CARMEUSE

SUSTAINABILITY

STATE OF PLAY

2023

WE CONTRIBUTE TO A BETTER WORLD

Sébastien Dossogne
Group CEO

We are setting the standards for sustainable business practices. Our role is to be part of the solutions expected for tomorrow.
We'll continue to use our collective energy to achieve our purpose and to shape a sustainable future for our company and communities.

"With opportunity comes responsibility"

A little over 160 years ago, our company started out as a small family-run business in Belgium.
Since then, we've gone through many significant changes. We've become **a global reference of our industry** with over 4700 employees, expanding worldwide. Despite all these changes, we remained true to our values.

Our values constitute our DNA : **Customer Focus, Long term, Respect, Efficiency and Responsibility** represent our reason of being and how we behave.
They form an inherent part of our vision 'We contribute to a better world', which has been guiding and will continue to guide our actions and decisions for the years to come. Our vision gives us a strong sense of purpose.

Our products are to daily life what oxygen is to the human body: invisible and essential to make it possible.
Lime impacts numerous aspects of everyday life.
With our lime, we build cities, houses, roads and railways.
We purify drinking water.
We grow the crops that feed us all.

This gives us the opportunity and the responsibility to help **resolve the growing challenges of our world.** We do this by making our production more sustainable, working actively at reducing any impact our activities have on the environment and supporting our customers with advanced services and solutions to reduce their CO_2 footprint. **Our ambition is to set the standards** for a sustainable production of lime and lime-related products and services.

Increasing the sustainability performance of Carmeuse is essential to reinforce our efficiency and competitiveness in an environment where high-performance companies are actively working to meet the new needs of their customers, are managing energy and resources more carefully, and are staffed by employees working in safe conditions and able to develop their full potential.

Our values have made sustainability a core point of attention for many years. Our role is to continuously raise the bar and keep driving our vision for a better world.
We are on an **exciting journey towards a more sustainable company.**

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Our values

Customer Focus:
We serve the customer to the best of our abilities and beyond

Long Term:
We want to earn the loyalty of all our stakeholders (customers, employees, neighbors, ...) and invest on a long-term basis

Respect:
We respect each other, our surrounding communities and environment. Once we commit, we uphold our commitments, both short and long-term

Efficiency:
We spend wisely and provide maximum value with minimal resources

Responsibility:
We take our responsibility seriously towards the commitment we take, whatever the stakeholder

Together, as a family with solid values

We foster a family atmosphere within our company. This means the contribution of every individual is valued.

But it also means we truly care for our customers and try to serve them to the best of our capabilities, not the least by continuing to innovate.

We care about our people and those that we affect. We care for our environment and our planet, so we need to try to operate in a responsible way and mitigate our climate impact as much as possible.

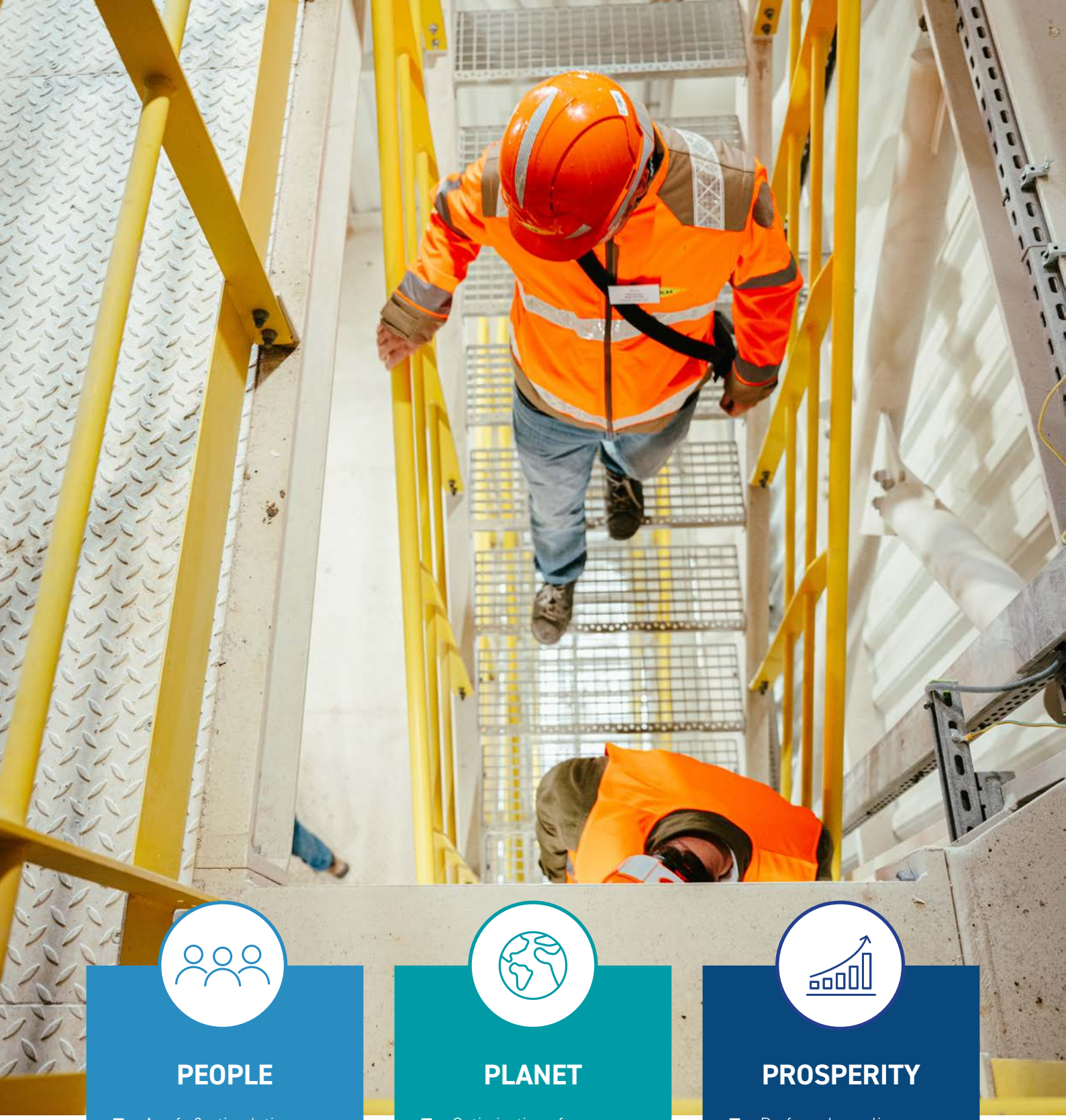
Sustainability Vision 2030

In 2020, we have identified the 9 most important sustainability focus areas for our company and turned these into: the **Group Sustainability Vision 2030.** This ambition is based on three pillars: People, Planet and Prosperity.

The Vision gives us a **long-term objective** – clearly defining where we want to be in 2030.

It is a **cross-regional and cross-functional** vision and constitutes the guiding framework for all our activities with the aim to foster sustainable and responsible behaviors, and to anchor environmental considerations in our company operations and corporate governance.

A set of **key performance indicators and targets** have been defined to drive improvements towards the 2030 Vision. The Vision has been developed in line with the **UN Sustainable Development Goals (SDG's)** to ensure that it's consistent with what the global community has determined as priorities in sustainable development. We have selected 9 of the 17 SDGs upon which we focus.



PEOPLE

- A safe & stimulating working environment
- Constructive dialogue
- Local partnership

PLANET

- Optimisation of resources
- Reduction of CO_2 footprint
- Promote biodiversity & respect the environment

PROSPERITY

- Preferred supplier
- Growing the business
- Circular economy

The Vision identifies 9 areas of focus:

ENGAGE

1. **We offer a safe and stimulating working environment.**
   Our employees are key to us. This entails that safety at work is a top priority, but also that we want to keep our employees engaged and healthy by providing them the necessary tools and development opportunities.

2. We want to be a company operating **with our local stakeholders in a constructive dialogue.** One of our values is respect. This means we listen to local communities, municipalities, and neighbors and take their opinion into account.

3. We partner with local organizations **for the betterment of our communities**. We see ourselves as good corporate citizens. That's why we engage in partnerships with local charities and schools.

PRESERVE

4. **We optimize our consumption of natural resources** (stone, water, fossil fuels).
   Our ambition is to make sure that nothing gets lost in our quarries as we put everything to good use. We also want to minimize the use of fossil fuels usage.

5. **We reduce our CO_2 footprint and that of our customers.** We strive to be carbon neutral by 2050 and have set an ambitious roadmap to that end. Working on our own emissions but also collaborating with our customers supporting them in reducing their carbon footprint.

6. **We create and preserve biodiversity and respect the environment.** We do everything we can to mitigate any adverse impact on the environment and take numerous initiatives to enhance biodiversity in our quarries, even during operations.

IMPROVE

7. **We are the preferred supplier**, with products and services offering maximum benefits for our customers and Carmeuse. As we consider our customers to be our partners, we not only sell them products, but also aim to contribute to their journey by helping them to optimize the use of our products.

