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Workers' perceptions of climate change and the green transition in Yorkshire and the Humber:

Building the evidence base for the just transition in the region

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Key Messages

This report has been prepared to inform the Yorkshire and Humber Climate Commission on worker perceptions of the transition to a low carbon economy. The study has a core focus on the Yorkshire and Humber (Y&H) region, but it has lessons of interest for anyone working on the question of employment and skills in the green transition. The research draws from a nationally representative survey of 2,000 UK workers, undertaken by the Centre for Employment Relations Innovation and Change (CERIC) at Leeds University Business School, with funding support from UKRI Research England.

Workers' views on climate change in Y&H

- Across the UK, 76 per cent of workers express concern about climate change. However, in Y&H, workers are significantly more concerned (85 per cent). 65 per cent of workers in the UK say that climate change should be tackled with a high, or extremely high, level of urgency. In Y&H, this rises to 77 per cent.
- Workers have a mix of emotions about the climate crisis ranging from hope, to fear, anger and outrage. The sense of outrage is higher for Y&H workers than across the rest of the UK. How emotions shape worker responses to, and engagement in action to address climate change, needs to be better understood and reflected in policy.
- The green transition is real and already here for many workers. A third of workers (36 per cent across the UK and 34 per cent in Y&H) say that actions to decarbonise are happening in their workplace, yet only half have been consulted on these changes and a just over a quarter say they have received relevant training.

Expectations of the transition to a greener economy

- Workers in Y&H feel quite optimistic about community level impacts of the green transition with nearly half expecting new green jobs to arrive in their local communities. At the same time, workers in Y&H are not as confident as others in the UK that they will be able to access the new employment opportunities in the green economy. Only two in five expect new green jobs to be better quality jobs.
- A significant minority expect disruptions. One in five expect job losses locally due to green transitions. One in seven thinks that the green transition will mean they will have to change their job, or relocate, to find work. Two thirds expressed interest in working in green economy jobs. To realise change, this would require the majority to switch sector.
- Working in the green economy is an attractive proposition for workers in Y&H: nearly three quarters are interested in a 'green' job, motivated by the prospect of interesting and meaningful work that helps reduce or halt climate change.

Skills and training for the green transition

- Workers in Y&H feel less equipped to deal with the green transition than workers in other parts of the UK they are less likely to have regularly updated knowledge and skills, less likely to think their knowledge and skills would be useful in the green economy, and more likely to think that the 'greening' of jobs will require them to learn new skills.
- The vast majority of workers in Y&H are willing to develop new skills and feel confident about doing so, emphasising the opportunity for policy to support the skills transition. Yet, workers in lower-skilled occupations are more likely to feel that they will need to change jobs and are much less likely to say that they have skills relevant for the green transition.

Delivering a just transition

- Workers in Y&H, as elsewhere, want a green transition that primarily focuses on access to training and good quality jobs.
- All workers also want to see collaborative 'bottom-up' approaches to transition planning, with greater involvement in decision making that draws on their knowledge and relevant skills.
- Workers in the Y&H region particularly emphasise that green transition processes should focus on reducing inequalities in communities already affected by industrial change in the past.

Take-aways for policy-makers, business & trade unions

- Investing in skills is important now and workers are ready to undertake training and development to prepare for green transitions. In addition to occupational training and workplace learning, general carbon literacy training for all workers is also needed to improve the knowledge base around climate change and green transition.
- Involving workers in decarbonisation programmes early on is a key recipe for success. This requires more complex and sustained forms of dialogue between employers, workers, local authorities, and training providers to engage workers directly on the employment effects of climate policy and to understand how job change, upskilling or re-skilling and the transition to new roles can best be supported.
- Tackling climate change is seen as a key responsibility of governments, failing to address this now can potentially lead to further political disengagement.

Introduction

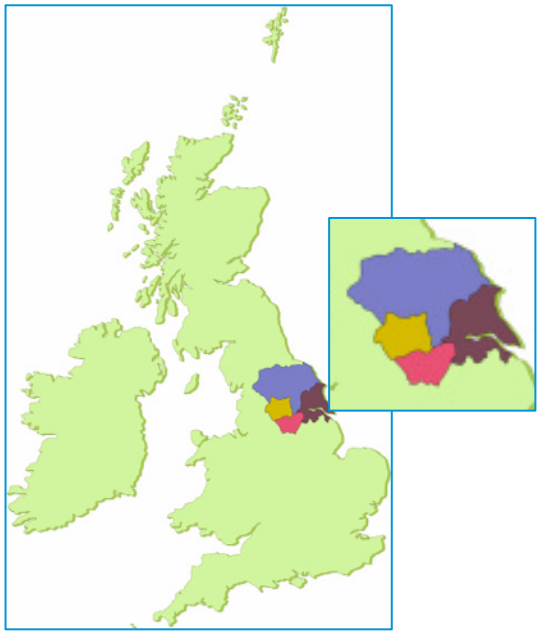
This report focuses on climate action in Yorkshire and the Humber (Y&H) and what workers in the region think about the prospect of the transition to a low carbon economy, the implications for their communities and working lives, and the principles upon which the transition to a greener future should be based. This focuses on what has become known as the *just transition*. The report draws from a new nationally representative survey of UK workers, the first of its kind in the UK, and highlights responses from workers in the Y&H region. The research was developed principally to inform the emerging work of the Yorkshire and Humber Climate Commission (YHCC), but the findings are relevant to workers, unions, businesses, and local authorities actively engaged in the question of employment and skills in the green transition.

The stated aims of the YHCC[1] include developing climate solutions that incorporate the principles of a fair and just transition and target opportunities that improve skills and create good quality jobs, and this report focuses on these themes. The drive to decarbonise and reach net zero will create new jobs, some of which will exist mainly during the transition whilst others will become long term features of a greener economy. The UK Government's Green Jobs Taskforce notes that there are already 410,000 jobs in low carbon businesses and their supply chains across the UK and the Government has set an ambition of 2 million green jobs by 2030 (Green Jobs Task Force, 2021). While there is rightly considerable focus within policy on developing climate education and green skills for young people and new labour market entrants, it is also important to note that within the UK workforce of 32.4 million, over two thirds, 21.9 million, are aged 49 or under (ONS, 2021). A significant proportion of the 2030 workforce that will help us achieve net zero are already in work, and a key challenge will be the 'greening' of their jobs and skills.

Achieving the low carbon transition, however, also puts some jobs at risk: as the economy evolves, the knowledge and skills needed by workers will also change, requiring reskilling, or possibly leading to the disappearance of certain jobs and industries, as new approaches and technologies to address climate change develop (ILO, 2019). There is an emerging consensus, both locally and internationally, that worker and community voices need to be heard for green economy transitions to be achievable. Significantly, this was recognised in the Paris Agreement of 2015 citing 'the imperative of just transition of the workforce and the creation of decent work and quality jobs need to be considered in planning action on climate' (United Nations, 2015), and more recently, amplified with the COP26 Glasgow Climate Pact (UNFCCC, 2021). Successful transition and 'greening' of work though will need new approaches to bring together workers, employers, sector bodies, local authorities, community groups, and education and training providers, not least to develop coherent approaches to building regional green jobs, and skills action plans that include, both the needs of new workers and those in the current workforce.

[1] https://yorksandhumberclimate.org.uk/

This report aims to help inform regional policy making in this area, through understanding worker positions on climate change and the ways they can be more effectively engaged in processes that support the green transition. The economic and social make-up of the Yorkshire and Humber region presents both challenges and opportunities in the transition to becoming a greener, more sustainable place to live and work. The region's industrial base means that carbon emissions are relatively high, its geography means that its East coast is uniquely at risk from climate change due to the low elevation. Yet these features also offer significant opportunities to develop a more sustainable future through making the transition to low-carbon energy, industry, transport, and housing. Another feature of the region's history is that of 'unmanaged' transitions; the effects of which are still keenly felt in certain communities affected by the loss of jobs in industries, such as coal, steel, and other manufacturing. Understanding this particular mix of experience, and how local stakeholder perspectives are shaped by them, is important when developing plans and action to address the climate crisis. As our survey shows, many workers are already working in settings where decarbonisation plans are in place and so this existing knowledge, and the related skills already in the region, needs to be understood and harnessed.



Innovation in new ways of collaborative working is already taking shape to address climate action. The creation of the Yorkshire and Humber Climate Commission is a key example of this. It is a significant development, bringing together local authorities, businesses, trade unions, third sector organisations, universities, and communities with the aim of advancing the region's climate leadership. While there is still uncertainty as to exactly when, how and in what direction action to address the climate crisis will happen, taking stock of workers' perceptions on these issues is part of the evidence base needed to inform current plans that will shape the region's green transition, within which, harnessing the skills, knowledge and engagement and voice of workers will be essential.

Recent reports have highlighted the risks and benefits of decarbonisation for employment in the region (Emden & Murphy, 2019; TUC, 2020; Diski, Chapman, & Kumar, 2021) and some have begun to explore how workers and union officials see the transition to a greener economy (see for example TUC 2020 and Deski at al 2021). This report adds to this building evidence base by presenting the results from one of the largest surveys of workers conducted to date and their perspectives on the transition to a greener economy.

Throughout the report, we compare the perspectives of workers in the Yorkshire and the Humber with data collected from across the UK. Section One sets the context by outlining the challenges and opportunities for regional employment in the green transition and also discusses key themes explored in the survey of workers, including perceptions of the climate challenge, interest in green jobs and expectations of a just transition. Section Two presents data from the survey which was undertaken with a nationally representative sample of 2,000 workers across the UK in April 2021. The sample is representative of the working age population (18-65) by age group, ethnic group, gender and UK nations and regions. 166 of the respondents are from the Yorkshire and Humber region. Further detail on the design of the survey and profile of the participants is shown in Annex A. The following key areas are covered in the findings section:

- How the threat of climate change is perceived by workers
- Workers' expectations of the transition to a greener economy
- Workers' readiness for the transition including their skills and training needs
- What workers see as essential in ensuring that the green transition is fair and effective.

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Section One: Moving to net zero and green jobs

The UK context

The stated aim for the UK's carbon emissions targets is to reach net zero by 2050. In April 2021 the UK government announced that the country's sixth carbon budget would aim for emissions reductions of 78 per cent by 2035 compared to 1990 levels and would, for the first time, include emissions from aviation and shipping. Reaching net zero by 2050 is important because it increases the likelihood that global temperature rises will not exceed 1.5 degrees Celsius (1.5C) over the coming century. Temperature rises of 2C or more increase the number of people worldwide exposed to climate related risks and poverty by several hundred million by 2050 (Hoegh-Guldberg, Jacob, & Taylor, 2018).Temperature rises above 1.5C are also extremely concerning as once this threshold is breached, it is likely temperatures changes will take on a life of their own as 'global tipping points' are activated. Passing global tipping points means that changes to the earth's climate and biosphere accelerate and become much more difficult to predict and contain (Lenton, et al., 2019). The UK's Committee on Climate Change (CCC) noted in its update report to Parliament in 2021 setting out approaches to cross-cutting challenges, that key priorities were fair funding, just transition, skills, public engagement, local delivery, and governance (Committee on Climate Change, 2021). The Environmental Audit Committee also recommended that Government set out how progress towards green jobs targets will be measured and publish both regional and national just transition plans. This emphasises the importance of both national frameworks and regionally tailored plans for effective green job and skills transitions (House of Commons Environmental Audit Committee, 2021).

Estimates of the number of jobs that will be affected by the green transition, either positively (jobs in demand) or negatively (requiring upskilling or at risk), suggest that across the UK one-in-five, or 21 per cent, of all jobs will be affected directly (Robins, Gouldson, Irwin, & Sudmant, 2019). This total includes just over 11 per cent of workers who will see a *decline* in demand for their skills and whose jobs may be at risk, while the remainder, around 10 per cent, will see an *increase* in demand. Jobs in demand include those specific to new green economy sectors such as wind turbine installers, but also skills and expertise in construction and manufacturing required for example, to build infrastructure and energy efficient buildings. Jobs in the health and service sectors will also be affected, for example there is a need to understand the risks posed by climate change alongside the opportunities of green investment. While jobs affected by the green transition (positively and negatively) are in every sector of the economy, certain key sectors are significantly affected, notably the energy sector. The construction industry and manufacturing sectors also stand out as those where there is the largest opportunity and risk with respect to employment. In these sectors, as many as 60 and 49 per cent of workers respectively are likely to require new skills.

