

# Investing in a just transition in the UK

## How investors can integrate social impact and place-based financing into climate strategies

Nick Robins, Andy Gouldson, William Irwin  
and Andrew Sudmant



## The Investing in a Just Transition initiative

---

Launched in February 2018, the Investing in a Just Transition initiative is working to identify the role investors can play in connecting their actions on climate change with inclusive development pathways. The initiative is led by the Grantham Research Institute on Climate Change and the Environment at the London School of Economics and Political Science (LSE) and the Initiative for Responsible Investment at the Harvard Kennedy School, working in partnership with the Principles for Responsible Investment (PRI) and the International Trade Union Confederation (ITUC). At the 24th Conference of the Parties in December 2018, the initiative released *Climate change and the just transition: A guide for investor action*. As a sign of the investor interest in how to connect climate change with inclusive development, the guide was accompanied by a statement signed by over 100 institutions with US\$6 trillion in assets under management (AUM), including more than 20 investors from the UK. The guide shows why and how investors can take action to support the just transition across their global portfolios. They can also contribute to action at the national level, shaped by the particular conditions and priorities of different countries.

## The Investing in a Just Transition UK project

---

The Grantham Research Institute at LSE and the Sustainability Research Institute at the University of Leeds are leading a process of research and dialogue to identify the specific role that investors can play in linking the environmental and social dimensions of the transition to a zero-carbon and resilient economy in the UK. This part of the project is being delivered in partnership with the PRI and the Trades Union Congress (TUC) and is funded by the Friends Provident Foundation.

The goal of this project is to develop a national roadmap for investing in a just transition, deploying the framework developed in the international guide. As part of this, we look across the spectrum of tools and mechanisms available to individual and institutional investors from asset owners (such as pension funds, insurance firms and charities), asset managers, and community and digital finance. Our ambition is to provide investors and other stakeholders with a clear sense of 'what good looks like' in terms of the just transition, turning high-level recognition into practical action.

The project is rooted in a regional case study of the Yorkshire and Humber region (introduced in this report), analysing its exposure to the transition and showing how investors can take action across different asset classes. Here, the project comes at a time of growing policy and market interest in place-based investing. The project will conclude with recommendations for both local and national reforms that would ensure that the goal of a just transition is embedded in the financial system. It will also identify how the regional analytics conducted in Yorkshire could be extended nationwide. We will shortly launch a separate but related project on the role of banks in the just transition. Our aim is to identify how these institutions can link the just transition with the needs and preferences of their ultimate savers and beneficiaries.

## About the authors

---

Nick Robins is Professor in Practice for Sustainable Finance at the Grantham Research Institute, Andy Gouldson is Professor of Environmental Policy at the Sustainability Research Institute, William Irwin is a Policy Analyst at the Grantham Research Institute and Andrew Sudmant is a Research Fellow at the Sustainability Research Institute.

[www.lse.ac.uk/GranthamInstitute](http://www.lse.ac.uk/GranthamInstitute)

<https://environment.leeds.ac.uk/sustainability-research-institute>

This report was first published in February 2019 by the Grantham Research Institute on Climate Change and the Environment. © The authors, 2019. Suggested citation: Robins, N., A. Gouldson, W. Irwin and A. Sudmant. (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 on Climate Change and the Environment, London School of Economics and Political Science.

This policy report is intended to inform decision-makers in the public, private and third sectors. It has been reviewed by at least two internal referees before publication. The views expressed in this report represent those of the authors and do not necessarily represent those of the host institutions or funders.

# Contents

---

Executive summary	2
1. Introduction	5
2. Unpacking the just transition	8
3. The size of the challenge in the UK	15
4. The UK's policy and market context	20
REGIONAL CASE STUDY: Yorkshire and the Humber	24
5. The emerging agenda for investor action	27
6. Conclusions and next steps	33
References	36

## Authors' acknowledgements

---

Special thanks to Sophia Tickell, who is a strategic advisor to the Investing in a Just Transition UK project. The authors would also like to thank the members of the Investing in a Just Transition UK advisory group for their commitment, insights and encouragement: Bill Adams, Colin Baines, Kate Bell, Polly Billington, Tatiana Bosteels, Justin Bowden, John Bromley, James Burrows, Mike Clark, Noel Collings, Bruce Davis, Arthur Foreman, Graeme Griffiths, Candice Hampson, Emma Howard Boyd, Anna Laycock, Tom Knowland, Bonny Landers, Adam Matthews, Chris Matthews, Vaidehee Sachdev, Danyal Sattar, Nigel Topping, Steve Waygood, Peter Webster and Helen Wildsmith.

In addition, thanks to those who have provided inputs to the project, notably participants at workshops in Leeds and London as well as others: John Barry, Zelda Bentham, Lara Blecher, Phil Bloomer, Rodney Boyd, Catherine Bremner, Vonda Brunsting, Emily Bugden, Josh Burke, Rebecca Byrnes, Ben Constable Maxwell, James Corah, Mark Davis, Sam Fankhauser, Amanda Feldman, Adam Frost, Scott Gordon, Joanne Hall, Karl Harder, Emily Hickson, Simon Horner, Simon Howard, Catherine Howarth, Andy Kerr, Zoe Knight, Karlygash Kuralbayeva, Rob Lake, Stephanie Maier, Elizabeth Meyer, Jason Mitchell, Katherine Ng, Alice Owen, Tim Page, Jenny Patient, Paul Pavia, Grant Peggie, David Powell, Bettina Reinboth, Fiona Reynolds, James Rising, Nick Stern, Alison Tate, Lily Tomson, Raphaëlle Vallet, Bob Ward, Faith Ward, Danielle Walker-Palmour, David Wood and Amanda Young.

The authors would like to thank Karen Mullin for producing map 4.2 in this report, and Georgina Kyriacou for editing, design and production.

The Investing in a Just Transition UK project is funded by the Friends Provident Foundation. Funding from the Grantham Foundation for the Protection of the Environment and the UK Economic and Social Research Council (ESRC) through the Centre for Climate Change Economics and Policy (CCCEP) is also gratefully acknowledged.

# Executive summary

---

The just transition offers investors in the UK a strategic opportunity to connect climate action with positive social impact across the country. This report sets out the initial findings of a project designed to identify how this opportunity can be realised, with a regional focus on Yorkshire and the Humber.

The just transition is rapidly emerging as an essential element in the successful transition to a resilient zero-carbon economy. This rise to prominence was marked at the COP24 climate conference in 2018 by the adoption of a just transition declaration signed by 53 governments, including the UK's, and support for an investor statement backed by over 100 institutions with more than US\$6 trillion in assets – more than 20 of which are based in the UK.

## **Five elements are needed for investors to play their role in the just transition as stewards of assets, allocators of capital and shapers of the financial system:**

### **1. Understanding the just transition**

The just transition starts from a focus on ensuring that actions to tackle climate change also take account of core social priorities, such as distributional effects and the ways in which decisions are made. For decision-makers, this translates into the following questions:

- **Who is affected?** The just transition starts with a focus on workers, but also includes spillover implications for communities, consumers and citizens. It has strong connections with the respect for human rights, a priority for investors.
- **What are the thematic priorities?** In the UK, this translates into four thematic priorities, making sure that first, clean growth is inclusive; second, that decarbonisation is responsible; third, that resilience is delivered with fairness; and fourth, that there is a focus on place-based development where these priorities come together.
- **Why should investors get involved?** For investors, the just transition connects the environmental and social dimensions of responsible investment. It provides a better understanding of systemic risk, it is consistent with fiduciary duty, it points to material value drivers, helps to uncover investment opportunities, and enables investors to contribute to societal objectives such as the Paris Agreement on climate change and the Sustainable Development Goals.
- **What are the dilemmas?** It is important to be open about the dilemmas that the just transition raises. These include: will it delay action or add complexity? However, the reality that the just transition is often a tough issue makes it important to take initial steps and build confidence.

### **2. Sizing the scale of the challenge**

Looking at the broad implications for workers, we estimate that around one-fifth of current jobs (21%) in the UK have skills for which demand could grow in the green economy or which could require reskilling. This is equivalent to more than 6 million people. Around 10% of workers have skills that could be in more demand, while 10% are more likely to need reskilling. Importantly, this does not mean these jobs will be lost; rather that this is where particular attention will be needed. Construction (30%), transport (26%) and manufacturing (17%) are the sectors that could require greatest reskilling. The East Midlands, West Midlands, and Yorkshire and the Humber are the three regions with the highest proportions of jobs that could be exposed to the transition. These estimates offer a first order of magnitude and raise questions for future inquiry in terms of the timing of change, the

balance between large and small employers, the age, gender and ethnic dimensions, as well as the spillover implications for communities.

### 3. Exploring the policy and market context

The UK has a long-standing climate policy framework and clean growth is now one of the 'grand challenges' set out in the Government's Industrial Strategy. The strategy also identifies people and place as key foundations. Alongside this, the Government has given particular emphasis to strengthening the UK's capabilities in green finance and social impact investing. For the just transition, clear synergies exist between these two priorities. At the national level, however, there is not yet an explicit focus on the just transition. In Scotland, the government has recently established a Just Transition Commission. Interest is growing in place-based efforts to mobilise finance for climate action. Key stakeholders are also taking a lead in shaping the agenda, notably trade unions and environmental organisations. Putting in place a coherent policy and market framework is important to provide clear incentives for investors to support the just transition. A particular priority is the need for a national infrastructure bank with an explicit sustainability mandate.

### 4. Identifying the areas for investor action

For investors in the UK, the new guide<sup>1</sup> for investor action on the just transition points to five action areas:

- **Investment strategy:** Investors need to determine how the just transition impacts their existing policies for responsible investment and climate change. This can be done through three iterative steps: portfolio assessment, stakeholder dialogue and strategic integration.
- **Corporate engagement:** Engagement can be an effective mechanism to generate a better understanding of corporate performance on the just transition and driving improved practices. Initial priorities could include high-carbon sectors (such as utilities) to encourage responsible decarbonisation as well as renewable energy to support inclusive clean growth.
- **Capital allocation:** The just transition can be applied to investment decisions across all asset classes: public equities, fixed income, private equity, infrastructure, real estate and cash. The just transition offers particular opportunities for impact investors seeking to generate positive social and environmental outcomes alongside financial returns.
- **Policy advocacy:** Investors can have an influential role in policymaking and this could now include support for efforts to promote a just transition. The Powering Past Coal Alliance (PPCA), launched in 2017 by Canada and the UK, provides a platform for investors to place coal phase-out in a wider just transition context.
- **Learning and review:** The just transition is a relatively new dimension of the climate change agenda for investors. It will therefore be important to develop experimentation at scale – with investors, policymakers and industry sectors – and have effective monitoring, evaluation and sharing of outcomes.

### 5. Setting out a checklist for further work

In the UK, the just transition is starting to move into the policy and market mainstream. Yet, while the imperative to connect climate action with social inclusion is clear, the full

---

<sup>1</sup> Produced by the Grantham Research Institute and Harvard Initiative for Responsible Investment: Robins, N., Brunsting, V. and Wood, D. (2018) *Climate change and the just transition: A guide for investor action*. [www.lse.ac.uk/GranthamInstitute/publication/climate-change-and-the-just-transition-a-guide-for-investor-action/](http://www.lse.ac.uk/GranthamInstitute/publication/climate-change-and-the-just-transition-a-guide-for-investor-action/)

implications have still to be worked through. We have identified at least 10 questions for further work:

- **Ambition:** What could an ambitious just transition look like, for example in 2030?
- **Foresight:** How can we anticipate the social dimensions of the transition?
- **Frameworks:** How can the just transition best be incorporated into policy frameworks?
- **Skills and capacity-building:** Where has the UK made progress in building the skills base for the transition and where are the gaps?
- **Place-based financing:** How can financing strategies be developed that connect the needs for place-led development with national and international pools of capital?
- **Dialogue and stewardship:** What is the role of investors in promoting social dialogue through their stewardship duties as owners and managers of capital?
- **Entrepreneurship and business models:** What are the new business models that are needed that will facilitate the process, within established firms and new entrants?
- **Financial innovation and impact:** What new financial institutions and mechanisms could best channel capital towards a just transition across the country?
- **System change:** What is the balance between incremental improvements and system change to deliver the just transition?
- **International links:** How can UK investors act on the international dimensions of the transition, for example in global supply chains?

## Next steps

In the next phase of the project, we will be looking in more detail at these questions and we would welcome your feedback<sup>2</sup> by 30 April 2019.

Our particular priorities will include deepening the analytics of the employment implications of the transition, developing a series of illustrative case studies of how investors can support the just transition using the lens of our focal region of Yorkshire and the Humber, and then exploring the potential for a regional just transition fund. These will all feed into our investor roadmap on the just transition in the UK, to be released later in 2019.

---

<sup>2</sup> Please send feedback to Nick Robins or William Irwin at the Grantham Research Institute – [n.v.robins@lse.ac.uk](mailto:n.v.robins@lse.ac.uk) / [w.j.irwin@lse.ac.uk](mailto:w.j.irwin@lse.ac.uk)

# 1. Introduction

---

Delivering a just transition will be key to the UK's success in building a zero-carbon and resilient economy. In essence, the just transition means making sure that action on climate change supports an inclusive economy, with a particular focus on workers and communities across the country.

This is the first report from a project<sup>3</sup> that is working to identify how investors can contribute to the just transition within the UK, exploring the extent of the challenge, current efforts to address it, and what actions investors can take, including at the regional level.

## The just transition: rising to the top of the climate change agenda

The importance of delivering a just transition worldwide has recently risen to the top of the global climate policy agenda. In December 2018 at the 24th session of the UN's Conference of the Parties (COP24), 53 countries including the UK signed the Silesia Declaration on the Just Transition (Polish Government, 2018). The Declaration fleshed out the earlier commitment within the 2015 Paris Agreement on climate change for 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" (UNFCCC, 2015). For the Polish Presidency of COP24, the logic behind the declaration was clear: "Considering the social aspect of the transition towards a low-carbon economy is crucial for gaining social approval for the changes taking place" (Polish Government, 2018).

The Declaration could not have been timed better. The centrality of the need for a strong social dimension to climate policy was being displayed on the streets of Paris with the *gilets jaunes*' protests against the Macron administration's increase in carbon taxes in France. Eighteen months earlier, newly elected President Trump pointed to the employment implications of climate action as one of the reasons for pulling out of the Paris Agreement, citing the fate of US coal workers.

