



Sustainability Matters 2020

Sustainability Performance Report (2019 data)

Introduction



Progress towards charter targets & objectives

2020 was undoubtedly the most challenging year so far for our members. It is a testament to the precast industry that we have adapted and moved forward to continue supporting the construction industry by meeting market demands in a safe and responsible manner. As an essential service, the UK's construction industry continues its recovery into 2021 and is leading the UK out of the economic downturn created by the Covid-19 pandemic. Despite substantial barriers, our annual auditing program managed to successfully audit 39 member companies in 2020, collecting essential KPI data covering 14.5 million tonnes of precast products.

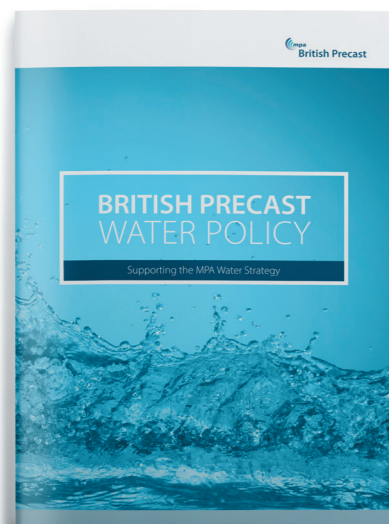
2020 also saw the rise of the Net Zero Carbon agenda, with many industry bodies, institutions and authorities publishing detailed plans and roadmaps on how to address Net Zero and Whole Life carbon. In July, the UK concrete and cement industry launched a roadmap to become net negative by 2050. The precast sector, as part of UK concrete and cement industry, aim to beyond net zero and become carbon negative by 2050.

Our performance in 2019 makes us even more confident about our 2050 targets. In 2019, our sector was able to reduce precast factory carbon emissions to single digits of Kg CO₂e per tonne of product. Our energy consumption is now limited to 47.9 kWh/t (24% fall since 2012). Our audits also offer a very positive insight into how many member companies are changing their processes to become more sustainable.

Our data collection/ communication process is also improving significantly. We are investing in new software to ensure that every single precast manufacturer is able to support the industry with accurate carbon footprinting and Environmental Product Declaration (EPD) data. We are also working with a number of industry bodies to help them develop more accurate Whole Life carbon assessments and use more informed methodologies, baselines and benchmarks for precast concrete. In 2020, we also published a concrete waste protocol and a new precast Water Policy to help our members improve current management processes.

Our new post-2020 sustainability strategy and set of KPIs will be published later this year, with aspects such as Climate Change, and principles such as Circular Economy, Social Capital and well-being, at the heart of that strategy.

Phil Cox Director of British Precast



Note: Members of British Precast can use this data capture exercise and the targets set by the industry to help demonstrate conformance to the Responsible Sourcing of Materials standard (BES 6001) with regards to stakeholder engagement, etc. Third party certification auditors are welcome to contact British Precast to gain confirmation that annual KPI data has been supplied.

Some data items can only be estimated due to technical and legal restrictions.



Auditing, Certification & Management Systems

- **39** manufacturers audited under the Precast Sustainability Charter scheme in 2020.
- **95.1%** of precast production in 2019 was certified to Quality Management Systems standard ISO 9001.
- **97.8%** of precast production certified to Environmental Management Systems standard ISO 14001.



Energy Efficiency

- **10%** of energy used in making concrete blocks was from renewable sources.
- **14%** of energy used in making architectural & structural precast is renewable.
- **52%** of precast concrete production in 2019 was certified to Energy Management Systems standard ISO 50001.



Road to Net Zero Carbon

- Factory CO₂ emissions reduced by **51%** since 2010.
- Cradle-to-Gate CO₂ emissions down by **53%** since 1990.
- Precast became among the first this year to commit to a **NET ZERO** carbon sector roadmap.
- Working closely with industry bodies to ensure use of accurate precast data in carbon assessments.



Natural Resources & Circular Economy

- Mains water consumption down by **38%** since 2012.
- Factory waste down by **over 50%** since 2012 with almost two thirds recycled in-house and reused again on site.
- Low carbon cements constituted **18.6%** of cement used.
- Of all reinforcing steel traced back by members, **over 60%** originated from UK steel mills.



Sustainable Communities

- **72%** of precast production is covered by certified H&S Management Systems (OHSAS 18001/ ISO 45001).
- **86%** of companies made charitable donations and/ or offered employee time voluntary work.
- **98.7%** of reported employees were covered by a formal training and development policy in 2019.



Product Data & Digitalisation

- New free **EPD software package** to enable every member company develop its own verified EPDs/ carbon footprints.
- Around **64%** of precast manufacturers covered by 3rd party verified Environmental Product Declarations ().
- **75%** of all manufacturers have precast products BIM Objects and/ or Product Data Templates.

