BRICK DEVELOPMENT ASSOCIATION



Sustainability Report 2021

brick.org.uk

Chairman's Summary

Welcome to the latest Brick Development Association sustainability report. This annual publication is an opportunity to review the collective progress in sustainable operations made by the UK's brick manufacturing industry. It also focuses our attention on forthcoming challenges and the way in which we will approach them.

2020 is the last year that the BDA will be reporting against its current set of Key Performance Indicators and the industry is well underway with finalising a set of KPIs for the next reporting period. An important part of this process has involved surveying our stakeholders to better understand the importance they place on the different areas.

Much has changed since the industry started reporting on the current KPIs in 2011 and during this decade sustainability has steadily moved up the agenda. One of the most consequential events was the UK becoming the first major economy to commit to net zero CO_2 emission by 2050. The UK clay brick industry is determined to be a responsible stakeholder on this journey to net zero.

In addition to this there have been a number of other significant policy challenges and opportunities that the industry have had to negotiate, including Brexit and the Coronavirus pandemic. One of the exciting trends is the development of a more circular economy; the industry is currently working of its end of life guidance to better communicate how brick can be reused, reclaimed and recycled.

Dave Manley
Chairman of the Sustainable Production Working Party

Wellbeing

OUR ASPIRATION

To ensure employee wellbeing remains core to business operations across the sector, through responsible health and safety practices. Specifically the provision of education and training to develop employees' skills, and mental health support.

KEY STATS

139 apprentices in 2020, compared to **140** in 2019, despite the impact of covid.

In 2020, the sector Lost Time Injury Rate was 0.13*.

In 2020, the Accident Rate was 0.32*.

In 2020, the RIDDOR Reportable Injury Rate was 0.03*.

*How are accident statistics calculated?

Accident Rate =
(Total Number of Accidents)
(Total Number of Employees)

Lost Time Injury (LTI) Rate =
(Total Number of Days Lost)/
(Total Number of Employees)

RIDDOR Reportable Injury Rate =
(Number of Injuries Reportable Under RIDDOR)
(Total Number of Employees)

THE CHALLENGE

Continual improvement in health and safety performance in a changing work and regulatory environment alongside which employers must train the workforce of the future and nurture existing talent. In 2020 there was the additional impact of the Covid-19 shutdown and changed factory operations to create Covid safe workplaces.

