

# **Low Carbon Manufacturing Challenge Fund**

## **Equality Impact Assessment and Fairer Scotland Duty**

### **Results**

**September 2022**



**Scottish Government**  
Riaghaltas na h-Alba  
gov.scot

**Title of Policy:** Low Carbon Manufacturing Challenge Fund (LCMCF)

**Summary of aims and desired outcomes of Policy:**

The LCMCF is a new capital fund of £26 million, over five years, and was announced in the [Programme for Government \(PfG\) 2020-21](#).

Whilst the main aim of the fund is to support manufacturing businesses to seize the opportunities from the Scottish Government's legal duty to achieve net zero emissions by:

- supporting innovation in low carbon technology, processes and infrastructure and encourage adoption;
- encouraging collaboration and high project standards;
- better enabling firms to enter low carbon markets and/or their existing supply chains.

the opportunities that the fund presents will be exploited to tackle the inequalities and social inequalities faced by people with protected characteristics in workplaces and society, and which have been exacerbated by the coronavirus pandemic.

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**Executive Summary**

This document supports consideration of the impact of the Low Carbon Manufacturing Challenge Fund (LCMCF) on people with protected characteristics.

The Scottish Government is mindful of the three needs of the Public Sector Equality Duty (PSED) - eliminate unlawful discrimination, harassment and victimisation, advance equality of opportunity between people who share a protected characteristic and those who do not, and foster good relations between people who share a protected characteristic and those who do not<sup>1</sup>. Therefore the LCMCF has been designed to take into account the needs of the PSED when considering how the fund will operate.

Where any negative impacts have been identified, we have sought to address this by considering how the fund can be operated in such a way as to mitigate any negative impacts. We are also mindful that the equality duty is not just about negating or mitigating negative impacts, as we also have a positive duty to promote equality. We have sought to do this through considering how the fund can have a positive impact on reducing inequality.

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<sup>1</sup> Section 4 of the Equality Act 2010

The LCMCF recognises there will be positive impacts across many of the protected characteristics through the:

- opportunities that the fund provides for new, good green, high value jobs for people with protected characteristics;
- opportunities to break down existing barriers to careers in the sector through the introduction of new technology and processes as a direct result of the fund;
- opportunity to close existing pay gaps through the recruitment, or reskilling, of people with protected characteristics to undertake new jobs, transformed jobs or substituted jobs;
- wider societal benefits for people with protected characteristics throughout Scotland as a result of the transformation of the manufacturing sector to a low carbon manufacturing sector that contributes to a circular economy and net zero targets.

The LCMCF has the potential to impact all those who are involved in the Scottish manufacturing Industry, such as employers, employees, trade unions and workplace representatives, workplace contractors, customers and suppliers. It has been identified that the fund may have some impact on all 9 protected characteristic groups, with some groups being more impacted than others. Where any negative impacts have been identified, we have sought to address these.

### **Fairer Scotland Duty**

The Scottish Government are required by the Fairer Scotland Duty (which forms part of the Equality Act 2010) to actively consider ('pay due regard' to) how to reduce inequalities of outcome caused by socio-economic disadvantage and to consider alternative options to maximise our impact. This impact assessment incorporates the LCMCF Fairer Scotland Duty Assessment.

As a longer term aim, the LCMCF should result in a positive effect on low paid, vulnerable, workers in the manufacturing industry by creating a platform for the creation of good green jobs in the Scottish manufacturing sector, provide opportunities for people to upskill and move into well paid, high value jobs, and support the sector as it transitions to low or zero carbon emissions.

More immediately, we will seek to ensure that any grant funding paid to businesses will be in line with existing SG policies, such as the Scottish Government's commitment to the [Scottish Business Pledge](#), based on boosting productivity and competitiveness through fairness, equality and sustainable employment; and [Scottish Government's Fair Work Action Plan: Annual Report](#) in the absence of control over employment laws, the Scottish Government are using their spending powers to leverage employers commitment to Fair Work. Fair Work policy and Fair Work First<sup>2</sup> criteria is being applied to grants and funding awarded by the public sector. This includes asking employers to adopt the following: investment in workforce development; appropriate channels for effective voice, action to tackle gender pay gap and create a more diverse and inclusive workplace; no inappropriate use of zero hour contracts; payment of the real living wage; offer flexible and family friendly working; oppose the use of hire and rehire.

### **Background**

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<sup>2</sup>[Fair Work First: guidance - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/fair-work-first/guidance/pages/11.aspx)

The Low Carbon Manufacturing Challenge Fund (LCMCF) is a new capital fund of £26 million, over five years, and was announced in the [Programme for Government \(PfG\) 2020-21](#).

