

# **Low Carbon Manufacturing Challenge Fund**

## **Business and Regulatory Impact Assessment**

**September 2022**

Partial  
Business and Regulatory Impact Assessment

Title of proposal:

Partial Business and Regulatory Impact Assessment (BRIA) for the Low Carbon Manufacturing Challenge Fund

Purpose and intended effect

The Low Carbon Manufacturing Challenge Fund (LCMCF) was announced in the [Programme for Government \(PfG\) 2020-21](#), and as part of a wider £60 million investment for industrial decarbonisation. It is a £26 million capital Fund, to be delivered over 5 years, to support manufacturing businesses to play their part in the transition to a net zero carbon emissions economy.

The LCMCF will support development of new business models; lead to new products that will drive low carbon transition in the Scottish manufacturing sector; drive collaborative development across supply chains of new manufacturing processes and technologies; develop options to enhance capacity in growth sectors; and exploit opportunities in support of the transition to a circular, net zero carbon economy.

Context

Manufacturing is a vitally important sector of the Scottish economy:

- It is a source of business research and development, and of high-quality employment. Pre-COVID-19 figures show the sector was worth £12.8 billion in Gross Value Added (GVA) – approximately 13% of total GVA – with the largest contributions coming from the food and beverages industry (28.1% of total manufacturing GVA) and repair and installation of machinery and equipment (9.9% of total manufacturing GVA) .
- The Scottish manufacturing sector employed approximately 178,000 people<sup>1</sup>, many in highly-skilled jobs.
- In 2019, there were 9,645 registered enterprises operating in the Scottish manufacturing sector (91% of which were small enterprises with less than 50 employees, and 3% large enterprises)<sup>2</sup>.
- Manufacturing accounts for almost 19,500 circular jobs (over 9% of all circular jobs), with an estimated 19,000 working in remanufacturing.<sup>3</sup>

Our ambition is for Scotland to become the home of manufacturing innovation, to be seen as an inventor and producer, not just a consumer of goods - innovative, thriving and international looking. As part of the wide policy landscape of support for manufacturing, the LCMCF will support manufacturing businesses to decarbonise through waste reduction, embracing circular economy principles and reducing lifetime carbon emissions of products. This will directly contribute to Scotland's economic recovery and future prosperity and supporting the transition to a net zero economy.

<sup>1</sup> Annual Population Survey 2020

<sup>2</sup> 4 Businesses in Scotland 2019 <https://www.gov.scot/publications/businesses-in-scotland-2019>.

<sup>3</sup> [Microsoft Word - Re-manufacturing - Full Report \(zerowastescotland.org.uk\)](#)

The coronavirus pandemic had a devastating effect on Scotland - not only in health terms, but also on the economy. The PfG is based on the strong belief that it cannot be business as usual in recovering from the coronavirus pandemic and there is an opportunity to make significant advances to deliver a fairer, greener, more prosperous Scotland. Central to that recovery is a new national mission to help create new jobs, good jobs and green jobs.

Therefore, the economic recovery must be a green recovery and, even before the pandemic, significant effort was required to meet the statutory commitment to be a net zero society by 2045. Among a number of new and existing initiatives, the LCMCF will play its part in achieving these aims. It is consistent with the aims in the Making Scotland's Future programme to boost productivity among manufacturing firms, including through the stimulation of innovation and investment to help firms compete globally.

Innovation will be supported by our investment of £75 million in the [National Manufacturing Institute Scotland](#) (NMIS). NMIS is already adding to existing services such as the [Scottish Manufacturing Advisory Service](#) (SMAS) to enhance the sector's skills, test new processes or technologies and de-risk investment.

Pre-COVID-19, the Circular Economy Strategy for Scotland indicates there was the potential for remanufacturing and to create an additional £620 million turnover by 2020. Amongst the largest remanufacturing sectors in Scotland are Aerospace, Automotive, ICT and mobile electronics, rail and medical equipment. The global remanufacturing sector is estimated to be worth between \$100 billion and \$200 billion and contributes £1.1 billion to the Scottish economy<sup>4</sup>

#### Objective

The Fund will be managed as an element of the *Making Scotland's Future* programme. In its first phase it will focus on supporting the [Manufacturing Recovery Plan \(MRP\)](#), and is a mix of direct funding and challenge funding. Following the recovery plan period, the LCMCF will be developed along the lines of other Challenge Fund models, and it is envisaged that match funding will be delivered through the Fund. The funding profile announced in the Scottish Budget in January 2021 was expected to be FY 21/22 £0.5m, FY 22/23 £8m, FY 23/24 £1m, FY 24/25 £10.4m, FY 25/26 £6.1m.

The key aims of the Fund are:

- to support innovation in low carbon technology, processes and infrastructure and encourage adoption;
- to build on Scotland's existing high level of expertise and reinforce Scotland's status as a leading exponent of efficient and sustainable manufacturing practices;
- to encourage collaboration and high project standards;
- to better enable firms to enter low carbon markets and/or their existing supply chains.