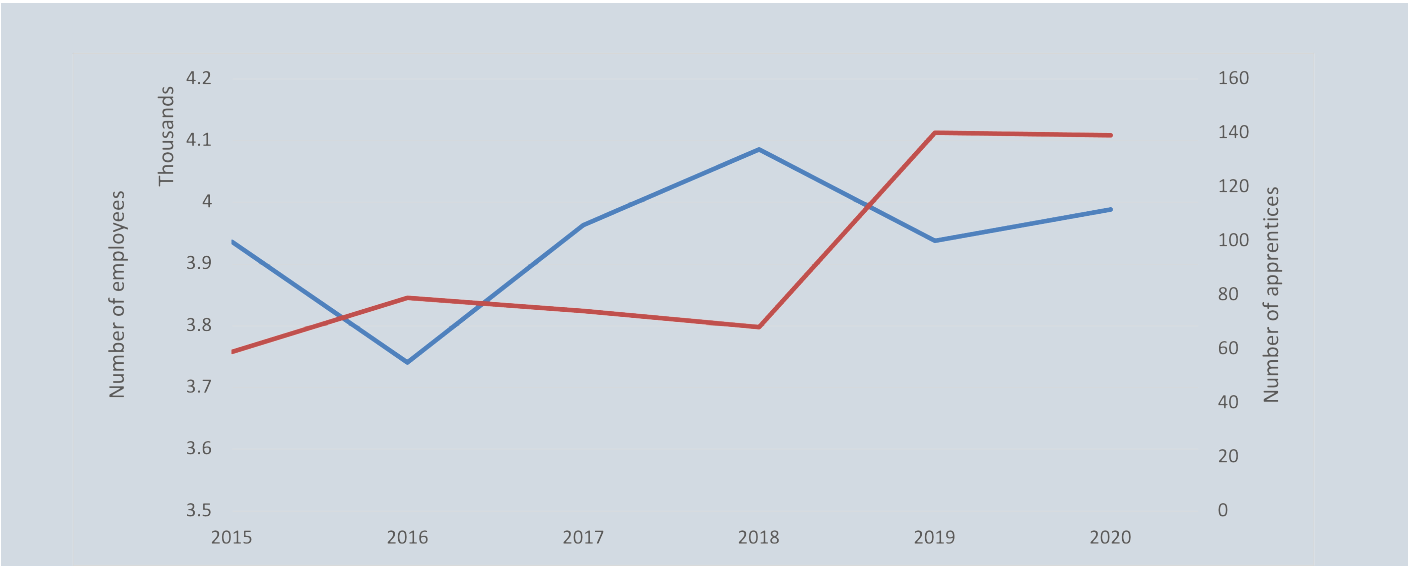
WHERE WE ARE NOW

Brick manufacturers have worked together as part of the wider ceramic sector Health and Safety Pledge Scheme, to improve health and safety performance through sharing good practice and initiatives. One example of this collective working is the development of the sector Continual Professional Development scheme for quarry managers.

During the pandemic period supporting mental health and wellbeing is high on the agenda for many companies, with a range of initiatives taking place. Examples include membership of "Mates in Mind" - a charitable programme to promote positive mental health in the workplace. Companies have also carried out a range of training, support and awareness raising initiatives. This work will continue to remain a priority.

WHAT WE PLAN TO DO

+ Continue to invest in formal training and apprenticeship schemes
+ Engage with the Health and Safety Pledge (Pledge Phase 4), which is closely aligned with the HSE's Manufacturing Sector Strategy
+ Explore further opportunities for collaborative working to improve health and safety performance, including the development of sector specific training



Biodiversity & Community

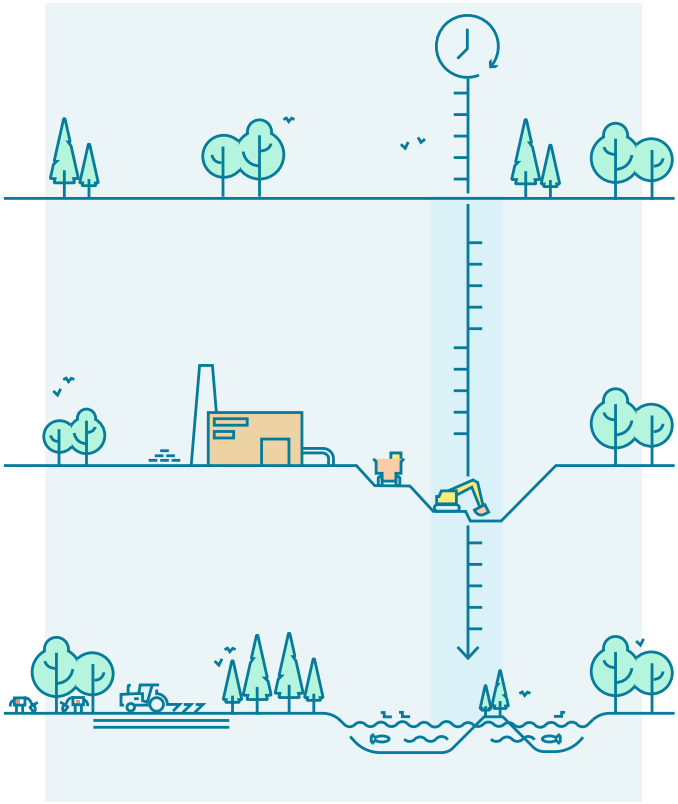
OUR ASPIRATION

To support and enhance biodiversity through good site management and the restoration of quarries and to be an active member of the communities in which we operate.

KEY STATS

88% of production sites covered by a site specific restoration, biodiversity and/or geodiversity plan. Up from **86%** in 2019.

All UK brick manufacturers are involved in community liaison activities, with many running 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.



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 is the framework for mineral safeguarding and extraction. It also incorporates the sector's sustainable development principles. 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 the planning process.

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

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

WHAT WE PLAN TO DO

- The sector will continue to facilitate community engagement with local communities across the UK
- Continue close collaboration with conservation and wildlife organisations to inform effective biodiversity planning and management
- Continue to work with natural capital experts to understand the contribution and role of the sector
- Contribute to emerging Government natural capital and biodiversity net gain approaches, where the sector has an important role to play.

