Sustainability Report 2023

BRICK DEVELOPMENT ASSOCIATION

Chairman's Summary

Welcome to the latest Brick Development Association's Sustainability Report which has been compiled by the Brick Development Association's Sustainability Working Party.

This annual publication is an opportunity to review the collective progress being made by UK brickmakers to minimise our impacts and improve resource efficiency. It also focuses our attention on forthcoming challenges and the way in which we will approach them.

Our report helps us to reflect on the overall performance of the sector, identify the challenges we face and as a group find the right solutions. It also provides our members with the building blocks to help meet the requirements of the 'Brickmakers Quality Charter' which gives our customers confidence that we are operating to the highest levels in terms safety, responsible sourcing, quality and employment practices.

As a sector we continue to invest in becoming more energy efficient and reduce our overall carbon emissions to support the UK in the delivery of its Net Zero ambition continuing to provide homes for future generations to come.

Dave Manley
Chairman of the Sustainability Working Party.

Wellbeing

Our Aspiration

To ensure employee health, safety and well being remains core to business operations across the sector and that health and safety performance continually improves.

The Challenge

Continual improvement in health and safety performance in a changing work and regulatory environment. Employee wellbeing is central to this and becoming increasingly significant.

Where We Are Now

Over the last 20 years, UK brick manufacturers have come together as part of the wider ceramic sector Health and Safety Pledge Scheme, to improve health and safety performance through collaboration and sharing good practice. One example of this collective approach is the development of the sector Continual Professional Development scheme for clay quarry managers.

There are many examples of excellent health and safety leadership within the brick sector. In recent years, the health and safety agenda has widened, with companies broadening provision to include topics such as mental health and well being for employees.

What We Plan To Do

- Show leadership and pro-actively work with others across the industry to deliver Pledge Phase 5.
- Continue to focus on the effective management of respirable crystalline silica.
- Explore further opportunities for collaborative working on health, safety and wellbeing, including the development of sector specific resources and training
- Continue work to develop and deliver sector CPD for clay quarry managers.

Key Statistics

In 2022, the Accident Rate was 0.13 maintaining the 2021 rate which was the lowest in the last 10 years.

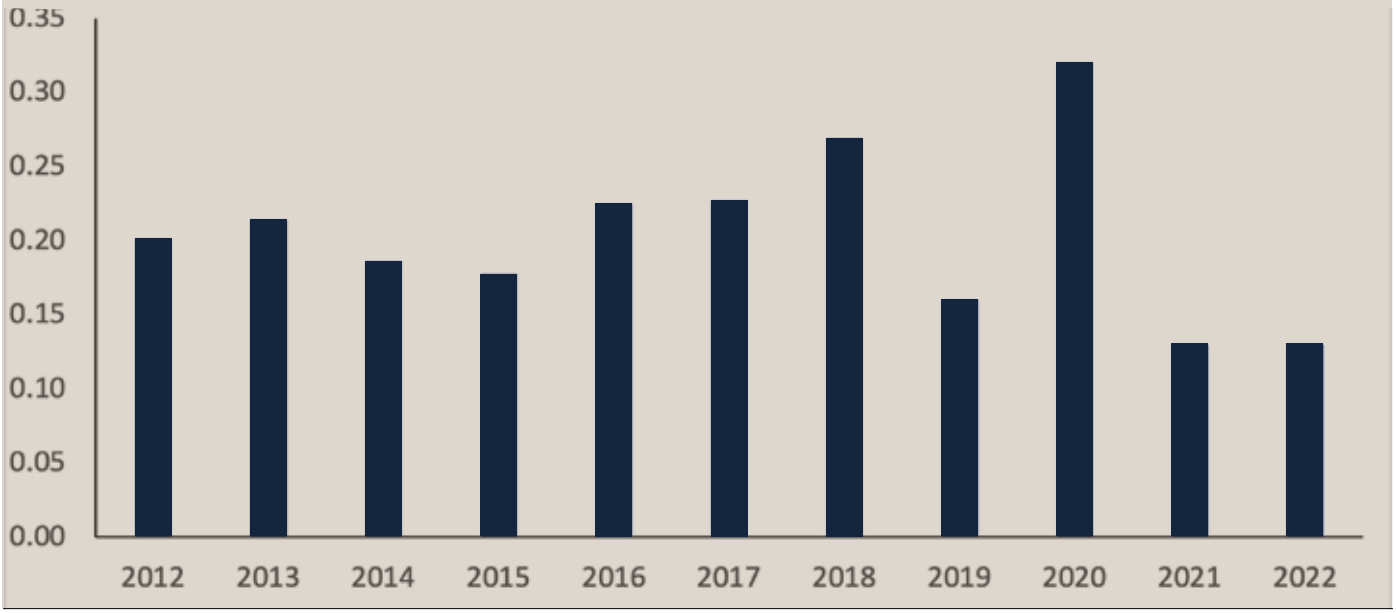
In 2022, the sector Lost Time Injury Rate was 0.36, an increase from 2020 to 2021.

In 2022, the RIDDOR Reportable Injury Rate was 0.006 a slight increase from 2021.

