



Innovate  
UK

# Innovate UK Global Expert Mission Report

## Australia Critical Materials for Electrification

March 2023



UK Research  
and Innovation



UK Science  
& Innovation  
Network

**PUBLIC**



# Contents

---

<b>01</b>	<b>Summary</b>	<b>5</b>
<b>02</b>	<b>Acronyms</b>	<b>8</b>
<b>03</b>	<b>Introduction</b>	<b>11</b>
<b>04</b>	<b>Critical Materials Sector Overview</b>	<b>23</b>
<b>05</b>	<b>Australia's Science &amp; Innovation Landscape</b>	<b>29</b>
<b>06</b>	<b>Overview of Australian Stakeholder Organisations</b>	<b>37</b>
<b>07</b>	<b>Key Collaboration Opportunities</b>	<b>47</b>
<b>08</b>	<b>Challenges/Barriers to Collaboration</b>	<b>51</b>
<b>09</b>	<b>Conclusions</b>	<b>53</b>
<b>10</b>	<b>Annex 1: List of UK Participant Organisations</b>	<b>54</b>
<b>11</b>	<b>Annex 2: List of Australian Participant Organisations</b>	<b>55</b>
<b>12</b>	<b>Appendices</b>	<b>56</b>



## 01. Summary

---

Critical materials play a crucial role to meet the technology demands of industrialised economies moving towards global Net Zero commitments. To meet these electrification and decarbonisation targets, countries require access to a plentiful supply of minerals such as lithium, cobalt and rare earth elements (REE). The UK currently does not have the resources in place to achieve this, causing its manufacturing goals to not align with its 2030 and 2050 Net Zero targets. The UK is entirely reliant on external supply of critical materials, making it vital to build international partnerships.

Australia, as one of the largest producers, presents a strong option to resolve the UK's critical material supply chain gap. With a focus on upstream processing, such as mining and extraction, Australia are also the second-largest producer of cobalt and fourth-largest of REE. Downstream critical mineral processing and end-product manufacturing are a relative low priority for their critical materials sector.

Innovate UK delivered a Global Expert Mission (GEM) to Australia, bringing together key stakeholders from both countries to exchange knowledge and showcase developments in critical materials. The purpose of the GEM was to build on the recent commitments by the UK government to deepen collaboration with Australia through the UK-Australia Joint Statement of Intent on Critical Minerals and identify where both countries can bridge their gaps.<sup>1</sup>

---

<sup>1</sup> <https://www.industry.gov.au/publications/joint-statement-intent-between-australia-and-united-kingdom-collaboration-critical-minerals>  
(Date published: 4 April 2023)



The GEM identified the following opportunities, key potential collaborations, and key challenges:

## Key opportunities

- Share skills
- Early-stage research
- Scale-up facilities
- Complimentary expertise along the value chain for both critical mineral ore processing
- To develop new battery and magnet technologies for clean transport and energy

## Key collaboration opportunities

The development of high-performance battery components including:

- pCAM (precursor cathode active material)
- CAM (cathode active material),
- Anode (natural or synthetic graphite)

## Key barriers/challenges

- Strong global competition
- Current gaps in UK critical minerals and EV-related capabilities
- Restrictive trade acts, which threaten to diminish interest in working with the UK

The realisation of these key collaboration opportunities will need significant Government support to deliver the R&I and capital investment to ensure the UK are at the forefront in critical material research. International engagement is crucial to strengthen the UK's supply chain and bolster EV battery production.

Discussions also highlighted the importance to both Australian and UK industry players of the need for a secure future supply chain that meets desired environmental, social and governance (ESG) and sustainability criteria, from mine to end market application.

As part of the next step following the GEM, UKRI and Innovate UK will focus on building upon the R&I collaboration opportunities identified. Particularly those which align UK priorities with a number of UK Government funded activities already underway to accelerate innovation and support UK businesses in clean energy, electric vehicle, and battery technology.



## 02. Acronyms

---

<b>ACTG</b>	Auto Council Technology Group (UK)
<b>ANSTO</b>	Australian Nuclear Science and Technology Organisation
<b>APC</b>	Advanced Propulsion Centre (UK)
<b>ANU</b>	Australian National University
<b>AUS</b>	Australia
<b>ATF</b>	Automotive Transformation Fund (UK)
<b>B2B</b>	Business to Business
<b>B2C</b>	Business to Consumer
<b>BSG</b>	British Geological Survey
<b>CAM</b>	Cathode Active Material
<b>CMA</b>	Critical Minerals Association
<b>CMs</b>	Critical materials
<b>CCSU</b>	Carbon Capture Storage and Utilisation
<b>CMIC</b>	Critical Minerals Intelligence Centre (UK)
<b>CSIRO</b>	Commonwealth Scientific & industrial Research Organisation (of Australia)
<b>DBT</b>	Department for Business And Trade (UK)
<b>DSIT</b>	Department for Science, Innovation and Technology
<b>DRNSW</b>	Dept. of Regional New South Wales (State of Australia)
<b>EV</b>	Electric vehicle
<b>ESG</b>	Environmental, Social and Governance (practices)
<b>FCDO</b>	Foreign, Commonwealth and Development Office
<b>FEVER</b>	Future Electric Vehicle Energy networks supporting Renewables
<b>FBC</b>	Faraday Battery Challenge (UKRI)
<b>FI</b>	Faraday Institution (part of FBC)
<b>FBICRC</b>	Future Battery Industries Cooperative Research Centre (Curtin University, Perth campus)
<b>GBA</b>	Global Battery Alliance
<b>GEM</b>	Global Expert Mission

<b>IoE</b>	Internet of Energy
<b>ILiA</b>	International Lithium Association
<b>LFP</b>	Lithium (Ferrous) Iron Phosphate
<b>NMC</b>	Nickel Magnesium Cobalt
<b>NT</b>	Northern Territories (Australia)
<b>NSW</b>	New South Wales (State of Australia)
<b>OEM</b>	Original equipment manufacturer
<b>PEMD</b>	Power, electronics, machines, and drives
<b>pCAM</b>	Precursor cathode activated material
<b>UofQ</b>	University of Queensland
<b>UKBIC</b>	UK Battery Industrialisation Centre
<b>UKRI</b>	United Kingdom Research & Innovation
<b>UKCMIC</b>	United Kingdom Critical Minerals Intelligence Centre
<b>REE</b>	Rare earth elements
<b>SIN</b>	Science and Innovation Network
<b>WA</b>	Western Australia
<b>WREED</b>	Weathering of carbonatite REE deposits

### Key EV Battery Terminology & Definitions

<b>PCAM</b>	Precursor cathode active material
<b>CAM</b>	Cathode active material [PCAM + Lithium hydroxide monohydrate]
<b>Battery cell</b>	CAM + Electrolyte + Anode (Natural or synthetic graphite)
<b>Battery Module</b>	Combined battery cells
<b>Battery Pack</b>	Multiple combined battery modules installed in a vehicle





## 03. Introduction

---

### Innovate UK and the Global Expert Missions

Innovate UK supports business-led innovation and is part of UK Research and Innovation (UKRI).<sup>2</sup> UKRI convenes, catalyses, and invests in close collaboration with others to build a thriving, inclusive research, and innovation system. To this end, Innovate UK helps businesses to identify the commercial potential in new technologies and turn them into new products and services that will generate economic growth and increase productivity. With a strong business focus, Innovate UK drives growth by working with companies to de-risk, enable and support innovation. Innovate UK exists to connect innovators with new partners and new opportunities beyond their existing thinking – accelerating ambitious ideas into real-world solutions. Innovate UK is part of the Innovate UK group.

As innovation is increasingly a global endeavour and the ambition of UK businesses to become truly international enterprises is at its highest, Innovate UK established its Global Expert Mission (GEM)<sup>3</sup> programme in 2017. Delivered by Innovate UK, in partnership with the FCDO Science and Innovation Network (SIN),<sup>4</sup> GEMs help further Innovate UK's global strategy by providing the evidence base for where it should invest and by providing the opportunities for UK businesses to build partnerships and collaborations with key economies.

---

<sup>2</sup> <https://www.ukri.org>

<sup>3</sup> <https://iuk.ktn-uk.org/programme/global-expert-missions/>

<sup>4</sup> <https://www.gov.uk/world/organisations/uk-science-and-innovation-network>



## Mission Overview

The GEM took place in Perth, Australia, coinciding with the Australian PAYDIRT Battery Minerals conference,<sup>5</sup> attended by over 600 people. Seven UK delegates, active in the critical minerals industry, along with representatives from The Critical Minerals Association (CMA)<sup>6</sup> and the UKRI Faraday Battery Challenge (FBC),<sup>7</sup> met with 16 key research and industry private and public sector organisations in Australia focused on different aspects of the critical minerals supply chain. With the significant increase in the global demand for critical materials, there is an urgency to explore bi- and multilateral research opportunities to ensure a stable supply chain for the UK and Australian manufacturing industries.

The purpose of the critical minerals GEM is to build on the recent commitments by the UK government to deepen collaboration with Australia through the UK-Australia Critical Minerals Joint Working Group.<sup>8</sup> The GEM explored technology and innovation landscape of strategic international partners in critical materials fundamental to the electrification of transport and the manufacturing industry including extraction, supply chain, policy, and circular economy.