Rationale for Government intervention

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<sup>4</sup> [Making Things Last: A Circular Economy Strategy for Scotland \(www.gov.scot\)](#)

There is a statutory commitment for Scotland to be a net zero society by 2045, as set out in the [Climate Change \(Emissions Reduction Targets\)\(Scotland\) Act 2019](#). The Scottish Government's [Climate Change Plan](#), commits to reduce emissions in the Scottish industrial sector by taking a sequenced and strategic approach, and creating opportunities for Scottish industries and supply chains to expand into global markets.

A [report by the Scottish Science Advisory Council](#) (SACC) summarises the opportunities and challenges for decreasing emissions associated with the Scottish manufacturing sector, and makes recommendations that are strongly linked with the Making Scotland's Future, COVID-19 Green Recovery Response and Just Transition programmes.

The LCMCF will contribute to achieving these commitments and recommendations by:

- initially, providing capital resource to achieve a number of key outcomes from the Manufacturing Recovery Plan during FY 2021-22, chiefly to drive collaborative development across supply chains of new manufacturing processes and technologies which support the transition to a circular, net zero economy;
- enabling the Scottish manufacturing sector and those supporting them to collaboratively develop options to enhance capacity in growth sectors and exploit opportunities in support of the transition to a net zero carbon economy;
- Using this collaboration to support manufacturing businesses and the wider supply chain to exploit the opportunities from emerging low carbon markets in Scotland, building on existing success and identifying solutions to common challenges and to take advantage of growth opportunities. In doing so, this should increase Scottish manufacturing supply to low carbon markets/sectors and achieve higher in-country content;
- identifying the most promising Scottish opportunities in the transition to net zero, in the context of economic recovery post-COVID-19, to allow Scottish manufacturing to be at the vanguard of economic opportunities;
- dispersing benefits throughout supply chains – utilising existing support infrastructure around low carbon and potentially increasing manufacturing employment opportunities.

#### Consultation

##### Within Government

SG Finance

SG Circular Economy team

SG Consumer Policy & Interventions team

##### Partner Organisations

A meeting was held with Zero Waste Scotland.

##### Public Consultation

A full public consultation *Making Scotland's Future* – a draft Recovery Plan for Manufacturing, and the associated [Partial BRIA](#), was conducted between 4 December 2020 and on 12 February 2021. 53 consultation responses were received for the Recovery Plan. No responses were received for the Partial BRIA.

The Recovery Plan proposed a series of 5 action Adaptation and Transformation points (action points AT1 – AT5), designed to enable manufacturing to become more resilient, productive, digitally enabled, sustainable, domestically and globally competitive and ultimately thrive in a net zero economy as low carbon products become increasingly attractive to consumers and buyers. In particular action point AT2 sets, as an immediate action, how the LCMCF will be used “*to drive collaborative development across supply chains of new manufacturing processes and technologies to support the transition to a circular net zero economy*”. 3 out of the 53 consultation responses provided feedback on this particular action point, with a further 56 individual comments being provided in relation to the Adaptation and Transformation action points.

There will be no public consultation on the LCMCF. Public consultation on the impact of the LCMCF on business will be conducted via publication of the Partial BRIA.

#### Business

The full public consultation on *Making Scotland’s Future* – a Recovery Plan for Manufacturing and the associated BRIA, provided businesses with an initial opportunity to respond to Adaptation and Transformation action points, in particular AT2.

The Recovery Plan, has been designed in collaboration, and through consultation with, the *Making Scotland’s Future* Programme Board and sub-groups consisting of representatives from industry, public sector, trade union and academia.

Further consultation on the LCMCF will take place through Scottish Government engaging with stakeholders from industry, public sector, trade union, academia and partner agencies.

Wider business consultation on the impact of the LCMCF will be conducted via publication of the Partial BRIA.

#### Options

Option 1: do nothing

Do nothing is not an option due to the:

- statutory commitment which the [Climate Change \(Emissions Reduction Targets\)\(Scotland\) Act 2019](#) places upon Scottish Ministers and the Scottish Government for Scotland to be a net zero society by 2045;
- the Scottish Governments commitment, through the [Economic Recovery Implementation Plan](#), to drive investment and deliver jobs in green, net zero digital and high value manufacturing, in response to the recommendations of the independent Advisory Group on Economic Recovery (AGER).

Option 2: Implement the LCMCF

Sectors and groups affected

Those likely to be affected by the introduction of the LCMCF will be as follows:

- manufacturing businesses, employees, contractors, trade unions, suppliers, customers will be directly affected;
- every person in Scotland will be indirectly affected.

## Benefits

Option 1: There are no benefits. Failure to support the Scottish manufacturing sector to transition to low carbon manufacturing will result in:

- longer term damage to business competitiveness and profitability as customer/consumer interest increasingly turns to sustainably produced goods manufactured by wider UK and global competitors;
- a detrimental long term impact on global ecosystem resilience, and Scottish employment and health.

