

# UK Minerals Strategy

Meeting the demand for minerals and mineral products sustainably for the next 25 years

A Strategy prepared by the UK minerals and mineral products industry, facilitated by members of the CBI Minerals Group and the Mineral Products Association

July 2018





# Foreword

The minerals and mineral products industry is essential to the economy and our quality of life.

Minerals and mineral products represent the largest material flow in the economy at around 1 million tonnes per day in a typical year and should not be taken for granted. Too often policy makers assume supply, failing to appreciate the role and importance of the industry; provision of mineral resources has to be planned, monitored and managed.

**It is crucial therefore that the link is made between the need for more and better housing and infrastructure and the raw material supply chain that enables them to be delivered.**

Quite simply, our economy could not function without minerals and mineral products which touch virtually every aspect of our lives - in housing, schools, hospitals, roads, rail, power stations, airports, ports, food, water and agriculture.

Over the last 20 years, the industry has been working progressively towards

developing a UK Minerals Strategy to help national and local Government and key stakeholders understand not just the scale and importance of the industry, but how best to ensure that future demand can be supplied sustainably and support growth in the economy.

The UK has never attempted to develop a strategy for this sector and this document, which has benefited from extensive consultation, attempts to fill that gap. We believe it will be helpful to key stakeholders by providing a common platform and context to inform future policy development, whether it relates to industrial strategy, provision of housing and infrastructure or the protection and enhancement of natural capital.

It is hoped that the Strategy will receive recognition by Government and key stakeholders and be valued as an important consideration in the development of future UK minerals and mineral products policy

**Nigel Jackson**  
Chief Executive, Mineral Products Association  
and Chair, CBI Minerals Group



# The Strategy

**The aim of the Strategy is to ensure that UK demand for minerals and mineral products is supplied sustainably for the next 25 years. This will require identifying and permitting at least 5 billion tonnes of mainly construction and industrial minerals to be sourced primarily from indigenous resources.**

To achieve this, Government and relevant stakeholders should:

- recognise that minerals and mineral products, and the industry that supplies them, are essential to the economy and our quality of life;
- recognise that supply cannot be assumed; it needs to be planned, monitored and managed;
- ensure steady and adequate provision is made, primarily through the land use planning system; and
- establish supportive policy, operating and trading conditions to enable UK industry to thrive and invest in future supply.

**Of overriding importance is the requirement for a strong national minerals and mineral products policy and statement of need. These would inform and underpin national, regional and local planning to enable sufficient minerals and mineral products to be supplied to key sectors of the economy.**



# Overview

**The UK has abundant and diverse mineral resources and a resilient, productive industry that is committed to supplying both indigenous demand and valuable export markets.**

Minerals and mineral products underpin the economy. They are critical to the development and maintenance of the built environment, our infrastructure and our quality of life. Recognition and support for the minerals and mineral products industry, and its critical role, should therefore be a national priority and policy imperative.

Continuing supply from UK sources is dependent upon sufficient mineral resources being accessible and economically recoverable. Crucially it also depends on mineral operators being given a workable 'licence to operate' through consents and permits to extract and process minerals and manufacture mineral products.

While improved resource efficiency and recycling have a continuing role to play, the vast majority of future supply will need to be sourced from primary minerals.

We are approaching a critical period, particularly for aggregates, the largest single component of mineral supply. Demand is likely to increase. Permitted reserves are declining steadily and not being replenished at an equivalent rate. Meanwhile, energy intensive mineral production is under increasing competitive pressure from energy and climate change

policies and costs as these become less harmonised with overseas competitors.

Government's objectives for the delivery of much needed homes and infrastructure, economic growth and rebalancing the economy towards production and manufacturing, are at risk unless these issues are recognised and addressed.

This Strategy sets out the measures necessary to achieve this. The Strategy is intended to stand alone, but will also complement the UK's Industrial Strategy (2017) and particularly the sector deal for Construction. The focus is on non-energy minerals, as the oil and gas industries have their own policy and regulatory regimes and consequently are excluded. It does however include coal, which is covered by the same regulatory regime as other land-based minerals.

Government recognition of the Strategy is sought to ensure that it is given sufficient weight in national and regional policy, and in local plan-making and decisions. The Strategy requires commitment from both Government and the industry if the aims are to be achieved.

It builds on the supporting evidence set out in Appendices A and B.

# Key Pillars of the Strategy

## ECONOMIC



**DEMAND & IMPORTANCE**  
**Government** should provide clear national policy and a statement of need for minerals and mineral products to underpin local plan-making, policy and decisions to enable a steady and adequate supply of minerals and mineral products to be maintained.



**SUPPLY & DISTRIBUTION**  
 The **Industry** will submit sufficient planning or marine licence applications. Mineral planning authorities and marine regulators should ensure that sufficient sites are allocated in plans and consents or marine licences granted, to maintain a steady and adequate supply of minerals and mineral products to meet demand, while also ensuring that reuse and recycling is maximised.



**TRADE & INVESTMENT**  
**Government** should ensure there is a supportive regulatory, operating and trading environment to encourage investment, trade and export of UK minerals and mineral products, and reduce risks from insecurity of international supply.

## ENVIRONMENTAL



**PLANNING & REGULATION**  
**Government** should ensure that the mineral planning system is properly resourced to operate effectively and that duplication with other regulation, particularly environmental permitting, is minimised.



**ENVIRONMENTAL BENEFITS**  
 The **Industry** will aim to deliver environmental net gains through responsible site management and high quality restoration, adding to the wildlife, recreational and landscape assets already created.



**ENVIRONMENTAL IMPACTS**  
 The **Industry** will continue to avoid and mitigate the impacts of extraction, processing, manufacturing and transportation as part of the transition to a low carbon and circular economy.

## SOCIAL



**EDUCATION, SKILLS & EMPLOYMENT**  
 The **Industry** will continue to provide attractive career opportunities and meet skills needs for a modern, healthy, safe, well-educated and diverse workforce and encourage people to choose to work in the industry.



