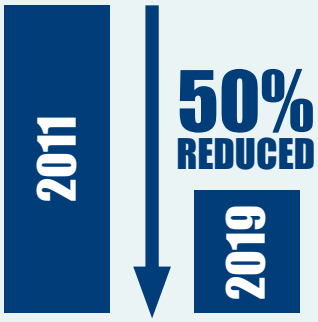
mpa
essential materials
sustainable solutions

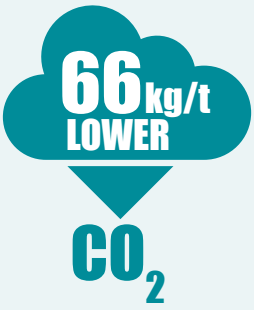
British Lime Association

Sustainable Development Report 2020

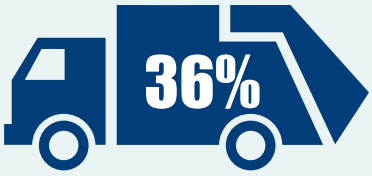
SUMMARY OF PERFORMANCE



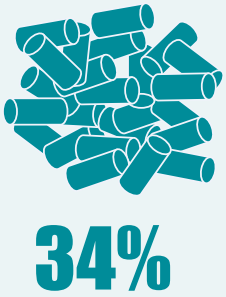
Health and safety
50% fewer incidents than 2011



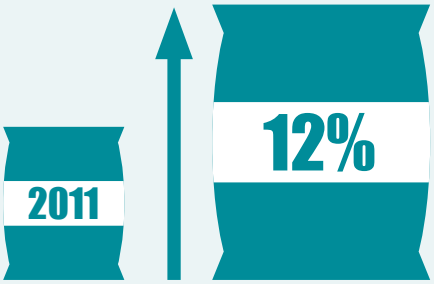
Decarbonisation
From dolime combustion since 2011