Figure 1.1: Key industrial sites in Y&H as measured by EU Emissions Trading Scheme data (EEA, 2019)[2]

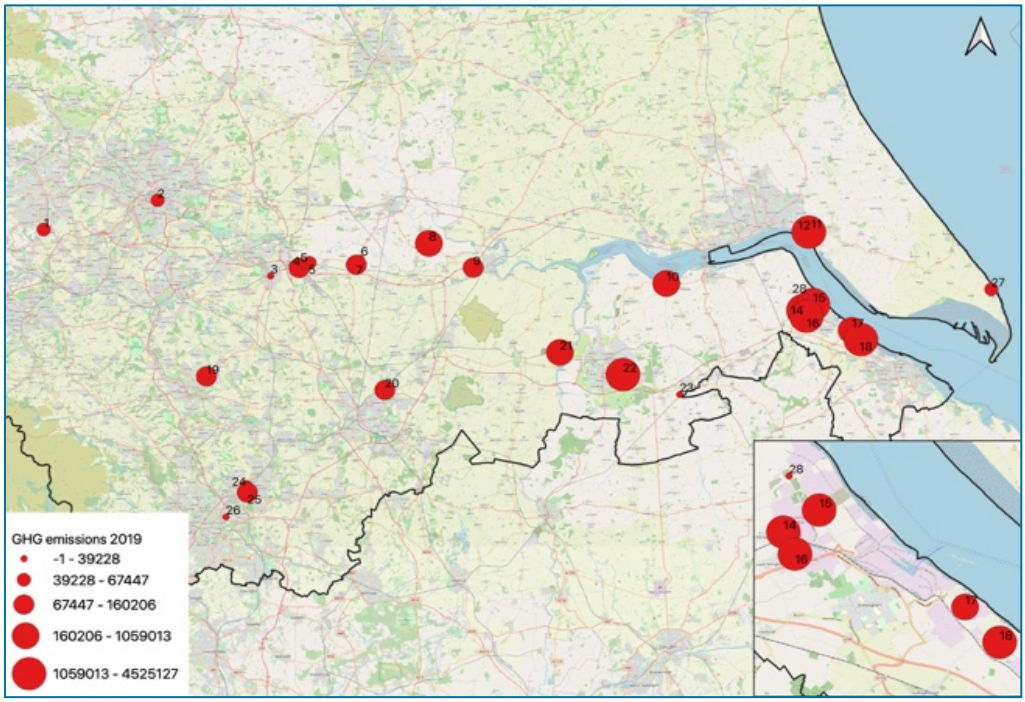
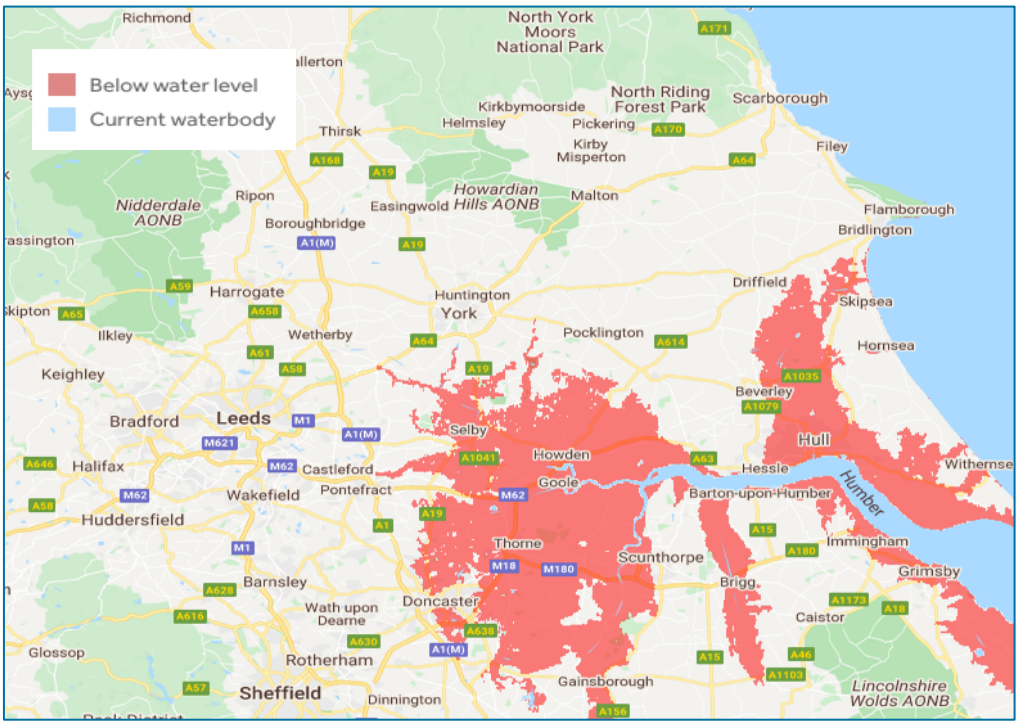


Figure 1.2: Land in Y&H projected to be below annual flood level by 2050: Costal Climate Risk Screening Tool[3]



[2] https://www.eea.europa.eu/data-and-maps/dashboards/emissions-trading-viewer-1
[3] https://coastal.climatecentral.org – map image captured 12 Sept. 2021

The Y&H context

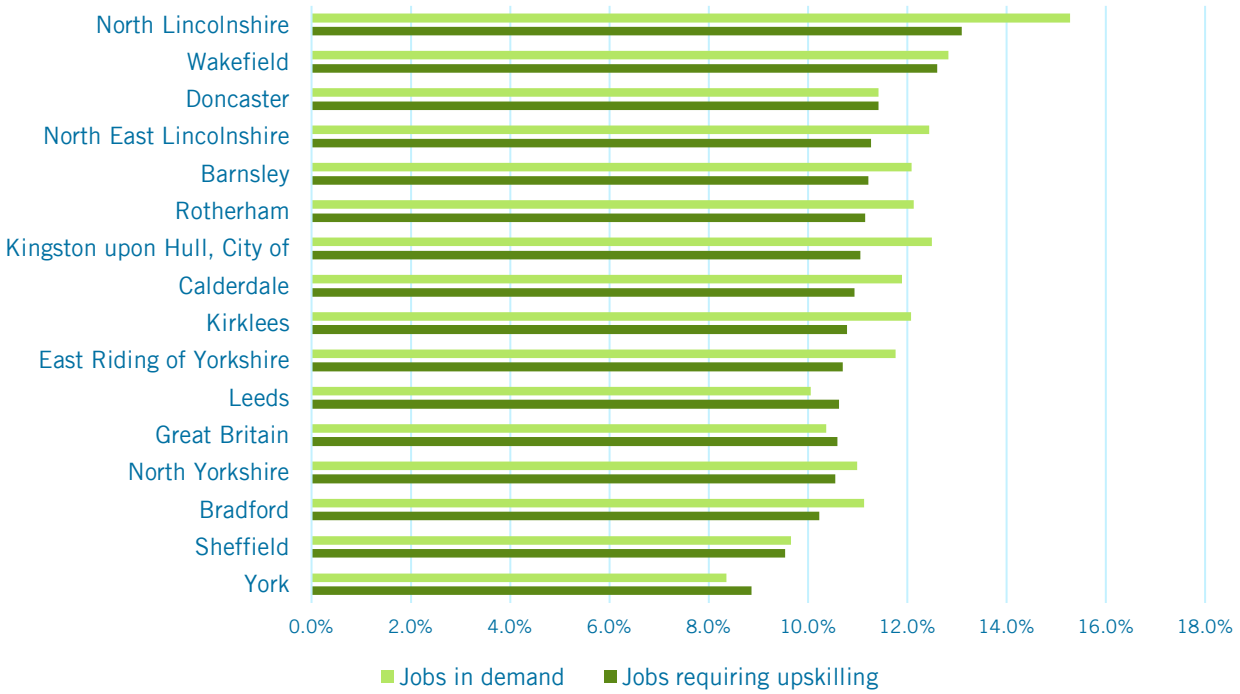
The Y&H region has set targets for reaching net zero by 2038 and the Yorkshire and Humber Climate Commission Climate Action Plan outlines recommendations for achieving net zero (alongside a complementary set of actions to address adaptation to climate change)[4]. Implementing coherent plans to reduce carbon emissions in Yorkshire and the Humber is an urgent task. The region has a population of 5.6 million yet emits approximately 13.9Mt of CO2 or equivalents, which is more than the entire population of Tanzania, a country of more than 60 million people. Emissions from the region's industrial sector are the second highest per capita in the UK at 2.2 tCO2 per person (BEIS, 2021). There are many nationally critical, high emitting sites in the region including power stations, steel works, oil refineries, glass making factories and chemical production plants. **Figure 1.1** above shows that the 30 key sites as measured by carbon emissions in 2019 (via the EU emissions trading scheme) are locate across the region. It is estimated that around 360,000 Y&H jobs are in sectors which have high or very high emissions (Diski, Chapman, & Kumar, 2021). The concentration of employment in these sectors presents opportunities and challenges in the green transition for the region. For example, the Humber region is uniquely at risk of from sea level rises due to being one of the most low-lying areas in the UK. **Figure 1.2** above shows the projected mid-range threat from sea level rises across the region by 2050 (Kopp, 2014). Yet the Humber Estuary, known as the 'Energy Estuary' given its location and historic role, is now a hub for the development of the North Sea offshore wind sector and is critical to the region's plans for decarbonisation.

Looking at estimates of the impact of the green transition on jobs at the regional level, the Yorkshire and Humber region, along with the Midlands, is likely to see the highest degree of change. Overall, it is estimated that potentially more than 500,000 jobs across all sectors in the Y&H region are potentially affected (positively and negatively) by the transition to net zero. There will be specific local differences in the number of jobs affected, closely linked to ways in which transition occurs by taking advantage of pre-existing infrastructures and skills (Sadler, et al., 2016). **Figure 1.3** below shows the percentage of jobs estimated that are at risk (require upskilling) and those in demand as a result of the green transition across local authority districts (LADs) in the Y&H region[5]. This illustrates two key points. First, in most local authority areas the proportion of jobs affected (positively or negatively) will be greater than the average across Great Britain. Second, in most areas, the proportion of jobs in demand are higher than those estimated to be at risk. But there are important local differences. North Lincolnshire, Wakefield and Doncaster have the highest proportion of jobs requiring upskilling. In Leeds and York, the proportion requiring upskilling is greater than those in demand. Where the base population is high, such as in the cities of Leeds, Bradford, and Sheffield, the number of jobs requiring upskilling is also high: Leeds (49,000) North Yorkshire (28,600),

[4] https://yorksandhumberclimate.org.uk/climate-action-plan
[5] https://pcancities.org.uk/tracking-local-employment-green-economy-pcan-just-transition-jobs-tracker also see Robins et al (2019)

Sheffield (25,400) and Bradford (20,100) are the four LADs with potentially the highest absolute number of jobs affected this way.

Figure1.3 Per centage of jobs in demand and jobs requiring upskilling in the green transition Y&H by Local Authority
Source: PCAN Just Transition Jobs Tracker



Recent economic transitions have had unequal impacts on workers from different sectors of the economy, leading to lasting unemployment and regional economic disruption (Dorn & Hanson, 2016). The UK, and particularly the Yorkshire region, has faced the consequences of a 'chaotic transition' in the recent past (Beatty & Fothergill, 1996). The decline in industries such as coal and steel, and the consequent loss of jobs and livelihoods, has led to social deprivation that continues in some areas to this day. Research in the former coalfield communities finds that almost half of them continue to experience high deprivation levels (Foden, Fothergill, & Gore, 2021). The prolonged impact of the loss of key industries emphasises the need for the transition we are embarking on today to be much more carefully managed to prevent the repetition of past mistakes. While the estimates for the expansion of jobs in the green economy indicate the possibility for positive change, earlier experiences of transition have scarred many communities and can create a feeling of ambivalence and lack of trust in the face of industrial change (Beynon & Hudson, 2021) and the potential for cynicism over the promises of a just transition (Diski, 2021). This underlines the importance of building focused and locally sensitive approaches, to genuinely build worker and community voices in planning for climate actions and related policy that manages the consequences of the green transition on employment and skills. However, approaches to developing policy that shapes work and employment prospects has not tended to include

significant input from the workers or citizens likely to be directly affected. Coats (2020), illustrates the ad hoc approach to supporting workers after recent closures in the steel and coal-fired power sectors, and emphasises the distance between stated policy aims and the realities of local transitions (Coats, 2020). This point was also illustrated in local dialogues with residents in Grimsby in 2020 which revealed that many felt disconnected from the remaking of the town as a critical hub in the green economy: well-structured pathways out of jobs in decline and into new jobs were missing, particularly for those in manual occupations (Institute for the Future of Work , 2021). Developing a better understanding of how workers view the climate crisis, the prospects for work, skills and training in a greener future and how transitions should be managed, therefore, form the focus of this study. The remainder of this section highlights the core themes explored in our survey of workers: perspectives on climate change, green jobs and skills, decent work and *just transition*.

