

## IOM3 Spending Review Representation 2025

Materials are fundamental to the UK's economy, health, energy transition and national security. Their sourcing, use and management is central to achieving the UK government's strategic missions and ensuring economic, social and environmental development. Current activity, however, lacks a strategic, cross-government approach resulting in substantial risks, vulnerabilities, inefficiencies and waste.

A joined-up and overarching approach and proper understanding of materials flows would deliver a significant contribution to achieving the government's missions. The Spending Review should therefore address the following priorities:

### 1. Establish and implement a UK Materials Strategy

A UK Materials Strategy – a comprehensive, cross-government, cross-economy approach to sustainable use and management of materials – is essential to build secure supply chains, economic resilience, societal health, environmental sustainability and to reach net-zero.

It is needed to bridge developments and government activity in areas such critical minerals, materials innovation, foundation materials and the circular economy, to provide strategic oversight that enables delivery of more effective and efficient outcomes and use of resources.

Alongside a strategic overview, a better understanding of materials across their full life cycle – from extraction and processing through to manufacturing, use and end of life management – is needed for effective policy development and to help secure access to the materials and minerals required for modern society and economic growth. A robust national mechanism to track flows of materials and minerals through the economy will enable effective management, more informed infrastructure planning and support secondary markets.

There is an increasing urgency for the development and application of a range of materials innovations to meet the global challenges. The timescales to bring new materials to market need accelerating including through development at multiple levels in parallel rather than in sequence and using new computational tools. In addition to underpinning the government's missions, materials innovation is a growth boosting activity in and of itself. It increases productivity and creates opportunities for the UK to capture a higher market share in fast-growing sectors.

Whilst critical enablers of the transition and fundamental to healthy living, materials and their extraction and processing are also a significant source of greenhouse gas emissions and must therefore be managed as responsibly as possible. Resource demand is immense (over 100 billion tonnes of resources enter the global economy each year<sup>1</sup>) and increasing, driven by developing economies, a growing global population, evolving technologies and the transition to net-zero. This is further exacerbated by the changing global environment, geopolitical tension and international competition for resources. Ensuring that we use materials as efficiently as possible is essential. This means developing processes and materials innovations that support decarbonisation, as well as ensuring that materials are kept in use for as long as possible at as high a value as possible – essentially, delivering a more circular economy.

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<sup>1</sup> <https://www.circularity-gap.world/2024>

## 2. Advance the transition to a more circular economy

The UK has access to large quantities of materials and minerals in products already in the economy. Increased recovery, reuse and recycling as well as business models and design for durability, longevity, repair and reuse can make use of those already in circulation providing improved resource security and alleviating pressure from growing demand on primary extraction and its associated impacts and risks. For example, the UK currently exports over 70% of its scrap steel, which is an essential input for electric arc furnaces.

A circular economy not only strengthens resource security but also drives decarbonisation, builds resilience to price volatility, supports jobs, and reduces waste and pressure on the environment. A more circular economy could deliver more than 470,000 jobs by 2035, a boost to UK GDP by as much as one per cent and gross value added by as much as £82 billion.<sup>23</sup>

The current macroeconomic model, however, does not promote circular practices, consumption reduction or reward waste prevention sufficiently to drive the behaviour alone, so government intervention is essential.

For example, Extended Producer Responsibility (EPR) that incentivises more circular design and unlocks investment infrastructure should be applied to material-intensive product sectors, learning from the implementation of packaging EPR.

## 3. Bolster the UK's approach to critical materials

The UK's approach to critical materials should be bolstered by developing a better understanding of mineral resources, material flows and building responsible supply chains through domestic capability, transitioning to a more circular economy and collaboration with international partners.

Government focus should be expanded from 'critical minerals' to 'critical materials' recognising that:

- Technology, industry and the low-carbon transition do not rely on individual minerals or elements, but on combinations processed into engineered materials.
- The defined critical minerals provide a snapshot of a dynamic landscape – the level of criticality for a material can change quickly, for example in the event of a market shock.
- Some minerals are produced as co- or by- products of major commodities, there can be numerous stages of processing and many variations of product.
- The form required is often application specific and cannot be accounted for by mineral alone.

The unique strengths and comparative advantage of the UK and how these can be leveraged must be considered, as well as what will be required for national and economic security. For example, this could include:

- UK deposits – providing domestic production and increasing resilience.
- UK processing – helping to secure supplies, improve traceability and support the use of secondary resources through developing robust midstream processing infrastructure for key materials.

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<sup>2</sup> [https://green-alliance.org.uk/wp-content/uploads/2021/11/levelling\\_up\\_through\\_circular\\_economy\\_jobs.pdf](https://green-alliance.org.uk/wp-content/uploads/2021/11/levelling_up_through_circular_economy_jobs.pdf)

<sup>3</sup> [https://www.wrap.ngo/sites/default/files/2022-06/LEVELLING%20UP%20THROUGH%20A%20MORE%20CIRCULAR%20ECONOMY\\_2.pdf](https://www.wrap.ngo/sites/default/files/2022-06/LEVELLING%20UP%20THROUGH%20A%20MORE%20CIRCULAR%20ECONOMY_2.pdf)

- Circular economy – maintaining and maximising the value of materials and minerals, and harnessing the opportunity of secondary resources.

There are significant data limitations for assessing mineral resources in the UK. Data sets are incomplete, and the country is not covered for all elements. Sufficient funding over an appropriate period of time should therefore be provided to the British Geological Survey to provide an accurate and up to date assessment of mineral resources in the UK.

#### 4. Support energy intensive industries to decarbonise

Foundation industries, including cement, glass, ceramics, paper, metals, and bulk chemicals, are vital for UK manufacturing and construction and are used in almost every industry. However, they tend to be energy intensive, consume significant quantities of raw materials, produce large amounts of waste and are responsible for over 10% UK CO<sub>2</sub> emissions. These sectors also face significant challenges to transition as they tend to be capital intensive, often with large legacy facilities with limited additional physical space. They have high process emissions, and the novel technologies needed tend to have a difficult risk profile.

Supporting these crucial industries to decarbonise at the urgent pace required, move towards a more circular economy, and remain internationally competitive is essential. Otherwise, the UK will not be able to secure domestic supplies of vital materials, avoid import dependency and reduce associated impacts of emissions.

#### 5. Deliver a plan for skills and workforce development across materials, minerals and mining

Demand for talented individuals equipped with the knowledge and skills to ensure materials and minerals are managed responsibly is increasing. These people will be needed by industry to carry out the activities and by regulators to ensure these activities are carried out to the necessary high standards. At the same time, however, there are significant and growing skills gaps along the value chains, a decline in education and training provision, and a lack of awareness of the employment opportunities. Informed by key stakeholders, the IOM3 report [\*The Talent Gap - Critical Skills for Critical Materials\*](#) highlights that there is a serious and growing skills gap that is a significant risk facing the value chain and the UK economy.<sup>4</sup> Modernising perceptions and building a wider understanding of the role of materials, minerals and mining in everyday life will be essential to overcome this challenge.

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<sup>4</sup> <https://www.iom3.org/resource/iom3-submits-report-on-critical-minerals-value-chain-skills-gaps-to-uk-government.html>