

Financing inclusive climate action in the UK

An investor roadmap for the just transition

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The Investing in a Just Transition initiative

Launched in February 2018, the Investing in a Just Transition initiative is working to identify the role that institutional investors can play in connecting their action 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 collaboration with the Principles for Responsible Investment (PRI) and the International Trade Union Confederation (ITUC). The initiative has produced a global guide for investor action, and 140 institutions with more than US\$8 trillion have signed an investor statement on the just transition.

The Investing in a Just Transition UK project

In 2019 the Grantham Research Institute at LSE and the Sustainability Research Institute at the University of Leeds started a process of research and dialogue to identify the specific role that investors can play in the just transition in the UK. This part of the project is being delivered in collaboration with the PRI and the Trades Union Congress (TUC). The project is funded by the Friends Provident Foundation, with support from the 30 Percy Foundation. Funding from the Grantham Foundation for the Protection of the Environment and the UK Economic and Social Research Council through the Centre for Climate Change Economics and Policy is also gratefully acknowledged.

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This report is intended to inform decision-makers in the public, private and third sectors. It has been reviewed by internal and external 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.

Foreword

Professor Nicholas Stern

Chair, Grantham
Research Institute on
Climate Change and
the Environment



The transition to the zero-carbon economy offers the world a highly attractive route to growth and prosperity. Indeed, it is the only sustainable growth story available. It can offer tremendous new job opportunities, cities where we can move and breath, and robust and fruitful ecosystems. However, the transition must be radical and rapid and could involve disruption and dislocation for some industries and communities.

A 'just transition' is about more than managing a zero-carbon transition. There are other important changes in economic structures occurring at the same time: the shift to services, labour-saving, technologies, Artificial Intelligence/robotics and globalisation. As a matter of social justice as well as building the political will to act on the transition, all these dislocations have to be managed constructively and cohesively. We have in many ways managed such changes badly in the past. How this is done in the future will probably affect our success or failure in the zero-carbon transition.

To manage this change we need to start now and provide clear, credible and long-term policy signals and investments across a range of areas. Working together, clear and sound public policies can unlock the private finance at the scale required.

We understand the policies that are required, we have the finance for investment and we have the technologies and knowledge to set off strongly. The 'just' transition is a critical part of this story.

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Foreword cont.

Fiona Reynolds

Chief Executive
Officer, Principles for
Responsible
Investment (PRI)



PRI is very pleased to continue to collaborate with the Investing in a Just Transition Initiative, which recognises the critical role investors around the world are playing in helping to secure a transition that is equitable, humane and fair for workers.

As we applaud and encourage investors taking a proactive role to mitigate climate change, we must also be mindful of the flow-on effects to workers as the transition takes place. Not properly managed, the transition may put some workers' jobs at risk. In turn, it is the most vulnerable in our society who are most exploited, and it is imperative we avoid this in the carbon transition. In being mindful of the impact on workers, but also in actively planning to support affected individuals and communities, investors can ensure their climate change efforts also consider the impact on the broader social economy. Proper consideration of economic, social and governance factors is imperative for the transition to low-carbon economy to be just and fair for all stakeholders affected.

While a global concept, a just transition will play out differently in local markets. This report, focusing on the UK, highlights the role investors can play in the UK through case studies and practical guidance around investment strategy, corporate engagement, capital allocation and more. We hope this latest work will continue to guide investors in securing a just transition for all.

Paul Nowak

Deputy General
Secretary, Trades
Union Congress (TUC)



Tackling climate change and protecting the planet for future generations is an overarching priority for the TUC. We know urgent action will have to be taken to meet the Government's commitment to deliver a net-zero carbon economy by 2050. But it is vital that the transition to a low-carbon economy is just – one that works for working people, their families and communities. As we saw during the 1980s and 1990s, industrial transition left solely to the market can have hugely negative economic and social consequences.

To deliver this change, we need government, business and unions to pull together. The investor community is also essential. This report sets out key issues and actions for investors to take. It explains how the just transition is not an 'extra' but needs to be at the heart of strategy. Investor voices need to be heard in policy circles, and sharing best investor practice will be crucial. The case studies illustrate the value of anchor institutions, including unions and business, and highlight the system-wide innovations needed to drive the needed market transformations.

The climate emergency should also be a chance to build a greener, cleaner planet, and new, well paid and highly skilled jobs. Trade unions will strain every sinew to realise those opportunities. We look forward to working with the investor community on the journey before us.

Executive summary

Key messages and high-level recommendations

- To deliver the UK's new legislated target of reducing greenhouse gas emissions to net-zero by 2050, the country must strive for a 'just transition', inclusive of workers, communities and consumers. All parts of the economy will be affected and the net-zero transition will be strengthened by strong participation and engagement.
- For institutional investors, contributing to a just transition offers a way of reducing systemic risks, realising fiduciary duties, identifying material value drivers and generating positive social impacts. It also responds to the growing demand from end investors to connect their savings with societal benefits as well as financial returns.
- The just transition has become a recognised priority in the UK but as yet there is little experience of what it means in operational terms. To address this, our analysis is rooted in the place-based realities of the Yorkshire and Humber region. Our examples show that a shared approach is needed to evaluate business performance on the just transition; that there is a crucial role for local 'anchor institutions' with scale and community links; and that system-wide innovations, such as new regulations or markets, are needed.
- The just transition represents a generational opportunity for the UK to connect the environmental, social and economic dimensions of climate action. Delivery will not always be easy but is entirely possible and manageable. A comprehensive strategy is now needed in the UK to translate this potential into a practical reality.

There are five priority areas for investor action as part of this comprehensive approach, which build on the framework contained in the 2018 global investor guide to the just transition:¹

- **Action Area 1 – Investment strategy:** Investors need to place the just transition into the heart of their strategy and signal its importance along the investment chain.
- **Action Area 2 – Corporate engagement:** Investors should incorporate just transition goals and aspirations into their engagement with the companies they own.
- **Action Area 3 – Capital allocation:** Investors can shift their allocation of capital towards assets that are aligned with the just transition.
- **Action Area 4 – Policy advocacy and partnership:** Investors should use their voice to call for governments in the UK to introduce a strategic framework for the just transition.
- **Action Area 5 – Learning and review:** Investors should build capacity to deliver experimentation at scale for the just transition with effective monitoring, evaluation and sharing of outcomes.

The global imperative for a just transition

Climate change is arguably one of the greatest injustices in history, given the projected extent and duration of its negative impacts on current and future generations, rooted in past greenhouse gas emissions, the vast majority from developed countries. The transition to net-zero greenhouse gas emissions also needs to be an inclusive process, delivering social justice for workers, communities and consumers. The imperative of the just transition is embedded in the 2015 Paris Agreement on climate change, with a focus on managing the process of change for the world's three billion workers. The just transition rests on a well-established body of international law and policy, notably around human rights (including labour rights) and sustainable development. Importantly, the imperative of net-zero is one of many disruptive transitions that are underway – others include automation and digitisation – all of which need to be managed together.

1. *Climate Change and the Just Transition: A guide for investor action* (Robins et al., 2018).

Delivering a just transition in the UK

In the UK, the scope of the just transition has expanded beyond the world of work to the implications for citizens overall, including communities and consumers. The Scottish Government, for example, has launched a Just Transition Commission with a mission to set out how to develop “a carbon-neutral economy that is fair for all”. In May 2019 the Committee on Climate Change in its report *Net Zero – The UK’s contribution to stopping global warming*, also concluded that the transition will need to “be fair and perceived to be fair”. The transition needs to include a responsible approach to decarbonisation, an inclusive process of clean growth, and resilience to the physical shocks of climate change that also incorporates a strong social focus. The place-based dimension of the just transition will be crucial, particularly given the extent of regional imbalances across the UK.

We have identified five central elements of delivering a just transition in the UK:

- 1. Maximising the benefits** for society in terms of the quantity and quality of work that is generated, achieving reductions in poverty and inequality, and building stronger and resilient communities across the regions and nations of the UK.
- 2. Mitigating the social risks** from the transition, particularly for workers and regions dependent on high-carbon sectors, as well as vulnerable and low-income consumers in all parts of the UK.
- 3. Empowering those affected by change** so that they are actively involved in decision-making, whether in the workplace, in communities or in key local and national policy processes, making sure that this is open to all in terms of gender, ethnic group, age or income.
- 4. Anticipating the changes**, through careful assessment of what is needed to achieve the UK’s climate goals, and of key trends – not least in technology – so that social implications can be addressed ahead of time and plans adapted as circumstances change.
- 5. Mobilising investments** from the public sector, business and finance, and citizens across the UK to build the human, social and technological capacities that will be needed to deliver a successful and inclusive transition and so that our places and communities are resilient to the impacts of climate change.

The central role for finance and investment

Finance will be critical for a just transition, not just in terms of the increased quantity of capital required, but also to fulfil the need for an improved *quality* of capital that incorporates environmental, social and governance (ESG) standards. Internationally, a set of compelling reasons have been identified for why investors should support a just transition, touching on systemic risk, fiduciary duty, material value drivers and opportunities to generate a positive impact through investment. In the UK, our key finding is that supporting a just transition is not only the right thing for investors to do but is also the *smart* thing to do, helping to secure broad public backing for ambitious climate action and making investors’ own portfolios more robust in a fast-changing economic and environmental landscape. The Government’s Green Finance Strategy published in July 2019 also highlights the importance of delivering a just transition. Brexit has made it pressing to develop fresh thinking and action on the relationship between public and private finance to deliver a just transition, not least with the likely withdrawal of funding from the European Investment Bank.

A growing number of institutional investors in the UK are making commitments to support the just transition, alongside collaborative efforts of investor alliances (for example, local authority pension funds, and faith and charity investors). A number of investors are already providing important insights and perspectives on the just transition. Box S1 summarises the insights of 11 investment institutions (detailed in the main report).

Box S1. Investor insights and perspectives on the just transition

1. **Aviva:** Committing to supporting a just transition
2. **Impax:** Making the transition efficient, effective and equitable
3. **Aberdeen Standard:** Connecting human rights and the just transition
4. **Legal & General:** Inclusive capitalism and the just transition
5. **Hermes Real Estate:** Responsible property investment and the just transition
6. **Abundance:** Crowdfunding municipal bonds for the transition
7. **Bridges:** Exploring the role of social impact bonds in the just transition
8. **Northern Local Government Pension Scheme:** Incorporating the just transition into investment policy
9. **Vigeo Eiris:** Measuring just transition preparedness in UK energy utilities
10. **Friends Provident Foundation:** Engaging with UK utilities on the just transition
11. **Church of England Pensions Board:** Learning lessons from South Africa's Courageous Conversations

Understanding the practical implications: Yorkshire and the Humber case study

The just transition remains a relatively new agenda for both policymakers and investors. Turning this aspirational goal into lived reality raises a range of profound challenges, such as how those affected by the transition will be involved in decision-making and how the transition will affect individuals, communities and regions differently. The zero-carbon transition will not take place evenly across the UK and the different spatial and sectoral impacts need to be understood by policy- and decision-makers so that opportunities can be maximised and any risks can be anticipated. Investors need to understand how these place-based impacts are linked to their portfolios.

To ground our analysis, we have focused on Yorkshire and the Humber, in the North of England, as a case study region. We profile seven companies from the region, covering different asset classes: listed equities, bonds and fixed income as well as real estate. Some are global corporations, others national and regional champions, along with innovative start-ups and community enterprises. Importantly, these examples do not necessarily offer ready-made solutions for the just transition, and none explicitly uses the framing of a just transition to describe its work. But they point to the actions that investors can take, through corporate engagement, capital allocation and policy dialogue. Table S1 (p8) summarises the lessons from the example companies in our case study region.

Three overarching lessons from Yorkshire and the Humber

1. **Shared approach:** There is an urgent need for a shared approach to evaluate business performance in the just transition, bringing together different ingredients such as the Sustainable Development Goals, human rights and impact investing frameworks.
2. **Anchor institutions:** Institutions such as local authorities, leading businesses, trade unions and universities, as well as long-term investors, can play a central role in the creation of an ecosystem in which the just transition can flourish.
3. **System-wide innovations:** There is a vital need for system-wide innovations to drive market transformation for a just transition, whether in terms of new structures for dialogue, new regulations, or creating new financial markets and instruments that better respond to the social nature of the transition. Additional focus needs to be placed on bringing together the zero-carbon and resilience dimensions of the transition.