Accident Rate =

$$\frac{\text{Total Number of Accidents}}{\text{Total Number of Employees}}$$

UK Brickmaker's Accident Rate 2012 - 2022

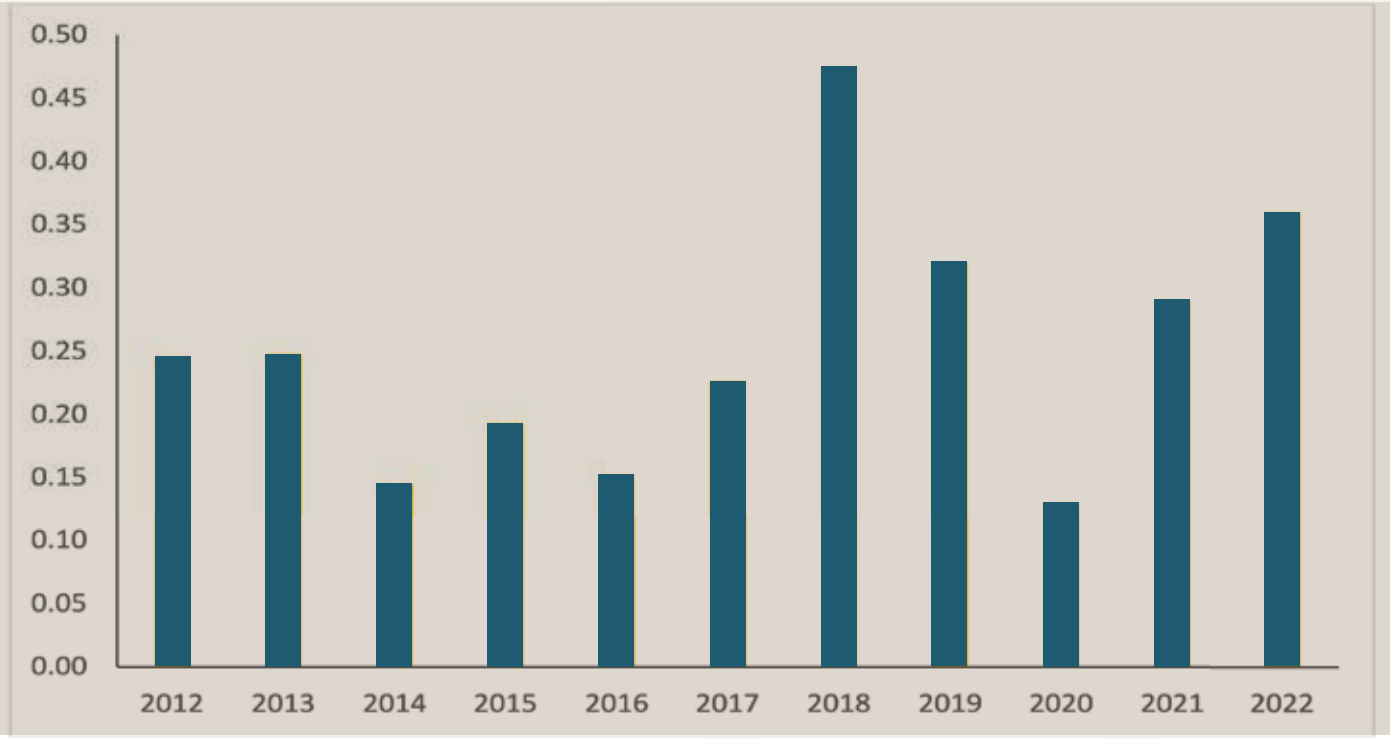


Wellbeing

Lost Time Injury (LTI) Rate=

$$\frac{\text{Total Number of Days Lost}}{\text{Total Number of Employees}}$$

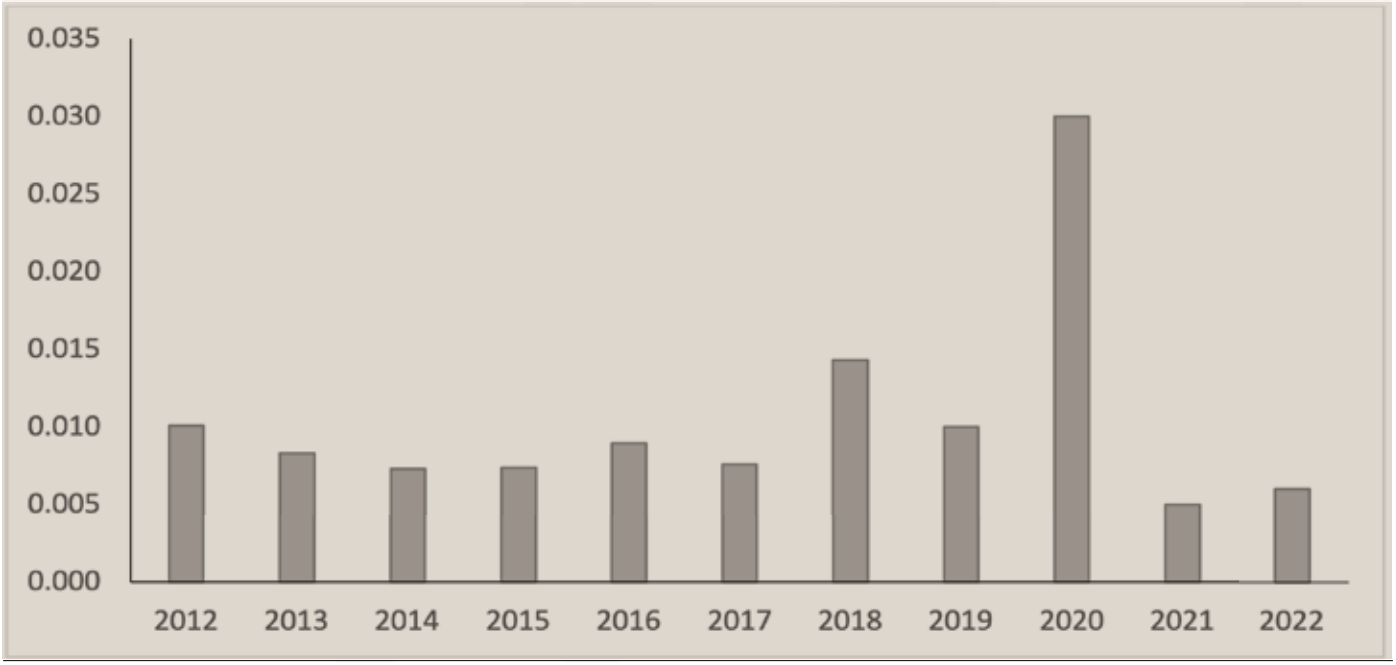
UK Brickmakers' Lost Time Injury (LTI) Rate 2012 - 2022