While these alternative technologies are sustainable, the raw materials required to manufacture the next generation of vehicles and other non-fossil fuel dependent new product innovations being developed, pose considerable economic, social, and environmental challenges. To mitigate these major challenges, the UK and Australia have launched initiatives to investigate the existing critical minerals supply chain networks, extraction technologies, processing methods and infrastructure. Where possible, both countries are looking to minimise carbon emissions and waste throughout the mid and downstream processes needed to provide critical minerals for manufactures.

<sup>5</sup> <https://www.batterymineralsconference.com/>

<sup>6</sup> <https://www.criticalmineral.org/>

<sup>7</sup> <https://www.ukri.org/what-we-do/our-main-funds-and-areas-of-support/browse-our-areas-of-investment-and-support/faraday-battery-challenge/>

<sup>8</sup> <https://www.industry.gov.au/publications/joint-statement-intent-between-australia-and-united-kingdom-collaboration-critical-minerals>







## Mission Objectives & Scope

### Key Objectives

The objectives of the Australia Global Expert Mission on critical materials for electrification were the following:

- Help determine how Innovate UK can best support UK businesses more effectively and efficiently when considering innovation partnerships with Australia.
- Review technology and infrastructure gaps in both countries with a focus on critical material processing infrastructure, supply chain and manufacturing processes, business models and circular economy.
- Provide insights into where there are synergies between the countries and determine whether there is an appetite for further collaboration.
- Capture key UK R&I and emerging market opportunities/challenges for developing innovative products and services when considering collaboration with Australia.

### Mission Scope

The GEM focused on building a strategic relationship with Australia on critical materials fundamental to the electrification of transport and the manufacturing industry. The visit investigated government policies, ethical, social governance (ESG), sustainability and the circular economy.

The GEM explored all stages of the critical minerals supply/value chain, from geological surveying to on-site processing, smelting, and alloying. The UK's mining and geological capabilities, knowledge, and expertise were also assessed for potential future collaborations with Australian organisations.



## Materials & Industries of Interest

Materials of critical importance to the UK electrification agenda where Australia have strengths include lithium, cobalt, graphite, nickel, phosphates, silicon, manganese, and REE (particularly praseodymium, neodymium, samarium, terbium, and dysprosium). See opposite for the wider lists of materials of interest.

Key UK industries of interest are automotive manufacturing and associated transport industries (batteries, REE magnets for EVs and lightweight structures). Opportunities in other industry sectors with critical mineral dependencies include chemicals & pharmaceuticals (catalysts), life sciences (electronic medical devices and sensors), construction (building materials & sensors), electronics (semiconductors, PCs, mobile phones, and other digital components), energy (drives for wind turbines and other energy generation, distribution, and storage), defence & space (radar detection & targeting systems, sensors, satellites).



## Minerals of High Criticality for the UK:

Antimony  
Indium  
Platinum  
Tellurium  
Bismuth  
Lithium  
Rare Earth Elements  
Tin  
Cobalt  
Magnesium  
Silicon  
Tungsten  
Gallium  
Niobium  
Tantalum  
Vanadium  
Graphite  
Palladium

## Minerals of Increasing Criticality for the UK:

Iridium  
Manganese  
Nickel  
Phosphates  
Ruthenium



## Principal Themes

**Extraction industries and processing:** Most critical materials (CMs) are extracted from mining operations and require processing to be turned into usable feedstock for manufacturing. Currently, nearly all this demand is being met by China. There is an emerging Western consensus that upstream CM supply chains should be developed outside of China. This will be achieved through the opening of new mines and new processing facilities, as well as adopting recycling techniques. To address this key geopolitical challenge, Australian companies involved in CM mining and processing operations, as well as government bodies and other organisations involved in innovation, policy development and finance, were met during the GEM.

**Manufacturing supply chain:** The development of secure and stable supply chains for critical materials is vital to the economy of the UK and Australia due to the need for CMs used in multiple manufacturing processes, as detailed in the 'UK Manufacturing Sector focus' above. Given the diversification of CM supply chains, the GEM considered that raw material properties may require manufacturing process adaptations and that it may also be necessary to integrate supply chains.

Consideration was also given to the Environmental, Social and Governance (ESG) practices adopted by suppliers and supply chain tracing of materials, which was flagged by UK delegates as being of importance to certain original equipment manufacturers (OEMs) wanting ESG and "green" credentials with respect to carbon footprint, end of life (EOL) and the approaches to recover and recycling CMs.

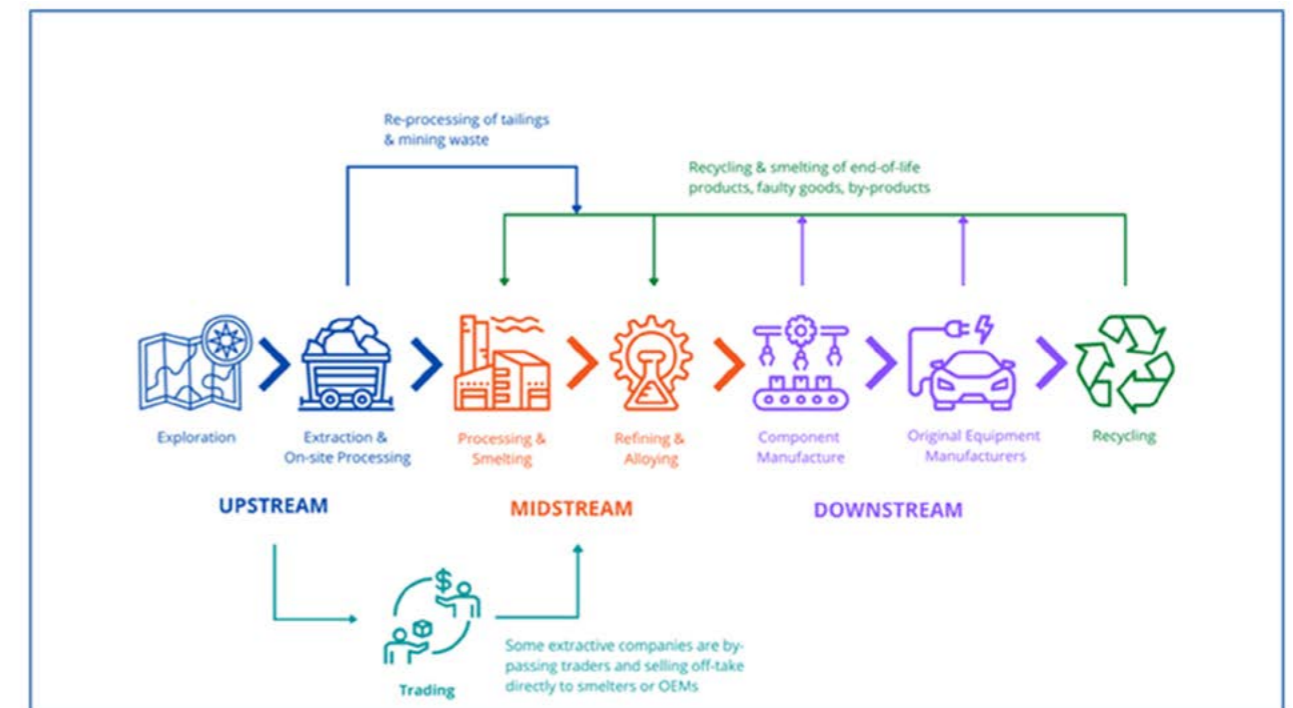
**Industry support, innovation & policy:** To facilitate the changes needed across the CM supply/value chains, an associated shift in the policy and funding landscape is critical. Many aspects of CM supply require intervention, including funding for innovation in primary and secondary material processing, the establishment of new processing infrastructure and better collaboration between supply chain actors. During the GEM, key Australian stakeholders were met at the State level, actively involved in the policy and long-term investment strategy for CMs and the current national programmes supporting Australia's CM strategy.







## Overview of the circular economy supply chain for critical minerals



Schematic representing the supply chain for critical minerals with the Upstream, Midstream and Downstream.<sup>9</sup>

### Critical Mineral Supply/ Value Chain Definitions \*

**Upstream** - Activities in the critical minerals sector focused on the exploration and extraction of raw materials.

**Midstream** - The processing and smelting of raw materials, and the refining and alloying of processed materials.

**Downstream** - The assembling of refined and alloyed materials in component and original equipment manufacturing.

\* [https://www.criticalmineral.org/\\_files/ugd/5caeff\\_58f8a2c396e241219aa4b108e6c705db.pdf](https://www.criticalmineral.org/_files/ugd/5caeff_58f8a2c396e241219aa4b108e6c705db.pdf)

<sup>9</sup> Source: Minefield (supplied by the Critical Minerals Association)



## 04. Critical Materials Sector Overview

### Background

The demand for critical materials like lithium, cobalt, nickel, graphite and rare earth elements (REE) has significantly increased on a global scale. These materials are essential manufacturing raw materials for current and future low-carbon technologies such as electric vehicles, clean and renewable energy generation and storage, as well as for digitisation in Industry 4.0 and electronic consumer products. Demand for EV battery minerals is projected to increase by 6 to 13 times by 2040,<sup>10</sup> and with a globalised economy, manufacturing has become highly competitive, increasing competition for resources. To mitigate these challenges, the UK and Australia have launched initiatives to manage supply chain networks, extraction technologies, processing, recycling, and waste prevention, implementing circular economy principles.