Table S1. Lessons for investors from the Yorkshire and Humber company examples

1. Decarbonisation	Drax Power Station, Selby <i>Listed equities</i>	<p>Drax has the potential to be an anchor institution in a net-zero industrial cluster on the Humber estuary, based on the deployment of bio-energy with carbon capture and storage (BECCS). Drax's current use of biomass and plans for gas expansion are controversial, however, and the development of BECCS would require new policy incentives.</p> <p>Lessons for investors: Investors can engage with Drax to ensure its plans are aligned with the Paris Agreement and wider sustainable development objectives.</p>
	Advanced Manufacturing Research Centre (AMRC), Sheffield <i>Listed equities</i>	<p>Built on the site of a former colliery after redevelopment by the Harworth Group, and with the support of local, national and European funding, the Advanced Manufacturing Research Centre (AMRC) has generated additional well-paid jobs in high productivity sectors with expertise in light-weighting and composite materials.</p> <p>Lessons for investors: AMRC demonstrates how smart redevelopment in former high-carbon areas can create a platform for capital inflows and regional revitalisation.</p>
2. Clean growth	Siemens Gamesa and Green Port, Hull <i>Listed equities</i>	<p>The Green Port development in Hull, a joint venture between Siemens Gamesa and Associated British Ports (ABP), has created direct benefits for the workforce and the wider economy through the expansion of offshore wind.</p> <p>Lessons for investors: This example shows how policies at the corporate level for people and society – such as Siemens' framework agreement with unions – along with policy incentives and investment in skills can be implemented in a particular place.</p>
	Wellington Place, Leeds <i>Real estate</i>	<p>Wellington Place is the leading development project for commercial office space in Leeds. It has been designed and implemented with a conscious focus on place-making and generating wider benefits for the region.</p> <p>Lessons for investors: Asset owners can play a strategic role in providing long-term patient capital for urban regeneration that produces market-leading environmental, workplace and community benefits as part of an active place-making strategy.</p>
	Citu, Leeds <i>Real estate</i>	<p>Citu is building a 'Climate Innovation District' in Leeds, turning a central brownfield site into a mixed-use neighbourhood with strong green credentials.</p> <p>Lessons for investors: With the right design, new residential buildings can be 70 to 80 per cent more energy-efficient than existing UK homes, with strong community benefits, including reduced fuel poverty. The example also shows the need for public finance from local and national government to support breakthrough innovations.</p>
3. Resilience	Energise Barnsley, Barnsley <i>Fixed income</i>	<p>Energise Barnsley is a community benefit society that developed solar PV on council-owned buildings, cutting bills for low-income households, financed by a bond open to local and national investors.</p> <p>Lessons for investors: Community ownership and crowdfunding have potential as tools to build a more decentralised energy system.</p>
	Yorkshire Water (region-wide) <i>Fixed income</i>	<p>Yorkshire Water has introduced a comprehensive framework for sustainable finance that combines both social and environmental aspects, issuing its first sustainability bond in April 2019. Over time, resilience and decarbonisation requirements will lead to new challenges as well as potential job opportunities.</p> <p>Lessons for investors: The sustainable finance framework offers an approach that could enable fixed income investors to back the just transition.</p>

A roadmap for investor action in the UK

Looking ahead, investors can play a potentially significant role in supporting the just transition in the UK – as fiduciaries on behalf of millions of savers, as allocators of capital to the real economy, and as stewards of assets, ensuring that their voice is heard by both business and policymakers. Drawing on the lessons from our work in Yorkshire and the Humber and nationally across the UK, we have tailored our previously published global framework for investor action on the just transition to produce the following five-point roadmap for the UK.

Action Area 1 – Investment strategy: Investors need to incorporate the just transition into their investment strategy and signal the importance of the social dimension of the climate crisis along the investment chain. The just transition needs to be incorporated, for example, in the ways that investors deliver their obligations under the Stewardship Code. In addition, they need to build effective partnerships across the investment system and beyond so that they can understand the priorities for

those affected by the transition and achieve critical mass. A priority for immediate action is to set clear investor expectations on the just transition, based on national and international standards for environmental and social performance. Providers of sustainability ratings and research can play a key role in evaluating corporate performance on the just transition.

Action Area 2 – Corporate engagement: Investors are ramping up their engagement with the businesses they own to ensure alignment with the Paris Agreement. This now needs to be extended to include the social dimension to support a just transition. In the UK, the power generation sector is a first priority for engagement, to facilitate the planned phase-out of coal-fired power generation and the expansion of renewable energy. This could focus on ensuring labour and community standards as well as maximising the benefits of decentralised energy models. A second priority could be construction and real estate to upgrade the UK's building stock in a strategic and inclusive fashion. We estimate that 60 per cent of construction jobs could be affected by the transition, requiring considerable reskilling. This engagement could also extend to the banking sector to ensure that lending to real estate is aligned with the just transition.

Action Area 3 – Capital allocation: Investors can shift their allocation of capital to specific assets aligned with the just transition, particularly through place-based strategies. One priority is to build a thriving 'sustainable bond' market in the UK, covering the environmental and social pillars of the just transition, including local issuance by leading companies, communities, public authorities (for example, via crowdfunding), and national-level issuance (for example, through a sovereign bond). Another priority is to build on the growing interest in impact investment to develop new investment products, including infrastructure, enterprise and property as well as community-owned assets, that seek to support a just transition.

Action Area 4 – Policy advocacy and partnership: Policy reforms are necessary to provide investors with the incentives that encourage sustained action. As a result, investors should call for government in the UK to introduce a strategic framework for the just transition that recognises the importance of decentralisation and devolved decision-making along with the need to engage all stakeholders in its design. The framework could cover the key policy dimensions – including macroeconomic, industrial, regional, labour market and wider environmental policies – and public finance, notably with a dedicated financing mechanism for sustainable infrastructure, such as a National Infrastructure Bank. A forward-looking plan to strengthen the UK's skills for the net-zero transition is essential and a core interest for universal investors, given the importance of human capital for wealth generation.

Action Area 5 – Learning and review: As the just transition is still a relatively new dimension of the climate change agenda for investors, an important element of the proposed collaborative approach will be to develop experimentation at scale with effective monitoring, evaluation and sharing of outcomes. This means establishing effective ways of listening to, learning from and partnering with key stakeholders affected by the transition. Place-based engagement will also be important in the evaluation and learning phases, to ensure that investor action is not detached from stakeholders. Finally, investors should incorporate the just transition in their own reporting: this can be done by building on the framework developed by the Task Force for Climate-related Financial Disclosures (TCFD).

The UK within the world: taking steps forward at the global level

UK investors have a global reach, and it is important for them to apply the just transition internationally, for example through engagement with global corporations (including international supply chains), as well as by allocating assets into investments in developing countries that would facilitate a just transition there. In the latter respect, investors could also collaborate with the Government on how to make the just transition an effective core component of the UK's International Climate Finance programme. As the UK faces the challenges of leaving the European Union, this is a critical time for the country to define a new approach to its biggest challenges and its international role. Furthermore, 2020 will close with the UK hosting the UN's climate conference, COP26, in Glasgow. This provides a major opportunity to show how financing a just transition in the UK can also connect with wider efforts to achieve ambitious steps forward in climate action at the global level.

Introduction

Investing in a just transition: lessons from research and dialogue

The transition to net-zero greenhouse gas emissions needs to be an inclusive process, delivering social justice for workers, communities and consumers: this is the agenda of the just transition. This report sets out the role that investors can play in delivering a just transition in the UK. It seeks to understand the growing momentum in favour of a just transition and to illustrate the implications through a set of place-based examples from Yorkshire and the Humber, before setting out recommendations for investor action. These recommendations are based on the framework set out in our global guide, *Climate Change and the Just Transition: A guide for investor action* (Robins et al., 2018).

Our core finding is that supporting the just transition is not only the right thing for investors to do, but is also the *smart* thing to do, both helping to secure broad public backing for ambitious climate action and making investors' own portfolios more robust in a fast-changing economic and political landscape. This conclusion is based on a one-year process of research and dialogue on the role that investors could play in supporting a just transition in the UK (see box).

In the rest of this Introduction, we lay out the framework for the report in terms of scoping the just transition agenda, defining the investor role and placing the just transition in the national context.

Scoping the just transition

The just transition has now become a critical part of the international climate change agenda, but there is no commonly accepted definition. However, an important starting point is to ensure that climate action and, more broadly, efforts to build a sustainable economy, are designed and delivered so that they improve social justice, particularly with the interests of workers and communities in mind. The International Labour Organization (ILO) released a consensus set of guidelines in 2015 which show how this shift can support the goals of decent work and quality jobs across the full spectrum of government policies (ILO, 2015).

An aspirational vision of what a just transition will entail is provided by the Just Transition Centre and the B Team (2018):

A just transition is an economy-wide process that produces the plans, policies and investments that lead to a future where all jobs are green and decent, emissions are at net zero, poverty is eradicated, and communities are thriving and resilient.

The Investing in a Just Transition UK project

The project is being led by the Grantham Research Institute on Climate Change and the Environment at LSE together with the Sustainability Research Institute at the University of Leeds, in collaboration with the UN-backed Principles for Responsible Investment (PRI) and the Trades Union Congress (TUC). The project has also been guided by an advisory committee from finance and investment, trade unions, business and policy and has drawn from the experience and insights of the growing number of investors that recognise the need to link the environmental and social dimensions of the transition.

We released an interim report in February 2019, which estimated that one in five jobs in the UK could be affected by the transition. That report also suggested that the just transition in the UK offers investors a strategic opportunity to connect climate action with positive social action across the country (Robins et al., 2019).

In the UK, the just transition is now being used as a high-level ambition, one that encompasses the full human dimensions of climate action, in terms of the interests of workers, communities, consumers and citizens more broadly. Our work suggests that a just transition to a resilient, net-zero economy involves a focus on five key elements:

- 1. Maximising the benefits** for society in terms of the quantity and quality of work that is generated, achieving reductions in poverty and inequality, and building stronger and resilient communities across the regions and nations of the UK.
- 2. Mitigating the social risks** from the transition, particularly for workers and regions dependent on high-carbon sectors, as well as vulnerable and low-income consumers in all parts of the country.
- 3. Empowering those affected by change** so that they are actively involved in decision-making, whether in the workplace, communities or in key local and national policy processes, making sure that this is open to all in terms of gender, ethnic group, age or income.
- 4. Anticipating the changes**, through careful assessment of what is needed to achieve the UK's climate goals and of key trends – not least in technology – so that social implications can be addressed ahead of time and adapted as circumstances change.
- 5. Mobilising investments** from the public sector, business and finance, and citizens across the UK to build the human, social and technological capacities that will be needed to deliver a successful and inclusive transition and so that our places and communities are resilient to the impacts of climate change.

Identifying the investor role

The transition will affect all sectors of the economy, from power to transport, construction and agriculture. It will also affect all households and individuals. Investors have a central role in the just transition, as trusted stewards of their customers' money and as economic actors. For investors, the just transition provides a way of bringing together the environmental, social and governance (ESG) pillars of responsible investment.

In this report, our focus is on the actions that investors can take as:

- **Asset owners**, such as pension funds, insurance firms and foundations, in terms of setting investment beliefs, signalling expectations throughout the financial system, and driving accountability for results consistent with the just transition.
- **Asset managers**, in terms of allocating capital across different asset classes – notably public and private equities, fixed income and private debt as well as real assets such as infrastructure and real estate – in ways that support a just transition.
- **Individuals**, as ultimate savers and beneficiaries, making sure that their assets not only actively support a just transition, including through physical as well as social resilience, but also help to reconnect the financial system to the real economy, particularly in terms of local development.

Investor example 1

Aviva: Committing to a just transition

In its 2018 climate-related disclosure, Aviva states the following:

Aviva is committed to supporting a Just Transition to a low-carbon economy that will improve the resilience of our economy, society and the financial system in line with the 2015 Paris Agreement on climate change. We have already invested £4.4bn in green assets since 2015.

Angela Darlington, Group Chief Risk Officer and Kirsty Cooper, Group General Counsel and Company Secretary, Aviva, 2019

A focus on national action in a global context

This report focuses on what the just transition means in the UK and what investors could do to support this. It comes against the backdrop of the deep divisions revealed by Brexit, as well as the recent surge in popular, political and economic support for accelerating climate action. This was symbolised by the UK Government's decision in June 2019, approved unanimously by Parliament, to legislate for the UK to become a net-zero-carbon economy by 2050. In many ways, the growing backing for a just transition in the UK speaks to the recognition that both policy decisions and the process of economic change need to be far more responsive to inequalities and imbalances across the country.

Clearly, there is also a broad global agenda for investors to pursue on the just transition, in terms of the conduct of global corporations, standards in international supply chains and the urgent need to channel capital to developing countries that are most vulnerable to climate impacts and least responsible for carbon emissions. This agenda is picked up as a priority for future work in Chapter 4.

Structure of the report

Chapter 2 looks in more depth at what the just transition means for investors in the UK, highlighting the different aspects of this ambitious agenda and profiling examples of how investors are already taking action.

