

Institute for Public Policy Research



# A JUST TRANSITION

REALISING THE  
OPPORTUNITIES OF  
DECARBONISATION  
IN THE NORTH  
OF ENGLAND  
FINAL REPORT



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March 2019



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# SUMMARY



Decarbonisation holds huge opportunities for the north of England. The energy sector is one of the North's 'prime capabilities'. The region has a leading low-carbon goods and services sector - accounting for around a third of all jobs in the sector in England. It has world-renowned universities and leading expertise in technologies such as nuclear power, hydrogen and offshore wind. This is matched by the many historic, geographic and geological advantages that exist in the region.

In short, there is substantial potential for the north of England to become the new heartland for a low-carbon energy economy. According to IPPR's interim report, *Risk or Reward*, up to 46,000 jobs could be created by 2030 just in the power sector, the focus of this report, alone.

And yet, such an outcome is not guaranteed. Decarbonising the economy, if managed badly, carries significant risks for the North. As home to the majority of coal and gas power stations in England, the North could suffer approximately 28,000 job losses in the coal, oil and gas industries by 2030, IPPR analysis has shown. This is without considering the other potential job losses in high-carbon energy intensive industries and the wider economic and social implications that the loss of industry can bring about.

In the past, industrial change has been poorly managed, including in the north of England, resulting in regional inequalities. But a well-managed 'just transition' could build on the economic strengths of the north of England and deliver a high-skill, high-wage, low-carbon economy of the future.

We have identified three key challenges that exist in delivering a just transition.

- **Lack of policy certainty and ambition:** without long-term certainty for the low-carbon energy industry, growth in this sector will be stunted which could limit the transition opportunities for workers in carbon-based generation.
- **Failure to put a 'just transition' at the heart of decarbonisation policy and industrial strategy:** the government is failing to embed the idea of a just transition across government policy. Consequently, decarbonisation could negatively impact the future livelihoods and communities of workers in high-carbon industries and will see the North disproportionately impacted.
- **An ill-equipped skills system:** skills gaps exist throughout the low-carbon energy sector, but the UK's skills system is failing to meet demand, nor does it provide adequate training to support a transition for workers who have the potential to move from high to low-carbon employment.

In this report we discuss these challenges in more detail and make the case for a new approach that puts economic and social justice at the heart of energy and skills policy in the North. To achieve this, we set out a range of recommendations that are crucial to this ambition and ultimately form the components of a **Just Transition Strategy** for the north of England.

## RECOMMENDATIONS

### Step 1: Long-term certainty and devolved powers

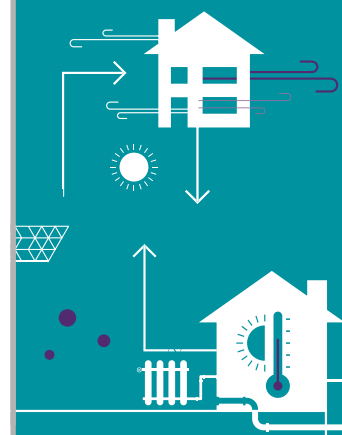
1. **Long-term capacity targets:** The government should set capacity targets for each low-carbon technology it intends to support and devolve these targets.
2. **Government subsidies and regulatory reform:** The government should provide a combination of subsidies and regulatory reforms to support relevant industries' progress towards the targets that have been set.
3. **Energy for the North:** The government should devolve carbon budgets to the north of England and create a new 'Energy for the North' body which would be linked to the work of the NP11, and coordinate efforts to lead a low-carbon revolution in the north of England.
4. **National policy coordination:** The government should create a cross-departmental 'Decarbonisation Mission Unit' that ensures a system-wide approach to realising the overall mission of decarbonising the UK.

### Step 2: A Just Transition Commission and Just Transition Funds for the North

1. **Embedding the concept of 'just transition' across government policy:** The concept of just transition must urgently be incorporated into an updated national industrial strategy as well as the strategic economic plans and local industrial strategies being developed by local enterprise partnerships (LEPs) and combined authorities. Involving trade unions in the process of determining just transition policy will also be crucial.
2. **A Just Transition Commission for the north of England:** A Just Transition Commission should be set-up for the north of England, following Scotland's example. It should involve all relevant stakeholders including metro mayors, local authorities, LEP representatives, local community representatives, local businesses, businesses interested in investing in the region, civil society and trade unions.
3. **A Just Transition Fund for the north of England:** A Just Transition Fund should be established as part of regional economic development funding to help the drive towards a low-carbon economy and to mitigate against the negative impacts of decarbonisation. A number of mechanisms and activities to achieve a just transition are recommended, including:
  - clustering of new industries, academia and technical colleges on existing sites
  - boosting local development through inward investment, including in education, training and local infrastructure, entrepreneurship and small businesses
  - investing in local low-carbon energy projects
  - repurposing carbon-based assets for new industries
  - funding to support workers close to retirement to use their skills productively
  - wage subsidies for those workers who may be made unemployed as a result of transition
  - just transition 'toolkits' for affected industries
  - travel assistance for workers
  - additional support for mental health and wellbeing services.

### Step 3: Skills audits, skills standards and devolved skills funding

- 1. Comprehensive devolved skills audits:** More granular labour market information is crucial to understand how well the skills system will be able to supply anticipated growth in the low-carbon energy sector.
- 2. Making training standards available to the unemployed:** Training standards being developed by the likes of the Engineering Construction Industry Training Board (ECITB) should be made available to those who are unemployed.
- 3. A consistent approach to training across the energy sector:** We recommend the creation of an Energy Skills Competency Accord. This accord would need to be supported by legislation and regulations that required certain technical standards and outcomes to be met rather than prescribing method.
- 4. T level courses must reflect skills needs:** There must be greater consistency across policy such that in-demand occupations are included within the range of courses which T levels are intended to cover.
- 5. Devolving education and skills funding:** Both the adult education budget and any unspent levy funds should be fully devolved to LEPs without any legally-obligated spending rather than being retained by the Treasury or directed by it.
- 6. Reforming the apprenticeship levy:** The apprenticeship levy should be reformed so that it would be set at 0.5 per cent of payroll for mid-sized firms and 1 per cent for firms with 250 or more employees in order to widen the net of employers that make a contribution.
- 7. Promoting diversity with the low-carbon energy sector:** To raise the profile of the sector, promote diversity, and help graduate retention in the north of England, companies above a certain size should be required to actively promote STEM subjects in schools.



# 1. INTRODUCTION

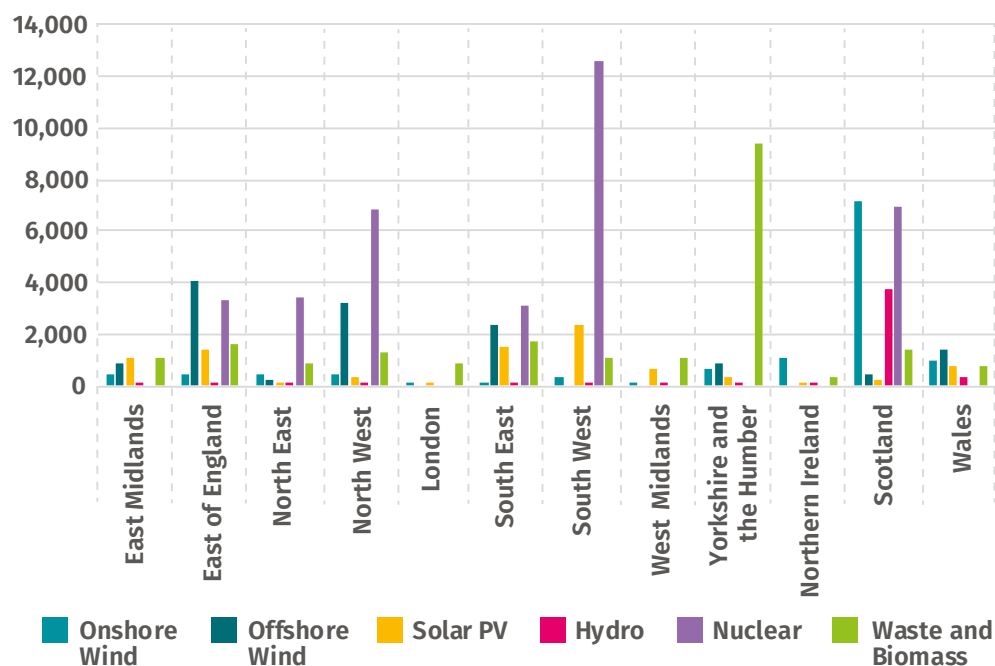
Decarbonising the economy is one of the biggest challenges that the UK faces. But despite some progress, the UK government is set to fall well short of meeting its long-term commitments as set out in the Climate Change Act. According to the Committee on Climate Change, the UK's current energy policy is insufficient to stay within its fifth carbon budget, which runs from 2028-2032, never mind meeting its contribution to limiting global warming to below 1.5°C.

While challenging, decarbonisation holds the possibility of huge opportunities for the north of England which already has a leading low-carbon goods and services sector. The region accounted for 35 per cent of all jobs in the low-carbon goods and services (LCGS) sector in England in 2013. This equates to 21 LCGS jobs per 1,000 jobs in the North, compared to 16 per 1,000 in England as a whole (Baxter and Cox 2017) and the region is one of the leading employers in major low-carbon technologies such as nuclear, offshore wind and biomass.

**FIGURE 1.1**

**The north of England makes a substantial contribution to the total number of jobs in the low-carbon energy sector, particularly in nuclear, offshore wind and biomass**

*Direct and indirect full time equivalent (FTE) employment by region and by sector in low-carbon energy generation (2017)*



Source: IPPR analysis of BEIS 2018a and ONS 2018a



Based on this existing expertise and if the right policy framework is put in place, the power sector, on which this report is focused, could grow substantially in the coming years. As our interim report found, up to 46,000 jobs could be created in the low-carbon power sector<sup>1</sup> alone in the north of England by 2030 (Emden and Murphy 2018), second only to Scotland in terms of job creation. The north of England has the potential to be the thriving hub of a fully decarbonised UK economy.

However, decarbonising the economy, if managed badly, also carries significant risks for the North and other parts of the UK. As home to most of the coal and gas power stations in England, IPPR analysis has shown that approximately 28,000 jobs in the coal, oil and gas industries could be lost in the north of England by 2030 (Emden and Murphy 2018). This is in the power sector alone, without considering the other potential job losses in high-carbon energy intensive industries and the wider economic and social implications of poorly managed industrial change.