Option 2: Benefits will be as follows:

- every person, as well as future generations, will be indirectly benefited through improved ecosystem resilience, employment and health;
- manufacturers located in Scotland will be better placed to compete domestically and globally in a net zero, circular economy;
- Scottish manufacturers in receipt of funding will become more resilient, productive and sustainable;
- potential to build on Scotland's existing reputation for green industry support, attracting new businesses, and existing businesses looking to expand in, or relocate, to Scotland;
- it is anticipated businesses will directly benefit:
  - with cost savings through collaboration and sharing of equipment, facilities, contacts and expertise;
  - with access to new markets and customers through low carbon manufacturing processes such as remanufacturing and the development of new by-products from recovered waste;
  - by a circular economy reducing the risk of disruption from geopolitical issues, global trade tensions or climate change;
  - through improved relationships with suppliers, employees, local communities and shareholders through mutually beneficial circular strategies;
  - through stronger brand reputations from low carbon manufacturing processes and products;
  - by attracting and retaining talent and investors;
  - by increasing the opportunity for existing businesses, whose products are at risk of becoming obsolete due to increased demand for sustainable products, to diversify;
- the initial shift towards the production of capital goods, such as equipment, machinery and buildings, will result in an increased demand for construction and labour from the non-manufacturing industry sectors;<sup>5</sup>

## Costs

Option 1:

- no implementation costs for Scottish Government;

<sup>5</sup> [Future of manufacturing Energy scenario: Employment implications of the Paris Climate Agreement \(europa.eu\)](https://europa.eu)

- longer term cost to businesses through being uncompetitive domestically and globally;
- businesses having to meet all of the costs of transitioning to low carbon manufacturing;
- affecting company's ability to attract and retain talent and obtain investment;
- longer term cost to ecosystem resilience, employment and health;
- Scottish Government failure to meet statutory requirement to meet net zero target.

#### Option 2:

- the Scottish Government will provide capital funding totalling £26 million to develop low carbon solutions via the LCMCF;
- it will likely be a mix of direct funding and challenge type competitive funding;
- there will be an expectation of match funding from the project partners to support resource and/or capital elements;

#### Scottish Firms Impact Test

It is anticipated the LCMCF, as well as having positive impacts on manufacturers, businesses who operate in other sectors and who supply the manufacturing sector will benefit from the opportunities presented as a result of the opening up of new markets and skills required:

- Core businesses who engineer, manufacture or remanufacture products;
- Enabling businesses such as engineering, businesses who recycle materials and repair products, develop and maintain digital technology, design and redesign products and businesses who provide materials;
- Indirect businesses who provide services to the sector such as delivery companies, and educational institutes and training companies who will be required to equip people with new skills.

Opportunities for the manufacturing sector in a circular economy have been identified as increased productivity and more efficient production, product and supply chain innovation, stronger customer relationships and greater resilience.<sup>6</sup> The remanufacturing of products could potentially reduce the production costs for manufacturers by between 34% and 60%.<sup>7</sup>

1. Pre-COVID-19 the Scottish Government assembled the *Making Scotland's Future* Programme Board, and 4 subgroups of the programme board, with the aim of developing a plan to secure a strong, sustainable future for the Scottish manufacturing sector, in collaboration with enterprise and skills agencies, industry partners, trade unions and academics.

SG response: In recognition of the significant impact COVID-19 has had on the manufacturing sector, the Programme Board and sub-groups met regularly for face to face discussions to discuss and develop Manufacturing Recovery Plan,

<sup>6</sup> [A Manufacturing Future for Scotland: action plan - gov.scot \(www.gov.scot\)](http://www.gov.scot)

<sup>7</sup> [Microsoft Word - Re-manufacturing - Full Report \(zerowastescotland.org.uk\)](http://zerowastescotland.org.uk)

including action points that will enable the sector to make a green recovery, utilising the LCMCF.

2. The independent [report prepared by the Just Transition Commission](#), providing advice to the Scottish Government, sets out the opportunities that manufacturing businesses can exploit, whilst ensuring a just green recovery with:

- the need for domestic manufacturing opportunities resulting from new technologies to mitigate against diversifying away from North Sea oil and gas;
- the need to grow the manufacturing base for next generation energy technologies, accompanied by high-value manufacturing in the supply chain;
- the manufacturing opportunities presented as a result of energy efficiency programmes and low and zero emission public transport;
- the opportunity to exploit the whole-chain and economic and employment opportunity as a result of energy transition, by directly investing in manufacturing facilities to build competitiveness in off-shore wind components and net-zero enabling technology.

SG Response: The LCMCF provides capital investment that businesses require to develop the new technologies, grow the domestic, high-value, manufacturing base and exploit the opportunities that is presented as a result of other sectors transitioning to low or net zero emissions.

