

# Green Jobs & Skills Plan 2022



**LIVERPOOL  
CITY REGION**  
COMBINED AUTHORITY

**METROMAYOR**  
LIVERPOOL CITY REGION

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## SUMMARY

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### *Introduction*

1. A Climate Emergency was declared by the Liverpool City Region Combined Authority (LCRCA) in June 2019, with the objective that LCR should become net zero carbon by 2040. The LCR Pathway to Net Zero, published in January 2022, sets a clear series of actions that will require immediate action in order to meet this objective by 2040 or sooner. This also aligns to the LCR zero avoidable waste target for 2040. LCRCA have set down Guiding Principles that will shape an action plan for how this will be achieved:
  - achieve shared prosperity whilst reducing consumption of energy and resources;
  - ensure the resilience of places and citizens to climate change;
  - use our geographic location and our industrial and maritime legacies to create a new future;
  - change our economy without leaving anyone behind; and
  - lead and be brave to be at the forefront of change.

*Our vision is for a globally competitive, environmentally responsible and socially inclusive economy. As we emerge from the Covid-19 pandemic, there can be no return to business as usual or the old way of doing things.*
2. Improving and renewing skills are essential to ensure that LCR residents are best-placed to realise the full benefit of the investments required to be made in achieving the net zero target. This Low Carbon Skills for Growth Action Plan sets out the key priorities for LCR partners to put in place to provide the LCR skills are ready for the needs of the low carbon economy.  
*Demand and Supply of low carbon skills in LCR*
3. Liverpool City Region Plan for Prosperity, published in March 2022, sets out the long-term economic and place-based strategy for the City Region over the next decade that emphasises the importance of an inclusive economy and improving the prosperity including health and wellbeing and quality of life for the City Region's residents. In this strategic context it is essential that this Action Plan considers not only the skills for the expanding low carbon sectors but also actions to ensure a just transition for those who currently work in carbon-intensive industries, with 45% of carbon emissions are from making and use of products, materials, food (Ellen MacArthur Foundation).
4. Estimates vary but around a fifth of UK jobs (21%) would be affected by the transition to a green economy. The character of the skills change demanded by a Green recovery fall into three broad types:
  - *Behaviour changes*: all jobs will require higher levels of environmental awareness and simple adaptations to work procedures, with new skills developed on the job or through short training programmes, including the need for greater zero waste awareness and education across residents and the workforce to reduce waste. Everyone generates waste daily and has opportunities to reduce this including in their jobs. This is reflected in the LCR Zero Waste Strategic Framework and [www.zerowastelcr.com](http://www.zerowastelcr.com).
  - *Adapted Skills*: augmenting or updating existing skillsets to take account of new technology, regulations or market demands for sustainable goods and services



- *Specialist skills*: significant changes to existing professional skillsets or application of new knowledge related to climate change. Skills will be developed through technical pathways such as apprenticeships and in-depth training at undergraduate and postgraduate level and be closely connected with industry practice, such as in battery technologies, chemical processes in waste, hydrogen and materials development for insulation etc
5. Recent analysis by the Place-based Climate Action Network (PCAN) provides some insight into the scale of transition required across local authority areas in the UK. According to this analysis LCR has a slightly lower proportion of jobs requiring upskilling but also possesses fewer jobs in higher demand than other Combined Authority areas. Around 65,000 jobs will require upskilling and 63,000 jobs will be in higher demand in LCR. Across LCR at local authority level there is more variation with a greater proportion of jobs affected by the transition in Halton, Knowsley and St Helens, reflecting the location of higher carbon industries.
  6. The Net Zero North West Economic Investment Prospectus details a range of flagship investments that will place the NW and LCR at the forefront of low carbon power generation technologies tidal, hydrogen generation and storage and carbon capture technologies to add to its existing presence in wind power. Assuming that investment funds are available, the development timetable for the sixteen projects results in a steep increase in related employment in the North West to 2030 – from around 10,000 in 2022 to over 35,000 in 2030 before increasing to around 55,000 in 2040. LCR’s share of this employment is around 21% or just over 141,000 jobs in total.
  7. Discussions with stakeholders have highlighted that the required skills and how they relate to existing job roles and skills are complex and dynamic. While some sub-sectors provide a clear statement of what qualifications are required (e.g. PAS2035 for retrofit skills), this is by no means universal. A key part of these skill progression is the practical experience gained in delivering low carbon activities. As the market for these services expands, this will help open up progression to higher level skills across the sector.
  8. The timing of when these low carbon opportunities will arise is closely related to the pace of investment and growth in demand both of which remain uncertain. Currently, there is only limited appetite among low carbon sectors to invest in such skills in advance of demand. In these circumstances, it will be important for LCR partners to share information on skills and employment opportunities, how they relate and the key qualifications that may provide access to such job opportunities.
  9. Stakeholders also pointed to long-standing structural issues with some low carbon occupations:
    - Limited attractiveness to young people, especially women and BAME
    - Highly fragmented sub-contracting structure leading to instability and short-termism and linked to a lack of investment in new technology and poor workforce development track record for new recruits and existing workforce.
    - Ageing workforce and loss of experience and the loss of EU-migrant skilled labour during the pandemic all mean that recruitment into construction skilled trades need to increase significantly to just fill these gaps.



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10. The availability of scientific, technical, engineering and mathematical (STEM) skills and qualifications are essential for businesses in the Low Carbon economy. National studies indicate a growing concern among employers about the shortage of new technicians and engineers being trained to replace existing workers due for retirement over the next decade. A third of current employees in the sector are over 50 and over half fall into the 25-49 age bracket. An increasing proportion of over 50s in working in construction has been evident since 2012-13 and had pretty much doubled by 2019-20.
  11. While the increase young people over the next decade will go some way to addressing this need, in fact it will be largely taken up by replacing experienced workers retiring from low carbon sectors and the total working age population will increase only marginally. This, in turn suggests that LCR will need to more with the existing resources it has to hand – more females, more BAME employees and more people with STEM qualifications will need to be attracted and retained in the low carbon sectors to get close to satisfying the major employment opportunities presented by these low carbon developments.
  12. Taken, together these factors suggest that LCR partners need a broad range of actions that:
    - Engage the whole workforce to increase awareness of the impending changes and improve climate literacy in general;
    - Focuses on increasing the pipeline of talent with the underpinning technical skills required by many low carbon occupations – STEM skills, engineering and electrician and heating engineering skills – in order to provide a basis for more specialist low carbon skills; and
    - Recognises that there is a need to diversify the talent opting for these occupations particularly from women and people from ethnic minorities.
  13. ***LCR Low carbon skills priorities***

The low carbon sector in Liverpool City Region is diverse and dynamic with a clear growth trajectory over the past decade and a strong investment potential over the next decade. The low carbon sector brings together a number of specialist technical and craft skills with low carbon technologies that are evolving alongside industry and building standards regulation and government policy. This does make for a dynamic demand for low carbon skills often with very specialised qualifications.
  14. LCR partners have developed a detailed insight into low carbon industries and existing relationships with learning providers and employer networks. Building on these relationships will be vital to stay abreast of developments and ensure that skills investment can occur sufficiently in advance of the proposed large scale investment in low carbon sectors.
  15. This suggests that the public sector should seek to prioritise on building up the pipeline of craft and technical skills. This should involve:
    - Reinforcing the existing promotion of STEM skills and closely linked to engineering-related craft and undergraduate courses. LCR along with England are entering a decade where the number of 18- year olds will increase by more than a quarter and numeracy and analytical skills will be at a premium across the labour market.





- Careers IAG highlighting the many roles associated with low carbon technologies across engineering and construction and related skills. Promotion of such career opportunities to women is essential to overcome highly gendered roles and ensure access to a wider pool of talent.
- Female-friendly delivery has been trailed by some LCR providers but this needs to be implemented at scale including additional care support for dependents and female only courses.
- Although there have been no firm announcements it seems likely that Government policy on higher technical qualifications will place a premium on FE and HE collaboration at Level 4, Level 5 and better progression to Level 6. Improved coherence and co-ordination between LCR FE colleges and HEIs presents an ideal opportunity to:
  - Improve clarity on the learning offer and explore best route to deliver such courses to learners most often already in employment;
  - Develop modular courses that might attract funding from employers (apprenticeship levy/ levy allocation), directly funded, employee funded through lifelong loan entitlement. Improved offer of Level 4 and 5 modules specific to low carbon sectors e.g. offshore engineering will provide bite-sized and sector-focused progression;
  - Both of these need a strong employer involvement to help ensure investment is in the precise skills required and keep up with industry practice and equipment. Digital practice and knowledge is essential to keep abreast of new techniques;
  - Ensure that HE credits learning at Level 3 to help improve access to higher technical qualifications for those on work-based learning;
  - Work with other agencies engaged with low carbon businesses (e.g. MCS certified) to develop workforce development offer beyond base PAS 2035;
  - Encourage larger firms could to invest in supply chain development to ensure continued improvement in quality standards; and
  - Provide transition training – an issue here is focusing on people impacted by Covid-19 and seeking to re-train and the visibility of low carbon roles to this group. Project management and customer service skills are potential skills of interest in a range of low carbon roles. Stakeholder networks already possess expertise in re-training aerospace engineers into marine engineers.
- There is a need to shape demand in sub-sectors where sectors are still awaiting standards e.g. external wall insulation (EWI). Liverpool John Moores University are engaging with social housing providers to collate their individual demand so that there is sufficient scale of EWI activity to achieve some economies of scale. These networks could also be used to help drive skills development in specialist skills at a scale that would make such courses viable for training providers.

- There is a need to implement a climate literacy programme especially in sectors where the introduction of low carbon technologies will require greater precision and quality standards than may be traditional e.g. groundwork preparations for offsite construction etc. LCR is already developing a climate engagement strategy but this needs to build on practice elsewhere (e.g. Germany) where the focus is on low carbon technologies will change job roles. One option here is to engage individuals through Trade Unions as well as employers to highlight the positive potential of career development in low carbon sectors.
- The Net Zero Carbon Pathway steps be taken to improve waste management and develop a circular economy in LCR. This will have skills implications, including skills for industrialisation of reuse and development of a reuse and repair culture across LCR communities. Further work will be required to engage more circular economy approaches in product design and deepen the recovery of expensive materials through 'urban mining' (such as nickel, cobalt and lithium from smart phones etc.) for re-use in products as an alternative to traditional sources from mining extraction.
- The LCR Pathway to Net Zero report highlights the increasing role that natural capital will play in achieving net zero in maintaining and developing biodiversity. The forthcoming Environment Bill which may come in next year with requirements that all built environment developments have to demonstrate biodiversity net gain. LCR partners will need to plan for greater demand for ecological maintenance and skills in maintaining and developing biodiversity sites both for biodiversity and carbon capture across both 'green' and 'blue' environments in the City Region.
- Although not directly a skills requirement, there is a broader need for all LCR businesses and particularly SMEs to understand what they will need to do to decarbonise and the role low carbon skills could play in supporting this transition. This will require LCR partners to bring together business advice and skills support to improve businesses' understanding of:
  - their carbon footprint and practical steps to reduce it;
  - regulations and new requirements coming through in social (and environmental) value in procurement; and
  - ESG (Environmental, Social and Corporate Governance) principles starting feeding down from the larger business and how they can plan for this.

# 1. INTRODUCTION

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## 1.1. Transition to a low carbon economy in Liverpool City Region

- 1.1.1. A Climate Emergency was declared by the Liverpool City Region Combined Authority (LCRCA) in June 2019, with the objective that LCR should become net zero carbon by 2040. This ambition has been reinforced by LCR's Pathway to Net Zero 2040<sup>1</sup> which sets a target of 2040 or sooner. This target is at least a decade in advance of the UK Government commitment to achieve net zero by 2050. The Pathway to Net Zero sets a clear ambition that requires immediate action in order to meet this objective. LCRCA have set down Guiding Principles<sup>2</sup> that will shape an action plan for how this will be achieved:
- achieve shared prosperity whilst reducing consumption of energy and resources;
  - ensure the resilience of places and citizens to climate change;
  - use our geographic location and our industrial and maritime legacies to create a new future;
  - change our economy without leaving anyone behind; and
  - lead and be brave to be at the forefront of change.
- Our vision is for a globally competitive, environmentally responsible and socially inclusive economy. As we emerge from the Covid-19 pandemic, there can be no return to business as usual or the old way of doing things.*
- 1.1.2. Improving and renewing skills are essential to ensure that LCR residents are best-placed to realise the full benefit of the investments in the net zero target. This Low Carbon Skills for Growth Action Plan sets out the key priorities for LCR partners to put in place to provide the LCR skills are ready for the needs of the low carbon economy, ensuring that:
- support is available for new and emerging areas of green skills requirements, in line with technical innovations, in particular, how energy is produced, used and stored;
  - support recognises that most workers in 2040 are already in the LCR workforce, and will require the adaptation of existing skillsets;
  - a wider and more diverse group of young people are engaged in the low carbon economy as their skills will be required by the sector and in return it will provide employment opportunities for many years into the future; and
  - partnership working between government, business, education and skills providers and workforces is central to developing green skills to extract the full potential of the LCR low carbon economy.
- 1.1.3. While the climate emergency is a defining challenge, it is taking place at the same time as employment and skills are being reshaped by digitalisation and the automation of work tasks. The Covid-19 pandemic has accelerated some aspects of these forces on the economy and skills. These disruptive forces complicate potential public policy responses and add to the number of people who may need to improve and refocus their skills from declining or high carbon sectors of employment. LCR's strong track record in partnership working will

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<sup>1</sup> Liverpool City Region Pathway to Net Zero: Our Ambition to reach net zero carbon, January 2022

<sup>2</sup> 2040 Climate Action Plan Guiding Principles





be essential to respond flexibly as these forces impact on the scale and nature of low carbon employment and skills.