Manufacturing is a key source of business research and development, and of high-quality employment. Pre-COVID-19 figures show the sector was worth £12.5 billion in Gross Value Added (GVA) – approximately 13% of total GVA – and employed approximately 169,000<sup>3</sup> people (6.5% of all total employment in Scotland), with 21.4%<sup>4</sup> of those in highly-skilled jobs (compared to 27.6% of all those working in Scotland as a whole).

Manufacturing generates almost 19,500 circular jobs\*<sup>5</sup> (over 9% of all circular jobs). The remanufacturing industry in Scotland employs an estimated 19,000 people - over 9,000 directly in circular jobs in the manufacturing of products and over 10,000 in repair<sup>6</sup>. The Circular Economy Strategy for Scotland indicated remanufacturing could potentially create an additional £620 million turnover and create 5,700 jobs.<sup>7</sup>

The aim of the LCMCF is to support manufacturing businesses to seize the opportunities from the Scottish Government's legal duty to achieve net zero emissions by 2045.

The key aims of the Fund are:

- to support innovation in low carbon technology, processes and infrastructure and encourage adoption;
- to encourage collaboration and high project standards;
- to better enable firms to enter low carbon markets and/or their existing supply chains.

The Fund is consistent with the aims of the [Making Scotland's Future](#) programme and the [Manufacturing Recovery Plan \(MRP\)](#) - to boost productivity among manufacturing firms, including through the stimulation of innovation and investment to help firms compete globally.

Innovation, training and upskilling the workforce 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.

The direct effect of the Fund will be on manufacturing businesses in Scotland – they will be able to secure funding to undertake R&D projects in the challenge areas identified. The greatest immediate impact of the funding will be on those people employed by or in the communities of the organisations involved in funded projects.

The Fund will be outcomes-focused and the long-term aim is to effect changes that will help the transition to a low carbon economy, playing its part in meeting the net zero emissions target set by the Scottish Government for 2045. As such, successful achievement of the aims of this Fund could indirectly benefit every person in Scotland, as well as future generations, through improved ecosystem resilience, employment, health

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<sup>3</sup> Business Register Employment Survey (BRES) 2019

<sup>4</sup> Annual Population Survey 2019

<sup>5</sup> \* any occupation that directly involves or indirectly supports one of the strategies of the circular economy

<sup>6</sup> [Microsoft Word - Re-manufacturing - Full Report \(zerowastescotland.org.uk\)](#)

<sup>7</sup> [Making Things Last: A Circular Economy Strategy for Scotland \(www.gov.scot\)](#)

and Scotland's increased industrial competitiveness. As the fund will be available Scotland wide, the benefits of the low carbon manufacturing transformation could be shared by everyone in Scotland, enhancing and supporting inclusive growth as Scotland recovers from the impact of COVID-19.

### **The Scope of the EqIA**

The Scottish Government's Advanced Manufacturing team have completed this EQIA for the development of the LCMCF, to identify opportunities to boost equality across the manufacturing sector. Specifically, the EQIA considers impacts on equalities groups based on the three tests it is required to address:

- Does this policy eliminate discrimination for each of the nine protected characteristics? If not is the discrimination justifiable? Can it be mitigated?
- Does this policy advance equality of opportunity between people who share a protected characteristic and those who do not?
- Does this policy foster good community relations between people who share a protected characteristic and those who do not?

This full EQIA for the LCMCF is a strategy focused document which has been produced following consultation with stakeholder equality groups, business organisations, trade unions and industry.

### **Key Findings**

A short consultation on the LCMCF Equality Impact Assessment Report ran from 22 July to 19 August 2021. This provided us with an opportunity to consult on the impact of the plan on those in the different protected characteristic groups under the Equalities Act 2010, in order to see if there are particular matters we should be taking into account. The protected characteristics are age, disability, gender reassignment, pregnancy and maternity, race, religion or belief, sex and sexual orientation. 2 consultation responses were received, which we have considered and incorporated into this final EqIA Results.

Whilst transitioning to a low carbon economy has the potential to become a net generator of good, green jobs, and new opportunities to create a sustainable and inclusive world of work, there are likely to be impacts on existing jobs, such as:

- redundancy due as a result of current products, processes or technology disappearing, or where automation replaces a person;
- job substitution, where high carbon manufacturing jobs are replaced with jobs recycling or remanufacturing products or creating the technology required for this;
- job transformation and/or redefinition, where job roles are aligned to green principles.