Core research themes

Perspectives on climate change

There is now significant evidence that the UK population understands the risk posed by climate change. Recent general population surveys on perceptions of climate change show that between 70 and 80 per cent are concerned about this issue, with between around 60 and 70 per cent stating that we need to act with an extreme or high level of urgency to reduce emissions (Steentjes, Demsk, Seabrook, Corner, & Pidgeon, 2020; YouGov, 2020; ONS, 2021). Yet some commentators suggest that workers may be less inclined to engage in the topic of climate change or be ambivalent to support urgent action on climate due to the potential impacts of the green transition on employment. We also know from a growing body of research that our emotions about the climate crisis influence how we process information about climate change, the likelihood we will take individual or collective action on climate, and the type of policies we support (Stanley, Hogg, & Walker, 2021; Lu & Schuldt, 2015). Thus, perceptions and emotions relating to climate change are an important factor in understanding workers' perspectives on the green transition. We asked workers how strongly they feel about climate change and their emotional response to the issue asking about hope, fear, anger, guilt, and outrage.

Green jobs and skills

The employment projections noted above imply the need for many workers to develop green skills or even switch sectors if net zero plans are to be realised: many job roles will continue to exist but may be required in different sectors. For example, a gas engineer with additional training may be able to work in the hydrogen provision sector or roles in offshore wind industry, many have similar core competencies to other industrial sectors, although require training and orientation to ensure health and safety in a new and sometimes extreme working

environment (CATCH, 2017)[6]. Green jobs can be defined in different ways. The first of these centres on the jobs in the newly emerging 'green economy' such as low-carbon electricity and heating, alternative fuels, energy efficient products, low emissions vehicles and infrastructure, and related low-carbon services (Taylor, 2020), sometimes referred to as climate critical jobs. A second definition includes a wider range of jobs that have a neutral or positive effect on environmental quality such as nature restoration, low carbon transport, health and social care as well as emergent sectors such as second-hand retail, and repair workshops for electronic goods (ILO, 2019; Women's Budget Group, 2020). A third approach includes the wider range of jobs that require green skills (U.S. Department of Labor, 2010). Our survey of workers explores aspects of all three.

A further concept explored considers 'green skills gaps': this refers to the distance between current occupational skill levels and the skill levels required for work in the green economy. People already working in the green economy tend to be better qualified, probably due to the importance of engineering related degrees for aspects of this work. Across the Y&H region green 'skills gap' are not evenly distributed (Christie-Miller & Luke, 2021) and are the highest in Hull and South Yorkshire. These observations stress the need to understand not only workers' awareness of the climate crisis, but also the possible employment effects of the green transition and how ready workers feel in terms of their awareness of, and interest in, working in green economy jobs and the extent to which they might need to retrain and develop green skills.

Studies aimed at understanding the perceptions people have of potential jobs in the green economy find that many have limited knowledge of the 'green economy' and are often more attracted to roles which seem tangible and related to their prior experience; this is especially the case for those working lower skilled roles (Public First, 2021). A recent study in the oil and gas sector found that workers were more attracted to jobs that have a degree of familiarity such as offshore wind, rig decommissioning and other renewables linked projects (Jeliazkov, Morrison, & Evans, 2020). In asking workers of their views of the energy transition, the study found that over 80 per cent would consider working in a different industry. Yet, although many oil and gas workers have a highly transferable skillsets, the report also noted workers' fears that accreditation systems may not allow for their skills to be easily recognised in new settings, suggesting some may feel a sense of being trapped in the industry. In order to better understand worker perspectives on green jobs and skills, we ask their views on green jobs, if they sense that their jobs are at risk and will need to learn new skills or move as a result of the green transition. We also ask workers about their interest in working in green jobs including those within definition one above. We also ask about preferences to work in jobs seen as 'climate positive or climate neutral' such as nature protection or in health and social care (i.e. green job definition two). Finally, we ask workers whether they feel they have the 'green skills' necessary to work in these roles (i.e. definition three).

[6] CATCH is a public private partnership which was established in 1999 to support the Humber chemicals industry. It now supports the chemical and energy industries including renewables.

Green jobs and decent work

There is broad agreement across industry, government, civil society, and trade unions that green jobs should be good quality jobs. The International Labour Organisation (ILO) definition of 'decent work' (1999) aims to ensure that job creation efforts do not prioritise job quantity over job quality and takes into account the conditions of work including features of the employment contract, participation and skill development (de Bustillo, Fernández-Macías, Antón, & Esteve, 2009). In this report we use an expansive definition of job quality adapted from (Diski, Chapman, & Kumar, 2021) shown in **Figure 1.4.** In the UK, however, job quality has decreased in recent years across a range of indicators including further reductions in collective voice, on labour rights and in working conditions (Piasna, 2017). Long-term underinvestment in the North of England has prevented the region from reaching its full potential (Jäger, 2021) and the limited amount of relatively high-quality employment is reflected in lower average earnings in the Y&H region (£442 a week compared to a national average of £480 (TUC, 2020). The need for green jobs to high quality is made more acute because many of the jobs at risk from the green transition have historically been relatively well paid and with good terms and conditions. A recent report estimated that there are currently 2,012 workers in coal and gas fired power stations in Y&H. Median earnings for these workers are £41,949 in comparison to £28,745 on average in the region, meaning these 'at risk' jobs currently make an important contribution in local economies (Prospect, 2020). Our survey asks workers their perception of whether jobs in the green economy will be good quality jobs, as this can both shape individual motivations and preparations for the green transition and also inform collective discussions about planning for preferred local decarbonisation pathways and the types of jobs they will create.

FIGURE 1.4 KEY FEATURES OF QUALITY JOBS

Job Security
Decent health and safety standards
Workers with protected characteristics treated equally
All workers earn a fair share of production earnings
Option to unionise without management interference
Free from excessive workplace surveillance
Working hours based on social demands
Workers have a say over their own work
Workers have a say in the future of the enterprise
Sick pay, holiday pay, & paid parental leave
Adequate resources and training
Employer commitment to region affected

Just Transition

Just Transition describes how the journey towards an environmentally sustainable economy needs to be actively managed, to ensure action to reduce carbon emissions does not unfairly impact on workers or vulnerable communities. Many of those most likely to be affected by climate policy may already face economic disadvantage and other social vulnerabilities. One of the key guiding principles of a Just Transition, as prefaced in the Foreword to the Paris Climate Agreement (United Nations, 2015), is the need for social consensus on the pathways to a

greener, more sustainable, economy. The Solidarity and Just Transition Silesia Declaration at COP24, which was signed by 72 countries including the UK in 2018[7], further detailed the importance of the involvement of all stakeholders in processes that promote high employment and good labour standards. This was reaffirmed in the COP26 Glasgow Climate Pact which notes that within Mitigation Strategies, parties are called to 'accelerate the development, deployment and dissemination of technologies, and the adoption of policies, to transition towards low-emission energy systems, including by rapidly scaling up the deployment of clean power generation and energy efficiency ……..while providing targeted support to the poorest and most vulnerable in line with national circumstances and recognizing the need for support towards a just transition' (UNFCCC 2021:3). Broad guidelines for just transition have been developed by international organisations such the ILO (2015) see **Figure 1.5** and the ITUC and the B Team (2018) and more recently, a range of trade unions, employers' organisations and think-tanks. Yet there continues to be limited examples of the ways in which workers and communities on the ground are directly engaged in policy making that supports the green and just transition. Some new collaborative approaches to climate governance and just transition have begun to emerge, some at national, regional, or sectoral levels. This includes examples in the UK such as the Scottish Just Transition Commission[8] and the Fair Work Commission in Wales[9] and from UK trade unions. Internationally, the Just Transition Listening Project[10] in the US, and C40 Cities Inclusive Climate Action[11] programme have developed different approaches to engaging worker and communities in active dialogue and local policy making on green transitions. The lessons from these initiatives emphasise that developing a clear understanding of what is needed to ensure a Just Transition in specific contexts is complex, but crucially requires input from those directly affected. And so, in this study, we ask UK workers what is important to them in the development of policy and practises that support green transitions for workers and their communities.

FIGURE 1.5 GUIDING PRINCIPLES FOR A JUST TRANSITION (ILO 2015)

Strong social consensus on the goal and pathways to sustainability; social dialogue as an integral part of policymaking; adequate, informed and ongoing consultation with relevant stakeholders; policies respect and realise fundamental principles and rights at work; policies and programmes take into account gender dimensions; coherent policies across economic, environmental, social and education/training areas provide an enabling environment for enterprises, workers, investors and consumers provide a just transition framework to promote the creation of more decent jobs; social protection for job losses and displacement; skills development, including exercise of the right to organise and bargain collectively; policies and programmes designed in line with the specific conditions: stage of development, economic sectors & types & sizes of enterprises.

[7] https://cop24.gov.pl/fileadmin/user_upload/Solidarity_and_Just_Transition_Silesia_Declaration_2_.pdf
[8] https://www.gov.scot/groups/just-transition-commission/
[9] https://gov.wales/fair-work-commission (while not focused specifically on just transition does consider sustainable work)
[10] https://www.labor4sustainability.org/just-transition-listening-project/
[11] https://www.c40.org/

Section Two: Survey Findings

The findings from the survey are presented in four parts which cover first, how workers view the climate crisis, their sense of urgency, climate emotions and who they see as primarily responsible for taking action to tackling climate change. The second part covers workers' expectations relating to work and employment in the transition to a greener economy and whether their local community and they themselves will benefit. The third part focuses on the types of green jobs that workers are interested in, and then whether they feel that they have access to the skills they need to do them. The final part focuses on the concept of fairness in the transition and what workers would like to see within policy that supports the just transition.

2.1 Workers' perspectives on climate change

- Across the UK, 76 per cent of workers express concern about climate change. However, in Y&H, workers are significantly more concerned (85 per cent). 65 per cent of workers in the UK say that climate change should be tackled with a high or extremely high level of urgency. In Y&H, this rises to 77 per cent.

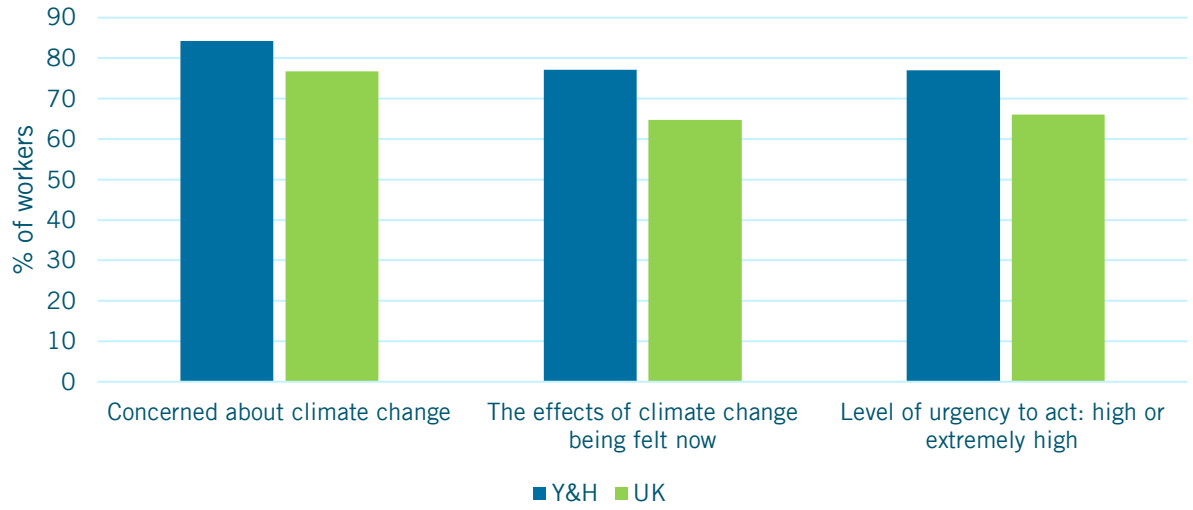
- Workers have a mix of emotions about the climate crisis ranging from hope, to fear, anger and outrage. In Y&H, the sense of outrage is more prominent than elsewhere. How emotions shape worker responses to, and engagement in action, to address climate change needs to be better understood and reflected in policy.