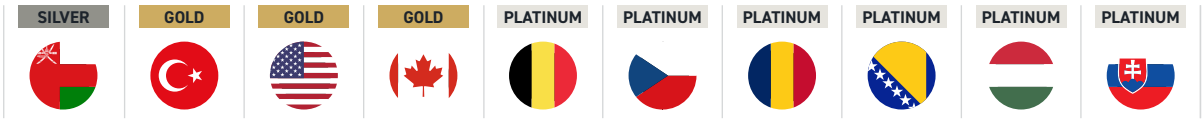
8. **We continue to grow the business** through strategic investments and joint ventures, while upholding the Carmeuse values.

9. We actively integrate **Circular Economics** in our business model. Wherever we can, we re-use products that would otherwise be considered as waste.
   This is true for CO_2, but also for other waste.

EcoVadis – assessing our performance

EcoVadis provides business sustainability ratings (ESG ratings), as an evaluation of companies' sustainability efforts. Ever since 2017, we've been relying on EcoVadis, to monitor our company sustainability performance, trigger improvement and to communicate with our stakeholders (customers, suppliers and employees in particular). These ratings demonstrate our determination to contribute to a better world and to put our words in action.

We are proud to say that 6 countries have reached platinum level for 2022, which means they are **within the top 1 %** of all evaluated companies.



EcoVadis labels of Carmeuse's activities at country level in 2022

A rock-solid family

We produce lime, dolime and limestone products used in a wide variety of applications and provide services that are related to transport and efficient use of our products. Our business expanded considerably in the beginning of the 1990's when we entered the North American market, which today accounts for over 60% of our turnover. We then further expanded in Central Europe, Asia and South America. We've also established operations in Africa and the Middle East.

In 2020 we celebrated **our 160th birthday.**

Our global presence doesn't prevent us from upholding a sense of community, of family. With family values to maintain open relations and close partnerships – whether with our customers, employees, or local partners.

Key numbers for 2022

9 million tons
of lime and lime-related products

€1.8 Billion*
Turnover

4.700
employees

Share of products in the turnover of 2022, worldwide:

Iron & steel:
33%

Chemical:
6%

Civil Engineering:
16%

Agriculture:
4%

Building materials:
10%

PCC and Pulp & paper:
4%

Flue gas cleaning:
10%

Glass:
1%

Water & waste treatment:
6%

Others:
5%

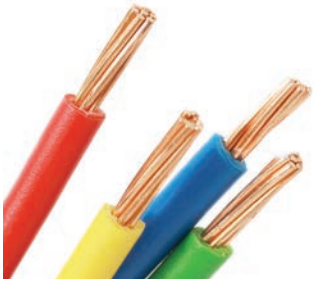
Non-ferrous:
5%

(*non audited number)

In day-to-day life, our lime-based products can be found far and wide, high and low:











12.700
customers

Selling our products in
90 countries

Sites and offices in
28 countries

We care for our customers

We value open relations and close partnerships with all of our stakeholders – and with our customers in particular. Loyalty is the base on which the long-term relationships with them thrive. We grow and evolve with and for each other. Because it's simply our **responsibility** to do so.

Over the last two decades, we've been looking beyond the scope of our core business: providing bulk volumes of lime and stone. Our philosophy shifted towards a post-commodity company. In that transition we've laid emphasis on better **servicing our customers**. Now, more than ever, we **accompany** them along the entire lifecycle of our lime products – from industrial implementation to process optimization.

Loyalty and service to our customers is also why we commit ourselves to **innovation**. Since we're high in the value chain, mining minerals, we need to ensure that what we extract, is used in the most optimal way and that includes the use of our products by the customer. **Any improvement or innovation in our products impacts the process or the products of our customers.**

Embracing innovation to support our customers

At Carmeuse, we have **a three-way innovation strategy**. We develop **new products** to answer the needs of our customers while optimizing the efficient use of resources. Our innovation strategy is also based upon **customized solutions**. We develop services to address specific B2B clients' needs, helping them to integrate new solutions, equipments or products into their processes. And finally, we invest to embrace the **digital revolution** to better serve our customers.

Development of new products

Some examples:

New products in construction and civil engineering

Our **new limestone filler product** replaces up to 20% of cement in concrete. The filler production doesn't generate carbon emissions, apart from the energy needed to crush and mill the limestone (for which we are looking to use as much renewable energy as possible). Our filler reduces on average 20% of the CO_2 emissions in the concrete production.

Our **soil stabilization products** (ViaCalco and Calciment) are spread in situ on fine clayey soils. Once mixed, it transforms these soils into solid and long-lasting road embankment materials.

As a result, the surface is stabilized without the need to remove earth and to fill it back up with aggregates, saving money, time and transport. On top of that, the injected product reabsorbs CO_2 from the ambient air and so reduces the CO_2 impact from the lime production. This product can also be mixed with other materials such as fly ash. This is an example of a pro-active waste management policy **contributing to the circular economy.**

Our new filler installation in Aisemont, Belgium

Another innovation is **Hempcrete**. Carmeuse has been active in the development of this new building material, which is gaining importance in the search for sustainable building materials.

Hemp absorbs carbon dioxide as the plant grows. And so does lime when exposed to the ambient air through carbonation (see page 59). The combination of these two materials in Hempcrete **reduces a building's carbon footprint.**

Its usage also results in low-energy houses, because hemp can absorb and hold heat (thermal mass) during sunny periods and releases it at night. Hempcrete also has other benefits such as acoustic isolation, is a fire retardant and it regulates the humidity in the building.

All these features make the daily lives of those living or working in this type of building more comfortable, and the building itself more **climate-friendly**.

Application of Hempcrete in building blocks

Customized solutions and services for customers' processes

Complementary to the innovation teams that work on new products, we have developed an important number of commercial initiatives, a number of which we are presenting below.

Added services in iron & steel

Lime is an essential and critical raw material for steel making. Without lime, no steel. It is a fluxing agent, lowering the melting temperature and purifying the steel to make it stronger. Lime is used at different steps in the process, but mostly in the phase of conversions of iron into steel.

We provide assistance to our key steel customers by providing the **'Kiln expert system'**, an assessment tool to optimize utilisation of our products.

This kind of customer service benefits lime quality and dosage in steel production, which can provide a significant cost reduction. Consequently, our steel customers reduce their overall carbon footprint as well.

Added services in the Environmental Applications Segment

One of the environmental applications of lime and limestone is the **cleaning of flue gases** from, coal fired power plants or incinerators. **We remove each year more than 4 millions tons of acidic pollutants** (SO_2, HCL, HF) from industrial flue gases before their release in the atmosphere.

Industrial processes are rarely stable. Fluctuations impact the effectiveness of flue gas cleaning and can lead to non-optimized operations. If one does not keep a close eye on the parameters of this process, issues may appear much later, after impacting related operations (non-compliance, cost, ...).

This is why we've developed **TuneIT**, a module that shares selected parameters of the process with our data center. We're able to notify the customer when a defined parameter deviates from the optimal value and can send a technical team to quickly return to optimal operations.

Added services in the agriculture & food segment

In the agricultural sector, we conduct soil analysis and for food, we even bring a disruptive approach of lime usage. Our subsidiary **Agroforce** in Europe performs a detailed GPS based survey and sampling of an entire agricultural field. This helps us to determine where the acidity of the soil needs to be improved with our TerraCalco. The use of it allows for improvement of the soil, **precision agriculture**, absorption of CO_2 and avoidance of chemical additives.