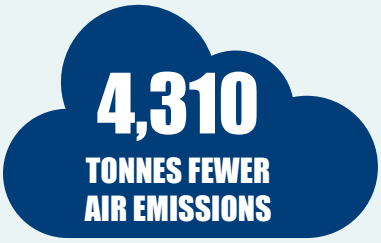
Waste to landfill
36% lower than 2011



Fossil fuel replaced
With alternative fuels in dolime manufacture



Export sales
12% increase since 2011 and 35% since 2006



Particulate, NOx and SO_2 emissions
4,310t less than 2011

Environmental incident free
No Category 1 or 2 incidents

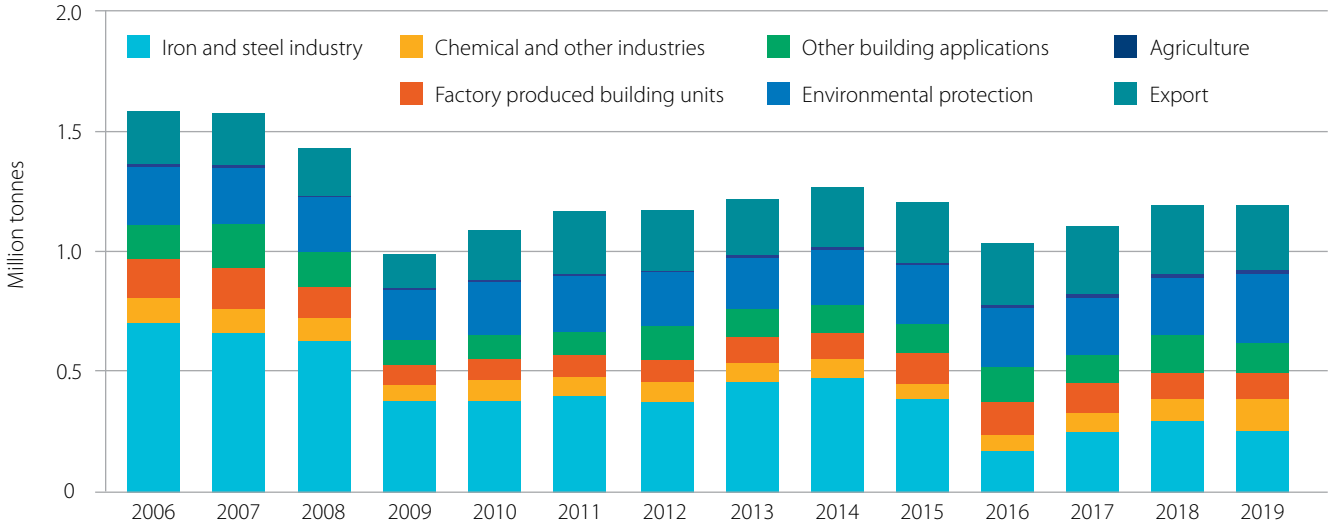
MPA STRATEGIC PRIORITIES

This British Lime Association (BLA) Sustainable Development Report aligns with the seven MPA strategic priorities. In particular, this report highlights the positive contribution made by the lime industry in 2019 to Communicating Industry Value, Health and Safety, People, Resource Use, Climate Change and Energy, the Natural Environment and the Built Environment.

Communicating Industry Value

The UK lime sector maintained its sales performance during 2019, although the market still remained significantly below the levels before the 2008 recession. Export performance was maintained at around 15% of sales, with an estimated value of £3 million.

BLA Members continued manufacturing lime during the 2020 COVID-19 lockdown, as lime is fundamental to the essential industries identified by the Government – supporting the water, chemicals and waste sectors, and primary industry. Despite continued production, we cannot expect production levels to be maintained and next year's Sustainable Development Report is likely to tell a very different story.



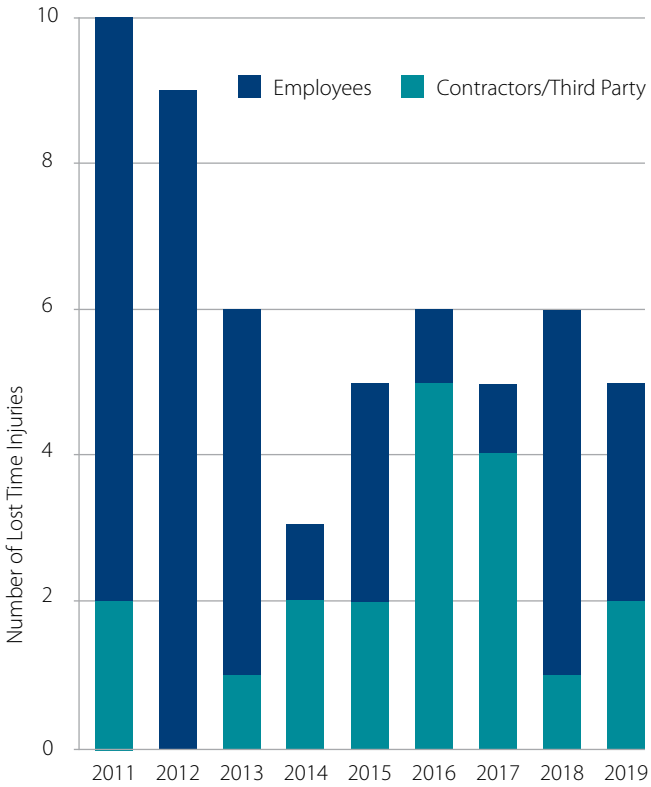
Health and Safety

OBJECTIVE: EMPLOYEE AND CONTRACTOR HEALTH AND SAFETY

Targeting Zero Harm to all employees and contractors.

BLA Members are continuing to work collaboratively to achieve their Zero Harm target and maintain their UK-wide, European and International collaboration to share good practice. Serious and Lost Time Incidents remain high and the BLA have taken active steps to address problems head on – for example – producing sector-leading training on preventing hand injuries.

Health and Safety considerations have remained paramount throughout the COVID-19 outbreak and BLA Members have taken particular effort to ensure that good Health and Safety practices are maintained in addition to the new hygiene practices to prevent the spread of infection.