**PUBLIC UNDERSTANDING & ENGAGEMENT**  
 The **Industry** and **Government** should work with stakeholders to improve public understanding of the need for minerals and mineral products and their associated supply chains, and strengthen the evidence base and availability of relevant data.



**RESEARCH & INNOVATION**  
 The **Industry** will encourage and invest in innovation, research and development, including the identification of new resources and the development of new markets.

# ECONOMIC



## ECONOMIC

### Demand & Importance

**Government should provide clear national policy and a statement of need for minerals and mineral products to underpin local plan-making, policy and decisions to enable a steady and adequate supply of minerals and mineral products to be maintained.**



The continued extraction of minerals is essential to the UK for our economy and quality of life. Minerals provide the main constituents for most construction materials, such as asphalt, cement, concrete, bricks, mortar, glass, plaster, ceramics, and for uses as diverse as chemicals manufacture, pharmaceutical products, agriculture, and the production of paper and steel. While the largest tonnages extracted and supplied are construction and industrial materials, the manufacturing industry as a whole requires a greater range of minerals than ever before.

Cuts to the resourcing of monitoring and forecasting of need at national level, particularly for aggregates, as part of the Managed Aggregates Supply System, have resulted in an absence of up-to-date national and regional assessments of future requirements. Most planning authorities lack the resources to undertake meaningful assessments of future needs, potentially leading to under-provision. In addition, slow local plan preparation and incomplete coverage has contributed to a lack of certainty, discouraging investment by industry, and resulting in insufficient applications being brought forward at the right time.

Based on recent consumption, the industry estimates that in excess of 5 billion tonnes of primary minerals, predominantly aggregates, will be required over the next 25 years, i.e., the next generation, the majority of which will be from primary indigenous sources.

A clear national policy and a statement of need for minerals and mineral products is urgently required to provide strategic context for planning, delivery and monitoring at local level. This includes the updating of National and Regional Guidelines for Aggregates in England, and recognition of the national importance of a range of industrial and metalliferous minerals to specific industries, the UK economy, and to trade.

## ECONOMIC

### ECONOMIC IMPORTANCE OF THE MINERALS AND MINERAL PRODUCTS INDUSTRY TO THE UK

- 210mt** UK mineral annual extraction
- £15Bn** Annual turnover of mineral extraction
- £68Bn** Annual turnover of mineral products manufacture
- £5Bn** Annual gross value added (GVA) of mineral extraction
- £22Bn** Annual GVA of mineral products manufacture
- £209Bn** Annual GVA of 'first use' markets
- £235Bn** Annual total GVA of mineral extraction, products manufacture & first use markets
- 16%** Share of the UK total economy directly attributable to minerals
- 34,000** People directly employed in mineral extraction
- 4.3m** Jobs supported throughout the "downstream" supply chain

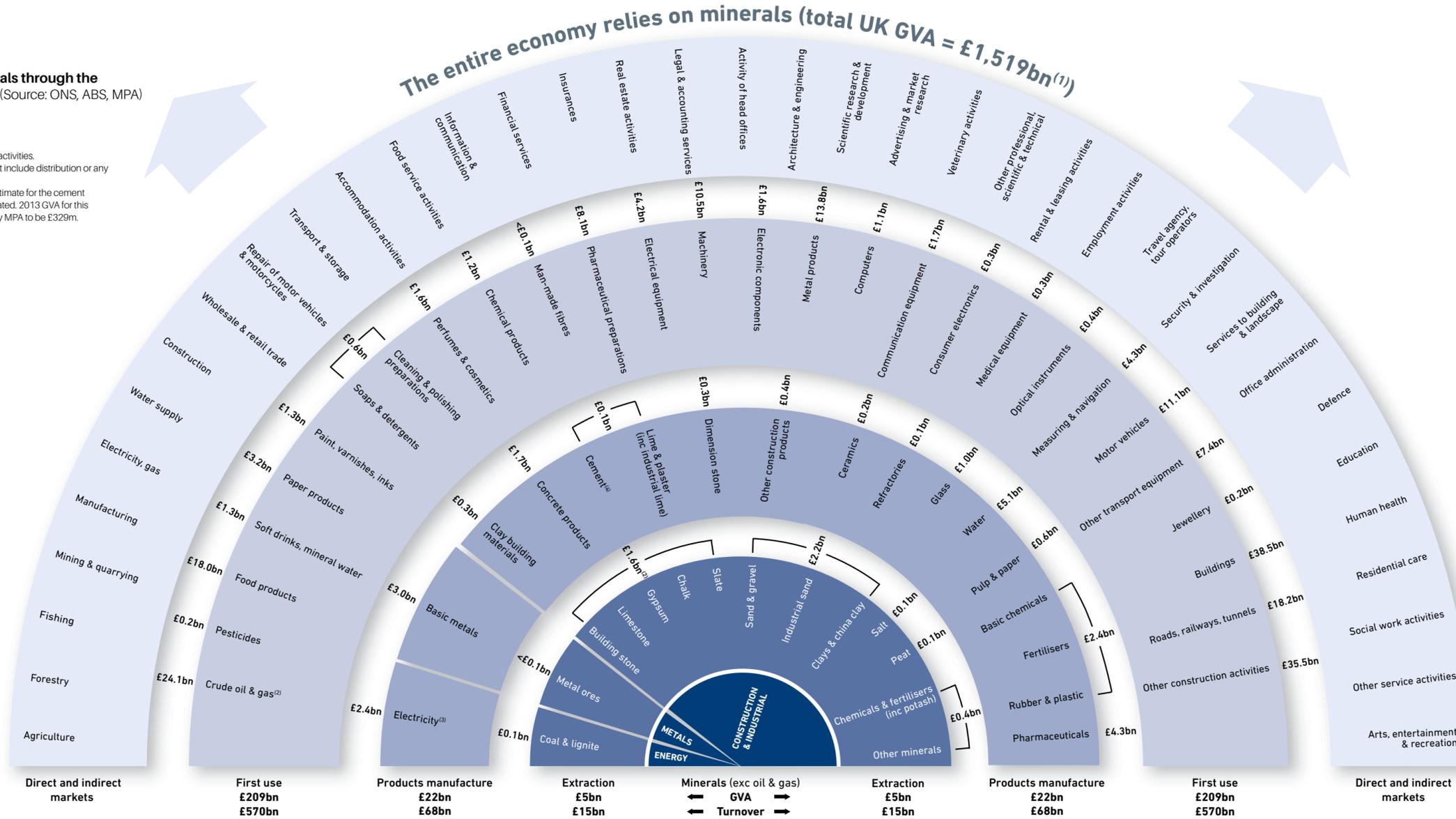
ECONOMIC

THE ENTIRE ECONOMY OF THE UK RELIES ON MINERALS

(CBI 2016, THE UK MINERAL EXTRACTION INDUSTRY)