Sustainable Consumption & Production Systems

British Precast uses the coverage of UKAS accredited management systems across members' factories as an indicator to commitment to address environmental aspects and impacts. Such management systems are also an indicator to a company's ability to develop complementary resources and build the necessary skills to stay competitive and able to adopt new technologies and solutions.

UKAS-accredited management systems

In 2019, **95.12%** of our members' production was covered by an ISO 9001 quality management system. This is compared to **91.1%** in baseline year, 2012. **97.8%** of production (or **91%** of sites) was covered by an ISO 4001 (or equivalent) environmental management system compared to **88.9%** in 2012.

Responsible Sourcing certification to BES 6001 also saw an increase, reaching **82.1%** in 2019. 2019 was also the 11th Year our industry had no environmental incidents leading to convictions by regulatory authorities.

Products data and digitalisation

We continue to have one of the highest rates of Environmental Product Declarations (EPD) and BIM product data template (PDT) data in the construction sector. **63.6%** of our members covered by certified 3rd party EPDs. **42** members have developed BIM objects and/ or PDTs for their products. With the introduction of our new EPD development tool, from One Click LCA, we expect to see a further increase as member companies will get the chance to test their new products and mixes against any corporate or industry targets or benchmarks.

Natural resources & Circular Economy

2019 saw mixed results in terms of resource efficiency and employment of secondary or recycled/ low carbon materials. Factories' water consumption and waste generation continue to fall steadily. But the availability of secondary/ recycled aggregates outside of members' own operations continues to be a challenge. Use of low carbon cementitious materials also dropped in 2019 compared to the previous year. This was mainly due to a change in the proportions of different precast products reported this year and is unlikely to be a result of reduced use of low carbon cementitious products in 2019. In early 2020 we published a Protocol document to help members manage recycled concrete aggregate arising from their operations. We also published our first precast sustainable water policy later that year.

Water use

Mains water use in 2019 was **68.6** litres/t, this is **38%** lower than in 2012. Groundwater use also saw a significant reduction to **41.2** litres/t compared to **45.6** litres/t in 2012.

Waste minimisation

Factory waste saw a significant drop in 2019, reaching **19.71** kg/t, well under half the average for factory waste generated in 2012 (**39.8** kg/t). We also achieved our waste to landfill target as such waste reached only **0.31** kg/t in 2019, compared to **1.67** kg/t in 2012.

Our audits in 2020 revealed that an increasing number of factories have introduced measures to reduce waste. This has reflected on our stats for 2019 and are also likely to lead to further drops in 2020/21. The amount of waste recycled on-site (which is more likely to be reused again as recycled aggregates) has also increased from **40-45%** in the past to well over **60%**.

Secondary and recycled aggregates use

The amount of secondary and recycled aggregates available for use in precast concrete products dropped further in 2019. Recycled/ Secondary aggregates constituted **12.6%** of all aggregates used in precast factories in 2019. This figure currently does not include Recycled Concrete Aggregates (RCA) recycled internally and reused by manufacturers. However, the reduction (from over **20%** in 2012) reflects the rising demand for RCA in other applications across the construction industry.

Use of low carbon cementitious materials

An average of **137** kg of cementitious material was used per tonne of precast concrete in 2019. The overall replacement of Portland cement was around **18.6%** in 2019.

Reinforcing steel

This new category was added to help with more accurate reporting on the true carbon footprint of reinforcing steel used in precast concrete products. Of all reinforcing steel (rebar, strand, etc) reported for 2019 and traced back by members, around **60.3%** was traced back to UK-producers (UK based mills), making just over half (**50.8%**) of all reinforcing steel used by members in 2019. This category will be further improved to help identify other world regions where our members' reinforcing steel is sourced from.

Sustainable Communities

The precast sector maintained its excellent competence and training record in 2019, increasing production covered by UKAS-accredited Health & Safety management systems while maintaining high levels of coverage of employees under formal training and development systems. As part of MPA, British Precast also launched "Vision Zero" in 2020, a new mineral industry initiative targeting change of behaviour, consistent leadership and Zero tolerance of unsafe working conditions. In the first half of 2020, our MPA H&S Committee also published a number of guidance document to enable safe working conditions during the pandemic.

Health & Safety

Production coverage by UKAS-certified Health & Safety management systems have increased from around **63.4%** in 2018 to **72%** in 2019. The precast sector's LTIFR rate is now **6.2** per million hours compared to **9.8** in 2012.

Ethical business standards

Around **60%** of companies responding have formal Code of Business Ethics policies, almost all (**95%**) have Equal Opportunities policy and around **88%** have measures in place to ensure compliance with Anti-bribery and Corruption legislation. Almost **4** out of every **5** respondents (**79%**) have an Anti-trafficking & Slavery statement.