Chapter 3 brings together the results of a deep-dive into the implications of the just transition in the Yorkshire and Humber region. This chapter features seven company examples that help to assess and address what the high-level concept of the just transition could mean in operational terms for investors.

Finally, Chapter 4 presents a roadmap for investor action in the UK through recommendations on how to translate the growing awareness of the investor case into determined action.

A note on how we have identified and classified green skills and jobs that will be affected by the zero-carbon transition can be found in the technical appendix at the end of the report.

2. The emergence of the just transition agenda

Target: a just transition to a net-zero emissions and resilient UK economy

In June 2019, the UK legislated to reduce the emissions of greenhouse gases to net-zero by 2050, setting a course for the time when the country's contribution to global warming from territorial emissions will end. The UK is the first major economy to set such a target. The decision followed the publication in May of the Committee on Climate Change's landmark report setting out the case for net-zero and how to achieve it (Committee on Climate Change [CCC], 2019a).

Under the 2008 Climate Change Act the UK was already committed to an 80 per cent reduction on 1990 levels of emissions by 2050 and has thus far achieved a 40 per cent cut, making it one of the leaders in the G20 on this measure. The new, net-zero, target seeks to bring the UK into line with the 2015 Paris Agreement. This move follows an unprecedented national focus on the importance of accelerating climate action, with the approval by Parliament of a motion declaring an environment and climate emergency in the wake of the Extinction Rebellion protests and School Strikes for Climate. There has also been growing interest in a Green New Deal programme to mobilise finance for accelerated climate action, including a just transition (Lawrence, 2019).

Realising a net-zero target will involve profound changes to the UK's economy and society. All sectors of the economy, all businesses and organisations, large and small, all government departments, national and regional, all households and all individuals will be affected. Importantly, the CCC's analysis showed that the overall costs of the transition are manageable and could also generate significant economic opportunities and social benefits. These include new green industries and jobs, cleaner air and improved health. The CCC also stressed that the transition "must be fair and perceived to be fair", concluding that a "broader strategy will be needed to ensure a just transition across society, with vulnerable workers and consumers protected" (CCC, 2019a).

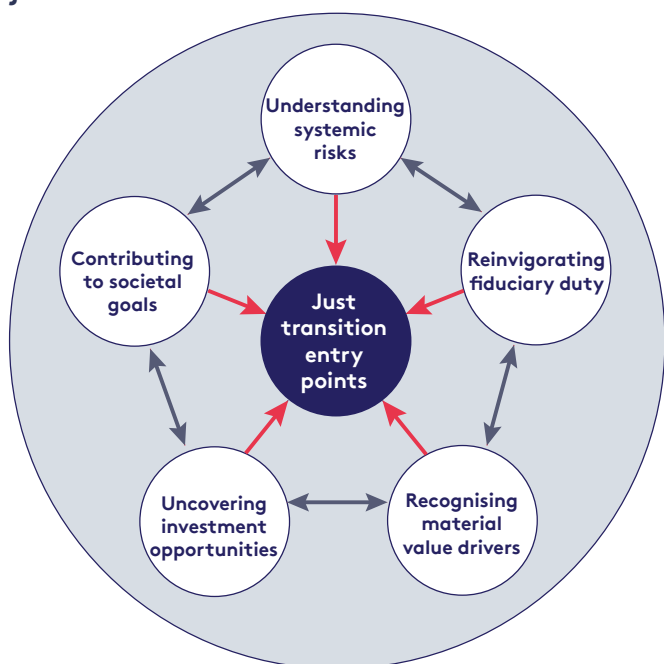
Financing a just transition: the strategic case for investor action

Making this shift will require the mobilisation of the UK's financial system to manage climate risks and channel capital towards decarbonisation and sustainable development more broadly. In April, Bank of England Governor Mark Carney declared that the transition will require "a massive reallocation of capital", adding that "if some companies and industries fail to adjust to this new world, they will fail to exist" (Bank of England, 2019).

A net-zero economy will be a more capital-intensive economy and the CCC estimates that it will involve extra investments of around 1 per cent of GDP per year in 2050. At a national level, this is a manageable sum as overall investment has fluctuated at between 15 and 24 per cent of the UK's GDP over the last 30 years (CCC, 2019a). Even so, the total amount of investment required is significant. This makes the role of the financial sector, including investors, highly strategic in the transition.

The transition will require not just a greater quantity of capital, but also an improved quality of finance, with an increased long-term focus and alignment with the needs of a real economy undergoing structural change. Globally, institutional investors are committed to integrating environmental, social and governance (ESG) factors into their core operations. A growing number of investors are also exploring how to align their investments with the Sustainable Development Goals (SDGs), particularly in terms of impact investing. For investors, the imperative of delivering a just transition brings together the social and environmental dimensions of climate change, supported by a number of strategic reasons for action. These include reducing systemic risks, realising fiduciary duties, recognising material value drivers (drivers linked to shareholder value), and generating positive impact. The case for universal investors – such as pension funds and insurance companies – to advocate for a just transition is particularly strong, given that their returns are derived from overall economic health rather than specific stock picking. For example, universal investors will benefit if workers across an economy have the skills to succeed in the transition.

Figure 2.1. Reasons for investor action on the just transition



Source: Robins et al. (2018)

This rationale for action is laid out in Figure 2.1 above and explained in more detail in *Climate Change and the Just Transition: A guide for investor action* (Robins et al., 2018). An example of how a UK fund manager, Impax, understands this high-level case for action is provided in the box.

Understanding the global context: inclusive development and employment implications

Climate change is arguably one of the greatest injustices in history in terms of the extent and duration of the damage to humanity. Climate change already harms the lives of billions and these impacts will intensify and extend for centuries into the future, particularly if the rise in temperature is not capped at well below 2°C and ideally 1.5°C above pre-industrial levels (the goal of the Paris Agreement). Many of those most affected by climate change live in poverty, and have contributed least to its causation. It is therefore a matter of fundamental global justice to deliver the goals of the Paris Agreement and protect current and future generations. More than this, the activities that contribute to climate change can lead to many other injustices, notably the immense health implications of air pollution from fossil fuel combustion as well as the impacts on vulnerable communities from deforestation and unsustainable land use. In response to these injustices, there are a growing number of legal challenges being brought against companies, who, it is argued, have failed to act on known climate impacts (Setzer and Byrnes 2019).

Investor example 2 Impax: Making the transition efficient, effective and equitable

By Ian Simm, Founder and CEO

The transition to a more sustainable global economy is set to create enormous economic benefits. Yet, this shift is likely to be disruptive and these benefits will be unevenly spread. At this early stage, we are particularly focused on three topics:

i) Framing the response in terms of investors' primary obligations/duties. The entire reprogramming of our economy for sustainable development is an enormous task that will succeed only if multiple actors in society engage effectively. It is essential that investors consider the implications of 'just transition' analysis for their three core activities, namely, establishing investment beliefs, seeking investment opportunities, and managing risk.

ii) Analysing the just transition in context. As market forces alone are unlikely to shape a sustainable economy in time to avoid catastrophic climate change, government intervention is inevitable, whether directed towards creating new markets or the development of new standards. Public policy analysis often utilises a 3E framework (i.e. laws and regulations should be *effective*, *efficient* and *equitable*), which can also be applied to the discussions of what interventions are 'just' (or 'equitable' in the 3E framework).

iii) Developing a framework that is holistic and constructive. If the focus of a just transition is restricted to those currently working in threatened industries (and the communities in which they live), we are likely to overlook key issues. The rights of current workers should be considered in the context of the employment opportunities available to future generations.

These are challenging topics without easy answers. Investors can take a number of steps to contribute to a just transition, while also furthering their own interests through enhanced stewardship activity, raising these issues with companies in which they invest and encouraging policymakers to commit to managing just transition issues. Doing so effectively could dramatically improve the attractiveness of long-term investments.

(Adapted from <https://impaxam.com/news-and-views/blog/a-just-transition/>)

In sum, the transition to a climate-resilient, net-zero economy presents a global opportunity to deliver inclusive development in the 21st century, not just avoiding the damage of climate change, but also offering the potential for tackling poverty, and inequality, and ensuring protection and respect of human rights. To seize this opportunity, the transition itself needs to be just and how it is achieved should be fair for all. This places the just transition as a way of implementing the framework of the Sustainable Development Goals. The UN Guiding Principles on Business and Human Rights also provide a good framework for how to approach the just transition, helpfully differentiating between business risk and human rights impact (UN Human Rights, 2011).

It is in this context that the 2015 Paris Agreement states that governments should “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” (United Nations, 2015). At the COP24 UN climate conference in 2018, 53 countries (including the UK) signed the Just Transition Declaration, which recognised the need to factor in the needs of workers and communities to build public support for a rapid shift to a zero-carbon economy. Investors have also signalled their support through a statement backed by over 140 institutions with more than US\$8 trillion in assets under management (PRI, 2019).

To date, analysis of the global employment implications of the transition point to the generation of a relatively small number of net additional jobs (OECD, 2017; NCE, 2018; ILO, 2018). The International Labour Organization (ILO), for example, estimates an additional 18 million net additional jobs by 2030 from the energy transition, in a world of 3 billion workers (ILO, 2018).

However, there is far less understanding about how the transition will impact the overall composition of employment, the quality of jobs created or the dynamics with other transitions going on simultaneously, notably digitisation and automation. An emerging theme is that the macro implications for the world of work could well be manageable with the right policies and actions from unions and communities, business and finance (NCE, 2018). These macro implications, whether positive or negative, could be geographically concentrated in particular regions, with potentially significant spillovers into the local economy, and are likely to correlate with baseline susceptibility to environmental risks through flood or drought risk, air pollution or other issues.

Many investors recognise the importance of this global context. For example, Aberdeen Standard sees its work on the just transition as explicitly linking climate change and human rights (see box).

The Pope's view of climate change: a source of injustice

In June 2019, Pope Francis stated that, faced with the climate emergency, “we must take action accordingly, in order to avoid perpetrating a brutal act of injustice towards the poor and future generations”. Pope Francis remarked that a just transition to cleaner energy, if managed well, can generate new jobs, reduce inequality and improve the quality of life for those affected by climate change. He called for “decisive action, here and now” and said that the Church is fully committed to “playing her part” (O’Kane, 2019).

Investor example 3 Aberdeen Standard Investments: Connecting human rights and the just transition

Aberdeen Standard Investments is taking an approach to the just transition that has built on previous work on human rights. It has updated its climate policy to include the just transition as a key area for corporate engagement. In the last year it has scoped the agenda and connected the just transition to four human rights issues:

- Vulnerable workers in high-carbon sectors and renewables supply chains
- Land rights and community consent
- Food security
- Energy poverty

The company will examine particular holdings and assess whether they are exposed to just transition risks on a sector and geographical basis. It is incorporating the just transition into its corporate engagement strategy and its impact investing activities, including its Global Equity Impact Strategy, aligned with the Sustainable Development Goals. It is also looking to apply the just transition to private market investments and listed equities.

Growing engagement with the just transition in the UK at different scales

Over the past year, the just transition has risen rapidly up the policy and market agenda in the UK. In large part, this is based on the convergence between the climate change agenda and growing concern about inequality and injustice. According to the Institute for Public Policy Research's Economic Justice Commission, the UK is the most regionally imbalanced economy in Europe (IPPR, 2018). The Institute for Fiscal Studies recently launched a five-year study of inequalities in the UK, chaired by Nobel Laureate Professor Sir Angus Deaton, which highlights that "as at no other time in recent history, inequalities dominate the economic and policy debate" (IFS, 2019).

The UK's ability to make the shift to a climate-resilient zero-carbon economy will depend in large part on the success with which it connects the transition with social justice and inclusive growth across the country. The Committee on Climate Change, for example, highlights the need to address and manage the impact of the transition on employment and the cost of living, and to engage those most affected in order to avoid resistance to change (CCC 2019a). There is a systemic risk for investors if a just transition is not realised, but there is also a strongly positive opportunity to empower local communities, one that investors can help to underpin (Rydge et al., 2018).

Across the country, there is a growing momentum building behind a just transition from government, trade unions, businesses and investors.

Government engagement

At a policy level, the Scottish government has already established a multi-stakeholder Just Transition Commission to provide advice on how the country can develop a "carbon-neutral economy that is fair for all" (Scottish Government, 2018). With a two-year mandate, the purpose of the Commission is to advise Scottish Ministers on how to apply the ILO's just transition guidelines (ILO, 2015). The Commission has drawn up a comprehensive work plan examining what the just transition means for a set of priority sectors, including energy, transport, buildings, industry, land and agriculture, as well as finance and investment. The Commission states that its recommendations are designed to support policy decisions that will: "maximise the economic and social opportunities that the move to a carbon-neutral economy by 2050 offers"; "build on Scotland's existing strengths and assets"; and "understand and mitigate risks that could arise in relation to regional cohesion, equalities, poverty (including fuel poverty), and a sustainable and inclusive labour market" (Scottish Government, 2019).