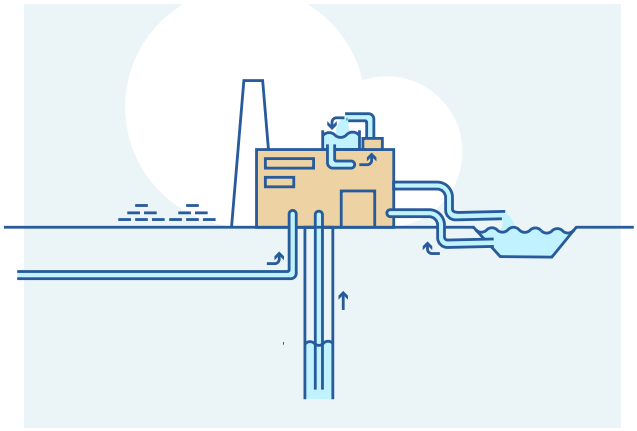
Water

OUR ASPIRATION

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

KEY STATS

The proportion of mains water used per tonne of product fell to a low of **33%** compared to a figure of **47%** in 2019.



THE CHALLENGE

Water is needed in the brick manufacturing process to help shape bricks before they are dried and fired. The brick sector has embraced the recent changes to water abstraction regulations to reduce reliance on potable mains water supplies, and maximise efficiency of water use where it is required.

WHERE WE ARE NOW

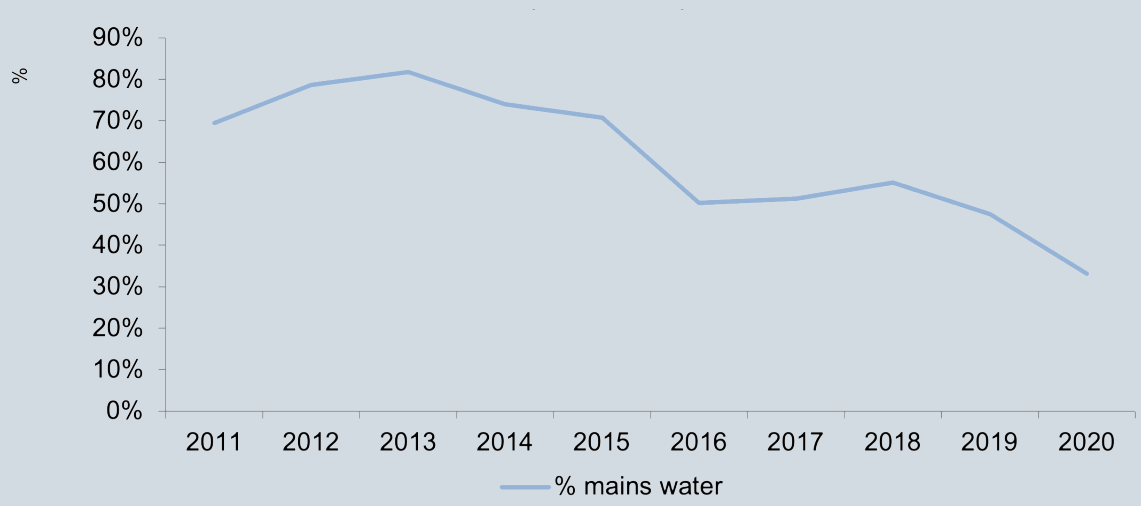
Through improved monitoring and understanding of quarry dewatering, more information is being collected about rainwater collection in clay quarries. This water can then be put to beneficial use in factories, rather than using mains water. Overall mains water efficiency per tonne of manufactured product has improved by 14% in 2020.

Proportionally, the quantity of non-mains sourced water has increased since 2011, and now accounts for 67% of total water consumption by the industry (as demonstrated below):

WHAT WE PLAN TO DO

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

WATER: % mains water (of total water consumption) **2011 - 2020**



Energy

OUR ASPIRATION

To improve energy efficiency in the manufacturing process and, reduce carbon emissions generated during manufacturing.

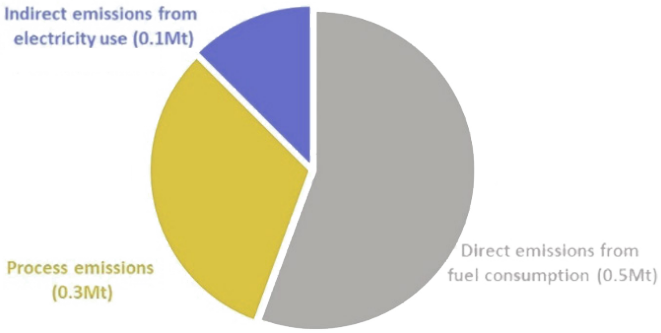
KEY STATS

2020 carbon emissions have been heavily impacted by the Covid shutdown. Absolute emissions were reduced by 36% but the amount of carbon per tonne of product increase by 6%, due to worsening efficiency.