It is important to note that:

- it has been identified globally, that while certain jobs will disappear as a result of "greening" manufacturing sectors, the skills associated with them will not become obsolete: they will serve as the foundation for the skill set required in new jobs and the basis for retraining and skills upgrading measures. The use of new

technologies, new manufacturing processes and new modes of work for the green economy will lead to an increase in the demand for skills.<sup>8</sup>

- worker's rights need to be continually assessed and safeguarded as sectors shift and the workforce needs to be upskilled and reskilled to build capacity and minimise job loss.<sup>9</sup>

### **Fairer Scotland Duty – socio economic impact**

People with protected characteristics, or people from lower socio-economic backgrounds may be disproportionately affected by any loss of low skilled labour jobs that are replaced due to technological advancement. This could disproportionately affect women, disabled people and people from minority ethnic backgrounds in the manufacturing sector who are statistically more prevalent in low paid, unskilled jobs. Full details of key statistics and proposed mitigating actions can be found in **Annex A**.

It is envisaged that the skills that will be required as a result of low carbon manufacturing will result in new skills that will require training/retraining, with jobs being more highly skilled in the sector, resulting in a higher socio-economic status and better health for the people working in them. This will be an important mitigation against the loss of highly paid and productive jobs currently in areas like the North Sea oil & gas sector.

The relationship between poverty and mental health is well documented. Pre-COVID, people living in financial hardship at the lower end of the socio-economic scale had a higher risk of lower mental wellbeing<sup>10</sup>. Children who are socio-economically disadvantaged are up to three times more likely to develop mental health problems<sup>11</sup>. Employment is one of the most strongly evidenced determinants of mental health, with a lack of access to employment or good employment decreasing quality of life, social status and self-esteem.

Through incorporating the Scottish Government Scottish Business Pledge, Fair Work and Fair Work First policies as a criteria for funding, employers need to commit to paying the real Living Wage, which will help raise the socio-economic standing of workers in the manufacturing sector. However, at this time, there is no such requirement for employers to commit to the nationally recognised rate, as recommended by professional trade bodies, for skilled jobs.

### Geographical impact

In particular, it is recognised that the opportunities that the LCMCF presents must be fairly distributed throughout Scotland, creating new high value, highly paid, good green jobs for workers, and support people at the lower end of the socio-economic scale to have an equal opportunity to benefit from the opportunities that a green recovery in presents.

There is a risk that new jobs created may not be in the same locality as old employers, resulting in some communities experiencing a net loss of jobs and structural unemployment<sup>12</sup>. In particular, it is important that people living in rural areas - who are already disadvantaged due to the challenges of public transport,

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<sup>8</sup> [Mise en page 1 \(ilo.org\)](#)

<sup>9</sup> [ZWS1543 Future of Work - Emp & Skills report FINAL v2 SML.pdf \(zerowastescotland.org.uk\)](#)

<sup>10</sup> [Tackling social inequalities to reduce mental health problems | Mental Health Foundation](#)

<sup>11</sup> [Socioeconomic inequalities and mental health problems in children and adolescents: A systematic review - ScienceDirect](#)

<sup>12</sup> [Mise en page 1 \(ilo.org\)](#)

housing and access to training in rural communities and who could be impacted by any loss of local jobs – are able to benefit from any jobs resulting from LCMCF funding.

### **Impact on protected characteristic groups – evidence of findings**

The opportunities provided for good, green jobs through low carbon manufacturing can positively impact all groups with protected characteristics. It is an opportunity to level the playing field with jobs being universally designed and available for everyone. It is crucial that this opportunity is exploited, and the new jobs and business processes as a result of the fund, are designed to allow a greater degree of flexible working for all protected characteristic groups. Full details of key statistics and proposed mitigating actions can be found in **Annex B**.

#### **Age: Young people**

Today's young people entering manufacturing have different needs and expectations than previous generations. Due to having a general greater level of education than previous generations, they have different career aspirations and progression goals, and many want to work for a business that has a purpose, such as having an impact on the environment<sup>13</sup>.

New job creation would see a likely increase in opportunities for new apprenticeship positions being available for young people. COVID has had a detrimental impact on the opportunities available for young people to embark on a career in the manufacturing sector. The long-term impact of the LCMCF should increase the opportunities available for young people to take up apprenticeships in new developing areas of work, helping secure a long term career<sup>14</sup> in highly skilled and highly paid good green jobs.

Young people in particular, are more attracted to jobs which offer a greater degree of work/life balance. The opportunities presented to create flexible new jobs during the transition to a low carbon manufacturing sector would help attract and retain young people.

#### **Age: Older people**

People are living and working longer, leading to an increased demand for lifelong learning. In less than 20 years, 1 in 4 people in the UK will be aged 65+, however the average **healthy** life expectancy reported for 2018-2020 is 60.9 years for men and 61.8 years for women<sup>15</sup>.

The transformation to a low carbon manufacturing sector, and the resulting substitution or redefinition of jobs, is likely to have a bigger impact on older people, in particular those who are nearing retirement age and have spent their career in a particular area of work.