People

579 direct employees

4,754 employee training hours

£42k charitable donations made

19 local liaison meetings

245 visitors to lime plants

OBJECTIVE: LOCAL COMMUNITIES

Engaging fully with local communities and striving to be a good neighbour.

BLA Members and Associate Members routinely engage with their local communities, making an active contribution through formal volunteering, and by encouraging informal staff-organised charitable activities.

BLA Members have appreciated the recognition and support from their local communities during the COVID-19 outbreak, which has helped them to continue delivering this essential and versatile material.

Lime is an essential product for the proper functioning of drinking water and wastewater treatment plants and is vital for the treatment and sanitation of sludge from these operations. Lime is used to clean emissions from waste incinerators, energy from waste plants, and other large combustion plants. Lime is also used in the manufacture of primary materials (e.g. steel, plastics) that are used to produce other goods critical to combating COVID-19.

OBJECTIVE: EMPLOYMENT

Improving the profile and perception of the sector to attract employees and offer rewarding career opportunities.

The UK lime sector continues to provide rewarding opportunities. BLA Members have active apprenticeship schemes that help young people build careers in the manufacturing and administrative sectors.

During 2019, the BLA updated its technical website pages to provide the most up to date information on lime uses and prepared an academic module on the uses of lime. The module is freely available to all higher education institutions.

Preparations began in 2019 for an academic Symposium showcasing UK research on lime. Due to the COVID-19 outbreak, the BLA has postponed the Symposium until October 2021.

Lime is used across a diverse range of markets and manufacturing involves quarrying, high temperature processing, emissions control and environmental management, bulk storage and transport logistics, as well as health and safety. In order to accommodate the broadest range of research interests the Symposium is organised into three themes:

- **Lime and the path to net zero**
- **Construction and civil engineering uses of lime**
- **Environmental applications for lime**

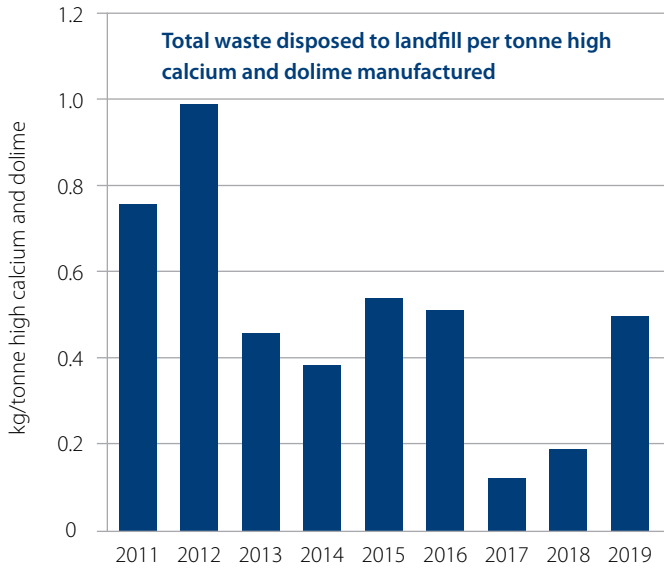
You can find more information on the BLA website: www.britishlime.org/news/Symposium2021.php

Resource Use

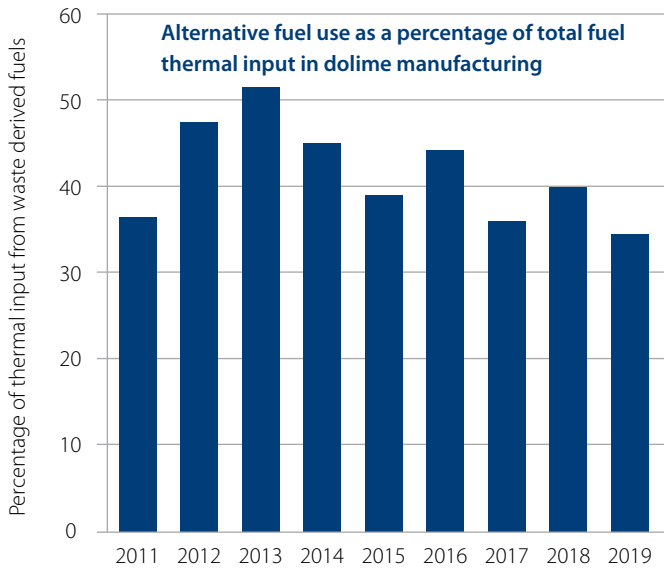
OBJECTIVE: WASTE

Minimising waste and maximising re-use and recycling.