In 2020, all reported production was covered by an Energy Management System (EMS ISO 50001) – driving continual improvement in the sector.

Around **5%** of the sector's electricity is directly provided by **on-site** renewable sources.

The Emission Trading Scheme continues to be a key driver for industry improvement.



CARBON: Breakdown of CO_2 emissions from manufacturing

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 brick, which has been drastically impacted by the Covid shutdown. Clays also generate process emissions, which are technologically-difficult to abate.

Whilst incremental efficiency improvements are important, more fundamental 'step-changes' in decarbonisation require new manufacturing technologies, such as fuel switching. Apoption requires technical challenges to considered and overcome; including research and development.

WHERE WE ARE NOW

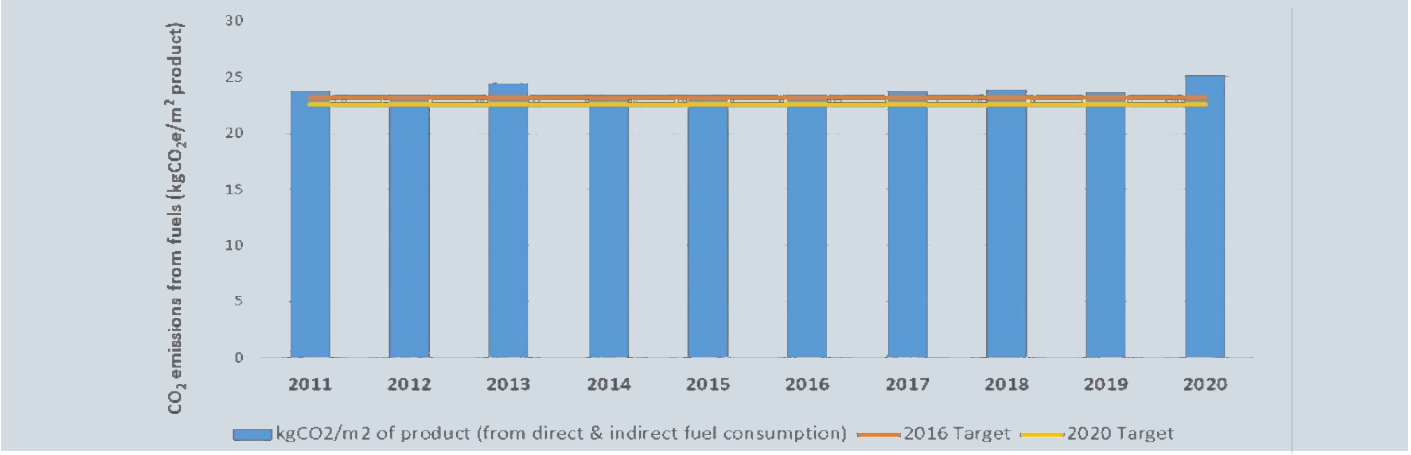
Energy and carbon efficiency (per tonne of product) was impacted by the Covid shutdown, but the general trend is towards carbon reduction.

WHAT WE PLAN TO DO

+ The industry is following a Decarbonisation and Energy Efficiency Roadmap. Supported by various innovation and funding opportunities, companies are developing projects to help reduce energy consumption and carbon emissions. The industry has already switched from higher CO_2 emitting fuels (like coal) to natural gas. Other low-carbon fuels like hydrogen and electric-firing will be needed in the future to contribute to the UK Government's 'net zero' 2050 emissions target.

+ Members are involved in discussions to explore on-site technical challenges with the adoption of alternative fuels; aligning with key Government policies and initiatives as they emerge. Hydrogen is recognised as a key technology for the industry, and any roll-out will need to be coordinated with national infrastructure planning.

CARBON: CO_2 emissions from direct & indirect fuel consumption



Waste

OUR ASPIRATION

To reduce the amount of waste generated and to minimise disposal to landfill.

KEY STATS

An industry group has been started to focus on packaging. Specifically sharing best practice and innovation on single life plastics.

For an average sized house the waste produced was calculated as less than 4 bricks.

Year to year, fluctuations in the volume of waste generated and recycled by the sector are largely due to building and renovation projects (and other factors) that may take place within any particular year. Therefore no clear trends are apparent in the data collected.

