

SKILLS THROUGH CRISIS

Upskilling and (Re)Training for a Green Recovery in Wales

May 2021



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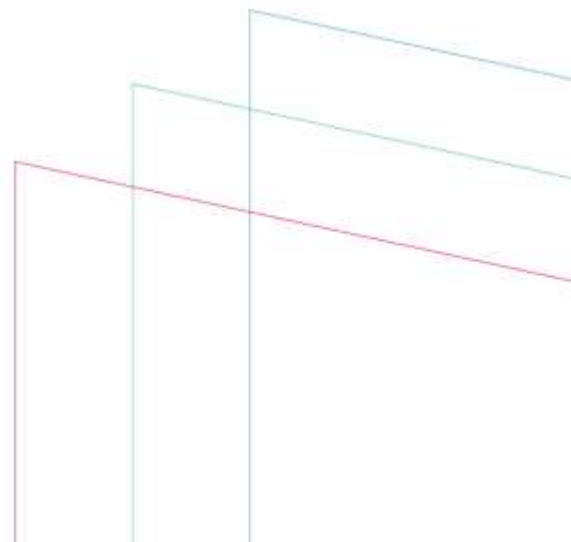
UPSKILLING AND (RE)TRAINING FOR A GREEN RECOVERY IN WALES

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SUMMARY

Skills and employability will underpin Wales' recovery from the dual crises of the COVID-19 pandemic and climate breakdown. This briefing, prepared in collaboration with the Future Generations Commissioner for Wales, focuses on:

- i. the pre-crisis condition of skills creation and employability in Wales;
- ii. the impact of the pandemic and climate breakdown on skills creation and skills demand;
- iii. the skills which will be demanded if Wales is to achieve a green recovery from the COVID-19 crisis; and
- iv. the adequacy of Wales' current policy provision for bridging the skills gap between current and future industries.

This briefing highlights the poor state of adult skills development in Wales prior to the global pandemic; a context heavily influenced by decisions made in Westminster over the past decade. We look at what this means and how it can be addressed to meet the dual challenges of unemployment and a structurally shifting economy.

Sectors such as construction, heating, electrical installation, manufacturing, engineering, and nature restoration are shown to have significant job creation potential for a "green recovery". In these sectors future demand is likely capable of supporting a workforce much larger than today.

The challenge facing government and employers alike is therefore to:

- a) upskill the existing workforce;
- b) rapidly expand the workforce in green growth sectors, and
- c) ensure accessibility of good quality jobs to all, including often 'left behind' communities and demographics.

While the policy infrastructure to support skills development in target industries is reasonably well developed; the scale, capacity, and strategic focus are lacking. It is unclear, for example, whether there will be sufficient programme capacity and adequate policy design to rapidly support young people into skilled employment following a recent surge in job losses driven by COVID-19; and, critically, systems

do not appear sufficiently developed to drive the necessary growth in low carbon and green transition sectors.

Major gaps in capacity also appear to be present in both the provision of reskilling support to workers made redundant and support to workers who are still in their job or are on furlough. NEF analysis suggests uplifts made to skills, employability and work-based learning funding in the 2021-22 budget equate to just over a 10% uplift in the annual funding package. The size of this uplift may be inadequate given that the unemployment rate is forecast to reach almost double its pre-crisis level towards the end of 2021 and the economy is expected to enter a period of structural change with some industries never being the same again following the changes driven or accelerated by the pandemic, which could increase the barriers to work for many individuals.

Further concerns arise in relation to policy design. Young people, women and people from ethnic minority backgrounds have been worst hit by the economic impact of the pandemic but are also currently under-represented in the green industries expected to grow over coming years. A challenge is to ensure these groups are adequately supported into good quality employment and that policies address the varying barriers facing these groups, such as provision of adequate basic income security.

1. PRE-CRISIS: SKILLS FOR EMPLOYMENT IN WALES

THE EMPLOYMENT CONTEXT IN WALES

The total number of people in employment in Wales saw overall growth over the first two decades of the 21st century, as would be expected given Wales' growing population. Employment reduced significantly between 2008 and 2013 as a result of the global financial crisis and the policies seen in its wake. Unemployment peaked in 2011 and has fallen steadily since then (Figure 1).

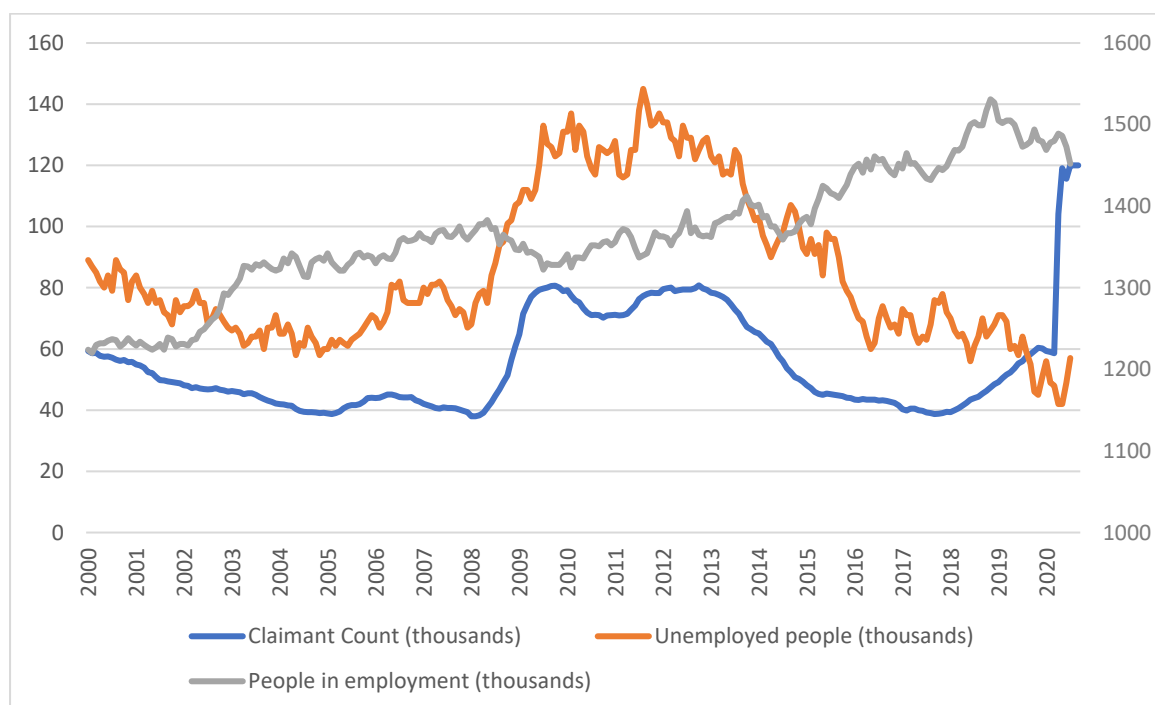


Figure 1: Welsh time-series data on claimant count, people in employment, and unemployed people. Source: ONS

Over the past two decades, the Welsh economy has seen an industrial shift away from production industries towards service industries. The biggest declines in sector-based contributions to the Welsh economy over the period 2000-2018 were seen in real estate and manufacturing, and the largest increases were seen in human health and social work activities, and financial and insurance activities (see Appendix A).