3. Transitioning to low carbon manufacturing may be more challenging for small (less than 50 employees) and micro (less than 10 employees) businesses due to costs involved, putting them at a disadvantage to larger companies.

SG Response: The LCMCF will look to use collaboration to enable manufacturing SME's in particular to increase competitiveness for opportunities represented by decarbonisation and the net zero transition, and this is why there are specific actions outlined in the Recovery Plan where the LCMCF could provide support, including:

- running a national innovation challenge to accelerate the development and implementation of new circular manufacturing processes;
- considering if there is additional support infrastructure around low carbon that the LCMCF could support under the action to provide inward investors with facilitated access to Scottish supply chain capability and support infrastructure (e.g. space, health, rail, low carbon);
- build levels of collaboration between manufacturing companies and organisations able to support the transition to net zero;
- support actions around companies working together, e.g. by sharing equipment, facilities, contacts and expertise, and supporting purchase/access to equipment where it is currently available.

4. If Scottish manufacturing businesses do not adapt and transform, there is a significant competitive risk in domestic or international markets with businesses who have transitioned to low carbon manufacturing, particularly in countries who have embraced low carbon manufacturing and circular economies. Increasingly businesses who do not transition to low carbon manufacturing could be threatened



by changes in consumer habits, resulting in their processes and/or products they manufacture eventually becoming obsolete. Scotland's circular economy is already on a par with others in Europe, as more countries across the globe increasingly transition to a circular economy we must do much more to remain competitive<sup>8</sup>.

SG Response: the LCMCF is consistent with the aims in the *Making Scotland's Future* programme to boost productivity among manufacturing firms, including through the stimulation of innovation and investment to help firms create competitive advantage in net zero markets through innovation in circular manufacturing processes; shared equipment/facilities for R&D in low carbon innovation; enable pilots, testing for diversification and low carbon start-ups; demonstration schemes to encourage adoption of low carbon products/processes.

5. The transition to low carbon manufacturing will cause restructuring and downsizing in some parts of the manufacturing sector<sup>9</sup>. It is widely accepted that the net effect will be positive, however comprehensive planning and retraining and skills upgrading measures will be required.

Developing and understanding the roles and skills required for jobs in a low carbon manufacturing circular economy is required to address the skills gaps and ensure that business do not struggle to find the right talent, skill sets and leadership required.

SG Response: the LCMCF will help businesses support the development and training which employees require and through collaboration with partner organisations, such as Scottish Enterprise, Skills Development Scotland and the National Manufacturing Institute of Scotland (NMIS), skills gaps will be identified and addressed.

6. Reverse logistic costs for the transport of large or bulky items for the remanufacture of goods, particularly in rural areas, and the storage of storing large volumes of re-used components, may hamper businesses ability to remanufacture goods due to the costs involved<sup>10</sup>

SG Response: under the Fairer Scotland Duty, the Scottish Government has a duty to pay due regard to how they can reduce inequalities and socio-economic disadvantage under the Equality Act 2010; and the Scottish Government's National Islands Plan sets out our commitment to aligning with our ambitious recycling targets<sup>11</sup>. Fulfilling these obligations are at the heart of the LCMCF, and as a result the LCMCF will be available to support businesses throughout Scotland to transition to low carbon manufacturing.

The BRIA consultation period will allow businesses to provide more information about any potential barriers, and how these can be overcome.

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<sup>8</sup> [ZWS1543 Future of Work - Emp & Skills report FINAL v2 SML.pdf \(zerowastescotland.org.uk\)](#)

<sup>9</sup>

<sup>10</sup> [Microsoft Word - Re-manufacturing - Full Report \(zerowastescotland.org.uk\)](#)

<sup>11</sup> [The National Plan for Scotland's Islands - gov.scot \(www.gov.scot\)](#)

7. Low carbon manufacturing activities such as remanufacturing currently involve a large number of SME's, however, data is more readily available from larger manufacturers. A lack of baseline information for SME's could skew remanufacturing potential by over or under estimating the impact of barriers<sup>12</sup>.

SG response: the LCMCF BRIA consultation period will allow SME's to provide more information about the barriers presented.

8. Low carbon manufacturing products, such as remanufactured products, can be viewed by consumers as being of inferior quality, limiting their appeal, and remanufacturing can be poorly understood, with consumers being unwilling to consider remanufactured products even when competitively priced. Often new low cost imports are perceived to be of higher quality than even remanufactured higher specification "brand" products<sup>13</sup>. This could result in businesses struggling to find a market for remanufactured products.

SG response: the Scottish Government is researching the potential for incentivising the decarbonisation of energy-intensive manufacturing industries, which also looks at the consumer attitudes to lower carbon products. The LCMCF BRIA consultation period will allow businesses to provide more information about what support is required to increase the customer appeal of remanufactured goods.