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, transit packaging on outgoing goods.

WHERE WE ARE NOW

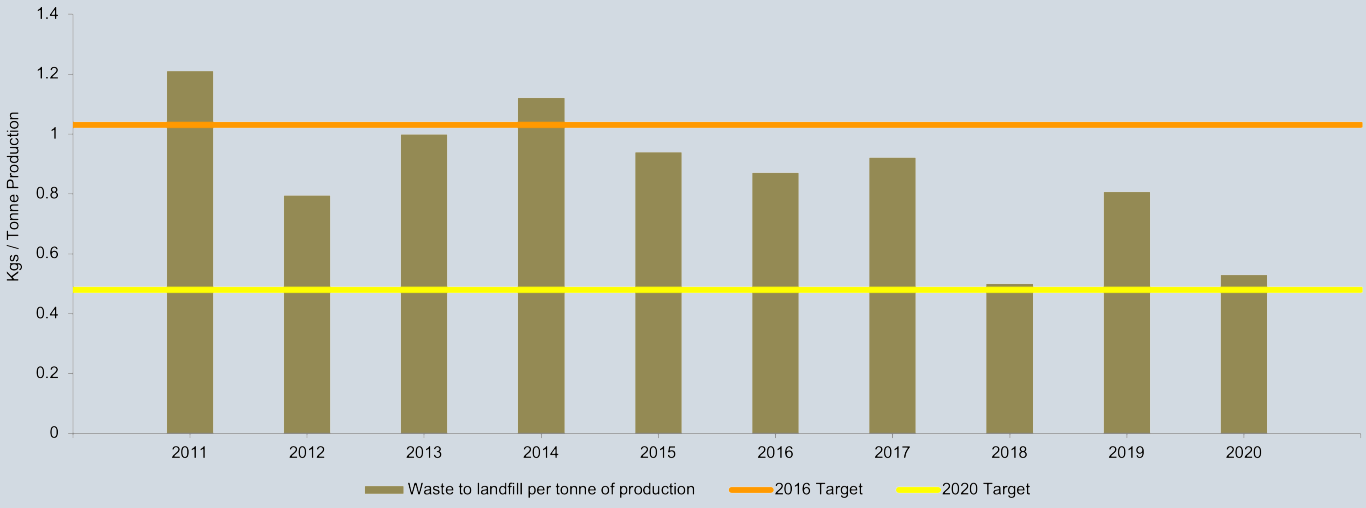
The volume of waste per tonne of brick production is low and the total waste sent to landfill per tonne of production since 2014, has generally been on a downward trajectory. However, even though low volumes of waste are produced at manufacturing sites, companies are continuing to explore opportunities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

In 2020, the sector continued to consider further activities to minimise product packaging (which is needed for the safe transportation of bricks to customers and to maintain product quality) and work together collectively. This work is ongoing.

WHAT WE PLAN TO DO

- Monitor compliance with the sector's Waste Policy, published in 2017
- Create a Waste Strategy against which progress will be measured and reported
- Continue work looking at options to optimise product packaging

WASTE: waste to landfill per tonne of production (2011 - 2020)



Circular economy & Embodied carbon

OUR ASPIRATION

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

KEY STATS

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

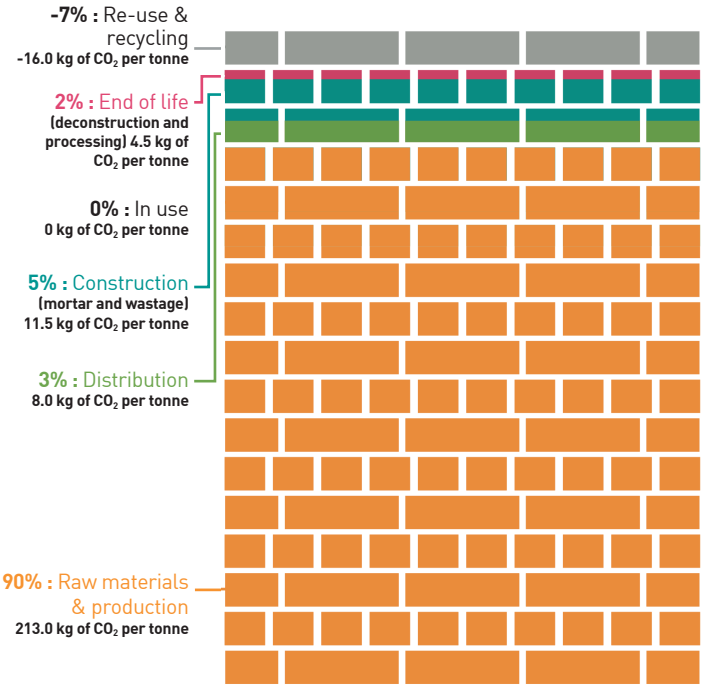
BES 6001 'Responsible Sourcing' certification covered all production for companies that reported.