## 2. DEMAND FOR LOW CARBON SKILLS

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### 2.1. Low carbon sectors in the UK and LCR

- 2.1.1. The UK Government has focused on promoting innovation for 'clean growth', challenging businesses to innovate and improve and their competitiveness within international markets. The Government's Ten Point Plan sets out a £12bn public investment programme with as much as three times as much from the private sector across the low carbon economy that will support 90,000 jobs across the UK to 2024 and 250,000 by 2030<sup>3</sup>.
- 2.1.2. Investing in low carbon and the renewable energy economy will not only support a path to net zero for the UK and LCR but also offer a significant market for low carbon goods and services. Worldwide investment in zero-carbon technologies in electricity systems will be over \$11 trillion<sup>4</sup>.
- 2.1.3. The UK is well positioned to exploit the opportunities of growing international markets, with world leading expertise in nuclear and green energy production, in advanced manufacturing and engineering, materials science and professional services such as law, finance and data services. The ONS Low Carbon and Renewable Energy Economy Survey (LCREE)<sup>5</sup> shows that in 2019 the sector generated some £42.6 billion in turnover and employed an estimated 202,100 FTE employees in the UK earning over £7 billion in exports. Manufacturing, energy supply and construction sectors accounted for 82% of all UK LCREE turnover in 2019, and 74% of all employment.
- 2.1.4. However, the LCREE sector growth has stalled with no significant change in the size of the UK sector since 2014, although larger firms (more than 250 employees) have increased their turnover and employment. There has been no detailed analysis of why the LCREE has demonstrated little progress over this period but some commentators have pointed to the general decline in capital investment in the UK economy relating to the uncertainty over the Brexit process<sup>6</sup>.

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<sup>3</sup> Ten Point Plan for a Green Industrial Revolution, Building back better, supporting green jobs and accelerating our path to net zero, HMG, November 2020.

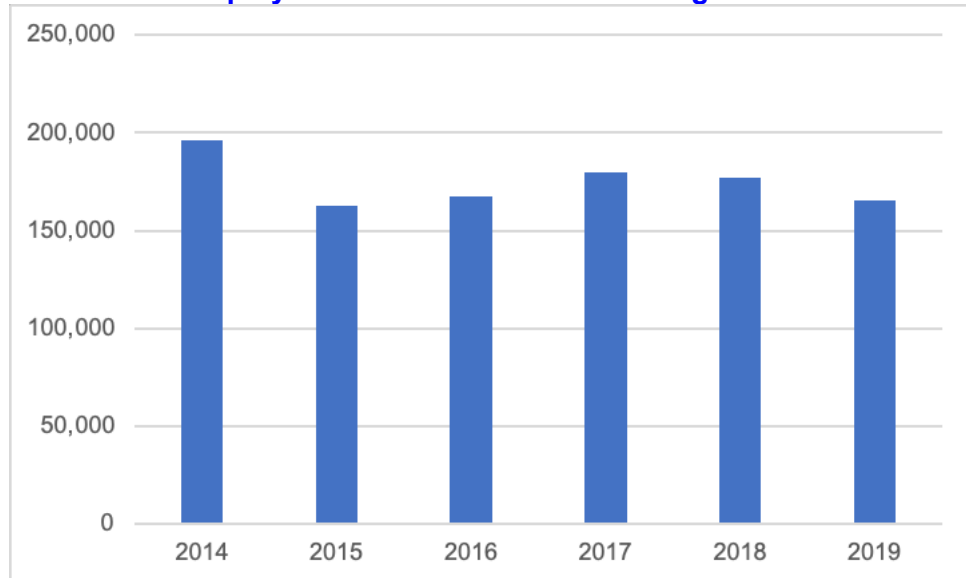
<sup>4</sup> <https://about.bnef.com/new-energy-outlook/>

<sup>5</sup> <https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/finalestimates/2019#low-carbon-and-renewable-energy-economy-data>

<sup>6</sup> The scale of the LCREE survey and self-reported nature of the evidence base means that it is prudent to exercise some caution in interpreting year-on-year changes. That said even taking into account the confidence intervals, there is no clear progression in the size of the sector 2014-19.



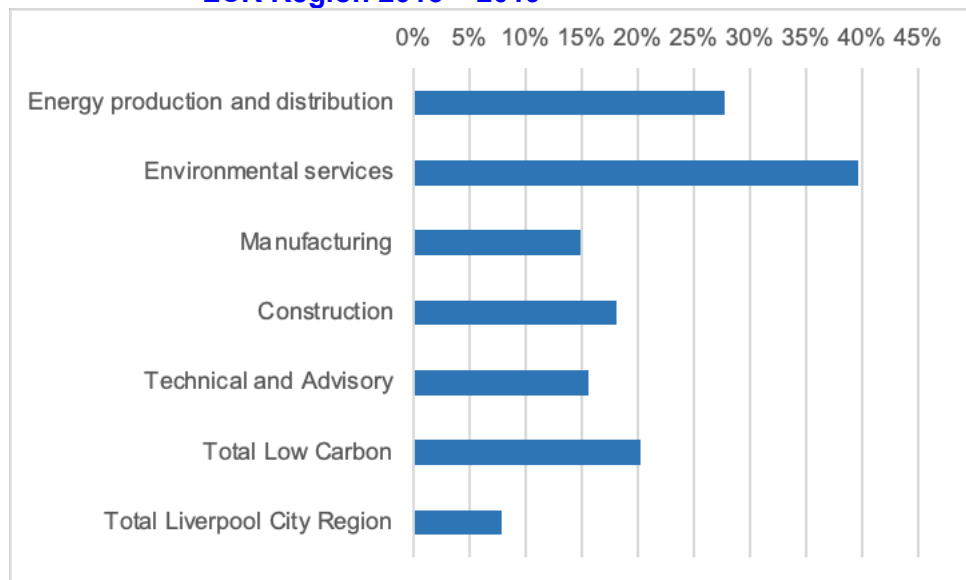
**LCREE FTE Employment in LCREE sectors in England**



Source: Low Carbon and Renewable Energy Economy (LCREE) survey estimates, UK, 2014 to 2019

2.1.5. Although we cannot match this survey result for LCR, other statistics using a different definition of the low carbon sector<sup>7</sup> suggests that in LCR the low carbon sector has grown significantly over the same period (at almost three times the rate of LCR economy as a whole). On this definition, LCR had almost 32,000 people in employment in Low carbon Economy activities in 2019 an increase of over 5,000 since 2015.

**Employment Percentage Change in Low Carbon Economy Activities, LCR Region 2015 – 2019**



Source: Source: ONS BRES, 2019

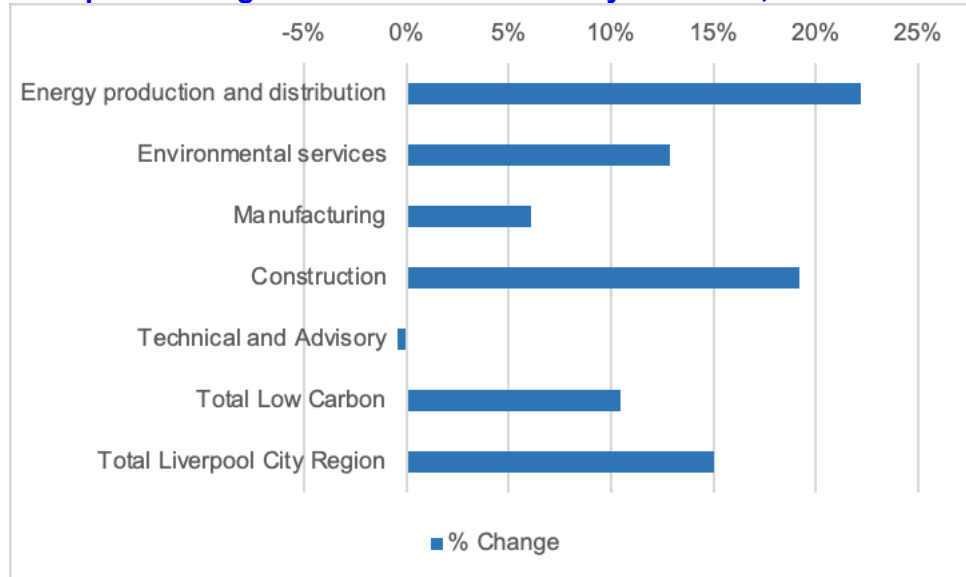
2.1.6. The number of firms in the low carbon economy has also increased between 2015 and 2020, but almost all of this growth has been among micro-

<sup>7</sup> LCR low carbon sector definition derived by Oxford Economic Forecasts for their LCR employment forecasting model.



businesses (0-9 employees). The largest growth has been in energy production and distribution and construction sectors. This suggests the low carbon sector is a more dynamic economy, but from a skills perspective, small firms are often much more difficult to engage in formal training programmes.

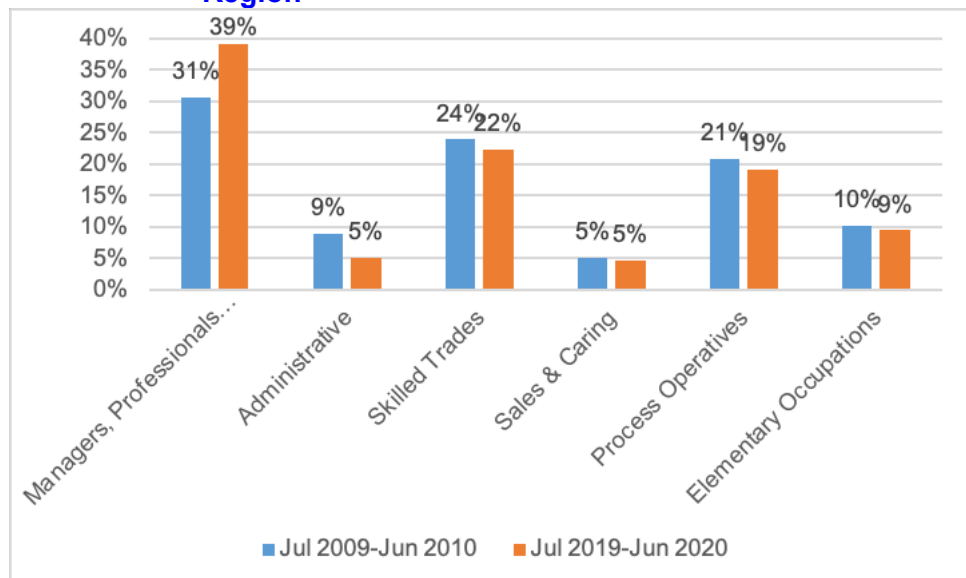
**Enterprise Change in Low Carbon Economy Activities, LCR 2015 – 2020**



Source: ONS UK Business Counts by industry and employment, LCR 2020

2.1.7. The occupational structure of the low carbon economy sector has remained relatively stable over the past decade but with an increase in managers and professional occupations (in line with structural shifts in the wider economy) and a reduction in administrative occupations.

**Low Carbon Economy Sector Occupational Profile, Liverpool City Region**



Source: ONS Annual Population Survey (workplace), Liverpool City Region

2.1.8. In achieving Net Zero targets it is also important to recognise that a number of high-carbon producing sectors will need to undergo transition to low-carbon



production methods, currently available estimates for the scale of the labour market impact of these transitions are set out in the next section.

- 2.1.9. It is also important to recognise that the low carbon economy is not just focused on the built environment. The LCR's Pathway to Net Zero 2040<sup>8</sup> makes clear that shift to net zero includes the development of natural capital in the City Region and in particular how to maintain and develop biodiversity sites both for biodiversity and carbon capture and these will also require additional employment and specialist skills.

## 2.2. Just Transition of the labour market in LCR

- 2.2.1. Liverpool City Region Plan for Prosperity<sup>9</sup> sets out the long-term economic and place-based strategy for the City Region over the next decade. The Plan for Prosperity emphasises the importance of an inclusive economy; the need, and opportunity of the net zero carbon agenda; and the wider meaning of prosperity to include health and wellbeing and quality of life for the City Region's residents. In this strategic context it is essential that this Action Plan considers not only the skills for the expanding low carbon sectors but also actions to ensure a just transition for those who currently work in carbon-intensive industries.