The flow of minerals through the economy (2013) (Source: ONS, ABS, MPA)

- Notes:  
 (1) Sections A-S.  
 (2) Includes mining support activities.  
 (3) Production only. Does not include distribution or any other related services.  
 (4) MPA believes the ONS estimate for the cement industry's GVA is understated. 2013 GVA for this industry was estimated by MPA to be £329m.



## Supply & Distribution

**The Industry will submit sufficient planning or marine licence applications. Mineral planning authorities and marine regulators should ensure that sufficient sites are allocated in plans and consents or marine licences granted, to maintain a steady and adequate supply of minerals and mineral products to meet demand, while also ensuring that reuse and recycling is maximised.**



The UK is fortunate to have varied geology on land and off-shore, enabling most of its needs for bulk non-metallic minerals to be met from indigenous sources, although processed materials such as cement are increasingly imported. The largest tonnages extracted and supplied are construction and industrial materials, predominantly land-based aggregates, but also including marine aggregates particularly into London, South East England and Wales. While recycled and secondary materials now provide around 30% of aggregates supply, reducing some requirements for primary materials, this source is virtually maximised and primaries will form the vast majority of future supply. In addition, manufacturing industries require a wider range of minerals than ever before.

Primary mineral resources are not evenly distributed and can only be extracted where they naturally occur. This distinguishes the extractive industries from the other sectors of the economy. A limited number of strategically important sites supply demand in other regions. Some materials are transported long distances, particularly by rail and ship, requiring significant investment and effective safeguarding of infrastructure such as wharves, rail depots and inland waterways, to enable sustainable supply.

Igneous and metamorphic rocks, carboniferous limestone, sandstone,

industrial minerals, tungsten, potash and building stone have limited geographic distribution and major resources and reserves occur within or close to protected landscapes, including National Parks. In order to supply future demand these resources will need to continue to be worked. This need is recognised in national planning policies that provide for major development in these areas, including minerals extraction, in exceptional circumstances and where it is in the public interest.

Permitted reserves, particularly of construction aggregates, are not being replenished quickly enough and some major extraction permissions, providing large amounts of material across the country, will be coming to an end in the near future or, in the case of some old permissions, 2042. Some local shortages in minerals supply are already evident, such as certain qualities of sand, and are likely to increase.

Industry will continue to invest in extraction and production, but needs a clear, strategic and encouraging operating environment. Supportive national policies and a statement of need is required to set the context for local planning and regulation, and to provide industry, particularly those with international owners, with the confidence to invest.

## Trade & Investment

**Government should ensure there is a supportive regulatory, operating and trading environment to encourage investment, trade and export of UK minerals and mineral products, and reduce risks from insecurity of international supply.**



Many specialist metals, the vast majority of which have to be imported, and some other minerals are needed in relatively small quantities but are nevertheless essential for manufacturing, particularly many high-tech products.

We are fortunate, however, that tungsten mining has recently recommenced in Devon, and a new and internationally important polyhalite mine is being developed in Yorkshire. Exploration for other important resources is continuing. The UK is also fortunate in having important deposits of higher value minerals, such as china clay (kaolin), ball clay, potash, gold and tin, with exports contributing positively to our balance of trade.

The UK also provides mining expertise and business entrepreneurial skills to develop resources wherever they occur in the world, and is a global HQ for many major mineral companies.

Rising demand around the world and trade restraint from some producer countries means that security of supply for our metallic and other key mineral needs is of increasing concern. This necessitates

constant geopolitical evaluation and monitoring. Other countries are developing strategies to promote resource security, including trade agreements, the use of indigenous resources, recycling and efficiency of use; indeed, it is a requirement of the EU Resource Management Plan that all Member States shall do so.

Industry will continue to explore and develop indigenous resources where and when appropriate, and maintain and seek new export markets. Favourable trade deals will enable the continuation of both import and export of essential minerals and mineral products. A supportive investment environment would help to encourage new exploration and the development of indigenous resources.

The cumulative impact of direct and indirect policy and regulation of the UK energy intensive minerals industry, including cement, industrial lime and ceramics, as well as china clay, is increasing the cost of production and in turn their international competitiveness, potentially making the UK less attractive for inward investment.

# ENVIRONMENTAL



## ENVIRONMENTAL

# Planning & Regulation

**Government should ensure that the mineral planning system is properly resourced to operate effectively and that duplication with other regulation, particularly environmental permitting, is minimised.**



National and local planning policy provides the framework for mineral safeguarding and extraction in accordance with sustainable development principles. Up-to-date development plans are essential to provide certainty and encourage investment. Production and adoption of minerals plans, including allocation of sites for extraction, has been slow, and in many areas plans are still not in place.

although some projects can exceed this significantly. The cumulative impacts of regulation can be significant and make longer-term commercial planning more difficult for industry and can deter investment, particularly by multi-national companies who may see better returns elsewhere. Industry experience is that there is a need to ensure more efficient and effective implementation of regulation.

An efficient mineral planning and environmental permitting system is needed to ensure sufficient mineral permissions are granted in the right place and at the right time. This constituent of the 'licence to operate', i.e. securing planning permission and the necessary environmental permits, is unnecessarily slow, complex and expensive. It can take up to 15 years between the discovery of a potentially workable deposit and actual production. Planning and permitting costs are typically between £100k and £1m per development,

All stakeholders would benefit from a less cumbersome approach. Planning permissions should effectively be the primary 'licence to operate' and environmental permitting should focus on enabling a permission to be implemented. It must be reasonable, consistent and proportionate, avoiding duplication and delay, to improve both environmental and business outcomes. To do this, planning authorities and regulators need to be properly resourced, with appropriate skills and funding.