COVID-19 has had an impact on retirement decisions for older workers, with 1 in 8 changing their retirement plans<sup>16</sup>. Some have chosen to retire earlier, whilst others have decided to remain in work longer than planned, depending on how COVID-19 has impacted them financially.

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<sup>13</sup> [How To Attract And Lead Millennials Successfully - The Manufacturing Institute](#)  
[The Manufacturing Institute](#)

<sup>14</sup> [Modern Apprenticeships | Skills Development Scotland](#) – 92% of apprentices stay in work once they are qualified

<sup>15</sup> [Healthy Life Expectancy 2018-2020, Report \(nrscotland.gov.uk\)](#)

<sup>16</sup> [The Institute for Employment Studies \(IFS\)](#)

With age comes developing health issues and disabilities, which could make it difficult for older workers to continue in existing roles. The changes as a result of the introduction of automation or AI to support low carbon manufacturing will have a positive impact on older people who develop health issues and disabilities, allowing them to stay in work longer and continue to play an active part in the economy, if they wish.

There is a (challenged) view that older workers may be less likely to be able or willing to adapt to any change in job roles, in particular in relation to technological changes<sup>17</sup>. This poses the risk that older workers nearing retirement may decide not to continue in employment in a sector that will require employees to retrain and adapt. If this is the case, and as manufacturing is an aged workforce with many of the required skilled trades held by people in this age group, this could result in loss of skilled workers that will be necessary to make low carbon manufacturing a success, or train the next generation of workers.

However, for many older people, who may have been denied access to training opportunities that are offered to their younger colleagues, the long-term opportunities that should arise as a result of LCMCF funding, will be welcomed, and will allow businesses to harness years of experience in developing and implementing low carbon technology.

There is a risk that traditional jobs in manufacturing will eventually be phased out due to the introduction of new technology, in worst case scenario, leaving some older people, in redundancy situations. Older workers who fall out of work face particular challenges in returning to work<sup>18</sup>. Over 50s are twice as likely to fall into long-term unemployment after losing their jobs compared to younger workers.

It is imperative that support is available for older workers to work be able to embrace change and develop the skillsets needed to continue in employment in low carbon manufacturing, or if desired, to develop new skills that will allow them to move into alternative employment.

Although not manufacturing specific, the risk of fatal injury at work increases with age, with workers aged 60-64 having a rate around twice as high as the all age's rate and workers aged 65 and over having a rate of almost four times as high as all ages.<sup>19</sup> The development of new technology may reduce the risks associated with existing machinery and processes that contribute to workplace fatalities for older people.

It is imperative that a low carbon manufacturing sector provides a flexible working environment for older workers to safely continue to remain in the workforce longer.

### **Protected characteristic: Sex**

It is recognised there is a “traditional” occupational segregation existing in the Scottish manufacturing sector, which has historically been exacerbated due to tools, equipment and machinery used in the sector, being designed for use by the average male.

It is anticipated that the technological advancement required for low carbon manufacturing will reduce, or eliminate, some physical workplace risks that are specific to certain genders<sup>20</sup> (such as gender specific cancers). However,

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<sup>17</sup> [Employer experiences of recruiting, retaining and retraining older workers: RR940 \(publishing.service.gov.uk\)](https://publishing.service.gov.uk)

<sup>18</sup> [Centre for Ageing Better | Action today for all our tomorrows \(ageing-better.org.uk\)](https://ageing-better.org.uk)

<sup>19</sup> [Workplace fatal injuries in Great Britain, 2020 \(hse.gov.uk\)](https://hse.gov.uk)

<sup>20</sup> [Microsoft Word - Gender 2017 \(tuc.org.uk\)](https://tuc.org.uk)



technological advancement could also result in men and women in unskilled roles being disproportionately made redundant as a result of automated processes taking over unskilled tasks. Unskilled roles are usually the lowest paid jobs.

## Women

This is an opportunity to involve women to help plan and design change, which could result in new processes, equipment or technology being more safe, universal, accessible or usable for women<sup>21</sup>, aiming to remove the barriers to existing jobs, and alleviate gender specific workplace health & safety issues, due to incompatible design being replicated in new jobs. If universal design principles with a special focus on women being involved in initial usability tests, a wider range of jobs will be available.

Men (76.6%) are more likely to work in the manufacturing sector than women (23.4%). However, women make up 48.8% of all employment in Scotland (51.2% men)<sup>22</sup>. Pay gaps are higher in male dominated occupational groups such as skilled trades and process, plant and machine operatives<sup>23</sup>, and the pay gap between men and women increases with age.<sup>24</sup>

12.6% of women employed in the manufacturing sector were considered low skilled, compared with 10.5% of women employed in Scotland overall. 17.2% of women working in the manufacturing were considered highly skilled, compared to 27.6% of all women employed in Scotland. In full time jobs, women on average earn 23.4% less a week than men in process, plant and machine operative jobs, and 36.3% in skilled trades.<sup>25</sup> Any loss of low skilled jobs as a result of new technologies could disproportionately affect women in low paid, low skilled work.