Union engagement

In July 2019, the Trades Union Congress (TUC) released a statement on the just transition, setting out four priorities for action (see box, p17). In the case of offshore wind, the GMB and Unite unions have highlighted the need for local workers at the BiFab yards in Fife (mothballed at the time of publication) to benefit from the huge expansion in offshore wind (GMB Union, 2019). The Prospect union has also pointed to the recent fall in installations in the renewable energy sector and the need to "ensure the highest standards of safety and workforce well-being in UK renewables" as part of a "coherent, whole-system approach to energy policy" based on social partnership (Prospect, 2019).

Business and investor engagement

The business community is also recognising the importance of managing the social and spatial dimensions of the transition. For example, the Aldersgate Group, an alliance of UK businesses, research and civil society groups calling for a more sustainable economy, recently published a report recommending that government "support the workforce in the UK's transition, mapping potential investment decisions against regions facing high unemployment risk" and also to "ensure the UK has a pipeline of skilled workers for new and growing industries" (Aldersgate Group, 2019).

TUC: “A just transition to a greener, fairer economy”

The TUC’s Just Transition statement recognises that the move to decarbonise the economy has the potential to offer exciting opportunities for the economy and employment. However, it argues that “the opportunities will not be realised unless the workers most affected have a seat at the table where key decisions are made. They should be able to contribute to solutions, not be told after decisions have been made” (Page, 2019).

To make the just transition a reality, the TUC identifies four priority areas:

1. A clear and funded path to a low-carbon economy, developed by a cross-party commission, involving affected workers, unions, industries and consumers.
2. Workers must be at the heart of delivering these plans, including through Transition Agreements at the company level and just transition arrangements in bargaining at the sectoral level, and ensuring that workers and unions are represented in all local, regional and national level decisions on industrial policy.
3. Every worker having access to funding to improve their skills, by establishing lifelong learning accounts for all adults so everyone has a personalised budget for training. A well funded ‘skills for transition’ programme, cost-free to workers, must be delivered.
4. New jobs must be good jobs, with the ambition that every new job is of an equivalent standard to those that workers in many industrial sectors have now, with trade union recognition, decent pay, high standards of health and safety and a fair pension.

The statement highlights that government has a key role to play as a funder and procurer of new energy and broader infrastructure. Industrial policy to deliver a just transition should be focused on creating jobs where they are needed most in the UK’s regions and nations.

The UK has also made a strategic commitment to promote the growth of green finance, building on the strengths of the City of London. Focusing primarily on the environmental dimension, there is recognition of the need for green finance to contribute to place-based needs across the country too. For example, the Green Finance Task Force recommended in 2018 that the UK government focus on linking green finance with inclusive prosperity at the local level (GFI, 2018) and work is underway to accelerate the development of a pipeline of investor-ready local clean energy projects (UK100, 2019). In July 2019, the Government published its Green Finance strategy, which, for the first time in a UK government policy document, emphasised the importance of the just transition (HM Government, 2019b). The Government and the City of London have also established the Green Finance Institute (see box, p18).

Local government engagement

Finally, the just transition has emerged from the bottom up as a priority in local initiatives to accelerate climate action. A number of UK cities have now passed motions declaring a ‘climate emergency’, including Edinburgh, London, Leeds, Oxford and Sheffield. In some places, for example Oxford, this declaration has been accompanied by an agreement to create a Citizens’ Assembly to consult on the council’s response. Some cities are planning their own pathways to net-zero. In March 2019, for example, Leeds City Council adopted a science-based Carbon Roadmap, which laid out targets for the city to reach net-zero emissions by 2050. The Roadmap highlighted ensuring a just transition as a key challenge (Leeds Climate Commission, 2019; see box on p23).

Investor example 4

Legal & General: The role of investors in inclusive capitalism

Legal & General’s CEO Nigel Wilson has called on business to “articulate and back inclusive capitalism”, an approach that could have strong linkages with the just transition. For L&G, inclusive capitalism supports environmental, social and governance (ESG) measures. According to Wilson, “investing in urban regeneration, affordable housing, clean energy and small business finance is the mark of a socially and environmentally conscious business. Investment managers must first keep track of their own behaviours in the marketplace, as well as those of their investee companies” (quoted in Bloomberg Markets & Finance, 2018).

L&G has also developed new investments that could help address some of these issues. For example, it has established a new subsidiary manufacturing modular homes in Leeds to address the UK’s shortage of affordable housing (L&G, 2019).

The UK's Green Finance Strategy: Delivering a just transition

The UK Government's Green Finance Strategy aims to "align private sector financial flows with clean, environmentally sustainable and resilient growth [and] to strengthen the competitiveness of the UK financial sector" (HM Government, 2019b). It sets out a range of actions to mainstream environmental factors in the financial system, mobilise private finance for clean growth and capture the opportunity for the UK of growing global demand for green finance. The new Green Finance Institute will be a key body in making this happen.

In terms of next steps, the Strategy highlights the importance of delivering a just transition: "As our economy changes it is vital we make sure that this growth is inclusive, benefitting people across the UK, supporting workers as industries transform and ensuring the costs as well as the benefits are shared fairly, protecting consumers, workers and businesses."

The Treasury is conducting a review into the costs of decarbonisation, including how to achieve this in a way that works for households, businesses and public finances. A number of sector deals, for example on offshore wind and automotive, are also designed to create 'green-collar' jobs across the country. In addition, there is considerable potential to capture positive synergies between the UK's work on green finance and its efforts to scale up impact investment that aims to generate a positive, measurable impact on society and the environment alongside a financial return. The new Impact Investing Institute has been established to accelerate the growth and increase the effectiveness of this promising market.

Setting out the just transition landscape

Looking across these developments, it is clear the just transition has taken on a comprehensive scope in the UK, going beyond the world of work (see Figure 2.2).

- For **workers**, it means anticipating employment shifts, enabling them to contribute their own ideas and experience to the transition, respecting rights at work, developing the skills that will be needed, ensuring decent pay and conditions, protecting health and safety, and delivering social protection (including benefits and pensions).
- For **communities**, it means understanding the spillover effects of the transition for affected places, respecting communities' rights to be consulted about how to manage climate impacts, and their involvement in new decision-making mechanisms, and supporting community empowerment in the transition (for example through new ownership models).
- For **consumers**, it means giving priority focus to supporting those with inadequate access to sustainable goods and services (notably those living in fuel poverty, without access to transport or unable to pay their water bills). It also means removing barriers to consumers taking an active part in the transition, not least in the world of finance and investment.
- For **citizens** overall, it means creating effective frameworks for participation in the transition, building on traditional mechanisms to include new tools (such as Citizens' Assemblies) so that both the procedural and distributional aspects of the transition are dealt with openly and fairly.

These human dimensions then intersect with three priorities across the climate agenda:

- **Decarbonisation:** Mitigating the social risks involved in the reduction in emissions in high-carbon sectors and revitalising high-carbon regions.
- **Clean growth:** Maximising the social benefits from the economic opportunities of new products and services in terms of jobs, community empowerment and fairness for consumers.
- **Resilience:** Protecting people and communities from the physical impacts of climate change, with a focus on the most vulnerable.

Cutting across all of these is a strong focus on place, to make sure that the transition generates balanced development across the country and is rooted in the priorities expressed by different localities (Figure 2.3). The intersection of the human dimensions and the focus on place is depicted in Table 2.1 (p20).

Figure 2.2. The human dimensions of the just transition

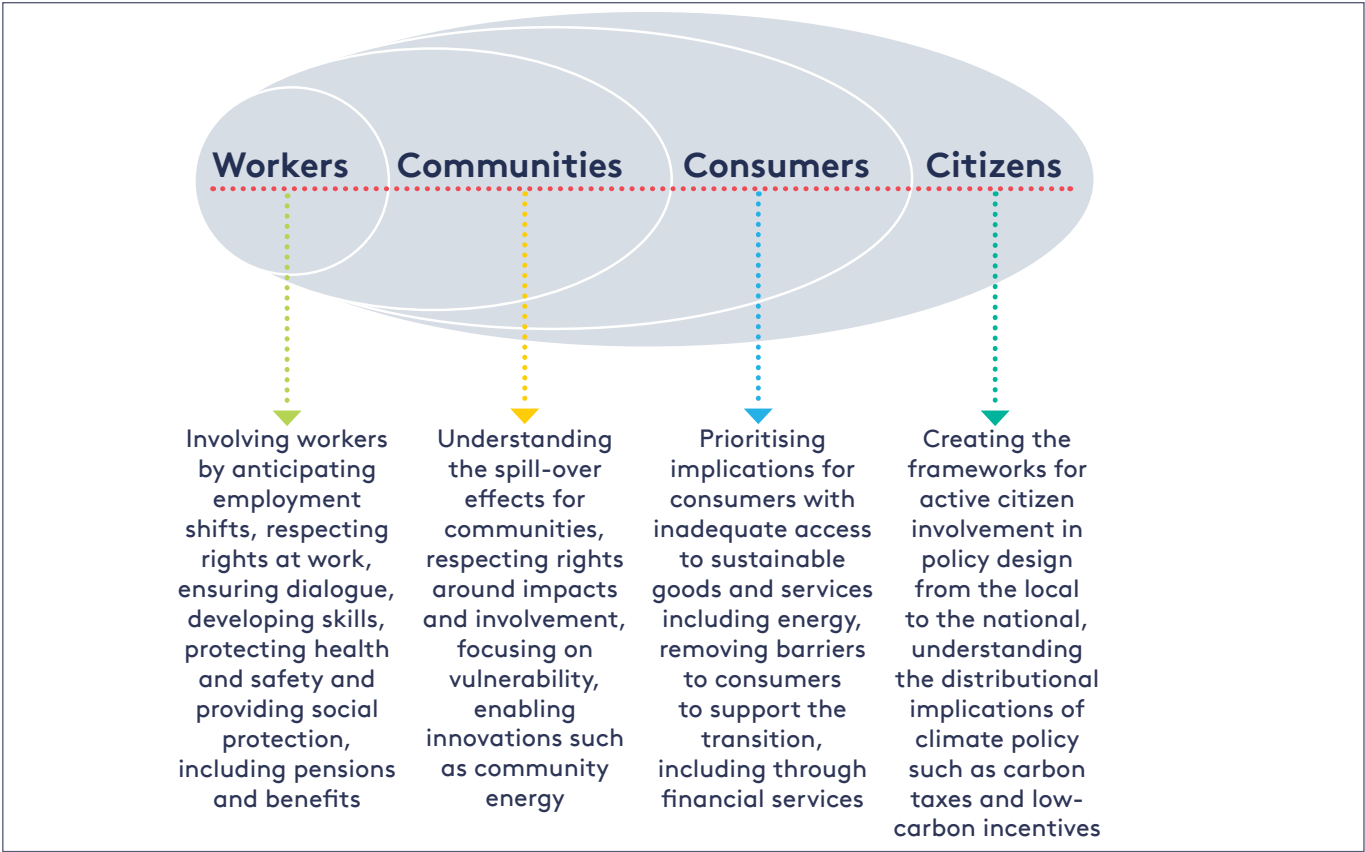
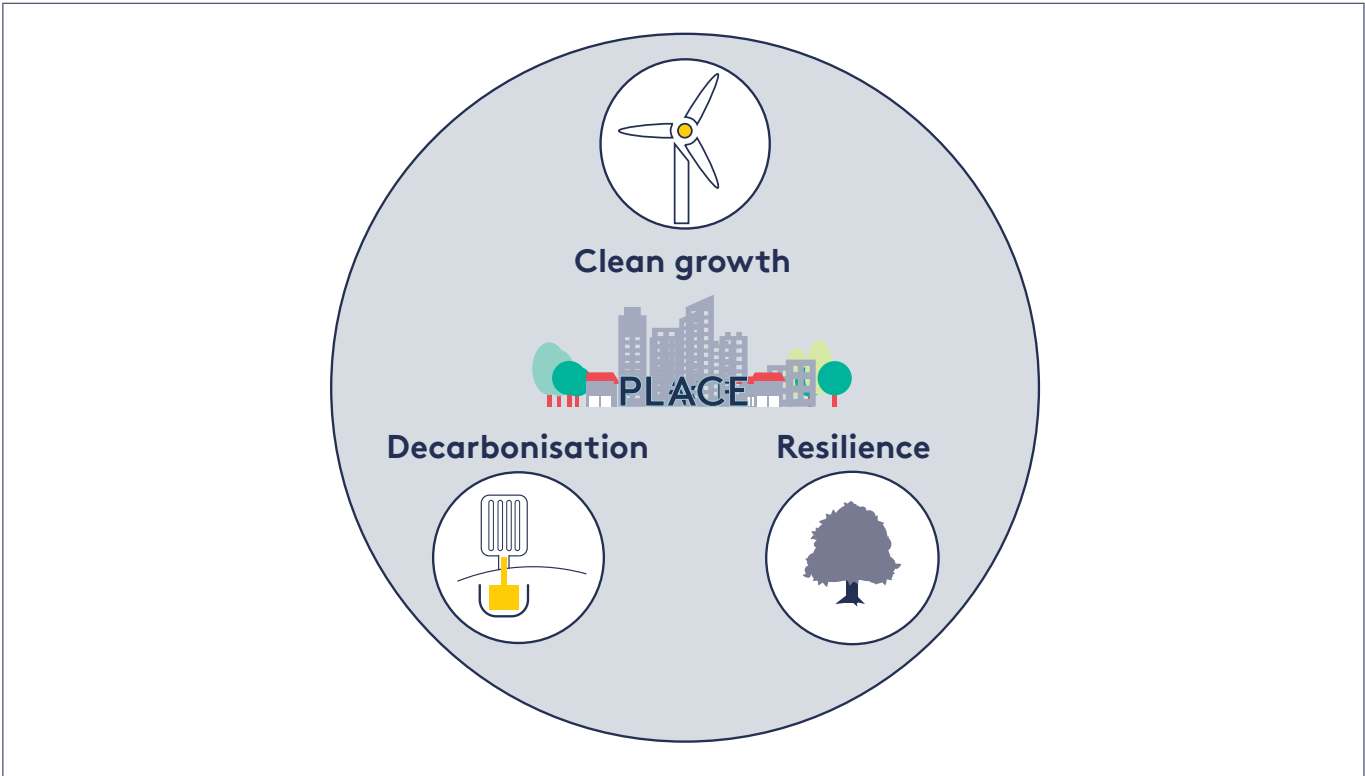