Precision agriculture with TerraCalco

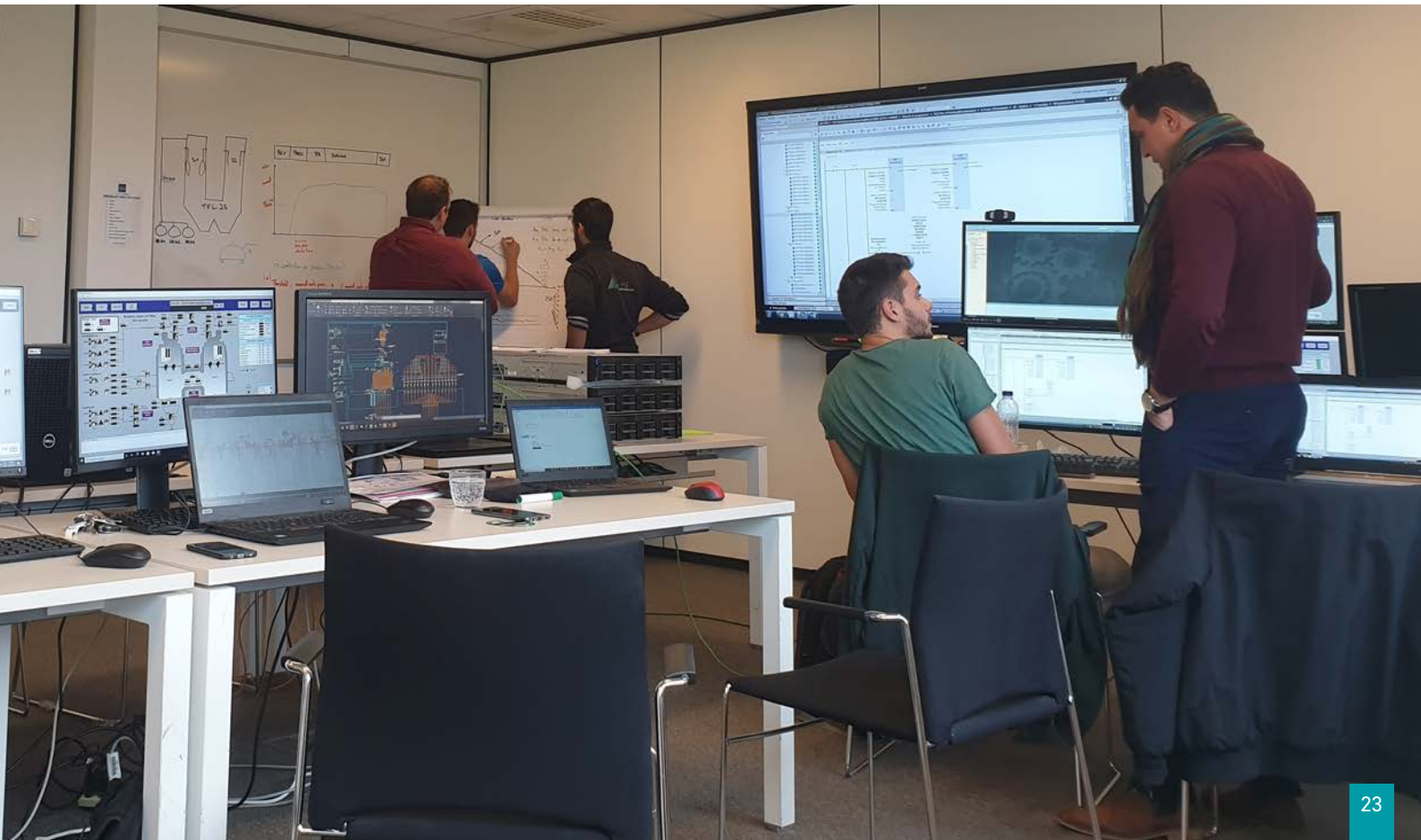
Digitalization

Our 100% owned **TECforLime** subsidiary focuses on the technological side of things, performing research and development on solutions for technological challenges in the lime production and usage.

Some typical services offered are:

- Engineering of lime kiln technology;
- Optimization of lime kiln operations;
- Development of CO_2 concentration and capture techniques (see page 57).
- Use of digital tools (automation, software development...) through Artificial Intelligence.

In this last domain, TECforLime has developed a tool whereby **artificial intelligence** contributes to a much more efficient management of the lime production process. This optimizes energy efficiency and therefore reduces the carbon footprint. The CO_2 gain is estimated at about 100.000 tons of CO_2 yearly in our plants worldwide.



We care for our people

Without our employees, there would be no Carmeuse. That's why we leave no stone unturned to ensure that our employees are – and remain – in good health. We are committed to maintain a **safe and positive work environment** by implementing health and safety measures, a top priority. And we nurture a caring, respectful culture that embraces diversity and encourages development.

Apart from safety being a non-negotiable priority and our focus on a positive environment, we push a **culture of lifelong learning**. We've invested and implemented an educational strategy to **encourage our people to grow**.
They can participate in learning sessions and training modules to acquire or develop all kinds of work-related skills.

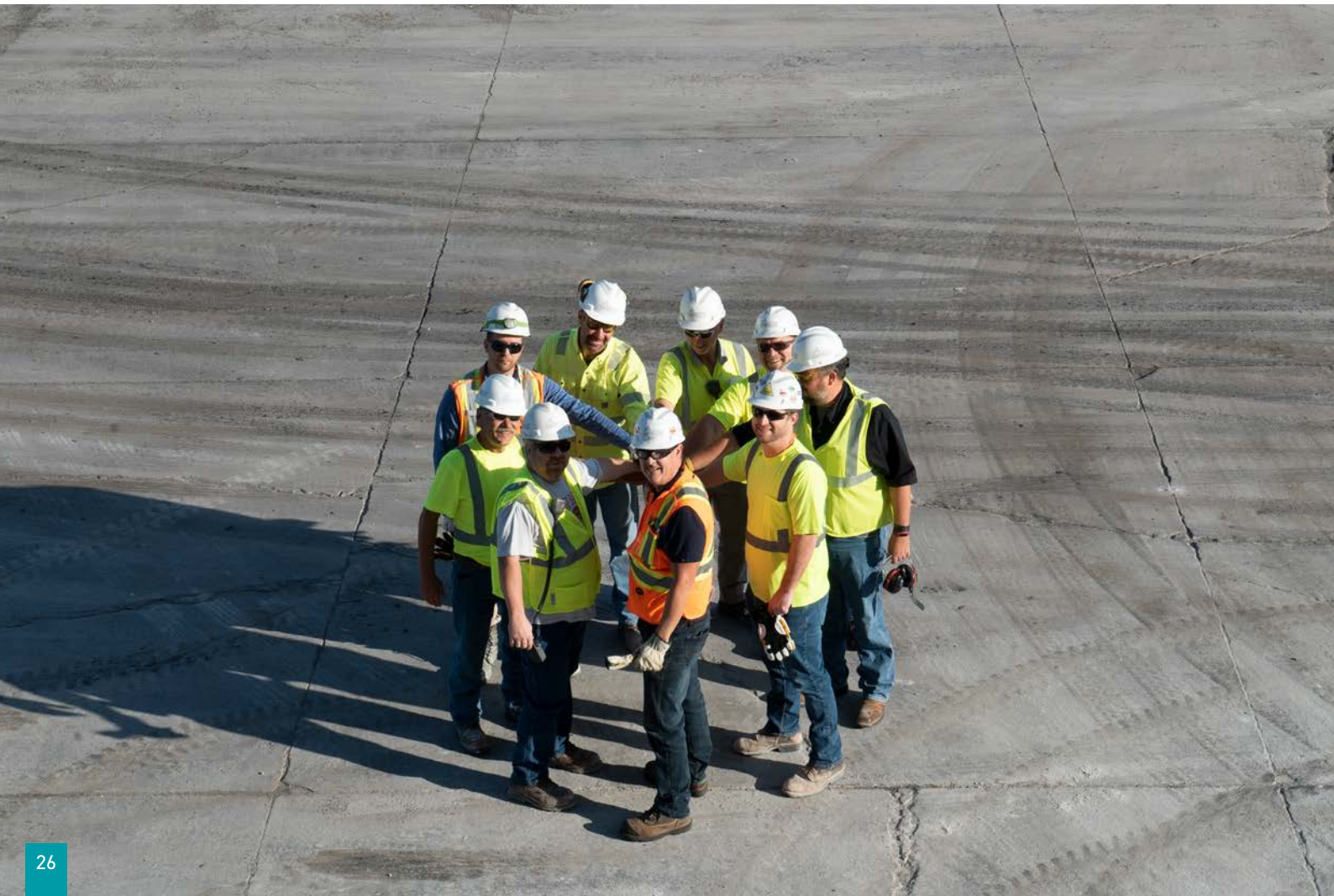
And last but not least, we want our employees to feel good in their professional and personal lives which makes us promote a **healthy lifestyle and general well-being.**

Family culture

Carmeuse has loyal **workforce**. We are motivated, more than ever, to provide broad opportunities for development. Internal movement beyond borders and continents is encouraged. We have a formal **policy against discrimination** and in certain regions like the Americas, we implement affirmative action plans to actively recruit minorities. We foster a culture in which **all employees are given the opportunity to contribute and develop.**

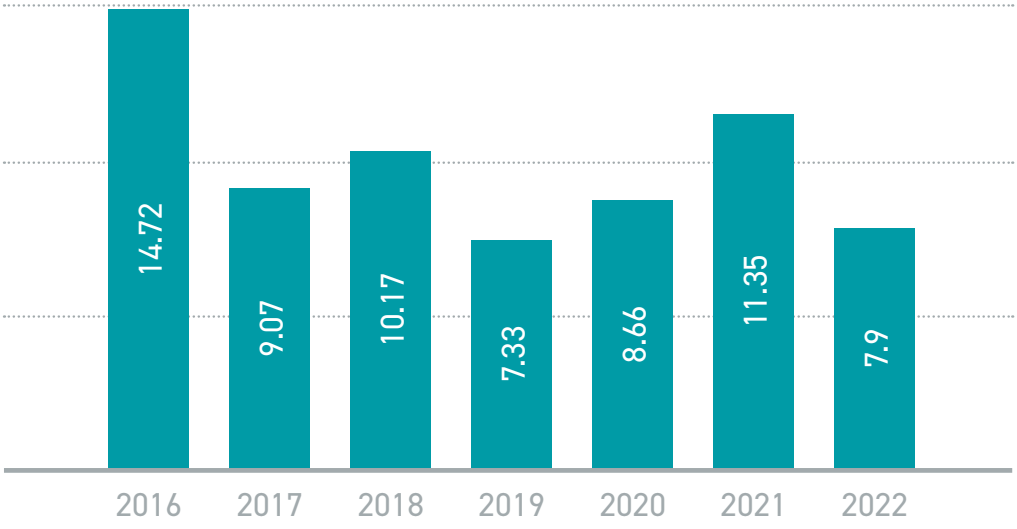
We benchmark to ensure that we pay a **fair and competitive wage**, and we've developed several programs and tools to take care of the **well-being of our people**. Our philosophy is one of **judgment based on merit**; when you perform well, you are rewarded accordingly.