- 2.2.2. Estimates vary but around a fifth of UK jobs (21%) would be affected by the transition to a green economy. The character of the skills change demanded by a Green recovery fall into three broad types<sup>10</sup>:

- *Behaviour changes*: all jobs will require higher levels of environmental awareness and simple adaptations to work procedures, with new skills developed on the job or through short training programmes;
- *Adapted Skills*: augmenting or updating existing skillsets to take account of new technology, regulations or market demands for sustainable goods and services; and
- *Specialist skills*: significant changes to existing professional skillsets or application of new knowledge related to climate change. Skills will be developed through technical pathways such as apprenticeships and in-depth training at undergraduate and postgraduate level and be closely connected with industry practice, such as in battery technologies, chemical processes in waste, hydrogen and materials development for insulation etc

- 2.2.3. Logistical and customer service skills will need to support growth of sharing and re-distribution circular economy business models. In construction a clear focus on the reuse of buildings, reuse of materials will contribute to not only net zero waste, but also net zero carbon. Upskilling and focus on moving to a less wasteful and more sustainable LCR food system across food production, home / local growing, logistics, consumer interfaces, restaurants, hospitality, home/community composting, anaerobic digestion will similarly support LCR ambitions.

<sup>8</sup> Liverpool City Region Pathway to Net Zero: Our Ambition to reach net zero carbon, January 2022

<sup>9</sup> Draft Liverpool City Region Plan for Prosperity, January 2022.

<sup>10</sup> Cambridge Policy Consultants (2020) Climate Emergency Evidence Base for a Skills Action Plan, June 2020.





2.2.4. The Resources and Waste Strategy, Environment Act 2021 and the decade of change towards Extended Producer Responsibility, will require a focus and skills to support resource efficient products, reuse and repair (right to repair), product design for easy reuse / recycling. This will require significant skills expansion and can link to specific LCR initiatives e.g. advanced manufacturing, national packaging innovation centre.

2.2.5. Recent analysis by the Place-based Climate Action Network<sup>11</sup> (PCAN) provides some insight into the scale of transition required across local authority areas in the UK. The labour market in each area is classified into three categories:

Jobs requiring upskilling	These are existing jobs that require significant changes in skills, and knowledge. These include specialised jobs in the manufacturing and extractive sectors whose skills need to be adapted to a economy, as such petroleum engineers and heavy equipment operators.
Jobs in demand	These are existing positions that are expected to be in high demand due to their important role in the net-zero economy. These include specialised positions in the green economy, such as wind turbine installers, but also the skills and expertise of welders, builders, engineers already working to building the infrastructure of a green economy.
Jobs not significantly affected by transition	Not explicitly defined by the authors but taken to be equivalent to the behaviour change group above.

2.2.6. According to this analysis LCR has a slightly lower proportion of jobs requiring upskilling but also possesses fewer jobs in higher demand than other Combined Authority areas. Around 65,000 jobs will require upskilling and 63,000 jobs will be in higher demand in LCR.

#### PCAN Just Transition local employment: Combined Authorities

Combined authorities	Jobs requiring upskilling	Jobs in demand	Jobs not significantly affected by the transition
Greater Manchester	11.0%	10.5%	78.5%
Sheffield City Region	10.5%	10.9%	78.6%
West Yorkshire	10.9%	11.2%	77.9%
Liverpool City Region	9.9%	9.7%	80.4%
Tees Valley	10.2%	10.3%	79.6%
West Midlands	10.9%	11.0%	78.2%
Cambridgeshire and Peterborough	10.7%	10.6%	78.7%
West of England	10.4%	10.0%	79.6%
North East	10.8%	11.6%	77.6%
North of Tyne	9.1%	8.9%	82.0%

Source: PCAN Just Transition Jobs Tracker

<sup>11</sup> Robins, N., Gouldson, A., Irwin, W. and Sudmant, A., 2019. Investing in a just transition in the UK How investors can integrate social impact and place-based financing into climate strategies. London School of Economics. Available from <<https://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2019/01/Investing-in-a-just-transition-in-the-UK.pdf>>



- 2.2.7. Across LCR at local authority level there is more variation with a greater proportion of jobs affected by the transition in Halton, Knowsley and St Helens, reflecting the location of higher carbon industries.

**PCAN Just Transition local employment: LCR Local Authorities**

	<b>Jobs requiring upskilling</b>	<b>Jobs in demand</b>	<b>Jobs not significantly affected by the transition</b>
Knowsley	11.2%	12.6%	76.2%
Liverpool	8.8%	8.0%	83.2%
Halton	12.8%	12.9%	74.3%
Sefton	9.2%	8.8%	82.0%
St. Helens	11.8%	11.3%	76.9%
Wirral	9.2%	9.3%	81.5%

Source: PCAN Just Transition Jobs Tracker

**Skills progression maps**

<b>Advanced</b>	Building commissioning professional			Building scientist	Energy Engineer	Senior Operations Manager	Chief Engineer	Building Performance Contractor (Commercial)	Mechanical, Electrical, Plumbing (MEP) Contractor (with Green expertise)	Building/Home Performance Contractor	HVAC Contractor with heat pump design expertise	Energy Efficient Program Director	
	Mechanical engineer	Registered Architect	Architectural Engineer	Facilities Manager	Energy Manager			Commercial Building Code Official (with green building expertise)	Commercial Construction Manager (with green building expertise)	Residential Building Code Official (with green building expertise)			
	Lighting designer	Building Science Engineer	Heat Pump System Design Engineer	Building Engineer				Sustainable Construction Supervisor/ LEED AP	Indoor Environmental Health Specialist	Multifamily Quality Control Inspector			
<b>Mid-level</b>	Sustainability specialist	Building performance diagnostician		Building operator				Commercial Lighting Auditor	Commercial Energy Auditor	Commercial Construction Foreman	Quality Control Inspector	Multifamily Energy Auditor	
	Junior architect	Junior Engineer				Building automation systems technician		Insulation Journey person/ Mechanic	Product Sales Specialist		Healthy Home Evaluator	Building Performance Crew Leader	
	Certified home energy Rater/ Assessor/ Home Inspector	Real Estate Agent (with Green building expertise)	Real Estate Appraiser (with Green building expertise)								Residential Energy Auditor		
<b>Entry</b>	Draftsperson			Building maintenance technician								Energy efficiency sales representative	
				Building automation systems trainee				Insulation Apprentice	Insulation/ Air sealing technician			Energy efficiency Technician (Residential)	Energy efficiency program Assistant
				Building maintenance worker				Energy efficiency technician (commercial)			Building Performance Installer		
	<b>Architecture, Engineering &amp; Other Professional Services</b>			<b>Building Operations/Facility Management</b>			<b>Commercial &amp; Institutional Construction &amp; Retrofitting</b>			<b>Residential &amp; Multifamily Construction &amp; Retrofitting</b>			

Source: <https://greenbuildingscareermap.org>



- 2.2.8. Some organisations in the city region have already set up re-training activities and this will need to be built upon. Belcan have successfully re-trained over 200+ engineers from Aerospace into Marine in 2021 due to the downturn in Aerospace workload due to Covid-19. The process can be carried across for many Zero Carbon skills – three examples being:
- Oil & Gas Engineers can be retrained for Hydrogen Storage and Creation;
  - Vehicle Mechanics can be re-trained to retrofit Diesel & Petrol vehicles into EV & Hydrogen power trains; and
  - Bus/Truck vehicle design engineers can be retrained to understand EV and Hydrogen safety and packaging allowing both new and retrofit solutions.
- 2.2.9. There are a range of tools being produced that map career connections between different job roles in low carbon sectors such as the Green Building Career Map (see matrix of job roles in the above table), that can provide insight into additional skills and qualifications required to transition between job roles and progress careers. A key part of these progression is the practical experience gained in delivering low carbon activities. As the market for these services expands, this will help open up progression to higher level skills across the sector.
- 2.2.10. Discussions with stakeholders have highlighted that the required skills and how they relate to existing job roles and skills are complex and dynamic and while some sub-sectors provide a clear statement of what qualifications are required (e.g. PAS2035 for retrofit skills), this is by no means universal. A number felt that it was likely that these messages are not being communicated to young people through careers staff partly because of their complexity but also regulatory and technology changes make keeping track a challenge for all stakeholders. Some accepted that while these employment opportunities were highly likely to arise, the exact timing of when they may be required is very uncertain. It will be important for LCR partners to share information on skills and employment opportunities, how they relate and the key qualifications that may provide access to such job opportunities.
- 2.2.11. While these estimates are in line with national expectations, they provide only limited insight into the likely future trajectory of LCR low carbon economy. The next section considers the current investment plans in the low carbon economy and their employment and skills implications.

### **2.3. Labour and skill requirements of major low carbon investment projects in LCR**

- 2.3.1. The North West has recently undertaken some detailed analysis of major low carbon investments<sup>12</sup> in order to predict the scale of demand for low carbon skills. These flagship investments will place the NW and LCR at the forefront of a range low carbon power generation technologies tidal, hydrogen generation and storage, and carbon capture technologies to add to its existing presence in wind power. Moreover, the programme of investment will help existing high energy using sectors transition to a low carbon future that will sustain employment in an industrial cluster consisting of a diversity of industries including petrochemicals and alternative fuels production; carbon capture, chemical manufacture and storage; glass manufacture;

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Net Zero North West Economic Investment Prospectus, draft June 2021.

pharmaceuticals; and food processing and manufacture, with skills needed to support disassembly, re-manufacturing, and resource efficiency.

- 2.3.2. These investments will combine with initiatives to decarbonise domestic homes and businesses to further reduce the carbon footprint. We have taken these estimates of employment demand as a basis for exploring the implications for the supply of green skills in LCR. Across the NW, these initiatives will require investment of around £200bn and total employment of some 675,000 jobs to 2040. This represents a substantial investment programme (more than 16 times the scale of the Government's 10 Point Plan to 2030).
- 2.3.3. Nationally, there are a wide range of estimates of the potential employment opportunities across the green skills agenda. However, many such estimates are based on what needs to be done to meet net zero targets<sup>13</sup> and not necessarily on the investment levels from individual households and industry and government required to fund the shift to low carbon. While the scale of transition required may be relatively well-known, the pace at which this may occur is less certain.
- 2.3.4. Discussions with key stakeholders also highlighted that the demand for low carbon skills may also be conditioned by other factors in the wider labour market such as:
- Covid-19 is likely to leave a legacy of sectoral change with potential long-term structural decline in Hospitality, Travel and high street Retail but growth in other sectors. Low carbon skills interventions may be required to re-balance the supply side of the labour market with a more detailed understanding of customer service and other skills (e.g. project management) that may be relevant in the green economy.
  - Closely related to the above, the increasing automation and digitalisation will impact on many job roles but may also provide an opportunity to challenge some widespread perceptions especially among young people of construction-related jobs.
- 2.3.5. Stakeholders also pointed to long-standing structural issues with some low carbon occupations:
- Limited attractiveness to young people, especially women and BAME;
  - Highly fragmented sub-contracting structure leading to instability and short-termism and linked to a lack of investment in new technology and poor workforce development track record for new recruits and existing workforce; and
  - Ageing workforce and loss of experience and the loss of EU-migrant skilled labour during the pandemic all mean that recruitment into construction skilled trades need to increase significantly to just fill these gaps.
- 2.3.6. The NZNW analysis provides employment numbers for the major low carbon investment projects in the North West and their expected employment requirements to 2040. Assuming that investment funds are available, the

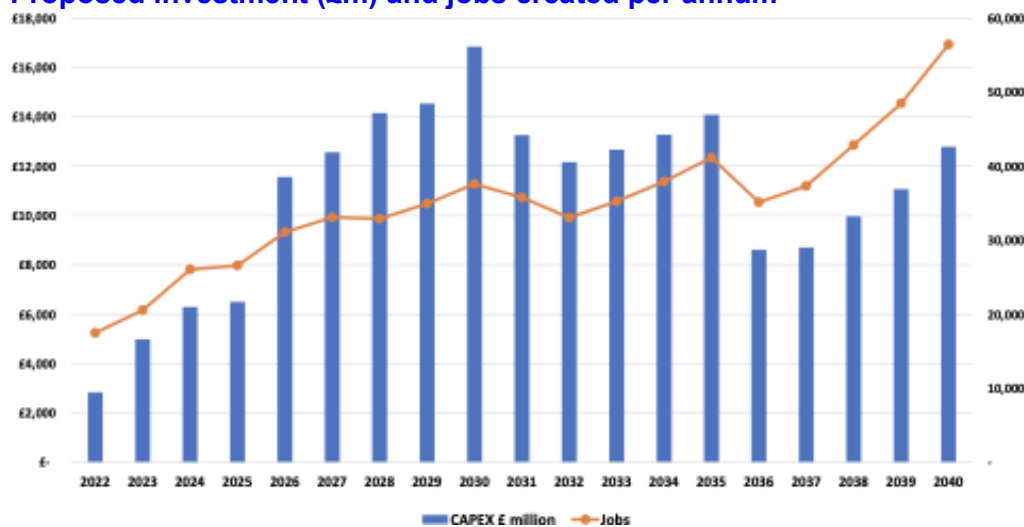
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<sup>13</sup> The UK is on track to deliver the third legally binding target for 2018 to 2022 but is already forecast miss the fourth (2023-27) by 5.6% and the fifth (2028-32) by 9.6%. House of Commons, Energy efficiency: building towards net zero, Business, Energy and Industrial Strategy Committee, Twenty-first Report of Session 2017-19, 9 July 2019.



development timetable for the sixteen projects results in a steep increase in related employment in the North West to 2030 – from around 10,000 in 2022 to over 35,000 in 2030 before increasing to around 55,000 in 2040. LCR’s share of this employment is around 21% or just over 141,000 jobs in total<sup>14</sup>.