Respect for people & local environment

32% of sites operated formal local liaison schemes in 2019. Around **86%** of member companies made charitable donations that year and employees offered an average of **99** hours per company of voluntary work.

Competence and Skills

98.7% of reported employees were covered by formal training and development policies in 2019. An average of **19.3** hours of training per employee was provided.

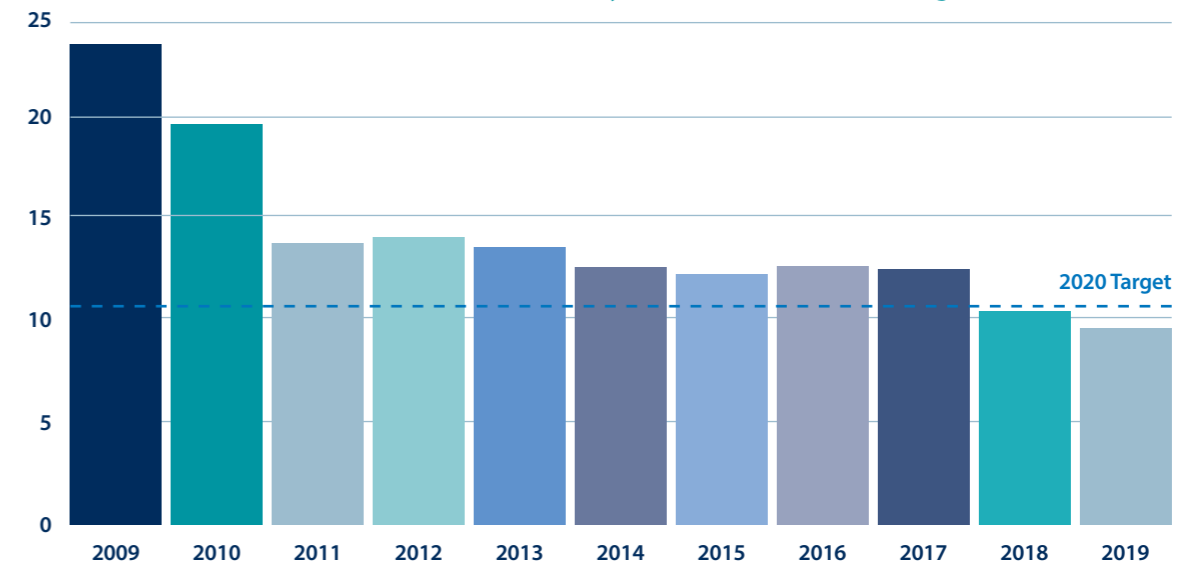
Climate Change & Energy

The precast sector continues to reduce its carbon emissions and use of fossil fuels. Precast factory energy consumption was around **47.9 kWh/t** in 2019 compared to **62.7 kWh/t** in 2012.

However, the share of renewable energy not subject to Feed-In-Tariffs reached almost **22,000 MWh** in 2019, over **3%** of total energy use. Energy derived from fossil fuels (including grid electricity) was around **41.2 kWh/t**. In 2019, almost **10%** of all energy used in blocks production was renewable. One seventh of all energy used in the manufacture of structural precast elements (precast wall units, bridge beams, cladding, etc.) was from renewable resources, almost as much as natural gas. There has also been a significant rise in production covered by energy management systems. **52.6%** of precast concrete production (**32%** of sites) was covered by ISO **50001** compliant systems in 2019.

Factory carbon emissions continued to fall, dropping under **10** kilograms of CO₂ per tonne of product for the first time. Factory CO₂ emissions was **9.79** kg CO₂/t in 2019, a **51.2%** drop from the 2010 levels. The environmental audits we carried out in late 2020 reveal massive efforts by many precast manufacturers to address factory carbon emissions and energy consumption, from efforts to switch from fossil fuel-based energy to employment of energy-efficient appliances and renewable on-site sources of energy.

Precast Manufacturers Factory Carbon Emissions (kg CO₂/ t)



Road to Net Zero

With the rise of the **Net Zero carbon agenda**, the precast sector is employing a wide range of measures to enable a Net Zero future for construction.



Image: © ABM Europe. ABM Europe's precast concrete deep-water deck jetty installed at Canvey Island.

A Net Zero carbon roadmap

Last year, we became the first construction material sector in the UK to set a target to Net Zero carbon by 2050. Our new roadmap requires both innovation and investment in new technologies, such as fuel-switching and Carbon Capture, Use & Storage (CCUS), and utilisation of more low carbon mixes to enable “Carbon Negative” concrete by 2050

or even earlier. Since 1990, the absolute carbon emissions of the concrete sector have dropped by 53%. In the next ten years, and with recent Government announcement that cement is part of the new industrial clusters which will witness CCUS implementation before 2030, we will be in a much better position to fulfil our Net Zero carbon objective.