## Competition Assessment

The opportunities that the capital investment the LCMCF provides will have a bearing on economic activity. We have taken every step to ensure that this government investment does not restrict competition in a low carbon manufacturing market. The aim of the LCMCF is to promote competitive collaboration between Scottish manufacturers, and give all Scottish manufacturers a global advantage in a circular global economy. See Annex A for the full Competition Market Impact Assessment.

Option 1: LCMCF is not introduced.

- this could result in longer term cost to businesses through loss of the competitive boost provided by the funding;
- businesses having to bear the brunt of all costs of transitioning to low carbon manufacturing;
- large businesses with a greater turnover, will be better placed to invest in the research, development and introduction of low carbon manufacturing processes, and attracting and retaining talent, to the detriment of smaller businesses;
- international companies may find Scotland a less attractive place to continue, or locate, business;
- SME's will struggle more to invest in research, development and introduction of low carbon manufacturing processes;
- talent supporting LCMCF projects may remain undeveloped, or not be retained;

<sup>12</sup> [Microsoft Word - Re-manufacturing - Full Report \(zerowastescotland.org.uk\)](#)

<sup>13</sup> [Microsoft Word - Re-manufacturing - Full Report \(zerowastescotland.org.uk\)](#)

- Scottish manufacturers may be unable to meet customer demand for sustainably produced goods, and customers may seek goods from other countries which are produced through low carbon manufacturing;
- original manufacturers may remain at a remanufacturing advantage to other businesses due to knowledge of the original manufacturing processes<sup>14</sup>;
- businesses may be less able to transition due to skills shortages of technically skilled engineers in the manufacturing sector<sup>15</sup>, with smaller businesses potentially losing talent to larger manufacturers who may be able to offer more attractive terms of employment;
- existing barriers, such as access to end of life products that enables low carbon manufacturing processes, such as remanufacturing, and technical problems that prevent remanufacturing, are likely to continue.

Option 2: LCMCF is introduced.

- businesses with a location in Scotland will be more able to compete with businesses, domestically and globally, in a low carbon manufacturing, circular economy;
- small and medium sized businesses will be better supported, through the award of funding, to transform to low carbon manufacturing, allowing them to better compete with larger companies who may be better placed to invest in transformation, research and development and skills development;
- new market opportunities, in existing and emerging markets, for business should be available as a result of LCMCF investment;
- the funding which the LCMCF provides will support Scottish manufacturers to develop the processes needed to manufacture, and meet increasing customer demand, for sustainably produced goods;
- knowledge on products manufactured using low carbon manufacturing processes will be shared and new remanufacturing skills and processes developed allowing non-original manufacturers to compete with original manufacturers. As technologies shift, manufacturers/remanufacturers will be supported to make advances in their processing technologies to ensure the end product matches the performance of new products
- Low cost, new product, import competition has the potential to hinder Scottish based manufacturers ability to achieve sufficient sales of goods manufactured through low carbon manufacturing processes to make low carbon manufacturing business models financially viable. However, remanufacturing could be limited to high cost products, with low-cost products being recycled<sup>16</sup>.
- Low carbon manufacturing will allow companies to remain competitive and resilient, through remanufacturing and recycling, in markets where the virgin raw materials required to manufacture products become scarce;

Consumer Assessment

<sup>14</sup> [Microsoft Word - Re-manufacturing - Full Report \(zerowastescotland.org.uk\)](https://www.zerowastescotland.org.uk)

<sup>15</sup> [Microsoft Word - Re-manufacturing - Full Report \(zerowastescotland.org.uk\)](https://www.zerowastescotland.org.uk)

<sup>16</sup> [Microsoft Word - Re-manufacturing - Full Report \(zerowastescotland.org.uk\)](https://www.zerowastescotland.org.uk)

There is evidence that consumers consider the environment and carbon production when deciding to make a purchase and there is a growing consumer interest in sustainability. However, they do not always make the sustainable choice:

- two thirds of people in Scotland are fairly or very worried about climate change, with only 11% not worried. Levels of concern vary by age, with over 65s less likely to be worried.
- 45% of Scottish consumers have made a conscious sustainable choice when buying electrical products and around 40% when making clothing or household choices. Price and availability are the biggest barriers to consumers making a sustainable choice<sup>17</sup>.
- despite business decisions being characterised as being profit driven, some businesses consider the environment when making purchases for ethical and profit reasons.
- the price of products does not always reflect the real environmental or social cost of producing them, such as pollution effects or unpaid labour, impacting on the health and quality of life of people, and 71% of people have said they do not always understand what is the greenest choice<sup>18</sup>. When goods are produced, sales growth is based on planned obsolescence i.e. products have shorter useful lives and so people will consume more of them<sup>19</sup>.
- low carbon manufacturing products, such as remanufactured products, can be viewed by consumers as being of inferior quality, limiting their appeal, and remanufacturing can be poorly understood, with consumers being unwilling to consider remanufactured products even when competitively priced. Often new low cost imports are perceived to be of higher quality than even remanufactured higher specification “brand” products<sup>20</sup>.
- there are potential cost savings for consumers buying remanufactured goods over new<sup>21</sup>.