All BLA Members and Associate Members continue to minimise the waste they send to landfill, seeking recycling and recovery routes where possible. Major kiln refurbishment works resulted in an increase in the waste sent to landfill during 2019 compared to the previous two years.



Climate Change and Energy



OBJECTIVE: CARBON AND ATMOSPHERIC EMISSIONS

Reducing emissions in accordance with the MPA carbon route maps and Government objectives.

BLA Members and Associate Members manage carbon dioxide (CO_2) emissions in accordance with the European Union Emissions Trading System (EUETS). Under the EUETS, emissions of CO_2 from high calcium lime production are normalised to a standard purity high calcium lime content[1].

CO_2 emissions result from the combustion of fuels and the thermal decomposition of input materials during the high temperature manufacturing process – referred to as combustion and process CO_2 respectively.

Dolime manufacturing has reduced its CO_2 emissions from combustion by using alternative fuels from biomass sources. These emissions have reduced by 7% compared to 2011 and are now around 592 kg CO_2/tonne dolime, compared to 636 kg CO_2/tonne in 2011.

Dolime producers continue to use waste derived fuels as an alternative to fossil fuels. As the mineral content of fuels is recycled into the dolime product, the specification of input materials is strictly controlled and the quantity of waste derived fuels used in any year will depend on market demand for different product types as well as on the availability of waste derived fuels.

The quantity of process emissions varies depending on the dolime products made, with highly calcined products resulting in higher emissions than products that are less calcined. In this way, CO_2 emissions from dolime manufacturing are dependent on market demands.

The option to use waste derived fuels is not available to high calcium lime manufacturers who rely on natural gas to maintain the high purity required by the product standards of their diverse markets. This means that clean burning alternative fuels, such as hydrogen or biogas, may be more suitable replacements.

Despite investments to improve energy efficiency and reduce fossil fuel use, a step change in decarbonisation will only be possible with the widespread deployment of carbon capture technologies. The lime industry remains engaged in the development of such technologies, such as the European LEILAC project – www.project-leilac.eu.

During 2019, the BLA was awarded funding by the Department for Business, Energy and Industrial Strategy (BEIS) Energy Innovation Programme to demonstrate the use of hydrogen as a fuel for lime manufacturing. You can find more details in the Sustainability section of the BLA website – www.britishlime.org/sustainability/energy_innovation.php

Natural Environment

OBJECTIVE: ENVIRONMENTAL PROTECTION

Minimising and mitigating operational impacts.

BLA Members and Associate Members are regulated by the Environment Agency under the Environmental Permitting Regulations. As such, the sector implements the best available techniques for environmental protection and manufacturers comply with strict emission limits.

BLA Members and Associate Members commitment to high standards of environmental management are reflected by the low number of environmental incidents associated with the sector. No major incidents (Category 1 or 2) have been recorded[2].

Changes to production and investment in abatement technologies have resulted in reductions in emissions to air from lime manufacturing, which were 4,310 tonnes lower in 2019 compared to 2011.

Emissions are known to vary with the market demand for different products and with changes to production facilities. These variations explain the differences in emission levels on a year by year basis when compared to the overall trend.

Built Environment

OBJECTIVE: SUSTAINABLE CONSTRUCTION

Influencing the design and procurement of the built environment with high quality and sustainable solutions.

Lime is used in multiple construction products:

- Mortars and renders – as a binder and as an addition to other binders to deliver required characteristics when being applied and when hardened.
- Aerated autoclaved concrete product manufacturing – as a key ingredient to activate production of voids and pores.
- Calcium silicate brick/ product manufacturing – as a key ingredient to combine with the silica.
- Soil stabilisation – as a soil modifier through its heat of hydration and in binding with clay minerals in the soil, enabling the use of other binders to deliver required characteristics.
- Earthworks – as a soil modifier to enable handling and placing of materials.
- Asphalt – as a multimodal additive.