### Proposed investment (£m) and jobs created per annum



Source: Net Zero North West Economic Investment Prospectus, Siemens, 2021

### NWNZ Decarbonisation Investment Projects

Investment programme	CAPEX (£m)		Jobs secured/created	
1 - Decarbonising the North West's industries through Carbon Capture and Storage	£8,621	4%	1,450	0%
2 - Energy Efficiency and Low Carbon Heating for the Industrial and Commercial sectors	£1,433	1%	19,270	3%
3 - Developing the Supply Chain with Process Efficiency and Consulting	£60	0%	10,000	1%
4a Invest net zero Cheshire local LC Smart energy grid	£85	0%	8,000	1%
4 - Building integrated Smart Energy systems that retain the value locally	£835	0%	78,569	12%
5 - Teaching Decarbonisation Skills: Clean Energy and Low Carbon Manufacturing Academies	£2,218	1%	2,310	0%
6 - Decarbonising the homes of the North West	£52,738	25%	204,550	30%
7 - Public Sector assets leading the way on Decarbonisation	£2,284	1%	26,119	4%
8 - Effective use of process resources: Heat and Decentralised Heat Networks	£7,995	4%	53,300	8%
9 - Taking heat from the ground beneath our feet	£1,980	1%	16,500	2%

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It is not possible to disentangle an LCR timeline for the investment but we believe the employment generated towards the end of the period is closely associated with nuclear energy project that represents just over a third of the total investment in NW, whereas the Mersey tidal barrage is toward the front of the investment pipeline and expected to be under construction in 2025/6 and operational in 2030.

Investment programme	CAPEX (£m)		Jobs secured/ created	
10 - Community renewable energy schemes	£510	0%	1,250	0%
11 - Innovating with Large-scale Tidal renewables	£7,000	3%	5,000	1%
12 - Securing a clean energy baseload with new Nuclear Plants and SMRs	£70,172	34%	64,000	9%
13 - Extending the reach of Wind renewables	£17,612	8%	50,549	7%
14 - Large-scale Solar PV and Storage driving clean generation	£3,873	2%	7,747	1%
15 - Generating Clean Hydrogen for the North West	£5,000	2%	5,177	1%
15a - Hynet	£900	0%	5,000	1%
16 - Driving forward transport with electricity and hydrogen	£10,325	5%	82,031	12%
17 - Hydrogen and alternative fuels for larger distances	£9,562	5%	21,344	3%
18 - Storing and Distributing Hydrogen economically	£4,724	2%	14,724	2%
<b>Total programme</b>	<b>£207,927</b>	<b>100%</b>	<b>676,890</b>	<b>100%</b>

2.3.7. The CITB's forecast<sup>15</sup> for all construction employment in the NW 2021 to 2025 is not directly comparable to the NZNW investment impacts (this forecast does not include employment in non-construction related sector such as operational staff etc). The NW forecast is for a 4.5% annual average growth 2021-25 with 11.1% growth in 2021 as demand bounces back post-lockdown. At NW level this would represent almost 12,000 new job opportunities across construction occupations or around 2,600 for LCR<sup>16</sup>.

2.3.8. It is not clear which, if any, of the above NZNW investments have been included in the CITB pipeline analysis (many are not expected to start construction until after the CITB forecast period). The CITB forecast does however provide some insight into the job roles that are expected to be in demand 2021-25. The table below identifies all those construction occupations expected to increase by at least 5% to 2025. Some occupations, such as Surveyors and Architects are expected to increase by more than 15%.

#### CITB 2021-25 construction occupations with significant growth forecast

Higher skill occupations	Surveyors, Architects, Construction professionals and technical staff, Civil engineers
Mid-range skills	Construction trades supervisors, Building envelope specialists (cladding), Bricklayers, Civil engineering operatives, Electrical trades & installation
Lower level skills	Non-construction operatives

Source: Construction Skills Network North West Report, Labour Market Intelligence Report, CITB Analysis and Forecasting, 2021

2.3.9. In most cases, the size of the occupations are such that the expected scale of increase is not that large but construction professional and technical staff will

<sup>15</sup> Construction Skills Network North West Report, Labour Market Intelligence Report, CITB Analysis and Forecasting, 2021.

<sup>16</sup> ONS Annual Population Survey Jan – Dec 2020 total Construction employment in LCR is 22.06% of North West region total employment.

increase by 2,300 employees and Surveyors by a 1,000 across the NW. We estimate that LCR requirement will be just over a fifth of these.

- 2.3.10. Discussions with stakeholders suggests, that in the short-medium term the most significant demand for low carbon sectors will be:
- Decarbonisation of homes and public sector assets – driven by public sector investment, collective action across social housing organisations to help improve the unit costs of external wall insulation by working at scale and increasing low carbon standards in new build<sup>17</sup>
  - The implementation of the Mersey Tidal project
  - On-going maintenance and additional investment in offshore wind power
  - Hynet hydrogen production and associated hydrogen transmission and storage projects
  - Higher demand for ecological skills to support natural capital developments in LCR and an increasing focus on improving and maintaining biodiversity.

- 2.3.11. The implications for LCR skills from each of these are considered below.

*Retrofitting homes and public sector buildings*

- 2.3.12. In line with the NZNW estimates, the number of jobs associated with the decarbonisation of homes and public sector assets will be around a third of all low carbon economy employment. The skills requirement for these activities have been fully defined by TrustMark and the PAS 2035 standard. The actual number of jobs arising from retrofit activity will depend on a number of factors, not least the level of private sector investment that residents are willing to invest in more energy efficient homes. LCRCA have already secured Green Homes Grant Local Authority Delivery (LAD) Ph. 1b and 2 Grants of over £11m and so has the opportunity to help kickstart demand with delivery of retrofitting of some 4,000 properties already underway. The speed of transition is going to be dependent on the pace of investment (and the available skills in the labour market). Pro rata to NZNW the estimate, some 51,000 jobs will be sustained or created in LCR.

- 2.3.13. Nevertheless, achieving this balancing act is going to be a challenge:
- BEIS whole house approach and emphasis on quality standards is essential to overcome the decidedly mixed results from previous initiatives designed to increase investment in low carbon technology such as the Green Deal<sup>18</sup>.
  - This has centred on the requirement that retrofit firms must register with TrustMark as from January 2021 all publicly funded projects must comply

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<sup>17</sup> Discussions with stakeholders also raised the contribution of ‘able to pay’ retrofit market where householders invest in improved insulation and low carbon heating systems themselves. This is seen as an important and growing market by many but also one which “*may be a slow burn*” as awareness of appropriate actions and affordability of the works and potential lengthy payback periods may deter investment.

<sup>18</sup> BEIS & DCLG, Each Home Counts Independent Review, December 2016 found that previous schemes designed to improve energy efficiency had a number of quality issues e.g. 10% of all solid wall insulation projects failed, some measures were applied piecemeal to fit with available budget and so did not deliver expected gains, poor design and overall too many projects did not achieve predicted energy savings undermining return on investment rationale.

with PAS 2035 (including schemes such as Green Homes Grant<sup>19</sup>, Public Sector Decarbonisation Scheme, Energy Company Obligation and Microgeneration Certification Scheme). Central to securing TrustMark accreditation is the adoption of PAS 2035 standards for the retrofit workforce that sit within a 'whole house' approach, designed to invest in the most appropriate energy efficiency technologies and provide most value to the householder. This should combine technical competence, with good customer service and trading practice. As a result, there is a hierarchy of activity – insulation before low carbon heating systems and renewable energy generation. This is important, in that the first steps installing effective insulation will reduce householders' energy bills and help reduce fuel poverty.

- PAS 2035 roles are relatively straightforward to acquire with mostly short courses, however, the prior qualifications can take much longer to secure – electrician and heating and plumbing engineers, architects etc. This has two implications:
  - the duration to full PAS2035 can be lengthy and
  - skill shortages in underpinning qualifications including craft trades and Surveyors already in high demand due to the strong construction post-Covid-19 recovery will have placed greater strain on the potential pipeline
- LCR has taken a fabric first decision to focus investment in improving the energy efficiency of domestic homes by upgrading home insulation. External wall cladding and skilled insulation operatives and domestic energy assessors will also be required. These occupations have shorter qualifications (although industry standards are yet to be published) and may offer potential routes into the industry for those who may have lost their jobs elsewhere due to Covid-19, but do not have a trade-related qualification.

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The GHG Local Authority Delivery (LAD) scheme is reserved for LAs to bid to upgrade the energy efficiency of homes of low income households and help reduce fuel poverty. This is targeted in homes with an EPC of E,F or G. LCR has been successful in securing £2.8m grants in Round 1 and LCR will administer £11.3m in phase 2 to be delivered by the end of 2021.

**PAS 2035 Roles, qualifications and accreditations**

<b>Role</b>	<b>Description</b>	<b>Qualifications required</b>	<b>Accreditations required</b>
Retrofit Advisor	Deliver retrofit advice to clients and householders	City and Guilds Energy Awareness and Advice Green Deal Advisor Level 5 Diploma in Retrofit Coordination and Risk Management	Coordinators must be a member of a TrustMark-approved Retrofit Coordinator Scheme
Retrofit Assessor	Carry out Dwelling Assessment and supply data to Coordinator	Level 5 Diploma in Retrofit Coordination and Risk Management (Path A) Domestic Energy Assessor (Path B & C) Specialist Level 3 – 6 awards in traditional buildings (Path B and C where building is 'protected')	Certified-DEA by a UKAS-accredited assessor body (e.g. Elmhurst, Stroma etc.). Members of a TrustMark-approved Scheme.
Retrofit Co-ordinator	Person with overall responsibility for each stage of the project, sometimes also fulfilling specific project roles for which they are also qualified	Open College West Midlands Level 5 Diploma in Retrofit Coordination and Risk Management. Must also be able to demonstrate prior experience and competence in professional practices such as contract management, project management, customer service etc.	Once qualified must be a member of a TrustMark-approved Retrofit Coordinator Scheme
Retrofit Designer	Person qualified to prepare a retrofit design	Path A: Level 5 Diploma / MCIAT Path B: As above plus registered Architects, Construction Managers and Building Surveyors Path C: as above plus CIBSE members who also hold the Level 5 Diploma or specialist traditional building qualifications	Professional Membership of CIOB, CIAT, CARE, AABC, RIBA RICS or RIAS
Retrofit Installer	Person or organisation undertaking the physical placement of an energy efficiency measure in an existing building	Tradesperson in: Internal or External Insulation Glazing Heating Systems and Boilers Renewable Energy Systems	
Retrofit Evaluator	Person qualified to monitor and evaluate the effectiveness of a project and provide feedback	Level 5 Diploma in Retrofit Coordination and Risk Management	Once qualified must be a member of a TrustMark-approved Retrofit Coordinator Scheme

Source: The Retrofit Academy



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**PAS 2030 certification covers the following energy efficiency measures**

<b>Heating</b>	<b>Insulation</b>	<b>Electrical</b>	<b>Renewables</b>
Condensing boilers (gas\LPG\oil) Fired (domestic and non- domestic) Heating controls Underfloor heating Flue gas recovery Heating systems insulation (pipes and cylinders) Warm air units	Cavity walls Loft Pitched and flat roofs External and internal walls Hybrid and floor and draught proofing	Lighting controls (non-domestic only) Light fittings Storage heaters	Micro CHP Ground source heat pumps Air source heat pumps Biomass boilers Solar thermal Solar photovoltaic

- 2.3.14. Discussions with stakeholders highlighted that the strength of the construction market with many trades very busy as households use their involuntary savings made during lockdown to invest in their homes. The very visible and immediate demand for new bathrooms, kitchens and extensions is making it very difficult to encourage small firms to gain TrustMark accreditation when it is difficult to point to equivalent demand for low carbon investment.
- 2.3.15. LCR has 46 Microgeneration Certification Scheme (MCS) accredited suppliers in March 2021 with 8 of these achieving accreditation in the period September 2020-March 2021. In general, urban areas have seen lower take-up of low carbon generation schemes to date. A total of 136 people in 60 organisations in LCR have completed either Retrofit Assessor (118) or Retrofit Co-ordinator (44) up to March 2021. Some 442 people working in 45 firms have qualified in a range of insulation skills (external wall, cavity wall, loft, floor insulation and glazing qualifications). Stakeholders engaging with electrical and plumbing firms highlight the future benefits to business owners in terms of future-proofing their market. They report that many firms acknowledge the direction of travel in the installation of low carbon equipment but those nearing retirement and not seeking to pass on their business to the next generation feel that there is sufficient 'traditional' work to keep them busy.
- 2.3.16. Recent forecasts of two retrofit scenarios for LCR highlight the likely employment and skills requirement over the medium term<sup>20</sup>. The focus on housing fabric first means that householders will experience a reduction in their energy usage and costs as well as lowering their carbon footprint in keeping with LCR policy objectives. The two scenarios involve:
- SAP C: £4.5bn over 13 years to ensure that the vast majority of dwellings can achieve at least a Standard Assessment Procedure (SAP) rating of 'C' or above<sup>21</sup>. Post investment the average SAP score is expected to be 72 when the boundaries for B and C are 69-80. Just under 482,000 properties will have their SAP improved by 9.5 points and reduce their tCO<sub>2</sub> by 1.50.
  - Net Zero: £12.1bn over 18 years. Average investment will be close to double SAP C at £18,200 in just over 665,000 dwellings. This is expected to deliver an improvement of 16.9 points on the SAP rating and an average of 79.1 and reduce average tCO<sub>2</sub> by 2.84.
- 2.3.17. Employment estimates arising for these two investment scenarios are set out below set against recent APS data for LCR. We are assuming that these estimates are total employment and that investment is allocated evenly across the time period for each scenario – so that, for example, 24 window fitters are required to undertake work on SAP C each year for 13 years. The scale of additional job opportunities required by both scenarios highlight two factors:
- Retrofit specific occupations are in short supply and are likely to be required at levels that have not been generated over an 18 month period

<sup>20</sup> Parity Projects Retrofit Scenarios, September 2021.