Figure 2.3. Key components of the just transition



Source: Robins et al. (2019)

Table 2.1. Setting the scope: Illustrations of the different dimensions of the just transition

	Workers	Communities	Consumers	Citizens
Decarbonisation	Ensuring responsible decarbonisation in sectors including fossil fuel energy, transport, industry.	Responding to the spillover impacts on industrial communities; revitalising regional economies.	Tackling energy poverty; ensuring fairness in carbon pricing; providing support for household decarbonisation measures.	Managing the distributional and participative issues of phasing out fossil fuels (e.g. on those unfairly impacted by changes or excluded from decision-making).
Clean growth	Delivering good jobs in clean growth areas: renewables, energy efficiency in buildings, and electric vehicles (EVs) and their supply chains.	Companies and investors ensuring a strong social licence to operate; empowering community action; protecting community rights (e.g. land rights around renewable energy).	Delivering universal access to sustainable energy; promoting prosumers (consumers who also produce energy) and citizen-investors.	Addressing the distributional and participative issues of designing a new energy system (e.g. broadening the beneficiaries).
Resilience	Ensuring workers are resilient to heat stress and other physical impacts of climate change to protect wellbeing, incomes and productivity.	Ensuring communities have resilience plans (including trees, green space, adequate building codes, flood recovery and heatwave plans).	Ensuring households have access to affordable cooling to prevent overheating/heat stress, and are resilient to flood risk.	All citizens to have a voice on resilience measures, ensuring planning is not only directed by central governments and/or vested interests.

Challenges in delivering the just transition

Turning the aspirational goal of a just transition into lived reality and practical action raises a range of challenges. These include:

- Developing commonly accepted definitions and metrics that enable key stakeholders including investors to develop practical plans for implementation.
- Allocating responsibility for a just transition between governments, business, workers, communities and also investors.
- Identifying the incentives and duties needed to stimulate effective action by investors.
- Addressing both the procedural and distributive dimensions of the just transition.
- Recognising the potential unintended consequences of the just transition, including its use by vested interests as a force for delay.
- Ensuring effective policy linkages at different levels of government: poorly planned, inefficient or conflictual interplay between devolution, regional and sub-regional policy and national approaches could be a significant barrier.
- Striking the balance between integrating the just transition through incremental reform of existing practices and more innovative approaches that bring transformational change to current systems.

There is little experience to date on what the just transition means in operational terms and how progress could be measured and evaluated. To help respond to the challenge of translating the high-level concept of the just transition into practical action, we have looked in more detail at how the transition could play out across the region of Yorkshire and the Humber, examining lessons for investors from seven example companies. These are detailed in the next chapter.

3. Exploring the practical implications of a just transition

Currently, there is no standard framework for evaluating how investors can assess the consistency of their portfolios with the just transition. The ILO has produced high-level policy guidelines, while the Just Transition Centre and the B Team have released a guide for business (ILO, 2015; JTC and B Team, 2018). To add to those guidelines, using the categories set out in Chapter 2 we have drawn up a qualitative assessment framework for how investors could implement the just transition, covering the following dimensions:

- **Environmental:** Strategy, governance, risk management, policy advocacy and metrics for delivering science-based emission reductions and strengthening physical resilience in the context of wider sustainability goals on circular economy, resource efficiency, pollution control and healthy ecosystems.
- **Workplace:** Strategy, governance, risk management and metrics for delivering rights-based workforce management, including the number of jobs, job security, respect for labour rights, employee representation, good pay and conditions, diversity and equality, skills and training, health and safety, and responsible management practices along supply chains.
- **Communities:** Strategy, governance, risk management and metrics for contributing to healthy communities, including respect for human rights, stakeholder engagement and targeting vulnerable communities, especially those left behind by deindustrialisation, and contribution to regional revitalisation.
- **Consumers:** Strategy, governance, risk management and metrics for contributing to inclusive access to sustainable goods and services (e.g. energy, finance, food and water).

We have not included the citizen dimension in this framework as it is of less direct relevance for investors.

To give substance to this framework and illustrate the real-world challenges facing investors and others in delivering the just transition, we have analysed seven examples from the region of Yorkshire and the Humber, located in North and Northeast England. Before exploring the findings of the examples, we provide a brief analysis of the just transition challenge faced by the region.

A regional focus on Yorkshire and the Humber

With a population of 5.3 million – approximately 8 per cent of the UK’s population – Yorkshire and the Humber generates 6.4 per cent of the UK’s GDP and 10 per cent of its carbon emissions (HM Government, 2018c; OECD, 2019). Once at the heart of the Industrial Revolution, in recent decades the region has experienced immense change. In some areas the decline of the coal, iron and steel industries, which gathered pace from the 1980s, has left a legacy of 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 and instead act as a positive stimulus for the region. This was the rationale, for example, for the TUC establishing a Low-Carbon Task Force in the region in 2015, bringing together partners to help develop a regional low-carbon transition plan (TUC, 2015).

Quantifying the implications of the transition for jobs in the region

As a process of structural economic change, the zero-carbon transition will involve altering the mix of skills needed in the economy. Some skills will be needed less than now or not at all in the future; others are likely to be needed more; and entirely new skills will also be required.

Our analysis indicates that one fifth of jobs in the UK today use skills that are likely to be affected by the transition (Robins et al., 2019).² Approximately half of these – one in 10 overall – use skills that are likely to be needed more in the green economy. One in 10 uses skills that are likely to be needed less.

Yorkshire and the Humber is one of the three regions of the UK most affected in these terms, along with the East and West Midlands. Across the region, just over 22 per cent of the workforce could be affected. Reflecting the national picture, around half of these are expected to see the skills they currently use in their jobs fall in demand in the transition and another half are expected to see the skills they use in their jobs increase in demand.

The implications are greater, however, in certain key sectors, as illustrated in Table 3.1, where we classify jobs with skills that will grow in demand as ‘transition aligned’ and those that will see falling demand as ‘transition exposed’. Overall, 60 per cent of jobs in the construction sector use skills that will be affected by the transition, for example. This is not surprising given the need to upgrade standards across the entire building sector as well as to employ new technologies in, for example, domestic heating. The manufacturing sector will also be highly affected, at 49 per cent of jobs, but with the distinction that more of these jobs use skills that will increase in demand, at 32 per cent, compared with 17 per cent of jobs with skills for which demand will decrease. Transport and motor trades is another particularly affected sector, again in line with its need to decarbonise, and also due to changes in the pattern of mobility through promotion of mass transit, cycling and walking.

Table 3.1. The five sectors likely to be most affected by the zero-carbon transition in Yorkshire and the Humber

Sector	No. of jobs in Yorkshire and the Humber	Transition exposed (%) (falling skills demand)	Transition aligned (%) (rising skills demand)	Total % affected
Construction	114,200	30%	30%	60%
Manufacturing	273,290	17%	32%	49%
Transport and storage	131,860	26%	19%	45%
Motor trades	48,170	26%	19%	45%
Mining, quarrying and utilities	25,130	26%	15%	41%
Region total (all sectors)	2,367,010	11%	11%	22%

Other sectors, such as health, accommodation food services (which includes restaurants, cafés and hotels) and public administration, are not likely to be significantly affected by the change in skills demand in the transition to net-zero. However, these sectors will be impacted by the physical shocks of climate change, such as, for the health sector, an increase in hospitalisations due to extreme climatic events, and, for the food services sector, potential supply disruptions.

Within the region, our estimates also point to concentrated implications for certain localities. Some local authorities could be little affected, with around 10 per cent of jobs affected, while in others up to 27 per cent of jobs could be affected (see Table 3.2). Two of these areas are locations for examples included in this report: Selby is home to Drax power station, and the Rotherham Metropolitan Borough is the location of the Advanced Manufacturing Research Centre [although its address is Sheffield]. Wakefield is notable for its high exposure and large population relative to other local authorities.

2. These estimates are based on research by Alex Bowen, Karlygash Kuralbayeva and Eileen Tipoe (2018), using employment and skills data from the United States from the National Centre for O*Net Development (NCOD, 2018). More information on the approach can be found in the Technical Appendix.

Table 3.2. The five local authorities likely to be most affected by the zero-carbon transition in Yorkshire and the Humber

Local authority	Total no. of jobs	Transition exposed (%) (falling skills demand)	Transition aligned (%) (rising skills demand)	Total % affected
North Lincolnshire	71,505	13%	14%	27%
Selby	36,085	14%	13%	27%
Wakefield	149,670	12%	11%	23%
Ryedale	24,175	11%	12%	23%
Rotherham	99,305	12%	11%	23%

A growing number of efforts are underway across the region to anticipate these and other changes, with the aim of generating positive outcomes. One of these is being led by the Leeds Climate Commission.

Leeds Climate Commission: Developing an inclusive carbon roadmap

The Leeds Climate Commission is an independent, cross-sectoral, multi-stakeholder group that has brought together key organisations and actors to identify and stimulate investment in the opportunities associated with the zero-carbon transition for the city.

In March 2019, Leeds City Council passed a motion to declare a climate emergency based on the preparation of a science-based Carbon Roadmap produced by the Commission. The Roadmap concluded that “technically and to a large extent also economically it is entirely possible for Leeds to become a carbon neutral city” (Leeds Climate Commission, 2019). It set a number of ambitious targets for the city’s journey to zero-carbon with a 70 per cent cut by 2025, 85 per cent by 2030, 95 per cent by 2035, 97 per cent by 2040, 99 per cent by 2045 and 100 per cent by 2050.

Importantly, the Commission highlighted in its analysis of the city’s next steps that “a key challenge is to ensure that the transition is a just and inclusive one – with steps being taken to ensure that people and places are not left behind and that all social groups and economic sectors participate in and benefit from the transition.” The Commission is also working on innovative ways to mobilise finance for this pathway.

Leeds City Council has also published an inclusive growth strategy covering 2018–2023, which commits to a low-carbon future alongside high quality housing, creation of better, well-paid jobs, and developing the skills and strong small and medium-sized enterprises (SMEs) needed for the economy (Leeds City Council, 2018).

Other cities and authorities in the region are developing industrial strategies, which will aim to drive clean and inclusive growth in the region. They are currently in development for three areas: West Yorkshire Combined Authority; Humber; and York, North Yorkshire and East Riding (HM Government, 2018b). In June 2019, the Humber Local Economic Partnership published its Industrial Strategy Prospectus (Humber LEP, 2019).

The Humber Industrial Strategy: Targeting net-zero by 2040

The Humber, a large tidal estuary, is home to a major industrial centre that has the highest carbon dioxide emissions of anywhere in the UK, and 30 per cent more than the next largest industrial cluster (Humber LEP, 2019). It faces climate resilience challenges due to its low-lying topography but also strategic opportunities from the drive to a net-zero economy.