- The green transition is real and already here for many workers. A third of workers (36 per cent across the UK and 34 per cent in Y&H) say that actions to decarbonise are happening in their workplace, yet only half have been consulted on these changes and just over a quarter say they have received relevant training.

Workers' views on the climate emergency

The survey results show that UK workers have broadly similar views on the climate crisis compared to the general population (Steentjes, et al., 2020; YouGov, 2020; ONS 2021). This suggests that workers and the public are increasingly well informed about the climate risks that form a good basis for understanding the need for low carbon transitions. **Figure 2.1** shows that, workers in Y&H are significantly more concerned about climate change (84.3 per cent) than the average UK worker (76.7 per cent). Y&H workers are also significantly more likely to say that the effects of climate change are already being seen now. Their perceptions of the urgency of the issue are also higher, with 77.1 per cent saying that it needs to be addressed with a high or extremely high level of urgency compared 64.7 per cent UK workers.

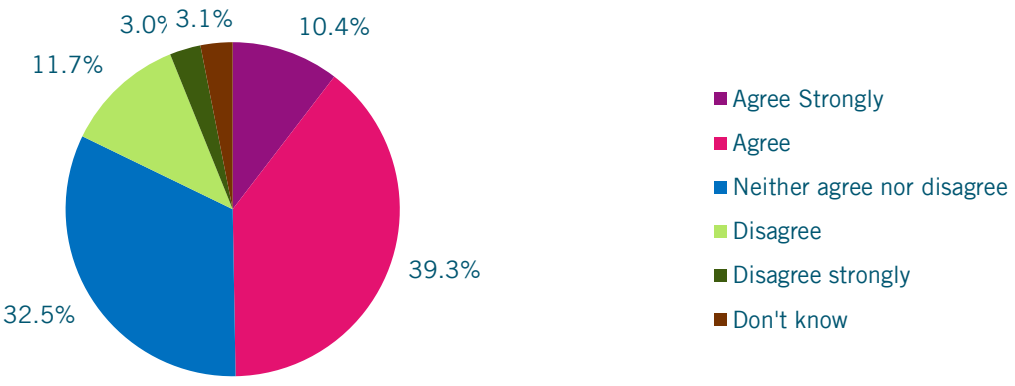
Figure 2.1 Perspectives on climate change: Y&H and UK workers compared n 2,000



Source: Workers' perceptions of climate change and the green transition Survey (2021)

The results suggest there is recognition of the climate emergency and a need to act with urgency yet Figure 2.2 shows that only a half of workers feel they have a good understanding of the causes and effects of climate change. The responses for Y&H and UK workers were similar, although workers in the Y&H region were less likely to agree strongly that they had a good understanding about climate change. While it is unrealistic to expect that we all become experts in climate change, the survey suggests that underlying knowledge could be improved and is a call for action for policy-makers, businesses, and unions to provide education on carbon literacy and environmental breakdown for workers.

Figure 2.2 I have a good knowledge about the causes and effects of climate change n 2000



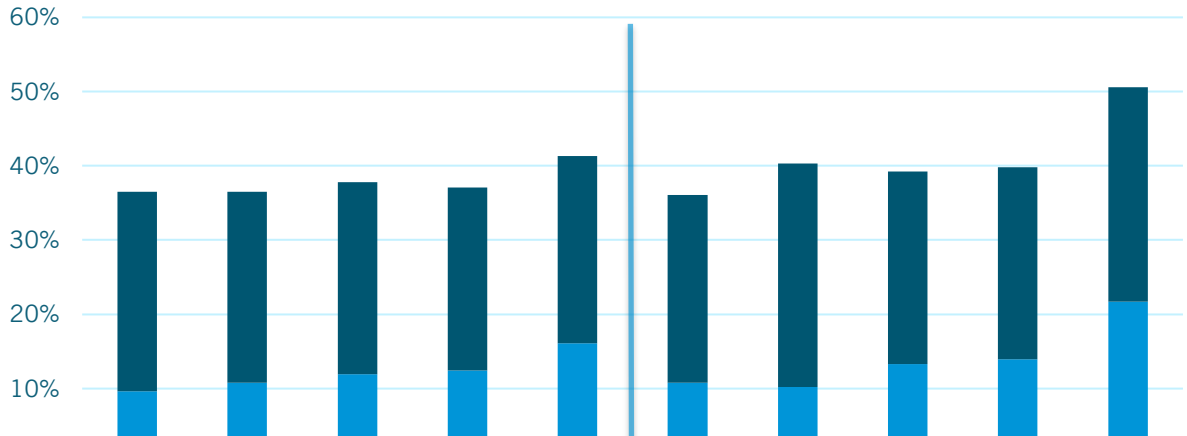
Source: Workers' perceptions of climate change and the green transition Survey (2021)

Climate emotions

Figure 2.3 shows the responses from UK and Y&H workers to the question 'when you think about climate, how strongly, if at all, do you feel the following emotions: hope, fear, guilt, anxiety, outrage'. The most prominent emotion experienced by all workers was outrage. Levels of hope, anxiety and fear about climate change were similar but it is notable that workers in Y&H felt significantly more outrage: 50.6 per cent as opposed to 41.3 felt 'very strongly' or 'quite strongly' outraged about climate change[12]. The levels of guilt experienced by Y&H workers are slightly higher than those reported by workers across the UK, but not at a statistically significant level. Anxiety and fear levels were 39.2 and 39.8 per cent respectively.

The prominence of outrage as strong emotion about climate change in Y&H suggests that there may be strong support for policies which will reduce the impact of climate change as 'eco-anger' is a good predictor of pro-climate actions, although this tendency can be negated by fear. High levels of negative feelings flag the need for coordinated and well communicated action from policymakers, businesses, and unions. While 'eco-anger' can encourage action, it can also creation tension and the desire for retribution-based responses which may not be helpful if directed against scapegoats, damaging the scope for collective action.

Figure 2.3 Climate emotions
UK and Y&H workers compared, n 2,000



	Hope	Guilt	Anxiety	Fear	Outrage	Hope	Guilt	Anxiety	Fear	Outrage
			UK					Y&H		
Quite Strongly	26.9%	25.7%	25.9%	24.7%	25.2%	25.3%	30.1%	25.9%	25.9%	28.9%
Very Strongly	9.6%	10.8%	11.9%	12.4%	16.1%	10.8%	10.2%	13.3%	13.9%	21.7%

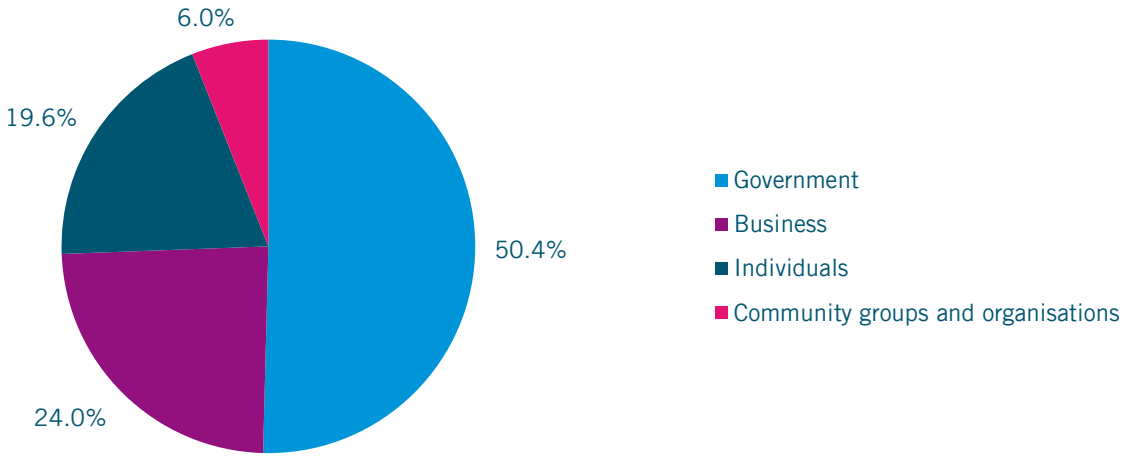
Source: Workers' perceptions of climate change and the green transition Survey (2021)

[12] Statistically significant at the 90% confidence level

Responsibility for climate action

In addition to exploring workers' views on climate change, the survey explored the question of responsibility for action. When asked who has the primary responsibility for addressing climate change, by far the most popular answer, shown in Figure 2.4, is government (through public investment, taxation, and regulation) with 48 per cent of people in Yorkshire and the Humber and 50 per cent of people across the UK as whole giving this response. The second highest response is that business is primarily responsible (through private investment in green technologies and services) and this response was more common in Yorkshire and the Humber compared to the UK as a whole (29 per cent versus 24 per cent). Only 20 per cent of workers (across both groups) think it is the responsibility of individuals (for example through 'greener' consumption behaviours)

Figure 2.5 Who has the main responsibility for climate action?
n 2,000



Source: Workers' perceptions of climate change and the green transition Survey (2021)

Clearly, action on all fronts is necessary to make the scale and page of change needed to meet net-zero within a generation. These results suggest the rejection of a narrative of the primacy of personal responsibility to address climate change, which has been a feature of environmental discourses for over 20 years (Lukacs, 2017; Aronoff, 2017). The survey indicates that workers expect strong action on the part of the government to implement policies which will prevent catastrophic climate change. There is also an expectation by a quarter of respondents that business will take key responsibility for action on climate.

Decarbonisation plans at work

For many workers, the green transition is already underway. 36.4 per cent of workers say that they are working in an organisation where there has been some action taken to address decarbonisation in some way. It is beyond the scope of the survey to comment on the scale, depth and impact of those actions on reducing emissions, but the response highlights that

many workers are already working in contexts where the low carbon transition has begun. As might be expected, workers in sectors deemed as high emitting sectors (energy, high-temperature manufacturing such as glass and steel) are those most likely to say that plans for decarbonisation are underway, but Table 2.1 shows that workers across in all sectors are aware of decarbonisation plans at work. Yet, the findings need to able be tempered with the observation that over a quarter (27.4 per cent) of workers did not know if plans and action to decarbonise were taking place. Furthermore, of those who did say that action was being taken, only just over half indicated that they had been consulted over these changes (54.1 per cent) and only a quarter received relevant training about these changes (27.9 per cent). Where unions were present, workers were more likely to say that they had been consulted and undergone relevant training.

Table 2.1 Action on decarbonisation taking place at work by sector, n 1,798

Sector	% of respondents
Energy and Utilities	53.6%
Manufacturing	52.3%
Construction	41.2%
Wholesale, retail, motor vehicles	36.7%
Transport	50.2%
Hotels	44.9%
IT/Communications	47.2%
Banking and Finance	36.5%
Public Sector and Education	34.4%
Health and Social Care	29.3%
Arts and other services	30.7%
All sectors	36.5%

Source: Workers' perceptions of climate change and the green transition Survey (2021)

Many workers are also directly taking action on climate change in different contexts, 59.0 per cent state that they are taking action at home to reduce their carbon footprint, 17.5 per cent state that they are involved in actions to reduce carbon emissions or protect the environment at work. A further 8.9 per cent are active in community level actions or campaigns, and 3.9 per cent involved in activities to address climate change through their trade union. The survey illustrates high levels of concern, sense of urgency and emotions towards the climate emergency. It also highlights that a significant minority of workers are already working in contexts where action is being taken to decarbonise, and that many are active in addressing climate change at work, at home in their communities and unions. This suggests a stereotypical view that workers are less engaged and concerned about climate change is misplaced. Yet, as we see below, workers do have concerns about the processes of transition and clear views on how this should be managed. Before turning to these, the next section focuses on how workers view the green transition and the opportunities and challenges that the transition will bring for work and employment.

