and processes. The transformation enables and accelerates sustainable innovation, allowing us to support better inter-functional collaboration, and further integrate with our stakeholders. Facilitating the exchange of information across the company will also help consolidate our overall know-how and facilitate the propagation of our sustainable best practices.



# PROTECTING NATURE'S CAPITAL



## Is lime a natural product?

Limestone, a carbonate sedimentary rock, is a natural stone that forms through various processes, such as the accumulation of calcium carbonate from seawater. It is a very common rock that is abundant within the Earth's sedimentary crust. Varieties of limestone include travertine, tufa, caliche, chalk, sparite, and micrite. As lime is directly obtained by heating limestone, there is no additive or chemical product added.



**81.1ha**  
Area restored  
for biodiversity

Target 2030

**330ha**

(cumulative 2020-2030)



# Sustaining biodiversity in our quarries

Quarries are recognized as exceptional sites for biodiversity thanks to the landscape created by operations (cliffs, scree, ponds, etc.) that are scarce in the environment. By applying lessons learned from experience and the European Life program, Carmeuse ensures that biodiversity is not only preserved but also reinforced on its sites.



## Belgian restoration

In 2023, Carmeuse in Belgium finalized the restoration of around 20ha of land into plantations with ponds, scree and limestone lawns, and the relocation of protected species. Moreover, in 2023 the 'Hedges' project resulted in 13km of double row hedges being planted.

### Life in Quarries

The Life in Quarries program protects species and pioneer habitats that are practically only found within active quarries. This involves dynamic biodiversity management during the quarry operation. Afterwards, we maintain the restored zones over the long term. These include pioneer (29) or permanent (9) ponds, scree slopes

(500 meters), shelters (21), cliffs with swallows (4) or solitary bees (1), and pioneer or grazed meadows (4.25ha).



### Wetland in Frasnés

Created in 2016, this wetland was developed with the City of Couvin (Belgium). Every year, we help maintain the wetland and the attractiveness of the area for biodiversity with a local NGO.



**“Since childhood, I’ve loved exploring nature and saving animals. Collecting frog spawn and discovering a striped calamite toad near an old forge are fond memories of my youth. The Life in Quarries project has helped change my mindset and knowledge about other species. I’m proud that my colleagues contact me to save habitats and creatures!”**

**David Cosse**

Team Leader Extraction - Western Europe



**“Part of the environmental manager’s position is to ensure that at the end of our mining we have had minimal overall impact. I work with our management team to follow a government-approved rehabilitation plan. Forests and farmland management are necessary to ensure the sustainability of land that won’t be mined for many decades. Quarry reclamation has many benefits for both the company’s reputation and the community.”**

**Chris Martin**  
Environmental Area Manager -  
North America

### Canadian rehabilitation



**T**he Beachville quarry rehabilitation plan that is reclaiming quarries south of the Canadian National rail lines is close to completion. Over 11 million metric tons of overburden will have been moved to create side slopes, vertical faces, shoreline ledges and lake access shoreline. These maintain or improve the biodiversity for species such as white tail deer, a nesting colony of blue herons, peregrine falcons, turkey vultures, foxes, coyotes, red tailed hawks, and different species of freshwater fish and migrating birds.

## What does quarry restoration involve?

Quarry restoration is the process of rehabilitating an exhausted part of a quarry, either during or after operations. It involves re-using the topsoil, subsoil, and overburdens that were stripped during the mining process and the creation of new natural habitats by planting, sowing or letting the water level rise. In this way, we manage biodiversity during operations, we don’t wait for the quarry to be depleted.

### Tree Planting

**T**ree planting has become a yearly tradition across Carmeuse locations worldwide. Globally, Carmeuse planted more than 55,000 trees in 2023. As examples, 2,000 trees were planted together with a reforestation program and a cocoa cooperative in the Ivory Coast. In Thailand, pink Panthip trees were planted as part of World Environment Day initiatives in the local area of Chong Sarika plant.



## Can extracting limestone pose a risk for the environment?

Limestone is extracted from quarries and must follow various regulations regarding the protection of the environment, but also regarding the safety of operations and the risks of disturbances for the neighboring communities.

As operator of over 60 quarries across the World, Carmeuse has long, proven experience in sustainable quarry management. From the environmental perspective, we aim at developing a holistic approach that considers all aspects: biodiversity and restoration, energy efficiency, water management, air quality, noise and vibrations, etc.



## Supporting fauna: wildlife preservation



**A**s they are often calm areas, quarries offer great environments for developing biodiversity for wild animals during or after cessation of activity. Carmeuse has noted several species either moving into or revisiting our quarries every year.