In order to ensure that new employees feel welcome, we have developed different **on-boarding programs** which all emphasize our values and our commitment to sustainability. These programs allow any new employee to get to know the company and what it stands for, right from the start of their new career at Carmeuse.



Our goal: zero injuries

At Carmeuse, we strive for an interdependent safety culture: each individual is responsible for his own safety, but **also cares for the safety of others**. In all regions of the Group, we have been tracking the injury rate for many years.



Recordable Injury frequency rate (RIR) of the last eight years. For reporting purposes, the numbers used for Americas are converted to the European formula.

The Recordable Injury rate shows that working in quarries or lime plants is not without risks. There was a positive evolution through 2019 that reversed in 2020 and 2021. In those years (and especially in 2021) the company experienced a setback, partially attributable to the added stress caused by the COVID-19 pandemic. Tragically, we had 1 fatality in 2018 (US), 1 in 2020 (US) and 1 in 2021 (Thailand). This is a dramatic reminder that it is a challenging and never-ending journey. We acknowledge the need to focus and **bringing the injury rate down** in the coming years remains a top priority.

We are proud to say that some of our sites have been running over 10 years without accidents, and even 17 years in our Deva site in Romania.

In Europe, we've recently developed a virtual reality training in which the workers are confronted with a virtual environment that resembles real conditions on the floor. Focus is on safe behavior and dealing with dangerous conditions or substances. The pilot program has been running in Turkey and will soon be implemented throughout the company.

We are very proud to have obtained the Health and Safety Award for this initiative at the International Lime Association General Assembly meeting in October 2022 in Paris

Education & training

At Carmeuse, we push for the **integration of a learning culture** as a top priority in daily business operations. Therefore, we have implemented the **GPS strategy: Grow, Perform, Succeed**. This educational strategy is committed to help people grow, so they perform better and succeed at mastering different or valuable work-related skills.

In 2022, the average training hours per employee at group level was 31.2 hours/employee/year. Our target is ensure the amount of training hours is the same throughout the different parts of the company.

In North America, we provide **apprenticeship programs** in both the US and Canada. This is to support the development of skilled trades needed to run our plants, especially mechanical and electrical apprentices. We have also invested in simulator technology to improve the skill set of our equipment operators. We also use **internships**, across the globe, to develop talent across various functions such as engineering, HR and operations.

Wellness

The primary focus of employee wellness is the workforce. It ensures a productive workforce and limits employee's time off due to illness. Our wellness approach takes into account local cultures and customs.

The **Wellness program in the Americas** focusses on adopting a healthy lifestyle. It aims at improving health of our employees by incentivizing them to eat healthy, exercise, educate themselves and take the necessary medical precautions (such as COVID-vaccine). Employees can earn 'Vitality Points' by exhibiting health behaviors and use the points to reduce health care costs.

In Carmeuse Americas, we've also adopted the **FISH Philosophy**. FISH aims to strengthen enthusiasm, commitment and confidence at work, by inspiring business leaders to create a positive culture and having fun at work.

Carmeuse Overseas organizes a yearly Health Days in all its African sites and sets up trainings on healthy food, infectious diseases (such as Hepatitis B, HIV and COVID), malaria prevention and mental health awareness.

We care for our stakeholders

To us, **good relations with all our stakeholders** – customers, employees, suppliers, neighbors, municipalities, authorities – are essential. We communicate with them on a regular basis, both informally and formally. Dialogue with stakeholders as well as with banks, policy makers and regulatory agencies, is an inherent part of our operations.

We strive to be a **good neighbor** and foster positive relationships with those that surround us. That's why we work hard to **embed ourselves in local life** and – where possible – undertake concrete **actions to help** those who need it.

Dialogue with our surrounding communities

50 years ago, in Belgium, Carmeuse was the first quarry operator to establish **Local Coordination Meetings**: neighbors, municipal officials and Carmeuse representatives sit together periodically.

The purpose of these meetings is to maintain and develop relationships between the company and the surrounding population. The agenda typically focusses on planned activities, our neighbor's observations or concerns and our proposal to accommodate these concerns.

Since then, **similar initiatives have been developed throughout the Group** in different formats, depending on the regulatory framework and local customs. But always with the idea that **dialogue is essential** for a good relationship with the surrounding community.

Our main takeaway on these initiatives is the **importance of reassuring people that they're listened** to and **actions are undertaken to build trust and to address their concerns**. We experience **positive results** and a reduction in the number of complaints in areas where we organize this type of consultation.

Picture of public consultation meeting on the Seilles quarry extension (December 2021)

Initiatives to enhance community projects

As a company, we also want to maintain **close relationships with our neighbors** and help out where possible. That's why we participate in numerous projects helping local communities. These can be in the form of voluntary participation in clean-up actions, all the way to structural subsidies in the framework of the Carmeuse Foundation.

Just a few examples:

In Brazil, **we partner with Urban Vegetable Garden Project**, created by the Municipal Food Bank of Formiga (BMA) in 2018. The Project seeks to encourage, support, and guide the implementation of agroecological vegetable gardens on land that was previously idle.

Produce is donated to the partners who take care of the gardens, and the rest is provided to socially vulnerable families.

We also actively encourage employees from the Formiga plant to act as volunteers in the Urban Vegetable Garden Project.

In March 2023, **Carmeuse Western Europe** took part in a great clean-up initiative in Wallonia (Belgium).

The local management team and several employees from our plants and offices in Belgium participated in this action.

The Carmeuse Foundation: taking care of children

The Carmeuse Foundation was created back in 2010, with a clear mission: **enhance education and training for children in need**. It is also a way to create team spirit and a sense of belonging to our employees.

The Foundation provides financial and volunteer support to programs or actions that lead to the educational, social or personal development of the children, living in a material, social, environmental and/or familial precariousness or with disabilities.

The Foundation selects and supports local projects in most regions where we operate. They're preferably located close to our plants or offices, as this means a **chance to reinforce the human relations with surrounding communities.**

So far, the Carmeuse Foundation has supported about

- 50 projects in the Americas
- 20 projects in Europe
- 1 project in the Middle East

In the US, we have partnered with **28 Foundation agencies** within the communities in which we work, including the Boys and Girls Clubs of America and Big Brother and Big Sister Organizations (see www.bgca.org). When there is no network organization near one of our sites, we reach out to other agencies who support the education and training of children in need.

CARMEUSE FOUNDATION

Partnership with Junior Achievement Worldwide

The Foundation has recently announced its partnership with Junior Achievement Worldwide, which is one of the world's largest and most impactful youth-serving NGOs.

By building a wide range of skills and nurturing self-belief, it prepares young people for the future of work, teaches them how to think entrepreneurially, and ensures they have the tools to be financially capable adults.

Center for orphans in Gomboyah

Carmeuse Overseas develops community projects that have a profound impact on people's lives. These projects are various but mostly have school children as the common denominator.
In Guinea-Conakry we've donated food and school materials to schools surrounding our Conakry site.

Some limited examples:

Employees from our sites Cedarville, Port Inland and Drummond Island facilities, support the **Bay Cliff Health Camp**. This yearly summer camp for children with physical challenges throughout the Eastern Upper Peninsula of Michigan provides physical, occupational and speech therapy, medical treatment, clothing and so much more.

In **Bosnia** we purchase **equipment for a technical school in Doboj** (Electro and Transportation) to perform practical classes and training for children.

In **Colombia**, we operate a preschool next to one of our manufacturing plants in a very rural, poor part of the country. The people in the village can enroll their pre-school children, free of charge. We've also organized fundraising to help the children with needed school supplies including used computer equipment. At last count (fall of '21) we had 27 students enrolled at the school.

We care for our environment

We at Carmeuse care for the environment. It is not new. It has been part of what we do for many years. We want to do our fair share to help preserve it.

We take much pride in directly **contributing to a healthier and cleaner world**. We optimize the **consumption of water** and the recycling of lime by-products and our products contribute to public health and make our daily lives more comfortable.