In June 2019, the Humber Local Economic Partnership (LEP) published a prospectus for its industrial strategy for consultation. The prospectus presents an ambitious programme including a target of achieving net-zero emissions in the region by 2040, a decade ahead of the country as a whole. The strategy includes plans for new industries focused on clean energy generation – predominantly offshore wind, decarbonising industries like steel and chemicals, and expanding into new opportunities in engineering and assembly. It will take a cross-cutting approach, committing to “a whole-place approach to decarbonisation”, with focuses on ideas, people, infrastructure, business environment and places.

Alongside this, the Environment Agency is working in partnership with 12 local authorities, businesses and other groups from around the estuary, and the Humber LEP, to deliver a strategy that will shape the management of flood and coastal risks while enabling sustainable growth now and for the next 100 years.

Learning from practice: regional examples to explore the just transition

We have identified seven examples from Yorkshire and the Humber to illustrate the challenges raised by the just transition and the roles that investors could play. The examples are built on a review of publicly available information and discussions with key players from each company or organisation. Figure 3.1 shows their locations.

The case study process was designed in the following way:

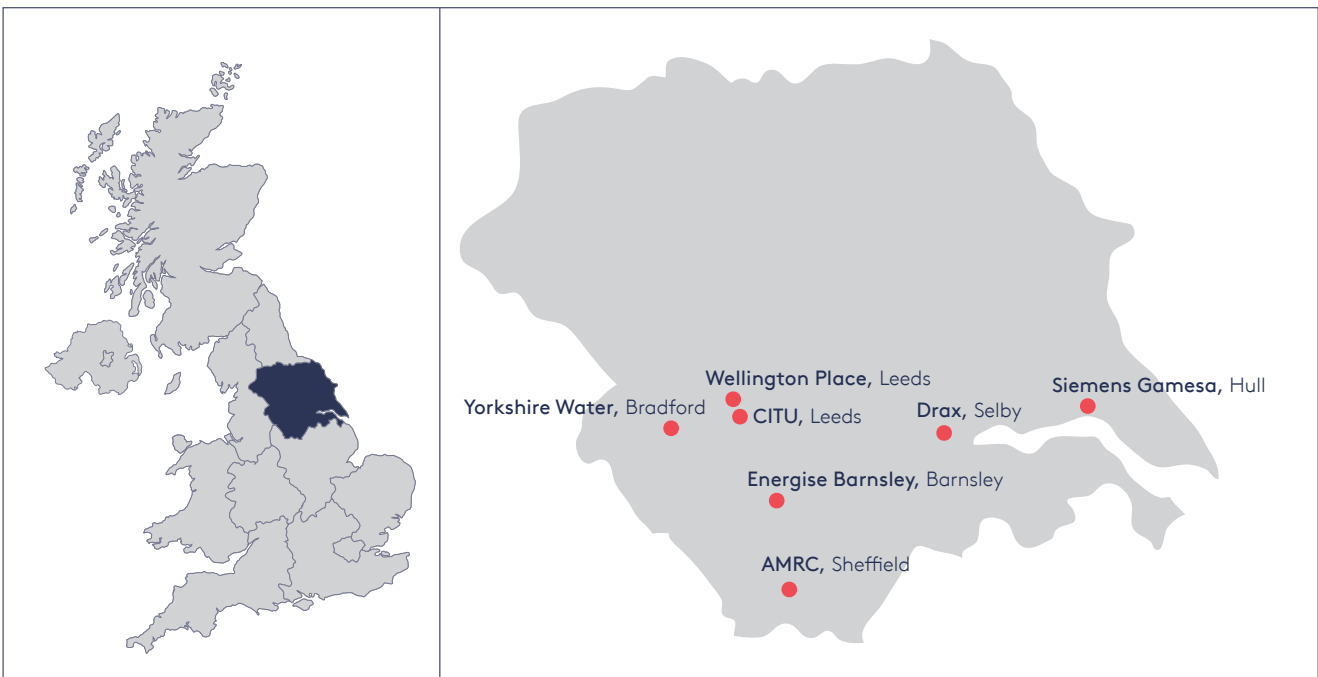
- **Themes:** The examples have been chosen to illustrate the just transition themes in the UK of decarbonisation, clean growth, resilience and, cutting across each of these, the importance of place.
- **Dimensions:** The examples seek to draw lessons for the assessment framework outlined at the beginning of the chapter, looking at environmental, workplace, community and consumer dimensions.
- **Assets:** The examples are intended to include a range of different assets that investors hold, notably listed equities (Drax, AMRC/Harworth and Siemens), real estate (Wellington Place and Citu), and fixed income bonds (Energise Barnsley and Yorkshire Water).
- **Actions:** The purpose of the examples is to inform the roadmap, notably around actions that investors could take in terms of investment strategy, corporate engagement, capital allocation, policy advocacy and learning.

What we have done for the first time is to connect the high-level ambition of the just transition with real-world examples of how the social dimensions of climate change play out in practice. The examples are not designed to present solutions to the challenge of the just transition but to generate insights for future action.

Figure 3.1. Maps to show location of the region and examples within it

Location of Yorkshire and the Humber within the UK

Location of our seven examples within Yorkshire and the Humber



Decarbonisation examples: Drax Power Station and AMRC

Decarbonisation means reducing greenhouse gas emissions to zero. Doing this will have profound implications for high-carbon economic sectors, such as energy, transport, industry and agriculture (CCC, 2019a). For a just transition to be achieved, this phase-out of carbon-generating activities needs to be managed in a way that is fair for the workers and communities involved.

The phase-out of coal-fired generation is a global climate priority and the UK has set the goal of closing its last coal-fired power stations by 2025. Yorkshire was once at the heart of the UK's coal industry, with 64 coal mines. The decline in UK coal production and use started in the 1950s and has been accelerated recently by energy system shifts and environmental policy. The UK's experience shows how it can take decades to rebuild the socioeconomic fabric of former mining communities (Caldecott et al., 2017).

The Drax and AMRC examples presented here highlight the complex choices that high-carbon firms and localities face during their move away from fossil fuels.

Drax Power Station, Selby

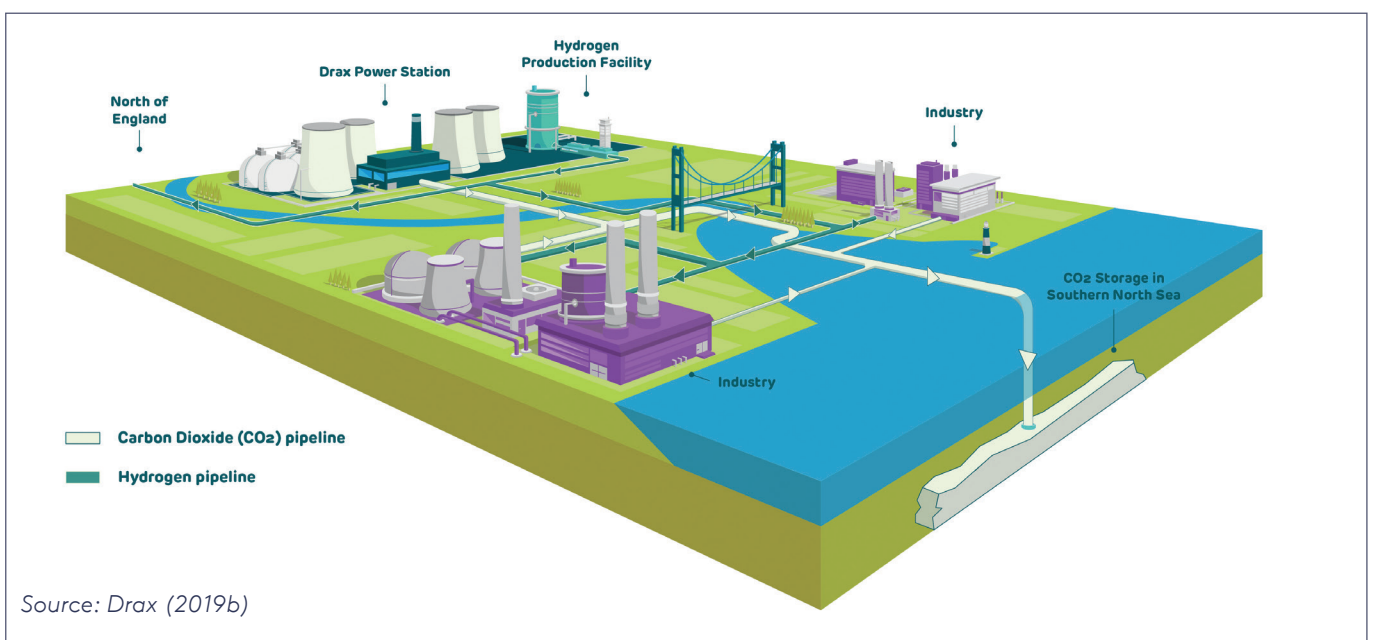
Profile

Built in 1973, Drax is the UK's largest power station, generating 5 per cent of the country's electricity. It has converted four of its six coal-fired boilers to biomass and now produces 12 per cent of the UK's renewable electricity (Drax, 2019). It is part of the Drax Group, which is listed on the London Stock Exchange and employs over 2,500 people across all sites. The area around the town of Selby, the location of Drax power station, has already experienced significant change with the closure of the Selby Pit complex in 2002 and more recently the Eggborough power plant in 2018.

The just transition issues at stake

The social implications of decarbonisation will depend fundamentally on the technology pathway that Drax chooses. Currently, Drax is at the beginning of a second phase in the decarbonisation process. The first phase involved the switch from coal to biomass for most of its boilers; the second involves moving to net-zero production through the installation of bio-energy with carbon capture use and storage (BECCS) technology. Drax has been piloting BECCS technology and is part of a consortium to develop a 'net-zero cluster' on the Humber estuary (see Figure 3.2).

Figure 3.2. What a net-zero-carbon cluster could look like in the Humber region



This transition is not without controversy or risk. Carbon emissions are still produced from biomass generation and Drax remains the UK's largest single point source of emissions. Regulators currently judge these emissions to be offset through the lifecycle of the biomass, but this is contested by a range of environmental NGOs and researchers (for example, see Alexander, 2019). In addition, Drax has announced plans to replace its remaining coal capacity with additional gas production, which would need to install CCS technology or use a zero-carbon fuel such as hydrogen by 2050 to be compatible with the Government's net-zero target. Crucially, the policy and incentive regime to enable BECCS to be commercially viable has yet to be designed.

By making the transition to a fully net-zero facility as part of a wider regional industrial cluster, Drax could support a just transition for its workforce, the surrounding community, and the wider economy in Yorkshire and the Humber. This 'net-zero cluster' would have the potential to protect existing jobs in high-carbon sectors as well as to act as a magnet for industries to the region attracted by the potential of a net-zero future. However, there are a number of planning, funding and policy challenges that would need to be addressed for this to be achieved.

Insights from the assessment

Drax places the management of its environmental and social performance within the wider framework of the Sustainable Development Goals, identifying six where it can have significant impact (including SDG7, Affordable and Clean Energy, SDG13, Climate Action, and SDG15, Life on Land).

We assess Drax using our framework as follows:

- **Environmental:** The classification of biomass as renewable remains disputed. Drax believes that its certification schemes and forest management practices are sufficient to produce net forest regrowth. The CCC recommends that biomass be used for end-uses that maximise sequestration, notably through BECCS. To make BECCS sustainable in the long-run, Drax needs to show how the feedstock required can be delivered in a way that securely delivers net-zero and also enhances biodiversity conservation.
- **Workplace:** Drax's current workplace practices cover human rights, health, safety and wellbeing, diversity and inclusion, and employee engagement. Around 19 per cent of the workforce is covered by collective bargaining agreements with trade unions. So far, Drax has said little on how workers are involved in the transition process. Scenario analysis of the diverging impacts of possible decarbonisation pathways on workers is needed.
- **Community:** Drax actively measures its wider social impact: a study from Oxford Economics estimated that the company supported 17,500 jobs across the UK in 2017. The community implications of different decarbonisation pathways (including the development of a 'net-zero cluster') need to be examined further, including through broad-based dialogue.
- **Consumers:** It is vital that the costs of making the shift to a net-zero energy system via BECCS at Drax are shared fairly and do not burden low-income consumers, for whom energy bills may already be unaffordable. This points to the need to marry supply-side measures with demand-side action to improve energy efficiency.

Lessons for investor action

For investors, the Drax example points to two priorities for investor action:

- First, shareholders need to engage with the company not only to ensure that its climate strategy has environmental integrity but also to raise the importance of worker, community and consumer interests so that the process of change is inclusive and resilient.
- Second, investors need to recognise the critical importance of effective incentive frameworks in their *policy advocacy* to ensure that the deployment of BECCS is environmentally effective, cost-efficient, and also socially equitable.