<sup>21</sup> The scenarios assume some cost-effectiveness boundaries on the scale of retrofit activity to achieve the maximum SAP rating. There is a focus on fabric and insulation improvement and replacement of heating systems with low carbon sources e.g. heat pumps and Photovoltaic and/or solar thermal. SAP C is expected to invest £9,400 per dwelling on average with a maximum investment of £71,200. Over a quarter of investments will be under £5k; Net Zero £18,200 on average and a maximum of £91,700 with fewer than 1% under £5k.

– so further action is required here to ramp up the numbers qualified to undertake these roles.

- Employees in other occupations are not currently idle and may have little capacity to absorb this additional demand. For example, it may be better to consider the number of plasterers as being in addition to the existing workforce and the need be around the level of existing capacity.

#### Employment estimates for retrofit scenarios in LCR

	SAP C (13 years)	Net Zero (18 years)	Currently employed
General Builders	2,750	1,986	3,572 <sup>1</sup>
Insulation specialists	2,335	1,687	n/k
Plasterers & renderers	1,025	740	961
Carpenters	48	35	3,614
Window fitters	24	17	1,400
Electricians	918	633	4,491
Heating Engineers	273	197	3,698
Renewable heat specialists	738	533	140 <sup>3</sup>
Retrofit co-ordinators	176	127	44 <sup>2</sup>
Total employment	8,287	5,955	-

Source: Parity Projects Scenario analysis and Annual Population Survey workplace analysis for North West Apr 2020 to Mar 2021, reduced pro rata to LCR in line with total employment in the construction sector Jul 2020 to Jun 2021.

<sup>1</sup> Construction and Building Trades n.e.c and may well include Insulation specialists who are not separately identified in APS.

<sup>2</sup> Number of people working in LCR-based firms completing Retrofit co-ordinator training in the period September 2020-March 2021.

<sup>3</sup> Number of people working in LCR-based firms completing MCS renewable energy training in the period September 2020-March 2021.

### Mersey Tidal Project

- 2.3.18. The Mersey Tidal Power project has the potential to generate between 1-5 GW of electricity (sufficient to meet all the current LCR energy needs) and has an expected operational lifetime of up to 100 years. This will complement the existing and future offshore wind energy production and place LCR at the forefront of the tidal energy sector. Significant investment is required but the project is in the latter stages of feasibility development with a view to commencing construction in 2025/6 and being operational in 2030.
- 2.3.19. No detailed analysis has been undertaken on the labour and skills requirement as yet but it is possible to get some insight from the construction skills needs modelling undertaken in planning for the Swansea Bay tidal lagoon<sup>22</sup>. It is expected that the employment requirement for Mersey Tidal Power will be two to three times larger. These are set out below for the construction phase of the project (2025/6 to 2030) but do not include operating employment.

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Welsh Assembly Government (2016), A study to determine the construction labour and skills demand, supply and gaps associated with the creation of the Swansea Bay Tidal Lagoon. These were developed using CITB's Labour Forecasting Tool.

**Mersey Tidal Power Estimated construction jobs by occupation**

	Tidal low	Tidal high	
Senior, executive, and business process managers	40	60	1.5%
Construction project managers	80	120	3.0%
Other construction process managers	10	15	0.4%
Non-construction professional, technical, IT, and other office-based staff	110	165	4.2%
Construction trades supervisors	10	15	0.4%
Wood trades and interior fit-out	480	720	18.1%
Bricklayers	40	60	1.5%
Building envelope specialists	40	60	1.5%
Painters and decorators	60	90	2.3%
Plasterers	20	30	0.8%
Roofers	20	30	0.8%
Floorers	20	30	0.8%
Glaziers	20	30	0.8%
Specialist building operatives nec	730	1095	27.5%
Scaffolders	20	30	0.8%
Plant operatives	310	465	11.7%
Plant mechanics/ fitters	10	15	0.4%
Steel erectors/ structural fabrication	10	15	0.4%
Labourers nec	220	330	8.3%
Electrical trades and installation	70	105	2.6%
Plumbing and HVAC Trades	70	105	2.6%
Logistics	120	180	4.5%
Civil engineering operatives nec	20	30	0.8%
Non-Construction Operatives Civil engineers	30	45	1.1%
Other construction professionals and technical staff	60	90	2.3%
Architects	10	15	0.4%
Surveyors	20	30	0.8%
Total	2650	3975	100.0%

Source: CPC calculations based on Welsh Assembly Government (2016), A study to determine the construction labour and skills demand, supply and gaps associated with the creation of the Swansea Bay Tidal Lagoon.

- 2.3.20. There is limited information on the requisite qualifications required by these occupations, however:
- Construction and related plus Logistics roles will require Level 2, 3 and 4 in some specialist occupations and form the majority.
  - Technical and management roles Level 6 with some senior Professionals at Level 7+
  - Under 10% of job roles will be 'unskilled' but site safety and other requirements will be necessary.
- 2.3.21. There is a potential overlap with offshore wind construction techniques and since the economy has emerged from lockdown, the limited supply of skilled labour across the economy has become more of a concern. A real question is whether these individuals will have the underpinning skills from sectors that have suffered in the pandemic (hospitality and non-food retail) to transition to the types of job roles required by the low carbon sector. It would seem more



likely that low carbon sectors will need to compete for skilled employees with the construction sector (in general).

### **Offshore Wind**

- 2.3.22. The Offshore Wind Industry Council produced UK sector employment forecasts based on an estimated investment of £60.8bn over the period 2021-26<sup>23</sup>. This is estimated to have the effect of increasing the current sector workforce of 26,093 by 43,755 to a total of 69,848 in 2026. This is considerably lower employment estimate than NZNW report even though that is for much lower expenditure over a much longer period to 2040<sup>24</sup>.

#### **Offshore wind sector employment by occupation 2026**

	North West		UK	
Corporate Services	135	3%	5,080	8%
Development	77	2%	3,092	5%
HSEQ	195	4%	2,035	3%
Management	586	12%	11,560	18%
Sales / Commercial / Procurement	36	1%	2,245	3%
Semi Skilled Operative	333	7%	15,232	23%
Skilled Manual	2,273	48%	13,825	21%
Technical / Professional	751	16%	13,108	20%
Other	336	7%	1,071	2%
Total	4,722	100%	66,062	100%

Source: OWIC Offshore Wind Skills Intelligence Model Report, February 2021 based on survey evidence from employers of around 44% of total sector employment, NSAR Skills Intelligence Model Survey Results/Opergy Ltd. January 2021.

- 2.3.23. The model also provides a regional forecast for the Offshore wind sector employment for NW being 7% of the national sector growth (we assume that this implies 7% of the investment or £4.256bn). The occupational breakdown of the offshore wind sector in the NW is dominated by Skilled Manual jobs that represent almost half the jobs compared to a fifth nationally. Other occupations are as a result relatively under-represented compared to the national breakdown.
- 2.3.24. There is no further breakdown available to sub-regional level and so no direct estimates for LCR. Based on the NZNW report around a fifth of these jobs might be expected in LCR or around 600 new jobs by 2026.
- 2.3.25. The survey also provides insight on employers' view on the required skill levels for the sector occupations and some insight into the sectors' use of Apprenticeships and Graduate placement schemes to develop a talent pipeline. The predominance of occupations at Level 4 reflects the higher proportion of skilled manual workers but there are fewer employees with skills at Level 5 and above when compared to the national picture. That said, the two skill levels where future growth in employment in the Offshore wind sector are Semi-skilled manual Level 3 and Level 4 Skilled manual (a range of

<sup>23</sup> OWIC Offshore Wind Skills Intelligence Model Report, February 2021

<sup>24</sup> The model estimates differ in the cost per job: NZNW report has a cost of just under £350k per job compared to £1.4m in the OWIC report (i.e. around four times higher). We cannot be certain, but the latter implies a much higher use of capital such as would be the case in the installation of a new offshore wind farm etc.



engineering, electrical and marine skills) and Technical job roles for Graduate engineers. This would equate to around 320 jobs at this level in LCR to 2026 but that these would demand very similar qualifications to the Tidal project and the wider construction sector.

### Offshore Wind Sector skills by Level in 2021 direct employees in respondent firms

	North West		UK	
Skill level 2	6	0.8%		1.6%
Skill level 3	63	8.2%	3	24.9%
Skill level 4	352	45.6%	7	19.5%
Skill level 5	72	9.3%		14.2%
Skill level 6	214	27.7%	10	33.6%
Skill level 7+	7	0.9%	2	4.3%
Not provided	58	7.5%		1.8%
	772		22	100.0%

Source: OWIC Offshore Wind Skills Intelligence Model Report, February 2021 based on survey evidence from employers of around 44% of total sector employment, NSAR Skills Intelligence Model Survey Results/Opergy Ltd. January 2021.

### Offshore Wind Sector use of skill development placements in respondent firms 2021

	North West	UK
Apprenticeships	7	206
Graduates	2	103
Trainees	2	55
Total	11	364
% of total employment	1.4%	3.2%

Source: OWIC Offshore Wind Skills Intelligence Model Report, February 2021 based on survey evidence from employers of around 44% of total sector employment, NSAR Skills Intelligence Model Survey Results/Opergy Ltd. January 2021.

- 2.3.26. The survey suggests that the North West lags the national average take-up of talent development for young people in the offshore wind sector with fewer than half the number of young people being recruited on to skill development placements when compared to the national average. Other regions, Yorkshire and the Humber (6.2%) and North East (4.6%) score well above the average. Responses are lower in this element of the survey, so some care is required but this suggests that LCR stakeholders need to ensure that if this is the case any barriers are removed to ensure a more healthy talent pipeline can be established.

### Overview

- 2.3.27. Clearly there are significant issues in scheduling the programme of investment in low carbon technology. This is particularly the case when many of the investment programmes – retrofit of buildings, tidal, wind energy and Hynet will place significant demands on the supply of skills in LCR if they are to be developed concurrently. To attempt to provide a consistent overview we have adjusted the available sector forecasts over the next five years. This provides a more tangible perspective and makes the best use of forecast evidence.
- 2.3.28. Taking these forecasts to 2025/26 (adjusted as necessary) it is clear that substantial additional technical skills are required. A large number of jobs are



required by the Mersey Tidal project but these are not expected to commence until after 2025/26. Otherwise the combination of the retrofit of domestic buildings and expansion of Offshore wind are likely to generate a minimum of 1,800 additional job opportunities and a high as large as 12,000. The skills required are similar – predominately technical skills at Level 3 and 4 with a significant minority in the region of a quarter at Level 6 or higher. These are not skills that can be developed overnight but at least those individuals with higher level skills are more mobile. The next section considers the supply of broadly relevant skills in LCR.