### UK Strategy

The UK recently published its Critical Minerals Strategy<sup>11</sup> with aims to accelerate the growth of UK domestic capabilities, to collaborate with international partners and enhance international markets. The strategy sits alongside the UK's continuing investments in developing an advanced battery and electric vehicle supply chain. Recently, DSIT announced a record funding uplift to its flagship battery research programme the Faraday Battery Challenge,<sup>12</sup> in addition to ongoing commitments through the Advanced Propulsion Centre (APC),<sup>13</sup> Automotive Transformation Fund (ATF),<sup>14</sup> and Driving Electric Revolution (DER).<sup>15</sup>

A key UK strategic objective is to ensure an adequate, secure supply of essential raw materials. An independent report by Green Alliance<sup>16</sup> has found demand for critical materials, such as lithium and cobalt, will far exceed the UK's fair share by 2035, which is predicted to hinder the UK's advanced manufacturing sector and net-zero targets by 2050.

<sup>10</sup> <https://iea.blob.core.windows.net/assets/ffd2a83b-8c30-4e9d-980a-52b6d9a86fdc/TheRoleofCriticalMineralsinCleanEnergyTransitions.pdf>

<sup>11</sup> Resilience for the Future: The United Kingdom's Critical Minerals Strategy (publishing.service.gov.uk)

<sup>12</sup> Record funding uplift for UK battery research and development - GOV.UK (www.gov.uk)

<sup>13</sup> <https://www.apcuk.co.uk/>

<sup>14</sup> <https://www.apcuk.co.uk/automotive-transformation-fund/>

<sup>15</sup> <https://www.der-ic.org.uk/>

<sup>16</sup> Critical point: Securing the raw materials needed



## Australia Strategy

Australia is well-positioned to be a leading supplier of critical minerals and crucial rare earth elements to help meet the growing global demand for minerals used in a variety of modern technologies.<sup>17</sup> The inventory of Australia's critical minerals is impressive, and the following figure demonstrates the significant role that Australia plays in the global supply of these critical materials.<sup>18</sup>



- **Lithium:** Australia retained its position as the world's top lithium producer (53%) in 2021.
- **Antimony:** Australia was a top five producer for antimony (3%) in 2021.
- **Cobalt:** Australia was a top five producer for cobalt (3%) in 2021.
- **Magnesite:** Australia was a top five producer for magnesite (3%) in 2021.
- **Manganese Ore:** Australia was a top five producer for manganese ore (11%) in 2021.
- **Rare Earths:** Australia was a top five producer for rare earths (8%) in 2021.
- **Rutile:** Australia was a top five producer for rutile (26%) in 2021.
- **Tantalum:** Australia was a top five producer for tantalum (5%) in 2021.
- **Zircon:** Australia was a top five producer for zircon (30%) in 2021.

<sup>17</sup> <https://www.minister.industry.gov.au/ministers/pitt/media-releases/australia-lead-critical-minerals-supply-2030>

<sup>18</sup> <https://www.ga.gov.au/scientific-topics/minerals/critical-minerals>





Australia's economic inventories increased for many critical minerals in 2021: platinum group elements (131%), scandium (21%), vanadium (10%), antimony (9%), cobalt (6%), and tantalum (5%).

As a producer of half the world's lithium, the second largest producer of cobalt and the fourth largest for rare earth elements,<sup>19</sup> Australia is focused on critical minerals market opportunities and is attracting global attention. Australia recently updated its critical minerals strategy to reflect this.<sup>20</sup>

This strategy aims to grow Australia's critical minerals wealth, create jobs in mining and manufacturing, strengthen global clean energy supply chains, and support the world to achieve net zero emissions.<sup>21</sup> The strategy will guide future government policy decisions to maximise the national benefits of Australia's internationally significant critical minerals endowments.<sup>22</sup> As part of the strategy, the government will target \$500 million of new investment into critical minerals projects via the Northern Australia Infrastructure Facility.<sup>23</sup> The strategy will also establish a process to update the critical minerals list.<sup>24</sup>

In June 2023, Minister for Resources and Northern Australia, Madeleine King, released the new strategy to make Australia a globally significant producer of raw and processed critical minerals and boost economic opportunities for all Australians, including First Nations people and regional communities.<sup>25</sup> The decision builds on the government's wider suite of policies to support the sector, including finance through the Critical Minerals Facility and National Reconstruction Fund, investments in research and development, and grants to help develop early- to mid-stage critical minerals projects.<sup>26</sup>

Independent modelling has found that increasing exports of critical minerals and energy-transition minerals could create more than 115,000 new jobs and add \$71.2 billion to GDP by 2040. However, the number of jobs could increase by 262,600, and the increase in GDP could strengthen to \$133.5 billion by 2040 if Australia builds downstream refining and processing capability and secures a greater share of trade and investment.<sup>27</sup>



<sup>19</sup> Critical Minerals Strategy 2022 | Department of Industry, Science and Resources

<sup>20</sup> Critical Minerals Strategy 2022 | Department of Industry, Science and Resources

<sup>21</sup> <https://www.minister.industry.gov.au/ministers/king/media-releases/seizing-opportunities-australias-critical-minerals>

<sup>22</sup> <https://www.ashurst.com/en/insights/australian-government-announces-2022-critical-minerals-strategy/>

<sup>23</sup> <https://www.minister.industry.gov.au/ministers/king/media-releases/seizing-opportunities-australias-critical-minerals>

<sup>24</sup> <https://www.minister.industry.gov.au/ministers/king/media-releases/seizing-opportunities-australias-critical-minerals>

<sup>25</sup> <https://www.minister.industry.gov.au/ministers/king/media-releases/seizing-opportunities-australias-critical-minerals>

<sup>26</sup> <https://www.minister.industry.gov.au/ministers/king/media-releases/seizing-opportunities-australias-critical-minerals>

<sup>27</sup> <https://www.minister.industry.gov.au/ministers/king/media-releases/seizing-opportunities-australias-critical-minerals>



## 05. Australia's Science & Innovation Landscape

### Introduction to UK and Australia collaborations

The relationship between the UK and Australia is both significant and comprehensive, underpinned by shared heritage, common values, closely aligned strategic perspectives, and substantial trade and investment ties. Both countries' collaboration has covered a broad range of interventions and topics. Key green growth targets will lead to further innovation opportunities on critical minerals for electrification to achieve our shared goal of net-zero emissions by 2050 and decarbonise the transportation sector. Future innovations and collaborations will not only benefit societies, but also foster economic growth by enhancing respective skill sets, capabilities, and policies.

The UK and Australia both have comprehensive strategies for critical minerals, which are essential for the transition to clean energy.<sup>28</sup> Both strategies have a common goal of enhancing domestic capabilities in the mining and processing of critical minerals. Additionally, they aim to ensure the security of supply chains by collaborating with international partners.

Both strategies also emphasise the importance of environmental, social, and governance (ESG) performance, making sustainability a top priority. Finally, job creation is another important objective of both countries as they work towards developing their critical minerals sectors.

However, the UK and Australia's strategies also have some differences.<sup>29</sup> Firstly, the UK has a rich history in mining and minerals, and it aims to become a skills leader in this area. In contrast, Australia's strategy mentions specific minerals such as lithium, cobalt, graphite, silicon, tin, and rare earth elements, while the UK's strategy does not specify any particular minerals.

Secondly, the UK's strategy is aiming to improve energy security and domestic industrial resilience. In contrast, Australia's strategy includes a focus on First Nations engagement and benefit sharing, which is not mentioned in the UK's strategy. These strategies reflect each country's unique circumstances and strengths in the critical minerals sector.

<sup>28</sup> <https://www.gov.uk/government/publications/uk-critical-mineral-strategy/resilience-for-the-future-the-uks-critical-minerals-strategy>

<sup>29</sup> <https://www.gov.uk/government/publications/uk-critical-mineral-strategy/resilience-for-the-future-the-uks-critical-minerals-strategy>



## UK-Australia battery & critical minerals, and supply chain background

The availability of geo-resources and critical minerals are key to manufacturing and productivity across a range of strategically important sectors such as automotive, aerospace, energy and chemical. The global move towards Net Zero emissions has heightened the demand and competition for existing materials and the need to ensure a diversity of critical raw minerals to develop new 'next generation' materials.



## Australia-UK Business Overview

- The UK is the second largest source of foreign investment in Australia, with the stock of investment valued at \$574.8 billion in 2018 (FDI of \$98.7 billion).<sup>30</sup>
- Australian investment in the UK was \$408 billion in 2018 (FDI of \$118.7 billion).<sup>31</sup>
- The UK is Australia's 8th largest trading partner, worth \$26.9 billion in 2018, and our third largest services trading partner, with Australian services exports to the UK of \$5.5 billion and imports of \$9.2 billion in 2018.<sup>32</sup>

<sup>30</sup> <https://uk.embassy.gov.au/lhlh/australia.html>

<sup>31</sup> <https://uk.embassy.gov.au/lhlh/australia.html>

<sup>32</sup> <https://uk.embassy.gov.au/lhlh/australia.html>



### Australia-UK Free Trade Agreement (FTA)

The first round of negotiations on the Australia-UK Free Trade Agreement (FTA)<sup>33</sup> was held from 29 June to 10 July 2020. This was an opportunity for both countries to discuss critical minerals as a sector and where each could benefit from increased cooperation. Australia's Critical Minerals Facilitation Office will continue to explore this opportunity with UK counterparts as negotiations continue.<sup>34</sup>

### Australia-UK Working Group on Critical Minerals

The UK-Australia Joint Statement of Intent on Critical Minerals<sup>35</sup> will strengthen engagement and cooperation between Australia and the United Kingdom to pursue and attain opportunities for new and enhanced international critical minerals supply chains. The statement is focused on shared ESG principles and objectives including: addressing capability gaps; diversifying critical minerals supply chains; increasing economic security; building sovereign capabilities in mid-stream processing and downstream manufacturing (including collaboration in agreed third countries as appropriate). It also seeks opportunities for strategic and commercial investment partnerships in key supply chains (including relevant finance agencies where appropriate), including clean energy technologies.