ADULT EDUCATION

In 2019 Wales recorded its lowest ever rate of adult participation in learning in the Learning and Work Institute's Adult Participation in Learning Survey, with only 30% of adults having participated in any form of learning in the 3 years leading up to the survey. This includes all forms of further and higher education undertaken by over-18 year-olds.¹

FURTHER EDUCATION

Wales has seen very significant declines in further education, although these figures must be qualified. Many areas of education funding and provision are influenced by policy and funding decisions taken by the UK Government. In 2012/13 an estimated 656,285 people were enrolled on some form of course. By 2018/19 this had fallen to 372,595 people.

This decline was seen across many subject areas, but was particularly driven by a large decline in students studying 'preparation for life and work' courses. In 2012/13 some 289,525 people were enrolled on courses related to 'preparation for life and work'. By 2018/19 this had fallen to 172,655 people.

Subjects relevant to green transition have been affected by decline. For example, in 2012/13 some 21,380 people were enrolled on further education courses relating to construction, planning, and the built environment. By 2018/19 this had fallen to 14,355.²

DEGREE EDUCATION

Trends in degree-level education in Wales are broadly similar to the UK as a whole, with high and increasing rates of first-degree enrollment and postgraduate enrollment. First-degree enrollment has risen at an average of around 1,000 people per year over the past ten years, albeit with significant year-on-year fluctuation. Some of this growth can be accounted for by population growth.

¹Learning and Work Institute (2020) Adult participation in learning survey. Available at: <https://learningandwork.org.uk/what-we-do/lifelong-learning/adult-participation-in-learning-survey/>

² All data from StatsWales

However, as in the UK more widely, there has been a very significant decline in the number of people completing a second degree. In 2008/09 around 36,000 people were studying for a second degree in Wales, by 2018/19 this had fallen by 13,500 – this has been driven exclusively by a decline in part-time studying.

The net number of people studying degree-level education has fallen in Wales over the past decade. This is despite the population of Wales growing by around 100,000 people (3%). A key driver of this decline has been the changes made to the student finance system by the UK Government, which increased fees across the board and reduced access to loans for individuals studying for a second degree. These changes particularly affected enrollment from older age groups.³ This led, for instance, to a significant decline in the number of students undertaking distance learning with the Open University.⁴

WORK-BASED LEARNING

The total number of new starters on all forms of work-based learning schemes⁵ declined between 2012 and 2019. The total number of new starters fell from around 43,000 in 2012/13 to around 32,000 in 2018/19, although it should be noted that there is significant year-to-year variation.

³ Geven, K. (2015). How Did the Latest Increase in Fees in England Affect Student Enrolment and Inequality? In A. Curaj, L. Matei, R. Pricopie, J. Salmi, & P. Scott (Eds.), *The European Higher Education Area: Between Critical Reflections and Future Policies* (pp. 479–500). Cham: Springer International Publishing.

⁴ HESA (2020) HE student enrolment numbers by HE provider. <https://www.hesa.ac.uk/data-and-analysis/students/table-1>

⁵ Although work-based learning can refer to many forms of in-work and outside-of-work education and training, when the Welsh Government refers to work-based learning it typically means its apprenticeship and traineeship programmes.

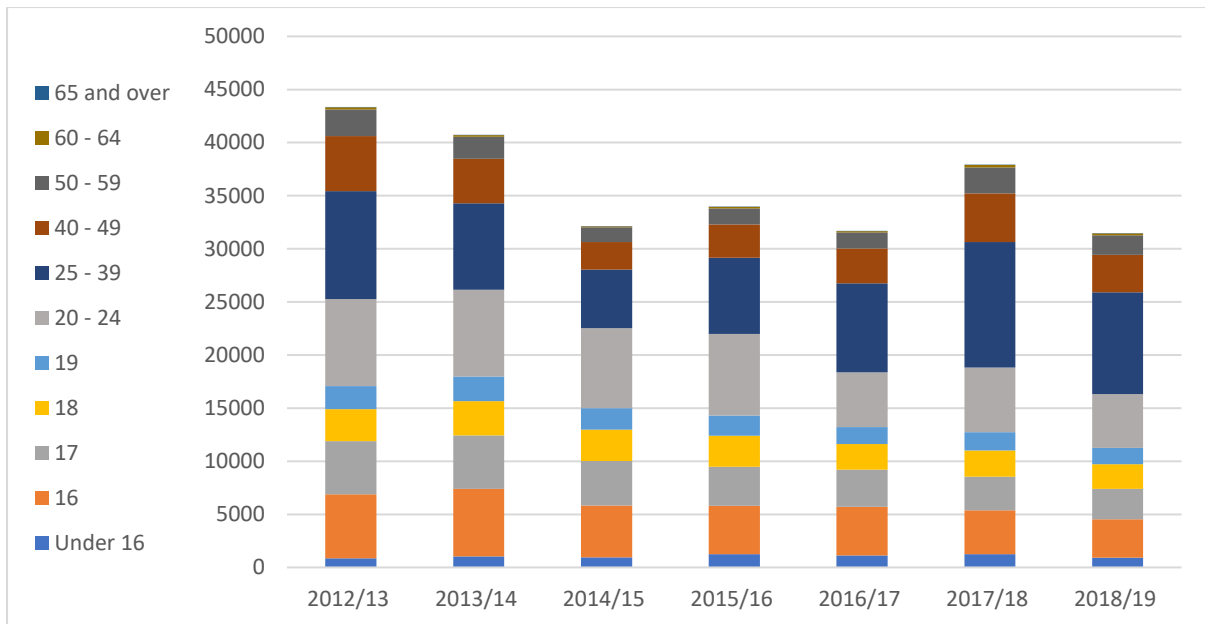


Figure 2: Work-based learning starts in Wales by age group and year. Source: StatsWales

There has been some change in the sectoral make up of work-based learning in Wales. Healthcare and public services starters continue to be the largest grouping. The high numbers of starters in this sector (usually over 9,000 per year), and in the management and professional and business administration sectors (both typically over 3,000 per year) reflect the growth trajectory of the wider Welsh economy.