### These include:

- In Canada and the United States, habitats for peregrine falcons have been reinstated, along with areas for red tail hawks, blue herons and other migratory birds
- Belgium has seen the return of bank swallows, natterjack tadpoles, and frogs to Carmeuse properties

## The lift that protects native fish

**A**t our Great Lake sites in the US, the creeks, rivers and lakes on our properties are often places where fish spawn and reproduce. However, there are a lot of barriers and invasive species. One project is reconnecting native fish with their historic ranges in tributaries while

blocking the arrival of invasive species. It uses a lift system with a camera for the identification and sorting of native fish.

Similar approaches are being tested in other places, such as the Swan River, Rogers City, MI (Calcite).



## Local clean-ups go global!

**W**ith the mindset that to help clean the planet every action counts, Carmeuse employees equipped with collection kits, enthusiasm and good cheer, took part in local Nature Clean-Up projects. They jointly collected trash in Belgium,



Canada, Romania, Serbia, Slovakia, Thailand, and the US among others.

- Many of our Longview, Alabama employees joined with Cahaba Riverkeepers and Twin Oaks and Vision Farms to provide stone for repairing roadway washouts and also picked up over 450kg (1,000lbs) of trash in the Cahaba River National Wildlife Refuge
- In Winchester, Virginia the team helped pick up 48 bags of trash on the road surrounding the plant

- In Serbia, the team in JelenDo cleaned the area around the factory benefiting the local community environment
- In Brasov (Romania), a team cleaned the garbage of a forest located in a former stone quarry in the city
- In Belgium, 100 Carmeusians took part in the 9<sup>th</sup> “Big Clean-up” organized by BeWaPP, a non-profit organization targeting public cleanliness in Wallonia. More than 600 kilos of waste were collected

# CLIMATE AND ENERGY



# LIME - POSITIVE IMPACT ON EVERYDAY LIFE

In ways that we often do not immediately see, lime is used almost everywhere and is essential to the quality and progress of our daily lives. It is a key ingredient in cement and plaster. It acts as a flux to remove impurities in steel making. It softens

water and reduces impurities in water treatment, making it safe for drinking.

It is used as a critical ingredient in the process of many other applications such as flue gas treatment, soil improvement for crop yield

improvement, road stabilization, glass production for solar panels and food applications, and in metal production for batteries. In short, lime is a key building block for the sustainable progress of society.



# THE CHALLENGE AND OPPORTUNITY OF THE LIME CYCLE

Climate change is undeniable. Limiting greenhouse gas emissions is one of the largest and most urgent challenges of our times. The lime industry accounts for on average 1% of global industrial CO<sub>2</sub> emissions. Most of these emissions originate directly from the lime production in the kilns.

As this process consists of decarbonizing limestone by heating it at temperatures above 900°C, there are two sources of direct (scope 1) CO<sub>2</sub> emissions:

- Combustion emissions.** These originate from burning fossil fuels to obtain the required heat. Depending on the kiln technology and the type of fuel, combustion CO<sub>2</sub> emissions account for 25% to 40% of the total direct CO<sub>2</sub> emissions
- Process emissions.** These result from the chemical reaction (calcination, the decomposition of limestone to lime by releasing the embedded CO<sub>2</sub>) that occurs when limestone is heated. The thermal decomposition releases the CO<sub>2</sub>. More specifically, for each tonne of lime 0.78t of CO<sub>2</sub> is emitted. This is what we call the process emissions, which represent 60% to 75% of the direct CO<sub>2</sub> emissions and cannot be avoided

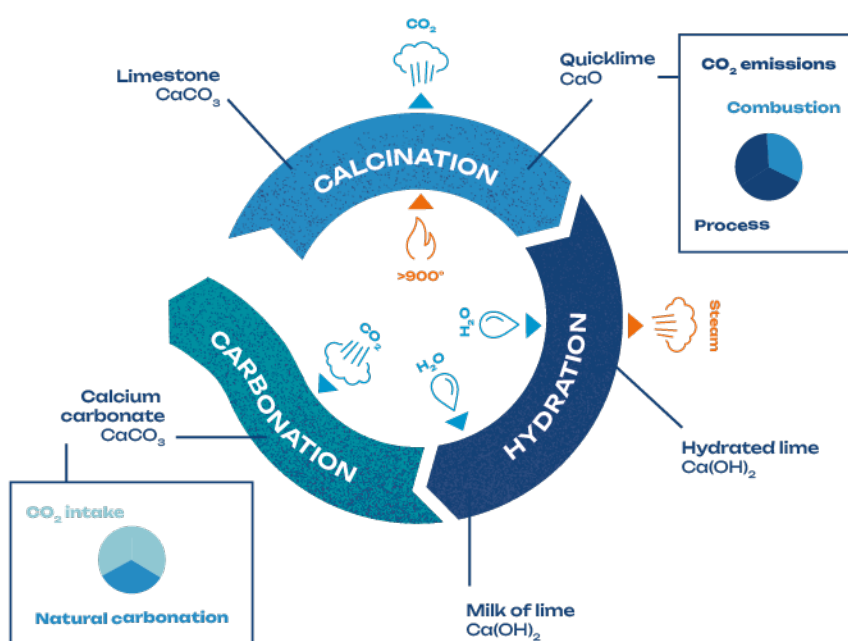
These unavoidable process emissions pose the biggest challenge to Carmeuse and the industry as a whole since there is no other long-term solution than to