## Managing the process of change

International evidence shows convincingly that the shift to a resilient, net-zero-carbon economy will boost prosperity, generating an additional 37 million additional jobs worldwide by 2030 (New Climate Economy, 2018). Managed well, the transition will both prevent the immense human and economic costs of climate disruption and also improve growth, generate net new jobs and reduce inequality. In fact, the transition is essential to maintaining decent work and thriving communities.

These benefits will not accrue automatically, however. There will be transitional challenges for workers, communities and countries as the shift takes place. For example, it will be important to ensure not just that the transition delivers extra jobs, but also that working conditions are at least as good as those in high-carbon sectors. The benefits of the zero-carbon economy also need to flow beyond the workplace to the wider community. Poorly done, the result could go beyond 'stranded assets' (notably of fossil fuel supply and generation resources) to stranded workers, enterprises and communities. Past experience of deindustrialisation in many parts of the world highlights the importance of looking

---

<sup>3</sup> For more information about the UK just transitions project and the wider, global Investing in a Just Transition initiative, please see inside front cover or our website at [www.lse.ac.uk/GranthamInstitute/investing-in-a-just-transition](http://www.lse.ac.uk/GranthamInstitute/investing-in-a-just-transition).

beyond the direct employment impacts to understand the wider ecosystem of prosperity in affected regions.

Overall, the pace of climate action is still too slow and too limited to achieve the goals of the 2015 Paris Agreement. A key insight of the just transition is that one of the ways to accelerate climate action – and optimise its benefits – is to ensure that it is inclusive. This means taking account of the distributional consequences so that no one is left behind. Failing to do this could slow or even stall climate progress, while contributing to economic stagnation and political instability.

### **The strategic case for investor action to support the just transition**

Investors are increasingly committed to the transition in order to minimise climate risks, maximise opportunities and contribute to sustainable development. At COP24, for example, over 400 institutional investors with US\$32 trillion in assets under management called on governments to step up the implementation of the Paris Agreement and “improve the resilience of our economy, society and the financial system to climate risks” (Investor Agenda, 2018). For the first time, investors also called on governments to support a just transition, recognising that “it will be important that the benefits of gaining access to cleaner energy sources are shared by all, and that those workers and communities affected by the transition are supported” (ibid.).

Until recently, investors have given little attention to the social consequences of climate change. Most investors have managed climate change primarily as an environmental factor. Importantly, while climate change is certainly an environmental issue, the transition is a process of structural economic, social and technological change. In practice, the environmental, social and governance (ESG) dimensions of climate change have often been addressed in separate silos. Individual savers and beneficiaries are increasingly demanding better integration of ESG factors into the management of their assets, not only to mitigate risks but also to generate positive social and environmental impacts (ShareAction, 2018).

The specific language of a just transition may be new for many investors, but the underlying implications are familiar to the more than 2,000 institutions with over US\$82 trillion of assets that have signed the Principles for Responsible Investment. At the heart of the Principles and other frameworks is the commitment to integrate ESG factors into decision-making at all levels. As fiduciaries, investors can make an important contribution to achieving a just transition, as stewards of assets, allocators of capital, and as influential voices in public policy.

At COP24, the first guide for investor action on climate change and the just transition was released by the Grantham Research Institute on Climate Change and the Environment and the Initiative for Responsible Investment at the Harvard Kennedy School, working in partnership with the Principles for Responsible Investment (PRI) and the International Trade Union Confederation (ITUC) (Robins et al., 2018b). As a sign of the investor interest in how to connect climate change with inclusive development, the guide was accompanied by a statement signed by over 100 institutions with US\$6 trillion in assets under management (AUM), including more than 20 investors from the UK.

### **The role of investors in delivering a just transition in the UK**

Both the Paris Agreement and the new Silesia Declaration make clear that the just transition will need to be delivered “in accordance with nationally defined development priorities” (Polish Government, 2018). Just as there are ‘varieties of capitalism’ there will be ‘varieties of just transitions’.

The just transition offers investors in the UK a strategic opportunity to connect climate action with positive social impact across the country. UK investors are increasingly active in managing climate change, workplace and wider sustainable development imperatives. The Government is promoting both green finance and social impact investing and there are a growing number of place-based initiatives to mobilise finance.

To aid the realisation of this opportunity, our UK project aims to develop a national roadmap for investing in a just transition, with a regional focus on Yorkshire and the Humber to connect the research and dialogue with the real economy (see inside front cover for more details of the project).

### Structure of the report

- **Section 2** unpacks the just transition concept and elaborates on the rationale for investor action.
- **Section 3** explores the size of the just transition challenge in terms of the potential implications for employment across the UK.
- Many actors need to take part in delivering the just transition and **Section 4** sets out the current approaches taken by national, devolved and local governments, trade unions and civil society, as well as business and investors; it profiles the efforts underway in Yorkshire and the Humber.
- **Section 5** examines how investors in the UK can take action on the just transition in terms of investment strategy, corporate engagement, capital allocation, policy advocacy, and through learning and review.
- **Section 6** concludes with a set of key questions that will be addressed in more detail in the next phase of research and dialogue during 2019.

## 2. Unpacking the just transition

---

### Moving from concept to practice

The just transition has a long history, stretching back to the 1970s (Gambhir et al., 2018; UNRISD, 2018). Conceptually, it has close linkages with broader notions of climate justice and energy justice (Delina and Sovacool, 2018). It incorporates core questions of distributional justice – who faces the benefits and costs of the zero-carbon transition – as well as of procedural justice, notably how decisions are made.

Increasing efforts are being made to translate the broad concept into practical measures that governments, business, trade unions, civil society and, now, investors can take. The International Labour Organization (ILO) published its just transition guidelines in September 2015 (ILO, 2015), shortly before the adoption of the Paris Agreement. The ILO's guidelines set out the high-level implications of the zero-carbon transition for macroeconomic, industrial, regional and enterprise policies as well as for workplace priorities such as skills development, health and safety, social protection, rights at work and social dialogue.

To date, only a few governments have explicitly incorporated the just transition into their climate strategies. Over the past year, a growing number of dedicated just transition initiatives have been established, in Canada, Germany, Scotland and Spain, in most cases to address the specific issues facing the phase-out of coal-fired power generation. Efforts are also underway to identify the role that different stakeholders can play. Guides have been published setting out how trade unions and business can make the just transition an operational reality (European Trade Union Congress, 2018; Just Transition Commission and B-Team, 2018) (see Section 4). These have now been complemented by the Grantham Research Institute and Initiative for Responsible Investment's investor guide, produced with the PRI and the ITUC (Robins et al., 2018b).

The rest of this section seeks to demystify the concept of the just transition for investors and other stakeholders by addressing five key questions:

- Who is the core focus of the just transition?
- What is the scope of the just transition?
- What are its critical themes for the UK climate change agenda?
- What are the key motivations for investor involvement?
- What are some of the key questions and dilemmas of the just transition?

### Core focus: the human dimensions of the just transition

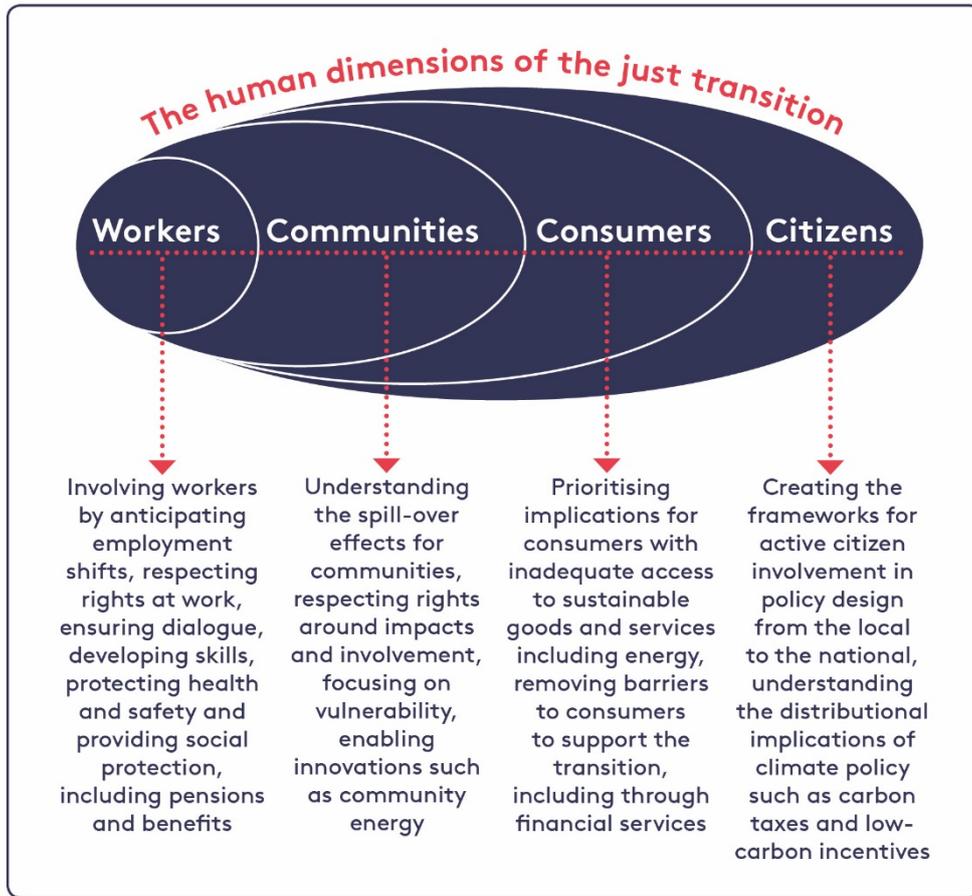
The just transition starts from the perspective of how people are affected, positively and negatively, by climate change and efforts to bring climate security. As the Paris Agreement makes clear, this starts with implications for workers. But the just transition quickly spills over into the impacts of the transition for the community as production patterns change. Beyond this, the transition also has profound implications for consumers, for example in terms of fuel poverty, which impacts over 11% of households in England (BEIS [Department for Business, Energy & Industrial Strategy], 2018c).<sup>4</sup> Ultimately, all citizens are impacted in

---

<sup>4</sup> The Low Income High Costs indicator for England considers a household to be fuel poor if: "they have required fuel costs that are above average; ... were they to spend that amount, they would be left with a residual income below the official poverty line." (BEIS, 2018c)

terms of the distributional and participative aspects of the transition. Figure 2.1 below sets out these interlocking relationships.

**Figure 2.1. The human dimensions of the just transition**



The centrality of the human in the just transition points to the importance for investors of using existing human rights frameworks to integrate the social dimension into their climate strategies. These frameworks include the ILO's core labour standards (ILO, 2010), the UN's Guiding Principles of Business and Human Rights (UN, 2011), and the Organisation for Economic Co-operation and Development's Guidelines for Multinational Enterprises (OECD, 2011). These international 'soft law' instruments refer mainly to how investors can encourage investee companies to embed respect for human rights. Investors themselves also need to incorporate these into their due diligence and how they approach responsible business conduct, as set out in the OECD's paper *Responsible Business Conduct for Institutional Investors* (OECD, 2017).

### **The just transition: a comprehensive scope**

The need for a just transition affects the whole economy in terms of managing both the positive and negative implications for people, starting with workers. The just transition is also global in scope and means thinking about social performance along international supply chains. Often the just transition has been seen as an agenda focused solely on the negative impacts for high-carbon sectors such as coal. But it is also relevant for delivering strong social performance in the growing zero-carbon economy. There have been concerns, for example, about workplace conditions in fast-growing sectors such as renewable energy and electric vehicles (e.g. Tesla in the United States). In addition, the

community implications of growth in these sectors also need to be managed to generate an effective 'licence to operate' and thereby minimise risks for investors.

Importantly, the just transition means thinking ahead and managing fast-paced and often disruptive change. This disruption can prompt anxiety about the consequences for today's lifestyles and livelihoods as well as the prospects for future generations.

Furthermore, the zero-carbon transition is not a process of simply substituting one technology for another. Instead, it will involve often profound restructuring of established norms and practices. In the case of energy, for example, decarbonisation is being accompanied by powerful driving forces producing a system that is also digitised and that could be far more decentralised and democratised (Healy and Barry, 2017; Burke and Stephens, 2018).

To take one example, the just transition is highly relevant for the increasing focus on local generation and the role of 'prosumers' (who both consume and produce) in the future energy landscape. It is important to carefully think through the implications of certain groups in society being able to make a super-return by being prosumers, possibly at the expense (or exclusion) of those who cannot participate in such a market. This leads to a question of the most cost effective and fair way of investing throughout the UK energy system such that as many consumers and regions as possible are able to participate and enjoy the benefits to offset the risks of the transition. For investors, it will be critical to understand how the bottom-up development of decentralised energy systems impacts the just transition in terms of people and communities alongside investment at a national scale in terms of grid-connected renewables, for example.

More broadly, the just transition needs to be placed in the broader context of managing multiple transitions. This means recognising that many of the changes underway in carbon-exposed sectors (such as energy and transport) are often the result of non-climate forces, which are combining to produce transformational impacts.

### **“We need to be organising for transitions in the plural”**

We should see the just transition as part of the new story of inclusive, sustainable growth. This is a highly attractive economic model, with strong innovation and growth and able to overcome poverty in an effective and lasting way. But it requires us to manage the process of change in much better ways within modern market economies. We need to be organising for transitions in the plural, including technologies, economic structures, cities and the international division of labour. And we must accelerate the pace of decision-making if we are to respond to the urgency of climate change.

**Lord Nicholas Stern**, Chair, Grantham Research Institute on Climate Change and the Environment

Ultimately, the just transition focuses attention on the need for a 'social contract' to be constructed as a core part of climate action at a time of growing concern about unequal economic and financial systems (Foundation for European Progressive Studies and Change Partnership, 2016; Institute for Public Policy Research [IPPR], 2018a).

### **The just transition: critical priorities across the climate agenda**

The just transition cuts across all aspects of the climate change agenda and the three goals of the Paris Agreement: first, reducing emissions to net-zero levels; second, strengthening adaptation in the face of increasing physical impacts; and third, making financial flows consistent with zero-carbon and resilient development. Operationally, these climate goals are closely linked with other environmental priorities, notably clean air, the

circular economy, resource efficiency, nature conservation and sustainable agriculture. For the UK, this translates into four priority themes for investors, illustrated in Figure 2.2.