RIDDOR Reportable Injury Rate =

$$\frac{\text{Number of Injuries Reportable Under RIDDOR}}{\text{Total Number of Employees}}$$

UK Brickmakers' RIDDOR Reportable Injury Rate 2012 - 2022



Pledge

Ceramic Industry H&S Pledge Scheme

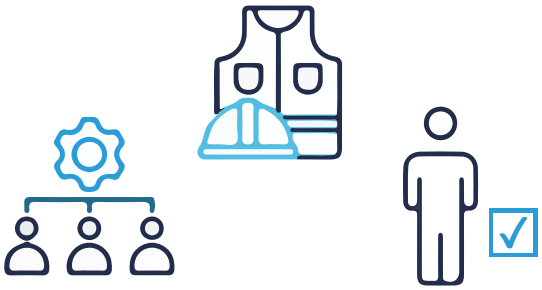
The Pledge Scheme was set up over 20 years ago to promote and support continual improvement in health and safety performance in the UK ceramics sector.

Vision: To work together (Industry, BCC, HSE and Trade Unions) to drive continual improvement in health, safety and wellbeing performance in the UK ceramics industry.

Objective: To continue to improve the health, safety and wellbeing performance of the ceramics sector and to make sure the industry a safe place to work.

This is achieved by:

- Engaging with industry and other stakeholders.
- Identifying priority workstreams.
- Developing and implementing a clear work plan.
- The identification of KPIs and the measurement, monitoring and reporting of performance.



Pledge Phase 5 - Priority Workstreams:

Training

Achieving Full Potential

Our Aspiration

The brick manufacturing sector offers employment opportunities across a wide range of roles. The industry will continue to nurture and invest in the training and development of those who work in the sector so they can achieve their full potential.

The Challenge

One of the characteristics of the brick sector is that many employees stay in the industry throughout their careers, building a wealth of knowledge and experience over many years. It takes time and support for those new to the industry to build the knowledge and skills needed, requiring careful planning and support over the short, medium and long term.

Where We Are Now

The industry is continuing to invest in the training and development of new and current employees, including apprentices.

What We Plan To Do

Training and development will continue to be high on the agenda, with the evolution of training programmes and opportunities to reflect changing industry needs, including the development and implementation of specialist apprenticeships.

Key Statistics

- **In 2022 there were 102 apprentices in the sector, around 30% lower than previous years.**
- **Total training days in 2022 fell by around 50% versus 2021, but was similar to the number in 2019 and 2020.**

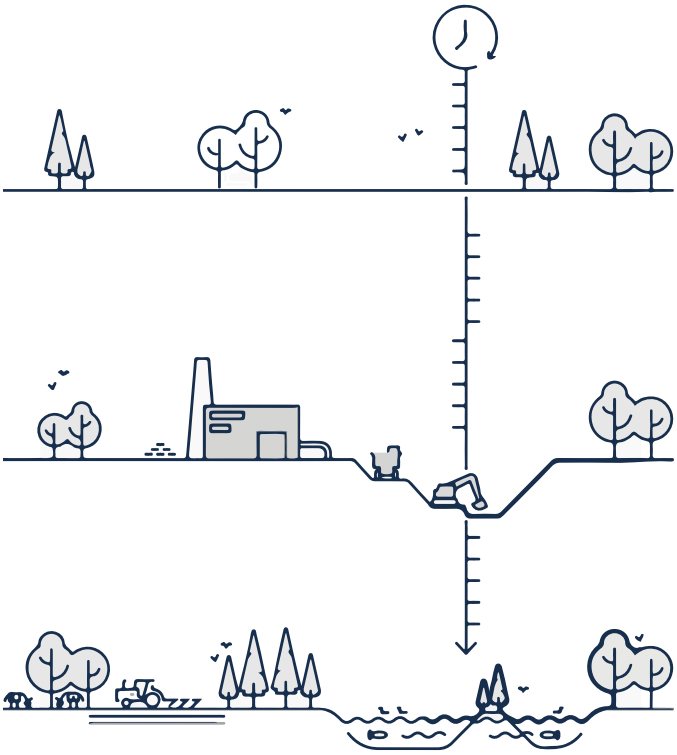
Biodiversity

Our Aspiration

To proactively support and enhance biodiversity through good site management and the restoration of quarries.