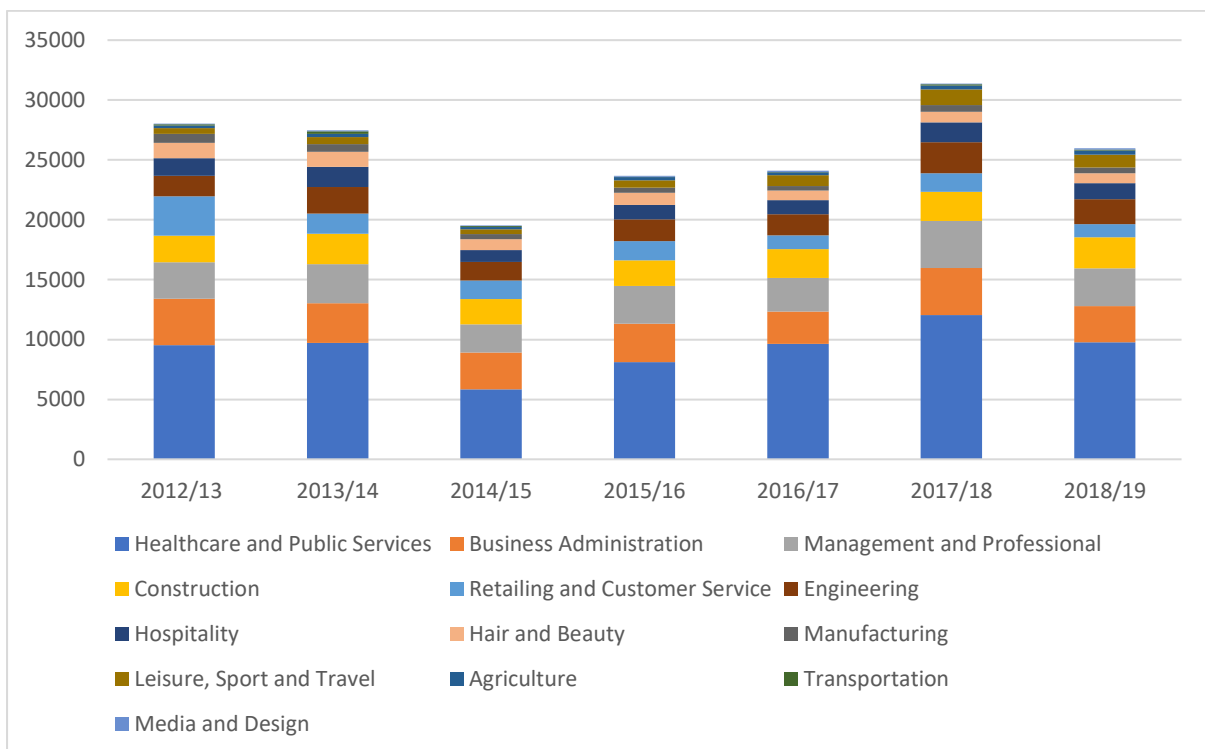


Figure 3: Work-based learning starts by sector (where data available). Source: StatsWales

Significant declines in starts in retail and customer service, hair and beauty, and manufacturing have been seen. Significant increases have been seen in leisure, sport and travel, alongside modest increases in agriculture, engineering, and construction.

Apprenticeships

Apprenticeships make up the majority of work-based learning starts. Uptake of apprenticeships remained reasonably steady over the period 2012-2019, albeit with significant year-on-year variation. The proportion of apprenticeships at the foundation level (level 2) has declined and the proportion started at the middle (level 3) and higher (level 4+) levels has increased. This means proportionately, apprenticeship uptake among younger people has been declining, particularly compared to its level in the period 2012-2014.

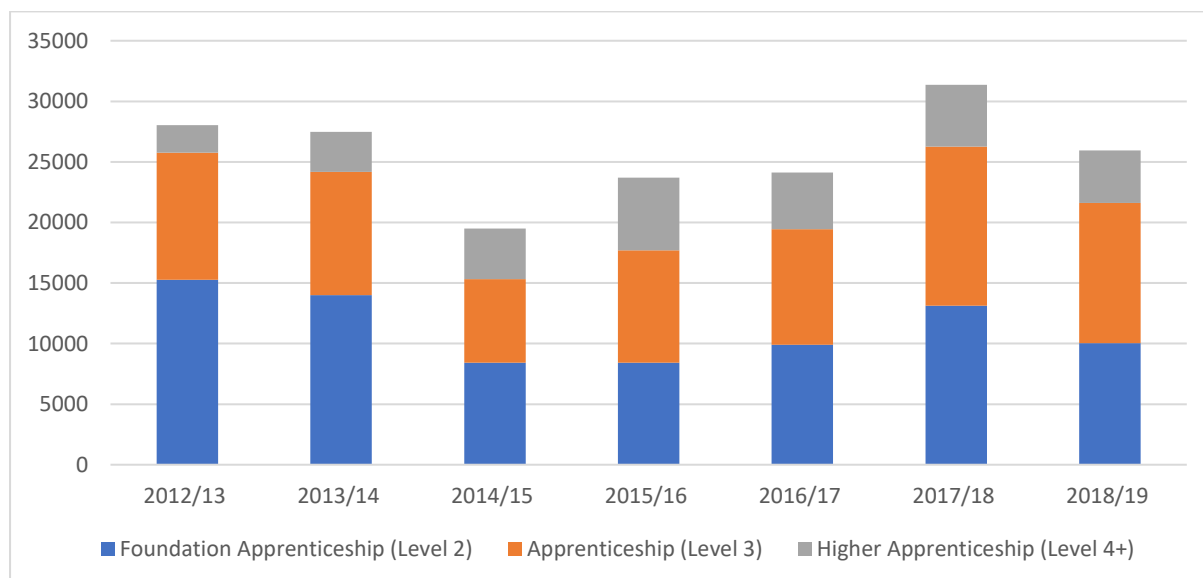


Figure 4: Apprenticeship starts in Wales by year and level. Source: StatsWales

Traineeships

The number of people starting traineeships fell every year between 2013 and 2019, from a high of 9,040 in 2013/14 to 5,520 in 2018/19. Given that nearly all traineeships are taken up by people aged 18 or younger, this significant reduction further reinforces the drop-off in work-based learning among younger people.