**Figure 2.2. Critical themes for the just transition in the UK**



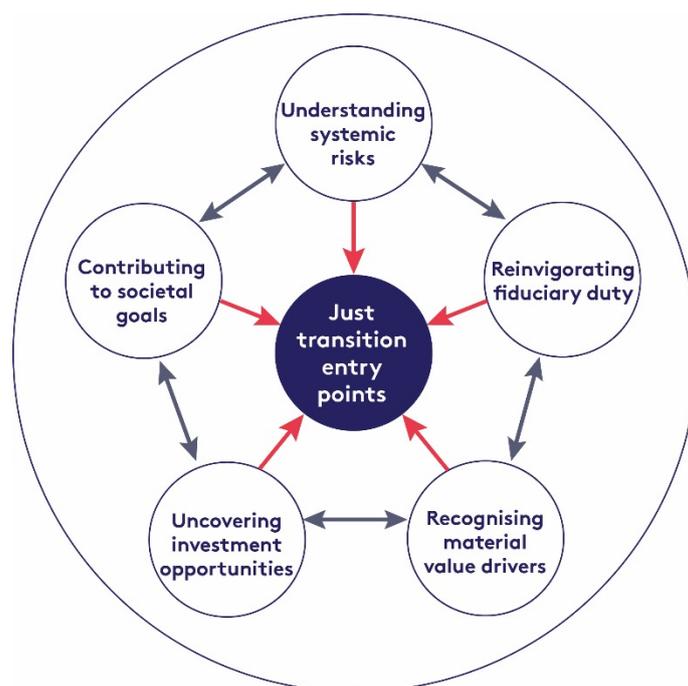
This emphasis on place is important. The geographical clustering of economic activity makes it essential to consider the implications of the transition on a spatial level. A place-based approach is particularly needed in the UK, which combines relatively centralised political and economic decision-making with high levels of regional divergence compared with other European countries.

### **The just transition: five reasons for investor action in the UK**

For investors, the just transition builds on and deepens the core investment case for action on climate change. It focuses on the management of the social aspects of climate change in the workplace and wider community. The good news is that investors do not need to reinvent the wheel to address the social dimension of climate change. There are a range of well-tested investor approaches that already exist.

Overall, the case for investor action rests on five strategic motivations, illustrated in Figure 2.3, which are explored in more detail in the international investor guide (Robins et al., 2018b). These motivations are aligned with the core duties and interests of investors and also show that contributing to the just transition is a way for investors to deliver positive social and environmental impact. We set out how these motivations translate into a rationale for action in the UK context on the next page.

**Figure 2.3. Reasons for investor action on the just transition**



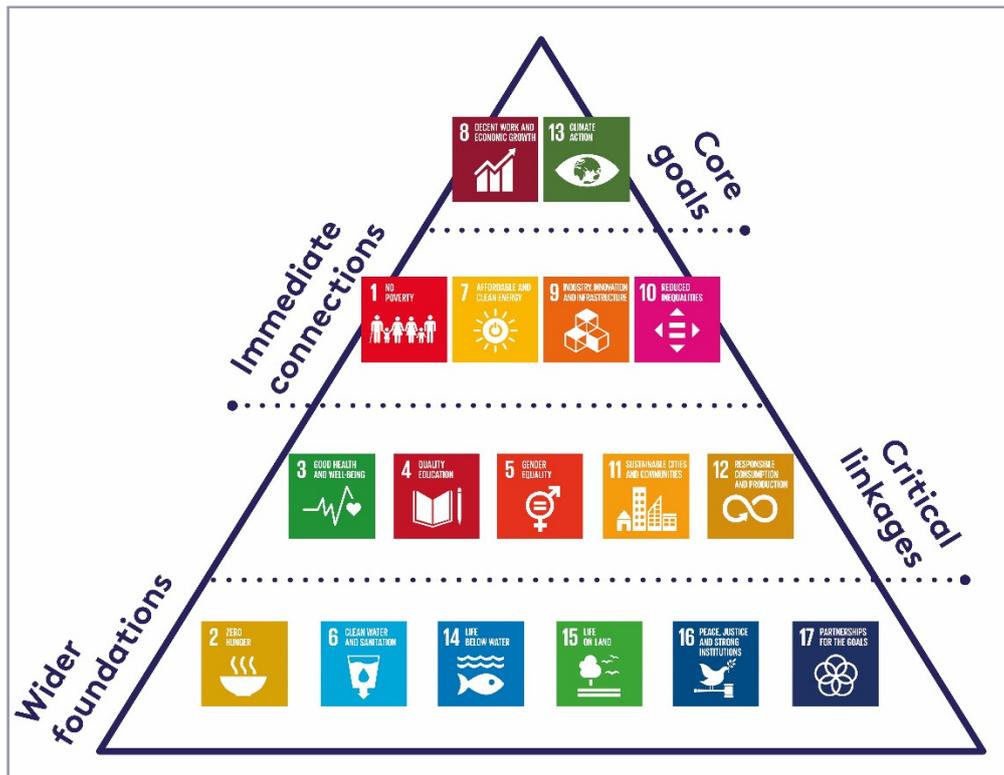
Source: Robins et al. (2018b)

1. **Understanding systemic risks:** Climate change is already well understood by investors as a systemic risk to the global economy, undermining the ability of the financial system to deliver long-term returns. There is also growing realisation among investors that they need to be concerned about the systemic risks posed by inequality as well. In a European context, the UK is “the continent’s most geographically unbalanced economy”, according to the IPPR Commission on Economic Justice; median incomes in most regions are more than 30% lower than in the South East (IPPR, 2018a). The just transition sits at the intersection of these environmental and social risks to the stability and functioning of the financial system. One systemic concern is that failing to take account of the social dimension will generate pressures to delay, dilute or abandon climate policy.
2. **Reinvigorating fiduciary duty:** The investments overseen by asset owners and asset managers represent beneficiaries, workers and communities, for whom the transition will have powerful effects. The just transition extends the core fiduciary case for action on climate change to include the social dimension. Fiduciaries will need to understand and consider the interests and sustainability preferences of savers and beneficiaries as they relate to both the environmental and social dimensions of the transition. Here, the UK has taken important steps to clarify the significance of ESG factors in fiduciary duty and incorporate ESG into investment regulation, not least in the Government’s response to the Law Commission’s recommendations on social investment (HM Government, 2018b). Beneficiaries in specific corporate, sector- or geographically-based funds may have additional reasons for seeking a just transition. For example, beneficiaries may need assurance that they will not be in ‘stranded pensions’, where solvency is put in question by reliance on high-carbon business models and asset allocation.
3. **Recognising material value drivers:** The just transition extends the materiality assessment of climate change to include the social dimension. For investors, it will be essential that the assets they hold operate effective systems for human capital management and community relations at a time of transformational change in technologies, business

models and market demand. To date, this has been absent from most corporate and investor approaches to climate change, including the reporting recommendations from the Task Force on Climate-related Financial Disclosures (TCFD, 2017). Investors need to understand how companies are implementing the just transition in the workplace to drive productivity. Poor management of the transition could damage innovative capacity and employee engagement as well as reducing resilience in crisis situations. The way that companies manage the transition could also have important impacts on their social licence to operate in the wider community. Weak community relations could prompt operational, consumer, client and regulatory repercussions. Conversely, companies that manage this well could benefit from better reputations as well as reduced transaction costs.

4. **Uncovering investment opportunities:** The just transition provides a lens through which investors can identify new investment opportunities across all asset classes: listed equity and fixed income, private equity, real estate and infrastructure as well as cash. The just transition is a particularly powerful approach for investors seeking to generate positive environmental and social impacts, in both conventional asset classes and more innovative approaches such as community share and bond offers, along with digital finance mechanisms for crowdfunding investments. Examples of how the just transition can be applied to specific investments in our case study region of Yorkshire and the Humber are presented in Section 4.
5. **Contributing to societal goals:** Investors clearly need to manage the just transition as it relates to their own beneficiaries and portfolios. But they are also social actors and the just transition provides a way for investors to contribute to the delivery of the Paris Agreement, the Sustainable Development Goals (SDGs), and international human rights and labour standards. At the core of the just transition is the intersection of often separate agendas, the environmental, the social and the economic. As a result, it provides connective tissue that brings together different aspects of the SDGs, whose central premise is to ensure that 'no one is left behind'. These connections are closest between the goals on climate change (SDG 13) and decent work (SDG 8). Figure 2.4 (next page) illustrates in a simplified way how a successful just transition in fact involves all of the SDGs. As more and more asset owners and managers commit to implementing the Goals, this will drive demand for products that deliver just-transition outcomes.

Figure 2.4. The just transition and the Sustainable Development Goals



Source: Adapted from Robins et al. (2018b)

## The just transition: questions and dilemmas

These motivations present a compelling case for investors to incorporate the just transition into their strategies and actions. But the just transition also raises a number of questions and dilemmas for all stakeholders, including investors:

- **Added complexity?** Layering social requirements onto the climate agenda could add complexity for investors who are just coming to terms with the need to take action.
- **A force for delay?** The just transition could delay climate action through either the deliberate efforts of vested interests or the unintended consequences of well-meant action.
- **Over-emphasising downside risk?** Many of the changes underway in carbon-exposed sectors (such as energy and transport) are the result of non-climate forces and there could be a risk of over-emphasising the climate driver of disruption.
- **The political economy of dialogue and distributional effects?** The just transition points to the importance of dialogue and touches on the need to address the distributional implications of climate action. But decision-making structures to deliver these may not be in place.
- **Making trade-offs?** The just transition also raises a range of potential trade-offs, for example between urgency and equity, or how costs and benefits are shared between stakeholders (Newell and Mulvaney, 2013).

The existence of these challenges and dilemmas does not invalidate the need to pursue the just transition. The fact that the just transition is often a tough issue makes it even more important for investors and others to take initial steps, gain confidence and develop new capacities. One starting point is to get a sense of the scale of the challenge, which is the focus of the next section.

## 3. The size of the challenge in the UK

---

### The global imperative

The first goal of the Paris Agreement is to hold global warming to well below 2°C above pre-industrial levels but to strive for a maximum 1.5°C rise. Current policies leave a sizeable 'ambition gap', with existing commitments pointing to warming of about 3°C by 2100 (UNEP, 2018).

The recent special report on *Global Warming of 1.5°C* from the Intergovernmental Panel on Climate Change (IPCC) makes clear that avoiding the worst impacts of climate change means limiting warming to 1.5°C. This means aligning financial flows with a world where carbon dioxide emissions have been cut by 45% from 2010 levels by 2030 (IPCC, 2018). Further out, it means designing financing pathways that enable the share of renewables in generating primary energy to increase by between 833% and 1,137% relative to 2010 levels by mid-century and, in parallel, to cut coal as a share by 73% to 97% (ibid.). The IPCC says that achieving this will require "transformative systemic change", and it also makes clear that "social justice and equity are core aspects of climate-resilient development pathways" (ibid.). It is here that the just transition becomes critical.

In the UK, the Committee on Climate Change is currently consulting on when the UK should reach net-zero emissions as part of meeting the Paris Agreement. This could well involve deeper and earlier cuts to emissions than previously agreed, which could have strategic implications for the UK's economy, financial system and society.

### Estimating the employment implications of the transition in the UK

For investors and other decision-makers, it is important to understand the materiality of the just transition challenge facing the UK. To get a first sense of the scale of the challenge, we have modelled exposure of current patterns of employment to the transition in the UK. This is the first of the four human dimensions of the just transition identified in Section 2.

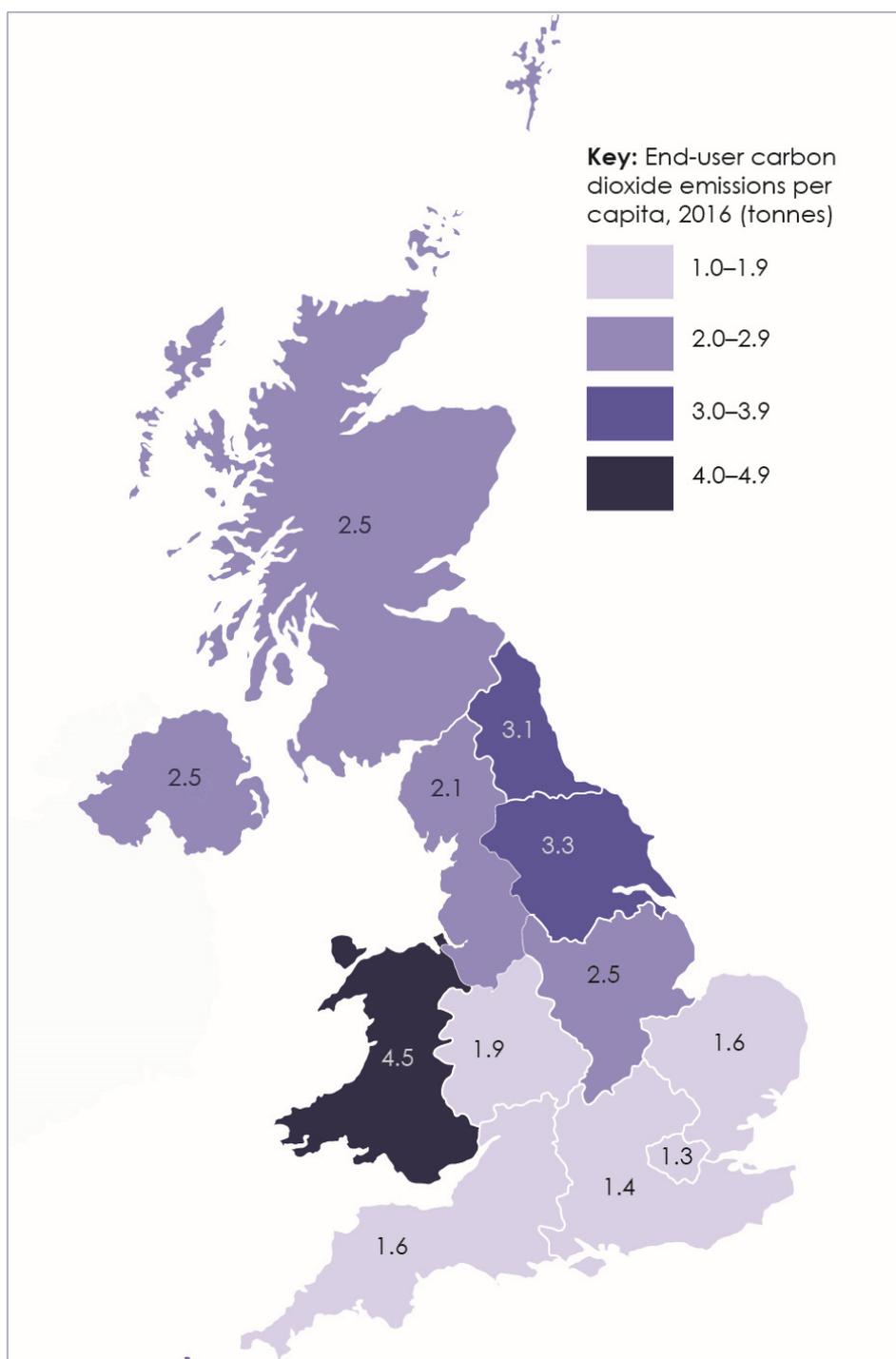
To date, much of the discussion on the workplace implications of the transition has focused on the twin issues of the potential growth in 'green jobs' and the risks facing employment in high-carbon sectors. The Office for National Statistics (ONS), for example, estimates that jobs in the low-carbon and renewable energy economy were around 208,000 full-time equivalent in 2016, or about 1% of the total UK workforce (ONS, 2018). The Government has projected that low-carbon growth could support up to two million of what it describes as 'green collar' jobs in the low-carbon economy by 2030 (BEIS, 2018b). Turning to the downside risks, recent analysis by the Institute for Public Policy Research shows that approximately 28,000 jobs in the coal, oil and gas industries could be lost in the north of England by 2030 (IPPR, 2018b).