capture and sequester (CCS) or utilize (CCU) them. To be successful the lime industry will need to get access to CO<sub>2</sub> infrastructure to transport this CO<sub>2</sub> to the sequestration fields.

And so, lime production is carbon-intensive. But lime can also capture ambient CO<sub>2</sub> and act as a natural carbon sink. This is called carbonation (or mineralization by carbonation) and happens in many uses of lime. On average, 33% of process CO<sub>2</sub> emissions from lime production are captured back through natural carbonation. This provides future potential offset opportunities for Carmeuse and its customers.

## Where and when do the carbon emissions take place?

Lime is an essential product in daily life and a key enabler to many industries, but its production emits unavoidable CO<sub>2</sub>. To produce lime (CaO) from limestone (CaCO<sub>3</sub>), the process is to remove the CO<sub>2</sub> by heating the stone at a precise temperature in a special oven called a 'kiln'. During this process, CO<sub>2</sub> is released from the stone and transforms from solid to gaseous state, and is then released into the atmosphere, along with nitrogen and oxygen used for the combustion. This amount of CO<sub>2</sub> represents the bulk of Carmeuse's emissions; the balance comes mainly from the fuels used to heat the stone and the supply chain.





**“Decarbonization is a major challenge for humanity. At Carmeuse, we embrace and try to own this challenge by continuously pushing for innovation and exploring new business models and ways of working to achieve sustainability. We believe in the power of collaboration to achieve our goals.”**



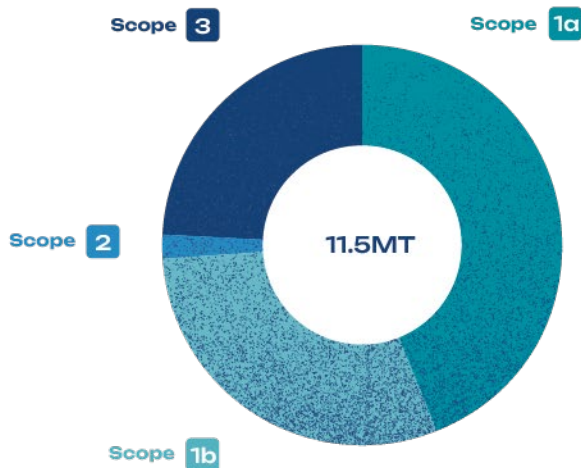
**Ilse Kenis**  
Chief Carbon Officer &  
General Manager, Carmeuse  
Technologies

# OUR CLIMATE IMPACT: SCOPE 1-2-3 CO<sub>2</sub> EMISSIONS

Carmeuse has been thoroughly calculating its carbon footprint (scopes 1-2-3) at group level since 2019, compliant with the GHG Protocol. Our direct or scope 1 process and combustion emissions represent most (~75%) of our impact, compared to indirect emissions from purchased energy (scope 2) and value chain emissions (scope 3).



## Carbon footprint 2023



**Scope 1**  
Direct emissions from our own operations  
(1a - combustion emissions / 1b - Process emissions)



**Scope 2**  
Indirect emissions from purchased energy (electricity emissions)



**Scope 3**  
Upstream and downstream emissions (indirect emissions)

# OUR CO<sub>2</sub> ROADMAP: SUPPORTING GLOBAL TRANSITION TOWARDS NET-ZERO



**F**ollowing our purpose of contributing to a better world, we have made a commitment to net zero emissions by 2050. To continuously reduce the climate impact of our products in our customer's processes, we defined an immediate and long-term term action plan and targets. In 2021, we set the ambition to reduce our direct emissions by 30% in Europe and 20% in North America

compared to a baseline of 2019. This ambition remains unchanged and is complemented by new quantitative and qualitative targets that should keep us further on track and accelerate to meet our objectives.

Our CO<sub>2</sub> roadmap is our compass and outlines our strategic levers in 4 different areas (combustion emissions, process emissions, electricity and value chain).