41.1% of all women employed in Scotland work part-time, whilst only 23.6% of all women working in in the manufacturing sector work part-time. Only 8.8% of all workers work part-time, compared to 26.4% of all employees who work part-time in Scotland overall<sup>26</sup>. Although the number of women who work part-time in manufacturing is close to the national average of part-time women workers, and we are unable to establish whether part-time working is a personal choice, these figures would appear to support the assumption that part-time working is not widely practiced in the manufacturing sector, with 91.2% of all jobs being on a full-time basis.

Nationally, 15.4% of women in work have children aged 16 or younger, in comparison to 6.9% of women working in the manufacturing sector.

It is unknown whether the lower number of women working in manufacturing is a direct result of a lack of part-time or flexible working being available due to business needs requiring full-time employees. However, figures indicate that manufacturing may not provide the flexible employment for women with children.

The full impact of the COVID-19 pandemic on women in the workplace is not known yet. There are concerns that failure to take action now could result in reversal of the progress made towards workplace gender equality. Immediate action is required to address

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<sup>21</sup> [What is the difference between accessible, usable, and universal design? | DO-IT \(washington.edu\)](#)

<sup>22</sup> Annual Population Survey 2019, Office for National Statistics

<sup>23</sup> [Close the Gap | Statistics](#)

<sup>24</sup> ONS Annual Survey of Hours and Earnings

<sup>25</sup> [CG \(closethegap.org.uk\) and](#) ONS Annual Survey of Hours and Earnings

<sup>26</sup> Annual Population Survey 2019, Office for National Statistics

inequalities in the workplace to close gender pay gaps, support female progression and leadership and fund employment opportunities for women in future growth sectors of the economy<sup>27</sup>.

To address the pay and skills gap and help attract, and increase the number of, women working in manufacturing it is imperative that the advancement of technology in a low carbon manufacturing sector also has the potential to remove barriers to flexible, or part time, employment in the manufacturing sector, and that new jobs are designed to be universally accessible and usable.

The Scottish Government funded [Women Returner Programme](#) supports a women's journey back to work following a career break.

[Equate Scotland](#) is also funded to provide advice and support to women and employers to increase the number of women in STEM sectors.

## **Men**

Men can experience issues due to design of equipment and are more likely to be injured or killed at work<sup>28</sup>. This is an opportunity to involve all men, to plan and design change which could result in new processes, equipment or technology being more universal, accessible or usable for men who are not "average size", aiming to remove the barriers to existing jobs due to incompatible design being replicated in new jobs. If universal design principles with a special focus on women being involved in initial usability tests, a wider range of jobs will be available to all men.

In 2019, 27.6%<sup>29</sup> (or 52,700) of the manufacturing workforce were parents of children aged 16 or younger. Figures show that, at that time, 23.4% (or 49,300) of the manufacturing workforce were women, with 6.9% (13,100) of these women having children aged 16 or younger. These figures would suggest that, in 2019, approximately 39,000 of men employed in the manufacturing sector were parents of children aged 16 or younger. Whilst women are the primary care giver for children in the majority cases this is not always the case. 25.7% of women and 25.9% of men who are engineers have caring responsibilities, with 67.6% of women and 37.1% of men being the primary carers<sup>30</sup>. These figures would support that flexible working would be beneficial for around a quarter of the men who work in the manufacturing sector and who have young children.

## **Protected characteristic: Gender reassignment**

There is an opportunity to involve people in this group to help plan and design change, which could result in new processes, equipment or technology being more universal, accessible or usable, aiming to remove the barriers to existing jobs due to incompatible design being replicated in new jobs. If universal design principles with a special focus on this group being involved in initial usability tests, a wider range of jobs will be available to people in this group.

## **Protected characteristic: Disability**

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<sup>27</sup> <https://www.pwc.co.uk/womeninwork>

<sup>28</sup> [Microsoft Word - Gender 2017 \(tuc.org.uk\)](#)

<sup>29</sup> Annual Population Survey 2019, Office for National Statistics

<sup>30</sup> [EqualEngineers-Masculinity-Report\\_Final.pdf](#)

Transitioning to a low carbon economy has the potential to be a net generator of jobs and create a sustainable and inclusive world of work<sup>31</sup>. This represents an opportunity to enhance decent work for disabled people who currently face socio-economic vulnerabilities in the world of work. Historically people in this group have faced serious challenges hampering their ability to contribute equally, and are more likely to be in part-time low paid work due to a lack of opportunities.