Key Statistics

84% of sites are covered by a site-specific restoration, biodiversity and/or geodiversity plan (consistent with previous years).



The Challenge

As a natural resource, clay should be extracted and used responsibly. The majority of clay brick manufacturers are landowners and are able to help offset the impact of quarrying on their sites and contribute positively to biodiversity, during extraction and also after through quarry restoration activities. The sector continues to work together to understand the contribution it makes to natural capital.

Where We Are Now

The National Planning Policy Framework sets out sustainable development principles for the minerals sector and the framework for mineral safeguarding and extraction. Minerals can only be worked where they are located geographically and every quarry is carefully managed throughout the extraction process, and restored upon completion, in accordance with planning requirements.

The maintenance and enhancement of natural capital is a key priority for the sector and, by implementing quarry biodiversity and restoration plans, the brick sector helps to enhance local wildlife and biodiversity.

The sector is also preparing for the implementation of Biodiversity Net Gain, a new planning approach to development that aims to leave the natural environment in a measurably better state than it was beforehand.

What We Plan To Do

- Continue close collaboration with conservation and wildlife organisations to inform effective biodiversity planning and management.
- Contribute to Government natural capital and biodiversity net gain approaches, where the sector has an important role to play.
- Help to support biodiversity by providing specialist products like Bat boxes, Swift bricks and Bee bricks that are built into homes and buildings.

Photograph:
Example of a clay brick habitat to help support bee and insect biodiversity.

Water

Our Aspiration

To use water as efficiently as possible in the manufacturing process and reduce our reliance on mains water supplies.

The Challenge

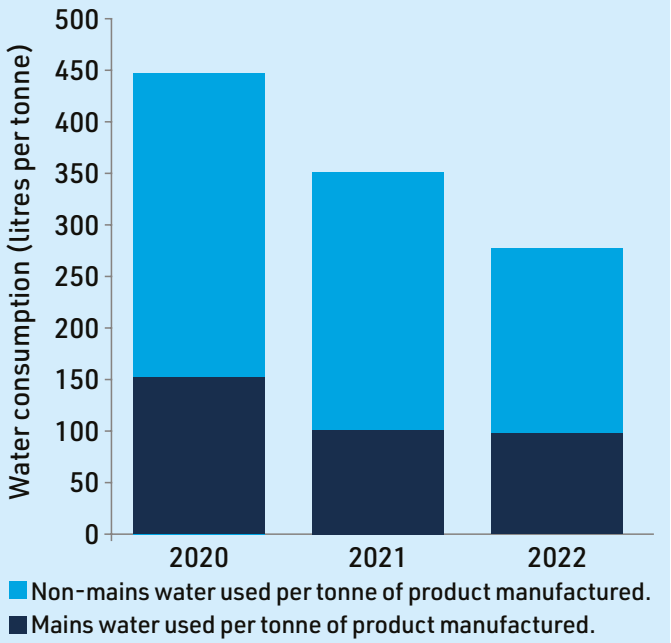
Water is needed in the brick manufacturing process to help shape bricks before they are dried and fired. The brick sector recognises the different environmental pressures on water resources and has continued work to reduce reliance on potable mains water supplies and maximise efficiency of water use where it is required.

Where We Are Now

Through improved monitoring and understanding of quarry de-watering, more information is being collected about rainwater collection in clay quarries. This water can then be put to beneficial use in factories, rather than using mains water.

In 2022, a higher proportion of mains water was likely driven by lower non-mains water availability (due to lower rainfall).

Water: Mains, Non-Mains & Total Water Use / Tonne of product manufactured, 2020 - 2022