As part of our efforts to minimize our environmental footprint, we aim at a more **efficient use of natural resources**. We also take responsibility in **avoiding local pollution** and **minimizing our impact** on the environment and local communities. We partner with nature organizations to rehabilitate our quarries and restore the surrounding nature, but also ensure that everything that we extract, is being put to good use. We are also proud to preserve and develop biodiversity.

Use of our products in environmental applications

Our products are used in a very wide variety of products in the environmental sector. Environmental uses of our products include ensuring healthy drinking water, cleaning fumes of industrial installations and remediating contaminated soils.

One of the contributions to health that goes unnoticed the most, is our role in **purifying drinking water.** Our products are widely used for softening or re-mineralizing drinking water that would otherwise cause scaling or corrode the pipes, which would entail health risks.

Thanks to its high pH value, lime also neutralizes the acidity in **industrial and domestic sewage sludge**, killing bacteria, viruses and pathogens and thereby eliminating hygiene and environmental risks.

Last but not least: where acid rain was a huge problem in the 1980's, this is no longer the case, to a large extent thanks to our **flue gas cleaning** solutions. Due to the characteristics of lime, by spraying it into the fumes of a chimney of incinerators, industrial boilers or power plants, the lime binds with the impurities (mainly sulfur dioxide and other acid gases) and avoids these from being emitted in the ambient air.

Quantities of drinking water purified with our products

500 million m^3
per year

→ *Same as*
200.000
Olympic Pools

7.2 billion m^3
per year (12% of total national consumption)

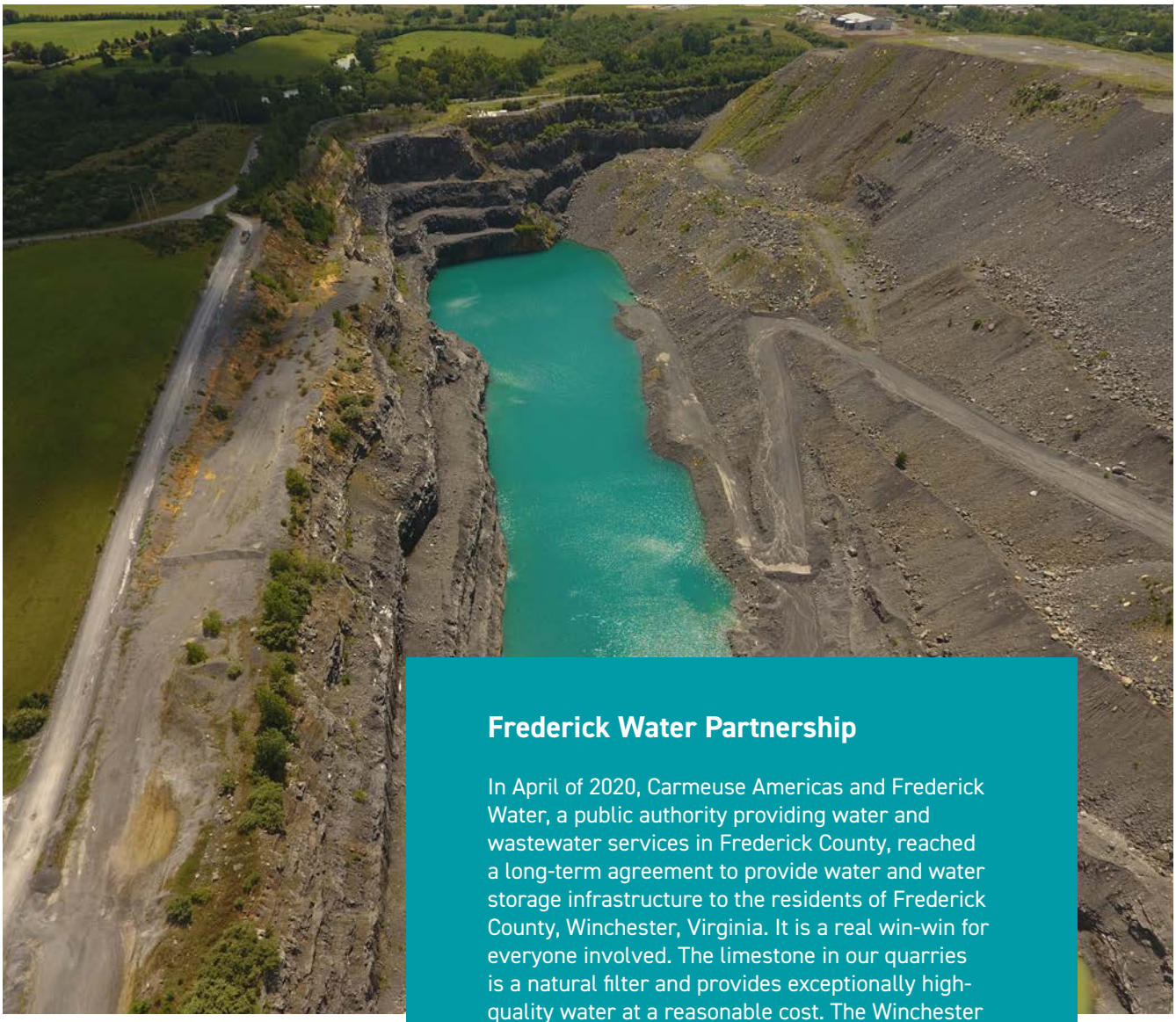
→ *Same as*
2.88 million
Olympic Pools

Water management at our plants

Most of the water usage in our plants is related to washing the limestone in the stone lines. Wherever possible, after the washing, all the water is directed to a treatment unit and/or a settling pond, with the intention to have it **fully recycled in close loop.**

We take great care to limit the quantity of water purchased, pumped from surface water or from the ground, and to avoid pollution downstream. Where possible, we **valorize the ground water** and rainwater by partnering with local organizations or water distribution companies.

Water valorization in Frederick County, Virginia, US



Frederick Water Partnership

In April of 2020, Carmeuse Americas and Frederick Water, a public authority providing water and wastewater services in Frederick County, reached a long-term agreement to provide water and water storage infrastructure to the residents of Frederick County, Winchester, Virginia. It is a real win-win for everyone involved. The limestone in our quarries is a natural filter and provides exceptionally high-quality water at a reasonable cost. The Winchester water deal is therefore a reliable and cost-effective solution that every resident of the County will benefit from, both financially and environmentally, for generations to come.

In the Walloon region (Belgium) we have a partnership with local drinking water companies (in Florennes) and other quarries to inject the pumped underground water into the drinking water network to provide for drinking water in the region. This type of collaboration will become more and more important given climate change and water becoming a scarce resource.

Optimal use of natural resources & valorizing by-products

Our philosophy is that what we extract, we should use. Therefore, we have set goals to optimize our consumption of natural resources for each quarry.

How lime is 'made'

Limestone is selectively blasted in the quarry according to its purity. Each blast is then hauled to the stone line where it is crushed, washed, screened, milled, and stored according to their final usage. In the following step, the high-quality limestone goes through a calcination process in a kiln at a temperature above 900°C during 24 hours, to be chemically transformed **(decarbonization of the limestone)** into lime.

During **the mining process**, the ultimate target for our quarry operators is to extract limestone that is of sufficient quality to be converted into lime, chemical limestone or aggregate. Unfortunately, no quarry consists of useable limestone alone. In order to reach the high-quality limestone, we must strip the earth of clay, sand and other substances, the so-called 'overburden'.

We go to great lengths to valorize these materials, in the form of sand for other applications, aggregates and so on. What can't be valorized is used internally for, among other things, creating berms to shield our operations (and limit noise and visual hindrance) from our surrounding environment or use them for reconverting the exploited areas into areas useful for agriculture, forestry or the creation of biodiversity.

During the lime manufacturing process, additional by-products are created, such as unburnt product, product out of specification, lime kiln dust (LKD), etc. We sell these by-products for recycling applications. In North America, we've acquired Mintek in 2018 in order to optimize the market for these by-products.

Under the **Sustainability Vision 2030** (page 7) we've set the target on **100% valorization of by-products.** By 2030, all the lime by-products should be recycled into final blended products or sold for external applications.

Enhancing biodiversity in and around our quarries

As a responsible company, we want to give back to nature what we've borrowed. **We put great emphasis on the restoration of nature and enhancement of biodiversity**, even during the operational phase of our quarries.

At many of our sites, the surface that was present before, had relatively poor biological value (agricultural fields, for instance). By opening up our quarries, we've created a **unique biotope** in which new species of flora and fauna can thrive. This by the creation of specific environments, such as cliffs, rocky or sandy surfaces, temporary stretches of water, chalk grasslands or sparse meadows... These new habitats enable the appearance and development of populations of pioneer species with a high biological value. It also ensures that our quarries allow species to extend their living areas, thus contributing to the development of biodiversity

In Belgium

We have participated in EU funded 'Life in quarries' project and are still collaborating with nature organizations (see www.lifeinquarries.eu).