Designing policy which recognises the wider implications of decarbonising our economy requires what is known as a ‘just transition’. This term describes the need to secure “the future and livelihoods of workers and their communities in the transition to a low-carbon economy” (ITUC 2018a) as carbon-based generation is phased out in favour of renewable alternatives across the world.

Securing a just transition will require learning from the past, and a concerted attempt to minimise the negative impacts and maximise the opportunities for workers and local communities that the push towards a low-carbon economy will bring. There are also wider economic reasons to pursue a just transition including delivering high-quality jobs for workers, raising productivity and securing inward investment into the north of England and elsewhere.

This report, focused on the power sector, sets out in detail how a just transition could be achieved in the north of England. We argue that a number of actions are required including: offering long-term policy certainty across energy policy; embedding just transition policy across all areas of policy; and for the skills system to be reformed to ensure we have a workforce ready for a low-carbon economy.

Central to our proposed approach is the creation of the appropriate governance mechanisms through further devolution which will enable the North to respond proactively and on its own terms to create a just transition. In doing so, we will be able to ensure that decarbonisation doesn’t just deliver on our climate change targets but also creates prosperity for everyone in the north of England.

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1 ie not including other low-carbon goods and services sectors beyond electricity generation.

## 2. **THE NEED FOR LONG-TERM POLICY CERTAINTY IN THE ENERGY SECTOR**

Long-term policy certainty is essential to ensuring a prosperous energy sector, an effective skills policy and a successful just transition strategy. The absence of a clear direction in government policy undermines investment, which in turn undermines the creation of new jobs and damages the ability of businesses to plan for the skills they need in future. These issues are further compounded by Brexit which has increased uncertainty among many investors in the energy sector. In this chapter, we set out why policy certainty is so important for decarbonisation and a just transition, and how the government can deliver both.

### **POLITICAL SHORT-TERMISM UNDERMINES INVESTMENT IN THE LOW-CARBON ENERGY SECTOR**

The Climate Change Act 2008 created a legally binding target in the UK, requiring at least an 80 per cent cut in greenhouse gas emissions by 2050 and in the nearer term, a reduction in emissions of at least 34 per cent by 2020, compared with 1990 levels (Climate Change Act 2008). The introduction of a legally binding target has helped to drive policy action which has yielded a degree of success.

Emissions from the UK power sector fell by 59 per cent between 2008 and 2017 and renewable generation increased from 6.1 per cent to 28.7 per cent of all power generated over the same period (Ofgem 2019). Thanks largely to the introduction of the emissions performance standard on carbon-based generation as part of the Energy Act 2013 (DECC 2015), coal power generation has also experienced a dramatic decrease from 40 per cent of generation at the start of 2013 to 9 per cent in Q1 of 2018 (Ofgem 2019).

Despite this success, the UK is currently on track to exceed its carbon budget, set by the Committee on Climate Change for 2028-2032 by anywhere between 23 MtCO<sub>2</sub>e and 180 MtCO<sub>2</sub>e (BEIS 2018b). Between 2017 and 2030, the power sector will need to reduce its emissions intensity by a further 61-81 per cent depending on the level of policy ambition (CCC 2018).

A key reason for the failure to decarbonise at the scale and pace that is required within the power sector, and in other sectors, has been an inconsistent approach. Successive governments have stated that it was not their policy to back certain technologies, or to 'pick winners' but in reality support has been provided, such as in the case of 'contracts for difference' auctions for offshore wind. This policy provided industry with a degree of certainty by agreeing to a strike price to be paid for energy which was set via an auction. The result for the offshore wind industry has seen costs fall dramatically from an average of £117.40/MWh in 2015 to £57.50/MWh in 2017 (Cuff and Murray 2017). Other interventions have been less successful, not least because of short-term decisions to pull government support. For instance, the cancellation of the £1 billion carbon capture and storage (CCS) competition and the reduction in feed-in tariffs for solar panels and onshore wind.

The need for greater long-term policy certainty is routinely cited as crucial to the investment decisions made by industry, particularly against the backdrop of uncertainty caused by Brexit. According to analysis by Bloomberg New Energy Finance, investment in renewables in the UK dropped by 63 per cent or £8.3 billion between 2015 and 2017, the largest drop of any country in Europe (Louv 2018). The falling costs of renewables only accounts for some of this fall, with the stop-start nature of policy support being seen as one of the leading causes by developers (Vaughan 2018). This is supported by IPPR's energy skills survey,<sup>2</sup> in which the vast majority of respondents said that policy certainty was 'extremely important' to the future of the industry, yet none of the respondents thought it was currently sufficient.

In many cases, low-carbon technologies are still dependent on financial support from government and, in the absence of long-term guarantees of support, investment in low-carbon energy projects becomes a riskier proposition. This is particularly important for large energy infrastructure projects like new nuclear power plants that have construction phases that are longer than the lifespan of one parliament (see box 2.1).

### **BOX 2.1: HOW UNCERTAINTY HAS UNDERMINED THE NUCLEAR INDUSTRY**

By 2030, 87 per cent of the UK's current nuclear capacity will be due for decommissioning, leaving a 7.7GW gap, equating to approximately 5 per cent of estimated peak demand by 2030, that will need to be filled (National Grid 2018), in part by new nuclear projects (NIA 2019). Yet the outlook for new nuclear projects is becoming ever bleaker. The falling cost of offshore wind has raised questions about the cost-effectiveness of the Hinkley Point C strike price of £92.50/MWh. Disputes over financing between private developers and the UK government have put the NuGen project in Moorside and the Wylfa project in Wales on the brink of collapse.

Moreover, in either a no-deal Brexit scenario or even the currently unpopular withdrawal proposal, the UK would no longer be part of Euratom. As IPPR's report *Brexit and the UK's environmental ambitions* shows, a no-deal scenario would be highly disruptive to the nuclear sector as all of Euratom's safeguarding arrangements over the trade of nuclear fuels and materials would need to be replaced. Even under the current proposal for a bilateral Nuclear Cooperation Agreement there would not be any formal regulatory alignment (Morris and Emden 2018).

Combined, these factors threaten to undermine the attractiveness of investment in the UK nuclear industry with little plan to replace its contribution to the UK's energy supply. This will have a disproportionately negative impact on the north of England, particularly in the North West, which employed over 26,000 people across the UK civil nuclear supply chain<sup>3</sup> in 2018, by far the largest (41 per cent) of any region (NIA 2018).

While the government's industrial strategy white paper (HM Government 2017) and its Clean Growth Strategy (BEIS 2017a) identify low-carbon energy policies as a key challenge for future governments, the acknowledgement is not substantiated by clear commitments. The Committee on Climate Change (CCC) notes that 'policies

<sup>2</sup> IPPR conducted a small survey aimed at a range of stakeholders involved in the low-carbon energy sector including companies working in the sector, academia, trade unions, NGOs and charitable organisations. The survey received 14 respondents and, though a small sample size, respondents came from organisations representing a total of at least 2,000 employees.

<sup>3</sup> Including decommissioning, waste management and the nuclear fuel cycle.

and proposals need to be firmed up' as there are still policy gaps that remain if the UK is to meet its fourth and fifth carbon budgets (CCC 2018).

However, the CCC also suggests that, at least in the power sector, if the government can provide 'a long-term view of future low-carbon power auctions and continue to run auctions beyond the Spring 2019 contract for difference auction', then it should be possible to reach the required emissions intensity target of 100gCO<sub>2</sub>/kWh in the power sector by 2030 (CCC 2018). While much more work is needed to decarbonise other parts of the economy such as in heat, transport, agriculture, industry and buildings, the relative progress in the power sector suggests that the UK's targets can be met if only the government is prepared to commit to long-term policymaking.

### A LACK OF INVESTMENT UNDERMINES THE OPPORTUNITY TO CREATE NEW JOBS

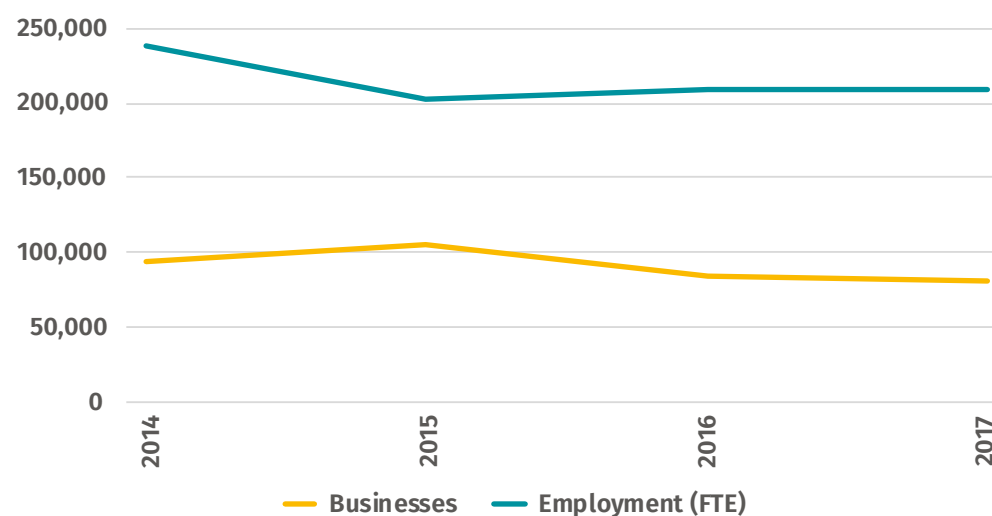
Investment in energy infrastructure can initiate substantial job creation in the construction and maintenance of new low-carbon assets. As our interim report *Risk or Reward* found, if the government were to meet scenarios set out by the Committee on Climate Change, up to 46,000 jobs could be created in the north of England by 2030 from investment into new low-carbon energy projects (Emden and Murphy 2018). The jobs which could be created represent the largest potential of any region, with the exception of Scotland, which, unlike the North, has a degree of legislative power to provide its own supportive policy environment (House of Commons 2016).

Conversely, without investment, this industry growth and job creation could well be squandered, causing a disproportionate impact on the north of England, where 28,000 jobs are set to be lost in carbon-based generation (coal, oil and gas) by 2030. At present the UK is going in the wrong direction. As a result of policy uncertainty, as figure 2.1 shows, between 2014 and 2017 the number of people working in the low-carbon economy as a whole was relatively stagnant and the number of businesses fell despite the need for a substantial increase in the deployment of low-carbon technologies throughout the UK economy.