### Overview of low carbon employment forecasts by sub sector

	Demand to 2025/26	Key Skills requirements	Skill Levels
<i>Retrofit of buildings</i>	1,200 (NZNW) <sup>1</sup> 2,600 (CITB) <sup>2</sup>	No specification of skills Surveyors, Architects, Construction professionals and technical staff, Civil engineers, Construction trades supervisors, Building envelope specialists (cladding), Bricklayers, Civil engineering operatives, Electrical trades & installation	n/a Level 7+, Level 6, Level 5, Level 4, Level 3 & Level 2
	6,000 - 8,300 (Parity)	Retrofit Co-ordinators, Renewable heat specialists, Insulation specialists, Electricians, Heating engineers, Plasterers & General building	Level 5, Level 4, Level 3, Level 2
<i>Mersey Tidal Project</i>	2,700-4,000 <sup>3</sup>	Professional and Technical marine, construction engineering, construction and related plus Logistics	Level 7+ and Level 6 but majority Level 2, 3 & 4
<i>Offshore Wind</i>	5,000 (NZNW) 600 (OWIC)	No specification of skills A range of engineering, electrical and marine skills	n/a 55% at Level 3 & Level 4, 28% at Level 6, 10% Level 5
	3,600 (NZNW) <sup>4</sup>	No specification of skills	n/a

<sup>1</sup> NZNW forecast to 2040 adjusted by estimated spend to 2026 when overall expenditure is heavily back-loaded and 20.89% for LCR.

<sup>2</sup> CITB forecast to 2025 for construction not just low carbon sub-sector. Adjusted by overall employment ratio in construction to provide LCR estimate.

<sup>3</sup> CPC adjusted SBTL project analysis. Current estimates suggest that construction of this project would commence in 2025/26 at the earliest and so these roles may not arise until then.

<sup>4</sup> NZNW forecast to 2040 adjusted by estimated spend to 2026 and 20.89% for LCR.

### 3. SUPPLY OF LABOUR TO THE LCR LOW CARBON SECTOR

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#### 3.1. New entrants into the low carbon sector

- 3.1.1. The Low Carbon economy sector has a diverse mix of occupations and requirement for workforce skills and experience. As described in section two, sector skills are rooted Energy, Manufacturing and Construction sectors and to a large extent reflect the composition and challenges of these industries. There is also a small component within the Professional Services sector, engaged in specialist legal and financial services for Low Carbon.
- 3.1.2. The availability of scientific, technical, engineering and mathematical (STEM) skills and qualifications are essential for businesses in the Low Carbon economy. National studies indicate a growing concern among employers about the shortage of new technicians and engineers being trained to replace existing workers due for retirement over the next decade.<sup>25</sup> A UKCES survey<sup>26</sup> found that 60 per cent of employers interviewed in the energy sector stated that not enough individuals are studying STEM subjects at undergraduate or postgraduate levels due to negative perceptions about the difficulty of courses or the lack of career opportunity.
- 3.1.3. It is difficult to be precise on how education qualifications will link with low carbon skills but there is a clear need for STEM-related qualifications at GCSE and A Level and then STEM subjects in Higher Education degree and post-graduate courses. A Level entrants for STEM subjects in LCR have varied recently but had picked up in the latest year for which data is available and are now just over 2015-16 levels (just over 5,200 entrants).

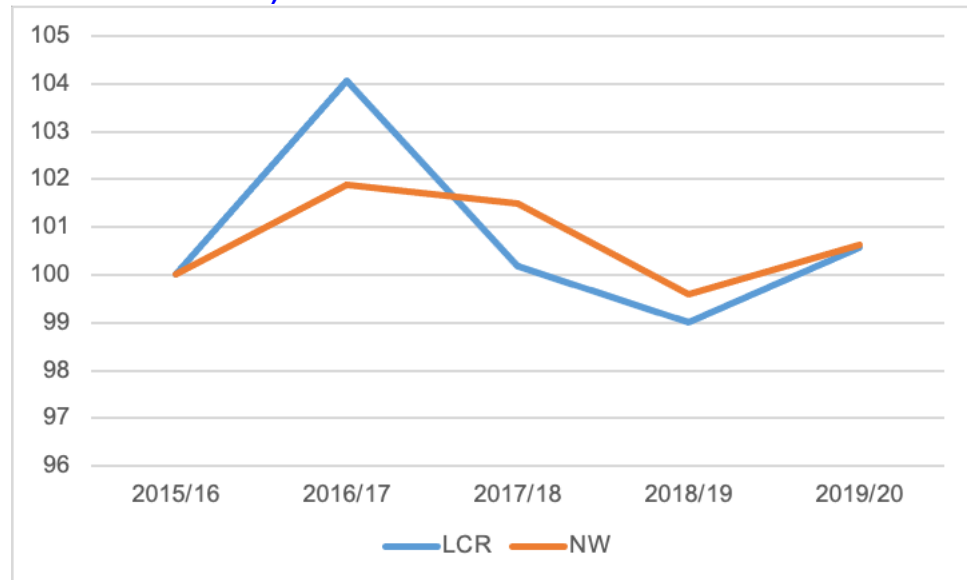
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<sup>25</sup> Royal Academy of Engineering (2016) The UK STEM Education Landscape – available: <https://www.raeng.org.uk/publications/reports/uk-stem-education-landscape> Also see Uff, J. (2016) UK Engineering 2016. Available: <https://www.raeng.org.uk/publications/other/uk-engineering-2016>

<sup>26</sup> UKCES (2015) Sector insights: skills and performance challenges in the energy sector.



### A Level Entrants for STEM Subjects 2015/16 – 2019/20 (indices 2015-15 =100)



Source: DfE (2020) A level and other 16 – 18 results 2015/16 to 2019/20 (provisional)

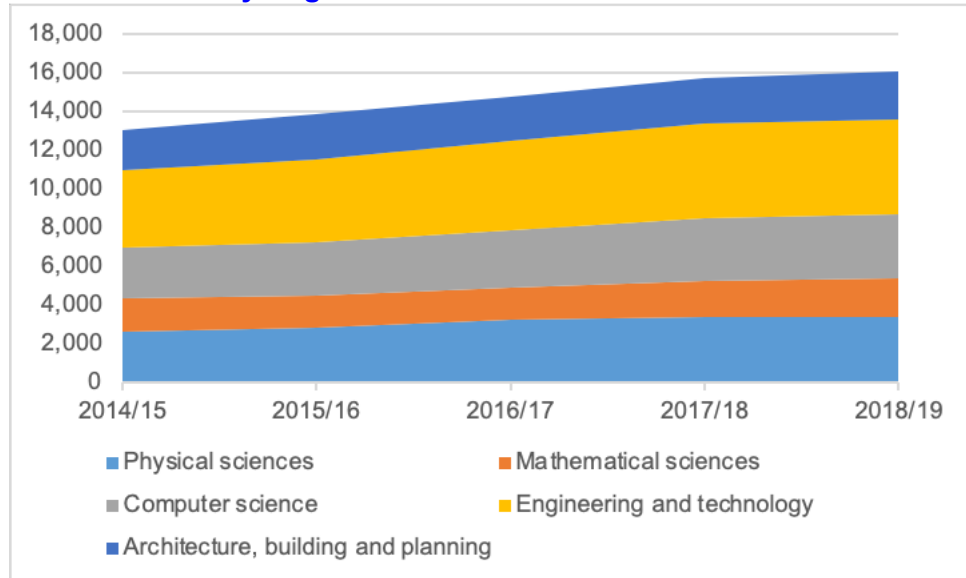
- 3.1.4. This may be the start of an upward trend but STEM skills are in high and increasing demand across the economy so a stable number of starts implies that there will be greater shortages in future. This is already evidenced in employer feedback: a recent survey by the Institution of Engineering and Technology reported that 60% of their members felt they were unable to deliver the objectives set in the Industrial Strategy due to acute skill shortages. Additionally, 53% of survey respondents were concerned that the UK's shortage of engineers is a threat to their business<sup>27</sup>. LCR has effective actions on STEM but there is always further scope for improvement especially in developing more gender-balanced approach. Evidence suggests that there is a need to retain early interest in STEM subjects shown by females as too few take this forward past A Level.
- 3.1.5. Moreover, the National Audit Office reports<sup>28</sup> HESA research, which found less than one quarter (24.4 per cent) of STEM graduates in 2015/16 were working in STEM occupations within six months of graduation. While this does not account for unknown destinations and those undertaking further study that may have gone into STEM occupations later, it does suggest that there are problems in employers attracting qualified individuals into scientific and engineering career pathways.
- 3.1.6. That said, HE Institutions in LCR have recorded significant growth in enrolments in STEM related subjects at Degree and Postgraduate level – up from just over 13,000 in 2014/15 to just over 16,000 in 2018/19. Physical Sciences (28%) and Engineering and Technology graduates were highlighted as being key to the delivery of the NZNW programme of investment. HE STEM enrolments are somewhat lower, increasing by 9% over the same period

<sup>27</sup> IET (2021) Addressing the STEM skills shortage challenge

<sup>28</sup> NAO (2018) Delivering STEM skills for the economy. Available: <https://www.nao.org.uk/wp-content/uploads/2018/01/Delivering-STEM-Science-technology-engineering-and-mathematics-skills-for-the-economy.pdf>

suggesting that LCR HE institutions are attracting proportionately more students into these subjects.

**HE Student Enrolments in Low Carbon Relevant Subjects, Liverpool City Region Universities**



Source: HESA (2020) Includes first degree and post-graduates

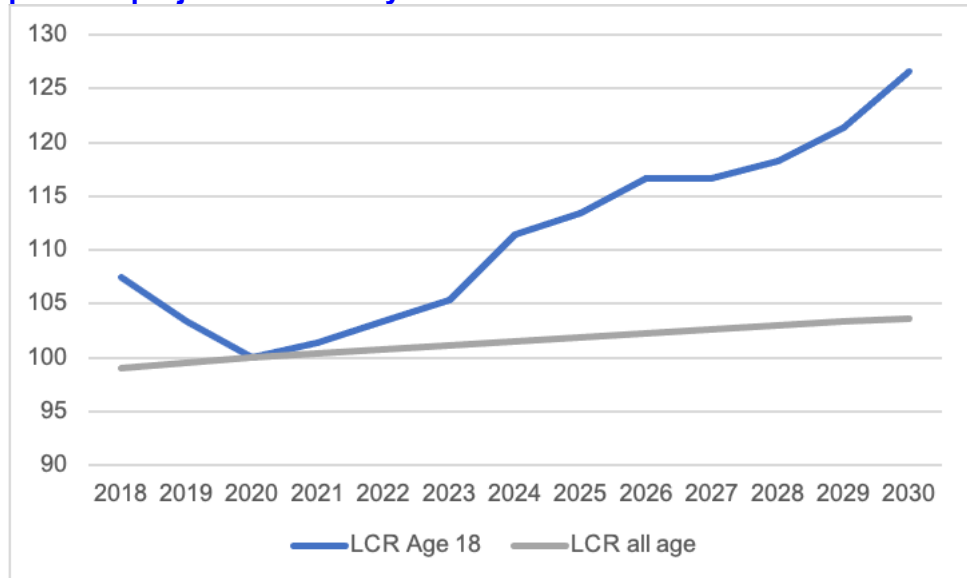
- 3.1.7. Graduates from these STEM subject areas, particularly Engineering and Technology and Physical sciences should be engaged in career prospects in the low carbon economy with the aim of increasing the proportion who use their qualification to work in a STEM job above the benchmark 25%, as this will have a larger impact on numbers working in the sector.
- 3.1.8. In keeping with national population trends, LCR’s 18 year old population is forecast to rise 26% between 2020 and 2030. This increase matches that of England as a whole and slightly above the increase projected for the North West region (24%). By 2030 the number of 18 year olds will increase by just over 4,350 people. To give an indication of the likely impact of this population shift, the employment demand estimates from NZNW imply an annual net new employee requirement of around 7,350 in LCR by 2030<sup>29</sup>.

<sup>29</sup> LCR employment demand estimated to be around 21% of the total but much depends on the speed and sequencing of investment into the different net zero projects included in the programme.