# Environmental Benefits

The Industry will aim to deliver environmental net gains through responsible site management and high quality restoration, adding to the wildlife, recreational and landscape assets already created.



The industry has an enviable and proven record of delivering high quality site management and restoration of sites to agriculture, leisure, recreation, nature conservation and other beneficial after-uses, as well as creating valuable landscapes and important wildlife habitats.

For example, industry data shows that current and restored mineral extraction sites host 700 SSSIs, and a nationwide network of quarries that have been restored for wildlife are now accessible to the public as part of MPA's National Nature Park, including 15 field study and education centres, as well as 22 local nature reserves. Site restoration and land management has already delivered in excess of 8,000ha of UK priority habitats. The industry is uniquely placed among industrial sectors to deliver more, with at least a further 10,000ha committed to in restoration plans.

High quality operational and restoration standards are critical to the industry's reputation, demonstrating that it can be trusted to deliver a valuable legacy once operations have ceased, and to maintaining its 'licence to operate'.

The industry will continue to deliver net gain in environmental assets, and will increasingly measure this in terms of natural capital and ecosystem services provided, such as biodiversity, water and flood management, recreation, and carbon sequestration.

# Environmental Impacts

The Industry will continue to avoid and mitigate the impacts of extraction, processing, manufacturing and transportation as part of the transition to a low carbon and circular economy.



Sufficient mineral reserves must be secured to support the economy and development, minimising environmental impacts wherever possible. Extraction can cause disturbance to people and the environment, so high standards of operation and mitigation are essential.

Mineral operations are different to other forms of development, being essentially temporary, and following extraction, sites are routinely restored to socially and environmentally beneficial after-uses. Despite the scale of supply, operations have a small 'footprint' of under 0.3% of the UK's land area and 0.15% of the UK seabed.

While areas designated for their landscape and environmental importance will be avoided wherever possible, there will be a continuing need for minerals extraction in these areas. However, this will only occur where the need is demonstrated, the scope for obtaining the mineral elsewhere is limited, and where impacts can be adequately mitigated.

The impacts of processing, manufacture and transport can themselves be substantial, particularly noise, dust, visual impact and traffic, as well as energy use and associated emissions to air. The industry will strive to reduce such impacts through continuing investment in design, efficiency and technology.

# SOCIAL



## SOCIAL

# Education, Skills & Employment

**The Industry will continue to provide attractive career opportunities and meet skills needs for a modern, healthy, safe, well-educated, diverse and competent workforce and encourage people to choose to work in the industry.**



The industry, planning authorities and regulators are experiencing difficulties in recruiting and retaining new and appropriately skilled employees. The industry requires technically competent and experienced managers, engineers, geologists, planners, health and safety professionals, mobile and plant operators, technicians and drivers, amongst others. An ageing workforce means attracting and recruiting new staff is critical, including both school and college leavers, apprentices and graduates. The visibility, profile and reputation of the industry are crucial in competing for people with other sectors.

Experienced mineral planners are required to write policy, process applications efficiently and apply professional judgement with confidence. However, planning authorities are experiencing staff shortages and recruitment problems, in part due to closure of planning schools and lack of specialist minerals planning courses.

The industry needs to better demonstrate and communicate that it offers interesting and rewarding career opportunities for a wide range of skills in a safe and healthy working environment with opportunities for training and progression. It needs to ensure employees and contractors acquire and maintain the practical and technical skills and competences needed to work efficiently and safely. More effective links need to be forged with schools, universities, colleges and research institutions, to help raise the profile of careers in the sector.

The industry is committed to increasing the opportunities for apprentices. These are particularly valuable given the high number of operations in rural areas.

## Public Understanding & Engagement

**The Industry and Government should work with stakeholders to improve public understanding of the need for minerals and mineral products and their associated supply chains, and strengthen the evidence base and availability of relevant data.**



Public engagement on the importance and use of minerals and mineral products, together with the economic, social and environmental benefits derived from supplying these from UK resources, is essential. It will raise awareness and develop an understanding of the sector, and help build a consensus on how best to provide and safeguard supplies. Working to ensure the industry is recognised as a good neighbour, responsible operator, important employer, and as leaving a valuable legacy, are all critical in ensuring its 'licence to operate' is maintained.

Making the link between resources, products and uses is an important process which all stakeholders can benefit from.

Over many decades valuable data has been developed and published by Government and the British Geological Survey (BGS) documenting the key metrics relating to the industry and the role that minerals play in our lives and the economy. These data sources should be protected and built on wherever possible. Industry also has a role to play in filling some of the gaps created by a recent decline in Government funding.

Industry supports the Extractive Industries Transparency Initiative (EITI), signed up to by Government, and will continue to participate as this provides useful data and information about taxes and payments made by the sector.

## Research & Innovation

**The Industry will encourage and invest in innovation, research and development, including the identification of new resources and the development of new markets.**



Like all sectors, the UK minerals industry constantly needs to adapt and innovate to maintain competitiveness and identify and exploit new market opportunities. This includes improving the efficiency, productivity and sustainability of mineral operations and supply of raw and recycled minerals, promoting opportunities for downstream manufacturing, and encouraging technological, operational and product innovation. Government data shows that the industry has comparatively high productivity compared to many other sectors of the economy.

Maintaining and strengthening the resilience of minerals and mineral products supplies requires ongoing exploration for economic mineral deposits, improvements to the minerals and mineral products supply chain, and identifying new options for development, and added value, products and uses.

Energy intensive mineral production, particularly cement, lime and ceramics, will most likely require fundamental process changes to meet ambitious decarbonisation and energy goals. In some cases, considerable early action has already been taken. For example, the cement and lime industries have reduced their dependence on fossil fuels to utilise waste derived alternative fuels, including biomass, to minimise their greenhouse gas emissions. Carbon capture and utilisation or storage, alongside electrification or the use of hydrogen fuel all present opportunities for further emissions reduction but the costs and technological barriers are currently prohibitive without a supportive financial and policy framework.