Many of the social dimensions of the future zero-carbon economy are uncertain. Supply-side solutions in the industrial and energy sectors include the replacement of established technologies (for example, centralised fossil fuels with decentralised renewables), alongside possible fuel switches (such as from natural gas to hydrogen) as well as end-of-pipe solutions for industrial clusters (such as carbon capture, utilisation and storage [CCUS]). In addition, demand-side measures will need to play an ever-greater role, notably in terms of housing, transport and food, implying changes in the use of key products and materials. Each of these shifts will have differing social implications for workers, communities, consumers and citizens.

One way of analysing the scale of the challenge is to look at where carbon-intensive industry is located. The point sources of emissions identify locations where economic activity will have to change.

Figure 3.1 shows the carbon intensity per capita of industrial and commercial emissions of the regions of the United Kingdom in 2016. The annual UK industrial and commercial average is 2.2 tonnes of carbon dioxide per person; inhabitants of London have the lowest carbon intensity at 1.3 tonnes, and Wales the highest at 4.5 tonnes.

**Figure 3.1. Regional per capita industrial and commercial emissions across the UK, 2016**



*Note: Emissions are on an end-user basis, i.e. distributed according to the point of energy consumption or point of emission if not energy-related. Source: Authors using data from BEIS (2018d)*

Undertaking a comprehensive 'transition exposure analysis' involves a more granular approach, asking questions such as: where are jobs that will transfer easily in the transition currently located? Where are those that will require reskilling? Equally, where are jobs in activities that will not be affected by the transition at all located?

This approach involves separating current jobs into groups:

- First, discerning those jobs today that will change in the transition and those that will not. This enables us to draw together a picture of how great the shift will be overall.
- Second, within the jobs that will change, distinguishing between those that will require new skills and those that will not.

As more parts of the economy decarbonise, the number of jobs involved in the transition will increase. For example, we know that transport will need to decarbonise. Truck drivers, therefore, are likely to see their jobs change as new technology develops that they will need to operate, requiring new skills. Their colleagues in logistics management will also see their jobs change, but they will more likely be employing similar skills. By contrast, salespeople in a logistics company are less likely to see either the nature of their job or the skills required change as a result of climate factors.

While some sectors will see a high proportion of jobs changing and requiring new skills, others may remain broadly unchanged. Those employed in healthcare, for example, are unlikely to have classifiable 'green jobs', even in a successfully transitioned economy.

## Methodology

Researchers Alex Bowen, Karlygash Kuralbayeva and Eileen Tipoe have developed a way to estimate the proportion of employees in each sector that will be affected by the greening of employment, based on the knowledge that is currently available on how sectors will change (Bowen et al., 2018). Their original research examined implications for the United States, based on data from the National Centre for O\*Net Development (NCOD, 2018).<sup>5</sup> We have applied this approach to data on current employment in the UK (ONS et al., 2017; ONS, 2019).

We have applied this methodology to generate a first sense of the order of magnitude in the context of inherent difficulties around evaluating the social consequences of the transition to a green economy. The initial results indicate that one-fifth of current jobs (21%) across the United Kingdom, equivalent to more than 6 million people, involve skills that could either experience demand growth or demand reduction in the transition. The upside and downside levels of exposure are roughly equal, so that 10% of the workforce could derive benefits and new opportunities from the transition (what we call 'transition aligned') and a further 10% are more likely to need reskilling, upskilling or to use skills different to those they currently use in their employment (what we call 'transition reskill'). Importantly, this does not mean that these jobs will be lost, rather that these are jobs where attention will be needed for reskilling and redeployment. These results are clearly material for the UK economy and point to the need for a comprehensive policy and market response.

## Results: sectoral impacts

The sectoral impacts are highly varied. The tables below show the sectoral breakdown of jobs in some of the categories under our analysis. Manufacturing, construction and transport have a high proportion of jobs affected by the transition relative to retail,

---

<sup>5</sup> O\*NET's work involved identifying the list of jobs titles referenced in literature on the green economy. The sectors commonly used to categorise these jobs were: renewable energy generation, transportation, energy efficiency, green construction, energy trading, carbon capture, research, design and evaluation services, environment protection, agriculture and forestry, manufacturing, recycling and waste reduction, and governmental and regulatory administration.

information, finance and healthcare, as would be expected. At 30%, construction includes the highest proportion of jobs that could require reskilling, compared with 26% in transport and storage, and 17% in manufacturing. The seven sectors in Table 3.1 account for 49% of the 6.3 million jobs affected.

**Table 3.1. Estimated sectoral breakdown of transition exposure of employment**

Jobs	Manufacturing	Construction	Transport and storage	Retail trade	Information	Finance	Healthcare
Transition 'reskill'	17%	30%	26%	5%	8%	9%	2%
Transition aligned	33%	30%	20%	4%	9%	7%	1%
Transition total	50%	60%	46%	9%	17%	15%	3%
Non-exposed	50%	40%	54%	91%	83%	85%	97%

Source: Bowen et al. 2018

This analysis also enables us to identify where certain impacts are most likely to be felt. As Table 3.2 shows, the regional distribution of transition exposure for current employment could range from 19% in London to 23% in the East Midlands.

**Table 3.2. Estimated regional breakdown of transition exposure for employment**

Region	Transition 'reskill'	Transition aligned	% of transition jobs	Total jobs
North East	10.0%	10.5%	20.5%	1,059,975
North West	10.7%	10.8%	21.5%	3,277,080
Yorkshire and the Humber	10.9%	11.3%	22.2%	2,367,010
East Midlands	11.2%	11.9%	23.1%	2,071,855
West Midlands	11.1%	11.4%	22.5%	2,561,240
East of England	10.9%	10.7%	21.6%	2,735,385
London	10.1%	8.9%	19.0%	5,135,750
South East	10.4%	10.0%	20.4%	4,080,100
South West	10.0%	10.1%	20.1%	2,409,955
Wales	9.6%	10.3%	19.9%	1,230,460
Scotland	10.4%	10.1%	20.5%	2,440,150
Northern Ireland	9.4%	10.3%	19.8%	669,692*
<b>Total jobs</b>	<b>3,151,058</b>	<b>3,113,078</b>	<b>6,264,136</b>	<b>30,038,652</b>

\*Note: Northern Ireland data based on 2013 data (NISRA, 2014). England, Wales and Scotland data based on 2011 data (ONS et al., 2017).

Source: Authors' analysis using ONS et al. (2017), NISRA (2014) and Bowen et al. (2018)

## Exploring the implications for the just transition

These initial estimates have signalled that the employment implications of the transition are potentially significant. To provide some context, the proportion of jobs affected are likely to be far less than for those exposed to digitisation (Arntz et al., 2016; Frey and Osborne, 2017; Acemoglu and Restrepo, 2017).

These first results raise a number of questions for further inquiry. The pace of the transition will affect its timing and when policy and market action will be needed. Different technology pathways will affect skills needs and jobs across the economy. It will be important to identify the types of businesses in which these jobs are found. Small and medium sized enterprises with fewer than 250 employees account for 60% of total private sector employment; owners of these businesses and their employees could face particular vulnerabilities (House of Commons Library, 2018). Clearly, these changes will also have differentiated impacts in terms of age, gender and ethnic dimensions. Important choices will need to be made on how reskilling goes ahead and how these costs are split between individuals, business and public authorities.

This analysis only looks at the direct impacts of the transition on employment and there will also be important spillover effects for the wider health of regional economies as well as implications for labour mobility. This brings in the community dimension of the just transition. Furthermore, as well as understanding the quantity of jobs impacted, it will also be important to understand the quality of these jobs and whether they deliver decent work and conditions, and help drive productivity.

We intend to explore these and other questions as we deepen the regional analytics in the rest of the project. These are also changes that can be profoundly shaped by policy, markets and social action, the theme of the next section.

## 4. The UK's policy and market context

### Building a collaborative framework for action

A successful just transition will need the active participation of key actors across the worlds of policy, the economy and society as a whole. This means being clear about the different roles and areas of responsibility. Table 4.1 summarises some of the roles that different actors will need to play, including national and sub-national government, business and trade unions, civil society and also investors themselves. Robust policy frameworks are important to provide the right incentives for investors to be able to play their role as stewards of assets and capital allocators.

**Table 4.1. Delivering the just transition: roles of key actors**

<p><b>Business</b></p> <ul style="list-style-type: none"> <li>- Incorporate workplace and community dimensions into climate strategies</li> <li>- Consult broadly and ensure social dialogue with workers</li> <li>- Produce concrete, time-bound plans at the enterprise and sector level.</li> <li>- Advise on policies such as re-training/reskilling, redeployment and new job creation</li> <li>- Monitor and disclose implementation of these plans, including in TCFD reporting</li> </ul> <p><i>[See JTC and B-Team, 2018; ICC, 2018]</i></p>	<p><b>National government</b></p> <ul style="list-style-type: none"> <li>- Apply the ILO's just transition guidelines across the policy spectrum (e.g. Industrial Strategy, Clean Growth Strategy, green finance)</li> <li>- Include the social dimension in the design of fiscal, incentive and regulatory policies for climate change (e.g. carbon taxes)</li> <li>- Support the just transition with adequate fiscal support (e.g. for skills, regional revitalisation)</li> <li>- Establish the necessary public finance institutions to scale up capital (e.g. Infrastructure Bank)</li> <li>- Ensure conditions for effective dialogue and partnerships across the country</li> </ul>	<p><b>Trade unions</b></p> <ul style="list-style-type: none"> <li>- Negotiate at workplace level for the just transition (e.g. pay, training and job security)</li> <li>- Promote just transition and social dialogue in economic and industrial policy</li> <li>- Promote and help deliver national training strategies for the transition</li> <li>- Ensure workers are represented in the design of transition policies</li> <li>- Promote adequate social protection systems for the transition</li> <li>- Prepare and mobilise trade unions through training reps</li> </ul> <p><i>[See ETUC, 2018]</i></p>
<p><b>Investors</b></p> <ul style="list-style-type: none"> <li>- Include just transition in ESG and climate strategies</li> <li>- Assess portfolio exposure to the just transition</li> <li>- Engage with companies to promote the just transition</li> <li>- Incorporate across all asset classes</li> <li>- Make the just transition part of policy advocacy</li> <li>- Learn lessons and disclose results, including through TCFD reporting</li> </ul> <p><i>[See Robins et al., 2018b]</i></p>	<p><b>Devolved and local government</b></p> <ul style="list-style-type: none"> <li>- Apply the ILO's just transition guidelines across the policy spectrum (e.g. Scotland's Just Transition Commission)</li> <li>- Incorporate into local economic plans and industrial strategies</li> <li>- Catalyse place-based dialogue and action (e.g. city climate commissions)</li> <li>- Promote new funding mechanisms, institutions and partnerships (e.g. regional funds)</li> </ul>	<p><b>Civil society</b></p> <ul style="list-style-type: none"> <li>- Highlight the importance of the just transition for climate action and sustainability</li> <li>- Mobilise citizens and other stakeholders to press for enabling policies</li> <li>- Undertake independent analysis and research (e.g. through universities)</li> <li>- Promote place- and people-led action (e.g. on energy)</li> <li>- Hold business, government and finance to account</li> </ul> <p><i>[See NEF, 2018]</i></p>

The rest of this section explores the landscape of action around the just transition in the UK with a focus on the finance and investment dimension at the national and sub-national levels, in the world of work, in civil society and, specifically, in our case study region of Yorkshire and the Humber.

### **The zero-carbon transition: an opportunity to raise living standards across all regions**

To be successful, the UK's transition to a zero-carbon and resilient economy will need to be:

- *Effective* – hitting the targets on time
- *Efficient* – achieved at reasonable cost
- *Equitable* – not leaving citizens and communities behind

The transition presents strategic “opportunities to embrace change and raise living standards across regions and communities”, according to a recent special report on sustainable growth in the UK for the LSE Growth Commission (Rydge et al., 2018). The authors point out that this change should not be a burden for the regions, but that if managed well, it will provide an opportunity for investment “that could drive productivity and growth across all UK regions and communities by enhancing competitiveness in global markets” (ibid.). The report recommends targeted employment transition policies in areas at high risk of disruption from the forces of change to improve the resilience of local communities.

The UK has a long-standing framework for tackling climate change, notably through the 2008 Climate Change Act. Since 1990, greenhouse gas emissions in the UK have fallen by more than 40%, the best performance on a per-person basis of any G7 nation. In 2017, the Government introduced its new Industrial Strategy, which includes clean growth as one of the country's ‘grand challenges’. This turns climate change from a problem to be managed to a driver of productivity, innovation and high-paid jobs. Currently there is no explicit focus on the just transition in the Industrial Strategy. The framework does, however, include ‘people’ and ‘place’ as two of its five ‘foundations of productivity’. The place dimension is being followed through with the introduction of local industrial strategies, and a new National Retraining Scheme with the CBI and TUC is one mechanism to strengthen the skills base.