**FIGURE 2.1**

**Employment in the low-carbon economy stagnated between 2014-2017 and the number of businesses has been slowly falling**

*Employment (FTE) and business in the low-carbon economy 2014-2017*



Source: ONS 2019

## THE OPPORTUNITY TO FIND NEW EMPLOYMENT IS CRUCIAL TO A JUST TRANSITION

Disjointed policy risks exacerbating potential job losses. Policies to phase out power produced by coal by 2025 are already underway and the proportion of gas being generated in the UK’s power sector will need to be reduced by 31-63 per cent between 2017 and 2030 depending on the scale of ambition, and almost entirely eliminated in the heating system by 2050 (CCC 2018) (BEIS 2018c). Yet insufficient progress in the low-carbon energy sector means that the government is failing to provide alternatives. Without policies to phase out fossil fuels *and* promote low-carbon alternatives working in tandem, the north of England in particular is set to realise the risks of decarbonisation rather than to reap the rewards (Emden and Murphy 2018).

## WITHOUT LONG-TERM POLICY CERTAINTY, BUSINESSES WILL STRUGGLE TO PLAN FOR THE FUTURE

Many of the skills demanded by the low-carbon energy sector take a long-time to train (as table 2.1 shows). As will be discussed in chapter 3, this is particularly problematic given that companies in the low-carbon energy sector already appear to be struggling to fill vacancies. A majority of respondents to our survey said that vacancies were partly a result of a lack of applicants with high-level skills such as engineering. The length of time required to train people with the right skills to fill these gaps will further delay growth in the low-carbon energy sector as a whole.

**TABLE 2.1**

**Many of the skills needs in the low-carbon energy sector require long periods of study and/or training**

Role	NVQ level required	Length of training	Work experience commonly required
Engineer	4+	3-4 years (undergraduate study)	4-8 years (to become a chartered engineer)
Project manager	4+	Up to 3 years (if taking a degree in management)	Approximately 3 years
Sales and marketing manager	4+	Up to 3 years (undergraduate study)	3-5 years
Technician	3-4	Up to 4 years (undergraduate study or apprenticeship)	Work experience can sometimes be gained as part of training
Overhead lines worker	3	Up to 4 years (apprenticeship)	Work experience gained as part of training

Source: IPPR analysis of Brennan and Limmer 2015

Furthermore, a survey of firms by the Institution of Engineering and Technology found that 42 per cent of companies working in the energy sector were concerned about Brexit for their recruitment and training, with 36 per cent saying it would impact their future plans negatively, and only 5 per cent saying it would have a positive impact (IET 2017).

## CURRENT ATTEMPTS AT LONG-TERM ‘PLACE-BASED’ POLICY ARE INADEQUATE

The question of *where* low-carbon energy technologies should be deployed is just as important as *which* ones and *how much* of each. This is not just about selecting the most geographically and geologically advantageous regions, but also because of the opportunity to redress the deeply imbalanced state of the UK’s economy.

The government's industrial strategy white paper in 2017 stated its intention to 'improve living standards and economic growth by increasing productivity and driving growth across the whole country' (HM Government 2017), along with some commitments on decarbonisation. The move towards a more activist economic policy from the government is a welcome development, presenting an opportunity to overcome the interrelated challenges of decarbonisation, rebalancing of the economy and a just transition.

However, these ambitions are not backed up by substantive policy commitments. The government's national industrial strategy has tasked combined authorities and LEAs with developing nationally compatible local industrial strategies, but these institutions are not given any formal devolved legislative or fiscal powers. Indeed, the government's 'policy prospectus' for local industrial strategies explicitly states that strategies should, 'remain strategic documents and not contain any proposals that require new funding or have spending implications outside of existing budgets available to local areas' (HM Government 2018).

This speaks to the fact that government does not recognise that Whitehall is not well placed to understand all the assets, capabilities, challenges and issues in a country as regionally diverse as the UK (IPPR 2018). Indeed, part of the reason for a geographically imbalanced economy is that the UK is also one of the most centralised developed countries in the world. Prior to the creation of combined authorities and the relatively new programme of devolution to city-region mayors, the UK had no regional tiers of governance, and Scotland remains the only devolved administration or region that has any significant independent economic powers (IPPR 2018). Even with city-region mayors and regional combined authorities, in economic terms, regional authorities in England still receive allocations from Whitehall and many of the powers over spending are *delegated* not devolved meaning that regions cannot implement their own fiscal policy (IPPR 2018).

## RECOMMENDATIONS: DELIVER LONG-TERM CERTAINTY IN THE LOW-CARBON ENERGY SECTOR

A new approach is therefore necessary to provide long-term certainty in the low-carbon energy sector. To this end the concept of key public 'missions' has started to gain traction as an effective organising principle for industrial strategy. Mission-based strategies start with a public policy problem and set a goal to overcome it, mobilising political and public sector support to boost industry in the cause of the goal, encompassing value chains by necessitating a system-wide view (Mazzucato 2017). The IPPR Commission on Economic Justice made the case for 'a more active role for the state' which 'if intelligently performed – creates *better* outcomes for the private sector. Business investment and innovation depend on the expectation of demand and the management of risk and uncertainty' (IPPR 2018).

In terms of energy policy, this new approach should be substantiated with **four major policy commitments**.

### Long-term capacity targets

**The government should set capacity targets for each low-carbon energy technology it intends to support**, including the smart grid technologies that will be needed to accommodate them (Carbon Trust 2016). Targets set in this way provide the clearest indication to businesses of the intention to scale up the deployment of a particular technology which in turn helps to generate a steady pipeline of projects, mature supply chains and reduce costs in the process. One of the clearest examples of the success of capacity targets can be seen in California's energy storage target set in 2013 (see box 2.2).



## BOX 2.2: CALIFORNIA'S ENERGY STORAGE TARGET

In 2013, one of the regulatory bodies in charge of state energy policy, the California Public Utilities Commission, set California's utility companies a target of procuring 1.3GW of energy storage by 2020, with installations no later than 2024 (CPUC 2018). The effect of setting such clear policy has galvanised the market such that, in 2018, the 1.3GW target had already been exceeded, with 1.5GW of energy storage capacity already having been procured (CEC 2018).

California has a different market structure to the UK meaning that such a target would not be perfectly replicable in the UK. Nevertheless, the proactive attitude of policymakers and the success of its impact are evidence that clear target-setting can promote the growth of new industries and prompt further action to overcome commercial and regulatory barriers (Emden 2015).

### Government support for low-carbon

**The government should provide a combination of subsidies and regulatory reforms to support the relevant industry's progress towards the targets that have been set.**

In order to preserve the imperative to keep energy costs to consumers as low as possible, these subsidies can be tapered over time, again, as has been the case with the offshore wind industry. The expectation that subsidies will be lowered over time must be communicated clearly with industry.

It is often argued that 'picking winners' by providing targeted support to specific technologies will lead to technology 'lock-in' – a gradual erosion of competing technologies until only a handful of technologies remain financially viable and the infrastructure to support them means that attempts to uproot them prove difficult. Yet this ignores the fact that this was how coal and gas power stations were able to achieve cost reductions in the first place, leading to an energy system that for many decades was convenient and reliable, albeit carbon-intensive.

### Energy for the North

**The government must establish the appropriate institutions to advise and oversee the implementation of these policies.** This must start with the recognition that Whitehall cannot fully understand and hence address challenges and deliver opportunities for regional economies in the north of England. The government should abandon its centralised approach and provide the North with greater devolved powers, including on fiscal policy, to deliver climate change objectives.

As IPPR North has previously argued, this would also involve **the devolution of carbon budgets and the creation of a new Energy for the North body** (Baxter and Cox 2017) which would be linked to the work of the NP11 (MHCLG 2018), and coordinate efforts to lead a low-carbon revolution in the North. This body must be comprised of a range of stakeholders across the low-carbon energy sector including academic institutions, industries, trade unions, civil society, local government representatives and representatives of local communities. In addition, the body must have strong links with the 'Just Transition Commission for the north of England' referred to in chapter 2.

### Policy coordination

Robust governance structures are also required at a national level. Therefore, as we recommended in our *Net-Zero North* report, **the government must create a cross-departmental Decarbonisation Mission Unit that ensures a systems-wide approach to realising the overall mission.** This should be located either within BEIS, or (for greater influence over other departments) the Cabinet Office and work closely with the government's planned independent Industrial Strategy Council (HM Government 2017).

### 3.

## THE NEED FOR A JUST TRANSITION

The need to deliver a 'just transition' is recognised by the Paris Agreement on climate change which requires governments to '[take] into account the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities' (UN 2015).

While securing a just transition is a global challenge, the impacts and solutions are inherently local. Industrial change has been poorly managed in the UK in the past, including in the north of England. The failure to appropriately manage these transitions has led to long-lasting regional inequalities. But through a just transition, there are clear opportunities to build on the economic strengths of the north of England and deliver a high-skill, high-wage, and low-carbon economy of the future.

#### WHAT IS A JUST TRANSITION?

As we set out in our interim report (Emden and Murphy 2018), the international trade union movement developed the idea and practice of a 'just transition' which secures 'the future and livelihoods of workers and their communities in the transition to a low-carbon economy' (ITUC 2018a). The Just Transition Centre, established by the International Trade Union Confederation (ITUC) in 2016 describes a plan for a just transition as one which "provides and guarantees better and decent jobs, social protection, more training opportunities and greater job security for all workers affected by global warming and climate change policies" (ITUC 2018a).

These definitions not only incorporate the idea of having a job, but also speak to the importance of job quality in future employment and a broader desire to move towards more environmentally and socially equitable societies. To that end, building on the work of the international trade union movement, we suggest that securing a just transition should be measured according to the following principles (ITUC 2018b; JTC 2017; ILO 2015).

- **Engagement with communities** – First and foremost, adequate and informed consultation is integral to the establishment of common and sustainable goals. To achieve this, national and local government as well as employers undertaking just transition policies must engage with and prioritise employment from local communities and, where possible, provide training for workers in these areas.
- **Flexibility** – A recognition that there is no "one size fits all" policy. Just transition programmes must therefore be designed with the local conditions, economic sectors and types and sizes of enterprises in mind.
- **Well-paid jobs** – Workers should be able to expect new employment opportunities to have a salary equal to or better than their previous work.
- **Protection of workers' rights** – Formal rights must be included in employment contracts including paid sick leave, disability, maternity and paternity leave, holidays, formal complaints procedures and access to occupational and mental health support.