There is an opportunity to reduce, or eliminate, the barriers that exists in the Scottish manufacturing sector for disabled people, which has historically been exacerbated due to tools, equipment and machinery used in the sector, being designed for use by the average male, rather than with universal accessibility or usability in mind.

There is an opportunity to involve disabled people to help plan and design change, which could result in new processes, equipment or technology being more universal, accessible or usable for disabled people, aiming to remove the barriers to existing jobs due to incompatible design being replicated in new jobs. If universal design principles with a special focus on accessibility for disabled people, and disabled people are involved in initial usability tests, a wider range of jobs will be available to all people in this group.

Whilst it is acknowledged that there is a risk that low skilled, low paid jobs which disabled people currently undertake in the manufacturing sector may disappear, or are redefined, resulting in redundancy, it is acknowledged that technological change will also create new work and employment opportunities and will allow a wider range of workers, such as disabled, workers to be more productive.<sup>32</sup>

36.4% of all disabled employees in Scotland work part-time, compared to 26.4% of non-disabled workers in Scotland overall. These figures are in stark contrast to those who work part-time in the manufacturing sector, where only 8.8% of all workers work part-time<sup>33</sup> but 25.6% of the manufacturing workforce have a condition/illness lasting 12 months or more and 10.4% are classed as disabled. Whilst we are unable to confirm whether part-time work is a personal choice for disabled employees, these figures would appear to support the assumption that part-time working is not widely practiced in the manufacturing sector.

Prior to the pandemic, 28% of Scottish workers worked flexibly to improve their wellbeing, with 7% stating wellbeing was their main reason for wanting flexibility at work<sup>34</sup>.

It is imperative that the SG plays a key role through the longer-term opportunities that initiatives like the LCMCF provides to: promote flexible working to allow disabled people access to part-time work in manufacturing; provide flexible, high value, high paid and good green jobs for disabled people; make employers aware of the support that is available to recruit and retain disabled people in the manufacturing sector.

The advancement of technology in a low carbon manufacturing sector also has the potential to remove barriers which currently result in disabled workers having to work part-time through necessity or preference, and perhaps enable more disabled people to take up full-time employment or work in a more flexible environment.

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<sup>31</sup> [Persons with disabilities in a just transition to a low-carbon economy \(ilo.org\)](https://www.ilo.org/gateway/topics/persons-with-disabilities-in-a-just-transition-to-a-low-carbon-economy)

<sup>32</sup> [SCDI-DigitalReport-Automation \(1\).pdf](#)

<sup>33</sup> Annual Population Survey 2019, Office for National Statistics

<sup>34</sup> [Supporting employee mental health and wellbeing with flex | Flexibility Works](#)

It is anticipated that the technological advancement required for low carbon manufacturing will reduce, or eliminate, some physical workplace risks that are specific to disabled people, or exposure to hazardous substances which pose work related injury or illness, or exacerbate existing illnesses, resulting in long term disability.

## **Mental health**

We know that meaningful, fair work is an important driver for good mental health and wellbeing for everyone and can be a positive tool for recovery with mental health conditions<sup>35</sup>.

A particularly concerning finding of the EqIA framing exercise was that:

- in the UK, it is estimated around a third of all ill health reported in manufacturing is related to stress, depression or anxiety, and affecting around 1% of workers<sup>36</sup>;
- in the UK, one in five engineers have lost a work colleague to suicide and over a fifth of engineers have considered suicide or self-harm, with men 3.5 times more likely to have said so;<sup>37</sup>
- 37.2% of engineers described their mental health as fair or poor, and over a fifth have had to take time off because of it.
- 32.2% of engineers do not believe the culture they work in is diverse, and 31.2% do not feel included in it.
- Pre-COVID (2019), 50.4%<sup>38</sup> of manufacturing and engineering companies reported an increase in the number of employees reporting mental health issues in the previous 3 years.

The mental health impacts of the COVID-19 pandemic in Scotland, particularly on vulnerable groups, has been well documented<sup>39</sup>. The impact of COVID-19 has been experienced very differently by different groups, and has exacerbated existing inequalities.

Manufacturing has been one of the few sectors who has remained open and operational throughout the pandemic, in recognition of the safe working practices that exist in the sector and the importance that manufacturing plays in the supply chain and the health and wellbeing of Scottish society.

It is recognised that COVID-19 will have impacted those who work in the sector through anxiety as a result of attending work, fear of redundancy, loneliness as result of not attending work due to shielding or being furloughed, financial hardship as a result of being furloughed or self-isolation. The impact of COVID-19 is likely to have a significant effect on mental health in the coming years, and is likely to be unevenly distributed.

Before the pandemic, one in five Scottish workers said they worked flexibly to help their mental health, with one in 20 stating this was their main reason for doing so<sup>40</sup>.