2.2 Expectations of the transition to a greener economy

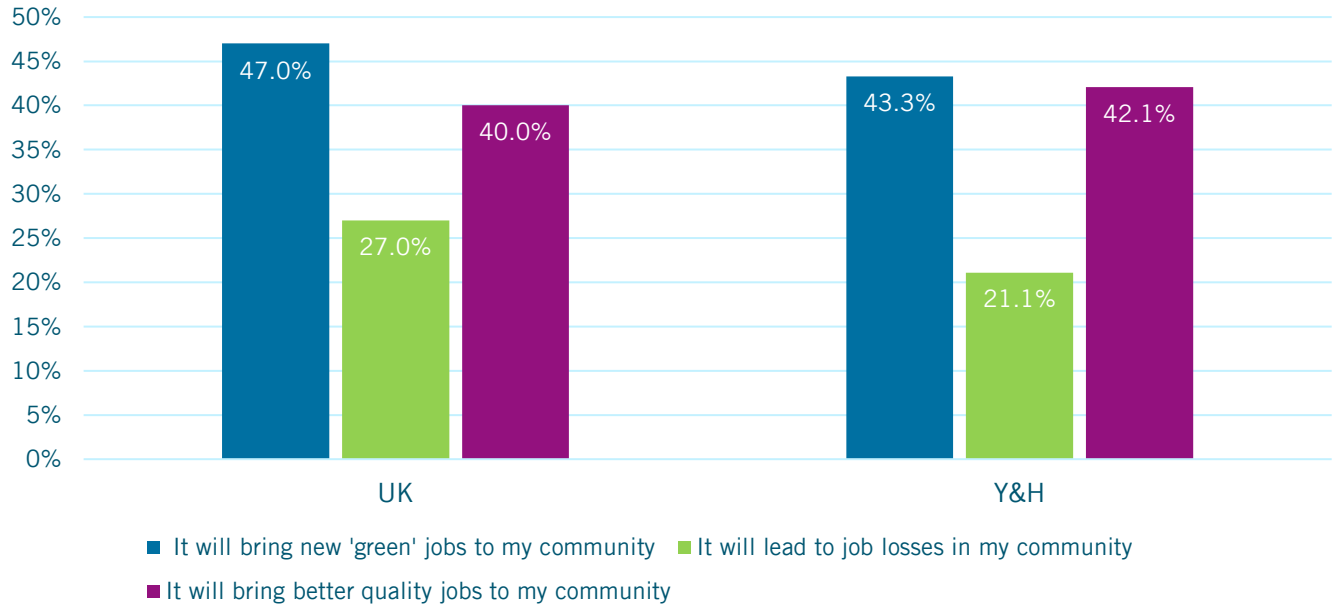
- Workers in Y&H feel quite optimistic about community level impacts of the green transition with nearly half expecting new green jobs to arrive in their local communities. At the same time, workers in Y&H are not as confident as others in the UK that they will be able to access the new employment opportunities in the green economy. Only two in five expect new green jobs to be better quality jobs.
- A significant minority expect disruptions. One in five expect job losses locally due to green transitions. One in seven think that the green transition will mean they will have to change their job or relocate to find work. Two thirds expressed interest in working in green economy jobs. To realise change, this would require the majority to switch sector.
- Working in the green economy is an attractive proposition for workers in Y&H: nearly three quarters are interested in a 'green' job, motivated by the prospect of interesting and meaningful work that helps reduce or halt climate change.

Community level impacts: job gains, job losses and job quality

When asked about expectations of how the transition to a greener economy would affect their local community, **Figure 2.6** shows that 43 per cent of workers in Y&H think it is likely that the transition to a greener economy will bring *new jobs*. This is slightly less optimistic than the 47 per cent of workers across the UK who think that this will happen. An equal proportion were pessimistic about the impact of the green transition on jobs locally, with 16 per cent (UK and Y&H workers) groups thinking it unlikely that the transition would bring new jobs. A further quarter thought there would be no change and 10 per cent did not know. This suggests the need to raise general awareness of the projected changes to work and employment that the green transition will lead to, not only to raise awareness of possible job change and new opportunities but also, as we see below, to develop the dialogue with workers as to how their existing knowledge and skills can be valuable in the green economy and where skills training will be needed.

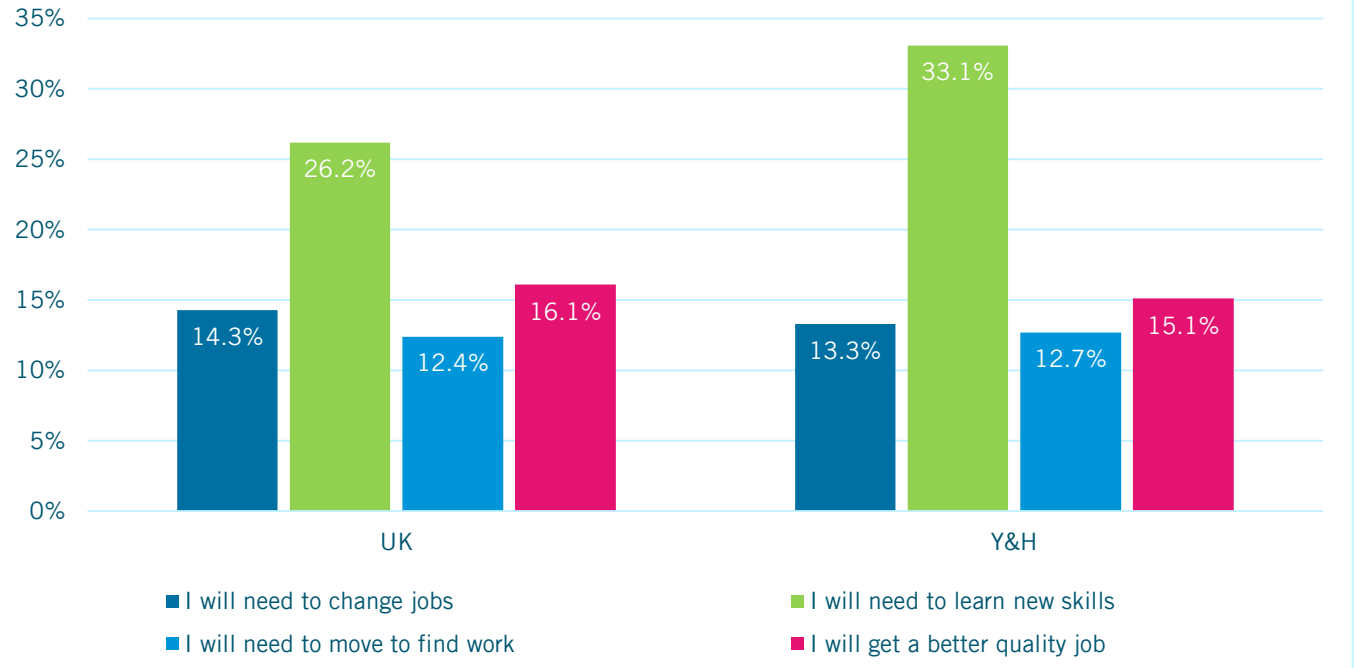
A counter question was posed asking if workers feel that there will be *job losses* locally as a result of the shift to a green economy: 21 per cent of workers in Y&H think that job losses are likely, compared to 27 per cent for workers in other regions in the UK. This suggests that Y&H workers are overall more optimistic about the prospects of growth in green jobs locally. Yet as **Figure 2.6** also shows, only two in five workers think that *better quality jobs* will arrive as a result of transitioning to a greener economy, with Y&H workers being slightly more optimistic than the national average on this question. These responses imply that many workers feel reasonably optimistic about the prospects for their job growth in communities in the transition to a green economy but concerns remain about the quality of those jobs.

Figure 2.6 How will moving towards a 'greener' economy affect your local community? UK and Y&H workers n 2000



Source: Workers' perceptions of climate change and the green transition Survey (2021)

Figure 2.7 How will moving towards a 'greener' economy affect you? UK and Y&H workers n 2000



Source: Workers' perceptions of climate change and the green transition Survey (2021)

Personal level impacts: job change, relocation, jobs quality, skills training

In addition to questions on respondents' expectations for community level impacts, Figure 2.7 shows responses about workers' views on their own personal employment prospects in the transition to a greener economy. Around one in seven (15 per cent) of UK and Y&H workers think they might need to *change jobs* and a slightly smaller proportion that they might need to *move away* to find employment as a result of the green transition. Figure 2.7 also shows that around 15 per cent of workers expect to be able to access green jobs that have better pay and conditions than the job they currently have. When looking at workers' current sector of employment, the proportion who think that it is likely that they will need to change jobs is highest in mining and quarrying (50.0 per cent), energy and utilities (38.2 per cent), agriculture (33.1 per cent), transport (27.3 per cent) and construction (26.1 per cent).

It is also notable that over a quarter of UK workers (27.1 per cent) feel that they will *need to learn new skills*. This proportion rises to a third (33.1 per cent) of Y&H workers. The sectoral profile of those who think they will need to learn new skills includes those expecting to change jobs, along with 39.8 per cent of workers in the hospitality sector and 28.9 per cent of workers in the arts, entertainment and other services sectors also giving this response. These findings suggest that while many workers see positive prospects for employment locally, they appear to be less optimistic that they personally will be affected positively by these opportunities. A significant minority of workers are expecting some level of disruption to their lives as a result of the transition to a greener economy, and workers across all sectors anticipate that they will need to learn new skills.

Interest in working in green economy sectors

In addition to asking workers about the prospect of having to change jobs to work in the green economy, the survey asked workers about their interest in working in specific 'green' jobs. The potential list of green jobs is huge, and the survey could only offer respondents a selected a list. The background research for this study identified nine low carbon sectors and 14 occupational areas (using the more expansive definition of green jobs discussed in Section One), drawing from a range of recent reports on green economy jobs that are forecast be in demand as (and when) the low carbon transition takes place in the UK. Respondents were asked whether they would be interested to work in these areas. The responses are shown in Table 2.2 for the low carbon sectors and Table 2.3 for the low carbon occupations. Overall, 64.5 per cent of workers expressed an interest in working in at least one of the low carbon sectors in the future. In Y&H this proportion was similar to the UK average. The most popular sectors were Environmental Protection or Restoration, Health and Social Care, Energy Efficient Buildings. Working in Low Carbon Electricity, Waste Management, Low Emissions Transport and Alternative Fuel Production were next most popular. From this limited list, the least popular employment options were Low Carbon Professional Services and Low Carbon Heat Installations.

Table 2.2 Interest in working in low carbon sectors, n 2000

Sector	% of respondents
Environmental protection or restoration reforestation and forestry	27%
Energy efficient buildings: lighting products, insulation products	22%
Health and social care: nursing, mental health & elder care	21%
Low carbon electricity: offshore wind, onshore wind, solar PV	21%
Waste management: waste reduction, waste sorting, reuse and repair	20%
Low-emission transport & Electric Vehicles (EVs): manufacturing EVs	19%
Alternative fuel production: bioenergy, hydrogen production	18%
Low-carbon professional services: consulting, monitoring & reporting	17%
Low carbon heat: installations heat pumps, hydrogen boilers	14%
None of these	35%

Source: Workers' perceptions of climate change and the green transition Survey (2021)

Table 2.3a Interest in working in low carbon occupations, n 2000

Occupation	% interested to work in this job
Environmental conservation professional	19%
Forestry worker	17%
Environmental assessment auditor	16%
Further education teaching professional	16%
Care worker	14%
Logistics and warehousing manager	9%
Logistics and warehousing operative	8%
Electrical engineer	8%
Bus or train driver	7%
Construction trades supervisor	6%
Pipe and cable installation	5%
Heat pump installation technician	4%
Bricklayer	3%
None of these areas	36%

Source: Workers' perceptions of climate change and the green transition Survey (2021)

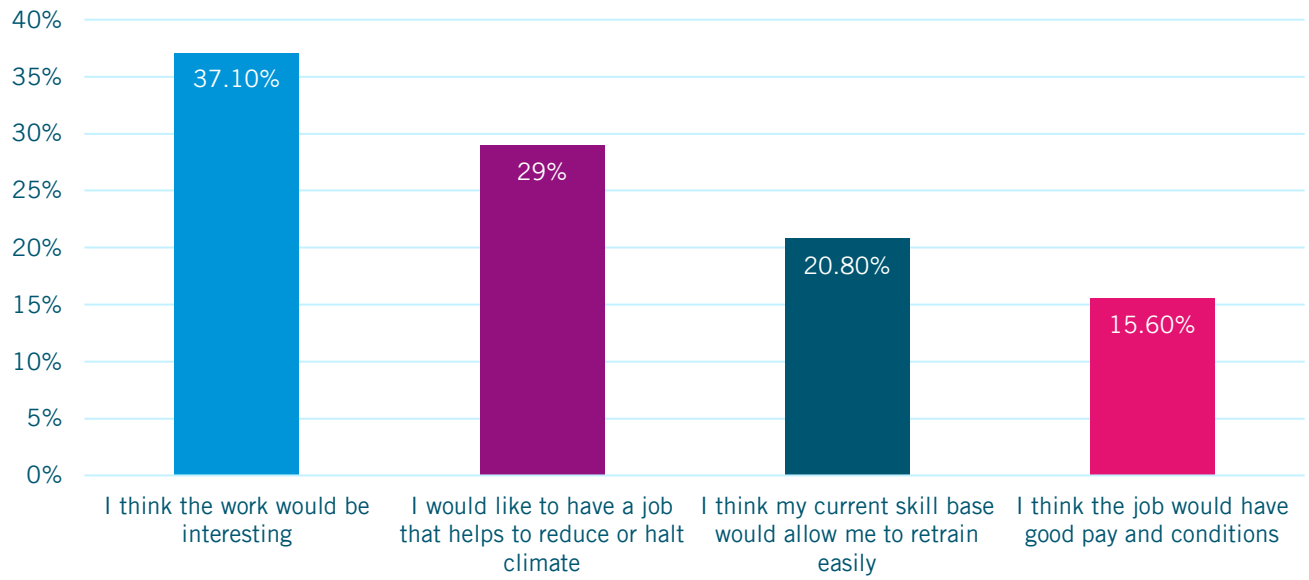
Table 2.3a shows worker interest in working in selected green occupations: just under two thirds, 64.5 per cent, expressed interest in at least one area with Environmental Conservation, Forestry Worker and Environmental Auditor the most popular and Care and Further Education Professional roles also popular. It is notable that the majority of workers interested in working in the green economy do not currently work in those sectors. For example, only 30 per cent of those expressing interest in health and social care jobs in the future currently work in care.