- **Opportunities for training and career progression** – There must be opportunities for in-work training that provides new qualifications and greater prospects for promotion and career progression in future.
- **Job security** – Employment that is based on long-term or permanent employment status rather than short-term contracted work or zero-hours contracts.
- **Intersectional diversity** – A workforce that works towards an objective of being inclusive of all groups in society including diversity across gender, ethnicity and sexuality.
- **Safe-working environment** – The risk of workplace injuries should be minimised as much as possible and strict precautionary measures and protocols must be put into place when conducting any potentially dangerous work.

## THE NEED FOR A JUST TRANSITION

Structural economic change can be driven by many factors. Some changes come about rapidly, and others occur over longer periods of time. At present, automation, decarbonisation, digitalisation, demographic change and Brexit are just some of the key trends that are predicted to bring about structural economic change and profoundly transform industries and the labour market across the UK (Dromey and McNeil 2017).

Previous instances of industrial change in the UK suggest that government is not well-prepared to delivering a just transition. If a high-quality, low-carbon jobs revolution is to be realised in the North, the UK will not only need to adopt a mission-driven policymaking approach described in chapter 1, but will also need to learn from the mistakes of the past.

### Unjust transitions in the north of England have led to workers losing jobs or being forced to accept lower-paid work

From the 1970s onwards there were considerable job losses in traditional northern industries such as shipbuilding, textiles and clothing, steel, and coal. The absence of coherent industrial policy not only accelerated this process (Elliot 2016) (Kitson and Mitchie 2014) but also left many skilled workers in the manufacturing sector a choice of accepting lower-paid work, or unemployment.

Furthermore, in the 1980s, 250,000 jobs were lost in coalfields across the north of England. A combination of ill health (coal mining played a significant role in this) and job losses meant one in seven of all adults of working age in coalfield regions (north of England, South Wales, North Derbyshire, Nottinghamshire and North Staffordshire) were unemployed. With no policy in place to help these workers find new employment, many of the coalfield regions fell into deprivation - 43 per cent of all coalfield neighbourhoods are amongst the most deprived areas in Britain (Foden et al 2014).

Even where policies have been put in place to ameliorate the impacts of transition, their focus has often been on job numbers rather than job quality. The Dearne Valley is an example where the Enterprise Zone running from 1995 to 2005 was designed to regenerate areas which had suffered from deindustrialisation but instead created jobs with lower skills and lower wages than had previously been available (Tingle 2011).

### We are on course to repeat mistakes of the past

If the effects of decarbonisation are not properly managed, history risks repeating itself, potentially causing real damage to one of the region's 'prime capabilities' in the energy sector (SQW and Cambridge Econometrics 2016) and further exacerbating UK regional imbalances.

For example, while some financial support was provided to assist regions affected by job losses in the coal mining industry in 2000, the support has not been sustained by successive governments (Silveira and Pritchard 2016). This culminated in the closure of the last deep coal mine at Kellingley in North Yorkshire in 2015 without any policy in place to support workers who lost their jobs.

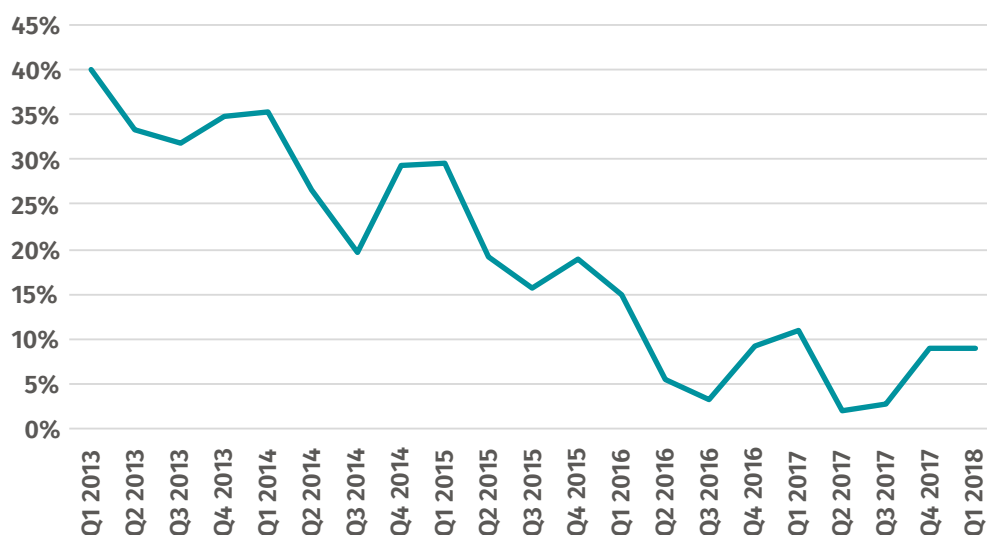
### BOX 3.1: KELLINGLEY COAL MINE CLOSURE

The closure of Kellingley in 2015, the last deep coal mine in the UK, led to 720 job losses by the autumn of the same year. With no plan in place to secure the livelihoods of workers, an analysis conducted shortly before its closure suggested that, based on previous examples of large factories closing down, the local impact would be devastating. The analysis suggested that 10 per cent of workers would be unable to find new employment after three years and, for those who did find work, they would be likely to experience a 20 per cent loss of income, a cumulative loss of income of £163 million from 2016 to 2018 (Orion Innovations 2014).

Furthermore, since the introduction of the Energy Act in 2013, coal-fired power generation has dropped from approximately 40 per cent in 2013 to 9 per cent of total generation in Q1 2018 as figure 3.1 shows.

**FIGURE 3.1**

**Coal-fired power generation has rapidly fallen since the introduction of the Energy Act in 2013**  
Coal as a percentage of total energy generation, Q1 2013–Q1 2018



Source: Ofgem 2019

While this has helped successfully reduce our emissions, support has not been provided to support the communities vulnerable to these changes. For instance, the language of just transition and associated policy measures are not mentioned in the government's industrial strategy or clean growth strategy. Assumptions remain about the ability of people and industry to adapt to these changes, coupled with an unwillingness to intervene. Although some workers have transferable skills and, as seen in chapter 3, some industry initiatives are helping workers move to the low-carbon energy sector, there is no concerted support at a national level or an attempt to make the necessary powers or levers available at a regional or local level.

This failure risks continual disruptive change not least in the north of England. For instance, decarbonisation threatens further jobs losses in the oil and gas industries in the North which accounts for 38 per cent of capacity in gas power stations (the largest of any region in England) and 15 per cent of employment in upstream oil and gas (the second most of any region in the UK (Emden and Murphy 2018)).

## **IMPROVING THE LOW-CARBON ENERGY SECTOR**

On the other hand the potential employment demand from the low-carbon energy sector presents an opportunity for many workers in the north of England whose jobs are at risk in carbon-based generation (discussed in detail in chapter 3). Many of the mid and high-skilled jobs in the low-carbon energy sector are both in high demand and command comparable salaries to similar roles in carbon-based generation. Furthermore, the average salaries for all these jobs are higher than the median salaries in all northern LEP areas (Emden and Murphy 2018). However, our analysis suggests they are lower quality than they could be.

As highlighted above, there are many factors that constitute high quality employment rather than salary alone. For some of these criteria, there is significant room for improvement in the low-carbon energy sector.

### **Job security**

Ensuring job quality is particularly important at a time when the labour market as a whole is experiencing a radical diversification of employment arrangements. According to the International Labour Organisation, the so-called 'gig economy' is rapidly growing in the UK and already represented around 3 per cent of the UK's labour force in 2017 (ILO 2017). As discussed in chapter 3, due to a shortage in key skills such as engineering, many developers in the low-carbon energy sector are resorting to this model by hiring independent contractors (Brennan and Limmer 2015). While this way of work may be lucrative for some, insecure employment that may require extensive travel from project to project should not become the accepted employment model in the low-carbon energy sector. In addition, there should not be an expectation that workers should have to travel great distances for their work.

### **Unsafe working environments**

Across the energy sector as a whole, many issues have been reported including stress and both mental and physical health concerns as a result of understaffing and pressured working environments (Prospect 2017). While the safety of working environments will vary from technology to technology, some concerns have been raised about working conditions in the offshore wind industry in particular where incidents reported are greater than some other comparable industries. For example, in 2016, the number of recordable injuries per 1 million hours worked was much higher in the offshore wind sector at 1.98 injuries per million hours (albeit with a small number of sites in Denmark and Germany included in this figure) compared to the offshore oil and gas sector at 0.57 injuries per million hours (G+ Global Offshore Wind 2016) (Oil & Gas UK 2017).

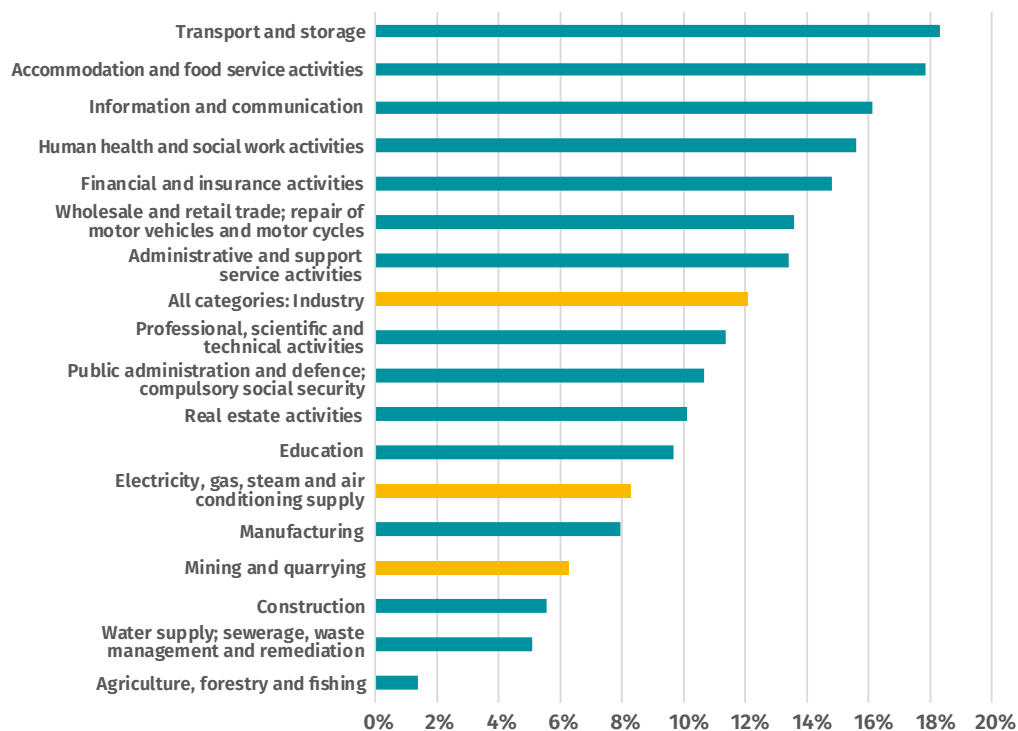
### **Intersectional diversity**

Diversity is critical to the quality of the working environment – it can boost creativity, employee engagement and productivity (WISE 2017). As a 2018 report from McKinsey found, those companies in the bottom quartile for gender and ethnic diversity were 29 per cent less likely to have above-average profitability compared to all other companies being evaluated (Hunt et al 2018). As the demand for new skills in the low-carbon energy sector are projected to grow in future, as discussed in chapter 3, reviewing recruitment processes to be more inclusive are both an economic imperative and an opportunity for greater community cohesion.