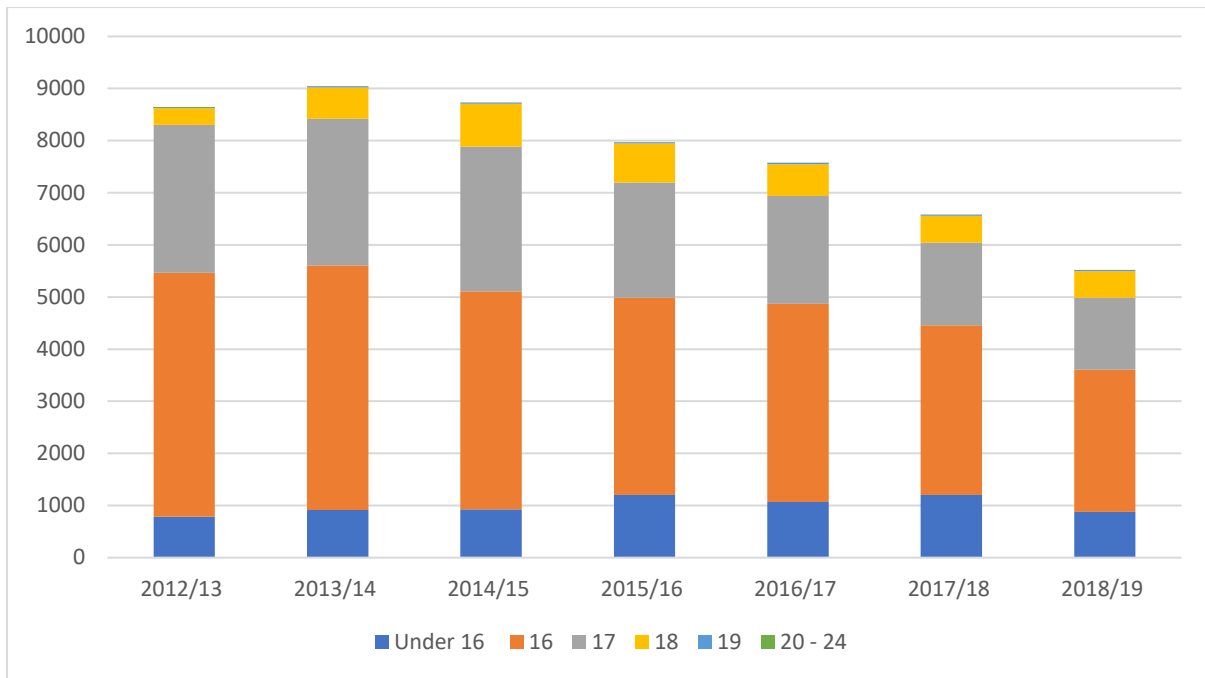


Figure 5: Traineeship starts in Wales by age and year. Source: StatsWales

2.DUAL CRISES: THE IMPLICATIONS OF THE COVID-19 PANDEMIC AND CLIMATE CRISES FOR SKILLS IN WALES

THE IMPACT OF THE COVID-19 PANDEMIC ON SKILLS FOR EMPLOYMENT

The pandemic has impacted skills in Wales in a number of ways. The direct short-term effect of lockdown, health-related restrictions and reduced demand has led to temporary reductions in employment (furloughing of workers) and permanent layoffs. The pandemic and its negative impact on employment have also affected the main routes through which people gain skills, including apprenticeships and universities.

The pandemic could also leave an imprint on the make up of the Welsh economy for decades to come. The sectoral distribution of jobs in the economy is likely to shift, and this could lead to mismatches in the current and demanded skills in the workforce. Some rebalancing is expected to take place irrespective of the reconstruction policies pursued by governments. But through recovery policy, government have an opportunity to shape the skills and work environment in Wales for the better.

The impact of the COVID-19 pandemic on employment

At the beginning of the COVID-related crisis there were around 1.4 million jobs in Wales and around 55,000 people were unemployed (3.9%). When the crisis hit, a very significant number of working hours went un-utilised. Indeed, NEF analysis suggests at the peak of the crisis, around 6.9 million working hours were being lost every week in Wales. The furlough scheme was successful in preventing these lost hours from being converted directly into lost jobs, and we estimate around 75% of lost working hours were captured by the furlough scheme. The remaining 25% were lost by workers not on the furlough scheme – hence many of these workers turned to

Universal Credit. The number of Welsh residents claiming Universal Credit/Job Seekers Allowance doubled during the early months of the crisis and remained at this level (around 110,000 people) up to at least February 2021.

The rise in the claimant count has affected all age groups in Wales. Claimants doubled between March and August 2020 in every age band except for 16-17 year olds and 60-65 year olds for whom the rise was stronger, at 68% and 84%, respectively.

As of the end of February 2021, there were still 175,000 people furloughed under the Coronavirus Job Retention Scheme ('furlough') in Wales, including 125,000 on full furlough and 50,000 on partial furlough (i.e. they worked some hours during the month of February 2021).⁶ Furloughed workers have remained above 100,000 for the duration of the crisis in Wales, and it is possible that a proportion of those remaining on furlough may never return to their previous jobs.

Although data is limited, it is also believed that a significant number of jobs were lost, and will continue to be lost, while the furlough scheme is active. Redundancy rates appear closely tied to the generosity of the furlough scheme. For instance, over the period between July and November 2020, redundancy rates in Wales surged, reaching three times their pre-crisis average.⁷ This was a period during which the furlough scheme was demanding a larger contribution from employers towards wages for unworked hours and was scheduled to come to an end. Once the furlough scheme was extended and returned to its original, more generous design, redundancy rates in Wales fell back down to their pre-crisis average. However, with the scheme due to become less generous from July 2021, initially asking for a 10% and then 20% contribution from employers to unworked hours, and then due to end completely in September 2021, there is clear potential for redundancy rates to grow again.

The Chief Economist for Wales' report alongside the 2021-22 budget suggests that unemployment in Wales driven by the COVID-19 crisis could peak at around

⁶ <https://www.gov.uk/government/statistics/coronavirus-job-retention-scheme-statistics-march-2021>

⁷ <https://www.ons.gov.uk/employmentandlabourmarket/peoplenotinwork/redundancies/datasets/redundanciesbyindustryagesexandremploymentratesred02>

114,000 people in 2021. This would represent a doubling on its pre-crisis level of 55,000.⁸

One measure of this is the number of workers who have been removed from company payrolls over the crisis. As of March 2021, there were 30,000 fewer workers on payrolls than there were in the Dec-Feb 2020 pre-crisis period in Wales.⁹

The table below shows the lost turnover of businesses in each of the UK's main sectors as of early September 2020, giving an indication of where job losses are likely to arise. It is notable that the sectors most strongly impacted are also those sectors with the highest prevalence of workers with no formal qualifications. In particular, 'Accommodation and Food Services' (at 11%) and Admin and Support Services (at 8.7%) have rates notably higher than the UK average (at 5.6%).

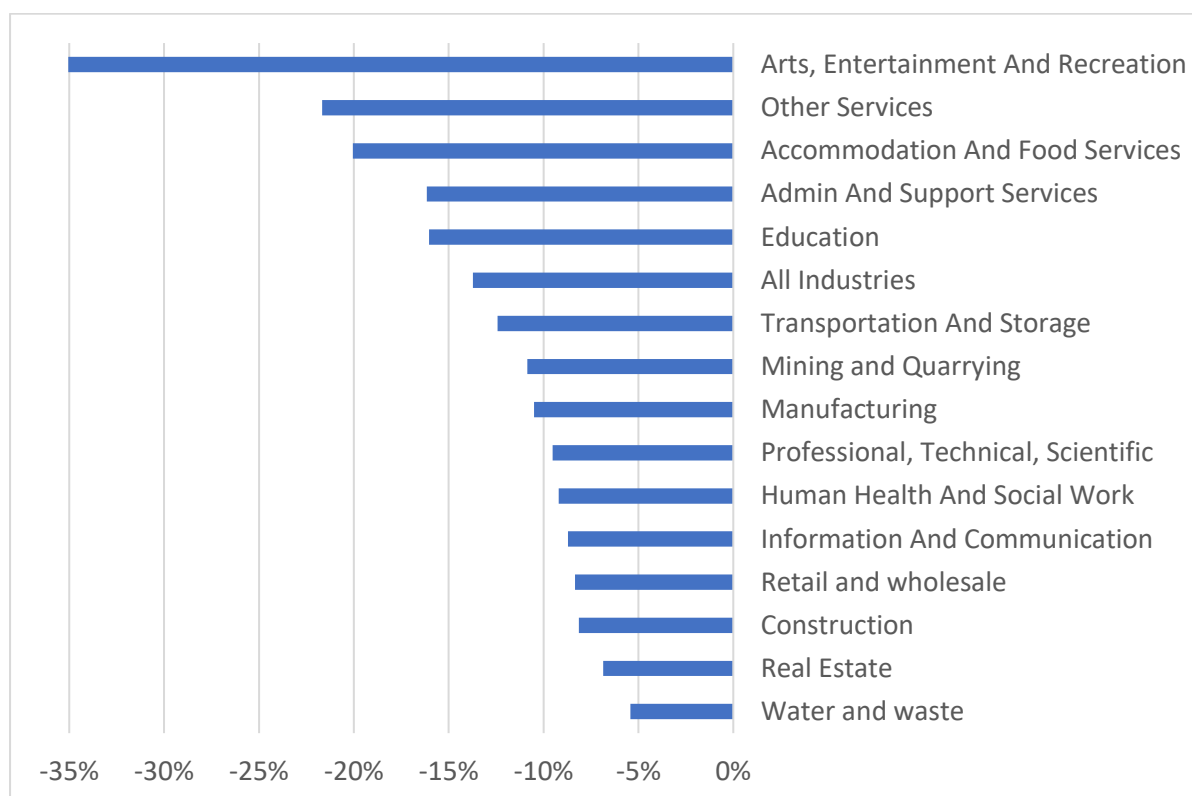


Figure 6: Net change in business turnover between September 2020 and September 2019. Source: ONS (BICS)