### UK-Australia Supply Chain Resilience Initiative

The United Kingdom and Australia have similar public sector approaches to identifying and addressing supply chain challenges. Following the informal collaboration, our cooperation on supply chain issues was formalised at the 2021 G20 Leaders' Summit in Rome, where a joint project was established to assist interested partner governments facing similar challenges. The UK and Australia are now offering a joint program, sharing insights and experience on supply chain resilience.<sup>36</sup> Opportunities may exist for Australia and the UK to establish an integrated battery supply chain to feed the electric vehicles sector.

### Critical Minerals Association (CMA)

Founded in 2020, the UK's Critical Minerals Association (CMA) provides a unique platform for companies and individuals to come together and share key insights with the UK Government. In 2022, The CMA announced the formation of CMA Australia<sup>37</sup> to unite and amplify the voice of Australia's critical minerals industry.

The key CMA Australia aims are to:

- Create credible unified advocacy with governments specifically for critical minerals
- Catalyse Australian processing and refining
- Connect industry and transform understanding through networking opportunities
- Drive thought leadership on ESG best practices
- Help to remove barriers to accessing funding for responsible critical minerals.



<sup>33</sup> <https://www.gov.uk/government/collections/uk-australia-free-trade-agreement>

<sup>34</sup> Advancing international partnerships on critical minerals | Department of Industry, Science and Resources

<sup>35</sup> <https://www.gov.uk/government/news/uk-charges-up-ties-with-western-australia-in-new-critical-minerals-pledge>

<sup>36</sup> UK-Australia supply chain resilience initiative: introduction module - GOV.UK ([www.gov.uk](http://www.gov.uk))

<sup>37</sup> Critical Minerals Association Goes International with CMA Australia!



### Global Battery Alliance (GBA)

The Global Battery Alliance (GBA)<sup>38</sup> is a partnership of 120+ national and international businesses, governments, academics, industry players and non-governmental organisations, which aims to ensure that battery production for green energy also safeguards human rights and promotes health and environmental sustainability.

The GBA 2030 Vision is to foster a circular, responsible, and just battery value chain, which is detailed in a report conducted by the GBA.<sup>39</sup>

The published report covered battery production and the challenges related to battery raw material extraction, production, and lifecycle management. The report also outlined how multi-stakeholder collaboration across the battery value chain could address and mitigate the identified ESG risks and establish a pathway for a sustainable and responsible battery value chain<sup>40</sup> by 2030.

### GBA Battery Passport

Managing the industry's environmental, social, and governance (ESG) impacts, transparency and collective multi stakeholders is seen as vitally important. To address this, GBA Battery Passport<sup>41</sup> was established, which includes the use of a physical battery AI 'digital twin' that conveys information about all applicable sustainability and lifecycle requirements, based on a comprehensive definition of a 'sustainable' battery. The aim is to bring new levels of transparency, material provenance, and sustainability performance to the global battery value chain.

The GBA's Battery Passport goal is to provide end-users with a quality seal based on the battery's sustainability performance, according to reporting rules agreed upon by stakeholders from industry, academia, non-governmental organisations, and government.<sup>42</sup>



<sup>38</sup> <https://www.globalbattery.org/>

<sup>39</sup> [https://www3.weforum.org/docs/WEF\\_A\\_Vision\\_for\\_a\\_Sustainable\\_Battery\\_Value\\_Chain\\_in\\_2030\\_Report.pdf](https://www3.weforum.org/docs/WEF_A_Vision_for_a_Sustainable_Battery_Value_Chain_in_2030_Report.pdf)

<sup>40</sup> Establishing a sustainable and responsible battery value chain - Global Battery Alliance WEF\_A\_Vision\_for\_a\_Sustainable\_Battery\_Value\_Chain\_in\_2030\_Report.pdf (globalbattery.org)

<sup>41</sup> <https://www.globalbattery.org/battery-passport/>

<sup>42</sup> Battery Passport (globalbattery.org)



## 06. Overview of Australian Stakeholder Organisations



During the Global Expert Mission week, the delegation had the opportunity to meet with some of the leading innovators in the field of Critical Materials for electrification.

Based on their extensive involvement in international collaboration, these stakeholders were carefully selected as future-looking innovative organisations in Critical Materials for electrification, with a focus on extraction industries and processing, Manufacturing supply chain, Environmental, Social and Governance (ESG) and Industry support, innovation and policy.

The delegation engaged in detailed discussions with the innovators, exploring the latest trends and cutting-edge technologies being developed in the industry. They also had the chance to witness some of these technologies first-hand, gaining valuable insights into their potential applications and impact.

The Overviews of the key Australian organisations engaged during the Global Expert Mission are as follows:

### Altilium Group Ltd.

Altilium Group<sup>43</sup> are a UK based company, with offices in London, Sydney, Perth, and Jakarta. The Group's DNi Process™ eliminates the need to heat acid to high temperatures or use hazardous pressures in processing low-grade ore metal. This extraction technology can cost effectively extract critical metals, including nickel and cobalt, for the production of EV batteries.

### ANSTO Minerals

ANSTO Minerals,<sup>44</sup> part of Australia's Nuclear Science and Technology Organisation (ANSTO), primarily provides contract research and project development/support for publicly listed and private companies. Key consultancy services include: Flowsheet development for U, RE, Li Zr Nb Ti and other critical metals; process modelling and scoping engineering studies for techno economic analysis; Pilot and demonstration plant operation. ANSTO is one of four founding members of the National Critical Minerals R&D Hub, which addresses technical bottlenecks across the critical minerals value chain, and works with industry to focus R&D efforts on national priorities. [See Appendix 5, 6 and 7.]

<sup>43</sup> <https://www.altiumgroup.com/>

<sup>44</sup> <https://www.ansto.gov.au/>



## Ardea Resources Ltd.

Ardea Resources Limited<sup>45</sup> has set up and is running the 100%-owned, Kalgoorlie Nickel Project (KNP) to access the nickel and cobalt minerals discovered in that region of Western Australia. KNP is currently the largest nickel cobalt ore resource in the developed world. Ardea Resources' KNP has been awarded Major Project Status by the Australian Federal Government, due to its strategic significance to the Australian economy.

## Australia National University (ANU)

The ANU Critical Minerals Team<sup>46</sup> provides research and technical partnerships for companies developing commercial critical minerals projects in Australia and abroad. They focus on creating transformative new knowledge, underpinning, and enabling growth of viable critical metals industries in Australia. ANU cover all aspects of critical minerals research including geology and resource discovery; new extraction technologies; advanced manufacturing and recycling; new battery technologies; new alloys and advanced materials synthesis; environment and sustainability.

<sup>45</sup> <https://ardearesources.com.au/>

<sup>46</sup> <https://earthsciences.anu.edu.au/critical-minerals>

## Blackstone Minerals

Blackstone Minerals<sup>47</sup> is an ASX listed company involved in developing green mining and downstream business activities, with a particular focus on the production and supply of Green Nickel TM from a net zero operation. Being unable to find a suitable Australian mine asset, Blackstone Minerals acquired a 90% interest in the Ta Khoa Nickel mining and nickel sulphide concentrate upgrade refining project in Vietnam. The aim is to produce and globally supply battery grade NCM 811 Precursor for high end NCM EV batteries, which has ESG provenance. The company has R&D collaborations with universities in Australia and is a member of the Future Battery Group.

<sup>47</sup> <https://www.blackstoneminerals.com.au/>

<sup>48</sup> <https://www.csiro.au/en/>

<sup>49</sup> <https://www.igo.com.au/site/content/>

## Commonwealth Scientific and Industrial Research Organisation (CSIRO)

CSIRO<sup>48</sup> works with industry, government, and the research community to turn science into solutions to address Australia's greatest challenges, including food security and quality; sustainable energy and resources; health and wellbeing; resilient and valuable environments; future industries; and a secure Australia and region. CSIRO is working across the critical minerals' supply/value chain, from exploration to processing and beyond, to maximise Australia's position as a trusted global supplier of critical minerals and ensure success on the path to Net Zero.

## IGO Ltd.

IGO Limited<sup>49</sup> is an ASX 100 listed company focused on developing and delivering products critical to clean energy to advance the global transition to decarbonisation, safely, sustainably, and ethically; decarbonisation technology development projects are focused on transport electrification, energy storage and renewable energy generation. IGO owns and operates nickel, copper and cobalt operations located in Western Australia.