# DELIVERY



DELIVERY

## Next Steps

Delivery of this industry-led Strategy will require a multi-stakeholder approach involving Government Departments in England, Scotland, Wales and Northern Ireland.

The UK minerals and mineral products industry will engage with Government and stakeholders to ensure that the broad aims of the Strategy are delivered, using the key pillars as the basis for further work. The UK Minerals Forum may have a contributory role to play in encouraging dialogue and the development of solutions.

The industry commends this Strategy to Government. It hopes that it will be recognised and regarded as a material consideration in the development and implementation of economic and planning policy.

# Appendix A: Background

## NATIONAL POLICIES

The UK has had no overarching national mineral strategy, policy or plan recognising the economic importance of a steady supply of essential minerals and mineral products, from domestic sources or imported. The current relevant planning documents for England, Scotland and Wales are listed below.

- In England, the National Planning Policy Framework (NPPF)
- In Scotland, Scottish Planning Policy 4: "Planning for Minerals"
- In Wales, Planning Policy Wales and Minerals Technical Advice Note 1 and 2 (MTAN1 and MTAN2)
- In Northern Ireland, Strategic Planning Policy Statement for Northern Ireland (SPPS)

## SELECT COMMITTEE INVESTIGATION INTO THE EXTRACTIVE INDUSTRIES SECTOR 2014

A House of Commons Business Innovation and Skills Select Committee examined the Extractive Industries Sector in 2014. The Government response in England declined to set out measures to directly support the UK Mineral Extraction Industry, beyond the existing NPPF, but did encourage industry to prepare a strategy.

### House of Commons Select Committee for the Department of Business Innovation and Skills Select Committee report of an investigation into the 'Extractive Industries Sector' (November 2014):

*'The Government has expressed support for the enlargement of the UK's domestic extractive sector. However, it is unclear how the Government intends to promote the growth of this sector. We recommend that the*

*Department publishes a domestic extractives plan setting out the extent and range of its support - both structural and financial - and how it intends to realise that ambition. We welcome the Minister's offer to meet with industry and deal with roadblocks. We further recommend that the Government sets out in its response the best mechanism for taking this forward.'*

### Government response, England (January 2015):

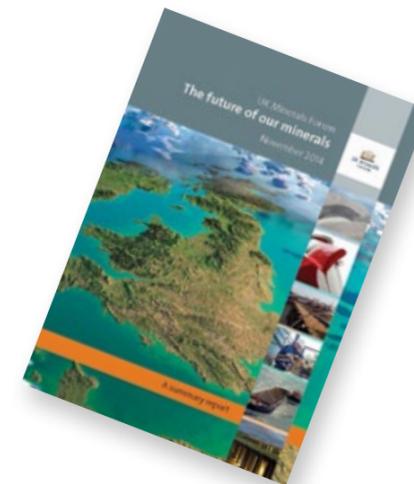
*'There is a variety of work underway as part of the industrial strategy. This includes work on procurement, access to finance, technologies, skills and sectors as well as reforms to the planning process. We recognise the importance of mineral products in supply chains and these are covered by existing sectorial strategies, particularly in construction. As part of industrial strategy, it is important that businesses within each sector come together to identify long-term priorities for the sector as a whole. We understand that the Minerals Products Association is developing a strategy for the sector and look forward to discussing the priorities with them. We believe these represent a coordinated approach to supporting growth in the UK's extractive industries.'*

## UK MINERALS FORUM AND CBI MINERALS GROUP REPORTS

The UK Minerals Forum (UKMF) examined recent trends in UK minerals production and also looked forward in its report **'The Future of our Minerals'**, published in November 2014.<sup>1</sup>

The key recommendations recognised the need for:

- A national long-term vision and strategy for UK minerals supply as an integral part of future industrial strategy
- Concerted action to help policymakers and the public understand the importance of minerals supply to the UK economy and society
- Effective review and monitoring by all parties of progress in delivering an agreed minerals strategy, and responding to emerging events to keep it on track
- Continued collaboration between Government and industry to deliver the vision in any Minerals Strategy that might be developed
- Boost the resilience of the UK minerals industry.



<sup>1</sup> <http://www.ukmineralsforum.org.uk/downloads/The-Future-of-our-Minerals-UKMF-Nov-2014.pdf>

The CBI Minerals Group published **'The UK Mineral Extraction Industry'** in February 2016<sup>2</sup>, which quantified the economic contribution of the industry. It also describes the various mineral resources, their markets and uses, and characteristics and distribution, drawing on the Mineral Planning Factsheets produced by the British Geological Survey.<sup>3</sup>

These reports provide important reference and supporting information, and with the UK Minerals Strategy form a trilogy of documents to be considered together.



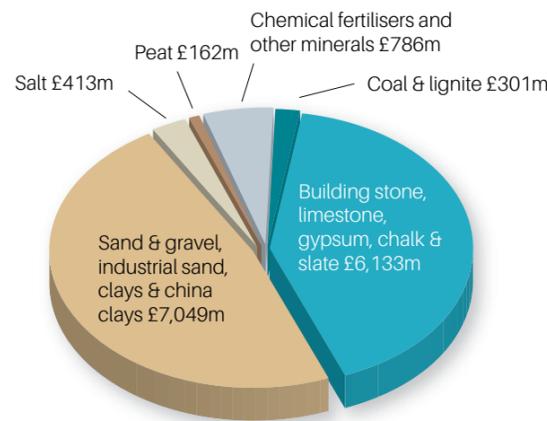
<sup>2</sup> [http://www.mineralproducts.org/documents/CBI\\_UK\\_Mineral\\_Extraction\\_Industry\\_2016\\_2.pdf](http://www.mineralproducts.org/documents/CBI_UK_Mineral_Extraction_Industry_2016_2.pdf)