In 2016/17, only 24 per cent of STEM graduates were women, a small drop from the previous year (STEM Women 2018). The situation is even worse in the workplace where women make up just 14 per cent of the total workforce in the broad sector category ‘mining, energy, water, electricity and air conditioning supply’, the second lowest of any STEM industry (WISE 2017). This figure is even worse when looking at senior positions within the energy industry. According to a 2014 PwC report, 62 per cent of the top 89 UK headquartered energy companies have no women on their boards and just 8 per cent have female board representation at 25 per cent or higher (PwC 2014). There is little indication that the low-carbon energy sector is much more diverse. A majority of respondents to our survey said that gender and ethnic diversity in the low-carbon energy sector was poor or very poor.

The energy sector as a whole is also one of the least ethnically diverse and much lower than the average across all sectors as demonstrated by figure 3.3 below.

**FIGURE 3.3**  
**Ethnic diversity in the energy sector is much lower than the average across all industries**  
*Percentage of the workforce from ethnic minority groups*



Source: IPPR analysis of ONS 2018b

### THE BENEFITS OF A JUST TRANSITION TO THE UK ECONOMY

Ensuring a just transition requires supporting the growth of alternative sources of demand for employment. In this respect, decarbonisation in the north of England is as much an opportunity as a threat. The energy sector as a whole is already one of the North’s ‘prime capabilities’ (SQW and Cambridge Econometrics 2016). As IPPR North’s 2017 *Northern Energy Strategy* demonstrated, there is substantial potential for the north of England to become the new heartland for a low-carbon energy economy (Baxter and Cox 2017) driven by a green industrial strategy and underpinned by world-renowned universities and leading expertise in technologies such as nuclear power, hydrogen and offshore wind.

IPPR's *Net-Zero North* report underlined how this expertise is matched by the many historic, geographic and geological advantages that exist in the region (Laybourn-Langton et al 2017). In summary, if the mission-based local industrial strategy described in chapter 1 focuses its efforts on realising the opportunities presented by the North, a just transition can be achieved as part of a broader low-carbon revolution.

## RECOMMENDATIONS: DELIVERING A JUST TRANSITION IN THE NORTH

Just transition is a global challenge that has a local impact and requires local solutions. However, where other countries are starting to respond to this challenge, the UK is following a historical pattern that fails to plan for the negative impacts of industrial change on regional economies, particularly in the north of England.

We argue that just transition policy must become a core feature of the government's industrial strategy as well as the local industrial strategies being developed by LEP regions (IPPR 2018). Rather than being reactive, decarbonisation presents an opportunity to acknowledge potential negative impacts, in order to plan for positive outcomes.

Given the potential opportunities and risks to the region, we have focused in this report on the north of England but many of our recommendations are relevant and could be replicated for the rest of the country. We divide our recommendations into three parts.

1. Embedding the concept of just transition across government policy.
2. Developing the institutions to deliver a just transition.
3. Delivering and devolving the necessary funding and support package for a just transition.

### **Embedding the concept and approach of just transition across government policy**

**The concept of a just transition should urgently be incorporated into an updated national industrial strategy as well as the strategic economic plans and local industrial strategies** being developed by LEPs and combined authorities - as well as any future industrial strategy for the north of England. In doing so, the government will need to develop and adopt a set of just transition principles to underpin its whole approach. We have adapted the principles which have been adopted by the Just Transition Commission in Scotland (Scottish Government 2018), for the north of England, to provide a guide for what they might look like in practice:

- plan, invest and implement a transition to environmentally and socially sustainable jobs, sectors and economies, building on the North's "prime capabilities" and future potential
- create opportunities to develop resource efficient and sustainable economic approaches, which help address, regional imbalances, inequality and poverty
- design and deliver low-carbon inward investment and infrastructure, and make all possible efforts to create decent, fair and high quality work, in a way which does not negatively affect the current workforce and overall economy.

Involving trade unions in the process of determining just transition policy will also be crucial. The involvement of trade unions as social partners is vital to guaranteeing industry commitments to working conditions, safety and decent pay through collective bargaining. The treatment of trade unions as key partners in industrial strategy is already common practice in other countries like Germany and Denmark (TUC 2016). Indeed, the TUC is committed to decarbonising the power system and shares a desire with government to boost productivity as this will involve skills training to give workers the opportunity to find new, high quality employment.

As IPPR has previously shown, unions have a proven track record of achieving higher wages for their members through collective bargaining and advocating ‘good work’ that involves greater training and career progression opportunities for employees (Dromey 2018a).

### **A Just Transition Commission for the North**

**A Just Transition Commission should be set-up for the north of England, following Scotland’s example** (Scottish Government 2018). Commissions could also be created in other nations and regions, for example the West Midlands, Wales and Northern Ireland. The Just Transition Commission for the North should also incorporate regionalised functions for each LEP area. The functions of the Just Transition Commissions would include:

1. conducting thorough economic assessments at LEP level to identify which communities are most vulnerable to industrial change caused by decarbonisation across the country
2. building on the analysis of those such as the Northern Independent Economic Review, LEP regional economic strategies and IPPR’s *Northern Energy Strategy* and *Net-Zero North* reports,<sup>4</sup> to identify economic strengths within each region in the North as a way of highlighting candidates for future inward investment
3. at the pan-northern England and national levels, aggregate and present these analyses of vulnerabilities and strengths to local, regional and national government in order to inform long-term policymaking. The analysis would also inform how money from the newly established Just Transition Fund for the North (see below) should be distributed according to need and opportunity
4. liaise with Skills Advisory Panels (see chapter 3) to identify the kind of support for the skills system that would be needed to support anticipated increases in demand for new regional industries.

The Just Transition Commission for the North must include all relevant stakeholders who will have a role in supporting the transition to a low-carbon economy. These include metro mayors, local authorities, LEP representatives, local community representatives, local businesses, businesses interested in investing in the region, civil society and trade unions. In particular, as argued in IPPR’s Commission on Economic Justice, if improved productivity and job quality are to be achieved, trade unions would need to be given greater access to many of the businesses in the low-carbon energy sector (IPPR 2018). This would require the government to introduce a right of access to support unions to recruit, giving unions a physical right of access to workplaces as well as a digital right of access to workers. This would enable them to make their case for membership to workers and ensure those members would then benefit from high-quality employment and training opportunities.

### **A Just Transition Fund and support package for the North**

**A Just Transition Fund should be established as part of regional economic development funding in order to mitigate against the negative impacts of decarbonisation.** Crucially, local authorities would not be required to write applications for funding. This is because one of the criticisms of the Regional Growth Fund, which does require this, is that only those local areas that are able to mobilise the capacity to make applications receive it, meaning it may not reach those communities that need it most.

The level of funding for each LEP region in the north of England should instead be based on the economic assessments conducted by the Just Transition Commission. In addition, all funding should be monitored, evaluated and reported on – the lack of which was another criticism of Regional Growth Funds, leading to questions around their contribution to regional economic growth (Ward 2016).

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<sup>4</sup> A matrix summarising regional strengths from this report can be found in the appendix.



This Just Transition Fund should also be viewed as an opportunity to contribute towards rebalancing whole economies across the north of England, not just the power sector. Indeed, many of the successful international examples of just transition policy have focused on funding towards the regeneration and diversification (Schulz and Schwartzkopff 2016) of the whole regional economy as a way of stimulating jobs and attracting investment into local communities.

As such, the funds must be devolved to metro mayors, combined authorities and local authorities, who would work in partnership with regional LEPs to allow them to spend it in ways that best suited the needs of their local areas. Based on international best practice, IPPR suggests what a number of these mechanisms and activities could look like: (TUC 2016; Schulz and Schwartzkopff 2016; Rosemberg 2017; Caldecott et al 2017):

- **Clustering of new industries, academia and technical colleges on existing sites**  
Regional clusters can help to develop new technological specialisms and fortify university-business relationships (Jacobs et al 2017). The north of England is particularly well-placed to benefit from these kinds of clusters thanks to their universities' world-leading expertise in low-carbon technologies, particularly in areas that have been negatively impacted by industrial change. For example, where mining and manufacturing jobs were previously lost in Newcastle, Durham and the Tees Valley, universities in these areas now have deep expertise in wind and wave power and electric vehicles. Developing clusters around universities could also have substantial local regeneration impacts and some are already being developed across the North including the Tees Valley, the Humber Estuary and the Cumbria coast.
- **Boosting local development through inward investment, including education, training and local infrastructure, entrepreneurship and small businesses**  
Investing in local businesses infrastructure and training that leads to higher-skilled workforces can create a positive feedback loop. This is true for infrastructure projects in particular, where labour-intensive projects like transport infrastructure generate employment, result in improved mobility for workers who may have to travel longer distances to work in new employment and makes the region more attractive to private investment. This investment in turn stimulates inward movement of more workers (Jacobs et al 2017).
- **Investing in local low-carbon energy projects**  
One of the key examples of local investment could include community-owned renewable projects and energy efficiency upgrades. Local cooperative ownership of low-carbon projects can help to create local jobs while making a contribution to UK climate change targets. Investing in energy efficiency schemes is a particularly good example for the North, as box 3.2 shows.