## International Lithium Association (ILiA)

ILiA,<sup>50</sup> which is registered in the UK, is the global trade association for the lithium industry and represents the entire lithium value chain, from mines and refineries through to OEMs and recyclers. The Association was established in 2021 as an international not-for-profit industry association to support the industry's efforts in supplying high quality lithium sustainably and responsibly. Affiliate membership is available to non-commercial organisations such as academia, government bodies and civil society.

## Fortescue Future Industries (part of Fortescue Metals Group)

Fortescue Future Industries (FFI)<sup>51</sup> is a global green energy company committed to producing green hydrogen, containing zero carbon, from 100% renewable sources. FFI is focused on developing technology solutions for hard-to-decarbonise industries, and building a global portfolio of renewable, green hydrogen and green ammonia, non-fossil fuel energy projects. FFI has a corporate objective to decarbonise its parent company, Fortescue Metals Group, by 2030.

<sup>50</sup> <https://lithium.org/>

<sup>51</sup> <https://fortescue.com/>

## Future Battery Industries Cooperative Research Centre (FBICRC)

The FBICRC<sup>52</sup> was established in 2019 through the Australian Government's Cooperative Research Centre Program. The aim is to capture the significant economic opportunities for Australia from the growing battery industry and address the challenges associated with the energy transition. FBICRC brings together 70 participants across 15 research projects, being one of largest industry, government and research collaborative partnerships focused on battery industries in Australia. Projects covered by FBICRC span the value chain from mining through to processing, manufacture, services and recycling and reuse of batteries.

<sup>52</sup> <https://fbicrc.com.au/>

<sup>53</sup> <https://www.sourcecertain.com/>

## Source Certain

Source Certain<sup>53</sup> provides provenance testing services, using its global origin verification capabilities which have been successfully applied to the mining and resource sectors. Source Certain has technical competences in analytical chemistry, geochemical data interpretation, mineralogy, and extraction processes. Work carried out with various exploration companies has resulted in the development of process flow sheets for the extraction and beneficiation (extractive process which removes ore gangue minerals to produce a higher-grade product) of a range of ore types, including zirconium, niobium, and REE, with some from complex mineral assemblages.



## Queensland Government, Department of Resources

The remit of the State of Queensland's Department of Resources<sup>54</sup> is to support landholders, businesses, and the community to capitalise on the land, mineral, petroleum, and gas resources available for sustainable economic prosperity. Queensland's mineral ore resources significantly contribute to the state's economy, which is committed to investing in both critical minerals extraction and in new added value mid and downstream supply chain processing and manufacturing capabilities such as the Townsville vanadium battery manufacturing facility, which will be Australia's first commercial-scale vanadium flow battery electrolyte producer, along with the new Vecco Group facility that will produce the electrolyte used in grid-scale vanadium flow batteries.

<sup>54</sup> <https://www.resources.qld.gov.au/>

## Government of South Australia – Resources Department

The Government of South Australia<sup>55</sup> is aware of the global importance of its natural critical mineral assets to help decarbonise and achieve net zero emissions. The Resources Department works with the mining industry, other industry sectors and local organisations to help create new income opportunities from these critical resources and to transform industry and communities to meet 2050 carbon emission targets. The focus is on working together with key stakeholders to make the best use of the available energy resources and renewables, and by supporting research and innovation to develop future clean energy and renewable energy solutions, and other technologies, such as robotics, and advanced manufacturing.

<sup>55</sup> <https://www.sa.gov.au/topics/energy-and-environment/environment-and-natural-resources>

<sup>56</sup> <https://www.wa.gov.au/organisation/department-of-jobs-tourism-science-and-innovation>

<sup>57</sup> <https://www.dmirs.wa.gov.au/>

## Government of Western Australia

**Critical Minerals Team, Western Australia State:** The Critical Minerals Team is part of the Department of Jobs, Tourism, Science and Innovation (DJTSI).<sup>56</sup> The DJTSI critical minerals team leads the implementation of the State's 'Future Battery and Critical Minerals Industries Strategy'; the strategy is focused on growing the global battery and critical mineral supply chain, by attracting new investment and via key international strategic partnerships. Critical minerals support from the State includes investigating the manufacture of battery cells, battery packs and equipment, and the establishment of reuse and recycling facilities.

**Department of Mines, Industry Regulation, and Safety (DMIRS), Western Australia State:** The mission of DMIRS<sup>57</sup> is to support a safe, fair, and responsible future for the State's community, industry, energy, and resources sectors. DMIRS aims to ensure natural resources are developed and managed responsibly, providing analysis on all aspects of energy policy. Key focus areas for DMIRS include: growing mineral, petroleum, and energy exploration; ensuring responsible and sustainable mineral and energy resources; improving decommissioning and rehabilitation.





## New South Wales State - Mining Exploration and Geoscience, Department of Resources

The New South Wales (NSW) Government<sup>58</sup> supports the growth of critical minerals and high-tech metals across the supply chain, through investments in exploration, mining, processing, downstream industries, and recycling. The NSW State is open to global investment opportunities to ensure the long-term security of existing supply chains and that can provide new, opportunities for the NSW mining industry. The 'Critical Minerals and High-Tech Metals Strategy' developed by the NSW Government aims to make NSW a major long term future global supplier and processor of critical minerals and high-tech metals. To do this, the strategy includes: establishing Australia's first Critical Minerals Hub in the Central West; promoting critical mineral resource exploration; proactively developing industry supply chains; attracting investment for critical mineral resources, downstream processing, and recycling.

<sup>58</sup> <https://meg.resourcesregulator.nsw.gov.au/>

## Northern Territory, Australia - Department of Industry, Tourism and Trade

The Northern Territory (NT)<sup>59</sup> is a self-governing territory, occupying the central and central northern regions of Australia. NT is an emerging lithium producer with large rare earths and vanadium projects. Many existing and feasible critical mineral sites in the territory are located close to major infrastructure and the Port of Darwin. NT has large under-explored areas, which provide significant opportunities for new discoveries of critical minerals including: lithium, vanadium, cobalt, tungsten, titanium, nickel, magnesium, molybdenum, and rare earths, such as fluorapatite, allanite and monazite. Natural resources are a key priority for the NT government, which has put in place a 'Resources and Territory' initiative which supports exploration and aims to position the territory as a key destination for minerals and energy investment.

<sup>59</sup> <https://industry.nt.gov.au/>

<sup>60</sup> <https://smi.uq.edu.au/>

## Sustainable Minerals Institute – The University of Queensland

The University of Queensland's Sustainable Minerals Institute<sup>60</sup> is focused on developing the transformative technologies, expertise and new approaches to address the global sustainability challenges using a responsible supply of mineral resources. A multidisciplinary and systems-based approach is used by the Sustainable Minerals Institute to address key sustainability challenges and to ensure the future supply of key materials. The five strategic programs which have been implemented cover: complex orebodies; governance & leadership; development minerals; future autonomous systems and technologies; transition in mining.



## 07. Key Collaboration Opportunities

---

A partnership between UK and Australia in critical minerals is vital in achieving Net-Zero ambitions and ensuring the UK and Australia are at the forefront of research and innovation. The opportunity presented here is vital in establishing the UK's critical mineral supply chain and further supporting the development of EV, large storage battery technology and alternative routes to high-performance magnets using REE:

### Complementary upstream to downstream expertise

The GEM identified several opportunities to share complimentary expertise, particularly in upstream and downstream processing. It was evident that both countries have expertise along the critical mineral and manufacturing value chain with complementary capabilities that can be leveraged collaboratively for critical mineral ore processing and to develop new battery and magnet technologies needed by key industrial markets for clean transport and energy.

- The UK's strengths and capabilities are chemical processing, alloying and metal refining, component production and OEM finished goods, recycling, clean energy, automation, Industry 4.0, digitisation, AI, and big data/digital mapping.
- Australia's strengths and capabilities are natural ore deposit exploration, ore extraction mining and on-site ore processing, shipping of bulk ore and ESG.



## Opportunities to share early-stage research and scale-up facilities

There is an opportunity for Australian R&D for battery technology initiatives, such as the Future Battery Industries Cooperative Research Centre (FBC), to access UK facilities (such as the UK Battery Innovation Centre (UKBIC)<sup>61</sup> and expertise that is not currently available in Australia via specific collaborative programmes or via subcontracting.

## Achieving Supply chain transparency

The application of 'big data' digital mapping, artificial intelligence (AI) and ESG principles can contribute to achieving EV battery supply chain transparency between the UK and AUS by enhancing data collection and analysis, traceability and certification, stakeholder engagement, and collaborative efforts. The UK has a clear lead in ESG consultancy services and seeks targeted support to build ESG-focused relationships with the Australian mining sector.

## Bilateral R&D programme

Explore potential routes to an Australia-UK collaborative programme, coupled with exchanges of businesses between the two countries focussed on gaps between Australia and the UK supply chains and directed at future R&D projects. The following areas were suggested as interest for collaborations between the UK and Australia:

- Critical mineral ore processing.
- Development of new battery and magnet technologies.
- Support to share complimentary expertise, particularly in upstream and downstream processing.
- Support to share early-stage research and scale-up facilities.
- Support for supply chain by enhancing data collection and analysis, traceability and certification.