An underlying project pipeline linked to each of the levers in these areas paves the way to meet our ambitions. The projects represent a mix of in-house innovation and collaboration with technical partners, suppliers, customers, academia and public authorities and reflect local variations in terms of market maturity, regulations and, availability of resources.

Our primary focus with the roadmap lies on our direct emissions (scope 1) from our operations with:

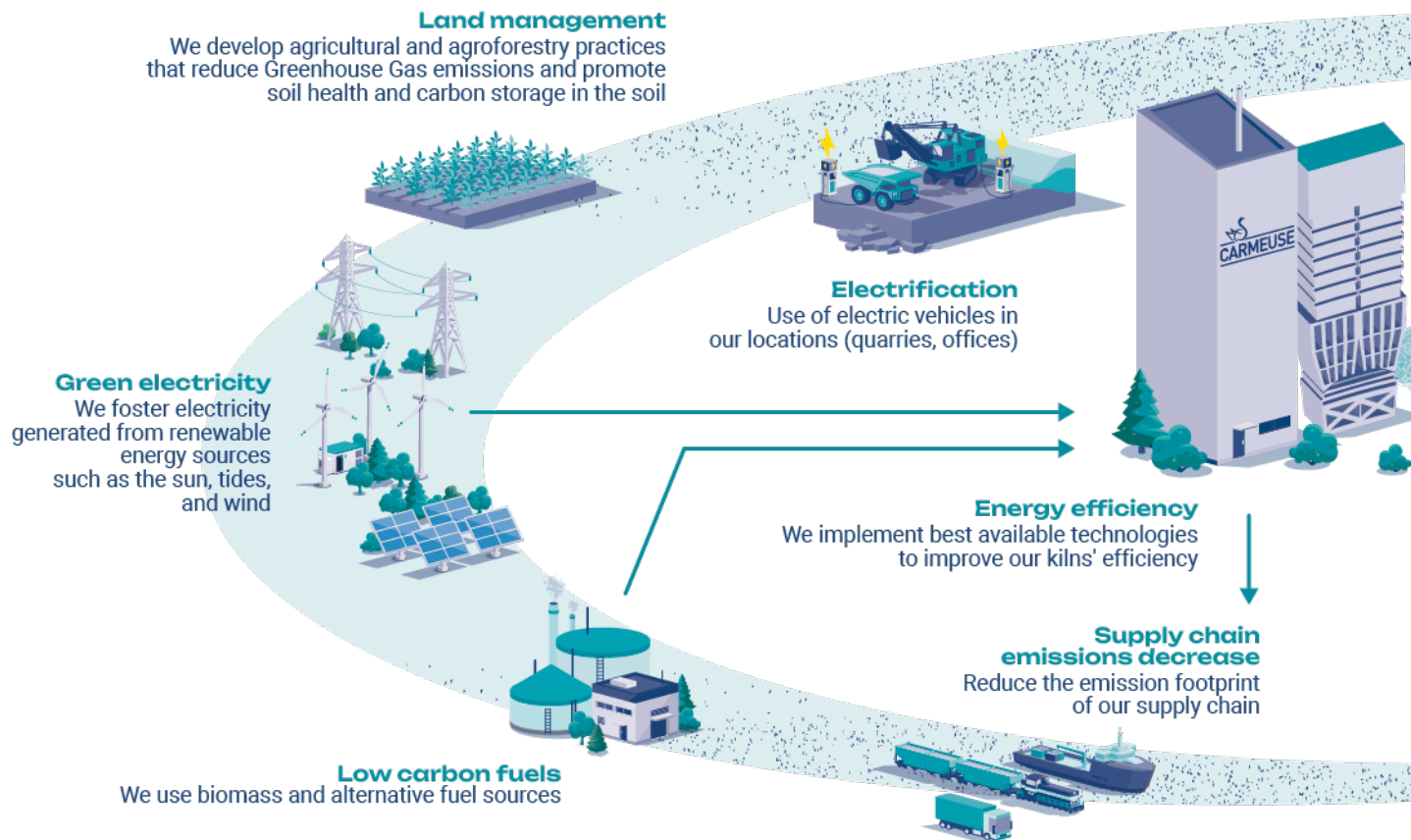
- Short to medium term actions that should reduce our global combustion emission intensity by 25% by 2030 by:
  - Conversion to lower carbon fuels (conversion to biomass, conversion of solid fuel to natural gas)
  - Energy efficiency initiatives (best-available technologies, process innovation, etc.)
  - Electrification of our operational equipment and transportation

■ Being ready to implement carbon capture technologies by 2030 through:

- Achieving CCS techno-readiness by 2028, enabled by further investment in R&D
- In parallel investigating techno-economic feasibility of implementation of these technologies at industrial scale in geographies that are actively working on establishing the required infrastructure to transport and sequester the CO<sub>2</sub>

Our indirect emissions through electricity consumption (scope 2) today only represent a very small portion of our total footprint. Nevertheless, with carbon capture technologies expected to significantly increase that footprint we are executing a gradual conversion to green electricity (target 75% in Europe by 2030). The target will be achieved through power purchase agreements and further onsite investments in renewable energy infrastructure.