The general objective is to develop the hosting capacity of biodiversity in various quarries in Wallonia. This project stands out because biodiversity management measures are implemented during the extractive phase and not only as part of rehabilitation at the end of the mining operations.

It also helps to reduce our visual impact on the landscape, by creation of embankments and planting trees or hedges (15 kilometers of hedges between 2020 and 2023 and about 20.000 trees/year).

In Slovakia

The restoration of biodiversity is planned simultaneously with operations in the excavated areas of our quarry in Slavec/Gombasek; mainly by planting a forest stand, which will follow the original character of the karst area.

Part of the project will be the construction of a lookout and the construction of a technical open-air museum showcasing historical mining equipment and introducing visitors to old mining techniques.

In Northern Michigan (US)

We own and operate several quarries in a sparsely populated area of great natural beauty. In order to minimize our impact, we create new wetlands and commit to preserving existing ones. Over the past couple of years, our Michigan sites have created over 40 hectares of new wetlands and have committed to preserve over 400 hectares of existing wetlands.

In Africa

Further, Carmeuse Overseas has initiated multiple tree planting campaigns in Africa. We organize these campaigns on a regular basis to bring back biodiversity in sometimes desolate landscapes. The trees avoid erosion and bring shade and food to the local community. This is combined with awareness campaigns on how to ensure that planted trees can survive for years to come.

Local management of environmental impacts

The most important impacts from **the limestone extraction** in our quarries can be summarized as:

- Blasting **vibrations** due to explosives used for the rock extraction
- **Dust** emissions from truck traffic
- **Noise** from blasting, trucking and crushing,
- Underground water **pumping**
- **Landscape** modifications

Lime production at the plants can cause some environmental impacts:

- Air emissions, mainly from CO_2, nitrogen oxides (NOx) and sulfur oxides (SOx),
- Noise of kilns blowers
- Dust from smokestack emissions or from conveyor belts
- Truck traffic

All these potential impacts are **locally managed** through permit conditions and through local and national laws and regulations. Although the permit and laws establish standards, Carmeuse seeks to **exceed such standards** and to minimize its environmental impacts. We keep raising the bar in managing our operations in high-quality manner. Since 1994 we've implemented an integrated quality management system at many sites, the so-called **ISO 9001**. As of 2001, we've been certified for the **ISO 14001** environmental management system in Europe.

Management of some of the most important local environmental impacts

Examples of the measures taken to avoid **dust emissions** in the quarries:

Drill with a suction system that sucks up the dust before it can be dispersed

Road spraying to fix dust to the soil

Truck wash to avoid trucks taking dust on external roads

Washing the crushed stones to avoid dust further on in the process

Examples of the measures taken to avoid **noise** impacts:

Housing around installations, using insulating boards

The **use of explosives** deserves a separate paragraph: this remains the most efficient way to fragment rocks and therefore blasting operations are essential in all large-scale mining or quarrying. However, blasts may cause vibrations. We do what we can to limit the impacts on our neighbors. All our blasts are monitored with seismographs, so we can continuously monitor and improve.

Our team is always favoring the **use of the best technical solutions** like recent mining software, drone survey of the rock face or electronic detonators allowing us to drastically reduce vibrations.

In addition, at the request of a neighbor, we often put a seismograph on the neighbor's doorstep to monitor the impact of a blast and make the neighbor more comfortable with the feeling or perception of the vibrations.

We care for our carbon footprint

Being human and taking up space on the planet, means to produce CO_2 and have a carbon footprint. There's no avoiding that.

Being responsible, means acknowledging this fact and committing to reduce it. Similarly, we as a business recognize that our operations generate CO_2 emissions. And we are very ambitious in lowering them.

Reducing that footprint to zero is the main objective of our **CO_2 roadmap**. Which we'll do by both reducing our own footprint and helping to reduce that of our customers. If we want to uphold our ambition to contribute to a better world, we need to deal with our own emissions as a priority. It's a huge challenge, but one that we're determined to overcome.

Our goal: **carbon neutrality by 2050**. This is our strong and focused ambition.

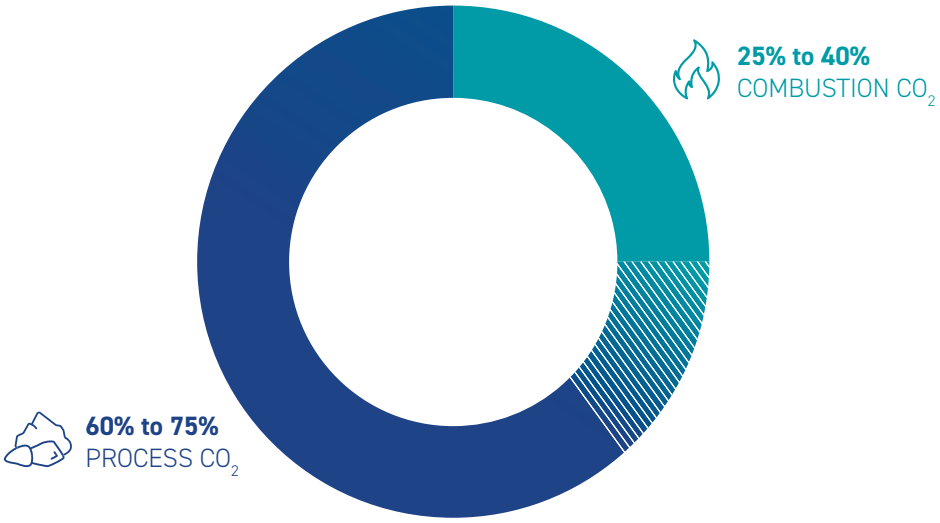
The carbon footprint of the lime industry

The lime industry accounts for on average 1% of global industrial CO_2 emissions. The vast majority of these emissions originate directly from the lime production in the kilns.

As the lime production process consists of decarbonizing limestone by heating it at temperatures above 900°C, there are two sources of **direct CO_2 emissions:**

- **Combustion CO_2 emissions.** These originate from burning fossil fuels to obtain the required heat. Depending on the kiln technology and the type of fuel, combustion CO_2 emissions account for **25% to 40%** of the total direct CO_2 emissions.

- **Process CO_2 emissions.** These result from the chemical reaction (calcination, the decomposition of limestone by releasing the embedded CO_2) that occurs when limestone is heated. With the thermal decomposition, CO_2 is emitted. This is what we call the process emissions, which represent **60% to 75%** of the CO_2 emissions.



Infograph showing the distinction between combustion and process CO_2 emissions

These sources have different mitigation solutions.
Combustion CO_2 can be reduced by energy efficiency technology and fuel selection.

Process emissions are unavoidable. The only way to deal with them is by capturing them and either utilizing them as resource for other products or storing them permanently in minerals or deep underground rock formations. These are the so-called "Carbon Capture and Utilization or Storage" techniques, which will be touched upon in the section on disruptive technologies.

The lime industry has relatively limited **indirect CO_2 emissions**. Most indirect emissions originate from the purchase of electricity that is used for the preparation of limestone before the kilns, and the lime treatment after the kilns. It is important to address them also by producing our own renewable electricity, or by purchasing it on the market.