Nearly half of the UK’s carbon footprint comes from emissions released overseas to satisfy UK-based consumers. Products including clothing, processed goods and electronics imported into the UK are counted as the manufacturing country’s emissions - not the UK’s, however, they would not have been produced if it wasn’t for UK demand. These emissions account for 46% of the UK carbon footprint but are not included in the UK net zero target<sup>22</sup>.

The LCMCF has the potential to contribute to a scenario that will better allow consumers to make purchase decisions on an increased range of high quality, affordable, sustainable and locally produced goods that are manufactured through low carbon manufacturing.

Providing consumers with information can be a powerful tool in driving consumer consumption towards green products. In order for a Scottish low carbon manufacturing sector to be successful and profitable, there is a clear need to

<sup>17</sup> [Consumer Insight Report 2021 Scotland - Which? Consumer Insight](#)

<sup>18</sup> [Consumer Insight Report 2021 Scotland - Which? Consumer Insight](#)

<sup>19</sup> [Consumer society and the environmental impact on the planet \(activesustainability.com\)](#)

<sup>20</sup> [Microsoft Word - Re-manufacturing - Full Report \(zerowastescotland.org.uk\)](#)

<sup>21</sup> [Microsoft Word - Re-manufacturing - Full Report \(zerowastescotland.org.uk\)](#)

<sup>22</sup> [UK’S Carbon footprint | WWF](#)

educate customers how to understand the overall benefits of making the greener choice and encourage consumers to be more open to purchasing goods that have been manufactured using low carbon sustainable processes and materials.

Bearing in mind that there are constraints on the interventions that Scottish Government can use as a result of a number of matters being reserved by UK Government or international law, the LCMCF is a proactive intervention by the Scottish Government to ensure that more goods manufactured in Scotland are low to net-zero.

#### Test run of business forms

Scottish Government will not be publishing any business forms.

#### Digital Impact Test

Our ambition is Scotland to become a world leader in low carbon manufacturing - the home of a thriving, innovative low carbon manufacturing sector and producer of goods. To achieve this ambition, the research, development and introduction of new technology, such as automation and artificial intelligence, is required.

Many experts believe we are now in the midst of a fourth industrial revolution, with a 5<sup>th</sup> industrial revolution in the near future. New technologies are upgrading old technologies and automated systems and machinery have revolutionised mass production processes.

The LCMCF provides some businesses with the opportunity to make the vital advancement in technology that the Scottish manufacturing sector needs. Digital manufacturing solutions will help the Scottish manufacturing sector take a leading role in contributing to a more sustainable and circular economy.

In 2017, there were over 297,000 industrial robots at work in Japan, and there are 237,000<sup>23</sup> in the USA. 2.7 million industrial robots are at work on production lines globally<sup>24</sup>. It is forecast that robot unit shipments globally in 2021<sup>25</sup> will amount to the installation of:

- China – 310,000
- Japan – 64,000
- USA and South Korea – 46,000
- Germany - 26,000

industrial robots in these countries. The global market of conventional robots in manufacturing is expected to reach almost \$15 billion and advanced robotics \$3.7 billion<sup>26</sup>.

<sup>23</sup> [How Technology is Changing the Manufacturing Process - TechnologyHQ](#)

<sup>24</sup> [IFR presents World Robotics Report 2020 - International Federation of Robotics](#)

<sup>25</sup> [Industrial robots global supply by country | Statista](#)

<sup>26</sup> [Industrial robots global supply by country | Statista](#)

In 2017, there were 71 robots per 10,000 employees in the UK manufacturing sector, compared to 300 in Germany and 200 in Sweden. The UK is investing in robotics, but there is a lack of digital development and manufacturing of robotic technology in the UK<sup>27</sup>. Historically, the UK has been focused on the potential threat of digitalisation, robotics and automation replacing employees in the manufacturing sector, however evidence now suggests that the transition to a low carbon manufacturing sector will create more high value and skilled jobs in the sector than jobs lost.

COVID-19 had a significant impact on the ability of manufacturing sector to work to full capacity, due to the need for physical distancing, and reducing many manufacturers ability to have a full workforce on site. To work at full capacity, many of the existing processes in Scottish manufacturing sites require employees to work in close proximity. With much uncertainty in a world where future pandemics could pose significant health risks in the years to come, and taking into account the existing health and safety risks posed by current machinery and processes, the need for the introduction of new technologies to make manufacturing sites a safer place to work and undertake training is paramount.

Brexit has resulted in a different relationship existing between Scotland, the wider UK and the EU. The introduction of new technology in the manufacturing sector provides an opportunity for some Scottish manufacturers to better meet the demand from outside the EU and assist in the development of new products for new markets<sup>28</sup>.