### BOX 3.2: ENERGY EFFICIENCY IN THE NORTH OF ENGLAND

Improving the energy efficiency of the nation's homes is essential to timely decarbonisation. The CCC has estimated that emissions savings from more energy efficient buildings alone could generate 19 per cent of the required total savings between now and 2030 (CCC 2017). Energy efficiency upgrades are particularly important for the north of England. Despite receiving more energy company obligation (ECO) measures<sup>5</sup> than any other region, the North has a lower percentage of households with an energy efficiency rating of A or B than the national average, and the highest proportion of households with a D rating (DCLG 2017). The need to address inefficient housing in the north of England is also a social policy imperative. According to government statistics, in 2015 the North East and Yorkshire and the Humber had two of the highest levels of fuel poor households at 13.3 per cent (second highest) and 12.4 per cent (fourth highest) respectively (BEIS 2017b).

In addition to being in high demand, energy efficiency installation is very labour intensive (Laybourn-Langton et al 2017). Accordingly, improving the efficiency of the North's homes is an industrial strategy opportunity with wide socioeconomic and decarbonisation potential. A significant push on improving thermal efficiency will reduce the demand for energy, and resultant greenhouse gas emissions, improve the quality of housing stock and the lives of those in it, and create a large amount of jobs making it an ideal candidate for the focus of a low-carbon industrial strategy.

- **Repurposing carbon-based assets for new industries**

Where whole communities are defined by links to employment in specific high carbon assets such as power stations, jobs losses risk devastating whole areas. These assets, however, could be repurposed for different industries. This is already taking place in some areas of the North, such as the exploration of repurposing old coal mines in Durham to decarbonise heat (Adams and Gluyas 2017). In other instances carbon capture and storage could be deployed to make use of existing infrastructure such as pipelines and storage facilities as has been the case with the ACORN project in Scotland (ACORN 2019), or the Teesside Collective in the Tees Valley (Teesside Collective 2015).

- **Funding to support workers close to retirement**

As mentioned in chapter 3, the demand for skills in the low-carbon energy sector will be exacerbated by the large number of workers who are due to retire over the next ten years. However, this will also result in a substantial loss of job experience. To smooth the transition from soon-to-retire workers to newly qualified employees, additional funding could be provided in the form of wage incentives for older workers to act as trainers, coaches or mentors to younger staff.

- **Wage subsidies for those workers who may be made unemployed as a result of transition**

Temporary wage subsidies could be provided to workers to help them retrain or find new careers. This would be particularly impactful as it would allow people the time and space to consider future options without the immediate pressure of lost earnings.

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<sup>5</sup> The energy company obligation (ECO) is the UK government's flagship energy efficiency scheme which obligates energy suppliers to upgrade the housing stock of their customers through measures such as loft and wall insulation.



- **Just transition ‘toolkits’ for affected industries**

Toolkits could be developed by the Just Transition Commission for the North which would inform managers and leaders of companies about where to access wage subsidies and other support services which could then be passed on to workers. This would be particularly useful for small businesses who may be unable to provide in-house support themselves. Examples of these activities are already underway in the Yorkshire and Humber region where the TUC is running just transition training courses for workplaces representatives in the manufacturing and power sectors in order to prepare workers for the impacts of decarbonisation policies (Unionlearn 2018).

- **Travel assistance for workers**

Where new employment is within commutable distance for those undergoing career changes but expensive to reach, travel assistance could be provided to reduce barriers to new employment.

- **Additional support for mental health and wellbeing services**

For workers whose jobs may be at risk or may be making efforts to find new employment, the process can be very stressful and disruptive, even in situations where a transition is well-managed. LEPs could therefore work with local authorities and use Just Transition Funds to bolster or set up new mental health and other health-related advice services.

## 4.

# THE SKILLS GAP

One of the most important aspect of a just transition is to support workers experiencing jobs losses to move into whatever new employment (or indeed retirement) they choose in future. One of the main options for many workers is the very low-carbon energy sector that is displacing jobs in carbon-based generation. This is in part because of an anticipated increase in demand for skills and partly because many of those employed in carbon-based generation have highly transferable skills which will be needed in the low-carbon energy sector.

A supportive skills system<sup>6</sup> is vital to provide the appropriate training to facilitate this transition. Without appropriate training, a vicious cycle ensues: if workers, do not receive appropriate training, skills gaps in the low-carbon energy sector will widen. This will lead to slower growth in the industry as a whole, which in turn will limit the number of opportunities for workers to transition from high to low-carbon employment.

In this chapter, we highlight the ways in which the skills system is currently not fit for the purpose of facilitating a just transition as well as proposing ways in which it can be reformed.

### CHALLENGES WITH DEMAND IN THE SKILLS SYSTEM

For the skills system to be able to provide the appropriate training, first we need an accurate assessment of how large the demand for skills will be, second, in what professions and third, in what regions these skills will be demanded.

#### **Projections for future jobs demands are difficult without long-term policy certainty**

A lack of data makes it difficult to project the overall demand for jobs in the sector, though it is likely to be substantial. In addition to IPPR's own projections for job creation in the low-carbon power sector in the north of England (46,000 jobs by 2030) there are various other projections throughout the literature as table 4.1 shows. These vary depending on what modelling is used: some focus on jobs in one sector, while others take a system-wide view. All projections point towards a substantial increase in demand.

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<sup>6</sup> Here this refers to universities, technical colleges, higher education institutes, schools, industry training and third-party training providers.

**TABLE 4.1**

There are many sectoral estimates for jobs which could be created in the low-carbon energy sector, most of which use different modelling and timescales

Publisher	Sector	Job Estimate	Year
RenewableUK	Offshore wind	70,000	By 2023
IPPR	Heat networks	Up to 81,000	By 2030
Cedefop	Energy efficiency	108,000	By 2035
Energy & Utilities Skills Partnership	Smart meters	12,000	By 2020
Cogent Skills	Nuclear	34,000	By 2021

Source: Cedefop 2018; Energy & Utilities Skills Partnership 2017; Emden et al 2017; Cogent Skills 2017

LEPs are attempting to gather high-quality, granular labour market information that provides a clearer picture of skill needs across local economies. However, many are exploring the use of innovative forecasting tools, many challenges still exist in the gathering and interpretation of data. For example, using job titles may not always be an accurate proxy for the skills needed for employment (Round 2018).

More fundamentally, in the absence of long-term policy certainty, whatever projections are made may be over-optimistic as overall growth within the sector could be smaller. Furthermore, given the multinational nature of developers operating in the low-carbon energy sector, if the domestic skills pipeline does not provide appropriately trained workers and Brexit results in restrictions on freedom of movement, the attractiveness of investing in the UK's low-carbon energy sector will likely decrease.

Finally, there is also an aging workforce within the energy sector. According to the Energy & Utilities Skills Partnership, 24 per cent of all workers in the sector are over 55-years-old. Combined with those expected to leave to pursue other careers outside of the sector, in the next 10 years it is estimated that 220,000 jobs will need to be replaced (Energy & Utilities Skills Partnership 2017). This further complicates the task of accurately projecting demand in future.

### What are the jobs being demanded?

Research based on industry surveys points to the kinds of jobs that are already in high demand in the low-carbon energy sector. In terms of high-level skills these include (Brennan and Limmer 2015) (Roberts et al 2014):

- engineering
- process design
- project management
- asset management
- commercial and business management.

In terms of mid-level skills too, job roles are likely to include (Cedefop 2018):

- surveyors (eg building energy efficiency)
- installers (eg solar PV, ground and air source pumps, biomass heating systems and insulation of all types)
- maintenance technicians
- overhead linespeople.

As discussed below, many of these skills can be found in high-carbon industries, or in the case of mid-skilled jobs could be trained quickly. If the government committed to long-term policy certainty that sees growth in the industry, based on the types of jobs currently being demanded there are clear opportunities for transition.

### **The skills system is struggling to accommodate for the types of skills that may be needed in future**

Despite the potential high demand, the skills system is struggling to provide a pipeline of skills for the future.

Firstly, it is failing to prepare workers for the growth of digital technologies. Based on surveys conducted by the Institution of Engineering and Technology (IET), 42 per cent of respondents in the energy sector said they planned to introduce or extend digital technologies in their line of work in the next three years. However, only 18 per cent reported that they are fully prepared for skills challenges ahead caused by trends such as automation and digitisation (IET 2017).

Secondly, several studies note how soft skills will become increasingly important in future as the level of complexity of job requirements increases (Brennan and Limmer 2015; Universities UK 2018). IPPR's recent energy skills survey corroborates these findings and reveals that the most commonly cited roles being anticipated in future include new engineering skills, systems engineering, IT skills but also soft skills such as communication and team working. Thus, practically speaking, in future the distinction between academic skills and vocational skills will become more blurred and 'whole-skills' approaches will need to be adopted. As IPPR North has previously argued, this will also need to be supported by broadly applicable theoretical skills that promote problem-solving and critical thinking as these skills are highly transferable between all industries (Round 2016).

However, the UK skills system has historically been very rigid in its split between academic and vocational education. This has often meant that softer skills like communication and theoretical skills like critical thinking have been separated from curricula that instead focus on the subject-specific content necessary for relevant industry qualifications (ibid; Round 2018; Universities UK 2018).

### **New jobs may not be in the same regions where jobs are being threatened**

Skills being demanded for new low-carbon projects may not be located in the same place as carbon-based generation assets. Though workers may be prepared to travel further for work, excessively long journeys or requirements to move out of their communities would likely be unpopular and should not be expected. Instead, as recommended in chapter 2, creating alternative demand for labour through inward investment or investing in transport infrastructure upgrades (or both) will need to be pursued in affected areas.

## **CHALLENGES WITH SUPPLY**

### **There are a number of qualitative challenges facing the skills system**

The skills system is *already* struggling to prepare for future skills demands in the low-carbon energy sector. Estimates recorded by the UKCES show that 36 per cent of businesses in the broad sector category 'electricity, gas, steam, water and air conditioning', reported having hard-to-fill vacancies, 85 per cent of which cited skills shortages as a reason for this (UKCES 2015). This was the highest proportion of any sector and well above the 23 per cent national average for companies citing skills shortages as a reason for vacancies. Though it is important to note that in the absence of a thorough skills audit, it is difficult to know the true extent of the skills gaps.