The 30-year National Infrastructure Assessment published by the National Infrastructure Commission (NIC) in July 2018 provides another useful starting point for just transition policymaking (NIC, 2018).

The importance of place-based dynamics has already prompted the Government to announce plans to establish the world's first net-zero-carbon industrial cluster by 2040 and at least one low-carbon cluster by 2030. Globally, there is a growing focus on hard-to-decarbonise industrial sectors, including steel, cement and hydrocarbon-based basic materials such as ethylene and ammonia (McKinsey, 2018; Energy Transition Commission, 2018). Different technological pathways will have different spatial and socioeconomic impacts, which need to be examined in more depth. The development of local industrial strategies also provides a mechanism for connecting climate change with bottom-up ambitions to generate inclusive growth. These will be complemented by the roll-out of Local Energy Hubs, funded by the Department for Business, Energy & Industrial Strategy.

The importance of social dialogue to ensure that workers and communities affected by the transition are involved in shaping response strategies is an area warranting further attention. As the recent report for the LSE Growth Commission observes, “a stronger voice for workers could also help ensure the productivity benefits from new technologies and business models are shared more equally between workers (as wages) and owners of capital (as

profits)", adding that "this role could be crucial as the pace of change accelerates" (Rydge et al., 2018).

## **Mobilising finance for the transition in the UK**

Finance lies at the heart of delivering the just transition. The UK has important finance-related initiatives underway that could support a just transition. In March 2018, the Green Finance Taskforce presented a comprehensive set of recommendations for aligning the UK's financial system with climate action. This included a focus on fostering inclusive prosperity at the local level, for example through Clean Growth Regeneration Zones (Green Finance Taskforce, 2018). The Green Finance Initiative, led by the City of London Corporation, will now become a more permanent Green Finance Institute. The Government will publish the UK's first Green Finance Strategy in Spring 2019.

Alongside this focus on green finance, the Government has commissioned a taskforce on social impact investing to unlock the capital help to "make sure the country works for everyone" (HM Government, 2018a). Taking a 'just transition view' would enable the UK to realise the obvious synergies between green finance and social impact investing.

Public financial institutions also play a critical role in closing financing gaps, creating new markets, reducing risk and crowding in private capital. This 'blended finance' is likely to be critical for the just transition. One such institution is the government-owned British Business Bank (BBB), founded in November 2014, the remit of which is to promote lending to small and medium-sized enterprises through private sector delivery partners. It currently supports £5.5bn of finance through a range of funds, including the UK Innovation Investment Fund, British Patient Capital and the Enterprise Capital Fund. These have invested £48m across 35 cleantech companies in 43 deals, with cleantech accounting for 6% of the number of deals in and value of the BBB's UK portfolio. In October 2018, the Government announced the launch of the Clean Growth Fund, allocating £20m alongside at least £20m from private investors in a new venture capital fund (BEIS, 2018a).

The UK's Green Investment Bank (GIB) was privatised in 2017 and has been rebranded as the Green Investment Group (GIG), part of Macquarie. Concerns have been raised by the Environmental Audit Committee (EAC) and others about the impact of the GIB's sale for investment in the UK transition, particularly in areas where private finance is not flowing at scale (EAC, 2018; Cumbo, 2019). In October 2018, the GIG reported that it had invested £1.6 billion in its first year in 10 projects split between the UK and international markets (GIG, 2018).

Following the referendum decision to leave the European Union, questions remain over continued access to the patient capital provided by the European Investment Bank (EIB) for both SMEs and infrastructure, including from the European Investment Fund. Between 2012 and 2016, the UK was one of the major destinations of funding from the EIB, with €31.3bn of lending. Importantly, the EIB has recently stated that one of its priorities will be to support a just transition across Europe's regions. The National Infrastructure Commission has argued that access should be maintained to the EIB if possible. If access is lost, the NIC has recommended that a new, independent UK infrastructure finance institution should be established by 2021. The special report on sustainable growth for the LSE Growth Commission also recommended a new National Infrastructure Bank with an explicit sustainability mandate, to help 'crowd in' private capital (Rydge et al., 2018).

## Beyond Whitehall: sub-national drivers

Much of the dynamism behind a just transition in the UK currently lies beyond Whitehall. This is clearest in Scotland where a multi-stakeholder partnership of trade unions and civil society groups successfully created a positive agenda around the need for an ambitious strategy for a just transition (Friends of the Earth Scotland et al., 2017). This led to the decision by the Scottish Government in 2018 to set up a Just Transition Commission, detailed in Box 4.1.

Trade unions across the country have been highlighting the importance of the just transition for well over a decade (e.g. TUC, 2007; 2012; 2014). The 'One Million Climate Jobs' campaign was launched in 2014, with the support of eight UK unions. In addition, the Greener Jobs Alliance, a partnership of the TUC, University and College Union, Greenpeace and other organisations, was set up to campaign around the issue of the jobs and skills needed for the transition. The TUC has argued for the establishment of a just transition strategy for those workers affected by the industrial changes necessary to develop a more environmentally sustainable future (TUC, 2017), with a recent focus on the need for the voice of energy and industrial workers to be central to the development of policies on energy, industrial strategy and climate change (TUC, 2018). For the energy sector in particular, four unions have come together to set out their vision of a just transition (Box 4.2).

The number of bottom-up, place-led efforts to finance the transition is also growing. The UK has a relatively centralised financial system compared with other European countries; this profoundly influences the linkages between finance and the needs of cities and regions. The physical location of financing activities also affects regions' access to finance: financial liberalisation has improved levels of financial flows but reduced the importance of local and regional governance layers in influencing them (Klagge et al., 2017; Corpataux et al., 2017).

### Box 4.1. Scotland's Just Transition Commission

The Commission will provide advice to the Scottish Government on how to apply the ILO's just transition guidelines in Scotland and will report back within two years of its first official meeting (Scottish Government, 2018). The Commission will focus on how to plan, invest and implement a transition to environmentally and socially sustainable jobs, sectors and economies; create opportunities to develop resource-efficient and sustainable economic approaches that help address inequality and poverty; and design and deliver low-carbon investment and infrastructure, and make all possible efforts to create decent, fair and high value work, in a way that does not negatively affect the current workforce and overall economy. The new Scottish National Investment Bank is likely to be a key vehicle for providing vital patient capital for a just transition (Scottish Government, 2017).

In January 2019, the Scottish Parliament agreed that this new Commission should be independent from government and given a statutory footing (Holyrood, 2019).

### Box 4.2. Demanding a just transition for energy workers

In December 2018, GMB, Prospect, Unison and Unite, the four main unions representing over 200,000 members across the energy and energy-intensive industries, identified four key features of a just transition:

"a balanced low-carbon energy mix, investment in skills and infrastructure, protecting and creating high-quality jobs and employment, [and] no community left behind" (GMB, 2018).

Making this happen will involve a number of steps, including training and skills development, voluntary relocation, new jobs with comparable terms, secure and affordable energy, influence and voice in policymaking, and taking a long-term and sustainable view.

At the regional level, research indicates that economic success is linked to having effective institutions for guiding systemic innovation and attracting capital (Crescenzi and Iammarino 2018; Rodríguez-Pose and Di Cataldo, 2015). An alliance of local authorities, UK100, is working on transformational ways to connect place-based action to both public funds and private finance (UK100, 2017).

One city that has taken an innovative approach to the funding gap for sustainable infrastructure is Bristol – see Box 4.3.

#### **Box 4.3. Bristol's City Leap Prospectus**

In May 2018, Bristol City Council launched the City Leap Prospectus, which outlines a series of energy and infrastructure investment opportunities that would provide social, environmental and economic benefits to the city (Bristol City Council, 2018a). The Council, given its restricted potential to finance projects with public money, used the prospectus to invite potential partners to express interest. In September 2018, the Council announced that it had received 180 expressions of interest (ibid., 2018b). The pipeline of potential projects includes at least £875m in heat networks, smart energy, energy efficiency and other areas.

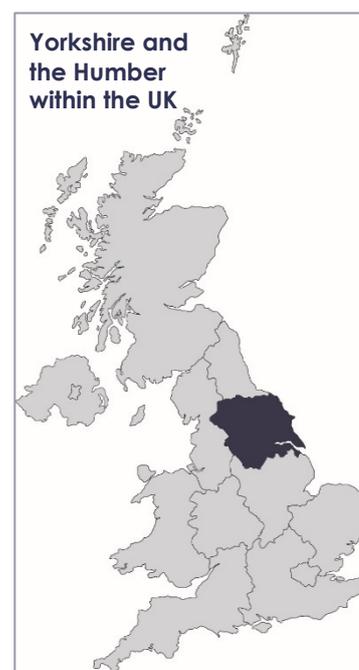
## **REGIONAL CASE STUDY – BASELINE OVERVIEW**

### **Yorkshire and the Humber: high-carbon legacy, low-carbon future**

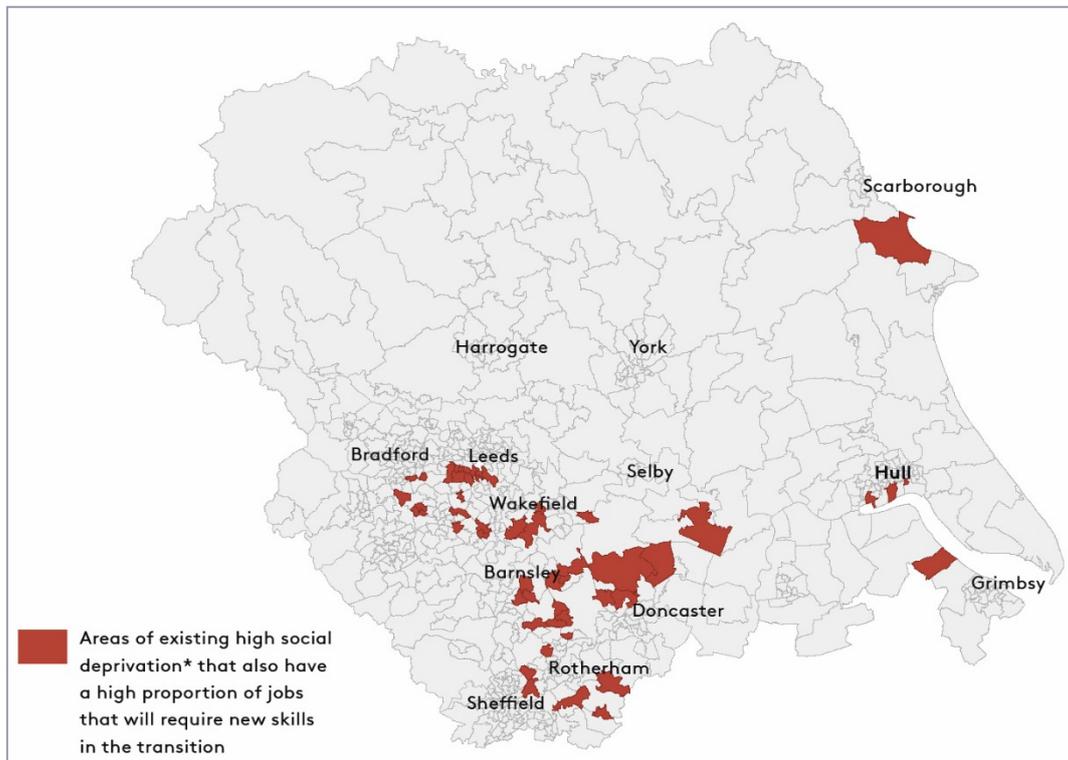
The northern region of Yorkshire and the Humber provides a focus to better understand how investors can support place-based action for a just transition. With a population of 5.3 million, the region accounts for 6.4% of UK GDP and 10% of carbon emissions (BEIS, 2018d; OECD, 2019). Once at the heart of the Industrial Revolution, in recent decades the region has experienced immense change, with the decline of the coal, iron and steel industries gathering pace from the 1980s. In some areas, this has brought poverty, lack of opportunity and a sense of communities being left behind. Naturally, there is a strong desire to ensure that any future transitions do not leave a similar legacy.

#### **Quantifying the implications of the transition for jobs in the region**

Our analysis indicates that 22.2% of jobs in Yorkshire and the Humber have skills that will experience either an increase or a reduction in demand in the transition. But there is reason for optimism: at 11.3%, the proportion of workers who have skills that match with future jobs in the transition is higher than the national average. This amounts to 267,000 jobs overall, more than the 258,000 workers whose skills could face falling demand in the transition. Importantly, 48,000 of these are in areas already suffering from multiple levels of deprivation, notably in those parts of North East Lincolnshire, Hull and Leeds that are among the 10% of places in the UK facing the highest levels of deprivation. Bradford is another hotspot. These areas, illustrated in Figure 4.1, potentially face a need for reskilling. Making the most of the upside employment opportunities associated with the transition is obviously important, but putting in place measures to address the downside risks is crucial too.



**Figure 4.1. Areas of Yorkshire and the Humber with high levels of deprivation and a high proportion of jobs with potential reskilling needs**



*Note: \*These areas are in the top decile of social deprivation in England, according to the latest Index of Multiple Deprivation (2015). Source: Authors' calculations*

### **Evaluating carbon exposure in the region**

According to the TUC, the Yorkshire and Humber region probably has the highest concentration of the UK's foundation industries and coal and gas power stations in the UK, including major power plants like Drax, as well as steel, cement and chemical works. Up to 28,000 people work in 26 major plants, and three or four times as many in their supply chains (TUC, 2015). It is critically important to find ways to ensure that the people in those jobs – and the sectors they work in and the communities they live in – benefit from the transition.

Based on its findings, the regional TUC set up a Low-Carbon Task Force to develop a just transition strategy for the region. One aspect of this could be transformational technological solutions, potentially including fuel-switching to hydrogen and the deployment of industrial carbon capture and storage.

### **Seeking opportunities in the transition**

Across the region, there are also a number of initiatives underway to seize the opportunities from growth in zero-carbon development. GreenPort in Hull has become a hub for the booming offshore wind industry, attracting Siemens to establish a wind-blade factory. The Leeds Climate Commission has also been established to help the city realise the substantial potential for climate action that delivers job creation and inclusive development (Can-do Cities, 2017). Financial innovation exists in the region too, not least from Ecology Building Society, an early pioneer in green mortgages.

### **Preparing the ground for financing the transition in Leeds**

A strong evidence base shows that Leeds could save £277m a year and create 4,200 years of extra employment through cost-effective investments in low-carbon development through investments that would also deliver crucial cuts in energy use and carbon emissions.