The BLA continues to engage with UK highway asset managers and stakeholders with the ambition of identifying suitable sites, mixtures and materials for road trials, and is confident of beginning a road trial during 2021.

BLA Members are also actively engaged with SUBLime – Sustainable Building Lime Applications via Circular Economy and Biomimetic Approaches – www.sublime-etn.eu – a Marie Skłodowska-Curie Action European Training Network. SUBLime aims to develop a better understanding and development of sustainable innovation solutions for lime mortars/plasters in new construction and in the conservation of built heritage.

RESOURCE USE							
	Units	2011	2015	2016	2017	2018	2019
Waste sent to landfill for all lime manufacturing	kg/t	0.77	0.54	0.53	0.13	0.19	0.49
Proportion of alternative fuels in dolime manufacture	%	36	39	44	36	40	34

ENERGY AND CLIMATE CHANGE						
Units: kg CO_2/t	2011	2015	2016	2017	2018	2019
CO_2 emissions from calcination of standard purity high calcium lime (process emissions)	663	677	697	677	665	680
CO_2 emissions from calcination of high calcium lime (process emissions)	673	688	708	687	674	678
CO_2 emissions from combustion of fossil fuels used to produce standard purity high calcium lime	231	238	231	239	241	247
CO_2 emissions from combustion of fossil fuels used to produce high calcium lime	234	242	235	242	244	247
CO_2 emissions from calcination of dolime (process emissions)	708	711	779	759	772	840
CO_2 emissions from combustion of fossil fuels used to produce dolime	636	503	532	543	528	569

NATURAL ENVIRONMENT						
Units: kg emission/t	2011	2015	2016	2017	2018	2019
Emissions of NOx from high calcium lime manufacture	0.25	0.09	0.14	0.11	0.19	0.15
Emissions of NOx from dolime manufacture	12.77	16.15	16.19	16.91	17.71	11.50
Emissions of particulate matter from high calcium lime manufacture	0.05	0.05	0.06	0.07	0.05	0.06
Emissions of particulate matter from dolime manufacture	0.46	0.24	0.20	0.13	0.14	0.11
Emissions of SO_2 from high calcium lime manufacture	0.14	0.03	0.05	0.02	0.01	0.04
Emissions of SO_2 from dolime manufacture	4.92	1.20	0.96	1.29	3.41	1.98

Note: Emissions are known to vary with the market demand for different products and with changes to production facilities. These variations explain the changes in emission levels on a year by year basis.