## Carmeuse CO<sub>2</sub> Roadmap 2050 Carbon Net Zero

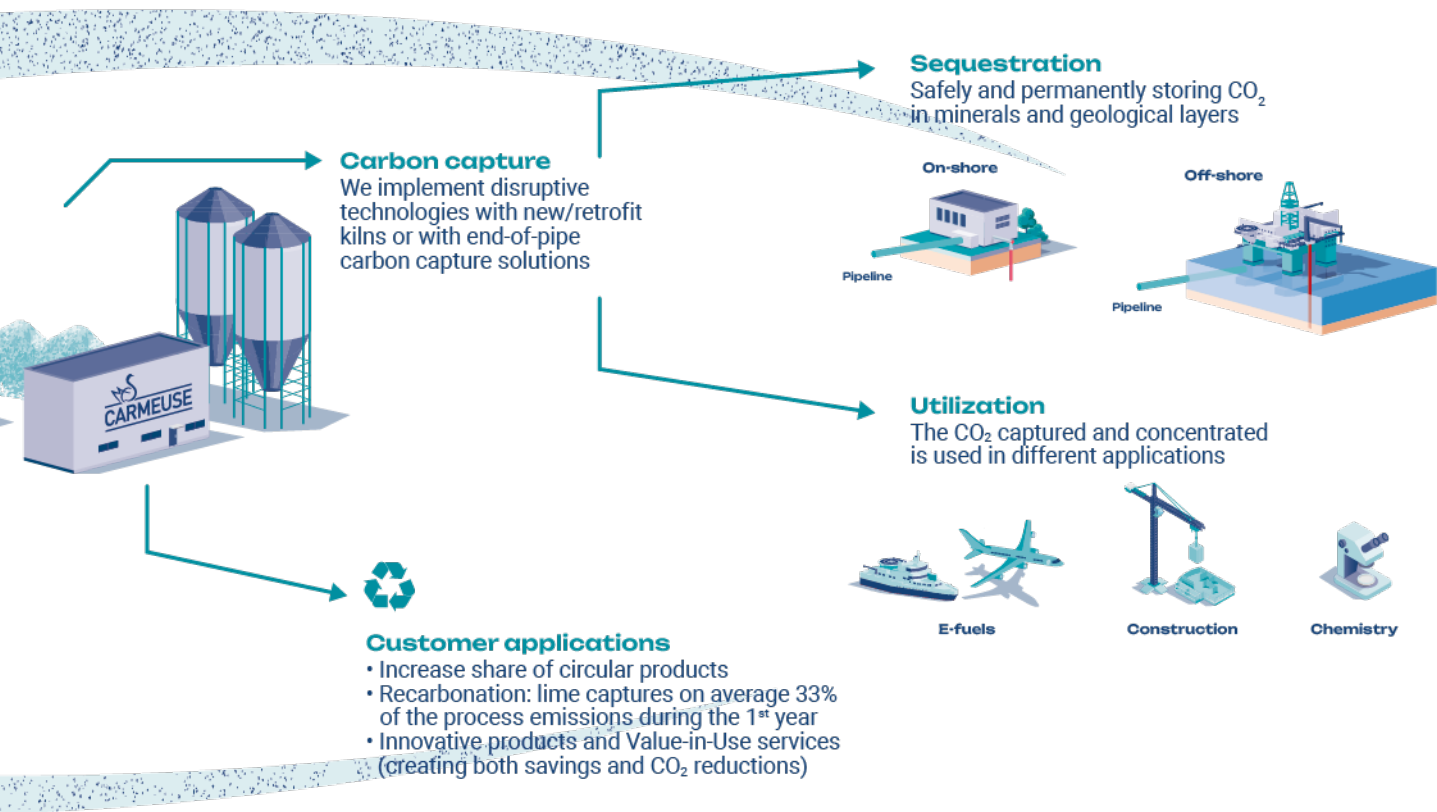


We understand we will have to go beyond managing our own CO<sub>2</sub> emissions. Our main sources of value chain (scope 3) emissions come from the purchase of materials and equipment and through the transportation of our products from our plants to our customers. We have started to work on improved monitoring of our performance in this field first and are working on a methodology to encourage emission reduction commitments of our suppliers.