Equipping the industry with accurate & verifiable carbon footprints & assessments

The concrete and cement industry have invested in a new EPD and carbon calculator software One Click LCA. Bionova's One Click LCA is the most widely used software in the construction industry and is being employed in carbon assessments by organisations such as the Greater London Authority and the UK Green Building Council.

All members of British Precast will have free access to use the software and develop accurate and customised carbon footprints, whole-life carbon assessments and verified EPD declarations. Precast manufacturers will also be able to experiment with their mixes and develop projections of their likely future carbon emissions with higher levels of accuracy.

Commitment to provide accurate carbon & environmental assessments

As carbon drives more decisions on product and material choice, there has been a rise in greenwash and inaccurate carbon reporting.

We are seeing many assessments and calculations affected by issues such as inflated carbon footprints for concrete constituents (e.g. rebar, cement), over-specified designs for concrete elements or mixes, and flawed construction & demolition scenarios not in accordance with recognised standards such as EN 15978 or the RICS methodology.

When a new version of the ICE Database was published in mid-2019, it included a carbon value for reinforcing steel and rebar

which was based on a “World Steel” average. The precast sector then worked with the authors, using the sector's KPI data, to include a more representative carbon footprint for reinforcing steel. The Database was then updated with an additional European rebar footprint which is 2.6 times lower than the “World Steel” one.

This is just one example why it is vital for the precast sector to challenge and call out inaccurate data. Inaccurate carbon data and carbon assessments will always lead to false results, and the wrong decisions will be made. The precast sector will continue to correct such assessments using facts. We will also support the use of accurate data and scenarios by the industry.

Rewarding success and sharing best practice

The last 5 years saw an increased commitment by precast manufacturers to decarbonise and invest in carbon saving solutions. One success story comes from ABM Europe, where GGBS was used to reduce the carbon footprint of structural precast elements such as bridge piers, flood defences and jetty structures.

A deep-water deck jetty installed recently at an Oikos fuel storage depot at Canvey Island was installed with Eight 15m-long reinforced concrete beams weighing 430 tonnes in total. GGBS was used to replace 35% of Portland cement in the mix, leading to an estimated 25% reduction to the carbon footprint. 22 deck units were then placed between the beams to form the main jetty platform. The units were transported to a port facility in north Kent where the main contractor, BAM Nuttall, transported them from there by barge to the site.

Key Performance Indicators (KPIs)

This table summarises member companies' performance and progress in 2019 against the Precast Sustainability Charter Scheme targets.

Strategy objective	Key Performance Indicator (KPI) Target (2012 baseline)	2012	2019	Target 2020	Status/ notes
Sustainable Consumption & Production	Production tonnage (sites) covered by UKAS accredited Environmental Management Systems	88.9%	97.8% (91%)	95%	Achieved
	Production tonnage (sites) covered by UKAS accredited Quality Management Systems	91.1%	95.1% (90.1%)	95%	Achieved
	Production tonnage (sites) covered by responsible sourcing certification	71.1%	82.1% (66.4%)		No target
	Environmental convictions for air and water emissions against precast manufacturing sites	0	0	0	Achieved
	Companies covered by EPD declarations	n/a	63.6%		No target
	Companies covered by BIM objects/ PDTs	n/a	43%		No target
Climate Change & Energy	Reducing overall fossil fuel energy (kWh/ tonne) use in production by 10%	62.7	41.2*	45.33	Achieved
	Reducing CO ₂ emissions for production (kg CO ₂ / tonne) by 20%	14.3	9.79	11.45	Achieved
	Production tonnage (sites) covered by ISO 50001 (energy management systems)	n/a	52.6% (31.9%)		No target
Natural Resources & Environmental Protection	Reduction of factory waste by 10% (kg/tonne)	39.8	19.71	35.8	Achieved
	Reduction of factory waste to landfill (kg/tonne)	1.67	0.31	0.5	Achieved
	Increasing the proportion of alternative cement additions (as a total of cement content) to 25%	23.4%	18.6%	25%	Not on track
	Increasing the proportion of recycled/ secondary aggregates to 25%	20.3%	12.6%	25%	Not on track
	Reducing mains water consumption by 20%	82.3	68.6	65.8	On track
Sustainable Communities	Increasing the proportion of employees covered by certified management systems (e.g. ISO 9001, etc)	95.6%	97.7%	100%	On track
	Increasing tonnage (sites) covered by H&S management systems (OHSAS 18001, ISO 45001, etc)	64.9%	72% (59%)	>64.9%	Achieved
	Reduction of industry Lost Time Injury frequency rate (LTIFR)	9.8	6.2	<9.8	Achieved
	Maintain percentage of relevant sites with formal local liaison schemes	28.1%	32.8%		No target

*Energy from grid electricity associated with bioenergy, hydro, solar and wind was removed.

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