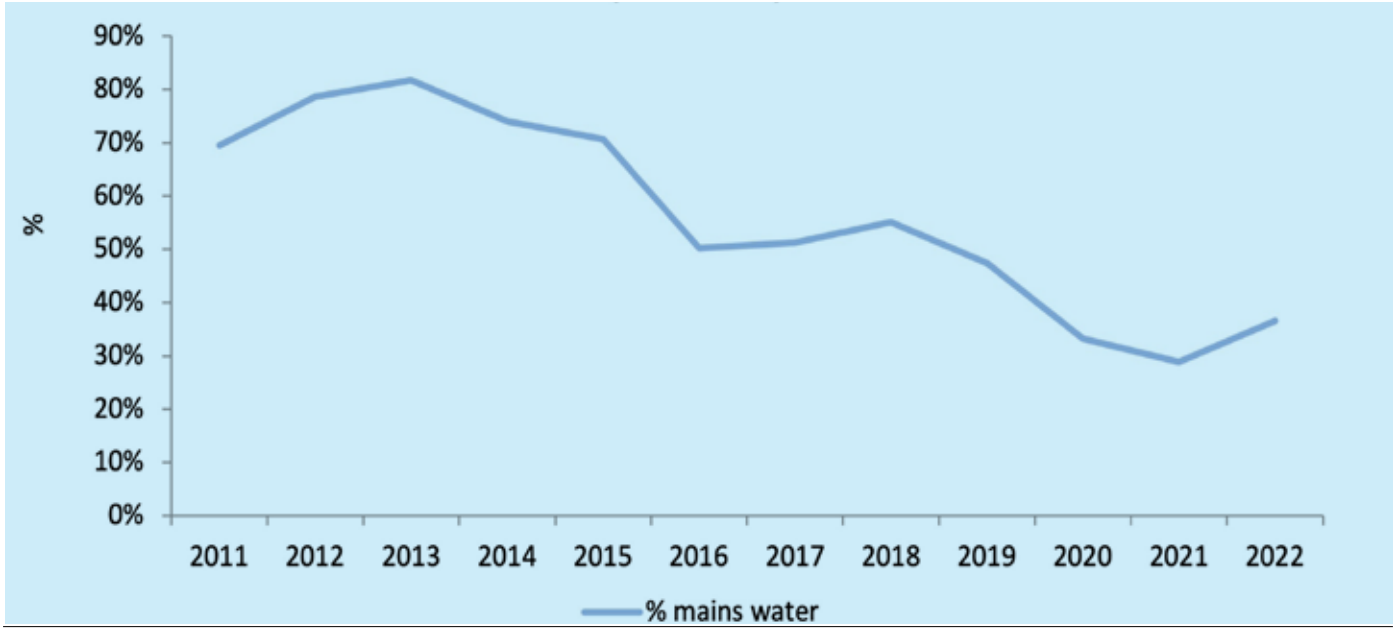
Key Statistics

- **Total water used per tonne of product has decreased by 22% in 2022, compared to 2021.**
- **In 2022 mains water accounted for 37% of water used (up from 29% in 2021).**

What We Plan To Do

- Monitor progress against the sector's Water Policy.
- Share best practice on the responsible use of non-mains water.

% Mains Water (of total water consumption) 2011 - 2022



Waste

Our Aspiration

To reduce the amount of waste produced on-site during the manufacturing process and downstream in the supply chain and to minimise disposal to landfill.

The Challenge

Investment in plant upgrades and machinery refurbishment can lead to short-term spikes in the amount of waste produced in a year. For some materials such as emissions abatement waste, there are limited options other than disposal. It is important that the sector also considers further opportunities to reduce waste at source; for example, single use plastic transit packaging on outgoing goods.

Key Statistics

The sector single use plastic packaging working party is now well-established as a way to share best practice and innovation on the reduction and elimination of single use plastics.

In 2022 there was a 37% decrease in waste to landfill per tonne of production when compared to 2021.

The volume of materials being recycled has more than doubled in 2022 compared to 2021, but is below pre-2020 levels.

Where We Are Now

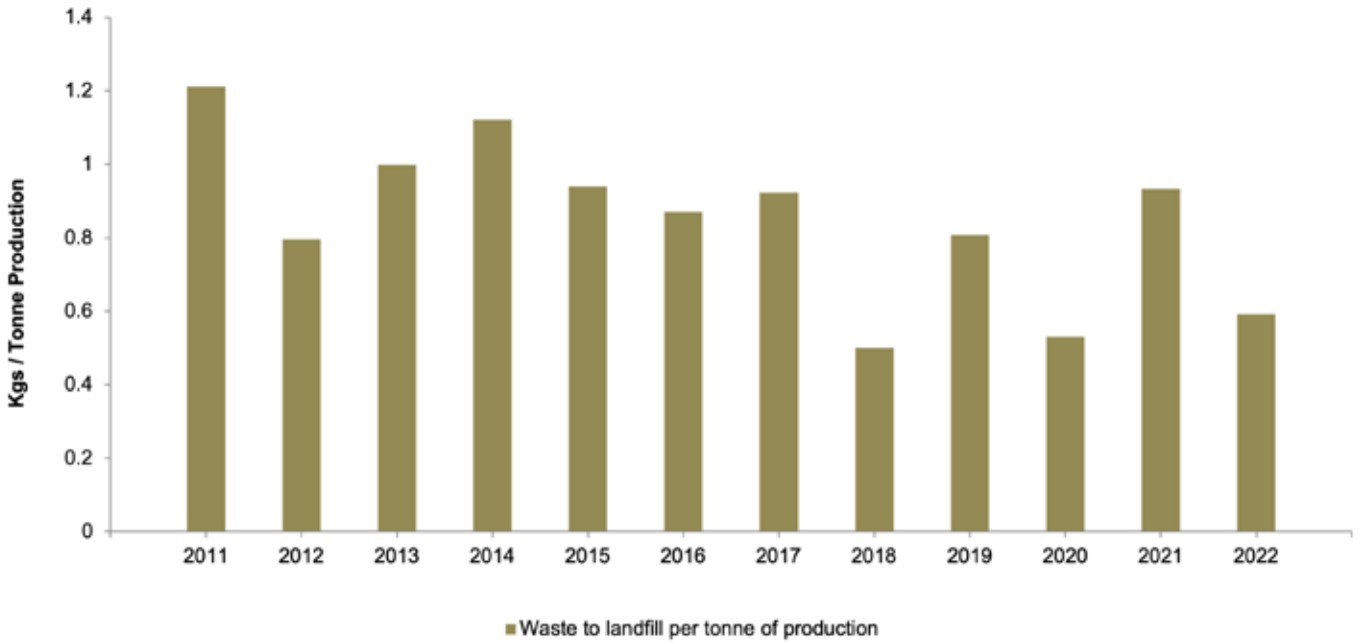
The volume of waste per tonne of brick production of product manufactured is low and the total waste sent to landfill per tonne of production since 2014, has generally been on a downward trajectory. Even though low volumes of waste are produced at manufacturing sites, companies are continuing to explore opportunities to reduce the amount of waste generated in the supply chain and options to promote the circular economy.