<sup>3</sup> <http://www.bgs.ac.uk/mineralsUK/planning/mineralPlanningFactsheets.html>

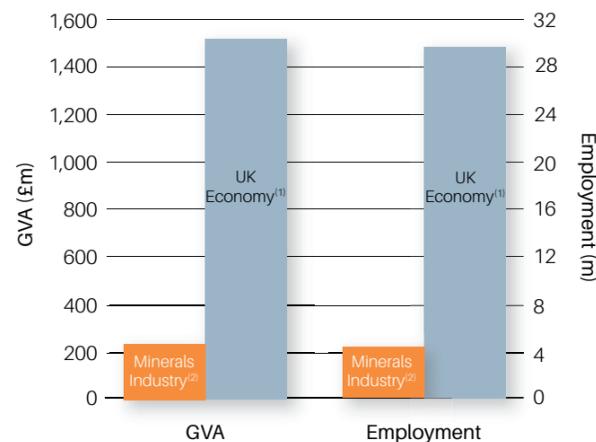
# Appendix B: Supporting Information

(SOURCE: THE MINERAL EXTRACTION INDUSTRY, CBI, 2016)

**Estimated turnover of UK non-energy minerals and coal (2013)** (Source: ONS, ABS, MPA)



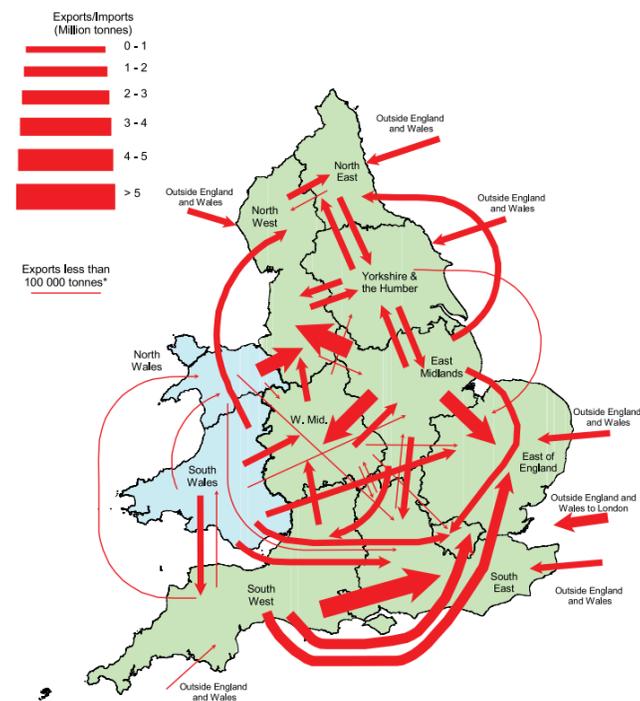
**GVA and employment generated by the minerals industry relative to the total UK economy (2013)** (Source: ABS, ONS, LFS, MPA)



<sup>(1)</sup> Sections A-S of the Standard Industrial Classification (SIC 2007).

<sup>(2)</sup> Includes mineral extraction, products manufacture and "first use" markets.

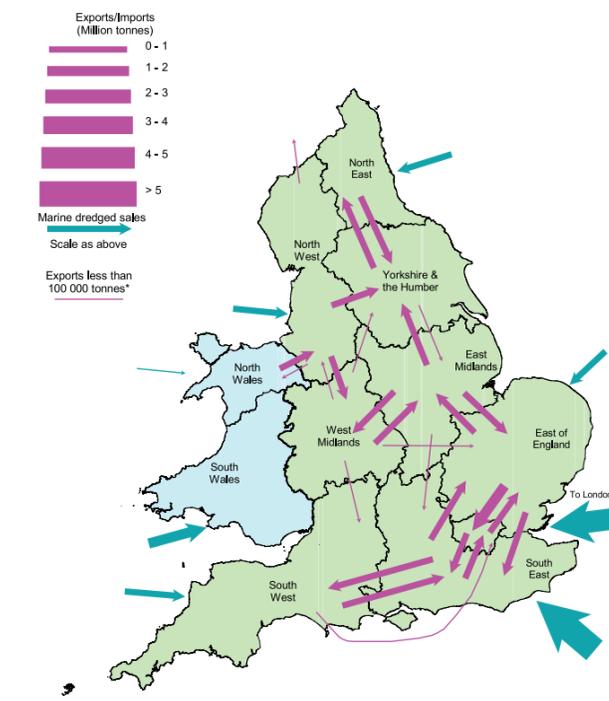
**Crushed rock inter-regional flows, 2014** (Source: Collation of the results of the 2014 Aggregate Minerals survey for England and Wales)



\*For clarity, exports less than 25 000 tonnes are not shown.

© Crown Copyright - Collation of the results of the 2014 Aggregate Minerals survey for England and Wales

**Sand and gravel inter-regional flows, 2014** (Source: Collation of the results of the 2014 Aggregate Minerals survey for England and Wales)



\*For clarity, exports less than 25 000 tonnes are not shown.

© Crown Copyright - Collation of the results of the 2014 Aggregate Minerals survey for England and Wales