make the link
to mineral products

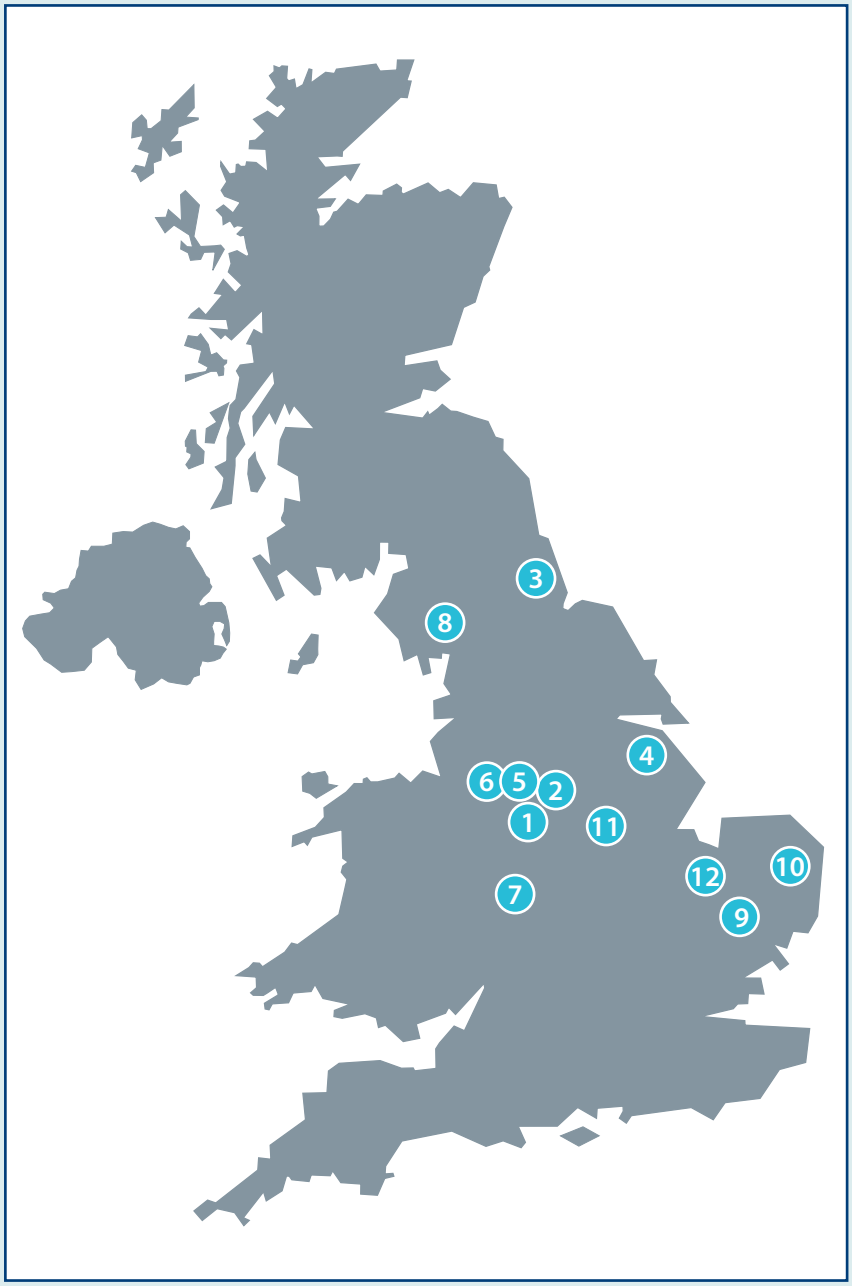
LIME PLANTS

BLA Members

Factory/Site Owner	Location	
Lhoist UK	Buxton	1
	Whitwell	2
	Thrislington	3
www.lhoist.co.uk		
Singleton Birch	Melton Ross	4
www.singletonbirch.co.uk		
TARMAC	Tunstead	5
	Hindlow	6
www.tarmacbuxtonlime.com		

BLA Associate Members

Factory/Site Owner	Location	
Specialty Minerals	Birmingham	7
www.mineralstech.com		
TATA STEEL	Shapfell	8
www.tatasteeleurope.com		
BritishSugar	Bury St Edmunds	9
	Cantley	10
	Newark	11
	Wissington	12
www.britishsugar.co.uk		



Front cover: *Partly restored chalk quarry at Singleton Birch, Melton Ross, North Lincolnshire, in the background are four parallel flow regenerating kilns producing high calcium lime. Image courtesy of Tom Gardner, Singleton Birch.*

NOTES

1 Standard purity stated for lime (94.5%) is sourced from the EU Commission Decision of 27 April 2011 "determining transitional Union-wide rules for harmonised free allocation of emission allowances pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council", Page 37 Available: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:130:0001:0045:EN:PDF

2 Environment Agency's Compliance Classification Scheme (CCS):

Category 1 incident defined as "a non-compliance which would have the potential to have a major environmental impact".

Category 2 incident defined as "a non-compliance which would have the potential to have a significant environmental impact".

Category 3 incident defined as "a non-compliance which would have the potential to have a minor environmental impact".

Category 4 incident defined as "a non-compliance which has no potential to have an environmental impact".

The BLA is part of the Mineral Products Association, the trade association for the aggregates, asphalt, cement, concrete, dimension stone, lime, mortar and silica sand industries.

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