The sector is continuing to work together to investigate options and take action to reduce and eliminate single use plastic packaging.

What We Plan To Do

- Monitor compliance with the sector's Waste Policy.
- Continue to work together to improve understanding about the use of single use plastic packaging in the sector and to explore options and take action to reduce or eliminate its use.
- Establish the contribution that the brick and paver industry can make to the circular economy.

Waste to Landfill per Tonne of Production 2011 - 2022



Circular Economy

Our Aspiration

To use resources as effectively as possible; demonstrated through the assessment and understanding of clay bricks' role in a circular economy, supported by a robust methodology and evidenced through case study examples.

The Challenge

Clay is the principal material used in the manufacture of clay bricks. The transformation of clay into a ceramic product provides inherent durability, strength and long-lasting performance.

Clays are responsibly and locally sourced by companies, and whilst a small quantity of alternatives (Materials from Alternative, Recycled and Secondary Sources - MARSS) are used, further research is needed for clays to be further substituted to ensure the performance characteristics are not compromised.

Clay bricks lend themselves to the design of buildings along circular economy principles, where their long service-life and adaptability are key features, for a truly sustainable building. Nevertheless, application of the circular economy model to long-life construction products, like clay bricks, needs more development as to-date activities have tended to focus on high-value, short-life consumer products such as electronic goods. The sector is also embracing Modern Methods of Construction by producing products such as brick slips and utilising modular building techniques to lower overall resource consumption.

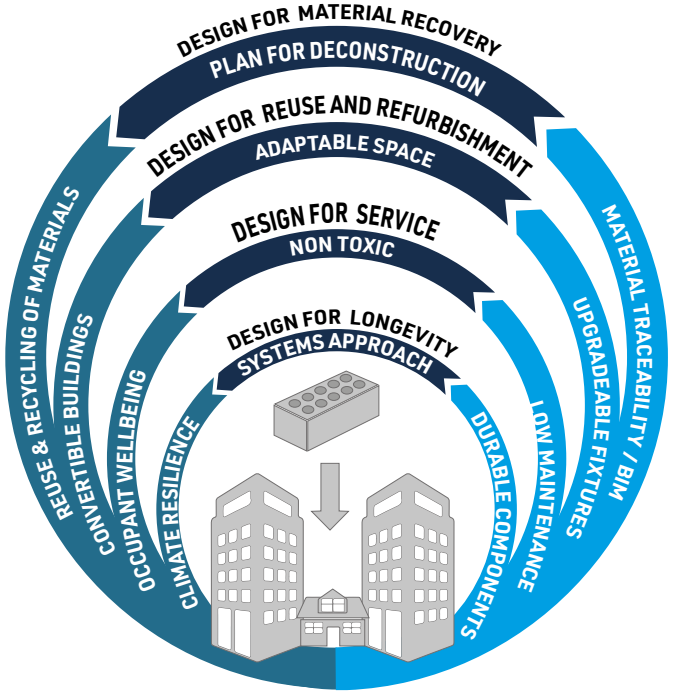
What We Plan To Do

- Continue sector-specific engagement around the circular economy and production of case studies, to encourage decision-making based on whole-life product performance.

Key Statistics

Where installed and maintained correctly, clay bricks can have a service life in excess of 150 years.

~99% of clay brick production is covered by BES 6001 'Responsible Sourcing' certification



Clay Brick Circular Economy Model

Climate Change

Energy Efficiency & Carbon

Our Aspiration

In order to reduce the impact on climate change the sector is working to:

- Improve energy efficiency in the manufacturing process and, reduce associated carbon emissions (from energy use) generated during manufacturing.
- Use clay resources as effectively as possible and reduce embodied carbon.

Where We Are Now

The clay brick Environmental Product Declaration (EPD) shows that over the product's whole life-cycle, including construction / in use / end of life of a building, overall carbon emissions are low per year of service life.

The UK Emissions Trading Scheme continues to be a key driver for industry improvement. In 2022, **energy-efficiency** (per tonne of product) **improved** by around 3% versus 2021.

The Challenge

Brick manufacturing - firing clay bricks to over 1000°C - is energy-intensive. Once a kiln is up to temperature it will run most efficiently if production levels are maximised. Energy-efficiency and CO_2 emissions are therefore linked to market demand for clay brick.