**“At Carmeuse, we acknowledge that securing reliable and affordable renewable energy poses a significant challenge, given the industry-wide commitment to decarbonization across European countries. Undeterred, we’re leveraging our land for innovative renewable projects and strategically engaging in financial Power Purchase Agreements (PPAs). Our unwavering goal: achieving 75% renewables by 2030.”**

**Brecht De Roo**  
Sustainability and HSE Director - Europe, Middle East and Asia



# The Carmeuse climate change journey

## 1990s

Closure of most rotary kilns in Belgium

## 2000-2010

First energy 'Branch Agreement' in BE - 2003  
First long-term biomass supply contract in BE - 2010

## 2016-2018

Long rotary kilns replacement by Best Available Technology (PFR) kilns in Winchester (US) - 2016  
First solar photovoltaic farm Moha (BE) - 2018

## 2011-2015

First biomass treatment plant built in Narni (IT) - 2015  
First solid alternative fuel plant (Buffington, US) - 2015

## 2019

First Group CO<sub>2</sub> Roadmap  
First Group 'GHG Protocol' monitoring - CO<sub>2</sub> scope 1-2-3

## 2020

Solar photovoltaic farms in Chongsarika (TH) and Aisemont (BE)

## 2023

Start of conversion program to biomass + first biomass certificates (as per EU Renewable Energy Directive) in Romania and Slovakia  
Solar photovoltaic farm in Slavec (SK)  
First Sustainability Linked Loan signed (including CO<sub>2</sub> mitigation targets)  
Autonomous electric train (Cedarville quarry, US)

## 2022

Start of construction of oxyfuel pilot kiln enabling carbon capture (Butterfly)  
Conclusion of Best Available Technology program in Europe (rotary kiln closures) - start-up of third PFRK in Kosice (SK)



# Combustion emissions – enabling reduction through technology solutions



**“We are excited to see what we can learn from the electric train project that is being pursued at our Cedarville Operation in Michigan.”**

**Melissa Simon**  
Mining Director - Americas

Carmeuse has been progressively reducing combustion CO<sub>2</sub> emissions over the past decades through energy efficiency initiatives such as the installation of best available technologies (BAT) and fuel mix changes towards a higher share of lower carbon fuels. The solutions we apply vary from location to location, depending on the market specifications, the type of kiln and the local fuel markets.

From a technological perspective, we have been investing in the best available technologies (BAT) for kilns, the Parallel Flow Regenerative kilns. These provide the best energy efficiency for combustion. In 2023, 62% of the kilns worldwide were using best available technology with 100% in Europe, Middle East, Asia and Africa.

In 2023, we continued to convert kilns to biomass (in Central and Eastern Europe so far) and natural gas (mainly in North America). As part of this fuel switch, we have worked on an important milestone: the design of a new biomass dosing system for the vertical kilns, allowing for better combustion performance.

## **Carmeuse’s stance on biomass**

Where possible, we switch our kilns to biomass. Regarding the origin, Carmeuse favors waste biomass and by-products with low environmental impact and that are not in competition with more noble uses, such as food.

This has led to us receiving our first biomass certifications, as per the

EU’s Renewable Energy Directive, in Central Europe for the sites of Deva in Romania and Slavec in Slovakia, issued by the International Sustainability & Carbon Certification organization.

## **Carmeuse’s stance on the electrification of on-site industrial fleet**

Decarbonization of the industrial fleet and on-site transportation continues. Some examples include the use of rechargeable electric trucks at the Soma quarry in Turkey, an autonomous electric train at the Cedarville quarry in the US and a five-year transition plan of electric trucks and other quarry vehicles has commenced implementation in Thailand in 2024.

# Process emissions – innovating to mitigate unavoidable emissions



**F**or a company like Carmeuse, R&D and technology are at the core of our solutions as most of our CO<sub>2</sub> emissions are derived from the production process of lime. While we continue to innovate in the field of energy efficiency and fuel switch, most of the solutions to reduce combustion emissions already exist today and are available for implementation. For our unavoidable process emissions these solutions still need to further mature.

Carmeuse is taking an active role in developing the new generation of kilns that will allow us to concentrate and capture our process emissions. Concentrating our CO<sub>2</sub> from 15-20% to over 95% at the level of the kiln is called a carbon capture solution. Our ongoing research covers a much broader technical solution space for carbon capture, including post-combustion solutions or end-of-pipe systems. With our engineering company, Carmeuse Technologies, we have set up a carbon capture

technology development program with the objective to be CCS techno-ready by 2028 through groundbreaking innovation and partnerships.



**Target  
CCS techno-ready  
by 2028**



Funded by  
the European Union  
NextGenerationEU

## Butterfly: new wings for the future of kilns

Butterfly is the project name for a parallel flow regenerative oxyfuel type of kiln that will capture and concentrate CO<sub>2</sub> directly at the level of the lime manufacturing process. Achieving a highly concentrated CO<sub>2</sub> stream at the exit of the kiln makes it more suitable for subsequent sequestration or uses (CCUS).