**Minerals production in the UK (2013)** (Source: BGS)

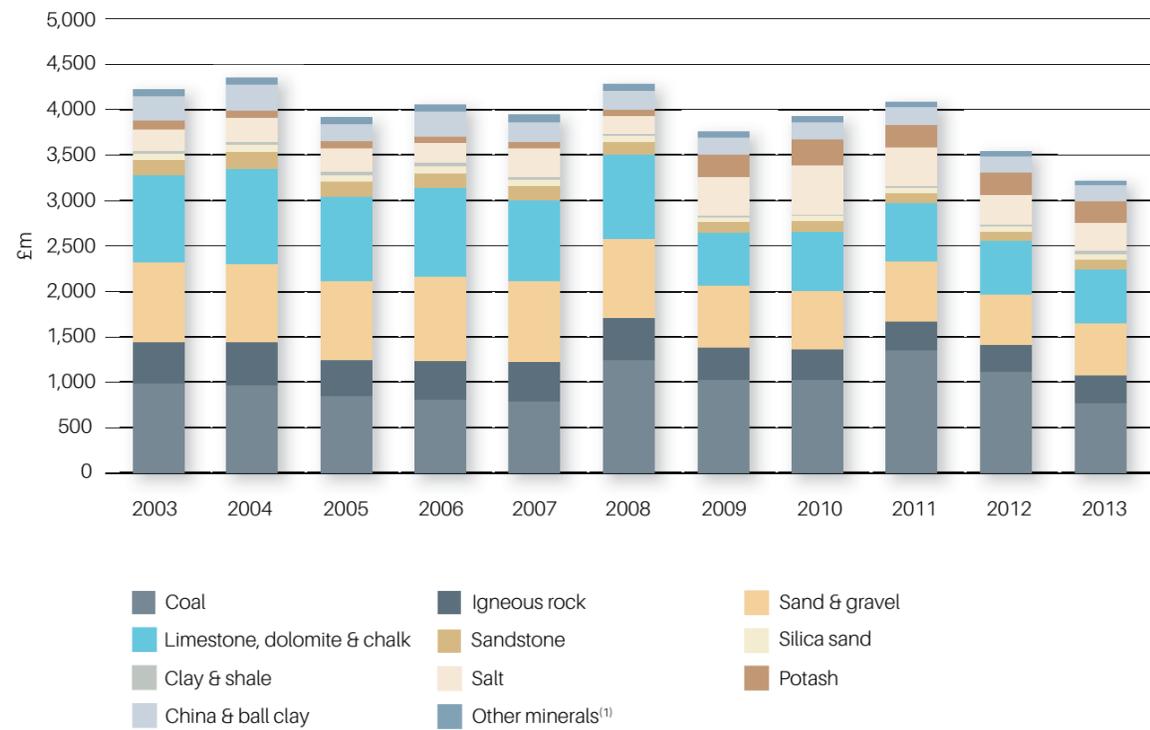
	Million tonnes
<b>Non-energy</b>	<b>196.9</b>
<b>Construction minerals</b>	<b>172.2</b>
Including	
Igneous rock (inc granite)	40.5
Limestone, dolomite & chalk (construction uses)	53.6
Sandstone	11.5
Sand & gravel - Land-won	43.4
Sand & gravel - Marine	14.6
Slate	0.9
Gypsum	1.2
Fireclay	0.1
Clay & shale	6.5
<b>Industrial minerals</b>	<b>24.6</b>
Including	
Limestone, dolomite & chalk (industrial & agricultural uses)	10.3
Silica (industrial) sand	4.0
China clay (kaolin)	1.1
Salt	6.6
Potassium compounds (potash)	0.9
Ball clay	0.7
Peat	1.0
Other industrial minerals <sup>(1)</sup>	0.1
<b>Metals</b>	<b>&lt;0.001</b>
Including	
Iron ore	0.0
Tungsten	0.0
Tin	0.0
Gold	<0.001
Silver	<0.001
Zinc	0.0
Copper	0.0
Lead	<0.001
<b>Energy</b>	<b>90.0</b>
Including	
Oil <sup>(2)</sup>	40.6
Gas	36.5
Coal	12.8
<b>Total</b>	<b>286.9</b>

<sup>(1)</sup> Includes Fuller's earth (bentonite), barytes, fluorspar, talc, calcspas, chert & flint, china stone (feldspar), phosphorus.

<sup>(2)</sup> Includes crude oil onshore and offshore, and condensates.

APPENDIX B continued

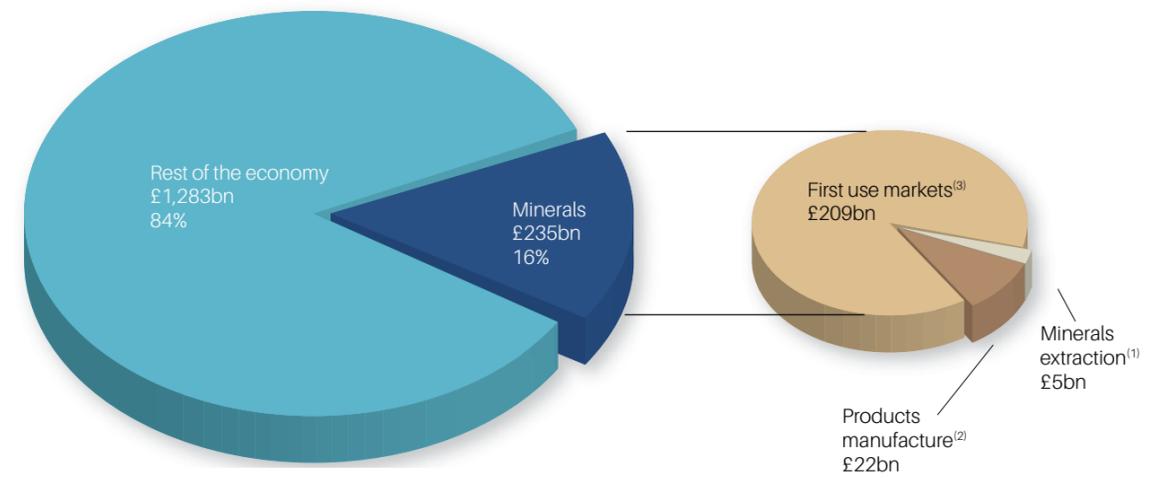
Value of UK minerals production (2011 prices) (Source: BGS)



<sup>(1)</sup> Includes gold, silver, other non-ferrous metals, gypsum & anhydrite and miscellaneous minerals.