Similarly, with 'green' economy jobs such as low carbon energy production, green construction or manufacturing, a large proportion (up to 80 per cent) of those expressing interest do not currently work in those areas. This is not surprising as many of the low carbon areas are forecast to grow from a relatively small base. But the data indicate a significant degree of ***sector and job switching*** will need to take place for workers to move into in-demand low carbon employment areas.

Motivations for working in green jobs

Respondents to our survey who expressed interest in working in green jobs (n 1,306) were asked what attracted them to this type of work. Figure 2. 8 shows that the most commonly cited factor was the interesting nature of jobs in the green economy, followed by the perceived meaningfulness work that helps reduce or halt climate change. Only a fifth are motivated by the fact that their current skills base meant that this would be an easy transition. Workers are least likely to say that they are motivated by the prospect of good pay and decent working conditions.

Figure 2.8 Motivations for working in green jobs n 1,306



Source: Workers' perceptions of climate change and the green transition Survey (2021)

2.3 Skills and training for the green transition

The survey explored respondents' perceptions of their own skill levels and how well equipped they feel to make this green transition. We consider respondents' "readiness" with questions about how willing and confident they felt about making the transition to work in the green economy through retraining.

- Workers in Y&H feel less equipped to deal with the green transition than in other parts of the UK: they are less likely to have regularly updated knowledge and skills, less likely to think their knowledge and skills would be useful in the green economy and more likely to think that the 'greening' of jobs will require them to learn new skills.

- The vast majority of workers in Y&H are willing to develop new skills and feel confident about doing so, emphasising the opportunity for policy to support the skills transition. Yet, workers in lower-skilled occupations are more likely to feel that they will need to change jobs and are much less likely to say that they have skills relevant for the green transition.

Working in the green economy: skills needs

When asked about their interest in working in a particular low carbon sectors (see Table 2.3a above), workers were also asked whether they had relevant skills and experience to work in those jobs. Table 2.3b shows the responses. In all cases, with the exception of bricklaying, over 50 per cent of workers interested to make this transition would need to develop relevant skills and experience, this proportion rises to over 80 per cent for those interested to work in electrical engineering, environmental conservation and environmental assessment auditing.

Table 2.3b Interest in working in low carbon occupations – need new skills, n 2000

Occupation	% of those interested need to develop new skills
Electrical engineer	82%
Environmental conservation professional	80%
Environmental assessment auditor	80%
Further education teaching professional	66%
Forestry worker	65%
Heat pump installation technician	65%
Bus or train driver	62%
Care worker	60%
Logistics and warehousing manager	57%
Pipe and cable installation	56%
Construction trades supervisor	53%
Logistics and warehousing operative	52%
Bricklayer	46%

Source: Worker perceptions of climate change and the green transition Survey (2021)

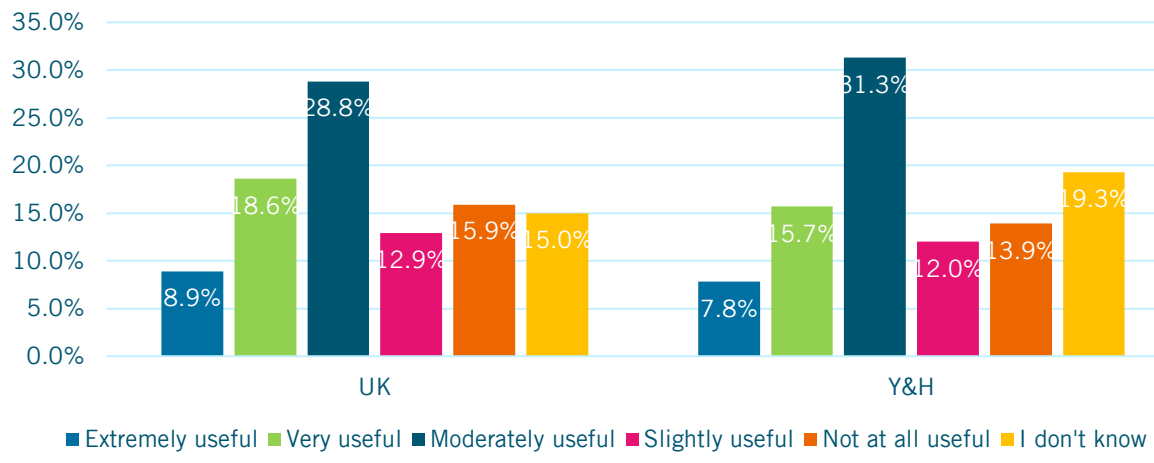
Willingness to learn new skills

This question was followed up by asking workers to rate how willing and confident they feel about learning new skills. Overall, 81 per cent of people said they are willing or very willing to learn new skills and 75 per cent of people said they felt confident to do so. Only 4 per cent of people did not feel confident to do so, 21 per cent felt neutral towards the idea. These proportions were similar for Y&H and UK workers.

Value of current skills in the green economy

Figure 2.7 above showed that, when asked about the transition, workers from Y&H are slightly less likely to think that they will need to change jobs but significantly more likely to state that they would need further skills training to work in the green economy. The findings in **Figure 2.9** further iterate the point that workers in the region feel less confident about their skills base. In answer to the question 'Do you think that your current knowledge and skills are (or would be) useful in the green economy?' only 23.5 per cent of people in Yorkshire and the Humber thought their skills would be useful or extremely useful compared to 27.4 per cent of workers across the UK as a whole. Y&H workers were also much more likely to say that they did not know if their current skills were relevant (19.3 per cent of Y&H workers stated this compared to 15 per cent of UK workers).

Figure 2.9 Do you think that your current knowledge and skills are useful for working in the green economy? UK and Y&H workers



Source: Worker perceptions of climate change and the green transition Survey (2021)

Which workers feel prepared for the green transition?

We considered whether demographic characteristics such as gender, age, levels of qualification, occupation or more subjective measures of current job quality appear to impact on the responses relating to readiness for the green transition. A key finding is that a worker's current occupation is key factor that shape worker's sense of 'readiness'.

Figure 2.10 Worker expectations for the green economy by occupational group: likely need to change jobs & need to learn new skills, UK and Y&H workers

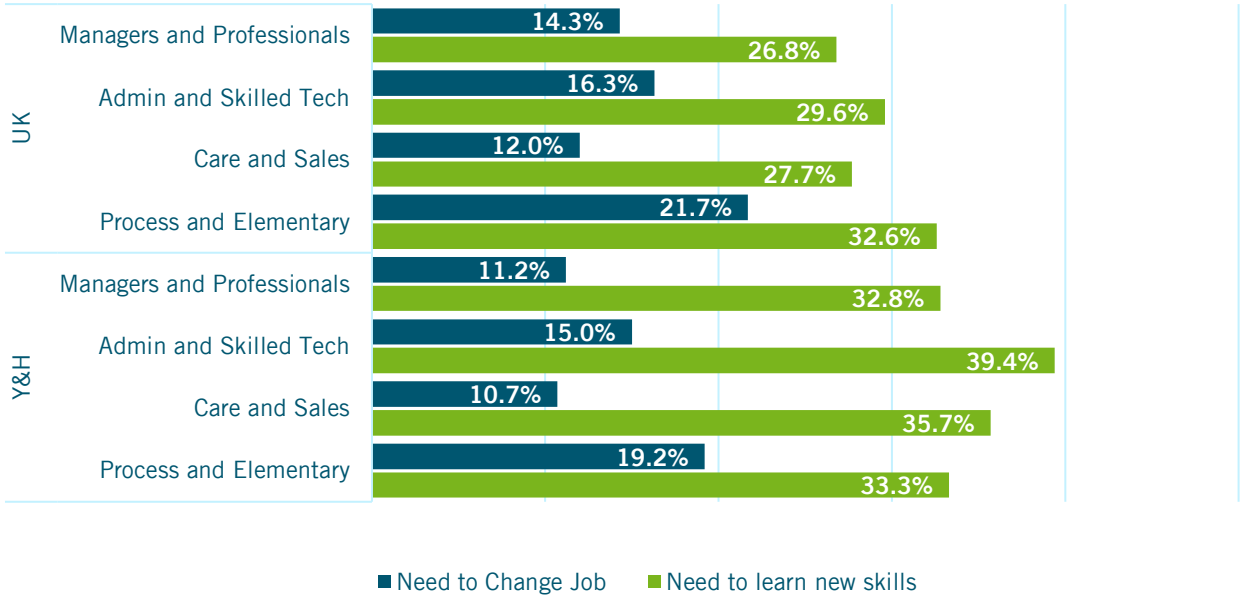
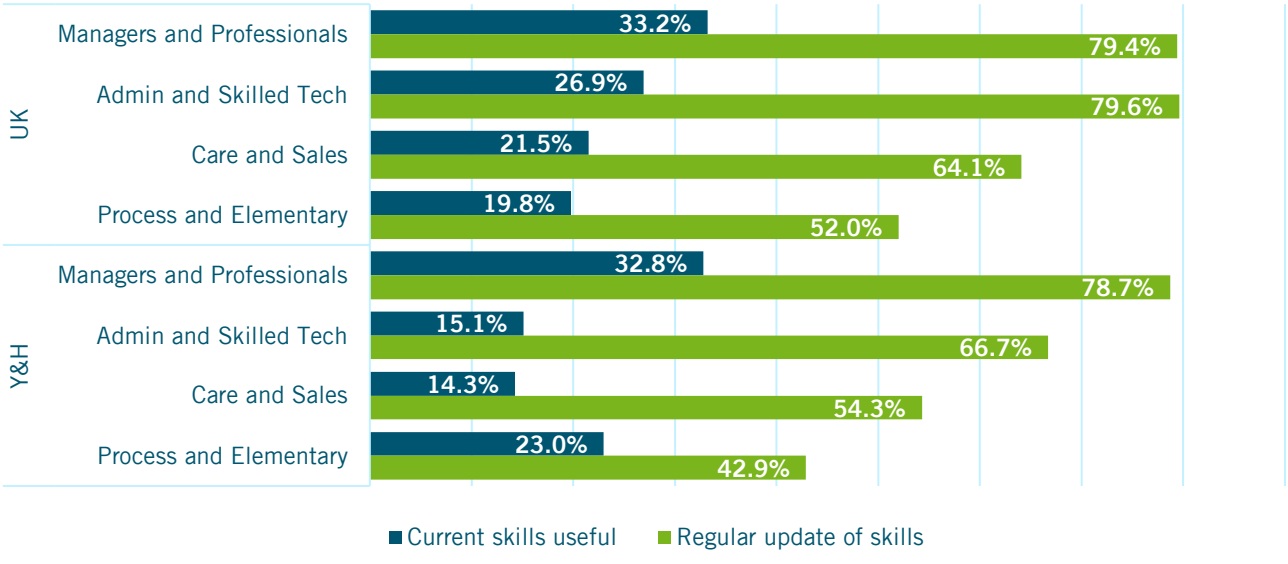


Figure 2.11 Worker readiness for the green transition: value of current skills and regular participation in training by occupational group, UK and Y&H workers



Source: Worker perceptions of climate change and the green transition Survey (2021)

Figure 2.10 shows that workers in process and elementary occupations are much more likely to anticipate that they will need to change jobs with 21.7 per cent of all UK workers and 19.2 percent of Y&H workers seeing this as likely. Figure 2.10 also shows the proportion of workers who anticipate that they will need to learn new skills to work effectively in the green economy.