But we know that highlighting the opportunities does not mean they will actually secure investment and then be exploited. To address this, Leeds Climate Commission is working to enable investment in low-carbon and, in time, also climate-resilient development in the city.

Currently, the Commission's main focus is on a project development and financing initiative, which will work with organisations from across the city to enable the development of a pipeline of investable low-carbon projects. The programme will enable peer-to-peer learning to support evaluations of project proposals, the preparation of business cases, reviews of business models and financing options, and the development of links to investors. Links to national and regional schemes will then provide technical assistance to take projects through to financing and delivery.

More broadly, the Leeds Climate Commission will be working to ensure that Leeds is recognised as a city that is ready to participate in larger programmes and that has a pipeline of projects ready for investment and an organised, engaged community ready to act.

## 5. The agenda for investor action

### Growing commitment from UK investors to take action on the just transition

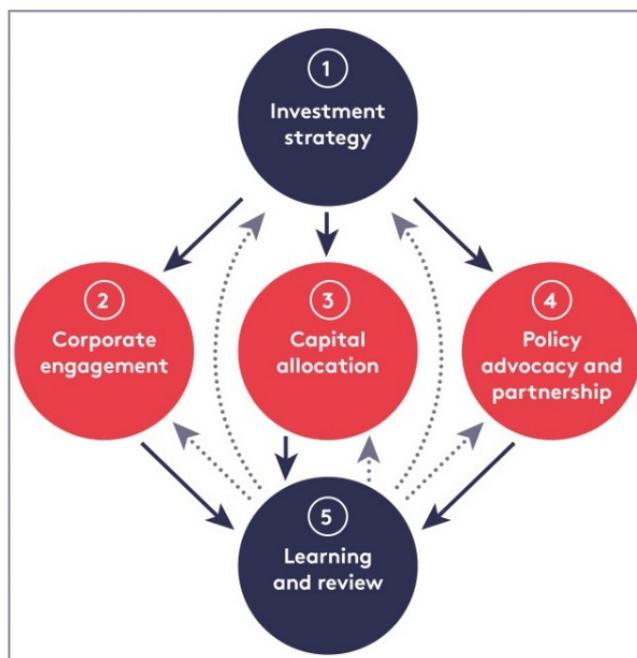
A growing number of UK investors recognise the need to take action on the just transition at home and abroad. More than 20 UK-based institutions with nearly US\$2 trillion in assets under management have signed the international investor statement<sup>6</sup> on the just transition from across the investment landscape. These include pension funds such as Brunel, Environment Agency and RPMI Railpen, as well as the Local Authority Pension Fund Forum. Major fund managers and sustainability specialists have also signed, including Aberdeen Standard, Aviva, CCLA, EdenTree, Epworth, Hermes Real Estate, HSBC, MAN Group, Octopus, Rathbone Greenbank and Tribe Capital.

The just transition is also proving attractive for mission-driven institutions, notably faith-based investors (for example, the Church Investors Group) and charities (including Barrow Cadbury, Friends Provident and Polden-Puckham).

Finally, the UK's development finance institution, CDC, has also signed the statement and is bringing together the environmental and social dimensions of the transition in new work to expand employment opportunities for women in India's growing renewable energy sector.

The task ahead now is to translate this commitment into action. The international investor guide identified five areas for action to make the just transition part of core practices (Robins et al., 2018b), set out in Figure 5.1. Implementing these actions is not intended to be a simplistic linear process. Some investors may want to start with a review of strategy; others may wish to begin with corporate engagement or targeted investments. The important point is to bring the just transition into daily practice.

**Figure 5.1. Five key areas for investor action on the just transition**



Source: Robins et al., 2018b

<sup>6</sup> See <https://www.tfaforms.com/4694571>

The rest of this section examines each action area in turn, giving examples from the UK and internationally on practical steps that can be taken.

## 1. Incorporating the just transition into investment strategy

Investors need to determine how the just transition impacts their existing policies for responsible investment and climate change. This can be done through three iterative steps: portfolio assessment, stakeholder dialogue and strategic integration.

### Portfolio assessment

Investors are using a range of tools to evaluate the alignment of their portfolios with the goals of the Paris Agreement. The Transition Pathway Initiative has developed one such tool, and had at the time of publication benchmarked 238 global companies in 12 sectors in terms of their management quality and alignment with the 2°C target.<sup>7</sup> For the just transition, investors could carry out an initial screen of their portfolios to identify the broad social performance of both high- and low-carbon companies. Investors can use existing frameworks to do this, such as reporting under the Workforce Disclosure Initiative and the Corporate Human Rights Benchmark. ESG analytics firm Vigeo-EIRIS has also conducted an assessment of fossil-fuel intensive firms in terms of their competence in 'responsible restructuring' (see Robins et al., 2018b, p17 for an overview of its results). These initial assessments can help investors understand the materiality of the just transition and inform further actions.

### Dialogue with stakeholders

Dialogue is a core part of the just transition and understanding the views of key investing stakeholders will be an important part of strategy formulation. In the case of pension funds, for example, stakeholders would include beneficiaries, trustees and investment staff, as well as consultants and fund managers. Investors may also wish to reach out either individually or as a group to a wider pool of stakeholders including policymakers, business, trade unions, civil society groups and universities. The Italian insurance firm Generali has made stakeholder dialogue a part of its overall climate strategy (see Robins et al., 2018b, p18).

### Strategic integration

Investor action on the just transition is consistent with both overall responsible investment policies – with their commitment to integrate ESG factors – and specific climate strategies, which are usually linked to the Paris Agreement (which, of course, includes the just transition). Integrating the just transition into investment strategy serves two purposes: first, it signals the importance of an issue in the broad list of priorities; and second, it provides the basis particularly for asset owners (such as pension funds and charities) to then require their asset managers to take action and report on implementation.

This process has been enabled for pension funds by the Government's decision to clarify that trustees have a fiduciary duty to consider long-term risk and opportunities, including environmental risks. The Government is proposing that trustees will be required to set out how they take account of financially material risks and opportunities including those arising from environmental, social, governance and climate change considerations (Environmental Audit Committee, 2018). Some investors have already included reference to the just transition in their climate policies, notably the Environment Agency Pension Fund, which updated its climate policy in 2017 to include the following commitment: "We recognise the need to integrate our climate goals with our wider programme of responsible investment, in particular the social impacts of transition, and we will look for investment

---

<sup>7</sup> The TPI is co-chaired by the Church of England and the Environment Agency Pension Fund, and the analysis is conducted by the Grantham Research Institute. See [www.lse.ac.uk/GranthamInstitute/tpi/](http://www.lse.ac.uk/GranthamInstitute/tpi/)

opportunities to support the Sustainable Development Goals and the Paris commitment for an orderly and just transition" (EAPF, 2017).

## 2. Making the just transition a part of corporate engagement

Engagement by investors is a powerful mechanism both for generating a better understanding of corporate performance on the just transition and for driving improved practices. Engagement is particularly relevant for shareholders of stock market listed firms, but can also be extended to owners of bonds, debt and unlisted assets. To get the process of dialogue underway, investors could include the just transition in regular discussions with companies using the framework developed by the Task Force on Climate-related Financial Disclosures (TCFD): a set of engagement questions on the strategy, governance and risk management dimensions of the just transition is included in the Investor Guide (Robins et al., 2018b). This can complement existing engagement strategies focused on the decarbonisation and resilience agendas.

In the UK, engagement priorities could include globally significant companies that are part of the Climate Action 100+ initiative as well as domestically important firms. Climate Action 100+ brings together over 300 investors with US\$32 trillion in assets under management to focus their combined efforts on 161 companies that account for well over two-thirds of corporate greenhouse gas emissions. This initiative employs a common approach focusing on companies establishing a strong governance framework, taking action to reduce greenhouse gases across the value chain and to provide enhanced corporate disclosure: the just transition is relevant to the delivery of each of these.

Major energy utilities operating in the UK, such as Centrica, EDF, E.ON, Iberdrola, RWE and SSE, are all included in Climate Action 100+. The focus of the initiative on the most carbon-exposed global corporations means that it does not necessarily include all the companies relevant for a just transition in the UK. Utility Drax is a case in point (see Box 5.1). Complementing this could be engagement focused on the social performance of the growing renewable sector to ensure high standards in the workplace and positive spillovers in the community.

Furthermore, UK banks will play a critical role in financing the transition supporting skills development and place-based

### Box 5.1. Responsible decarbonisation and the just transition at Drax power station

Drax, located in Selby, North Yorkshire, is part of a complex of coal power plants and the UK's largest single largest point source carbon dioxide emitter (BEIS, 2018e). A listed company that is part of the FTSE250 Index, it has taken a number of steps to decarbonise its portfolio, including converting four of its six boilers to biomass. Two of the area's coal plants, Eggborough and Ferrybridge (owned by EPH and SSE respectively) have recently closed down (Carbon Brief, 2018).

It plans to convert its remaining units to natural gas, introduce 200MW of battery storage, has publicly supported a strong carbon price, and has joined the international Powering Past Coal Alliance (Drax, 2018a, 2018b).

Drax has also expanded outside its original site, purchasing a £700m portfolio of Scottish Power's mostly gas assets in October 2018 (McCormick, 2018).

For investors, key questions from a just transition perspective could include:

- How can the process of decarbonisation at Drax best incorporate the long-term interests of workers and the local community?
- Could other investments mitigate the impact on community and place, for example through investment in real assets or employment-generating companies in the region?
- Could investors partner with regional development initiatives that could aid the regeneration of Selby in a manner consistent with the just transition?

entrepreneurship and linking this to a just transition across the regions of the UK. We will be commencing a new project on the UK banking sector and the just transition in 2019.

### 3. Capital allocation

Strategically, climate action involves the reallocation of capital from high- to zero-carbon assets and towards those that are resilient to growing physical impacts. The just transition dimension adds in the implications of this for workers and communities, as well as consumers and society as a whole. This needs to happen across all asset classes: public equities, fixed income, private equity, infrastructure, real estate and cash. Importantly, the just transition offers particular opportunities for impact investors seeking to generate positive social and environmental outcomes alongside financial returns. This may involve investors considering new mechanisms for allocating capital, including participation in community share schemes.

Below we present a selection of examples across listed equities, bonds, real estate and infrastructure to stimulate new thinking from investors.<sup>8</sup> From a place-based perspective in the UK, the just transition is perhaps most immediately relevant for small-cap equities, bonds, real estate, infrastructure and private equity, as well as dedicated impact strategies.

#### Listed equities

Active equity funds that focus on climate and environmental solutions are growing in popularity with individual and institutional investors. These funds could take on a just transition dimension by incorporating a review of workplace and community impacts in their analysis and selection process to promote the 'inclusive clean growth' theme. Alongside this active investment approach, just transition elements could also be included in the design of low-carbon and climate indices. In December 2018, the first equity index that links low-carbon opportunities with wider ESG factors was launched by the Quebec-based investment institution, the Fonds de solidarité FTQ; the Fonds is a member of the global Investing in a Just Transition initiative (see Box 5.2).

#### Box 5.2: Incorporating the just transition into listed equity indices

As part of its plan for a just energy transition, the Fonds de solidarité FTQ is the first investor to announce that it will integrate the MSCI World Low Carbon ESG Target Screened Index in the management of a C\$1.3 billion (£0.75 billion) portfolio by the end of May 2019. Established in 1983, the Fonds was created on the initiative of the FTQ, Quebec's largest trade union body and had net assets of C\$14.3 billion as at 31 May 2018. Its mission is to contribute to the province's economy by creating, maintaining or protecting jobs through investments in small and medium-sized businesses. The new index will be an important part of the Fonds' efforts to reduce the carbon footprint of its investments in public companies, while ensuring that the energy transition is just and equitable for all workers and communities.

Source: Fonds de Solidarité FTQ (2018)

#### Bonds

The quantity of green, social and sustainable bonds has grown substantially in recent years as a tool for investors to connect fixed income portfolios with both climate and wider sustainable development themes. In the UK, green bonds are still a relatively small share of issuance compared with other countries such as Sweden.

There are a number of ways not just to expand the volume of green bonds in the UK but also to tilt them towards the just transition perspective. The Green Finance Taskforce has

<sup>8</sup> In the next phase of the project, we will be focusing on the development of case studies that explore how investors can support the just transition, focusing in particular on examples in Yorkshire and the Humber.

recommended that the UK government issue a sovereign green bond. Importantly, a sovereign bond could ring-fence proceeds for activities that could support a just transition such as regional revitalisation initiatives. In many countries, the muni-bond segment has been an important part of the green bond market with strong potential for delivering the combined environmental and social benefits of a just transition (e.g. through energy-efficient low-income housing). This has yet to take off with UK local authorities, however.

Other innovative ways are being explored to mobilise capital for local authority projects, such as the partnership between Abundance and Swindon Borough Council to raise £5m through a 'solar bond' for a local renewable energy project (Abundance, 2017). The parallel social impact bond (SIB) market could also be tailored to the workplace and community needs of the just transition. In West Yorkshire, for example, Fusion Housing issued a £2.5m SIB in 2018 to help young people out of homelessness. We are working with Abundance and Bridges to explore the potential of these and other innovative mechanisms for the just transition (Bridges, 2018).

## **Infrastructure**

The UK has significant needs for new infrastructure to support action on climate change across key infrastructure sectors such as energy, digital communications, transport and housing, as well as waste, water and flood risk management. Investors are centrally involved in financing infrastructure across a range of asset classes. These include fixed income portfolios for sovereign, corporate and project bonds, where increasing allocations are being made to green bonds.

In addition, investors can allocate debt and equity to infrastructure assets. Aviva, for example, has committed to invest £2.5bn over the 2015–2020 period in lower carbon infrastructure. By the end of 2017, Aviva had committed £1.3bn to a number of solar, wind, biomass and energy efficiency projects and is measuring the carbon savings these generate. We are working with Aviva to examine this commitment through a just transition lens, focusing on Yorkshire and the Humber to better understand the implications for workers and communities in both the construction and operational phases, as well as the environmental benefits.

## **Real estate**

Powerful links exist between the just transition and the need to regenerate many of Britain's towns and cities. Property investors can play a significant role in supporting the shift to a resilient zero-carbon economy by complementing the integration of long-term environmental goals with a focus on strong workplace performance and clear community benefit.