Construction on an industrial demonstrator started in June 2023. The first trial campaign targets are set for Q4 2024. The innovative concepts that will be implemented and tested on the industrial demonstrator will target both new kiln designs and the retrofit of existing kilns.

*This project is funded by the European Union and executed in collaboration with seven partners (CRM Group, EBC, Sparx, Vocsens, UMONS and ULiège).*

## Saturn: addressing end-of-pipe concentration

Meanwhile, progress has continued on the Saturn project, with a focus on the concentration of CO<sub>2</sub> at the end of the production process. Saturn is another cross-industry collaboration between different players that are pooling their experience and together testing different end-of-pipe systems for carbon capture. A first pilot will be tested in the Aisemont plant in the first half of 2025.

*This project is funded by the European Union and executed in collaboration with seven partners (Aperam, AGC, Prayon, CRM Group, Vocsens, UMONS and ULiège).*



Funded by  
the European Union  
NextGenerationEU

# Electricity – the future is green



**Target 2030**

**75%**

**of our electricity  
will be generated  
from renewable  
sources  
in Europe**

**B**y 2030, we have pledged to source at least 75% of electricity from renewable sources in the European region. To achieve this, the team is actively exploring renewable energy options, such as solar, wind, and other clean energy projects. Moreover, going forward, all our decarbonization projects will be powered with 100% renewable electricity.

In Thailand, solar energy projects are being extended, resulting in a total of 4.0MW installed capacity. In North America, the Real Estate team undertook a comprehensive solar energy analysis of all North American locations. Key sites have moved to a second phase of verification to assess the feasibility of developing optimal solar projects and reduce scope 2 emissions.

# A CUSTOMER-ORIENTED DECARBONIZATION APPROACH

**T**he ultimate objective of our CO<sub>2</sub> roadmap is driven by neutralizing, and potentially creating a net positive climate impact through our customers' processes. As well as leveraging the effect on our products of the decarbonization of our operations, we are actively partnering with key customers to help them lower their footprint and support them in meeting their climate goals. In collaboration with them,

our sales and application experts are developing new products and defining new service and business models. Together with our customers, we push ourselves to radically re-think the processes involved and set up new partnerships with suppliers, universities and other parties.



## How do our customers use lime to reduce environmental challenges?

An increasing number of lime applications contribute to the efforts towards a greener planet, such as:

- Lime is mixed to discharged water in treatment plants to lower its acidity before being released into the water system
- Lime is used in flue gas treatment to clean industrial smokestacks by neutralizing acidic gases
- In agriculture, lime and limestone products can be used as a natural amendment to increase the pH of soils, which reduces the need for fertilizers



# Product development focused on circularity and lowering the carbon footprint

## CAVA lime: new products using best available technology

The use of the best available kiln technology can lead to carbon savings further down the value chain. Carmeuse recently developed CAVA lime, an enhanced product characterized by its controlled delayed reactivity, particularly useful as insulation in the autoclaved aerated concrete (AAC) market.

CAVA technology enables us to use PFR kilns (recognized as the best available technology) to produce delayed reactivity lime. The same kiln can produce both “normal” and delayed reactivity lime with a reduced energy and carbon footprint compared to other kiln technologies.



## WESS Project: getting the circular economy on the road

Carmeuse is playing a role in reducing the carbon footprint for earthworks, through the Western Europe Soil Stabilization (WESS) project. Our new state-of-the-art blending station in Aisemont produces blended products based on quick lime and paper ash - a by-product of the paper industry. Blended products are enlarging our market opportunities and are even proving to be more efficient for



certain soil types versus quick lime. Today, they are widely used to build solid earth-structures to construct embankments for roads, highways, railways and industrial areas. As paper ash has a much lower carbon

footprint than quick lime, blended products significantly reduce our customers' CO<sub>2</sub> scope 3 emissions. An example of partnership and the circular economy in action.

# Rethinking services and solutions

## CarboCalco® Solution: safer, leaner sugar production

Carmeuse and the sugar industry go back a long time. Our deep understanding of the use of lime in sugar purification processes allowed us to co-develop an innovative solution called CarboCalco® to externalize the usual captive lime production in sugar beet production. The solution streamlines

the process on the customer side and totally eliminates the environmental emissions and safety risks linked to captive lime production.

CarboCalco® also improves customer asset management (due to the elimination of the lime kiln) and reduces the working

capital usage. Lastly, the solution reduces current sugar plant CO<sub>2</sub> scope 1 emissions by a minimum of 17%. This innovation draws on more than five years of actual industrial practices and is available on the market.