Advanced Manufacturing Research Centre (AMRC), Sheffield

Profile

Founded in 2001, the Advanced Manufacturing Research Centre (AMRC) operates on the site of the former Orgreave Colliery, following significant redevelopment of the site by Harworth Group plc, the successor to UK Coal, to provide high productivity jobs. AMRC is a partnership between the University of Sheffield and private sector manufacturers, most prominently Boeing, Rolls-Royce and McLaren, and specialises in the use of research to develop new processes and techniques in precision material applications. Although the new jobs are currently being driven by the automotive and aviation sectors, innovations at AMRC point to the potential for light-weighting and more efficient manufacturing processes.

The just transition issues at stake

Cities and regions previously dependent on high-carbon industries, such as Sheffield, need effective strategies that revitalise the economy, attract capital inflows, and generate decent work for affected communities. AMRC shows how a long-term partnership between the university sector, business and government can create a successful platform that supports additional well-paid jobs through a strategy focused on technological innovation.

The just transition has a profound public good dimension, often requiring a blend of public and private finance. The AMRC and the wider Advanced Manufacturing Park (AMP) at Orgreave have benefitted from considerable public investment alongside private sector capital. The AMRC is supported by the Engineering and Physical Sciences Research Council (EPSRC), the European Regional Development Fund (ERDF) and the UK Government. Yorkshire Forward, the now-closed Regional Development Agency for Yorkshire and the Humber, was important in the original set-up of the centre, part-funding buildings and allowing the university to gain matched funding from the ERDF. The site is also located in the Sheffield City Region Enterprise Zone, which offers benefits including business rate relief, enhanced capital allowances and simplified planning.

Insights from the assessment

- **Environmental:** AMRC is currently focused on engineering sectors that have a high carbon footprint (such as aviation and automotive). However, the Centre's expertise in light-weighting and composite materials can also be applied to technology and products that are aligned with the transition to net-zero, particularly in the electric mobility transition.
- **Workplace:** The colliery employed 500 lower-skilled workers at its closure. AMRC currently employs around 670 workers, and the AMP over 1,500 in high productivity, higher-pay, advanced technology sectors, with better working conditions than experienced in the colliery. Skills development is a critical dimension of the success including apprenticeships at the manufacturing companies on site. The overall direct impact on Sheffield, however, is reasonably modest, with the AMP accounting for only 3 per cent of the City Region's advanced manufacturing and engineering jobs (Breach, 2019).
- **Community:** The AMRC suggests that former coal-dependent industrial areas can be regenerated to support new industries. Bringing these activities together creates clusters of people and ideas in the Sheffield City Region and increases the productivity of economic activity elsewhere (Katz and Wagner, 2014). However, individual developments will not in themselves transform an area, and could also have varied impacts on communities. There is a gap between the high-skilled manufacturing around the AMP and the sector more broadly in Sheffield. Overall, only 20 per cent of exporting firms in the Sheffield City Region are high-skilled businesses, versus a national average of 49 per cent (Breach, 2019). This suggests a potential low level of linkage to the communities that have historically worked in the city's industrial economic base.

- **Consumers:** Technological innovation in manufacturing techniques will be needed as industrial processes change to zero-carbon. This will be critical to driving down the cost of the transition and benefitting consumers through improved living standards.

Lessons for investor action

The AMRC example provides three lessons for investor action to support the just transition:

- First, investors need to support strategic public investment to develop innovation clusters in high-carbon regions as part of their *policy advocacy*.
- Second, investors need to *engage* with leading development companies and landowners in high-carbon regions (such as Harworth Group³) to ensure high environmental and social standards. This could be done by equity investors or those investing in discrete infrastructure projects.
- Third, investors need to participate in place-based partnerships as part of their *capital allocation* strategies. It is striking that the key partners of AMRC are all industrial; in the next phase of the transition, financial firms and investors could also play a key role.

Clean growth examples: Siemens Gamesa, Wellington Place, Citu and Energise Barnsley

Clean growth involves the rapid expansion of economic activities that are consistent with a pathway to a net-zero emissions and sustainable economy. Clean growth is one of the five 'grand challenges' in the UK's Industrial Strategy and offers strategic opportunities for enhanced prosperity and high-quality jobs. It covers a broad range of sectors including the manufacture and deployment of renewable energy, energy-efficient and green buildings, zero-carbon transport, and sustainable land-use and agriculture.

The just transition challenge is to ensure that growth in low-carbon products and services creates jobs consistent with the global goal of 'decent work' and that it brings benefits for the wider community. New models of localised energy can play an important role in tackling consumer issues including fuel poverty and energy access.

Siemens Gamesa and Green Port, Hull

Profile

The Green Port Hull partnership was launched in 2010 to serve the growing offshore wind developments in the North Sea. In 2011, Siemens and Associated British Ports agreed to develop the Alexandria Dock site in Hull. In 2015, Siemens opened its new factory after making a £160 million investment and the first vessels were launched in 2017.

The just transition issues at stake

Offshore wind represents a strategic opportunity to deliver clean growth and high-quality jobs across the UK. The sector currently supports 7,200 jobs and this could grow to 27,000 jobs by 2030 (HM Government, 2019c). The recent sector deal between the Government and industry has also committed to increasing the representation of women in the workforce to at least a third by 2030.

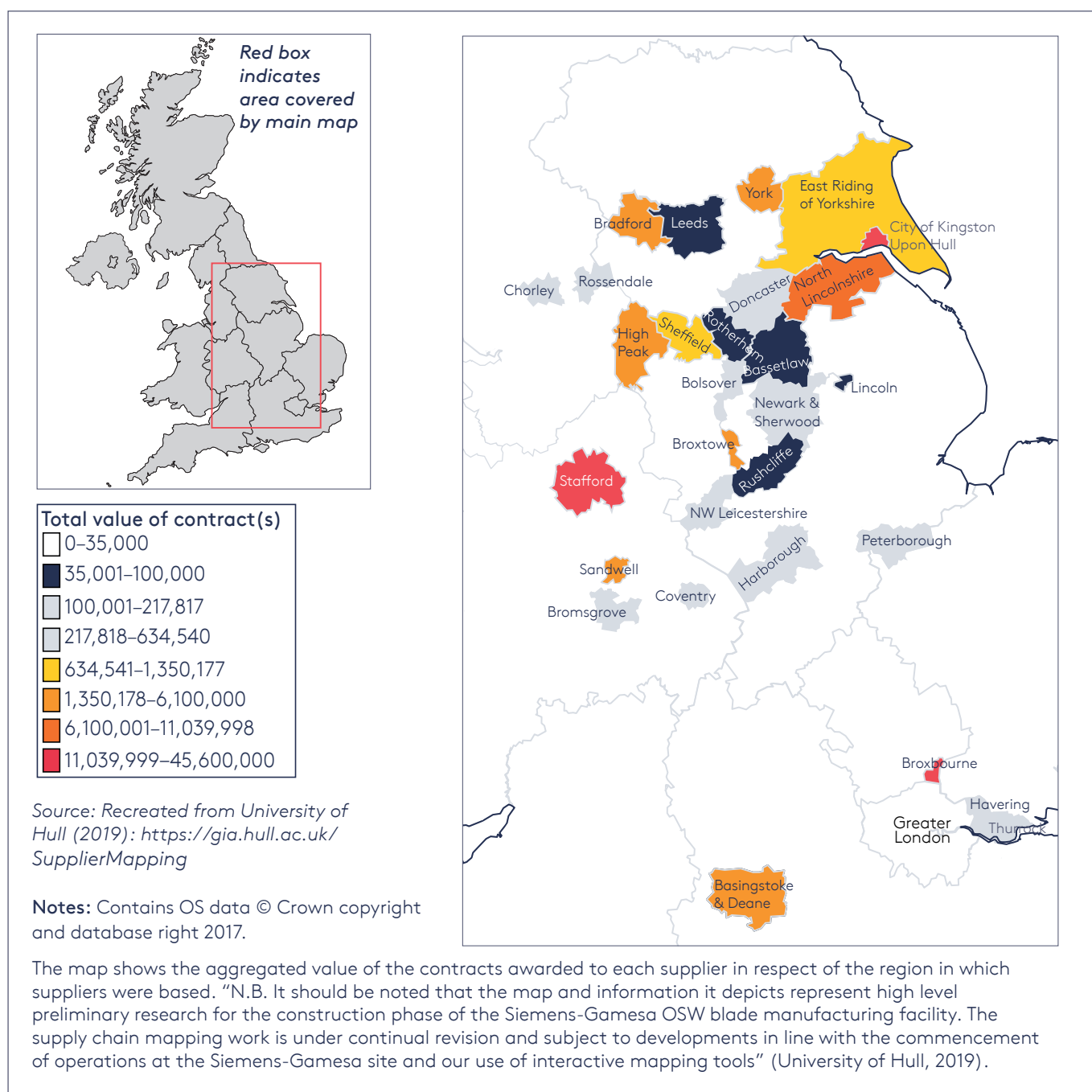
The Green Port development at Hull shows how corporate investment in the expansion of clean energy can bring wide social benefits to a region through the creation of new high-productivity jobs and local supply chains. It has involved partnership with workers and unions at the facility as well as with local authorities, universities and suppliers across the region. The Green Port development highlights the need to think about an ecosystem of change involving local companies, investors, local authorities, local communities, surrounding universities and central government. The University of Hull has established Project Aura, supported by public finance, to develop and deliver skills, knowledge and innovation for the offshore wind industry.

3. Land and property regeneration company Harworth Group estimates that its wider portfolio has the potential to add £3.6 billion in gross value added to the UK economy (Harworth Group, 2019).

Importantly, it also shows how sustainability commitments at a leading global corporation such as Siemens can be translated into reality in a particular place. Globally, Siemens' sustainability policy is structured around its Vision 2020+ strategy and is rooted in the Sustainable Development Goals: its workforce policies relate to key just transition issues such as education (SDG4), gender equality (SDG5), decent work (SDG8) and reduced inequality (SDG10) (Siemens, 2018). Siemens also has an International Framework Agreement with the IndustriAll Global Union, which represents 50 million workers globally. In the agreement, Siemens commits itself to respect fundamental workers' rights as enshrined in core labour standards (IndustriAll, 2012). In Hull, these policies are delivered through its dedicated renewable energy subsidiary, Siemens Gamesa.

Figure 3.3 shows, at an aggregate level, which areas have benefitted financially from the Green Port development in terms of primary spend. The largest centres of spend are in Yorkshire and the Humber, especially in Hull, and in North Lincolnshire, Bradford and, more distantly, Stafford and Hertfordshire (Broxbourne).

Figure 3.3. Regional value of supply chain contracts in England for the Siemens Gamesa Green Port plant



Insights from the assessment

- **Environmental:** Siemens has a strategic commitment to low-carbon growth: in 2017, revenues from its Environmental Portfolio – including offshore wind – accounted for 47 per cent of its total revenue. Siemens Gamesa has committed to carbon neutrality across its value chain by 2025, aiming to be the first major industrial company to achieve this (Siemens Gamesa, 2019). This target aligns expectations and creates certainty around the future direction of the company, which is a major employer and anchor⁴ institution in Yorkshire and the Humber.
- **Workplace:** Globally, Siemens employs 379,000 people, of which 14,000 are in the UK, and it has created over 1,000 new jobs directly at the Alexandria Dock site. As part of the development of the Green Port site, Siemens agreed union representation through Unite the Union, which was directly involved in the design. Both management and union representatives report very good labour relations at the site overall.
- **Community:** Siemens Gamesa committed to maximising local economic benefits from the project, including local jobs and developing new local supply chains. To date, over 95 per cent of the jobs created by this investment are located in the Humber region. Siemens also decided to build up a local supply chain in the area rather than simply drawing on existing suppliers for its wind operations in Denmark and Germany. Recent estimates suggest that this investment had an economic multiplier of 1.47, generating gross value added of £71.3 million (University of Hull, 2017). Siemens also measures its contributions to society, which are collated at each location through a ‘Business to Society’ programme (Siemens, 2019).
- **Consumers:** The Green Port example shows the importance of effective policy incentives such as the Contracts for Difference in the offshore wind sector, which have effectively driven down the cost of renewable energy and thus reduced the cost of the transition for consumers.

Lessons for investor action

The Green Port example provides two lessons for investor action to support the just transition:

- First, it points to the type of social standards that major corporations will need to have in place if they are to contribute to a just transition and thereby provides an example that investors can use in their *shareholder engagement* with other companies.
- Second, it illustrates the importance of a comprehensive policy framework to drive positive investment flows and highlights priorities for *policy advocacy* with national governments in terms of incentive regimes and public investment in the development of clean growth clusters.

Wellington Place, Leeds

Profile

Wellington Place is the largest new office development in Leeds, Yorkshire’s largest city. It is led by MEPC Plc and is funded by two pension funds: BT Pension Scheme (through Hermes Investment Management) and the Canada Pension Plan Investment Board. Planning started in 2006 and the final building is due to be completed in 2026; so far, investment in construction has totalled £150 million (Hatch Regeneris, 2019). Future expansion could result in Wellington Place hosting one in 10 jobs in central Leeds.