For major developments, place is now becoming a critical factor for investors in real estate, to secure financial performance but also to generate positive impacts in the locality. Hermes Investment, for example, is focusing on three aspects of real-estate investment linked with the SDGs: first, meaningful place-making that fosters civic pride; second, working with occupiers and communities to drive desirable social and environmental outcomes for all stakeholders; and third, achieving a just transition to a low-carbon economy in order to help prevent climate change (Hermes, 2018). We are working with Hermes Investment and MEPC to analyse the 20-acre Wellington Place development in Leeds through a just transition lens, exploring how it can generate positive benefits over its lifespan in terms of decarbonisation, resilience, workplace practices and the community.<sup>9</sup>

---

<sup>9</sup> Alongside these and other case studies, we will be examining the potential for the introduction of dedicated just transition funds across the regions of the UK as a way of mobilising capital for place-based action.

#### **4. Policy advocacy and partnerships**

Investors have an influential role in policymaking, including in supporting the framework conditions for the just transition. At the global level, investors included promotion of the just transition in the 2018 statement to policymakers, backed by US\$32 trillion in AUM (Investor Agenda, 2018). In the UK, investors could work with policymakers at the local, regional and national levels to make the just transition a part of core climate and other policies. For example, the Powering Past Coal Alliance, launched in 2017 by Canada and the UK, provides a platform for investors to place coal phase-out in a wider just transition context. In our work in the Yorkshire and Humber region, we are exploring what partnerships could be developed at the regional level between investors and key local stakeholders.

#### **5. Learning and review**

As the just transition is a relatively new dimension of the climate change agenda for investors, it will be important to develop experimentation at scale – with investors, policymakers and industry sectors – and have effective monitoring, evaluation and sharing of outcomes. The Investing in a Just Transition initiative provides an open platform for investors to learn from emerging experience and share lessons of practice.

Key finance initiatives and investor associations such as the PRI and the GFI, as well as UK Sustainable Investment and Finance Forum (UKSIF), and specific groups such as the Local Authority Pension Fund Forum, the Church Investors Group and the Charities Responsible Investment Network, all have important roles to play in working with members so that the just transition gets woven into routine practices. As part of this process of learning and review, and their reporting to implement the TCFD's recommendations, investors need to consider how to disclose the results of their work on the just transition.

## 6. Conclusions and next steps

---

### The just transition: moving into the mainstream

In the UK, the just transition is starting to move into the policy and market mainstream. The recognition of the need to take action on a just transition is still relatively new for many key players, including investors. While the imperative to connect climate action with social inclusion is clear, the full implications have still to be worked through. Experience of what works (and what does not) needs to be built up. The just transition can also be a tough agenda. But this does not make it any less pivotal for governments, businesses, trade unions, civil society and investors in the UK.

This report has provided a first snapshot of the just transition landscape in the UK, particularly as it relates to the role of investors. A number of key findings emerge:

- **Strategy:** There is growing acknowledgement that delivering a just transition will be key both to realising the full benefits of climate action and to gaining public approval for the deep structural changes that are required.
- **Policy:** The just transition is a national as well as a global policy priority, and is being translated into frameworks relevant for the UK, for example through Scotland's Just Transition Commission.
- **Scale:** The implications of the transition for employment could be significant, with one in five current jobs potentially facing increased or reduced demand for their skills in the transition to a green economy.
- **Stakeholders:** A growing range of stakeholders are active in shaping the agenda, not least trade unions and environmental organisations. The role of business, large and small, needs to be drawn out more.
- **Investors:** Leading UK investors are getting engaged with the just transition agenda, driven both by fiduciary duty and efforts to connect their decisions with the delivery of positive social and environmental impact.

Much work is still to be done, particularly at a time of unprecedented uncertainty in the context of Brexit. In one sense, this creates the risk that there could be a mismatch between words and deeds, with acknowledgement of the just transition not translating into changes in actual behaviour. Yet, there is equally a real opportunity for delivering ambitious outcomes that will help the UK remove some of the roadblocks to a truly inclusive transition. Institutional investors, with their links back to individual savers and beneficiaries and forward to assets and companies across the country, could play a pivotal role in making this happen.

### Critical questions

Our initial review and consultations have revealed critical questions in at least 10 areas related to the role of investors in the just transition.

1. **Ambition:** To move on from being a policy concept, the just transition will need to become something that people can visualise.
  - What could an ambitious just transition look like?
  - What are some of the breakthroughs that could be made by 2030?
  - How could the transition impact different regions across the country?

2. **Foresight:** Experience shows that the anticipation of the social impacts of economic transitions is key to realising the positive and minimising the negative.
  - How can this be done best within the UK's architecture for climate and economic policy?
  - Who should have the lead responsibility for monitoring and forecasting?
3. **Policy frameworks:** The UK's approach to climate change shows the value of a structured, long-term approach.
  - How can the just transition dimension best be incorporated into UK-wide structures such as the Climate Change Act, the Industrial Strategy, green finance plans and other objectives such as the 25-year Environment Plan?
4. **Skills and capacity-building:** The transition will require a range of new skills that will meet the requirements of new technology but must also provide the capacity to manage the process of change in an inclusive way.
  - Where has the UK made progress in building the skills base for the transition and where are the gaps?
  - Is there international experience to draw upon?
5. **Place-based financing:** The transition and its social ramifications will be geographically differentiated. Following budget cuts, local and regional authorities have limited capacity to lead place-based action for the just transition.
  - What are the best ways of building up the capacity of anchor institutions, including Local Enterprise Partnerships, for example around industrial clusters?
  - How can financing strategies be developed that connect the needs for place-led development with national and international pools of capital?
6. **Dialogue and stewardship:** Dialogue with those affected by change is crucial for building ownership of the just transition process.
  - How can social dialogue with workers and communities best be promoted within the governance of business?
  - What is the role of investors in promoting social dialogue through their stewardship duties as owners and managers of capital?
7. **Entrepreneurship and business models:** Business and entrepreneurs will be key to developing effective approaches that deliver a just transition.
  - What are the new business models that are needed that will facilitate the process, within both established firms and new entrants?
8. **Financial innovation and impact:** The just transition provides a perfect opportunity to connect the green finance and social impact investing agendas in the UK.
  - What innovations are needed in terms of new financial institutions (such as regional funds) and new financial mechanisms (crowdfunding and municipal bonds, for example) to best channel capital towards a just transition across the country?
9. **System change:** Many improvements towards a just transition can be delivered within the current rules of the game. However, to use the words of the Intergovernmental Panel on Climate Change, "transformative systemic change" will also be needed.
  - What is the balance between incremental improvements and system change to deliver the just transition?
  - What are the key areas of system change that are required and how could they be stimulated?
10. **International links:** The UK is an open and interconnected economy, with many foreign investors holding assets here and many UK investors involved internationally.

- How can UK investors act on the international dimensions of the transition, for example, in terms of working conditions and community practices in international supply chains?
- How can the UK best involve foreign investors in the just transition process in the UK?
- How can the UK motivate its own investors to promote the just transition internationally – for example, through its development finance institution, CDC?

## **Next steps**

In the next phase of the project, we will be looking in more detail at these questions and we would welcome your responses to these and other questions. Our particular priorities will include deepening the analytics of the employment implications of the transition, developing a series of illustrative case studies of how investors can support the just transition using the lens of our case study region of Yorkshire and the Humber, and then exploring the potential for a regional just transition fund. These will all feed into our investor roadmap on the just transition in the UK, to be released later in 2019.

Please send feedback by 30 April 2019 to Nick Robins or William Irwin at the Grantham Research Institute – [n.v.robins@lse.ac.uk](mailto:n.v.robins@lse.ac.uk) / [w.j.irwin@lse.ac.uk](mailto:w.j.irwin@lse.ac.uk).

## References

---

- Abundance (2017) Swindon Chapel Farm Solar. <https://www.abundanceinvestment.com/investments/swindon-chapel-farm-solar>
- Acemoglu, D. and P. Restrepo (2017) Robots and Jobs: evidence from US Labor Markets. NBER Working Paper No. w23285. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2941263](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2941263)
- Arntz, M., T. Gregory, and U. Zierahn (2016) The Risk of Automation for Jobs in OECD Countries: a comparative analysis. OECD Social, Employment and Migration Working Papers, No. 189. OECD Publishing. [https://www.oecd-ilibrary.org/social-issues-migration-health/the-risk-of-automation-for-jobs-in-oecd-countries\\_5jiz9h56dvq7-en](https://www.oecd-ilibrary.org/social-issues-migration-health/the-risk-of-automation-for-jobs-in-oecd-countries_5jiz9h56dvq7-en)
- Aviva (2018) Aviva 2018 Climate Change Stocktake. <https://www.aviva.com/social-purpose/environment/>
- BEIS, Department of Business, Energy & Industrial Strategy (2018a) Clean Growth Fund. <https://www.gov.uk/government/publications/clean-growth-equity-fund>
- BEIS (2018b) World-first carbon 'net-zero' hub of heavy industry to help UK seize global economic opportunities of clean growth. Press release. <https://www.gov.uk/government/news/world-first-carbon-net-zero-hub-of-heavy-industry-to-help-uk-seize-global-economic-opportunities-of-clean-growth>
- BEIS (2018c) Annual fuel poverty statistics report, 2018 (2016 data). [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/719106/Fuel\\_Poverty\\_Statistics\\_Report\\_2018.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/719106/Fuel_Poverty_Statistics_Report_2018.pdf)
- BEIS (2018d) Local Authority Carbon Dioxide Emissions Estimates, 2016. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/719182/Local\\_Authority\\_CO2\\_Emissions\\_Statistical\\_Release\\_2016.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/719182/Local_Authority_CO2_Emissions_Statistical_Release_2016.pdf)
- BEIS (2018e) UK local authority and regional carbon dioxide emissions national statistics. <https://www.gov.uk/government/collections/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics>
- Bowen, A., K. Kuralbayeva and E. L. Tipoe (2018) Characterising green employment: the impacts of 'greening' on workforce composition. *Energy Economics*, 72: 263-275.
- Bridges (2018) Fusion Housing: Bridges Social Impact Bond Fund. <http://www.bridgesfundmanagement.com/portfolio/fusion-housing/>
- Bristol City Council (2018a) City Leap Prospectus. [https://www.energyservicebristol.co.uk/wp-content/pdf/City\\_Leap\\_Prospectus%204-5-18.pdf](https://www.energyservicebristol.co.uk/wp-content/pdf/City_Leap_Prospectus%204-5-18.pdf)
- Bristol City Council (2018b) Bristol Leaps Towards Carbon Neutrality. Press release. <https://www.energyservicebristol.co.uk/bristol-leaps-towards-carbon-neutrality/>
- Can-do Cities (2017) Leeds Analysis. <http://www.candocities.org/energy-and-carbon/leeds>
- Burke, M. J., and J. C. Stephens (2018) Political Power and Renewable Energy Futures: a critical review. *Energy Research and Social Science* 35: 78-93
- Carbon Brief (2018) Countdown to 2025: tracking the UK coal phase out. <https://www.carbonbrief.org/countdown-to-2025-tracking-the-uk-coal-phase-out>
- Corpataux, J., O. Crevoisier and T. Theurillat (2017) The Territorial Governance of the Financial Industry. in Martin R. and J. Pollard (eds.) *Handbook on the Geographies of Money and Finance*. Cheltenham: Edward Elgar
- Crescenzi, R. and S. Iammarino (2017) Global Investments and Regional Development Trajectories: the Missing Link. *Regional Studies* 51(1): 97-115
- Cumbo, J. (2019) Green Investment Bank under fire for loss of UK focus. *Financial Times*, 6 January. <https://www.ft.com/content/9b1aa5e4-11a5-11e9-a581-4ff78404524e>
- Delina, L. and B. Sovacool (2018) Of Temporality and Plurality: an epistemic and governance agenda for accelerating just transitions for energy access and sustainable development. *Current Opinion in Environmental Sustainability* 34: 1-6

- Drax (2018a) Sustainability: a lower carbon company. <https://www.drax.com/sustainability/low-carbon/#reducing-our-carbon-emissions>
- Drax (2018b) Drax moves closer to coal-free future with unit four conversion. Press release. [https://www.drax.com/press\\_release/drax-moves-closer-coal-free-future-unit-four-conversion/](https://www.drax.com/press_release/drax-moves-closer-coal-free-future-unit-four-conversion/)
- Environment Agency Pension Fund (EAPF) (2017) Policy to address the impacts of climate change. <http://flippingbook.capitaemployeebenefits.co.uk/ea/2/#1>
- Environmental Audit Committee (EAC) (2018) Green finance: mobilising investment in clean energy and sustainable development. <https://publications.parliament.uk/pa/cm201719/cmselect/cmenvaud/617/61702.htm>
- Energy Transition Commission (2018) Mission Possible: reaching net-zero carbon emissions from harder-to-abate sectors by mid-century. [http://www.energy-transitions.org/sites/default/files/ETC\\_MissionPossible\\_FullReport.pdf](http://www.energy-transitions.org/sites/default/files/ETC_MissionPossible_FullReport.pdf)
- European Trade Union Congress (ETUC) (2018) Involving Trade Unions in Climate Action to Build a Just Transition. [https://www.etuc.org/sites/default/files/publication/file/2018-09/Final%20FUPA%20Guide\\_EN.pdf](https://www.etuc.org/sites/default/files/publication/file/2018-09/Final%20FUPA%20Guide_EN.pdf)
- Fankhauser S., F. Seheiler and N. Stern (2008) Climate change, innovation and jobs. Climate Policy 8 (4): 421-429. <http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2014/02/climate-change-innovation-jobs.pdf>
- Fonds de Solidarité FTQ (2018) Fonds de solidarité FTQ Announces Integration of MSCI World Low Carbon ESG Target Screened Index. Press release. <https://www.fondsftq.com/en/salle-de-presse/liste-communiqués-de-presse/communiqué.aspx?nom=20181206-msci-world-low-carbon>
- Foundation for European Progressive Studies and Change Partnership (2016) The New Social Contract: a just transition. <https://www.feps-europe.eu/component/attachments.html?task=gresource&ctype=publication&oid=445&asset=edfdcaca-97a7-407c-b21c-4f2ca4f4b050/2016-10-finalwebnewsocialcontractjusttransitionpdf.pdf>
- Frey, C. B. and M. A. Osborne (2017) The Future of Employment: How susceptible are jobs to computerisation?. Technological Forecasting and Social Change 114: 254-280
- Friends of the Earth Scotland (2017) Joint Statement on a Just Transition. <https://foe.scot/resource/joint-statement-just-transition/>
- Gambhir, A., F. Green, P. J. G. Pearson (2018) Towards a just and equitable low-carbon energy transition. Grantham Institute Briefing Paper No.26, Imperial College London
- Green Finance Taskforce (2018) Accelerating Green Finance. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/703816/green-finance-taskforce-accelerating-green-finance-report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/703816/green-finance-taskforce-accelerating-green-finance-report.pdf)
- Green Investment Bank (GIB) (2016) UK Green Investment Bank plc Annual Report and Accounts 2015-16. <http://greeninvestmentgroup.com/media/118884/gib-annual-report-2016-web-single-pages.pdf>
- Green Investment Group (GIG) (2018) Progress Report: a year of growth, expansion and becoming a project developer. <http://greeninvestmentgroup.com/media/209163/green-investment-group-progress-report.pdf>
- GMB (2018) Demanding a Just Transition for Energy Workers. London: GMB.
- Healy, N. and J. Barry (2017) Politicizing Energy Justice and Energy System Transitions: fossil fuel divestment and the 'just transition'. Energy Policy, 108: 451-459
- Hermes (2018) Impactful intent. Creating positive outcomes through real estate investment. 2018 Responsible Property Investment report. <https://www.hermes-investment.com/ukw/wp-content/uploads/2018/12/bd02652-real-estate-2018-rpi-report-q4-2018-final.pdf>
- HM Government (2018a) PM commissions industry taskforce on social impact investment. Press release. <https://www.gov.uk/government/news/pm-commissions-industry-taskforce-on-social-impact-investment>