<sup>61</sup> <https://www.ukbic.co.uk/>



## 08. Challenges/Barriers to Collaboration

The top three challenges identified during the GEM were:

### Intense Global competition

Intense competition from the US, China, Australia, Japan, Korea, and the EU. Each of these countries strives to achieve technological superiority in mining and processing these minerals. If one country develops a more efficient or cost-effective method, it could disrupt collaborative efforts.

While the UK may not have significant mineral deposits, it is a leader in advanced manufacturing with an active and vibrant chemical, metals and manufacturing sector. Future bilateral discussions will need to focus on the UK's industrial and manufacturing capabilities, ESG, market and financial analysis where the UK is a leader. This is an area where the UK can offer leading-edge partnerships with AUS R&I bodies and companies active in the critical minerals industry.

### Awareness of the UK capabilities need to improve

With the collapse of British Volt,<sup>62</sup> the UK was occasionally viewed as having very little to offer compared to the US, Germany, France, and other leading nations. However, in July 2023, the UK announced the creation of the Tata giga factory that should raise awareness of the UK capabilities. The new gigafactory, at 40GWh and will be one of the largest in Europe.<sup>63</sup>

### Restrictive Trade Act is diverting focus towards the USA

The Inflation Reduction Act (IRA) will diminishing interest in working with the UK. Given its free trade agreement with the USA, Australia is in a pivotal position. The IRA dictates that from 2023, at least 40% of the value of critical minerals must be extracted or processed in the United States or any country with which the U.S. has a free trade agreement in effect or recycled in North America.<sup>64</sup> The IRA value rises to 80% after 2026.

<sup>62</sup> <https://www.bbc.co.uk/news/business-64303149>

<sup>63</sup> <https://www.gov.uk/government/news/tata-group-to-invest-over-4-billion-in-uk-gigafactory-creating-thousands-of-jobs>

<sup>64</sup> H.R.5376 - 117th Congress (2021-2022): Inflation Reduction Act of 2022, H.R.5376, 117th Cong. (2022),





## 09. Conclusions

The GEM highlighted research and innovation (R&I) synergies and potential midstream and downstream opportunities to combine complimentary UK and Australian expertise in batteries and REE based magnets across the supply/value chain. Discussions also highlighted the importance to both Australian and UK industry players of the need for a secure future supply chain that meets desired environmental, social and governance (ESG) and sustainability criteria, from mine to end market application.

With respect to critical mineral processing, EV vehicle and battery production, the UK is currently behind China, Asian and EU countries. The need to address this as a priority is heightened by the recent adoption by certain countries of minimum sourcing requirements, in particular the new European Rules of Origin, where 65% of the value of the materials in a battery cell must be from the European Union (EU) and/or the UK to avoid EU tariff charges.<sup>65</sup>

The July 2023, announcement by Tata Group of its plans to build a new Gigafactory in the UK, backed by £500 million in government funding, will further reduce this gap. This significant boost for the EV industry was welcomed by the UK battery ecosystem, and it lays the foundation for building a thriving battery industry in the UK.<sup>66</sup>

The GEM has highlighted a number of key opportunities to collaborate with Australia and develop added value supply chain business for UK industry in the raw materials, technologies and products for the EV passenger, trade and mass transportation vehicles that will be produced in the foreseeable future.

It is clear from UK delegate feedback during the GEM that the realisation of these key collaboration opportunities will need significant Government help and support to deliver the R&I and capital investment funding required to be part of the future global critical minerals supply/value chain, which must include EV battery production.

As part of the next steps, UKRI and Innovate UK will actively progress the opportunities identified with Australia coming out of the GEM. UKRI, though Innovate UK, will work with key OEM, raw material, and intermediary supply chain industry partners. Future activities and focus will build upon the projects and UK Government funded activities already underway to accelerate the identified areas where the UK can take advantage of the R&I and industry opportunities arising from this global clean energy, electric vehicle, and battery technology industrial revolution.

<sup>65</sup> Faraday Briefing. Brexit and Batteries: Rules of Origin

<sup>66</sup> <https://transportandenergy.com/2023/07/18/breaking-news-tata-set-to-announce-ev-battery-gigafactory-plans/>





## 10. Annex 1 – UK participant organisations

---

### UK Delegate

EV Metals UK Limited (part of EV Metals Group)

Green Lithium

Less Common Metals Ltd.

Pensana Plc

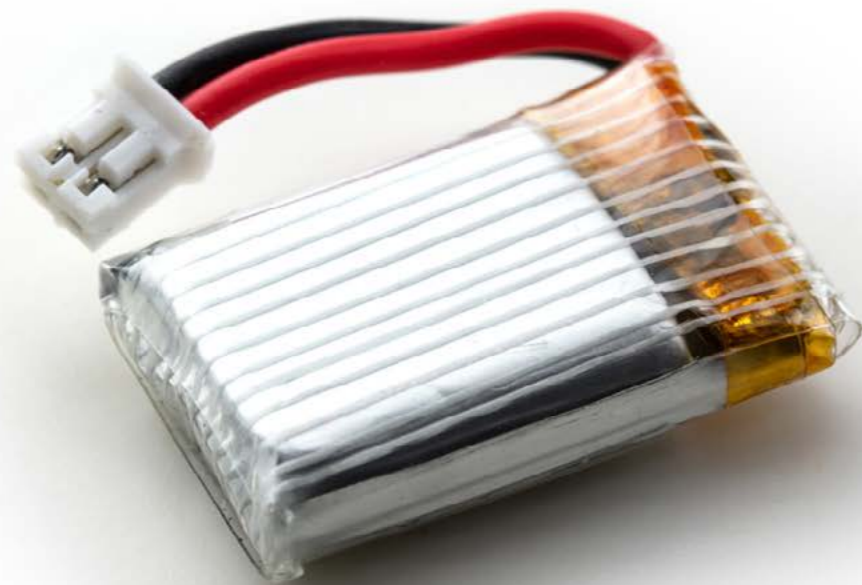
Tees Valley Lithium Ltd.

WAE Technologies (part of Fortescue Metals Group)

WMG International Manufacturing Centre, University of Warwick, Coventry, UK

### UK Association

Critical Minerals Association UK



## 11. Annex 2 – Australian participant organisations

---

Altilium Group Ltd.

ANSTO Minerals (part of part of Australia's Nuclear Science and Technology Organisation)

Ardea Resources Ltd.

Australia National University

CSIRO (Commonwealth Scientific and Industrial Research Organisation)

IGO Ltd.

International Lithium Association

Fortescue Future Industries (part of Fortescue Metals Group)

Future Battery Industries Cooperative Research Centre

Source Certain

Queensland Government - Department of Resources

Government of South Australia – Resources Department

New South Wales State - Mining Exploration and Geoscience, Department of Resources

Northern Territory Government of Australia - Department of Industry, Tourism and Trade,

The Government of Western Australia

- Critical Minerals Team DJTSl, Western Australia State

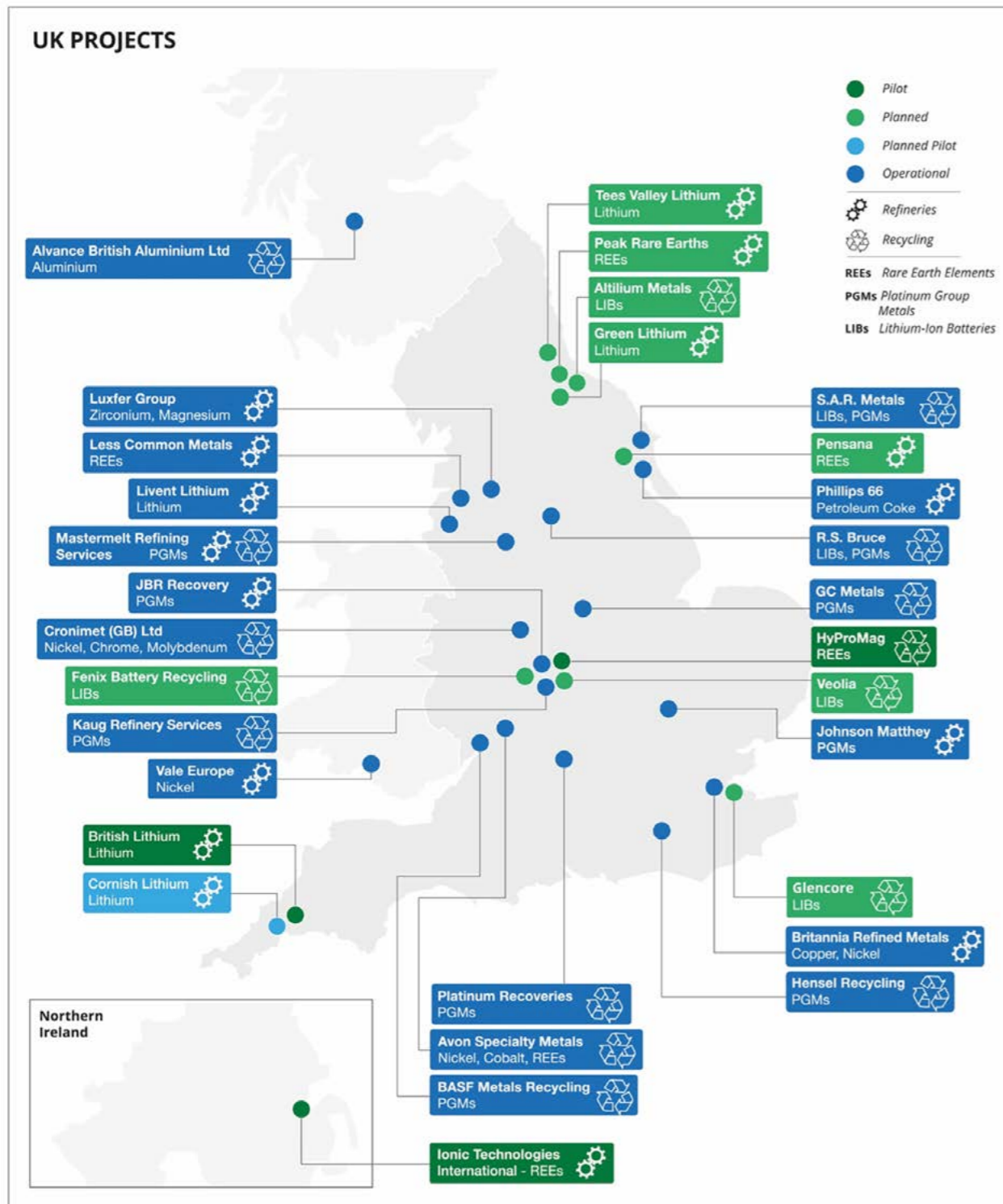
- Department of Mines, Industry Regulation, and Safety, Western Australia State