Regardless of the pressing need for a low carbon manufacturing sector in order to reduce carbon emissions in the environment, if new technology is not developed and introduced to the Scottish manufacturing sector, many Scottish manufacturers will be unable to compete domestically or globally and many businesses will eventually become unviable.

#### Legal Aid Impact Test

Businesses are not eligible for legal aid. No impact is anticipated.

#### Enforcement, sanctions and monitoring

- The LCMCF is administered by Scottish Enterprise, with applications to the fund being appraised by the Large Grants Appraisal Team (LGAT) and subject to a number of due diligence checks in line with their Sanctions Checks policy and guidance.
- Scottish Enterprise will ensure that projects are able to be completed within 36 month and demonstrate the following:
  - Represent a significant innovation for the company
  - Are a low carbon project
  - Meet Scottish Government Fair Work criteria
  - Is of strategic importance to the company

<sup>27</sup> [Manufacturing the future of robotics: The state of the UK robotics industry | Events News | Factory & Handling Solutions \(factoryandhandlingsolutions.co.uk\)](#)

<sup>28</sup> [What manufacturers need to do after the Brexit transition period | Sage Advice United Kingdom](#)

- Will deliver commercial benefits to Scotland’s economy
- Will create and/or safeguard jobs
  - How research and development spend and/or related jobs will be increased as a result of funding
- The project activity must fit within the EU’s definitions of ‘industrial research’, ‘experimental development’, ‘feasibility studies’, ‘process innovation’, ‘capital investment’ or ‘environmental aid’ and will conform with subsidy control rules.

#### Implementation and delivery plan

- The LCMCF policy has been developed in collaboration with Enterprise Agencies and other relevant partners. It also applies many key learnings taken from a related SSAC report<sup>29</sup>.
- The LCMCF will be implemented by Scottish Enterprise who have been involved in the process during design and conception phases.
- All decisions on the award of funding will be by Scottish Enterprise.
- The timetable for implementation is that an open call will run from 19 May 2022 with funding available until 31 March 2026
- The LCMCF was first publically announced in the [Programme for Government \(PfG\) 2020-21](#), as part of a wider £60 million investment for industrial decarbonisation. Our Manufacturing Recovery Plan contained a commitment to use LCMCF and other funds to drive collaborative development across supply chains. The fund was launched on 19 May 2022.

#### Post implementation review

- A review of the LCMCF will take place after implementation to assess whether the policy objective is being met. This review will be consistent with Scottish Enterprise’s robust project review processes. As part of the review process, views will be sought from industry representatives, partner organisations and individual businesses to identify:
  - whether the impacts, including costs and benefits, have been as expected;
  - any unforeseen unintended consequences;
  - whether further government intervention is required.

#### Summary and recommendation

This document is the Partial Business Regulatory Impact Assessment (BRIA), and provides an initial assessment of the impact which the introduction of the LCMCF will have on the Scottish manufacturing sector.

The LCMCF will provide essential capital funding that Scottish manufacturing businesses need in order to be able to compete in a domestic and global low carbon manufacturing circular economy. Further potential impacts will be identified via a 12 week public consultation on the Partial BRIA, including consultation with businesses, business organisations and trade unions.

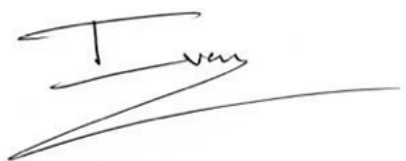
<sup>29</sup> [SSAC Report - Environmental Impacts of the Scottish Manufacturing Industry | The Scottish Science Advisory Council](#)

### Summary costs and benefits table

Scottish Government is investing £26 million in the LCMCF. Businesses who apply for funding will be expected to also provide a contribution to project costs in addition to the Scottish Government investment. The LCMCF doesn't provide 100% of funding towards eligible project costs. The level of grant support will be determined dependent upon project activity, the size of your company and the location of the project.

### Declaration and publication

Signed:

A handwritten signature in black ink, appearing to read 'Ivan McKee', with a long horizontal flourish extending to the right.

Date: 20/09/2022

Minister's name: Ivan McKee

Minister's title: Minister for Business, Trade, Tourism and Enterprise

Scottish Government Contact point: Advanced Manufacturing Team, Scottish Government [midamp@gov.scot](mailto:midamp@gov.scot)