- HM Government (2018b) Pension funds and social investment: final response. <https://www.gov.uk/government/publications/pension-funds-and-social-investment-final-response>
- Holyrood (2019) Scottish Parliament backs plans to give Just Transition Commission a Statutory Footing. Press release. <https://www.holyrood.com/articles/news/scottish-parliament-backs-plans-give-just-transition-commission-statutory-footing>
- House of Commons Library (2018) Business Statistics. Briefing Paper No. 06152. <https://researchbriefings.files.parliament.uk/documents/SN06152/SN06152.pdf>
- International Labour Organization (ILO) (2010) ILO Declaration on Fundamental Principles and Rights at Work and its Follow-up. <https://www.ilo.org/declaration/thedeclaration/textdeclaration/lang--en/index.htm>
- ILO (2015) Guidelines for a just transition towards environmentally sustainable economies and societies for all. [http://www.ilo.org/wcmsp5/groups/public/---ed\\_emp/---emp\\_ent/documents/publication/wcms\\_432859.pdf](http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/documents/publication/wcms_432859.pdf)
- Investor Agenda (2018) 2018 Global Investor Statement to Governments on Climate Change. [https://theinvestoragenda.org/wp-content/uploads/2018/12/GISGCC-FINAL-for-COP24-with-signatories\\_6-Dec-CORRECTION.pdf](https://theinvestoragenda.org/wp-content/uploads/2018/12/GISGCC-FINAL-for-COP24-with-signatories_6-Dec-CORRECTION.pdf)
- Intergovernmental Panel on Climate Change (IPCC) (2018) Global Warming of 1.5°C, an IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. <https://www.ipcc.ch/sr15/>
- Institute for Public Policy Research (IPPR) (2018a) Prosperity and Justice: a plan for the new economy. The final report of the IPPR Commission on Economic Justice. London: Polity Press. [https://www.ippr.org/files/2018-08/1535639099\\_prosperity-and-justice-ippr-2018.pdf](https://www.ippr.org/files/2018-08/1535639099_prosperity-and-justice-ippr-2018.pdf)
- IPPR (2018b) Risk or Reward? Securing a just transition in the north of England, Interim Report. [https://www.ippr.org/files/2018-10/1539965019\\_energy-skills-october18.pdf](https://www.ippr.org/files/2018-10/1539965019_energy-skills-october18.pdf)
- International Chamber of Commerce (ICC) (2018) ICC principles for a just transition. <https://iccwbo.org/publication/icc-principles-just-transition/>
- Just Transition Commission (JTC) and The B-Team (2018) Just Transition: a business guide. [https://issuu.com/the-bteam/docs/just\\_transition\\_-\\_a\\_business\\_guide?e=15214291/61113478](https://issuu.com/the-bteam/docs/just_transition_-_a_business_guide?e=15214291/61113478)
- Klagge, B., R. Martin and P. Sunley (2017) The Spatial Structure of the Financial System and the Funding of Regional Business: a comparison of Britain and Germany, in Martin R. and J. Pollard (eds.) Handbook on the Geographies of Money and Finance. Cheltenham: Edward Elgar
- McCormick, M. (2018) Drax to buy £700m of assets from Iberdrola. Financial Times, 16 October. <https://www.ft.com/content/c46b0acc-d110-11e8-a9f2-7574db66bcd5>
- McKinsey (2018) Decarbonization of industrial sectors: the next frontier. <https://www.mckinsey.com/business-functions/sustainability-and-resource-productivity/our-insights/how-industry-can-move-toward-a-low-carbon-future>
- National Center for O\*NET Development (NCOD) (2018) The development and evaluation of a new O\*NET related occupations matrix. O\*NET resource center. <http://www.onetcenter.org/reports/Related.html>
- National Infrastructure Commission (2018) National Infrastructure Assessment. <https://www.nic.org.uk/assessment/national-infrastructure-assessment/>
- New Climate Economy (2018) Unlocking the Inclusive Growth Story of the 21st Century: accelerating climate action in urgent times. <https://newclimateeconomy.report/2018/>
- New Economics Foundation (NEF) (2018) Working together for a Just Transition. [https://neweconomics.org/uploads/files/Just\\_transition\\_FINAL\\_ONLINE.pdf](https://neweconomics.org/uploads/files/Just_transition_FINAL_ONLINE.pdf)
- Newell, P. and D. Mulvaney (2013) The Political Economy of the 'Just Transition'. The Geographical Journal 179(2): 132-140
- Northern Ireland Statistics and Research Agency (NISRA) (2014) Census of Employment. <https://www.nisra.gov.uk/publications/census-employment-publications-and-tables>

- Office for National Statistics (ONS) (2016) Fuel Poverty Statistics. <https://www.gov.uk/government/collections/fuel-poverty-statistics>
- ONS (2018) UK Environmental Accounts: Low Carbon and Renewable Energy Economy Survey: 2016 final estimates. <https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/finalestimates/2016>
- ONS, National Records of Scotland, and Northern Ireland Statistics and Research Agency (ONS, NRS and NISRA) (2017) 2011 Census Aggregate data. UK Data Service (February 2017 edition) <http://dx.doi.org/10.5257/census/aggregate-2011-2>
- Organisation for Economic Co-operation and Development (OECD) (2011) OECD Guidelines for Multinational Enterprises. <http://mneguidelines.oecd.org/guidelines/>
- OECD (2017) Responsible Business Conduct for Institutional Investors. <http://www.oecd.org/corporate/RBC-for-Institutional-Investors.pdf>
- OECD (2019) OECD Regional Database. [http://stats.oecd.org/Index.aspx?DataSetCode=REGION\\_DEMOGR&\\_ga=2.171837284.552801416.1548178035-1924495423.1548062198b](http://stats.oecd.org/Index.aspx?DataSetCode=REGION_DEMOGR&_ga=2.171837284.552801416.1548178035-1924495423.1548062198b)
- Polish Government (2018) Solidarity and Just Transition Silesia Declaration. [https://cop24.gov.pl/fileadmin/user\\_upload/files/Solidarity\\_and\\_Just\\_Transition\\_Silesia\\_Declaration.pdf](https://cop24.gov.pl/fileadmin/user_upload/files/Solidarity_and_Just_Transition_Silesia_Declaration.pdf)
- Principles for Responsible Investment (PRI) (2018) Statement of Investor Commitment to Support a Just Transition on Climate Change. Downloaded December 2018. <https://www.tfaforms.com/4694571>
- Robins, N., V. Brunsting and D. Wood (2018a) Investing in a just transition: Why investors need to integrate a social dimension into their climate strategies and how they could take action. London: Grantham Research Institute on Climate Change and the Environment. <http://www.lse.ac.uk/GranthamInstitute/publication/investing-in-a-just-transition-why-investors-need-to-integrate-a-social-dimension-into-their-climate-strategies-and-how-they-could-take-action/>
- Robins, N., V. Brunsting and D. Wood (2018b) Climate Change and the Just Transition: A guide to investor action. London: Grantham Research Institute on Climate Change and the Environment. <http://www.lse.ac.uk/GranthamInstitute/news/new-report-shows-it-is-vital-for-investors-to-support-a-just-transition-for-workers-institutions-with-us5-trillion-in-assets-back-efforts-to-link-climate-action-to-social-inclusion/>
- Rodríguez-Pose, A. and D. Di Cataldo (2015) Quality of Government and Innovative Performance in the Regions of Europe. *Journal of Economic Geography* 15(4): 673-706.
- Rydge, J., R. Martin and A. Valero (2018) Sustainable growth in the UK: seizing opportunities from technological change and the transition to a low-carbon economy. Special report for the LSE Growth Commission. London: Grantham Research Institute on Climate Change and the Environment and Centre for Economics and Policy, LSE. <http://www.lse.ac.uk/GranthamInstitute/publication/sustainablegrowth/>
- Scottish Government (2017) Scottish National Investment Bank. Press release. <https://news.gov.scot/news/scottish-national-investment-bank>
- Scottish Government (2018) Just Transition Commission. <https://www.gov.scot/groups/just-transition-commission/>
- Share Action (2018) Pensions for the Next Generation: Communicating What Matters. <https://shareaction.org/pensions-that-matter/>
- Task Force on Climate-related Financial Disclosures (TCFD) (2017) Final Report: recommendations of the Task Force on Climate-related Financial Disclosures. <https://www.fsb-tcfd.org/publications/final-recommendations-report/>
- Trades Union Congress (TUC) (2007) A Green and Fair Future for a Just Transition to a Low Carbon Economy. <https://www.tuc.org.uk/sites/default/files/documents/greenfuture.pdf>
- TUC (2012) TUC: Climate Change and a 'Just Transition'. <https://www.tuc.org.uk/research-analysis/reports/tuc-climate-change-and-%E2%80%9Cjust-transition%E2%80%9D>

- TUC (2014) Green Innovation: industrial policy for a low-carbon future.  
<https://www.tuc.org.uk/sites/default/files/Green%20Innovation%20final%20combined.pdf>
- TUC (2015) Strategies for a low carbon industrial future in Yorkshire and the Humber.  
<https://www.tuc.org.uk/sites/default/files/LowcarbonindustrialstrategiesYH.pdf>
- TUC (2017) Consolidated Motions and General Council Statements.  
[https://www.tuc.org.uk/sites/default/files/Congress\\_2017\\_GPC\\_Report\\_AW.pdf](https://www.tuc.org.uk/sites/default/files/Congress_2017_GPC_Report_AW.pdf)
- TUC (2018) Consolidated Motions and Composite Motions.  
[https://www.tuc.org.uk/sites/default/files/Consolidated\\_CompsMotions18.pdf](https://www.tuc.org.uk/sites/default/files/Consolidated_CompsMotions18.pdf)
- UK100 (2018) Financing the Transition, Campaigns page entry.  
<https://www.uk100.org/campaigns/#finance>
- United Nations (2011) Guiding Principles on Business and Human Rights.  
[https://www.ohchr.org/Documents/Publications/GuidingPrinciplesBusinessHR\\_EN.pdf](https://www.ohchr.org/Documents/Publications/GuidingPrinciplesBusinessHR_EN.pdf)
- UN Environment (UNEP) (2018) Emissions Gap Report 2018.  
<https://www.unenvironment.org/resources/emissions-gap-report-2018>
- United National Framework Convention on Climate Change (UNFCCC) (2015) The Paris Agreement.  
<https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>
- United Nations Research Institute for Social Development (UNRISD) (2018) Mapping Just Transition(s) to a Low-Carbon World. Research Report.  
[http://www.unrisd.org/80256B3C005BCCF9/httpNetITFramePDF?ReadForm&parentunid=9B3F4F10301092C7C12583530035C2A5&parentdoctype=book&netitpath=80256B3C005BCCF9/\(httpA uxPages\)/9B3F4F10301092C7C12583530035C2A5/\\$file/Report---JTRC-2018.pdf](http://www.unrisd.org/80256B3C005BCCF9/httpNetITFramePDF?ReadForm&parentunid=9B3F4F10301092C7C12583530035C2A5&parentdoctype=book&netitpath=80256B3C005BCCF9/(httpA uxPages)/9B3F4F10301092C7C12583530035C2A5/$file/Report---JTRC-2018.pdf)

The just transition means making sure that action on climate change supports an inclusive economy. There is a strategic opportunity for UK investors to contribute to the just transition. This is the first report from a project that is working to identify those opportunities within the UK, exploring the extent of the just transition challenge, current efforts to address it, and how investors can take action within the the UK, including at the regional level.

The UK Investing in a Just Transition project is being delivered by the Grantham Research Institute at LSE and the Sustainability Research Institute at the University of Leeds, in partnership with the Principles for Responsible Investment and the TUC. It is funded by the Friends Provident Foundation.

The **Grantham Research Institute on Climate Change and the Environment** was established in 2008 at the London School of Economics and Political Science. The Institute brings together international expertise on economics, as well as finance, geography, the environment, international development and political economy to establish a world-leading centre for policy-relevant research, teaching and training in climate change and the environment. It is funded by the Grantham Foundation for the Protection of the Environment, which also funds the Grantham Institute – Climate Change and the Environment at Imperial College London.

[www.lse.ac.uk/GranthamInstitute/](http://www.lse.ac.uk/GranthamInstitute/)

The **Sustainability Research Institute (SRI)** at the University of Leeds was established in 2004 to conduct inter-disciplinary research on different dimensions of sustainability. SRI's research draws on disciplines such as economics and policy, business and organisations, sociology and politics, and environment and development but it also connects and collaborates closely across the natural and engineering sciences. SRI specialises in participatory, action-oriented research that brings together government, business, NGOs and local communities to enhance the relevance, quality and practical influence of its research.

<https://environment.leeds.ac.uk/sustainability-research-institute>

**Published in February 2019 by:**

Grantham Research Institute on Climate Change and the Environment  
London School of Economics and Political Science  
Houghton Street  
London WC2A 2AE  
United Kingdom