Across the UK as a whole, workers in process and elementary occupations are those most likely to state this (32.6 percent). In Y&H a similar proportion of process and elementary workers agree that they will need to learn new skills to work in the green economy, but what is also notable is that greater proportions of Y&H workers in both care and sales roles and, most notably, in admin and skilled technician roles indicate that they will need to learn new skills in the green transition (35.7 per cent and 39.4 per cent respectively).

Figure 2.11 further explores the notion of 'readiness' in two ways, firstly in terms of the proportion of workers that consider that they can use their current skills in the green economy and secondly, figure 2.11 shows the proportion of workers who report that they have regularly updated their skills during their working lives: this as an indicator of the level of access workers have to training and development. Comparing the data for UK and Y&H workers by occupational group shows that managers and professionals are those most likely to consider that their current skills are relevant for working in the green economy (although this is only a third of workers in this category). The data for this occupational group is similar for UK and Y&H. Managers and professionals is also the occupational group most likely to report that they regularly update their skills.

Across other occupational categories differences emerge between the responses from UK and Y&H workers. Much smaller proportions of workers in Y&H in admin and skilled technician roles and in care and sales roles agree that their current skills will be useful in the green economy. The data in Figure 2.11 shows that Y&H workers across all occupational categories other than managers and professionals are less likely to have regularly updated their skills. This suggests that workers in the region have less regular access to training and development. However, as was noted above, Y&H workers were equally likely to say that they were willing to take part in training and development in order to help make the green transition. This is a very interesting result, underlining that workers are willing to be trained for new jobs and occupations in the green economy, even if they had relatively less access to training in the past.

2.4 Worker Perspectives on the Just Transition

The final theme explored in the survey focuses on how workers think transitions towards the green economy should be managed in a fair and just way and the principles upon which a just transition should be based.

- Workers in Y&H as elsewhere want a green transition that primarily focuses on access to training and good quality jobs.
- All workers also want to see collaborative 'bottom-up' approaches to transition planning with greater involvement in decision-making that draws on their knowledge and relevant skills.
- Workers in the Y&H region particularly emphasise that green transition processes should focus on reducing inequalities in communities already affected by industrial change.

Key policies for a Just Transition

The survey asked about priorities for supporting workers if jobs are at risk because of efforts to reduce climate change. The just transition policies suggested in our questionnaire are those which are frequently suggested as key elements of a just transition in documents such as the ILO guidance on Just Transition (2015) or more recent demands from worker organisations (Prospect Unison Unite GMB, 2019). In our survey, we asked workers to rate how important potential policies were when trying to ensure green transitions are fair and effective. Respondents were asked to rate each item on a ten-point scale 'from not at all important' (0) to 'extremely important' (10).

Figure 2.11 shows the average rating given to each item. Yorkshire and Humber respondents rated eight of the ten items more highly than workers across the UK. Y&H and UK workers give the highest priority to *access to free training* to allow re-skilling. The second most important feature of just transition policy for both Y&H and UK workers is *access to jobs with similar pay and conditions* and that these *jobs are available locally.* This underlines again that workers are more than willing to transition into new roles should their current ones become obsolete but that access to training and job quality is essential. To prevent an unjust transition there is a strong imperative to ensure that the workers and communities affected by climate change mitigation policies are able to access jobs of similar or improved quality locally so that social relationships are not severely disrupted by the need to take poor quality jobs and or move elsewhere to find work.

Figure 2.11 Rating of Just Transition Policies - average score (10 point scale) Y&H and UK compared

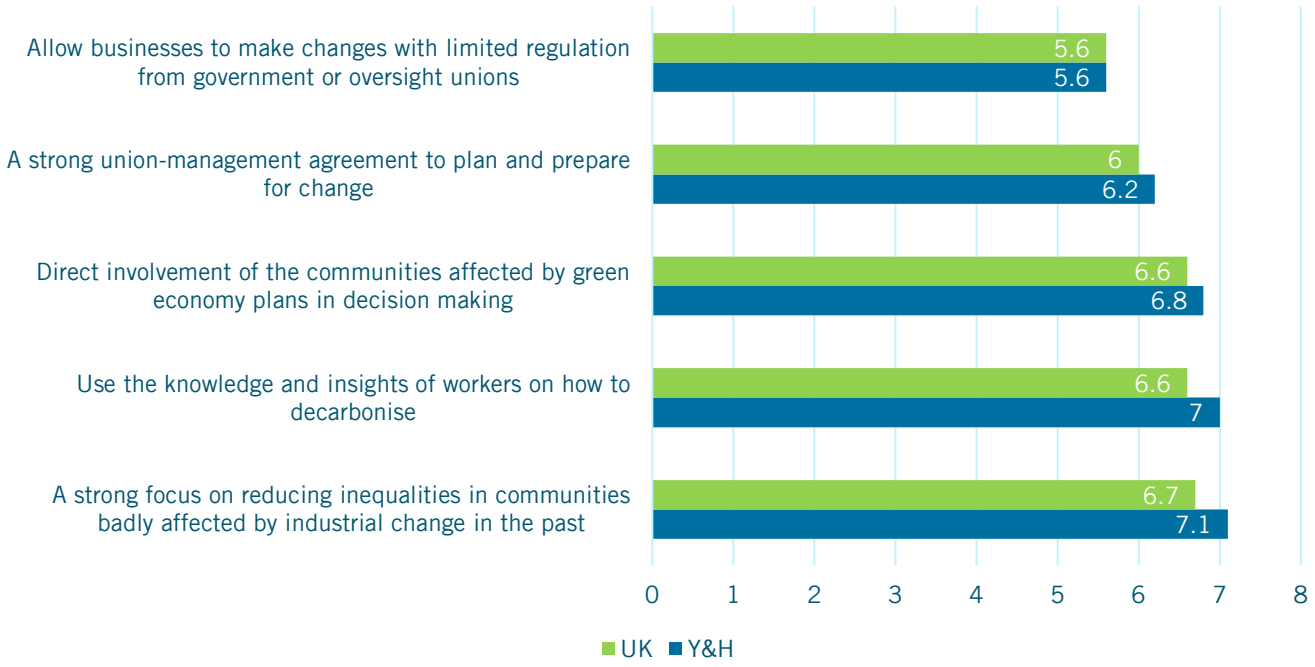
Source: Worker perceptions of climate change and the green transition Survey (2021)

Key principles for a Just Transition

In addition to asking about the policies that can support green transitions in an equitable way, workers were asked about the basis upon which decisions should be made in relation to these policies. The principles for a just transition were rated on a ten-point scale in the same way as the policies. The survey asked whether workers favour a *laissez-faire* approach that allows business to address transition issues with limited oversight from government or workers through to different approaches focused on greater worker and community engagement. Figure 2.12 shows the results.

Across the UK workers place most importance on the principle of *community engagement in decision making about green economy transitions*, secondly they want to see the *use and valuing of insights and knowledge of workers on how to decarbonise* and make transition plans work. Thirdly, workers emphasise *reducing inequalities in communities already badly affected by industrial change*. Y&H workers place these items in a similar order of importance but are rate the importance of these key principles much more highly than the UK average worker. Workers across the UK are least likely to favour a business-led approach to just transition.

Figure 2.12 Rating of Just Transition Principles - average score (10 point scale) UK and Y&H



Source: Worker perceptions of climate change and the green transition Survey (2021)

Many parts of the North of England have suffered due to deindustrialisation and the results indicate that rather than allow social and economic disparities to become even starker, workers in Yorkshire and the Humber are much more likely to be in favour of policy making which tries to reverse this pattern by focusing just transition efforts and investment on communities that have already suffered.

Workers in the region also value bottom-up solutions, they place greater importance on collaborative approaches in the transition to a greener economy through involvement in the planning and decision making and being able to use their knowledge and skills within the decision-making process. Taken together these results suggest a strong consensus for active policymaking which aims to reverse the industrial decline and engages workers directly in processes of decision-making on just transition.

Section Three: Conclusion

Addressing climate change is a hugely complex and urgent challenge. Multiple actors must work together to develop strategies and practice for mitigation and resilience, yet there is deep uncertainty about the pathways of change and much need for new ways of working together to aid decision making and take effective action (Roelich & Giesekam, 2019). The principles of a just transition are guiding new approaches that consider how social and environmental needs can be addressed jointly to ensure that those workers and communities most affected by the transition to a green economy are not only given due consideration but actively engaged in shaping policy and processes that affect them.

This study contributes to this process by exploring more concretely how workers view the challenge of climate change, their readiness for green jobs and the principles and policies around which they think a just transition should be based. This report has undertaken specific analysis of the Yorkshire and Humber region to illustrate that although there are many similarities between national and regional worker perspectives, there are also notable differences in both the context of change and how workers in the region see the climate challenge and the opportunities for work, skills and employment. These perspectives need to be better accounted for in the processes that are shaping policy and plans to address climate change locally. The study finds that workers in the Y&H region see the threat of climate change as real, and action to address it as urgent. This negates the representation by some that workers are more regressive in their views on climate action, as a result of the potential for a 'jobs vs environment' dilemma. Many workers are already working in contexts where plans to decarbonise are underway. At the heart of the notion of a just transition is the need to consider more precisely how the polices to address climate change will affect jobs, skills and training needs and how workers can best be effectively engaged in processes of policy dialogue and implementation at the community and workplace level.

Embedding just transition principles within climate action plans will require more complex forms of social dialogue to engage workers directly in considering the employment effects of climate policy and how job change, upskilling and the transition into new roles can best be supported. Workers in Y&H particularly want to see collaborative approaches to planning that draws on specific knowledge and skills of workers on how changes can both effective and fair and want to see policies that are particularly targeted at tackling the legacies of past transitions to ensure inequalities are not widened. This requires concerted efforts to involve workers in local and workplace action planning on climate change and the environment. More collaborative and locally focused dialogue has the potential to also deliver wider benefits beyond action on climate change as conversations around just transition could help revitalise democratic processes, creating a more engaged citizenry and connecting workers and communities more directly to local decision-making. However, this requires the building of trust and transparent process of change.

The high levels of concern about climate change create a mandate for drastic and far-reaching action, yet, the findings indicate that there is considerable scope to improve regional workers' understanding about the causes of climate change, how specific policy on climate change is developing and how this will shape work and employment opportunities. Workers are generally optimistic about the community level benefits that the green economy transition will bring benefits, although they seem less confident that they personally will be able access those opportunities. It is concerning that workers in Y&H are much less likely than workers in the rest of the UK to state that their knowledge and skills are relevant for working in a low-carbon economy. The results on climate emotions are also intriguing as recent work has shown that the 'eco-anger' captured as outrage, is a particularly good predictor of pro-climate actions and behaviours, however its impact can be negated by fear and other negative emotions such as eco-related anxiety (Stanley, Hogg, & Walker, 2021; Miller, Cronin, Garcia, & Branscombe, 2009). At the same time, higher levels of negative feelings flag the need for coordinated and well communicated action from policymakers, businesses and unions. While 'eco-anger' can encourage action, it can also create tension and responses which may not be helpful if directed against those scapegoated by politicians or the media (Smith & Leiserowitz, 2014; Lu & Schuldt, 2015).

Many workers express interest in switching jobs to work in green economy or climate neutral jobs. Our findings highlight the value that workers place on moving to 'greener' jobs. While some research has suggested that workers are mainly motivated by higher pay, progression and social status (Christie-Miller & Luke, 2021) our findings support the notion that green jobs are attractive because they provide interesting work and offer elevated status (Public First, 2021). The significant interest in switching into health and social care sectors is potentially good news given the pressures on those sectors. Of concern, however, is that in areas such as construction trades, switching into work areas like heat pump technicians or pipe and cable installation are less popular areas of interest and yet, in order to achieve key policy initiatives such as the retrofit of homes or low-carbon energy transitions, these areas of employment will need to expand rapidly to meet the scale up of needed to meet climate targets. For example, pipe installation is already one of the scarcest professions in the UK and many more qualified workers are needed if large-scale infrastructure projects such as CCS and hydrogen are to be developed in the next few years.

Promoting green economy jobs as both interesting and socially valued should not diminish the importance of high-quality green jobs or suggest that working conditions are not a primary concern of many workers. Rather, these findings indicate that workers are attracted to jobs that produce a tangible sense of social value that is a distinct but often invisible component of job quality. The workers surveyed are concerned about the quality of new green jobs, with only a minority seeing green job opportunities as offering the potential for them to move towards better quality work. As the region plans for job creation during decarbonisation and the recovery from the COVID-19 pandemic, it needs to ensure an emphasis is placed on developing high quality jobs. Much more needs to be understood about the extent to which people are already appropriately skilled for the green jobs that emerge and the changes

required to adapt to greener working: it seems clear that equipping people to work in the green economy means giving them the means to improve both their skill levels and access to relevant training and qualifications, including the scope to 'passport' existing accreditations into new areas of employment.