⁸ <https://gov.wales/welsh-budget-2020-chief-economists-report>

⁹ <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/datasets/realtimeinformationstatisticsreferencetableseasonallyadjusted>

One of the most striking trends in the labour market since the onset of the pandemic in March 2020 has been the difference in job losses between different age groups within the labour force, with younger groups worst affected. Data from the ONS Labour Force Survey confirms this trend in Wales. The youngest age group (16-24) has seen a decline in employment over the year from Dec-Feb 2020 to Dec-Feb 2021 of around 12,000 workers (-6.7%). This dataset suggests this decline is entirely accounted for by a decline in employment among female workers (-14%), with no change seen among male workers. However it is important to note that these estimates derive from a relatively small survey sample size and the ONS warn that they are liable to change when further data comes available.¹⁰ Other age groups have seen more modest changes over the year indicating that the furlough scheme has mostly been successful in protecting employment thus far.

The short-term impact of COVID-19 on skills development

Welsh Government data shows that the proportion of apprentices on furlough peaked in late May 2020 at just over 20% of the total cohort, equivalent to 7,770 apprentices on furlough, by March 2021 this had reduced to around 1,700 apprentices. Less than 1% of apprenticeships were permanently ended via redundancy in Wales during the first year of the pandemic.¹¹

There has been a wider variety of impacts of the crisis on higher education. Students have faced loss of part-time jobs while studying, loss of job offers and jobs following completion of studies, and difficulties paying their rent obligations (in many cases on properties they have not actually been living in).¹² It is likely that some of these issues partially explain the decline in employment seen in the 16-24 year old cohort.

The long-term impact of COVID-19 on skills development

The long-term impacts of the pandemic on skills demand and development remain unclear. However, there are strong reasons to believe that job numbers in some

¹⁰<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/regionalemploymentbyage01/current>

¹¹<https://gov.wales/apprentices-furloughed-or-made-redundant-during-coronavirus-covid-19-pandemic-26-march-2021>

¹²<https://www.nusconnect.org.uk/resources/covid-19-and-students-survey-report-wales>

sectors may not return to pre-pandemic levels for a period of months, years, or ever. Transport sector jobs (particularly aviation jobs), high street retail jobs, and jobs dependent on or supporting office-based working seem particularly exposed to long-term structural economic change. In some cases there may be a need for workers in sectors with an over-supply of labour to retrain in order to enter different job markets.

While some of the lost demand for workers may return as the economy recovers from the pandemic, the economy is expected to go through a process of restructuring. Both within sectors and between sectors, the make up of the UK economy is expected to change due to permanent behaviour shifts in the population. Early estimates made at the UK level suggested around 500,000 people could become 'structurally unemployed', whereby work is no longer in sufficient demand in a workers previous sub-sector.¹³ In this context upskilling and reskilling becomes a key focus, as workers require support to access jobs outside of their normal area of work.

THE IMPACT OF CLIMATE CHANGE ON SKILLS FOR EMPLOYMENT

The climate crisis, the need to rapidly decarbonise the Welsh economy, and the resulting need to transition industrial activity, jobs, and lifestyles are all now well established. Research by the London School of Economics suggests that around 20% of jobs in Wales have direct exposure to the shift to a green, zero-carbon, economy. Of this group, an estimated 150,000 jobs (10.3%) are 'transition aligned' and as such are already well positioned to capitalise on the green transition. An estimated 140,000 (9.6%) are thought to require some form of reskilling. This does not necessarily imply a sector shift or redundancy, only the need to adjust to new and unfamiliar working requirements.¹⁴

¹³ <https://neweconomics.org/2021/03/some-jobs-wont-come-back>

¹⁴ Grantham Research Institute on Climate Change and Environment, London School of Economics (2019) Policy brief: Investing in a just transition for the UK.

The sectors most affected by the green transition include construction (30%), transport (26%) and manufacturing (17%), which together account for 73% of the jobs in need of reskilling. The time period over which this reskilling is required will depend on the level of national ambition shown for reducing greenhouse gas emissions. However, given both the urgency of the climate crisis, and the time lag between initiating a skills policy and seeing significant changes to a workforce, there is a strong case for beginning work on this transition urgently.

3.SKILLS FOR A GREEN RECOVERY IN WALES

Many stakeholders, including the Welsh Government, have recognised the importance of ensuring the economic recovery from the pandemic is a “green recovery.” A green recovery is one which delivers good quality livelihoods whilst supporting rapid decarbonisation and improving biodiversity in Wales.

This section of the paper takes a starting point of the package of green investments proposed by the Wales TUC in research conducted by Transition Economics in August 2020.¹⁵ NEF consider this to give a good general illustration of the kinds of investment and jobs in infrastructure that would be required for a green recovery which sets Wales a path to rapid decarbonisation. Similarities can be seen with other publications, including NEF’s recent publication on a potential green stimulus package in the context of the pandemic¹⁶ (which in turn influenced the Labour Party's Green Economic Recovery policy package),¹⁷ and RSPB Cymru’s recent publication on jobs in nature restoration in Wales.¹⁸

Although the TUC package focuses on the new infrastructure and nature restoration that would directly improve environmental outcomes, it is important to note that it is not exhaustive in terms of sectors that would be required in a low-carbon economy. There are a number of potentially low-carbon foundational sectors, which would still account for the bulk of jobs in a net-zero economy, such as health, education and care.

¹⁵ <https://www.tuc.org.uk/news/infrastructure-investment-could-create-59000-jobs-and-boost-economic-recovery>

¹⁶ <https://neweconomics.org/uploads/files/green-stimulus-covid.pdf>;
<https://www.greenpeace.org.uk/news/green-jobs-government-green-recovery/> ;
https://www.wwf.org.uk/sites/default/files/2020-06/UK_investment_strategy_resilient_economy.pdf

¹⁷ <https://labour.org.uk/page/green-recovery-report/>

¹⁸ RSPB Cymru (2020) Developing a Green Workforce in Wales – Estimating the Scale of the Need and Opportunity.

JOB CREATION THROUGH A GREEN RECOVERY

The TUC package would create a total of 45,519 direct jobs in eight broad categories. Theoretically, this is likely to be sufficient to offset losses through the COVID-19 crisis. However, the jobs created are in very different sectors, and potentially different locations, to the sectors most impacted by the crisis.

The investments that are proposed under the package are shown in Table 1. RSPB Cymru have conducted more detailed modelling on jobs specifically in the nature restoration sub-component, and suggest higher job creation potential (7,000 direct jobs compared with 4,000 in the TUC package), albeit over a longer time horizon (ten years compared with two years in the TUC package). RSPB Cymru's breakdown is shown in Table 3.