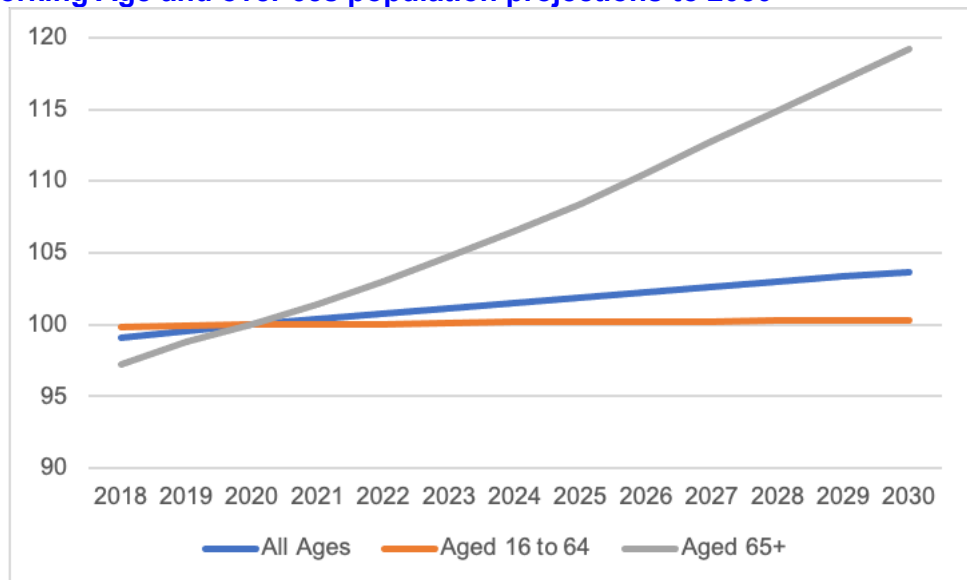


**Population projections for 18 year olds to 2030**



Source: ONS 2018 population projections, Indices 2020=100

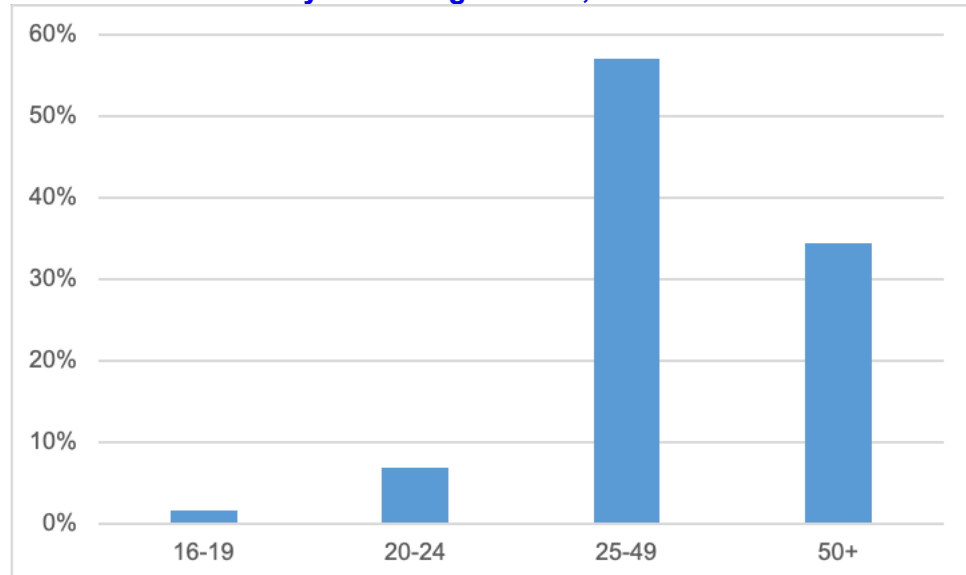
**Working Age and over 65s population projections to 2030**



Source: ONS 2018 population projections, Indices 2020=100

- 3.1.9. An increase in younger age groups coming into the working age population will be doubly important for low carbon and construction trades in particular. A third of current employees in the sector are over 50 and over half fall into the 25-49 age bracket. An increasing proportion of over 50s in working in construction has been evident since 2012-13 and had pretty much doubled by 2019-20.
- 3.1.10. However, while the increase in younger people entering the labour force is welcome, it will only marginally increases the available working age population over the next decade as an ageing workforce retires. This suggests that the population increase will help but even is all the additional young people entering the labour market enter the low carbon economy, they will need to be supplemented by significant levels of re-training of existing employees (or importing skills from outwith LCR).



**Low Carbon Economy Sector Age Profile, LCR 2020**

Source: ONS Annual Population Survey (workplace), Liverpool City Region year ending June 2020

## 3.2. Supply of low-carbon skills

3.2.1. Robust and detailed data on the number people in education and training in subject areas that are relevant to the low carbon sector in LCR is limited. In combination with the impact of the pandemic on take up of education courses since spring 2020, this means that precise data on Apprentices and learners in FE colleges who are intending on progressing into low carbon job roles is not available. Therefore, what follows provides some insight into the broad contribution to the future low carbon skills pipeline but should be considered upper estimates.

### *LCR Apprenticeship starts*

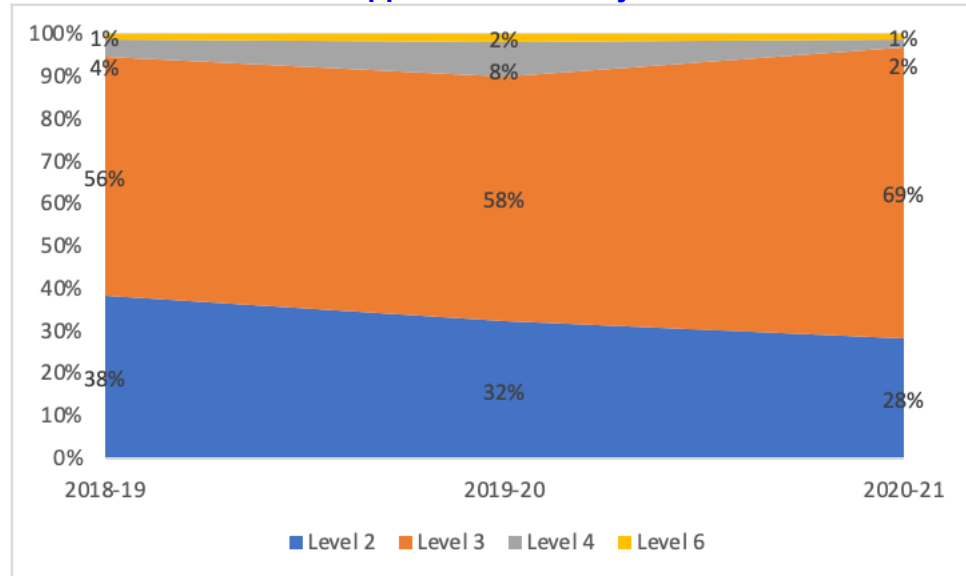
3.2.2. Apprenticeships provide another significant source of low carbon skills. Unfortunately, previous data estimates for low carbon employers are no longer accessible and therefore we cannot determine the sectors in which Apprentices are working in sufficient detail to understand how many are working and learning in low carbon sectors<sup>30</sup>.

3.2.3. Some 952 carbon related Apprentices started in 2018/19 with 758 in 2019/20 which will have been impacted by Covid-19 and associated lockdown. Data on starts in 2020/21 are only available to Q3 and suggests that there has been a continued fall as a result of Covid-19 but this may prove to be less severe than the previous year.

3.2.4. The impact of the pandemic has impacted on Apprenticeship start numbers across Standards and Frameworks but there also appears to be a trend in the proportion of starts by Level with an increasing proportion of Level 3, a reduction in Level 2 and a fall in Level 6 in 2020-21 (although the 2020-21 figures are not for the full year).

<sup>30</sup> Low carbon related Standards and Frameworks have been selected covering Building services, Construction trades and related, and Engineering and Engineering technician apprenticeships.

**LCR low carbon related Apprenticeship Starts by Level**



Source: DfE and ESFA Apprenticeship starts to Q3 2021

3.2.5. Level 3+ starts represent 72% of all starts in 2020-21 compared to 61% in 2018-19. Level 2 starts have declined more dramatically and in 2020/21 are less than half the number in 2018/19 compared to Level 3 that are 71% of their 2018/19 figure in 2020/21. In part this reflects a national trend towards Level 3+ Apprenticeship starts since the introduction of the Apprenticeship Levy in 2016/17. At this stage it is not clear how quickly starts on these low carbon related Apprenticeships will return to pre-Covid-19 levels.

*Education and training in LCR Further Education Colleges*

3.2.6. Data on education and training in LCR FE colleges in low carbon related subjects is less precise than that available for Apprenticeship starts. ILR underlying data provides only broad learning area data so low-carbon related sectors cover education and training in the construction, planning and the built environment and engineering and manufacturing technologies (so relatively broad subject areas). These enrolments exclude Apprenticeships so that there is no double-counting with the data in the previous section.

3.2.7. The LCR FE sector recorded just under 8,000 enrolments in low-carbon related sectors for the last full year pre-pandemic from just over 67,000 enrolments at all Levels in 2018-19. The vast majority of these were at Level 2 or below. At best, this represents just under 4,900 starts on low carbon education and training courses at Level 2 or higher in LCR FE colleges.

**LCR Further Education and Training 19+ enrolments 2018-19**

	Total enrolments	% low carbon related
Entry Level	14,168	5%
Level 1	22,076	11%
Level 2	25,320	17%
Level 3	5,365	9%
Level 4	483	12%
Level 5	193	1%
Level 6	20	0%
Level 7	6	0%
Total	67,631	12%

Source: DfE FE enrolment ILR data 2018-19

**3.3. Can supply meet expected demand?**

- 3.3.1. As discussed in section 2, there is considerable uncertainty over the pace at which low carbon jobs will be required in LCR. We think that the majority of the 141,000 jobs estimated for LCR from the NWNZ investment programme will arise in the period 2022 to 2035. Much depends on the speed at which investment funds can be secured. This would imply around 2,000 additional jobs in 2022 up to around 7,000 per annum in 2030.
- 3.3.2. While the increase young people over the next decade will go some way to addressing this need, in fact it will be largely taken up by replacing experienced workers retiring from low carbon sectors and the total working age population will increase only marginally. This, in turn suggests that LCR will need to more with the existing resources it has to hand – more females, more BAME employees and more people with STEM qualifications will need to be attracted and retained in the low carbon sectors to get close to satisfying the major employment opportunities presented by these low carbon developments.
- 3.3.3. This will not be an easy task. These issues have been well known in the construction sector for some time and the sector has yet to demonstrate any sustained progress.

## 4. LOW CARBON SKILLS PRIORITIES

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- 4.1. The low carbon sector in Liverpool City Region diverse and dynamic with a clear growth trajectory over the past decade and a strong investment potential over the next decade. The low carbon sector brings together a number of specialist technical and craft skills with low carbon technologies that are evolving alongside industry and building standards regulation and government policy. This does make for a dynamic demand for low carbon skills often with very specialised qualifications.
- 4.2. LCR partners have developed a detailed insight into low carbon industries and existing relationships with learning providers and employer networks. Building on these relationships will be vital to stay abreast of developments and ensure that skills investment can occur sufficiently in advance of the proposed large scale investment in low carbon sectors.
- 4.3. Investing in low carbon and renewable energy economy will not only support a path to net zero for the UK and LCR but also offer a significant market for low carbon goods and services. LCR will be a major location for new investment in low carbon technology. The Net Zero North West Economic Investment Prospectus outlines a £200 billion investment pipeline for the North West region as part of a coordinated effort to decarbonise industry and make the North West the UK's first net zero region by 2040. In particular, LCR will benefit from further offshore wind power, new tidal energy generation and significant transition from high carbon sectors to low carbon sources of energy, storage and carbon capture technology that would put the city region at the forefront of these sectors.
- 4.4. Estimates vary but around a fifth of UK jobs (21%) would be affected by the transition to a green economy. These will be split evenly between jobs that now require additional skills or entirely new low carbon occupations and those jobs in high carbon industries that will need to be transitioned into low carbon roles:
- Augmented skills will need to be accessed by those already in work so the provision of such skills will need to be delivered flexibly
  - Transitional skills will require similar delivery but crucially, more insight is required on which high carbon industry or Covid-19 impacted occupations have the most appropriate base skills and competencies to transition to new in-demand low carbon roles.
  - New specialist skills will continue to be developed through technical pathways such as apprenticeships and in-depth training at undergraduate and postgraduate level and be closely connected with industry practice, such as in battery technologies, chemical processes in waste, hydrogen and materials development for insulation etc
- 4.5. The predicting the pace of investment in low carbon technologies is very challenging. Although Covid-19 has not helped, the lack of growth in LCREE sectors at a national level suggests investment in low carbon sectors has been less than predicted for the last 7 years. This suggests that the public sector should seek to prioritise on building up the pipeline of craft and technical skills. This should involve:
- Reinforcing the existing promotion of STEM skills and closely linked to engineering-related craft and undergraduate courses. LCR along with



England are entering a decade where the number of 18- year olds will increase by more than a quarter and numeracy and analytical skills will be at a premium across the labour market.