Nevertheless, previous studies combined with results from our own survey reveal a number of challenges, both to workers who may want to transition from high to low-carbon employment and for new labour market entrants, with the way in which skills are currently being supplied in the sector including the following.

- **Insufficient funding for adult retraining:** The provision of adult retraining in the UK is particularly poor. As IPPR's Skills 2030 report finds, the UK lags behind other developed economies when it comes to adult skills, with funding for adult skills training on track to be cut in half from 2009/10 to 2020/21 (Dromey and McNeil 2017).
- **Limited skills devolution for local economies:** Though the Adult Education Budget has been devolved, not only has the overall funding pot been reduced, the vast majority of local budgets must be spent on nationally defined obligations rather than providing LEP areas in the North with the flexibility to invest according to local needs (Round 2016).
- **Lack of appropriate training:** To some extent, a lack of appropriate training is a product of policy uncertainty as businesses are less likely to provide training if they do not know what the direction of the market will be. However, it has also been found that there are a limited number of training courses being offered with technical skills and knowledge that are specific to the low-carbon energy sector which limits existing technicians' ability to upskill (Brennan and Limmer 2015).
- **Over-reliance on hiring within the energy sector reduces training incentives:** Within the energy sector there is strong competition for skills between sub-sectors. Given the regularity with which workers move around within the energy sector, especially those that are contracted, there is limited appetite for companies to provide training only to see graduates move to another job in the sector. This is particular true for smaller companies and those that operate in the supply chain of large energy developers as they do not have the same brand exposure as large companies and thus risk having their talented workers poached by them.
- **Lack of commonly recognised accreditation across the industry:** Many companies will want to provide their own training but this means that, despite the fact that workers consistently move from job to job within the sector, retraining is often required which in turn slows down the recruitment process.
- **Graduates without the right levels of experience:** Work experience is seen as being very important in the engineering sector (of which energy engineering is a sub-sector) but only 45 per cent of employers are strongly engaged with higher education delivery (Universities UK 2018).
- **Failure to incentivise companies to utilise the apprenticeship levy:** Smaller businesses often do not have the capacity to utilise the apprenticeship levy or provide other forms of training more generally (Dromey and McNeil 2017). Furthermore, the government has little control over the quality of qualifications meaning some may not be recognised by industry or some existing training schemes may simply be 'rebadged' as an apprenticeship (Churchill 2018).
- **The apprenticeship levy exacerbates regional inequalities:** Given that the levy is a payroll tax, it will raise more money in London than other regions in the UK. Furthermore, unspent levy funds revert to the Treasury after 24 months meaning they are lost to local economies and regional inequalities will remain or be exacerbated (Dromey 2018b).
- **New T levels not matching up to include training for professions on the Shortage Occupancy List:** Many of the skills gaps which currently exist (and likely to grow) in the low-carbon energy sector are listed on the Shortage Occupancy List. Yet at the same time, the new T levels being introduced largely do not cover training for these same professions.

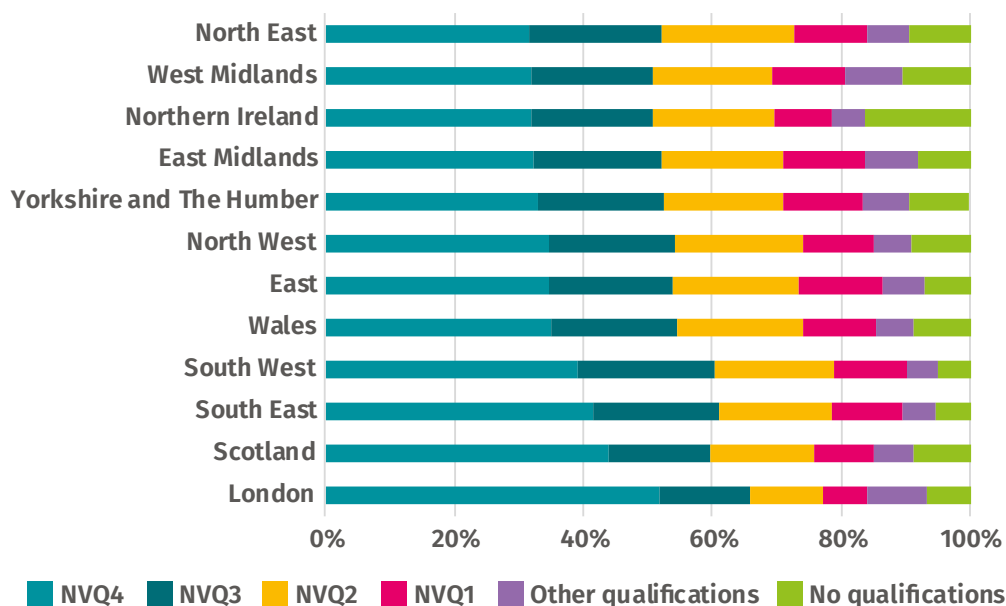
- **Difficulty attracting young people to the sector:** While larger companies have a higher profile with schools and universities, it has been challenging for smaller companies within the low-carbon supply chain to present a compelling case for working in their sub-sectors.
- **Competition from other sectors:** Skills shortages in the energy sector are also caused by intense competition from other sectors that can command higher wages. This “sector leakage” has resulted in an oversupply of STEM graduates in non-STEM-related fields of work. For example, according to data from the Energy & Utilities Skills Partnership, only 5 per cent of engineering graduates entered the energy and utilities sector compared to 10 per cent for the retail sector (Energy & Utilities Skills Partnership 2017).

**Graduate retention is both a challenge and opportunity which can address regional skills gaps**

Skills gaps are also present at a regional level across the economy. In particular, as figure 4.2 below shows, the north of England, particularly in the North East, have some of the lowest levels of NVQ level 4 qualifications in the country.

**FIGURE 4.2**

**The North East has some of the lowest levels of NVQ 4 qualifications in the country**  
 NVQ level by region, January–December 2017



Source: IPPR analysis of ONS 2018b

Much of this skills shortage has been put down to a so-called "brain drain" where graduates move away from the north of England to find employment. However, as previous IPPR North analysis has shown, areas like Liverpool and Manchester have some of the highest retention rates of domestic-born graduates and much of the flow of graduates is explained by people moving from, and then back to, London. Furthermore, while graduates are moving away from the North for employment, many people, known as ‘boomerangers’ who have originally lived in the North and studied elsewhere, do return to the North for employment (Cox 2018).

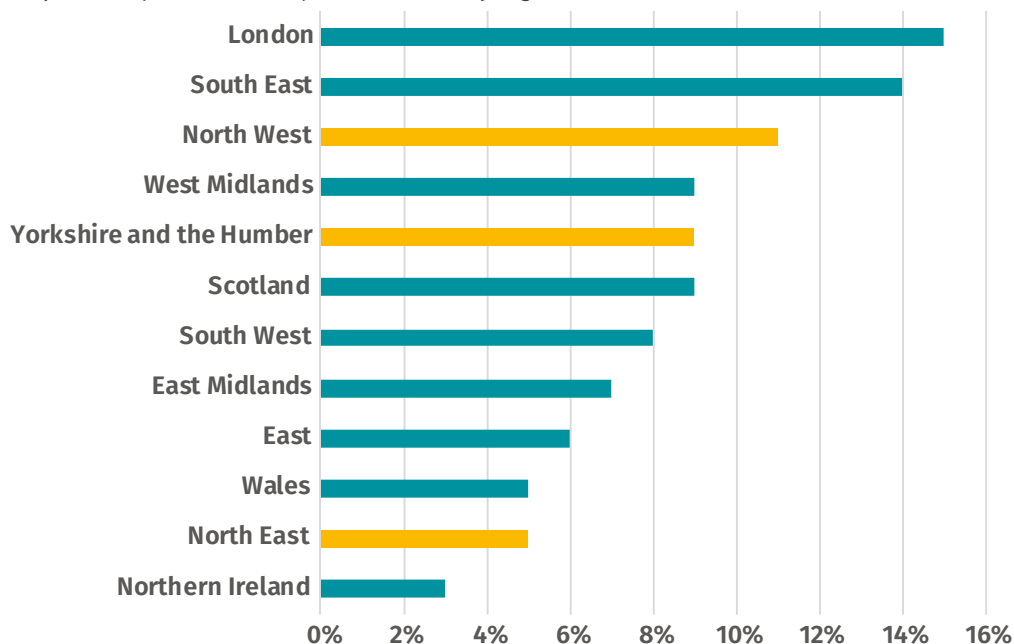
In fact, while many graduates may leave northern higher education providers to find work elsewhere, the *intake* of people taking up higher education is among the highest in the country in the North West and Yorkshire and Humber as figure

4.3 shows. In addition, while the North East has a low intake in absolute numbers, relative to its size, the North East has the second highest intake of people taking up higher education (HESA 2018).

**FIGURE 4.3**

**The North West and Yorkshire and Humber have some of the largest shares of student intake in the country**

*Proportion of total intake of new students by region (2016/17)*



Source: IPPR analysis of HESA 2018

The rude health of higher education in the north of England is particularly apparent in the low-carbon energy sector due to the substantial presence of world-leading research in many northern universities, including the Tyndall Centre in Manchester, the Sustainable Research Institute in Leeds and the Durham Energy Institute to name just a few. Indeed, as research from IPPR North shows, the North East awards one of the highest number of research degrees relative to its size in key subjects relevant to the low-carbon energy sector including electronic, chemical, process and energy engineering as well as a high-level of postgraduate graduations in computing in IT (Round 2016). If these graduates could be incentivised to stay within the region, the outlook for the North East’s skills base would be very promising for the low-carbon energy sector.

The point then is that higher education in the north of England is thriving but policy action is needed to encourage people to stay in the region. It will also require greater linkages between industry and schools, higher education providers and technical colleges.

**WHAT TRANSITION OPPORTUNITIES ARE THERE FOR DIFFERENT REGIONS IN THE NORTH OF ENGLAND?**

As discussed in our interim report (Emden and Murphy 2018), there are clear transition opportunities from carbon-based generation that could meet some of the anticipated growth in demand. This is already happening organically to some extent because many energy companies have portfolios of both carbon-based and low-carbon generation assets, making mobility between the sectors easier.