Table 1: Details of the projects proposed as part of a green recovery investment package by the TUC (2020)

Sector	Project	Public Investment (£ billion)	Direct short-term job creation in Wales
Digital	Broadband upgrade	0.17	1,014
Manufacturing	R&D for decarbonising heavy industry - experimental technology (e.g. cement, petrochemicals, CCS demonstration, hydrogen)	0.5	3,426
Transport	Expand and upgrade rail network	1.37	5,870
Transport	Build battery factories for EVs	0.33	3,960
Transport	Electric car charging points (rural)	0.18	1,077
Transport	Build cycle lanes & pedestrianisation	0.41	2,725
Buildings	Build social housing (using domestic offsite manufacture)	0.66	9,370
Buildings	Retrofit social housing	1.16	7,882
Buildings	Energy efficiency assessments	0.3	2,731
Buildings	Retrofit public buildings	0.09	572
Energy	Upgrade ports and shipyards for offshore wind supply chain	0.15	1,668
Energy	Build manufacturing facilities for offshore (incl. floating) wind turbines	0.03	240
Energy	District Heating	0.1	1,051
Land	Reforestation schemes	0.39	2,895
Land	Environmental restoration (incl. flood defences)	0.12	709
Land	Support farmers to switch to Organic Agriculture	0.06	327
Total	Total	6.02	45,519

We estimate that 60% of all jobs created would be in construction (approximately 27,300 jobs), with a further 14% in offsite manufacturing of housing, 7.5% in Research and Development (R&D), 7% in forestry and 6% in energy efficiency assessments. The remaining jobs are in engineering, environmental restoration and agronomic consulting. The sectors identified here are similar to those identified by the London School of Economics.¹⁴ More detail is shown in the table below.

Table 2: Existing jobs in key green recovery areas, and notes on skill creation in relevant sectors, additional detail is available in Appendix B.

Job category	Sub-category	Estimated existing jobs (2018)	Current annual apprentice starts	Further education capacity	Jobs created	Notes on skills gap
Electrical installation	Broadband installation	6,000	360-490 (electrotechnical frameworks)	Unknown	1,014	Rapid and significant scaling up required. Time-to-train can be relatively short for supporting roles but longer for fully qualified electricians. Work will be required to ensure the specialist skills sets needed are developed, including through upskilling of the existing workforce. A major training push into this sector could target those recently made redundant in sectors hit hardest by the pandemic, provided that sufficient finances were made available to mobilise the required number of trainers and trainees. Government investment in the associated infrastructure is also required.
	Electric vehicle charging				1,077	
	Solar panel installation				845	
Research and development	R&D heavy industry	2,250 (only a small proportion are likely relevant to decarbonisation)	Higher education required		3,426	Current capacity is difficult to gauge precisely, but the skills gap is likely to be significant. The time-to-train presents challenges. Under all scenarios a significant influx of skills and personnel is required in this area.
Construction and heating	Railway construction	1,000	Unknown	14,325 people enrolled in 2018/19 down from 20,950 in 2012/13	5,283	Filling this level of skills gap in the railway construction sector on a short time frame could be a challenge due to the scale of the new jobs relative to the existing job numbers, plus the relatively long lead time for certain roles. There were only 1,000 jobs in Wales in 2018 under this sector and many of the relevant qualifications require 200 to 300 hours of training.
	Bicycle lanes, pedestrianisation	3,000	2,200-2,500 (general construction)		2,725	In social housing construction, a 22% increase in workforce size is estimated to be required – in addition to growth in the off-site manufacturing workforce (see below). Workers may be sourced from scaling up general construction pathways but may need ‘skills top ups’ in specialised areas. Significant skills shortfalls also appear to be present in areas such as insulation installation and other aspects of retrofit. With sufficient demand and coordination created through the investment package, movement into the retrofit sector could be facilitated relatively
	Social housing construction	13,000			2,811	
	Retrofit: insulation	1,000	20-40 (heating and ventilation)		4,256	
	Retrofit: windows/doors	3,000			1,719	

						quickly through on-the-job training, as qualifications are not necessarily a prerequisite.
	Retrofit: boilers and heating	5,530	400-500 (heating and plumbing)		1,634	There is potential to scale up the apprenticeship programme in these areas. Energy assessors can be trained relatively quickly but a long-term pipeline of projects must be guaranteed.
	Retrofit: energy assessors	3,083			2,731	
	District heat networks	3,500			946	
	Port upgrade for wind development	64,000 (general construction)	2,200-2,500 (general construction)		1,668	The level of job creation in renewable energy infrastructure construction is still significant when compared with the construction sector as a whole and, unless there was a very significant shortfall in other infrastructure investment, this would necessitate new entrants into the sector to fill the vacancies.
	Facilities for wind and battery manufacture				4,200	
Engineering	Railway engineering	Unknown (very limited)	150 (rail engineering)	4,220 people enrolled in 2018/19 down from 6,880 in 2012/13	587	Rail construction in the UK has faced a well-documented skills shortage in recent years. ¹⁹ The Rail Delivery Group estimates that it takes a lead time of three years to train a railway engineer via apprenticeship schemes.
	District heat engineering	Unknown (very limited)	<10	unknown	105	Limited data available.
Manufacturing	Off-site housing manufacture	8,300	400-600 (general manufacturing – far fewer likely to be directly relevant)	2,415 people enrolled in 2018/19 down from 7,830 in 2012/13	6,559	Jobs currently in carpentry and joinery, concrete, plaster, and metal are all relevant. A House of Lords inquiry into the sector found that there were manufacturers willing to scale up production in this area, provided that there was a long-term pipeline of projects to create consistent demand for components. ²⁰

¹⁹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/495900/transport-infrastructure-strategy-building-sustainable-skills.pdf pp. 16-18

²⁰ https://publications.parliament.uk/pa/ld201719/ldselect/ldsctech/169/16908.htm#_idTextAnchor057

Agriculture and land management	Reforestation and natural flood defence	2,000	50-120 (other agricultural frameworks)	4,500 people enrolled in 2018/19 down from 8,065 in 2012/13	3,604	Likely a very significant increase in jobs in environmental management required. There may be potential to scale up the contribution of the apprenticeship scheme in this area. Apprenticeship and traineeship levels are low meaning that the envisaged investment would require a major influx of entrants into the forestry sector.
	Agricultural land management	Unknown	200-350 (agriculture, other agriculture, horticulture)		327	

Table 3: An alternative estimate of jobs in nature restoration with further breakdown by sub-category. Source: RSPB Cymru

Type of investment	Employment (FTE)
Restoration and creation of priority habitats	1,000
Restoration and creation of boundary features	1,151
Environmental land management advice	87
Improving and creating urban green spaces	500
Planting additional woodlands for net zero carbon	167
Biodiversity net gain	114
Control of invasive non-native species	20
Nature conservation surveys, monitoring and evaluation	20
Nature based tourism development plan	3,875
Total	6,934

THE GREEN RECOVERY SKILLS GAP

The table above summarises the findings of our research into the current provision of skills in key areas relating to a green recovery package. Full details of our methodology can be seen in Appendix B. This exercise is subject to significant limitations relating to the availability of data on job numbers in different sub-sectors in Wales. It is likely that the Welsh Government will have its own internal data which might allow a more accurate and detailed assessment than was possible here.