## Competition Market Impact Assessment: Low Carbon Manufacturing Challenge Fund

1.	Does the measure affect a market where products or services are supplied by private or public sector organisations.	Yes
2.	Is there likely to be a restriction of competition?	No. Funding opportunities are open to all manufacturing businesses based in Scotland
3.	Will the measure directly or indirectly limit the number or range of suppliers?	<p>In order for a Scottish low carbon manufacturing sector to be successful in a circular economy, the range of suppliers to whom the LCMCF will be available will be limited to those who operate under, or plan to adopt an approach to, low carbon manufacturing.</p> <p>This will directly result in Scottish based manufacturers, not do not meet the criteria, being unable to obtain funding. It may also indirectly result in businesses who do not, or cannot, offer low carbon products, leaving the market where the demand for these products reduces and leaves businesses unviable. This may result in any residual demand for these goods having to be sourced from outwith Scotland. However, it is anticipated that the developments in low carbon manufacturing will eventually become mainstream processes, with businesses being able to access technologies developed.</p> <p>The effect of low carbon manufacturing on the costs to suppliers is unknown and will need to be explored further. However there are indications that low carbon manufacturing techniques, such as 3D printing, can result in a reduction of the cost of materials, such as resin, due to the huge increase in their demand<sup>30</sup>.</p> <p>The LCMCF does not introduce any licencing schemes that limits the numbers of suppliers or controls quality. However, businesses will be required to adhere to any quality standards imposed on them by legislation or regulation.</p>
4.	Will the measure limit the ability of suppliers to compete?	As the LCMCF is aimed at all manufacturers in Scotland, all businesses who have a manufacturing premises in Scotland, and meet the LCMCF criteria for funding, have equal opportunities to compete. The LCMCF imposes restrictions in that the funds must be used only for the purpose for which the funds are granted and not used for any other purpose.

<sup>30</sup> [Carbon Dramatically Reduces Resin Cost, Increases Manufacturing Possibilities « Fabbaloo](#)

		<p>In order to make low carbon manufactured products attractive to consumers, companies will need to ensure that pricing is competitive with products currently on the market, manufactured through higher carbon emission processes, and with products which may be available cheaper from other countries.</p> <p>More information on how prices will be influenced and controlled to guarantee competitiveness is required.</p> <p>There will be no restriction on the geographic area in which a manufacturer can import and export. Circular economy strategies emphasise the benefits of being able to develop technology, source materials, manufacture, sell and deliver products within local distances, however it is recognised that in order to compete on a global scale, some materials may need to be sourced from outwith the Scotland, and products exported within the UK and internationally.</p> <p>Other than the need for businesses to comply with advertising standards regulations and guidance, will be no restrictions on businesses being able to advertise their products.</p> <p>The LCMCF imposes restrictions on production processes, in that these must comply with the spirit of the LCMCF and funds used to develop the technology, processes and skills required for low carbon manufacturing.</p>
5.	Will the measure limit suppliers' incentives to compete vigorously?	The LCMCF incentivises businesses to collaborate, rather than competitive, in the development of the technology, processes and skills required for low carbon manufacturing.
6.	Will the measure limit the choices and information available to consumers?	<p>The effect of low carbon manufacturing on the costs of products, manufactured by low carbon manufacturing companies, to consumers is unknown and will need to be explored further. However there are indications that low carbon manufacturing techniques, such as 3D printing, can result in a reduction of the cost of materials due to the huge increase in demand. It anticipated that as the production cost to businesses reduces, these savings will be passed to consumers.</p> <p>The transition to a low carbon manufacturing sector will increase consumer choice when making purchasing decisions. A greater range of sustainable products from a greater range of low carbon manufacturers will be available. However, this may result in the availability of lower cost, high carbon, products reducing, which could potentially have a negative impact on consumers at the lower end of the socio-economic scale who may find that "green" choices are unaffordable.</p>

		<p>Evidence shows that consumers have difficulty in identifying “green” purchase options and many think “green” options are inferior quality. Many would prefer to buy a new low cost item rather than a remanufactured or repaired branded item. This would indicate that consumer education is required and that low carbon manufactured goods are clearly labelled.</p> <p>It is unknown whether there will be a consumer cost increase of switching from high to low carbon manufactured goods. More information is required, however it is anticipated that low carbon manufacturing will result in products which have an extended lifespan, and as a result, may be more expensive to initially purchase. However, longer term, the cost to consumers will be off-set as a result of not having to replace goods as often.</p>
7.	<p>Will the LCMCF lead to worsening market trends, demand and supply conditions, and will market outcomes get worse?</p>	<p>Working towards a low carbon manufacturing circular economy is at the very heart of the LCMCF. As such, the ambition is to decrease consumption levels of resources, and manufacture recyclable products which have an extended lifespan. This will result in a decrease in sales of new products, but new and revitalised markets in remanufacturing, repairs, maintenance and recycling will emerge. Original manufacturers will be able to extend their business models to capture these new markets and new business opportunities will emerge for other companies.</p> <p>Products with an extended life-span could potentially to be more expensive to produce due to being of more durable materials and quality, however it would be expected this would be reflected in the consumer price, which will off-set any reduction in consumption levels.</p> <p>Innovation in technology, product characteristics and business models will be required in the transition towards a low carbon manufacturing sector. The LCMCF promotes cooperation between companies through collaboration and sharing of resources, and foster positive working partnerships between Scottish manufacturers.</p> <p>The increased availability of low carbon products manufactured in Scotland will remove existing consumer obstacles and make it easier for consumers to source and purchase these products.</p>



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