The changes, and uncertainties for people, that arise due to the impact that the transition to low carbon manufacturing is likely to have on employment, has the potential

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<sup>35</sup> [fairer-scotland-disabled-people-employment-action-plan-year-2-progress-report \(2\).pdf](#)

<sup>36</sup> [Manufacturing statistics in Great Britain, 2020 \(hse.gov.uk\)](#)

<sup>37</sup> [Engineering Sector Facing Mental Health Emergency - EqualEngineers](#)

<sup>38</sup> [Addressing mental health within the workplace - Business & Industry \(businessandindustry.co.uk\)](#)

<sup>39</sup> [Coronavirus \(COVID-19\): mental health - transition and recovery plan - gov.scot \(www.gov.scot\)](#)

<sup>40</sup> [Supporting employee mental health and wellbeing with flex | Flexibility Works](#)

to have a negative impact on the mental health of people in all of the protected characteristic groups who work in the sector. It is vital that this is recognised and that good mental health support is available during this transition and that new jobs and business processes introduced as a result of the fund provide a degree of flexible working.

### **Protected characteristic: Race**

The majority (96%)<sup>41</sup> of Scotland's population identify as white, with 4% identifying as from minority ethnic backgrounds. People from minority ethnic backgrounds are underrepresented in the Scottish manufacturing sector, with 1.9%<sup>42\*</sup> of the workforce from minority ethnic backgrounds. This demonstrates the imperative of encouraging and breaking down barriers for minority ethnic people to work in jobs created during the low carbon transition.

There is a significant underrepresentation of people from minority ethnic backgrounds in engineering and manufacturing. People from minority ethnic backgrounds are more likely to come from a lower income region. Stereotyping and geographical location can affect the opportunities presented.

The LCMCF will be a national fund, available to businesses in all regions. The long-term outcomes from this Fund should increase the potential for businesses in low income regions to become a net generator of good, green jobs, and offering new local opportunities to create a sustainable and inclusive world of work for all people within this group.

### **Protected characteristic: Pregnancy and maternity**

Manual handling has an increased risk to women who are pregnant<sup>43</sup>. Technological development in low carbon manufacturing is an opportunity to reduce the need for manual handling in the workplace.

When returning to work, following taking time off to care for children, for many people, in particular women, the only option is part time work as a result of balancing childcare. Often the part time work is below their skill level.

Manufacturing is not a sector that lends itself easily to homeworking, however, this is an opportunity to explore whether technology can be created that could be used by people working from home, or at least allow for greater flexibility in the workplace, allowing people, in particular women, to better balance childcare with work.

The technological advancement required for low carbon manufacturing is an opportunity to reduce, or eliminate, some physical workplace risks that are specific risks to pregnant women/persons.

### **Socio-economic aspect**

People with protected characteristics, or people from lower socio-economic backgrounds may be disproportionately affected by any loss of low skilled labour jobs that are replaced due to technological advancement. This could disproportionately affect women, disabled

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<sup>41</sup> [Census 2011 equality results: analysis, part two - gov.scot \(www.gov.scot\)](http://www.gov.scot)

<sup>42</sup> Annual Population Survey 2019, Office for National Statistics \* estimates are based on a small sample size, this may result in less precise estimates

<sup>43</sup> [Microsoft Word - Gender 2017 \(tuc.org.uk\)](http://tuc.org.uk)

people and people from minority ethnic backgrounds in the manufacturing sector who are statistically more prevalent in low paid, unskilled jobs.

It is envisaged that the skills that will be required as a result of low carbon manufacturing will result in new skills that will require training/retraining, with jobs being more highly skilled in the sector, resulting in a higher socio-economic status and better health for the people working in them. This will be an important mitigation against the loss of highly paid and productive jobs currently in areas like the North Sea oil & gas sector.

The relationship between poverty and mental health is well documented. Pre-COVID, people living in financial hardship at the lower end of the socio-economic scale had a higher risk of lower mental wellbeing<sup>44</sup>. Children who are socio-economically disadvantaged are up to three times more likely to develop mental health problems<sup>45</sup>. Employment is one of the most strongly evidenced determinants of mental health, with a lack of access to employment or good employment decreasing quality of life, social status and self-esteem.

Through incorporating the Scottish Government Fair Work and Fair Work First policies as a criteria for funding, employers need to commit to paying the real Living Wage, which will help raise the socio-economic standing of workers in the manufacturing sector. However, at this time, there is no such requirement for employers to commit to the nationally recognised rate, as recommended by professional trade bodies, for skilled jobs – this needs to be explored further.

In particular, it is recognised that the opportunities that the LCMCF presents must be fairly distributed throughout Scotland, creating new high value, highly paid, good green jobs for workers, and support people at the lower end of the socio-economic scale to have an equal opportunity to benefit from the opportunities that a green recovery in a COVID-19 world presents.