## Improving quality and reducing the carbon footprint for Milk of Lime

Until recently, a chemical manufacturer in Eastern Europe was buying Carmeuse Milk of Lime (MoL) for its water treatment process from a third party.

In 2023, Carmeuse built a dedicated MoL production unit on the customer's premises and now produces and delivers the MoL by pipeline. A team of five employees manage the facility 24/7. This allows the manufacturer to receive MoL on demand.

Shortening the value chain and building a brand-new installation allowed the manufacturer to:

- Improve product quality
- Reduce energy consumption, while implementing the most energy efficient and automated equipment
- Meet the highest safety and housekeeping standards
- Reduce dust emissions
- Reduce CO<sub>2</sub> scope 3 emissions



Milk of Lime facility



**“We’ve started this project (MoL) with the focus to be a partner for our customer, bringing our expertise into their business by designing the production line and adapting the product according to their specific needs, but at the same time protecting the environment by eliminating dust and reducing energy consumption and waste. Also, together with our customer we have identified new synergies to continue co-developing sustainable projects.”**

**Romeo Jakubik**  
Customer Solution Manager - Romania

# Implementing circular business models

## Mineral Loop Project



**“I strongly believe in the circular economy and the project team is working hard to find innovative solutions. I am very enthusiastic about the pilot phase which will allow us to produce the first tons of recycled product!”**

**Elise Aubry**  
Innovation Lead -  
Europe, Middle East and Asia

The idea of a mineral loop is simple: to recover by-products or waste flows and produce, through carbonation, a recycled calcium carbonate product that can be used in construction or environmental applications.

This avoids the current waste management route, mainly landfilling or incineration. The first project phase has included the material selection and the carbonation reaction optimization. The current phase includes the construction of a carbonation pilot with a CO<sub>2</sub> capture capacity of up to 3,000 tons per year.

This will allow Carmeuse to expand its portfolio of sustainable products. The project consortium consists of Belgian Walloon industrial partners (Revatech, Tradecowall, Lessine) alongside

research centers and academic institutions (Centre Terre et Pierre-CTP, University of Liège). The project is subsidized by the Walloon Region through GreenWin.



**Mineral LOOP**  
PROJET FINANCÉ PAR LA RÉGION WALLONNE

## CaLby2030: decarbonizing processes with calcium looping

Calcium looping is a carbon capture technology that uses lime to remove CO<sub>2</sub> from industrial processes.

CaLby2030 is a European project that receives grants from the EU's Horizon Europe framework program. Its main goal is to facilitate the commercial deployment of calcium looping technology (CaL) using circulating fluidized bed reactors by 2030.

Within CaLby2030, Carmeuse is notably responsible for leading tasks related to the characterization and selection of the calcium-based material and the validation of the product in various industrial applications.

Three pilot plants in Germany, Sweden and Spain will be used to demonstrate >99% CO<sub>2</sub> capture rates in three industrial sectors that are hard to abate: cement, steel and waste-to-energy.



**CaLby2030**



## Tomorrow awaits

As we look to the future, Carmeuse recognizes the significant human, technological, and regulatory challenges that lie ahead in our sustainability journey. We are committed to not only meeting these challenges head-on but also surpassing our current achievements. Our dedication to continuous improvement and innovation will drive us forward as we strive to contribute to a better world.

We sincerely thank all our employees, customers, and partners who are eager to make a difference with us.

Lastly, we thank you for your interest in our efforts and encourage you to reach out with any questions or feedback to [info@carmeuse.com](mailto:info@carmeuse.com).

# Our sustainability metrics in a snapshot

## Human and nature sustainability



**Biodiversity: area restored for biodiversity purposes (cumulative since 2020)**

2023  
**81.1ha**  
2022  
**27.0ha**

**Community projects**

2023  
**192**  
2022  
**164**

**Safety: recordable injury rate**

2023  
**7.39/10**  
2022  
**8.49/10**

**Employee engagement rate**

2023  
**+14%**  
compared to 2022

**Training hours/employee**

2023  
**25**  
2022  
**32**

**57%**  
**is the survey participation rate**

(global responses, white and blue collars, December 2023)



## Climate and energy

### Total CO<sub>2</sub> emissions (Mt CO<sub>2</sub>)

2023  
**11.5**

2022  
**13.5**

### Low-carbon fossil and biofuels

2023  
**38%**

2022  
**33%**

### CO<sub>2</sub> combustion (t CO<sub>2</sub> / t lime)

2023  
**1.29**

2022  
**1.31**

### Renewable electricity

2023  
**22%**

2022  
**21%**



[www.carmeuse.com](http://www.carmeuse.com)