The study shows that worker preferences need to be understood in the context of changes which are already occurring in local economies and that better mechanisms are needed to engage workers in dialogue around building policy and practice for the decarbonised green economy so that workers can both contribute to the process of change and access the opportunities that this brings. Worryingly, the survey presents a picture of workers in Y&H feeling that they would be more likely to need to learn new skills to engage in the opportunities that green economy could bring and less likely to say that their current skills could be useful in 'green jobs'. This green skills gap is of concern as Y&H workers are also less likely to regularly take part in training to update their skills. This underlines the importance of developing specific regional initiatives that focus on the education and training needs of workers and lifelong learning.

Addressing the climate crisis will involve a mix of technological change, combined with a more circular and frugal use of resources in sectors which are hard to decarbonise. The design and implementation of new technologies, infrastructure and business models all have an effect on jobs and skills. Yet moving to a low carbon economy requires change in a range of systems, it cannot be done by single actors (companies, communities, consumers, local authorities) alone: it requires not only new technologies but also shifts in social and economic thinking, cross-sectoral planning and new forms of social dialogue. Thinking more systemically stresses the importance of meaningful involvement of all stakeholders including workers and communities in shaping policy: not only to gain popular support for action but also in developing appropriate, targeted action on jobs, skills and training for the green economy.

Take-aways for policy-makers, business & trade unions

- Investing in skills is important now and workers are ready to undertake training and development to prepare for green transitions. In addition to occupational training and workplace learning, general carbon literacy training for all workers is also needed to improve the knowledge base around climate change and green transition.
- Involving workers in decarbonisation programmes early on is a key recipe for success. This requires more complex and sustained forms of dialogue between employers, workers, local authorities and training providers to engage workers directly on the employment effects of climate policy and to understand how job change, upskilling or re-skilling and the transition to new roles can best be supported.
- Tackling climate change is seen as a key responsibility of governments, failing to address this now can potentially lead to further political disengagement.

Annex A: Study approach and methods

The survey was undertaken with a nationally representative sample of 2,000 workers (employees in employment and self-employed) in the UK, representative by age (age 18-65), ethnic group, gender and UK nations and regions. In our study, the proportion of Y&H workers with qualification levels of NVQ level 3 above (65.5 per cent) is lower than across the UK as a whole (70.1 per cent) and more Y&H workers (34.3 per cent) have qualification levels are Level 2 or below compared to the UK average of 29.9 per cent. This qualifications profile reflects that reported in larger studies such as the Labour Force Survey. Some of the questions used in the survey are taken from existing studies including national climate attitude surveys to enable comparison with wider research. Other questions were informed through discussions with members of the working group establishing the Yorkshire and Humber Climate Commission and with the Yorkshire and Humber TUC and affiliate members of the Yorkshire and Humber TUC low-carbon taskforce.

In this report, we focus on the findings from our national worker survey and contrast those with the responses from workers in the Yorkshire and Humber region. Where the responses differ significantly from the national data, these are noted. Within the whole sample, 500 were workers working in higher carbon emitting sectors: Manufacturing, Energy, Industrial, Utilities, Transport, Construction. The remaining 1,500 were workers from other sectors and included a sub-group of 200 people not in work but seeking employment. Overall, 166 were from the Yorkshire and Humber region. The research was conducted online between 27/03/21 - 13/04/21. The sample was collected using the Opinium propriety panel and the respondents were incentivised in the form of Opinium credits for their time. The data was run through quality analysis that checked indicators such as flatlining questions (responding the same answer to all questions) and the quality of open responses. Table A.1 shows the profile of survey respondents.

Table A.1 – UK Worker Survey Respondent Profile

		N	%
Age	18-34	516	25.8
	35-54	890	44.5
	55+	594	29.7
Highest Qualification	None or L1	259	13.0
	L2-L3	758	37.9
	L4+	957	47.9
Ethnicity	BAME	207	10.4
Employment Status	Working	1737	86.9
	Not currently working	263	13.2
Company size	500 or more	674	40.7
	250-499	186	11.2
	50-250	322	19.4
	1-49	475	28.6
Sector	Higher Carbon	551	31.8
	Other Sectors	1182	68.2
Nations & Regions	Scotland	86	4.3
	Northern Ireland	34	1.7
	North East	87	4.4
	North West	240	12.0
	Yorkshire and Humberside	**166**	**8.3**
	East Midlands	159	8.0
	West Midlands	194	9.7
	Wales	66	3.3
	East of England	168	8.4
	London	259	13.0
	South East	341	17.1
	South West	199	10.0

Source: Worker perceptions of climate change and the green transition Survey (2021)

Annex B: Bibliography

Aronoff, K. (2017, 7 18). *Your Personal Consumption Choices Can't Save the Planet: We Have to Confront Capitalism*. Retrieved from In These Times: https://inthesetimes.com/article/climate-change-personal-consumption-capitalism-socialism-neoliberalism

Beatty, C., & Fothergill, S. (1996). Labour market adjustment in areas of chronic industrial decline: the case of the UK coalfields. *Regional studies, 30*(7), 627-640.

BEIS. (2021). *Industrial Decarbonisation Strategy CP399.* London: HM Government.

BEIS. (2021). *UK local authority carbon dioxide emissions estimates 2019.* London: HM Government.

Beynon, H., & Hudson, R. (2021). *The Shadow of the Mine* . London : Verso .

Buchs, M. (2021). Sustainable welfare: Independence between growth and welfare has to go both ways. *Global Social Policy*, 323-327.

CATCH. (2017). *Skills Gap Report Report Detailing Employer Skills Requirement for 2022. Sector Renewable Technology, Green Energy and Chemicals.* CATCH.

Christie-Miller, T., & Luke, A. (2021). *Qualifying for the race to net zero: How to solve the net zero skills challenge.* Onward.

Coats, D. (2020). *A Just Transition: Managing the challenges of technology, trade, climate change and COVID-19.* Leicester: Alex Ferry Foundation/Community/Prospect.

Committee on Climate Change. (2021). *2021 Progress Report to Parliament.*

de Bustillo, R. M., Fernández-Macías, E., Antón, J. I., & Esteve, F. (2009). *Indicators of Job Quality in the European Union (IP/A/EMPL/ST/2008-09).* Brussels: European Parliament.

Diski, R. (2021, November 12). Earth Wind and Fire. *New Economics Zine*. Retrieved from New Economics Zine: https://neweconomics.org/2021/11/earth-wind-and-fire

Diski, R., Chapman, A., & Kumar, C. (2021). *Powering the Just Transition.* New Economics Foundation.

Dorn, D., & Hanson, G. H. (2016). The China shock: Learning from labor-market adjustment to large changes in trade. *Annual Review of Economics, 8*, 205-240.

EEA. (2019). *EU Emissions Trading System (ETS) data*. Retrieved from https://www.eea.europa.eu/data-and-maps/dashboards/emissions-trading-viewer-1

Emden, J., & Murphy, L. (2019). *A just transition: Realising the opportunities of decarbonisation in the north of England.* IPPR.

Foden, A., Fothergill, S., & Gore, M. (2021, June 2). *Centre for Regional Economic and Social Research.* Retrieved from Sheffield Hallam University: https://www.coalfields-regen.org.uk/wp-content/uploads/2019/09/State-of-the-Coalfields-Report-SHU-June-20141.pdf

Green Jobs Taskforce. (2021). *Green Jobs Taskforce Report to Government, Industry and the Skills Sector.*

Hoegh-Guldberg, O., Jacob, D., & Taylor, M. (2018). *Impacts of 1.5°C of Global Warming on Natural and Human Systems.*

House of Commons Environmental Audit Committee. (2021). *Green Jobs Third Report of Session 2021–22.*

ILO. (2015). Guidelines for a just transition towards environmentally sustainable economies and societies for all.

ILO. (2019). *Promoting Green Jobs: Decent Work in the Transition to Low-Carbon, Green Economies.*

ILO. (2019). Working on a warmer planet: The impact of heat stress on labour productivity and decent work.

Institute for the Future of Work . (2021). *The Grimsby Project: We need to talk about work.* London : Institute for the Future of Work .

ITUC and the BTeam. (2018). *Just Transition: and business guide.*

Jäger, A. (2021). Rebel Regions. *New Left Review*, pp. 47-68.

Jeliazkov, G., Morrison, R., & Evans, M. (2020). *Offshore: Oil and gas workers' views on industry conditions and the energy transition.*

Kopp. (2014). Probabilistic 21st and 22nd century sea-level projections at a global network of tide-gauge sites. *Earth's Future, 2*(8), 383-406.

Lenton, T., Rockström, J., Gaffney, O., Rahmstorf, S., Richardson, K., Steffen , W., & Schellnhuber, H. J. (2019). Climate tipping points — too risky to bet against. *Nature*.

Lu, H., & Schuldt, J. P. (2015). Exploring the role of incidental emotions in support for climate change policy. *Climatic Change, 131*, 719–726.

Lukacs, M. (2017, 8 17). *Neoliberalism has conned us into fighting climate change as individuals*. Retrieved from The Guardian : https://www.theguardian.com/environment/true-north/2017/jul/17/neoliberalism-has-conned-us-into-fighting-climate-change-as-individuals

Miller, D. A., Cronin, T., Garcia, A. L., & Branscombe, N. R. (2009). The Relative Impact of Anger and Efficacy on Collective Action is Affected by Feelings of Fear. *Group Processes & Intergroup Relations, 12*(4), 445-462.

ONS. (2021). *A05 SA: Employment, unemployment and economic inactivity by age group (seasonally adjusted)*. Retrieved from https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/employmentunemploymentandeconomicinactivitybyagegroupseasonallyadjusteda05sa

ONS. (2021). *Opinion and Lifestyle Survey*. Retrieved October 2021, from Office for National Statistics: https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/articles/threequartersofadultsingreatbritainworryaboutclimatechange/latest

Piasna, A. (2017). *Bad jobs' recovery? European Job Quality Index 2005-2015 (Working Paper 2017.06).* Brussels: ETUI.

Prospect. (2020). *A Just Transition Plan for the UK Power Sector: Discussion paper.*

Prospect Unison Unite GMB. (2019). *Demanding a Just Transition for Energy Workers.*

Public First. (2021). *Good green jobs: How to engage the public on green jobs .*

Raworth, K. (2017). *Doughnut economics: seven ways to think like a 21st-century economist.* Chelsea Green Publishing.

Robins, N., Gouldson, A., Irwin, W., & 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: .* Grantham Research Institute.

Roelich, K., & Giesekam, J. (2019). Decision making under uncertainty in climate change mitigation: introducing multiple actor motivations, agency and influence. *Climate Policy, 19*(2), 175-188 .

Smith, N., & Leiserowitz, A. (2014). The Role of Emotion in GlobalWarming Policy Support and Opposition. *Risk Analysis, 34*(5), 937-948.

Stanley, S., Hogg, T., & Walker, Z. L. (2021). From anger to action: Differential impacts of eco-anxiety, eco-depression and eco-anger on climate action and wellbeing. *The Journal of Climate Change and Health, 1*(3), 1-5.

Steentjes, K., Demsk, C., Seabrook, A., Corner, A., & Pidgeon, N. (2020). *British Public Perceptions of Climate Risk, Adaptation Options and Resilience (RESiL RISK): Topline findings of a GB survey conducted in October 2019.* Cardiff: Cardiff University.

Taylor, A. (2020). *Local green jobs –accelerating a sustainable economic recovery.* Equity/Local Government Association.

TUC. (2015). *Strategies for a low carbon industrial future in Yorkshire and the Humber.* Trade Union Congress.

TUC. (2020). *Voice and Place: How to plan fair and successful paths to net zero emissions.*

U.S. Department of Labor. (2010). *O*NET Green Task Development Project.*

UNFCCC. (2021, November 13). *Glasgow Climate Pact.* Retrieved from https://unfccc.int/sites/default/files/resource/cop26_auv_2f_cover_decision.pdf

United Nations. (2015). *Paris Agreement to the United Nations Framework Convention on Climate Change.*

Women's Budget Group. (2020). *Creating a caring economy: a call to action.*

Yorkshire and Humber Climate Commission. (2021, 7 12). *Yorkshire and Humber Climate*. Retrieved from Yorkshire and Humber Climate Commission: https://yorksandhumberclimate.org.uk/

YouGov. (2020). *International Climate Change Survey.* yougov.co.uk.

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