For example, EDF is already beginning to retrain workers from its coal divisions to work on its nuclear fleet. Of those working on the Greater Gabbard Offshore Wind Farm run by SSE, 40 per cent used to work in the oil and gas sector (Energy & Utilities Skills Partnership 2017).

If a just transition is to be realised for the north of England, there must be a recognition of the specific skills which would be easily transferable from high to low-carbon employment. This can only be achieved through thorough skills auditing that is able to both quantify the overall number of people with transferable or easily trainable skills and detail with precision what these exact skills and job roles would be.

## RECOMMENDATIONS: HOW THE SKILLS SYSTEM CAN SUPPORT A JUST TRANSITION

The skills system is not sufficiently responsive to either the current or future demand for skills. To some extent, resolving this issue is dependent on the kinds of long-term policy commitments described in chapter 1. However, improving the way in which skills are supplied to support a just transition in the energy sector requires more than just long-term capacity targets for low-carbon energy technologies.

### Comprehensive devolved skills audits

We need a more complete understanding of why skills gaps currently exist and may worsen in future - **therefore we recommend comprehensive, devolved skills audits across the north of England**. While some innovative models for skills forecasting are currently being explored by some LEPs and the new Northern Independent Economic Review will also include some analysis of the northern skills base, the collection of this data should also be supported by a 'clear, common and granular frame of reference' that adheres to a consistent framework that describes what and how labour market information should be gathered (Round 2018).

To some extent, this type of auditing is already one of the intended roles of the newly created Skills Advisory Panels (DfE 2018). However, to ensure that the data being gathered is as comprehensive as possible a Skills for the North body should also be established and based in a northern city (Round 2018). This body would facilitate the sharing of expertise and work with LEPs to coordinate responses to Skills Advisory Panels' requests for labour market information. This will in turn allow LEPs to identify and develop Skills Priority Lists (Round 2018) based on regional demand that could help to inform how well-prepared an area's skills system was in preparing for a just transition. This process is something that LEPs should be carrying out as part of their local industrial strategies.

Examples of the type of labour market information that would need to be collected are as follows.

- The number of hard-to-fill vacancies due to skills shortages within the low-carbon energy sector. Skills surveys conducted by the UKCES already show this information at a broad industry category level (electricity, gas, water, steam and air conditioning) but given the anticipated growth in the low-carbon energy sector, more granular sector analysis is urgently required.
- The number of skills providers across the North and whether this is sufficient to match demand.
- An assessment of the quality of the training provided and the completion rate achieved by providers. This should extend beyond current analysis of apprenticeship success rates and include all stakeholders, including industries, who provide training.
- The ease of access to these skills programmes, training courses and institutions.



Once the relevant labour market information had been gathered, both the Skills for the North body and Skills Advisory Panels should then share this information with the Just Transition Commission for the North. This would help the commission with its forecasts on transition opportunities that may be based on existing and anticipated skills shortage vacancies in each region, as well as the ease with which training can be accessed. This information should also be passed on to the upcoming National Retraining Scheme to ensure that regional economies are given priority when it comes to investment in retraining.

### **Making training standards available to the unemployed**

**Training standards should be made available to those who are unemployed.** With the exception of programmes like ITEC that work with young unemployed people (ECITB 2019), training provided by the likes of the ECITB can currently only be offered to those who are employed. Within the context of just transition and the anticipated loss of livelihoods in regional economies across the north of England, changing this policy to be more inclusive will ensure that workers who do want to retrain do not have to find new employment first in order to do so.

### **A consistent approach to training across the energy sector**

A consistent approach to skills training across the whole energy sector is needed to avoid the waste of time and resources which currently occurs across employers. As such, **we recommend the creation of an Energy Skills Competency Accord.** This accord would need to be supported by legislation and regulations that required certain technical standards and outcomes to be met rather than describing exactly how this should be achieved. This would allow for the continuation of training both by industry taking up the apprenticeship levy and third-party providers, on the condition that it could be verified as meeting this minimum standard. There are already examples of emerging cross-sectoral practices such as the Procurement Skills Accord by E&U SP and the ECITB (Energy & Utility Skills Partnership 2019).

### **T level courses must reflect skills needs**

Potential restrictions on freedom of movement as a result of Brexit mean that many of the roles described in the Home Office Shortage Occupation List, a large number of which are highly relevant to the low-carbon energy sector, could be difficult to fill. While this risks exacerbating skills gaps in the sector, it is also an opportunity for the UK government to develop policy that supports a domestic skills base.

To achieve this goal, **there must be greater consistency across policy such that these occupations are included within the range of courses which T levels are intended to cover.** Given that these courses are not due to come into force until 2020 and 2021, and a UK exit from the EU is likely to happen before then, these occupations should be given priority within T level preparations (DfE 2019).

### **Devolving education and skills funding**

If the government is serious about place-based investment in its industrial strategy, then **both the Adult Education Budget and any unspent levy funds should be fully devolved to LEPs without any legally-obligated spending rather than being retained by the Treasury or directed by it** (Dromey and McNeil 2017) (Dromey 2018b) (Round 2018). As IPPR has previously argued, devolution would allow LEPs to tailor skills funding to local demand (Round 2018) as well as regenerate regional economies that have been impacted by poorly managed industrial change described in chapter 2.

### **Reforming the apprenticeship levy**

**The apprenticeship levy should be reformed so that it would be set at 0.5 per cent of payroll for mid-sized firms and 1 per cent for firms with 250 or more employees in order to widen the net of employers affected.** A quarter of the contributions from the largest firms should be then be automatically devolved and put towards a £1.1 billion Regional Skills Fund in order to help facilitate skills training in local economies and support a just transition (Dromey and McNeil 2017) (Dromey 2018b).

### **Promoting diversity with the low-carbon energy sector**

Some companies are starting to engage more closely with schools but, to raise the profile of the sector, promote diversity, and help graduate retention in the north of England, **companies above a certain size should be required to actively promote STEM subjects in schools.** This could be achieved by liaising with Skills Advisory Panels that would organise collaborations and greater engagement between industries, schools, universities and National Skills Colleges.

# CONCLUSION

Climate change is the biggest threat to the UK's future prosperity and our ability to deliver economic justice for all. The process of decarbonisation is therefore both urgent and necessary.

As this report has set out, that process holds immense potential for the north of England. Managed well, the region has the geographic and geological advantages, historic expertise, and world-leading academic research institutions to become the new heartland for a low-carbon energy economy. But managed badly, decarbonisation risks creating economic and social disruption which will deliver unequal and unjust outcomes.

In this report we have highlighted three key challenges that are holding back a just transition and, more broadly, a low-carbon revolution in the north of England. First, that long-term policy is critical to the growth of the low-carbon sector. Second, the government is currently failing to secure the future livelihoods and communities of workers in high-carbon industries who may be affected as has been in the case in previous instances of poorly managed industrial change. Finally, the skills system is struggling to meet increasing demand in the low-carbon energy sector that would also help to facilitate a just transition.

In response, we have set out a strategy of how the government can deliver the necessary policy ambition and certainty for the low-carbon sector; put the 'just transition' at the heart of decarbonisation and industrial strategy; and build a skills system capable of supporting existing workers and future generations into well-paid, skilled and secure jobs in the future low-carbon economy.

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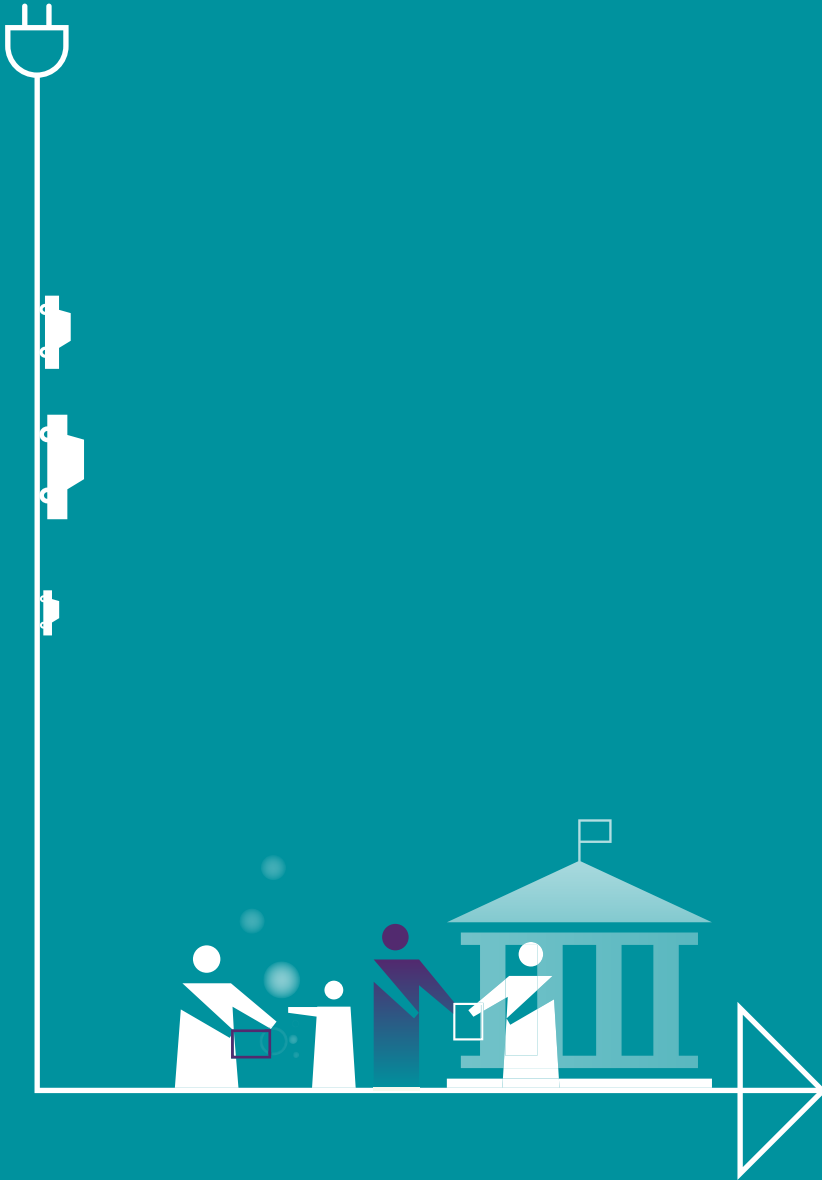
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