GVA generated by minerals at various stages of the supply chain (2013)

(Source: ABS, ONS, LFS, MPA)



Notes:

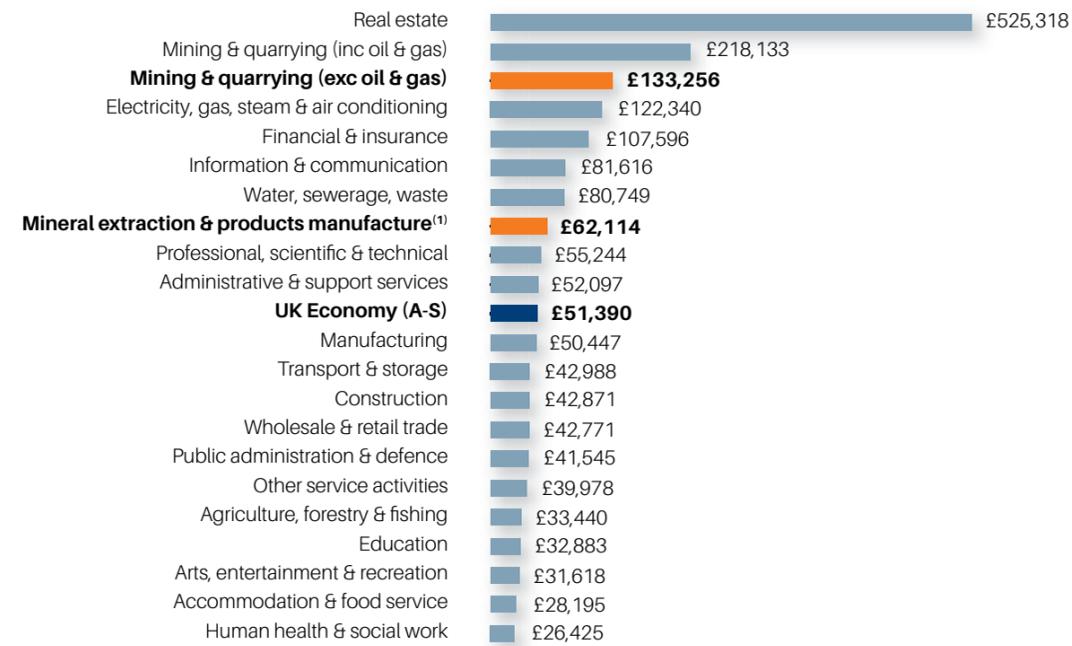
<sup>(1)</sup> Production of raw materials.

<sup>(2)</sup> Manufacture of "enabling" mineral products, e.g. cement, paper etc.

<sup>(3)</sup> First use markets for mineral or mineral products, including construction.

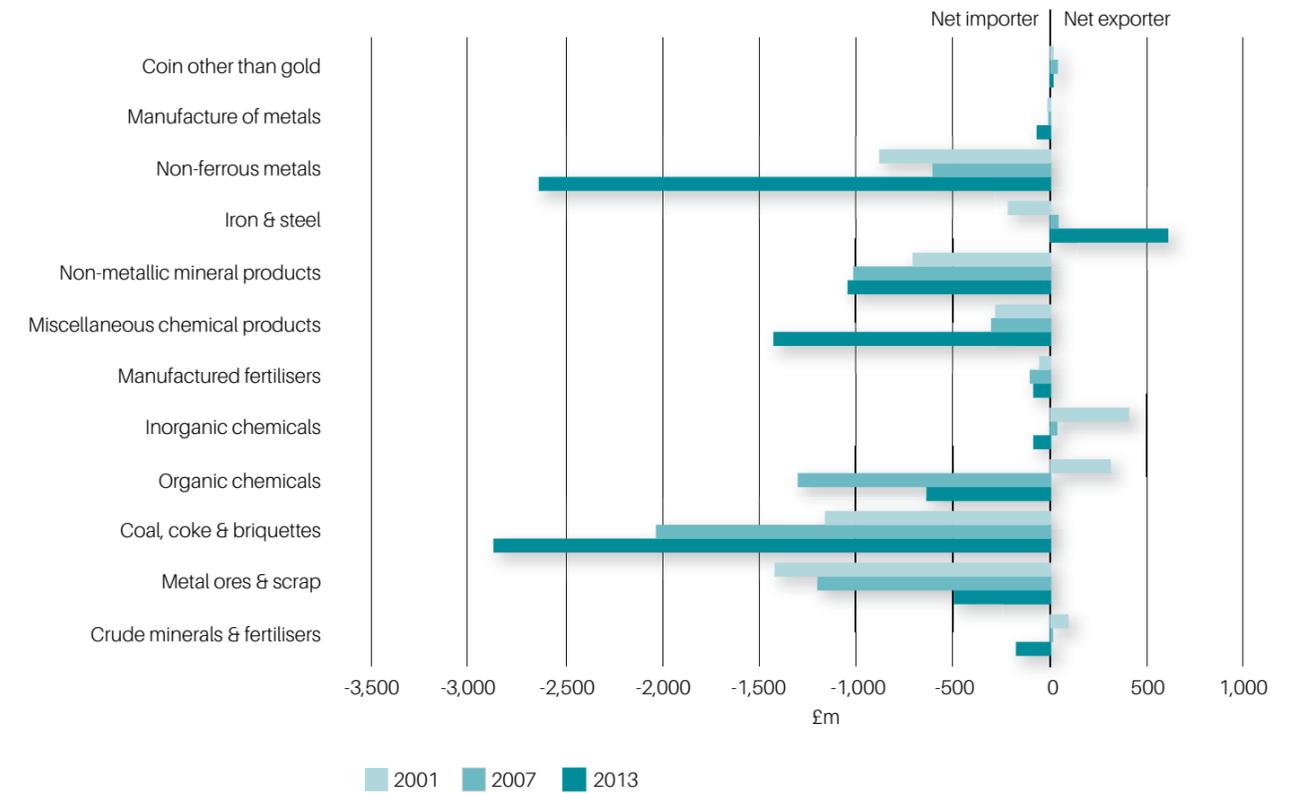
## APPENDIX B continued

**Productivity by industry, £ per employee (2013)** (Source: ABS, ONS, LFS, MPA)



<sup>(1)</sup> This is not an official ONS Standard Industrial Classification but represents the minerals industry as defined in this publication.

**UK balance of trade in minerals and mineral-based products** (Source: BGS)



The following organisations support the UK Minerals Strategy. They include the major UK trade associations and other companies who collectively represent around 99% of the UK minerals and mineral products industry.



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