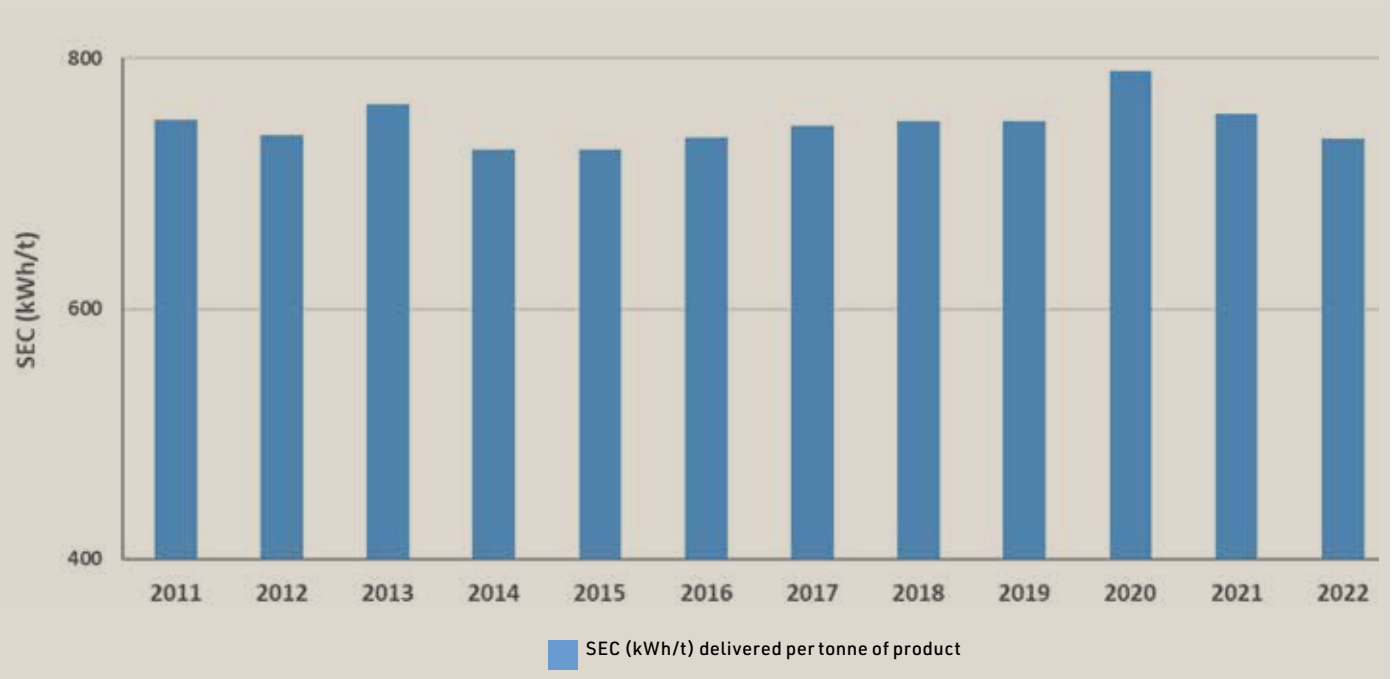
Whilst incremental efficiency improvements are important, more fundamental 'step-changes' in decarbonisation require new manufacturing technologies, such as fuel switching. Research and development is key in ensuring that technical challenges are overcome. Clays also generate process emissions, which are technologically difficult to abate.

Key Statistics

Around 95% of the sector's overall electricity use is procured from certified renewable energy sources or generated on-site

Almost 100% of production is covered by a certified Energy Management System (EnMS), ISO 50001.

Specific Energy Consumption 2022



Carbon Emissions

Carbon emissions from clay brick production are made up from a combination of:

- direct emissions from fuel consumption (primarily natural gas).
- indirect emissions from electricity (although the majority of electricity is now procured as certified renewable or generated by companies on-site).
- process emissions (from clays / additives) which are released during product firing.

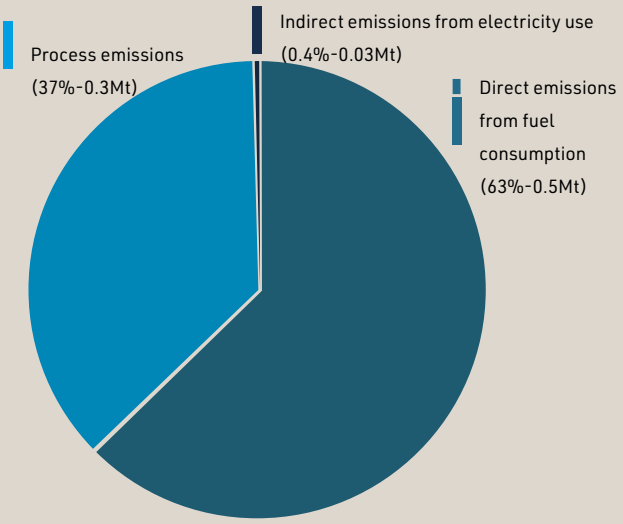
Where Are We Now

- Specifically looking at carbon emissions from direct / indirect fuel consumption, 2022 carbon emissions reduced by a further 1% (on top of a 21% reduction in 2021).
- Process emissions have tended to stay a constant, reflecting the current technical challenges to abate them.
- Total carbon emissions (from fuel use and process emissions) have been calculated at 26kg per m² of brickwork (as an average of all clay bricks).