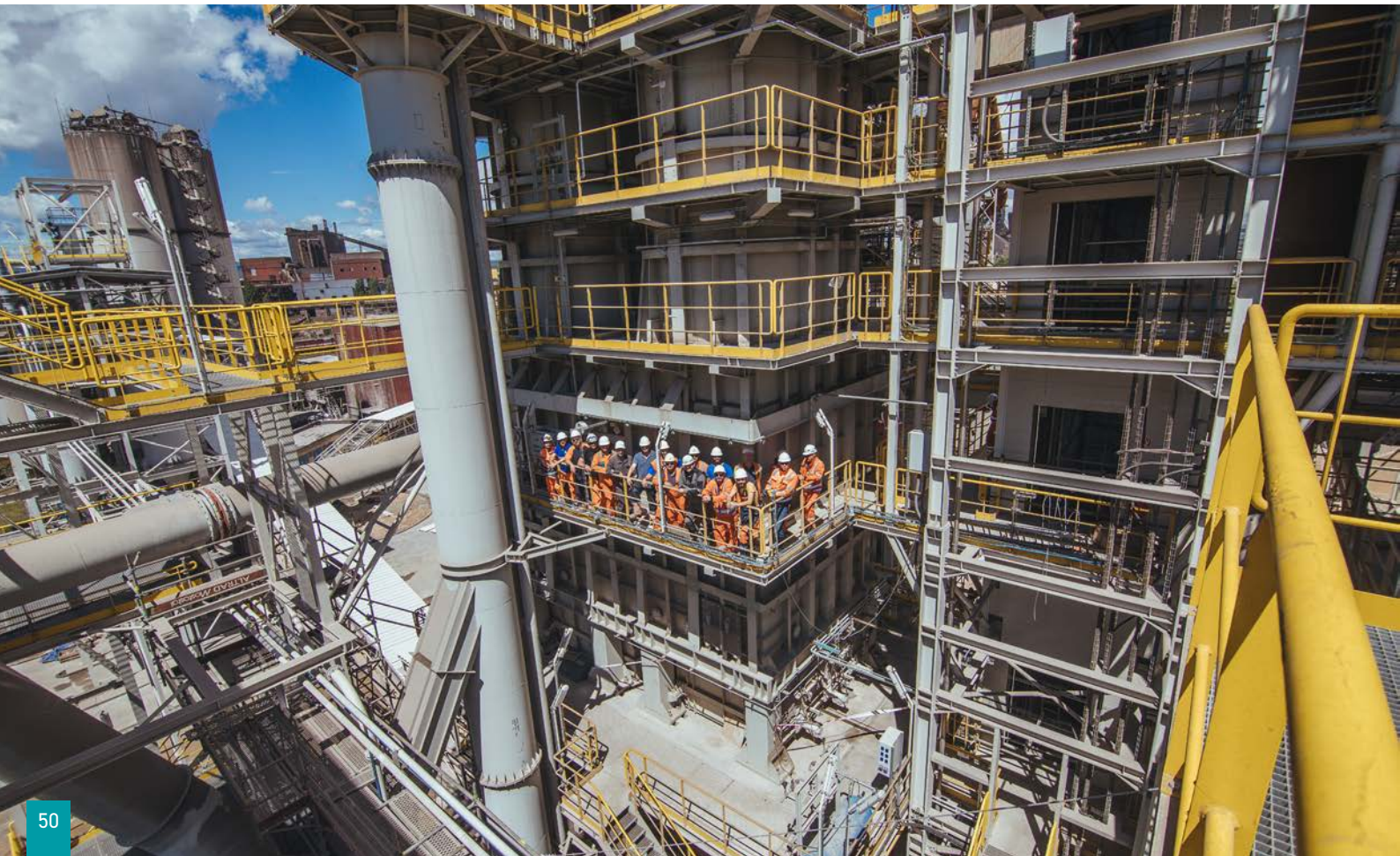
Buffington (US)

Our CO_2 roadmap - going for zero carbon in 2050

Our global emissions of 10 million tons of CO_2 per year account for approximately 0.025% of global CO_2 emissions. We want to achieve this ambitious goal by prioritising our initiatives. Our immediate focus is the mitigation of carbon emissions of our lime kilns as these represent more than 95% of our total CO_2 emissions.

Our roadmap is following the logical order:

- **Avoiding CO_2** in the first place. This is done through process optimization and by using the most efficient lime kilns. This has been our focus for a long time and we will continue this focus in the coming years.
- Secondly, we are ensuring the replacement of fossil fuels by **non-fossil alternatives** to reduce our combustion emissions.
- And as it is impossible to avoid process CO_2 emissions, we need to deal with these emissions by developing **disruptive technologies** such as Carbon Capture and Utilization or Sequestration (see page 57).



To reach carbon neutrality in 2050, we have set intermediate targets or milestones along the way.

By 2030

we aim to reduce our footprint by **30%** in Europe and **20%** in the Americas through energy efficiency and fuel switching, in conjunction with carbon capture technologies.

By 2040

we aim to reduce our own CO_2 emissions by **60%** (globally) compared to 2019.

By 2050

we want to reach carbon neutrality.

We are also developing solutions to help our customers to reduce their CO_2 footprint.

Košice (Slovakia) new PFR kilns construction phase

Regional roads converging into one global roadmap...

As the regions where Carmeuse is active, have a different history and regulatory framework, the roadmap has been broken down per region to take into account these differences, but with a clear view to converge into a global result in 2040 and ultimately in 2050 being fully carbon neutral.

IN EUROPE

Efficiency first

As of 2022, 100% of our EU production is made with **Best Available Kiln Technologies**, warranting the lowest energy consumption. The last missing piece of the puzzle has been completed by the firing-up of our new kilns at our site in Kosice, Slovakia in July 2022. These kilns were developed in-house by TECforLime and it's one of the largest investment for Carmeuse in Europe so far. Construction lasted for two years and went on throughout the Covid crisis, without any injuries.

We can be proud of the impact this investment will have: this investment results in an **annual CO_2 saving of 60.000 tons of CO_2 per year** and the kilns are equipped for multi-fuel usage.

Moving to non-fossil combustion fuels and renewable energy

Carmeuse Europe is increasing the use of **alternative non-fossil fuels**, which includes biofuels. In addition, we're working to minimize **indirect carbon emissions**. We are already auto-producing 4,25 GWh of renewable electricity with solar panels and we will continue selecting the best sites qualifying for the installation of additional solar panels or other forms of renewable energy.

By 2030, we aspire to reach four key milestones in Europe

- **Reduce our total CO_2 emissions by 30%** compared to 2019.
- Strengthen our position as the pan-European lime producer with the **lowest CO_2 footprint per ton of lime.**
- Develop **strategic alliances** to secure access to 'CO_2 offtake' opportunities for storage and utilization.
- **Be the industry's preferred partner** in the development and implementation of carbon capture projects. Therefore, we are working on projects to produce carbon-free lime (subject to readiness of downstream infrastructure that secures long term storage of CO_2).

IN THE AMERICAS

Efficiency first

In North America the priority focus is to increase the **efficiency of our existing kilns**, which are historically rotary kilns. These kilns generally use more fuel and so emit more CO_2 than vertical kilns. Measures, such as adaptation of processes, or expert systems, can improve kiln efficiency. In the long run, we are looking at either converting these kilns or replacing them with the Best Available Kiln Technologies, as it happened in Winchester where two vertical PFR kilns have been introduced in 2016.

Moving to non-fossil fuels and renewable energy

Switching to low-carbon fuels represents another opportunity to reduce CO_2 emissions. We've been actively pursuing this idea through Fuel Flexibility projects based on availability and fuel cost at each site.

We've paved the way for a **26% reduction of combustion CO_2 emissions in 2030** versus our 2019 asset base. We've investigated and developed multiple asset modernization scenarios for that purpose, each with different technical (according to the suitability of the limestone), commercial (market acceptance) and financial impacts.

We are also exploring carbon capture and storage opportunities close to our facilities and are partnering with a number of operators to develop these types of projects to be implemented in the coming years.

IN THE OTHER REGIONS

Outside of the Americas and Europe, we operate everywhere with the **Best Available Technology** kilns. We just fired up our brand-new lime kiln in Senegal for instance, we are already working with state-of-the-art kilns in Oman and we've invested in a solar farm at the Chong Sarika site in Thailand. We are working on 2 new solar farms to increase our renewable electricity portfolio. All electricity is for our own consumption.

The new PFR lime kiln that started operations in Senegal in February 2022


HOIST CAR SIGNALS

Disruptive solutions will be essential to achieve our ambitions

Disruptive technologies are the main focus/passion of our TECforLime colleagues who are working hard to prepare the CO_2 mitigation solutions.

They're studying and developing different **Carbon Capture** techniques, with the objective to create sufficiently concentrated CO_2 in order to capture it in the most efficient way. Typically, CO_2 exiting our kiln is diluted, so CO_2 only forms 20% of the fumes that exit. The challenge is to bring this concentration as close as possible to 100 %.

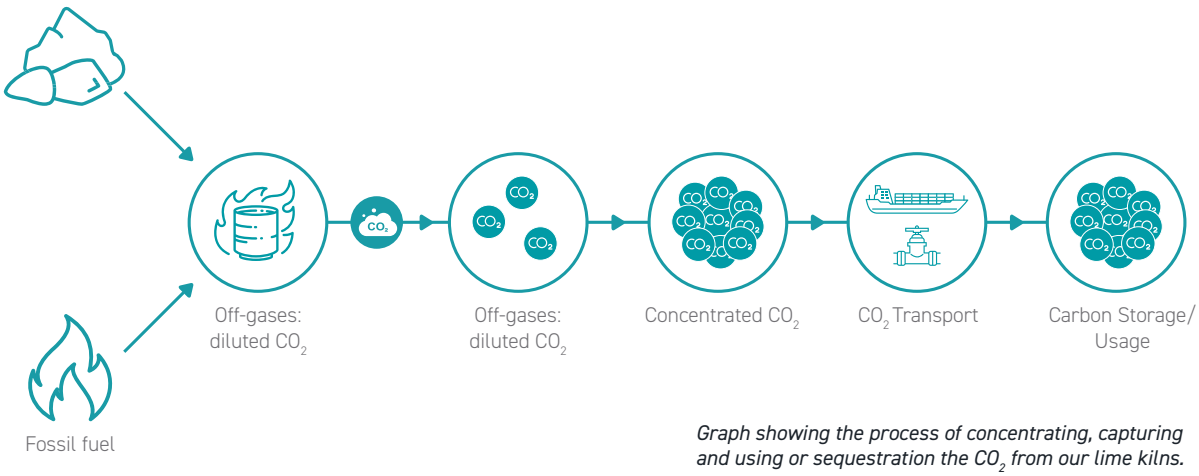
This implies the development of new technical solutions for our different kilns by means of capturing CO_2 at the exit of the kiln, or creating a new type of kiln that facilitates carbon capture.