- Careers IAG highlighting the many roles associated with low carbon technologies across engineering and construction and related skills. Promotion of such career opportunities to women is essential to overcome highly gendered roles and ensure access to a wider pool of talent.
- Female-friendly delivery has been trailed by some LCR providers but this needs to be implemented at scale including additional care support for dependents and female only courses.
- Although there have been no firm announcements it seems likely that Government policy on higher technical qualifications will place a premium on FE and HE collaboration at Level 4, Level 5 and better progression to Level 6. Improved coherence and co-ordination between LCR FE Colleges and HEIs presents an ideal opportunity to:
  - Improve clarity on the learning offer and explore best route to deliver such courses to learners most often already in employment
  - Modular courses that might attract funding from employers (apprenticeship levy/ levy allocation), directly funded, employer funded through lifelong loan entitlement. Improved offer of Level 4 and 5 modules specific to low carbon sectors e.g. offshore engineering will provide bite-sized and sector-focused progression.
  - Both of these need a strong employer involvement to help ensure investment is in the precise skills required and keep up with industry practice and equipment. Digital practice and knowledge is essential to keep abreast of new techniques.
  - Ensure that HE credits learning at Level 3 to help improve access to higher technical qualifications for those on work-based learning.
  - Work with other agencies engaged with low carbon businesses (e.g. MCS certified) to develop workforce development offer beyond base PAS 2035.
  - Larger firms could be encouraged to invest in supply chain development to ensure continued improvement in quality standards.
  - Provide transition training – an issue here is focusing on people impacted by Covid-19 and seeking to re-train and the viability of low carbon roles to this group. Project management and customer service skills are potential skills of interest in a range of low carbon roles. Stakeholder networks already possess expertise in re-training aerospace engineers into marine engineers.
- There is a need to shape demand in sub-sectors where sectors are still awaiting standards e.g. external wall insulation (EWI). Liverpool John Moores University are engaging with social housing providers to collate their individual demand so that there is sufficient scale of EWI activity to achieve some economies of scale. These networks could also be used to help drive skills development in specialist skills at a scale that would make such courses viable for training providers.
- Need to implement a climate literacy programme especially in sectors where the introduction of low carbon technologies will require greater precision and quality standards than may be traditional e.g. groundwork





preparations for offsite construction etc. LCR is already developing a climate engagement strategy but this needs to build on practice elsewhere (e.g. Germany) where the focus is on low carbon technologies will change job roles. One option here is to engage individuals through Trade Unions as well as employers to highlight the positive potential of career development in low carbon sectors.

- The LCR Year One Climate Action Plan proposes steps be taken to improve waste management and develop a circular economy in LCR. This will have skills implications but as yet these have not figured highly in low carbon plans. Further work will be required to engage more circular economy approaches in product design and deepen the recovery of expensive materials through 'urban mining' (such as nickel, cobalt and lithium from smart phones etc.) for re-use in products as an alternative to traditional sources from mining extraction. This also aligns to the LCR zero avoidable waste target for 2040, the Strategic Waste Partnership (which the CA are part of) and the agreed LCR Zero Waste Strategic Framework and relevant content on green jobs / skills – detailed in the appendix.
- The LCR Plan for Prosperity (PfP) and LCR Climate plans identify the role of waste / circular economy. The PfP commits LCR to “Embed the principles of a circular economy to get the most use and value out of material resources” leading to a 2035 outcome of “A growing circular economy” – metrics include number of people employed in the circular economy.
- The LCR Pathway to Net Zero report highlights the increasing role that natural capital will play in achieving net zero in maintaining and developing biodiversity. The forthcoming Environment Bill will come in next year and all built environment developments have to demonstrate biodiversity net gain. LCR partners will need to plan for greater demand for ecological maintenance and skills in maintaining and developing biodiversity sites both for biodiversity and carbon capture across both 'green' and 'blue' environments in the City Region.
- Although not directly a skills requirement, there is a broader need for all LCR businesses and particularly SME's to understand what they will need to do to decarbonise and the role low carbon skills could play in supporting this transition. This will require LCR partners to bring together business advice and skills support to improve:
  - businesses understanding of their carbon footprint and practical steps to reduce it
  - All businesses understanding of regulations and new requirements coming through in social (and environmental) value in procurement
  - All business understanding of ESG (Environmental , Social and Corporate Governance) principles starting feeding down from the larger business and how they can plan for this

**APPENDIX**

**1) LCR waste – Strategic context**

**a) LCR Zero Waste Strategic Framework**

- The framework has 3 themes – People, Planet, Economy.
- Economy theme identifies an opportunity to expand green jobs from transition to a circular LCR, rethinking resource use, designing out waste.
- Strategic outcomes under the Economy theme include ‘Green Jobs’ and ‘Circular Economy’
- ‘Green Jobs’ strategic outcome identifies establishment of a reuse hub, growth of remanufacturing industries, expansion of rental / leasing services and investment in reuse / reprocessing capacity.
- ‘Circular Economy’ strategic outcome identifies growth in circular business support and education, LCR circular city scan, development of 20 minute neighbourhoods.

**b) LCR Zero Waste Action Plan**

- The Strategic Framework is accompanied by an Action Plan. Relevant actions around jobs and circular economy include:
- Engage local authorities / developers to ensure new / retrofit buildings, homes and infrastructure are zero waste in design and construction by 2040.
- Develop reuse and repair skills training programme.
- Encourage development of remanufacturing industry in LCR.
- Support rental / leasing services.
- Attract investment in reuse and reprocessing technologies and increase skills and jobs in this sector.
- Establish business support programmes to expand circular activity in LCR.
- Develop circular economy education tools for all ages.
- Create LCR circular economy clusters to share best practice, improve resource efficiency and business competitiveness.
- Develop LCR as a low carbon, circular region which delivers green jobs and thriving businesses.

**Relevant actions from the LCR Zero Waste Action Plan**

The below actions have direct links with the development of skills and green jobs across LCR.

Theme	Strategic Outcome	Action
People	Social Value	Expand zero waste activity in the community e.g. community fridges, water refill points and support for localised food growing.
		Engage with residents and businesses to develop a programme of LCR zero waste projects.
		Increase Reuse across LCR. Including an LCR reuse hub, plan for supporting community reuse and repair.
Planet	Climate & Carbon	Expand education and behavioural change activity.

		Establish an LCR Reuse Network.
		Establish a net zero carbon 2040 trajectory for LCR Waste.
	Resource Efficiency	Engage local authorities and developers to ensure new / retrofit buildings, homes and infrastructure are zero waste in design and construction by 2040.
Economy	Jobs	Invest with a focus on moving up the waste hierarchy.
		Develop reuse and repair skills training programme.
		Encourage development of remanufacturing industry in the City Region.
		Provide support for expanding rental/leasing services
		Attract investment in reuse and reprocessing technologies and increase skills and jobs in this sector.
	Circular Economy	Establish business support programmes to expand circular activity in the LCR.
		Develop circular economy education tools for all ages.
		Undertake a Liverpool City Region City Scan.
		Create LCR circular economy clusters to share best practice, improve resource efficiency and business competitiveness.
		Develop LCR as a low carbon, circular region which delivers green jobs and thriving businesses.

**2) Green jobs in a circular economy references:**

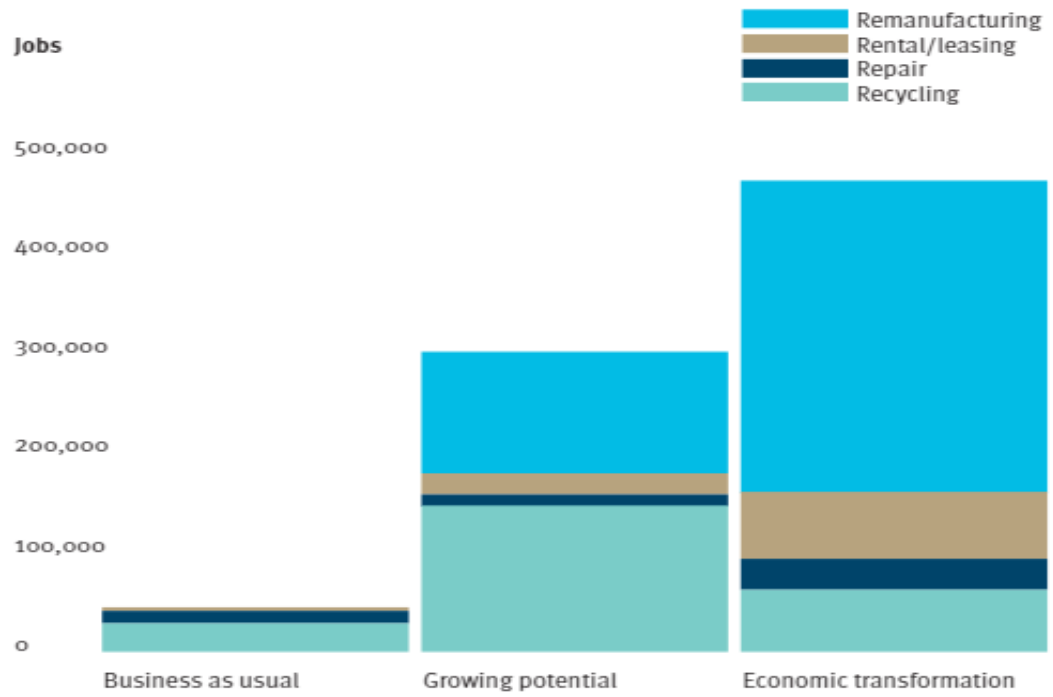
According to WRAP increasing refurbishment of products could add over £54 billion to UK Gross Value Added and create over 300,000 jobs. Increasing repair could add £3.3 billion to UK Gross Value Added, create over 30,000 jobs and potentially revitalise city centres. (Ref: WRAP: Net zero – why resource efficiency holds the answers, 2021).

## Growth in core circular economy activities by 2035

	2019	2035 scenarios		
		Business as usual	Growing potential	Transformation
Recycling rate (all waste streams)	48% <sup>11</sup>	65%	75%	85%
Remanufacturing rate	1%	1%	20%	50%
Reuse growth	0%	10%	10%	25%
Rental and leasing growth	0%	5%	30%	100%

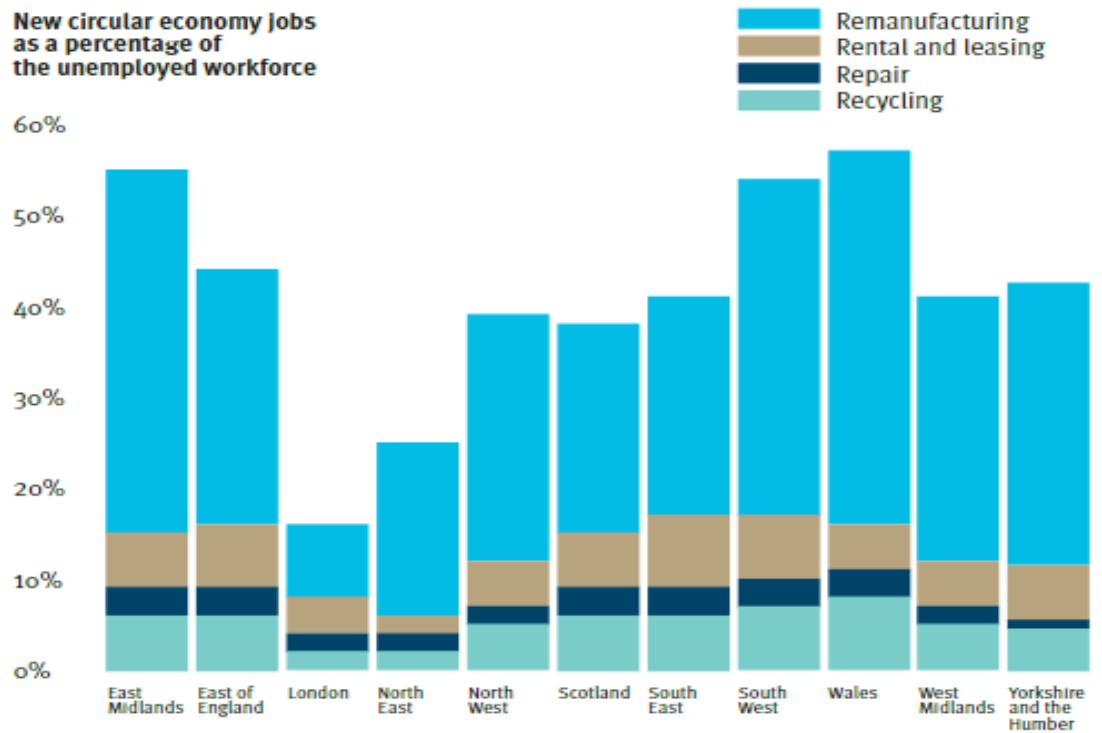
[https://green-alliance.org.uk/Levelling\\_up\\_through\\_circular\\_economy\\_jobs.php](https://green-alliance.org.uk/Levelling_up_through_circular_economy_jobs.php)

**Job creation potential at different levels of circular economy ambition by 2035**



**Circular economy jobs growth could be significant for the regions under a 'transformation' scenario**

**New circular economy jobs as a percentage of the unemployed workforce**



[https://green-alliance.org.uk/Levelling\\_up\\_through\\_circular\\_economy\\_jobs.php](https://green-alliance.org.uk/Levelling_up_through_circular_economy_jobs.php)



**3) Ellen MacArthur – Completing the Circle**

<https://ellenmacarthurfoundation.org/completing-the-picture>

**4) Resources & Waste Strategy for England**

<https://www.gov.uk/government/publications/resources-and-waste-strategy-for-england>

**5) Dept of Education – Sustainability and Climate Change Strategy. April 2022**

[Sustainability and climate change strategy - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/sustainability-and-climate-change-strategy)

Action Area 2 focuses on Green Skills and Careers and links to

- UK Net Zero Strategy
- Skills and Post-16 Education Bill
- Green Jobs Delivery Group
- Skills Bootcamps
- Free Courses for Jobs offer
- General Further Education College Accountability Agreements
- LSIP trailblazers
- Strategic Development Fund pilots





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