Sustainable Minerals Institute – The University of Queensland



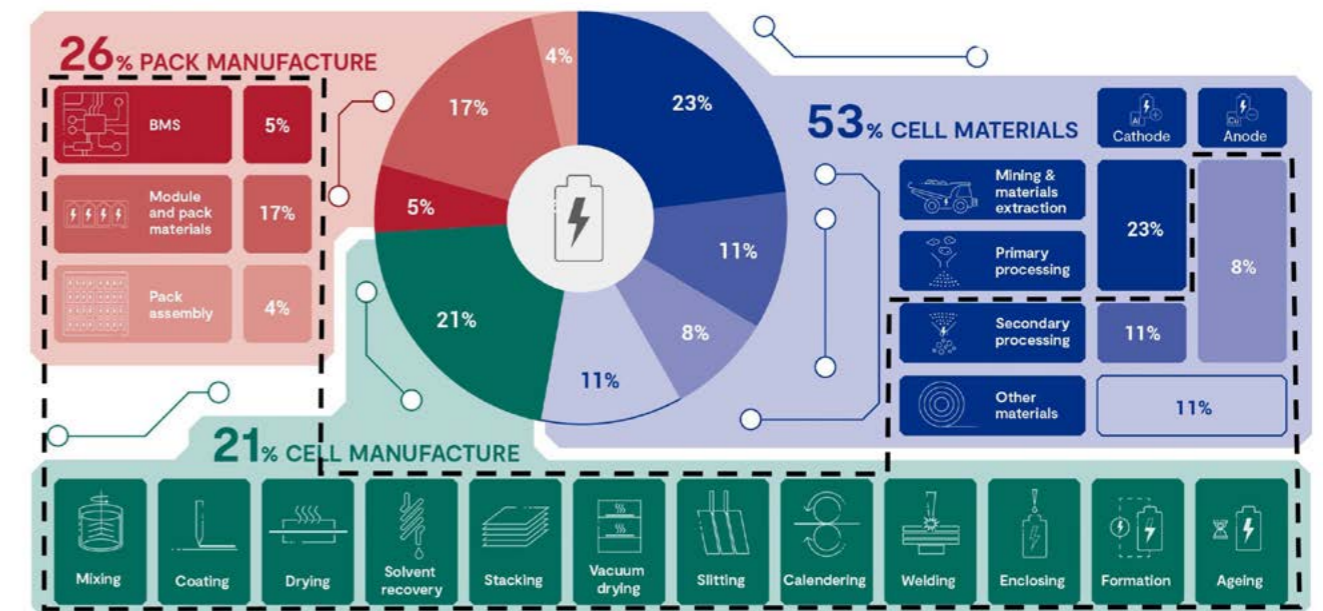
## 12. Appendices

**Appendix 1:** Map of UK critical minerals 2023 projects, detailing activities currently operational or under development and planned to open in the foreseeable future.  
(Source: [Critical Minerals Association United Kingdom, 2023.](#))



**Appendix 2:** Overview of the EV Battery Ecosystem Value Chain  
(Source: Innovate UK GEM Presentation)

### Where is the value?

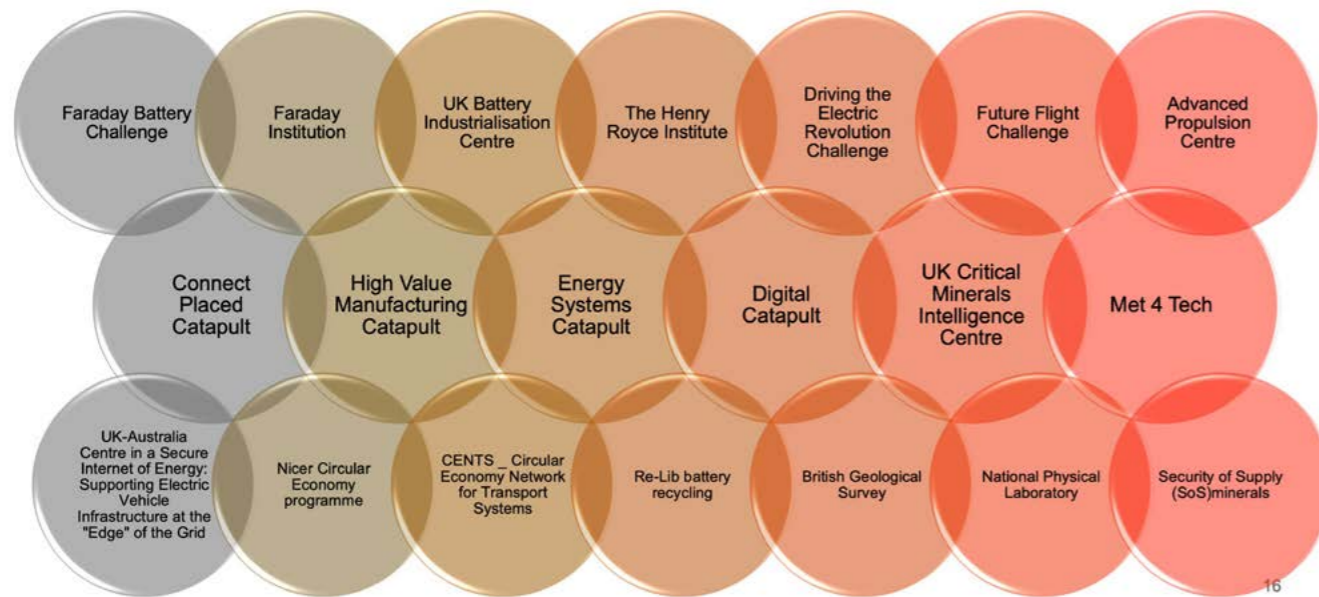


Source: Roland Berger Integrated Battery Cost Model C3

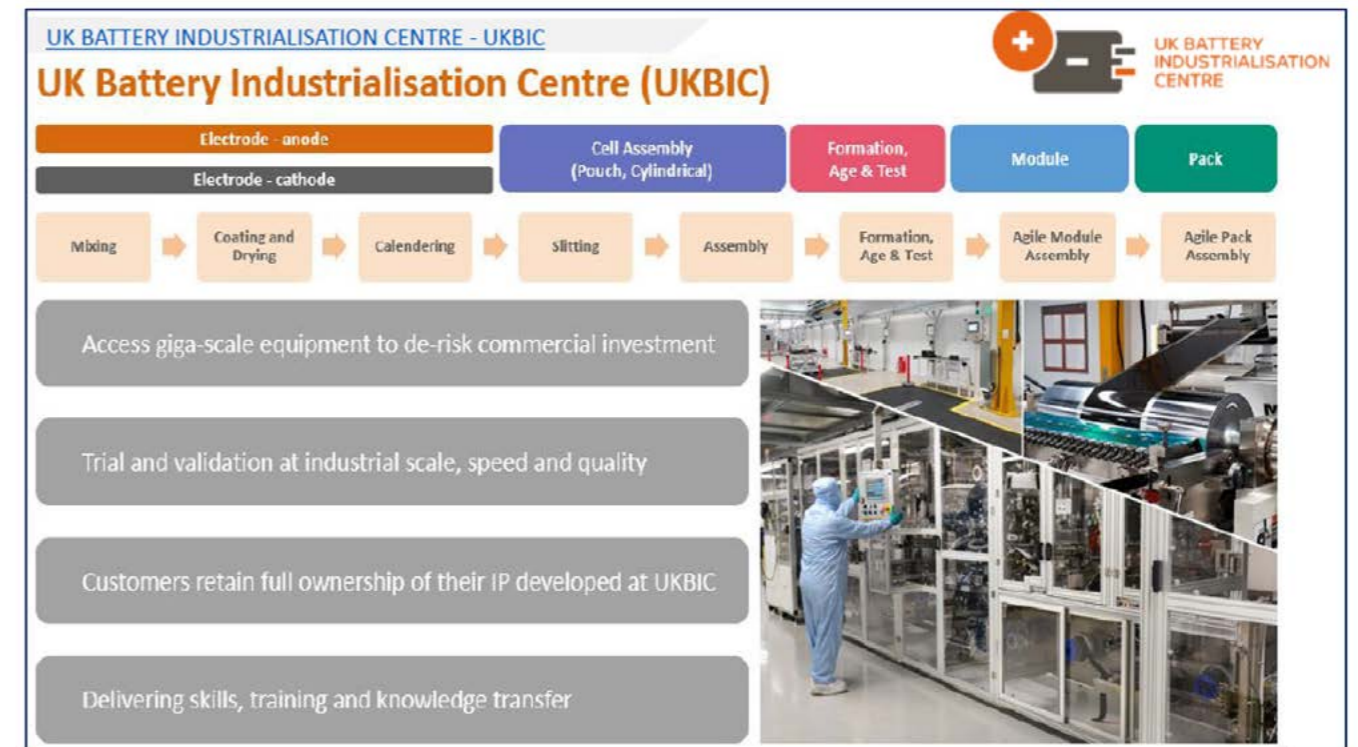


**Appendix 3:** Critical Materials for Electrification - UK Research and Innovation Landscape  
(Source: Innovate UK GEM Presentation)