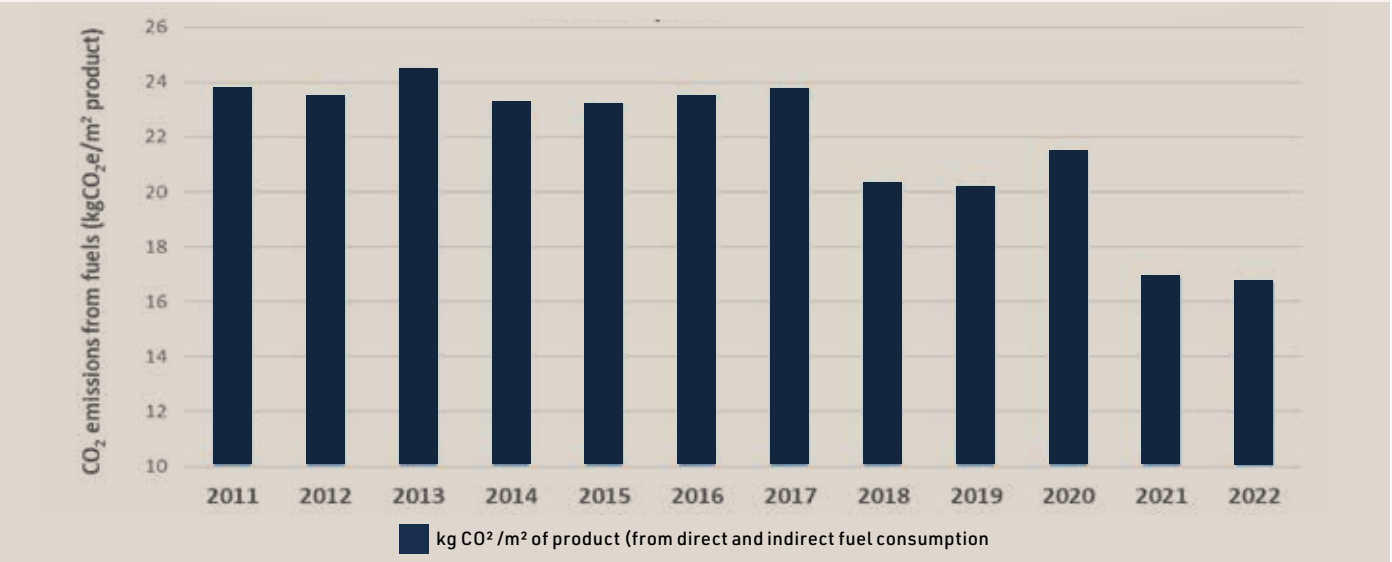
What We Plan To Do

- Companies in the UK clay brick sector, both individually and collaboratively (and supported by various innovation and funding opportunities) are developing projects to help reduce energy consumption and carbon emissions.
- The industry has already predominantly switched from higher CO^2 emitting fuels (like coal) to natural gas.
- Other low-carbon fuels, like hydrogen or electric-firing will be needed in the future to contribute to the UK Government's net zero 2050 emissions target for the UK.
- Other low-carbon fuels, like hydrogen or electric-firing will be needed in the future to contribute to the UK Government's net zero 2050 emissions target for the UK.
- BDA members are already actively involved in work or projects to explore on-site technical challenges with the adoption of alternative fuels. These include firing with hydrogen and bio-energy. These are recognised as key future technologies for the industry, and any roll-out will need to be coordinated with national energy infrastructure decisions.
- Process emissions are more-challenging to abate, although companies are actively exploring ways to substitute materials and also adapt products.
- Most BDA companies are signed-up to the 'British Ceramics: Towards Net Zero' initiative to assist in the roll-out of best practice and support collaboration amongst the industry and key stakeholders.

% Breakdown of CO_2 emissions from clay brick sector in 2022



CO_2 emissions from direct & indirect fuel consumption



Industry Value

Investment & Continual Improvement

Our Aspiration

To demonstrate the industry's ongoing commitment to investment in plant, machinery and new technologies.

The Challenge

Capital investments are made on the basis of long-term planning / investment cycles, typically spanning ~40 years for a brick manufacturing plant. There are around 40 brick manufacturing sites in the UK and it is imperative that investment is focussed where it is needed to support the industry's future.

Where We Are Now

As the industry recovered from Covid, members reported £85M investment in 2022, which was more than double the investment in 2020 and also higher than 2019 levels. This has included significant investments in new 'state-of-the-art' factories; illustrating the sector's long-term commitment to UK manufacturing and helping deliver continuous improvements, particularly in energy-efficiency and carbon reduction in the sector's transition to a net zero future.

The sector's commitment to continual improvement is illustrated by the impressive statistics on implementation of formal management systems; with the production process almost in its entirety covered by certified environmental, quality and energy management systems.

What We Plan To Do

- Continued investment in factories, plant and machinery.
- Investment in technology and innovation to aid the transition to net zero.

Key Statistics

Over £85m of investment in 2022 taking investment over last decade to around £500m.

The sector employs around 3,800 people directly, with more in the supply chain.

100% of production was covered by certified Quality, Energy and Environmental Management Systems.

Community

Common Values & Social Cohesion

Our Aspiration

To be a positive and proactive contributor to the local communities in which we operate.

The Challenge

The geographic distribution of clay construction product manufacturing operations in the UK, largely reflect locations where suitable mineral reserves are situated, with clays often sourced from company owned quarries located near to their manufacturing plant.

Companies are often located in close proximity to residential and other areas, therefore the sector's proactive engagement with local communities is especially important.

Where We Are Now

Community engagement by brick companies continues to be high, with educational visits and site tours hosted by manufacturers to build a better understanding of clay quarrying and brick manufacturing. Quarry excavation can often uncover exciting historical finds, which allows specialists group like archaeologists to better understand our past.

What We Plan To Do

- The sector will continue to facilitate community engagement with local communities across the UK.

Key Statistics

All UK brick manufacturers are involved in community liaison activities and, many with active liaison committees.

Other ways in which companies support local communities include the sponsorship of local groups and events, employee volunteer programmes and charitable donations.

Published by the Brick Development Association (BDA).

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