6% of alternative materials (Materials from Alternative, Recycled and Secondary Sources - MARSS) are used in brick production, ensuring resource-efficient use of clays.

CARBON EMISSIONS OVER PRODUCT LIFECYCLE

28KG OF CO_2 PER INSTALLED M^2

based on half brick thick cavity wall.
220.973kg of CO_2 per tonne



THE CHALLENGE

Clay is the principal material used in brick manufacture. It creates durable, long lasting performance and is responsibly and locally sourced by companies. Whilst a small quantity of alternatives (Materials from Alternative, Recycled and Secondary Sources - MARSS) are used, more research is needed for clays to be further substituted to ensure the performance characteristics are not compromised. The application of the circular economy to long life construction products like clay bricks also needs more development as to-date activities have tended to focus on high-value, short life consumer products like electronics.

WHERE WE ARE NOW

The clay brick Environmental Product Declaration (EPD) shows that over the product's whole lifecycle –including construction / in use / end of life of a building - overall carbon emissions are low per year of service life and at end-of-life products can be re-used and recycled. 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.

WHAT WE PLAN TO DO

+ Continue sector-specific circular economy modelling and production of case studies, to encourage decision-making based on whole-life product performance.
+ Continue reporting on the use of MARSS materials within the brick industry.



A CIRCULAR ECONOMY FOR THE BUILT ENVIRONMENT

Continual improvement

OUR ASPIRATION

To evidence the sector's collective commitment to continual improvement in production efficiency and quality, and to report our results annually.

KEY STATS

Over **£30 million** invested in plants and machinery in 2020 (around 6% of the sector's revenue).

100% of reported production covered by a certified Environmental Management System (EMS).

100% of reported production covered by a certified Energy Management System (EnMS).

100% of reported production covered by the certified responsible sourcing framework BES 6001.

100% of reported production covered by a certified Quality Management System (QMS).

One health and safety or environmental prosecutions were reported in 2020.

0 the number of environmental prosecutions in 2018.

In the past five years, over **£250 million** has been invested by the sector.

THE CHALLENGE

Continual improvement across all aspects of business operations is critical to company success, and this can present many challenges for companies in the short, medium and long term.

WHERE WE ARE NOW

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.

Despite the covid shutdown members report investment in plants and machinery almost £30 million during 2020, taking the total to over £250 million in the last five years. This has included significant investments in a number of 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.

Building on success of the cross sector Resource Efficiency Action Plan, the clay brick and block, ready mix and precast concrete sectors are now collaborating on new sustainability projects. Steps are being taken to improve transparency though the development of new sustainability KPIs which are aligned with the Global Reporting Initiative Standards, and opportunities to reduce the use of plastic packaging are also being jointly explored.

WHAT WE PLAN TO DO

+ Continued investment in plants and machinery
+ Maintain the high proportion of the sector operating to recognised management systems
+ Continue to participate in industry Resource Efficiency Action Plans (REAPs) to share best practice
+ Develop new sustainability KPIs and
+ Explore opportunities to reduce the use of plastic packaging.

MEMBERS OF THE BRICK DEVELOPMENT ASSOCIATION

Bulmer Brick & Tile Co Ltd www.bulmerbrickandtile.co.uk
Coleford Brick & Tile Ltd www.colefordbrick.co.uk
Forterra Building Products Ltd www.forterra.co.uk
H.G. Matthews www.hgmatthews.com
Ibstock Brick Ltd www.ibstockbrick.co.uk
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Northcot Brick Ltd www.northcotbrick.co.uk
Raeburn Brick www.raeburnbrick.co.uk
W H Collier Ltd www.whcollier.co.uk
Wienerberger Ltd www.wienerberger.co.uk
York Handmade Brick Company Ltd www.yorkhandmade.co.uk

This report has been comprised based on data returns from members of the BDA representing over 95% of total UK clay brick production in 2020.

Copies of this document can be viewed on and downloaded from the Brick Development Association website.

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