### Critical Materials for Electrification Research and Innovation Landscape

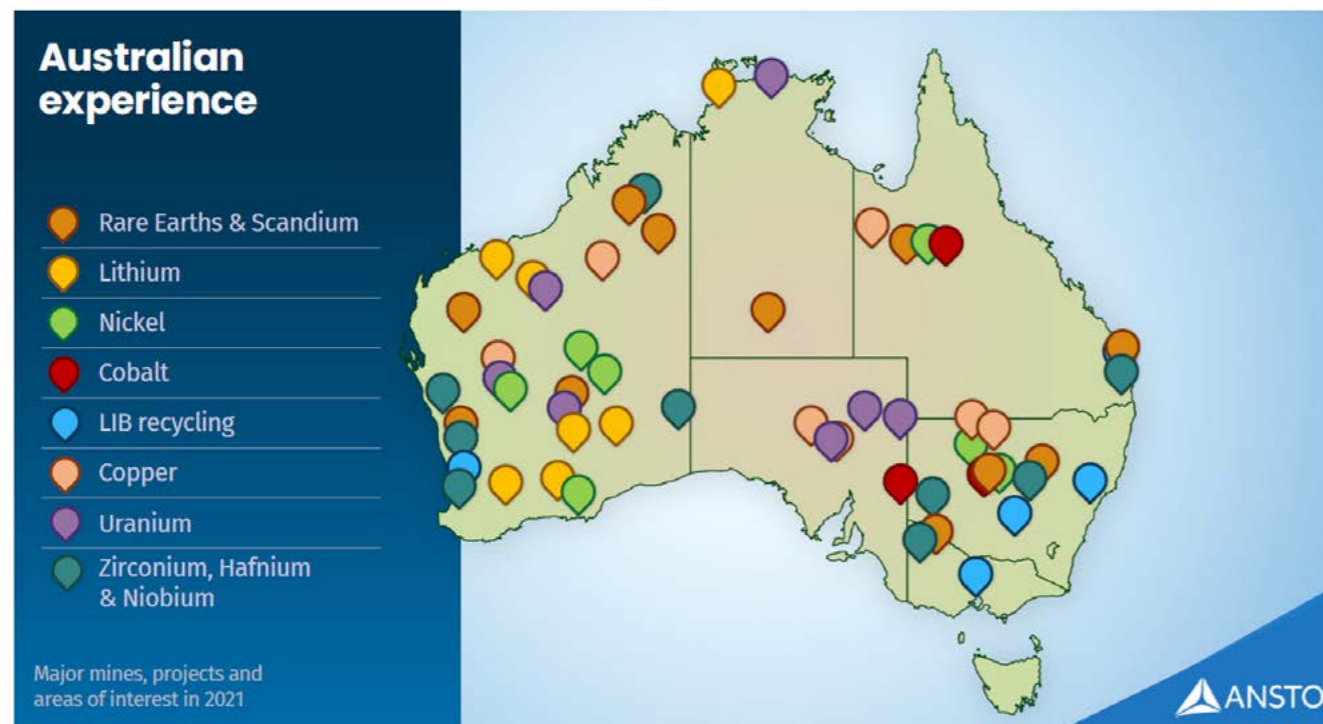


**Appendix 4:** Overview of UKBIC  
(Source: Innovate UK GEM Presentation)





**Appendix 5:** ANSTO: Australian experience - Major mines, projects and areas of interest 2021  
 [Image courtesy of ANSTO]

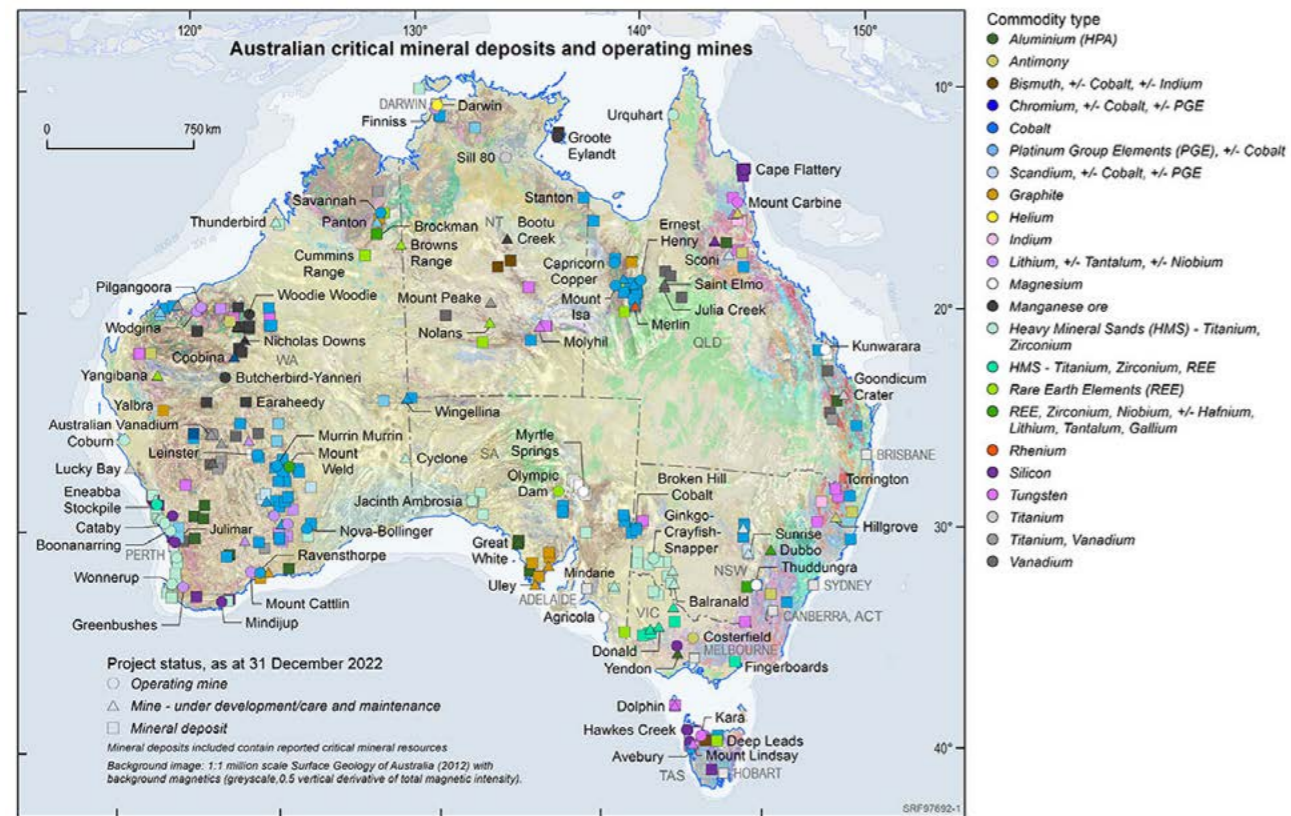


**Appendix 6:** ANSTO: Global critical minerals client base.  
 [Image courtesy of ANSTO]





**Appendix 7: Australian Critical mineral deposits and operating mines**  
 (<https://www.ga.gov.au/scientific-topics/minerals/critical-minerals>)







#### CONTACT

**Dr Geraldine Durand**

[geraldine.durand@iuk.ktn-uk.org](mailto:geraldine.durand@iuk.ktn-uk.org)

Innovate UK drives productivity and economic growth by supporting businesses to develop and realise the potential of new ideas.

We connect businesses to the partners, customers and investors that can help them turn ideas into commercially successful products and services and business growth.

We fund business and research collaborations to accelerate innovation and drive business investment into R&D. Our support is available to businesses across all economic sectors, value chains and UK regions.

Innovate UK is part of UK Research and Innovation.

**For more information visit [ukri.org/councils/innovate-uk/](https://ukri.org/councils/innovate-uk/)**

**Follow us**



**Telephone:** 01793 361000

**Email:** [support@iuk.ukri.org](mailto:support@iuk.ukri.org)

[ukri.org/councils/innovate-uk/](https://ukri.org/councils/innovate-uk/)

© 2023 Innovate UK part of UK Research and Innovation. All rights reserved