### **Intersecting protected characteristics**

Intersecting identities such as gender, age, ethnic identity and disability play an exacerbating role in pushing people with a combination of protected characteristics into informal, part time or segregated working arrangements. Paying attention to specific needs while providing opportunity for decent work can help counter marginalisation.

Through the various impacts on people in the groups of protected characteristics identified in this EqIA, it is anticipated that multiple barriers to working in a low carbon manufacturing sector will be captured and mitigated.

### **Key issues**

Key issues for all groups are:

- to improve the socio-economic standing of workers in the manufacturing sector, and to help close the gender pay gap - employer commitment to the Fair work and Fair Work First policy on pay will require to be a criteria of the LCMCF;
- mental wellbeing support is required for workers to support them through the transition to a low carbon manufacturing future;

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<sup>44</sup> [Tackling social inequalities to reduce mental health problems | Mental Health Foundation](#)

<sup>45</sup> [Socioeconomic inequalities and mental health problems in children and adolescents: A systematic review - ScienceDirect](#)

- flexible and part-time working is required to allow workers from all backgrounds the flexibility they need to work safely, maintain a good work/life balance and maximise their earning potential;
- development of technology that is universally designed, tested, accessible and usable is required to ensure that people from all backgrounds have equal opportunities for good green jobs in a low carbon manufacturing sector;
- support to train and retrain new and existing workers for the new roles is required, to ensure that workers can adapt to new roles at any stage of their working life/career;
- support is required to help workers, who have been made redundant as a result of the introduction of new technology, to obtain new skills and seek alternative employment;
- the potential for technological advancement in the manufacturing sector as a result of the LCMCF has the potential to remove a number of existing workplace risks to health and safety, reducing the risk of occupational illness and disease, and ensuring a safer working environment;
- increased overall health and ecosystem benefits, associated with low carbon manufacturing, for everyone in Scotland.

### **Recommendations**

The momentum built by COP26 to drive forward net-zero ambitions means that there is an unique window of opportunity to maximise the impact of the new LCMCF and exploit the opportunities presented as new workplace equipment, processes and practices are developed in the transition to low carbon manufacturing, and create a more equal, fairer and flexible manufacturing sector.

It is recommended that:

- Human rights due diligence is undertaken before awarding grants and successful applicants should be required to use the Fair Work Employer Support Tool to benchmark at the points the grant is awarded and at the end of the contract, to encourage manufacturers to think about issues and make progress on equalities and fair work.
- To avoid any potential risk of further disadvantaging people with protected characteristics who live in rural communities as a result of low skilled local jobs being lost due to technical advancement, the LCMCF is available to all businesses throughout Scotland, with a particular focus on:
  - small and medium sized enterprises throughout Scotland, ensuring that all people, regardless of location, will benefit from low carbon manufacturing;
  - reaching all areas of Scotland to help new businesses emerge in rural locations within easy reach of local workers
- LCMCF funded research and development of new technology and workplace processes has a focus on:
  - universal design, accessibility and usability in order to remove physical barriers to employment that people, in particular women, disabled people and men who are not the average size and shape can encounter;
  - designing technology which will allow more flexible working practices in the workplace and increased remote/hybrid/home working.
- Mental wellbeing support is available to employers and employees who are impacted by the transition to a low carbon manufacturing sector.

### **Conclusion**

The LCMCF has the opportunity to be a catalyst to wider change in the manufacturing sector for both manufacturing processes and culture, benefiting people from all protected characteristic backgrounds throughout Scotland, due to the opportunities:

- To reduce socio-economic disadvantages through new good, green, high value, high skilled and high paid job opportunities that will create a sustainable and inclusive world of work for all people interested in pursuing a career in manufacturing.
- To design and introduce new technology and processes that are universally designed and universally accessible - reducing workplace risks associated with existing machinery and processes that can present different risks to different protected characteristic groups such as pregnant women, women, disabled people and men who are not the average size or shape.
- To close the gender, disability and ethnicity pay gaps that still exist.
- To design or redesign jobs to make them more flexible, allowing everyone to maintain a better work/life balance.
- For intergenerational sharing of knowledge as new technology is introduced.
- For low carbon manufacturing in a green economy to benefit people in all protected characteristic groups through reduced carbon emissions and waste and a healthier environment.

As well as committing to the £26m LCMCF, Scottish Government has committed funding to a number of programmes designed to support employers, employees and those looking for work. There is the opportunity for those funds to be used to optimal effect during the transition to a low carbon manufacturing sector, to help recruit and upskill people in each of the protected characteristic groups, and to help create inclusive and diverse workplaces:

- [Flexible Workforce Development Fund](#)
- [Workplace Equality Fund](#)
- [Apprenticeship Grants](#)
- [National Transition Training Fund](#)





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