Our analysis explores the current job numbers in key green recovery sub-sectors and balances them against the expected job creation potential. A key consideration is whether or not the jobs created by the green investment package are additional, or displaced. Additional jobs would be created if all historic government and private sector demand returns to pre-crisis levels, and new spending is leveraged in green sectors. As the sectors in question, e.g. electrical installation and construction, have not suffered a particularly significant demand shock resulting from the COVID-19 crisis, it is likely that most new green investment would indeed create truly additional jobs. However, if government were to finance the investment package from existing revenue funds, or reallocated capital spending, it is possible that there could be some 'displacement' of jobs, i.e. jobs would not be newly created, rather relocated from one area of government spending to another. To have most impact on the aggregate jobs total, the package would be funded via 'new' money e.g. borrowed and/or printed by the Bank of England.

Finally, we looked at the 'skills creation' in each of the sub-sectors with proposed job creation. To summarise, our key findings include:

- In many areas the level of new job creation could be very significant in proportion to the existing number of jobs. In some sub-sectors the number of jobs could more than double.
- In all of the assessed sub-sectors, the total number of apprenticeship starts appears to be low compared to the potential new job growth.
- Further education enrolment has fallen significantly between 2012/13 and 2018/19 in all of the subject areas pertaining to green investment sub-sectors.

- There is variation between sub-sectors in the potential to rapidly up-skill a workforce due to the varying time periods required for training/qualification attainment.

Our analysis is useful as an indicative assessment of where the most significant skills deficits might be for a green recovery investment package. In the absence of targeted skills development in these areas in advance of project commencement it is likely that skills would be sourced from contractors based outside of Wales.

The majority of the skills shortages identified are in areas relating to construction, heating, and electrical installation. While some roles in these industries can require a training period of multiple years, others require less time and workers could be mobilised relatively quickly. It is also worth noting that relevant sectors, specifically construction, manufacturing, professional and scientific, transportation and storage have all recently been subject to very high redundancy rates, averaging around three times the 2019 average rate over the period Jul-Sep 2020.²¹ These characteristics should be used to consider the appropriate roll-out period for different components of the green recovery package.

EQUALITY IN RECOVERY

Wales has ambitions to reduce societal inequalities of multiple forms, ranging through (but not limited to) race, religion, gender, age, region, sexual orientation, and language. When scaling up a new zero carbon industrial strategy involving significant new work areas, and a redistribution of skills and work around the economy, it is important therefore to consider how such a programme can reduce, rather than entrench, existing inequalities. Industrial transitions are, notoriously, fraught with social risks, as illustrated through the UK's deindustrialisation in the 1970s and 1980s. NEF have discussed the concept of 'Trust in Transition' elsewhere²² and have ongoing work in this area.

²¹<https://www.ons.gov.uk/employmentandlabourmarket/peoplenotinwork/redundancies/datasets/redundanciesbyindustryagesexandemploymentratesred02>

²² <https://neweconomics.org/2019/11/trust-in-transition>

As the green transition unfolds, demographic characteristics will intersect with the social safety net and provision of jobs in complex ways. A simple example is the very strong underrepresentation of women (Table 4) and people of non-white ethnicity (Table 5) in the existing workforces of the sub-sectors and occupations likely to experience green growth. As shown in Table 4, women are particularly strongly underrepresented in key green growth sectors in the most recent (2019/20) apprenticeship data. This is particularly relevant given the evidence cited above that young women's employment prospects have been most negatively affected by the crisis, and as such will be most in need of opportunities provided by a green recovery.

In addition to ensuring new jobs are accessible to all demographics, spatial challenges are likely to be significant. Work in Wales is heavily tied to localities and proximity of key industries, and workforce mobility should not be assumed, limited by issues such as incomes, house prices, and influenced by cultural and social values. Further research is needed to better understand the pathways and geographies of new work and how green investment can simultaneously reduce social inequalities.

Table 4: Gender of existing workforce in key transition industries

Job category	Sub-category	SIC 2-digit equivalent sector	Proportion of UK workforce female (June 2020) ²³	Proportion of apprenticeship starts female (19/20) ²⁴
Electrical installation	Broadband installation	Electricity, gas, steam and air conditioning supply	29%	2% (electrotechnical)
	Electric vehicle charging			
	Solar panel installation			
Research and development	R&D heavy industry	Scientific research and development	47%	N/A
Construction and heating	Railway construction	Specialised construction activities	18%	0% (construction – specialist)
	Bicycle lanes, pedestrianisation			

²³<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/employeejobsbyindustryjobs03>

²⁴StatsWales (2020) Apprenticeship learning programmes started by quarter, sector and programme type

	Social housing construction	Construction of buildings	27%	3% (construction – building excluding specialist)
	Retrofit: insulation			
	Retrofit: windows/doors			
	Retrofit: boilers and heating			
	Retrofit: energy assessors			
	District heat networks			
	Port upgrade for wind development			
	Facilities for wind and battery manufacture			
Engineering	Railway engineering	Civil engineering	21%	0% (Rail engineering (track))
	District heat engineering	Architectural and engineering activities; technical testing & analysis	29%	Unknown
Manufacturing	Off-site housing manufacture	Other manufacturing	38%	3% (engineering manufacture)
Agriculture and land management	Reforestation and natural flood defence	Forestry and logging	25%	<10% (other sector frameworks – agriculture)
	Agricultural land management	Crop and animal production, hunting and related service activities	41%	<5% (agriculture and horticulture)

Table 5: Ethnicity of existing workforce in key transition occupations²⁵

Job category	Sub-category	SOC grouping	Proportion non-white ethnicity
Reference point, proportion of UK population reporting non-white ethnicity			12.36%
Electrical installation	Broadband installation	52 Skilled Metal, Electrical, Electronic Trades	5.84%
	Electric vehicle charging		
	Solar panel installation		
Research and development	R&D heavy industry	21 Science, Engineering, Tech Professionals	14.93%
		31 Science, Engineering, Tech Associate Prof	11.30%
Construction and heating	Railway construction	53 Skilled Construction And Building Trades	5.33%
	Bicycle lanes, pedestrianisation		
	Social housing construction		

²⁵<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/adhocs/10663occupationatuklevelbysectorindustryageandethnicity>

	Retrofit: insulation		
	Retrofit: windows/doors		
	Retrofit: boilers and heating		
	Retrofit: energy assessors		
	District heat networks		
	Port upgrade for wind development		
	Facilities for wind and battery manufacture		
Engineering	Railway engineering	21 Science, Engineering, Tech Professionals 31 Science, Engineering, Tech Associate Prof	14.93%
	District heat engineering		11.30%
Manufacturing	Off-site housing manufacture	81 Process, Plant And Machine Operatives	10.18%
Agriculture and land management	Reforestation and natural flood defence	51 Skilled Agricultural And Related Trades	0.76%
	Agricultural land management		

4. POLICIES FOR A SKILLS REVOLUTION IN WALES

The Welsh Government had an education budget of around £1.8 billion for the period 2020-21. This budget pays for the core functions of the Welsh education system, most notably government contributions to higher and further education. However, as of 2020-21, government programmes with an explicit focus on upskilling, reskilling, and employability strategy were moved into the Economy and Transport budget. Around £190 million is typically allocated to work-based learning programmes, employability and skills, youth engagement and employment, and Communities for Work each year. In 2020-21 this budget was given a one-off mid-year uplift worth around £40 million. At the time of writing, uplifts to the work-based learning and Communities for Work budgets worth around £23 million had been announced for the 2021-22 period. Further investment is made through the further and higher education budgets, both of which also received one-off crisis uplifts in 2020-21.