We have obtained a permit at one of our sites in Belgium for our **"Butterfly" project** in which we collaborate with several other partners. This pilot installation will target the capturing and concentration of CO_2 directly in the lime manufacturing process.

Capturing CO_2 is not enough

Once CO_2 has been sufficiently concentrated and consequently captured, the CO_2 needs to be handled further to avoid it being released back into the atmosphere.

There are two ways to deal with this: either the CO_2 is used as a resource in other products, or it is permanently stored/sequestrated, typically in underground reservoirs, such as depleted gas fields.



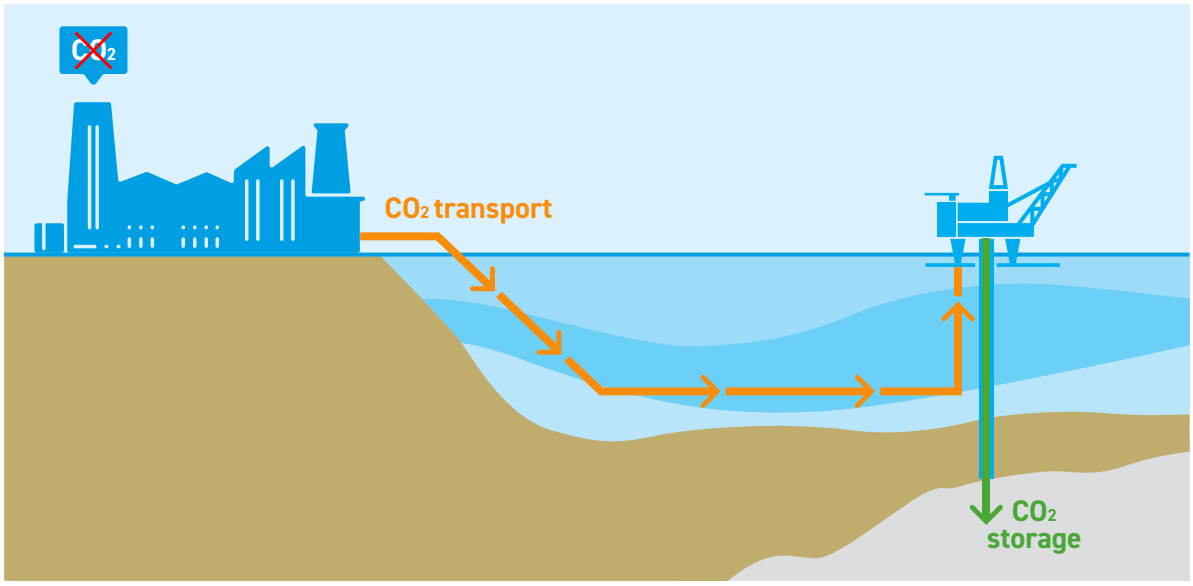
Graph showing the process of concentrating, capturing and using or sequestration the CO_2 from our lime kilns.

Carbon Capture and Utilization

This is the technique whereby the captured CO_2 is utilized, either as feedstock to create a new type of fuel (e-fuels, like e-methane or e-kerosene) or to be embedded permanently in other materials (polymers for example). We are participating in a number of projects related to this technique.

Carbon Capture and Storage

This technique captures CO_2 and permanently stores it in geological formations. **CCS is an essential part of the road to carbon neutrality.** The number of CCS projects is growing exponentially but accessing these requires overcoming enormous logistical challenges. Apart from the challenge to capture the CO_2 in a sufficiently concentrated form, the CO_2 also needs to be transported to sequestration sites. And it needs to be secured that no CO_2 can escape later from these fields.



Schematic on Carbon Capture Storage principle

Reducing the carbon footprint of our customers

This is the last and important piece of our CO_2 roadmap: in **optimizing their processes** and the use of our products. This optimization helps to reduce their CO_2 emissions.

The same goes for the **development of new products:** products like our soil stabilization products, or the filler blend that can replace up to 20% of cement in concrete, have an important impact on the carbon footprint of our customers.

A rather unknown fact is that the use of lime in various applications leads to a spontaneous **absorption of CO_2** from the ambient air. A study by Politecnico di Milano, University of Milan, Italy, commissioned by the European Lime Association, has shown that **on average 33% of the CO_2 process emissions emitted** during the production process of lime, is **re-absorbed in the use phase** during the first 12 months.

To give some examples: when lime is used in flue gas treatment, to treat drinking water or in the production of pulp and paper, carbonation occurs instantaneously and fully. Meaning that CO_2 is being absorbed instantly from the ambient air. The amount of absorbed CO_2 equals the process CO_2 emitted during its manufacturing.

In the iron and steel industry, carbonation occurs during the open-air storage of slags, typically lasting between 3 and 6 months.

Lime used in various construction materials, such as mortars and hempcrete, will carbonate gradually during the lifetime of the building.

By using special techniques, there is a **potential to increase this absorption even further.**

Table with key figures

Topic	Current status (2022)	Target 2030
Ecovadis rating	6 countries achieved Platinum level, 3 Gold, 1 Silver	All Platinum
Recordable Injury rate	7.9 in 2022	0
Training hours/ employee/ year	32.1	25 (equally spread over all Carmeuse locations)
Community projects	27 in 2022	Min. 2 per site per year
Biodiversity	46 ha (or 121 acres) restored for biodiversity purposes globally	330 ha (cumulative between 2020 and 2030)
Quarry yield improvement (Kiln Feed Limestone) compared to 2019	2.1 %	5%
CO_2 emissions	1.3 tons of CO_2 /ton of lime	0.9 tons of CO_2 /ton of lime
Alternative fuels (Waste Fuels, Biomass, ...)	2.1%	35%

CO_2 reduction targets (baseline 2019):

2030	
EU	Minus 30%
North America	Minus 20%
2040	Minus 60%
2050	Minus 100%

To us at River Rouge, sustainability means working together to help protect and enhance the quality of life in the River Rouge ecosystem.

- Christy Burt, Plant Generalist, River Rouge (US)

What better way to sustain the future than to mentor today's youth. Through The Big Brother and Big Sister programme, we help children realize their potential and build their futures.

- Sybil Owens, Human resources Generalist, Longview (US)

Working on our EcoVadis submissions in North America involves a lot of work, but it is important. Sustainability being such a long-term and complex process, EcoVadis provides a great platform to help Carmeuse make the world a better place.

- Patrick Dongmo, Legal researcher, Pittsburgh (US)

I'm proud to work with the most energy efficient kilns on the market. Every ton we produce we sell to the market replaces product made previously with higher CO_2 emissions.

- Mr. Satish Kumar, Plant manager, Oman

A lime plant is full of hazards for our workers. That's why our virtual reality training helps our workers identifying and avoiding these hazards. And who doesn't prefer a VR training over another boring safety presentation ?

- Mehmet Cicek, Health and Safety Manager, Izmir (Turkey)

I have been working on solar electricity generation projects as well as on a fuel transition project. It is great to contribute in this way to limit our carbon footprint and contribute to Carmeuse's journey to net zero by 2050.

- Ms. Kuntima Niyakit, Process engineer, Thailand

I'm really happy that my idea of creating a platform on the stone line was implemented. It makes the lives of my colleagues much easier and safer. And proud to have obtained the title of Safety Champion for my region !

- Lazlo Pirosko, Hydrate Operator, Beremend (Hungary)

By using tablets in the preparation of our blasting operations, we save time and paper. Maybe the impact is not that big, but a lot of small things make a big thing. And that's what is important in our sustainability journey.

- Darko Klisara, Quarry engineer, Doboj (Bosnia-Herzegovina)

I'm really proud of our hedges campaign: 15 kilometers of hedges is not a small thing and the impact on biodiversity should not be understimated.

- Simon-Pierre Dumont, Real Estate and Environment Officer, Seilles (Belgium)

To me sustainability means the future. We can't just keep taking and taking, somewhere along the line we need to stop and give back for the future for ourselves and generations to come.

- Clay Coleman, Plant Manager, James River (US)

Sustainability is also about doing good for others. I feel privileged that I can organise projects offering direct help to needy children, and projects that contribute to the employability of the youth.

- Katarina Todorovic, Learning and Development Specialist, Jelen Do (Serbia)

We are working in a dusty environment so all ideas to avoid dust were more than welcome. That's why we've invested in dedusting our blending station so that our people stay healthy at work.

- Viliam BAČENKO, Plant Manager Kosice, Kosice (Slovakia)

"We're not perfect, but we do contribute in a positive way to the daily lives of many. It's an exciting journey we started over 160 years ago by fulfilling the needs of our customers and by taking care of our employees. I'm convinced that our commitment towards sustainability will allow us to do much more good in the years to come. Let's all contribute to a better world."

Rodolphe Collinet - Chairman of the Board

CARMEUSE

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