Skills and employability programmes

The table below highlights some of the key skills and employability programmes which the Welsh Government invests in. Estimated annual users (third column) are calculated from publicly available evaluation documents relating to each scheme – as such, these estimates pre-date any alterations made through the COVID-19 crisis. In the fourth column we note where crisis funding uplifts have been made to individual programmes which could increase their user capacity.

Table 6: Skills and employability policies and annual users in Wales

Employability and Skills (out of work)	Function	Estimated annual users	Crisis uplift
Employability and Skills programme	Adult employability	2,000-3,000	
Access programme	Adult employability - Valleys	1,000-1,500	
Communities for Work	Adult employability	8,000-9,000	+unknown
Communities for Work	Young people employability	1,000-1,500	
Jobs growth Wales	Young people employability	2,000-3,000	

ReACT	Redundancy/retraining support	3,000-4,000	+unknown
PACE	Parent employability	600-1,000	
Union Learning Fund	Adult upskilling	3,000-7,000	+unknown
Barriers fund	Self-employment		+unknown
	Total:	21,000-30,000	
Work-based learning	Function	Estimated annual users	Crisis uplift
Apprenticeship programme	Upskilling	24,000-32,000	+5,000
Traineeship programme	Preparation for work	5,000-6,000	+unknown
Personal learning accounts	Adult upskilling		+2,000
	Total:	29,000-38,000	36,000+

Our estimates suggest the Welsh Government has a package of support which can assist 21,000-30,000 people who are out of work with their skills development and employability. We also estimate that there is capacity to support 29,000-38,000 people with work-based learning – although it is important to note that the significant majority of this group are under the age of 25. It is important to note that these figures refer to dedicated support, rather than Wales’ standard offer on college and university education.

Additional crisis funding

In response to the COVID-19 crisis, the Welsh Government announced a £40 million increase in funding for its skills and employability programmes for the 2020-21 financial year – “the COVID Commitment”. This represented around an 18% increase on the total relevant budget for the year. Shown in the final column of the above table is the estimated uplift in the potential reach of the programme.

However, it is unclear whether this uplift was realised, particularly given the short-notice change and the crisis-disrupted year. Further uplifts worth around £23 million were announced in the 2021-22 budget, these are likely to have sustained the increased capacity in the Communities for Work and work-based learning programmes.

The policy capacity gap

To put these figures in context, there have been typically around 55,000-65,000 unemployed people at any given time in Wales over the past five years. There has

therefore been sufficient capacity to support just under half of Wales' unemployed population with their skills and employability programmes.

However, in Wales, there are also typically around 450,000 people who are considered 'economically inactive' (i.e. not seeking employment) - some of whom might also be considered to be targets of an employability programme (i.e. converting inactivity to activity).²⁶ This figure is also believed to have been rising recently.²⁷ As such it is likely that there is capacity in Wales to support significantly less than half of the true 'target population' of people out of work.

The uplift in funding provided thus far to the skills and employability budget in the 2021-22 budget is around 10%. This compares a forecast that the rate of unemployment in Wales could be double its pre-crisis level by the end of 2021, with the peak likely co-inciding with the end of the furlough scheme. Even in the event of a swift recovery, shifts in the sectoral make up of the UK economy could lead to further job losses and skills mismatches as the dust settles on this turbulent period.

Young people

A key further question is whether this funding has been targeted adequately. The evidence implies that the group of workers most affected by the economic crisis has been those aged 18-25. It therefore seems appropriate that the Government have targeted much of their additional funding at apprenticeships and traineeships – both of which support younger workers. However, the funding provided only appears sufficient to return the apprenticeship and traineeship offer to its level in 2012/13.

It is also important that the root causes of the falling trend in apprenticeship starts by young people are addressed. The role of the UK Government's new 'Kickstart' scheme, and how it will work alongside Welsh initiatives and strategic priorities is not clear. Employers will have an increased incentive to hire young people, but will

²⁶<https://statswales.gov.wales/Catalogue/Business-Economy-and-Labour-Market/People-and-Work/Economic-Inactivity/chart-economicinactivityratesexcludingstudents-by-welsheconomicregion-year>

²⁷<https://www.ons.gov.uk/employmentandlabourmarket/peoplenotinwork/economicinactivity/timeseries/lf93/lms>

still only do so if they have a demand for additional labour, and if that labour can meet the skills demanded.

In-work training

Wales' support offer in relation to in-work training, outside of its offer to young people, is very limited (albeit some of the restrictions result from UK government decisions). The recent national roll-out of the Personal Learning Account programme represents a positive step forward. A further estimated 10,000 people are reached by the Union Learning Fund. This compares to over 100,000 workers who are currently furloughed and might productively use their time upskilling and also compares with the decline in part-time degree-level study which has fallen by 13,500 over the past decade. Effort is still required to encourage upskilling and retraining to workers currently on furlough, many of whom may still be at risk of redundancy.

Redundancy support

Wales has a stronger reskilling and upskilling offer for workers made redundant than is available in England. Through the ReACT programme, the Welsh Government extends financial support to workers made redundant, helping them to upskill, and also provides funding to their future employer to encourage their recruitment. It does not appear that the capacity of the ReACT programme has been increased due to Welsh Government funding announcements in the 2021-22 budget. It also seems unlikely that the scheme has sufficient capacity to support the surge in redundancies which is predicted to unfold this year. A further question is whether the scheme provides sufficient financial support to incentivise training given the general worsening of financial support to education driven by UK Government decisions and the broader crisis in household income levels which has developed over the past decade and accelerated through the crisis.

Realising transition opportunities

A key priority for the Welsh Government's employability and skills programmes is to ensure that they are preparing workers for the industries of the future. As demonstrated above, areas such as construction, heating, electrical installation,

engineering, and land and nature restoration all have significant future growth potential. The longevity of jobs will be an important consideration in any recovery package, and while demand for some jobs in green transition industries may experience a medium-term peak, many jobs will be sustained over a period of decades. While data is limited in detail and accuracy, this analysis would suggest there is significant potential to increase the rate of uptake of apprenticeships and other forms of skill development in these sectors.

While there are inevitably risks to being an early investor in green transition technologies, the potential rewards are great. A key priority in Wales is to ensure good quality jobs, production and wealth remain and grow in Wales. As the transition to zero carbon is now inevitable, and around the world governments and businesses are mobilising investment, research, and development, this can only be achieved by acting early and with conviction.

A key priority is to provide certainty to Welsh individuals and businesses for them to invest in skills and facilities for the green economy of the future secure in the knowledge that good quality jobs and business demand will be ready and waiting. The potential regrets associated with upscaling investment and underwriting transition risks are significantly reduced by the many 'co-benefits' delivered by green transition investment. Among many benefits these can include ecological and social resilience and sustainability, reduced fuel poverty, wealth retention, fiscal stimulus and reduced inequalities.