The just transition issues at stake

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 workplace performance and community benefit. For major developments, place is now becoming

4. In the context of regional development, an ‘anchor institution’ can be defined as one whose scale, rootedness and community links are such that they are acknowledged to play a key role in local development (Morris et al., 2010) – see p37.

a critical factor for real estate investors, to secure financial performance but also to generate positive impacts in the locality.

The transition to net-zero will require the introduction of best-in-class sustainability criteria for design and operation of new buildings as properties are developed and redeveloped, along with the flexibility to upgrade to full net-zero standards. Equally, how commercial property is developed or redeveloped in terms of the people dimension is increasingly a key performance factor. Real assets and construction are also important to the skills transition as the economy decarbonises.

Wellington Place highlights the proactive role that long-term asset owners can play in providing patient capital for urban regeneration. The project is being developed according to Hermes' Responsible Property Investment (RPI) strategy (see box).

Insights from the assessment

- **Environmental:** On overall building performance, Wellington Place is currently rated BREEAM⁵ 'Excellent', one level below the top rating, 'Outstanding' (Hermes Investment Management, 2019). The next step is to explore how the building can surpass these standards and demonstrate net-zero alignment, and become a local leader in Leeds City Council's ambition for a rapid transition to net-zero.
- **Workplace:** Developing skills is a key part of the just transition and this has been a focus at Wellington Place. In total, 100 apprenticeships were completed during construction through to 2018, with an estimated earnings uplift of £6.1 million (Hatch Regeneris, 2019). The contractor, Wates, has also entered partnerships with two local social enterprises to employ and train homeless people on the site. Wates has tracked that 80 per cent of working days are completed by people who live within 40 miles of the site.
- **Community:** From the beginning, Wellington Place has had an explicit commitment to place-making, so that the benefits of the site spill over into the local community. Regeneris has identified wellbeing benefits of around £1.7 million per year at the site due to high quality public space, events and activities programmes (Hatch Regeneris, 2019). One fifth of construction spend is within 10 miles of the site, benefitting communities (ibid.). Wellington Place has become an anchor investment in the wider regeneration of Leeds's West End, improving the commercial viability of regenerative developments on other sites in the area.
- **Consumers:** For real estate developments such as Wellington Place, the 'consumers' are the commercial tenants and their employees. Over 3,900 people now work in offices on the site, 60 per cent of whom live in Leeds, and 85 per cent are employed in high value sectors identified as priorities for the region. Future expansion could take this to over 18,000 employees.

Investor example 5

Hermes: Responsible property investment and the just transition

Hermes' Responsible Property Investment (RPI) strategy views environmental, social and governance (ESG) risks as business-critical to its duty to deliver holistic returns: by this Hermes means "outcomes for our clients that go far beyond the financial and consider the impact our decisions have on society, the environment and the wider world" (Hermes, 2018). The RPI strategy and programmes cover ESG factors, with a social focus on employees, tenants' wellbeing and safety, place-making, communities' socioeconomic development, supply chain worker rights and modern slavery.

More recently, Hermes set out how to create positive impacts through its Responsible Property Investment for the SDGs:

- "Meaningful place-making that fosters civic pride
- "Healthy, engaged and productive occupiers and communities that drive desirable social and environmental outcomes for all stakeholders
- "Achieving a just transition to a low-carbon, circular economy in order to help prevent further adverse climate change and resource scarcity" (Hermes, 2019).

5. BREEAM is a sustainability assessment method for masterplanning projects, infrastructure and buildings. See breeam.com.

Lessons for investor action

Wellington Place highlights three lessons for investor action to support the just transition:

- First, it points to the critical role that long-term asset owners can play in terms of *capital allocation* that supports real estate development which has explicit goals to deliver environmental, workplace and community benefits.
- Second, Wellington Place highlights the importance of *policy dialogue and partnerships* at the local level so that individual investments can deliver wider positive spillovers in line with the climate and inclusive growth objectives of cities and towns.
- Third, it shows that today's market-leading practice is not necessarily sufficient to deliver either the environmental or social requirements of a just transition given the urgency and the scale of the UK's new net-zero target. This points to the need to review *investment strategy* so that it is consistent with the country's new goals.

Citu, Leeds

Profile

Citu is a privately owned low-carbon housing developer based in Leeds. Founded in 2004, it has two core developments: the Climate Innovation District in Leeds and Little Kelham in Sheffield.

The just transition issues at stake

The UK will not meet the net-zero target without the complete decarbonisation of its housing stock. In addition to the considerable challenge of converting and retrofitting existing dwellings, all new homes must be low-carbon, energy- and water-efficient and climate-resilient from the outset (CCC, 2019b). Built infrastructure is also vital for community cohesion and construction is an important source of employment.

Citu has pioneered an innovative development model that aims to go further than existing standards for new residential buildings. Citu homes use around 10 times less energy for heating compared with the average UK house, for example. The Citu example shows the limitations of the UK's financial system in supporting the breakthrough innovations that will be needed for a just transition. Public finance has been critical to enable this early stage company to grow in the absence of commercial capital from banks or investors. Citu has been supported with debt finance from Homes England for its Sheffield development as well as from Innovate UK to underpin the establishment of its manufacturing facility. In addition, Leeds City Council's Revolving Investment Fund (RIF) supported Citu with senior debt to aid the development of the Climate Innovation District. The RIF is a £20 million fund set up by the Leeds City Region LEP to supply loans for infrastructure and construction projects. It aims to "address failures in the provision of commercial finance" as well as "accelerate economic growth and job creation" (Leeds City Region, 2017).

Insights from the assessment

- **Environmental:** Citu is distinct as a developer in that its properties and districts are focused on delivering low-carbon lifestyles. Its buildings have a carbon footprint seven to 10 times lower than the average UK house (Citu, 2019).
- **Workplace:** The construction of low-carbon housing stock can provide new employment opportunities, including skills and training elements. As well as delivering leading environmental practices, small businesses such as Citu will also need to demonstrate strong workplace practices if they are to contribute fully to a just transition.
- **Community:** The freeholds of the developments are owned by Community Interest Companies (CICs), with each resident a part-owner. Beyond the residents in the developments, further work is needed to ensure that the wider community also benefits from these innovative business models.
- **Consumers:** Well insulated, resilient and resource-efficient housing reduces the costs of climate change and low-carbon transformation for consumers and households. The target market for Citu's developments is relatively affluent, however.

Lessons for investor action

The Citu example generates two instructive lessons for investor action about the financing of breakthrough innovations for climate action:

- First, it shows the vital role for public investment to provide access to capital for promising small and medium-sized enterprises and makes this a critical aspect of *policy advocacy* at the local and national levels.
- Second, it highlights the gap in the current commercial financing market and the potential for impact investors to change their *capital allocation* strategies to provide patient and flexible financing, for example through place-based investment funds focusing on stimulating inclusive clean, climate-resilient growth.

Energise Barnsley, Barnsley

Profile

Launched in 2015, Energise Barnsley is one of the largest local authority and community energy rooftop solar PV and battery storage projects in the UK. Its mission is to show how a formerly coal-dependent community can move to clean energy and generate strong social benefits in the process.

The just transition issues at stake

Small-scale and community-owned energy developments offer a way of expanding renewable generation with significant co-benefits for society, notably by targeting installations towards those suffering from fuel poverty and channelling a share of the profits towards social projects. On average, fuel poverty affects 11 per cent of the population in England, but this rises to 24 per cent in parts of Barnsley (HM Government 2018a, 2019a).

Structured as a community benefit society, Energise Barnsley has delivered solar arrays (groups of solar panels) on 321 council-owned homes and 16 council buildings in Barnsley. This has been achieved through a close partnership with the local council, a community energy developer, an impact investor and a utility. In 2016, Energise Barnsley raised £1.2 million from local and national investors via the Ethex platform through a five-year bond with a 5 per cent coupon.

The success of Energise Barnsley rested on the availability of secure feed-in tariffs; these were, however, substantially reduced by the Government in 2016 and removed entirely for new projects in 2019. Nonetheless, the continuing fall in clean energy technology costs mean that considerable opportunities exist – but market frameworks are still needed for these to become viable. Key policy measures to support community energy in the future could include providing incentives for network operators to engage with community energy, reinstating tax relief for investment in genuine community energy projects, and encouraging energy efficiency in communities, small business and the public sector (Green Alliance, 2019).

Insights from the assessment

- **Environmental:** Over the lifetime of the project, the solar panels will save over 18,000 tonnes of carbon dioxide, with savings continuing for as long as the panels are still operational.
- **Workplace:** Community energy projects have historically focused on generating social benefits beyond the workplace. Workplace practices are also important, however, particularly in the installation phase. Energise Barnsley ensured that local workers were included in the supply chain, using 18 local contractors. In addition, it chose British Gas as a major contractor, in part due to its high health and safety standards.
- **Community:** The Community Fund will distribute £20,000 in the first year and £10,000 each year thereafter over the 20 year project lifetime. Being community-led brings greater trust, reduced risk in the planning process and the retention of more economic value in the community. The sector has launched its own social impact tool through Community Energy England as a first step in gathering and reporting impact at a sector-wide level (Community Energy England, 2019) and it is important that projects, companies and investors support this.

- **Consumers:** Energise Barnsley provides real savings to low-income households from the deployment of solar energy of an estimated £130–150 per year (Ethex, 2016).

Lessons for investor action

The Energise Barnsley example offers two important lessons for investors in terms of capital allocation and policy advocacy around the just transition:

- First, for many institutional investors, social investments such as community shares and bonds have traditionally not met required rates of return or have exceeded risk thresholds. For many, they are also a new asset class, and as such there may be little in-house expertise with which to assess investment risks and opportunities. There is now, however, a rapidly growing impact investment market, with the Global Impact Investing Network estimating that it doubled in size in 2018 alone. These investors have capital to allocate to projects with high social and environmental impacts alongside financial returns, such as community energy. Those with a place-based investing strategy, such as local authority pension fund pools, may also be able to invest small amounts of capital in similar projects.
- Second, investors can play an important role signalling to governments that credible and coherent policies are needed that allow for the development of local energy projects. This could, for example, lead to the securitisation of projects. The small scale of local energy projects and the due diligence costs for investors often make them challenging to fund individually.

Resilience example: Yorkshire Water

Managing flood and coastal erosion risk in the coming decades is a critical task for the UK. The Environment Agency’s Long Term Investment Scenarios (LTIS), most recently updated in May 2019, set out the major challenges in the context of a changing climate, but also in relation to asset deterioration and a growing population, recognising that this issue is multidimensional (Environment Agency, 2019). The report concluded that the optimum long-term annual average investment in flood resilience is now around £1 billion.

This is not just a public sector issue. Private sector firms, including private sector water utilities such as Yorkshire Water, will need to consider resilience and invest accordingly while at the same time decarbonising their operations and ensuring a just transition for their workforce.

Yorkshire Water

Profile

Created in 1973 and privatised in 1989, Yorkshire Water delivers 1.3 billion litres of drinking water a day to Yorkshire and the Humber and is the second largest landowner in the region. It is currently owned by the Kelda Group, which in turn is ultimately controlled by four financial investors, including Citigroup, HSBC, GIC and Prudential. It relies on the debt capital markets for the bulk of its investment capital.

The just transition issues at stake

Yorkshire Water’s transition challenge is multi-dimensional. Within the next 25 years, England’s water supply could be insufficient to meet demand; climate change will also intensify flood and wildfire risks, with consequences for water supply. Companies such as Yorkshire Water will need to protect their catchments and increase water efficiency, introduce net-zero energy and land management strategies, and ensure that workers, consumers and communities are included in the process of change. In the next 25 years, Yorkshire Water will also need to supply water to an estimated additional one million people as the local population expands. As a private company providing essential social and environmental services, the just transition challenge will involve successfully balancing responsibilities to different stakeholders in the context of a more challenging climate. The transition will also be capital-intensive; Yorkshire Water currently invests around £1.5 million in maintenance and infrastructure per day (Yorkshire Water, 2018).

Yorkshire Water has developed a Total Impact and Value Assessment (TIVA) to guide its strategic direction. It uses the Six Capitals model, as developed in the Integrated Reporting Framework by the International Integrated Reporting Council: human capital (e.g. the workforce's capabilities and wellbeing); social capital (e.g. community relationships and customer trust); intellectual capital (e.g. knowledge and technical processes); manufactured capital (e.g. infrastructure and technology); financial capital (e.g. financial health and efficiency); and natural capital (e.g. the services provided by the environment).

Based on the TIVA model, Yorkshire Water released a Sustainable Finance Framework in 2019 to align its bond-raising strategy with both social and environmental priorities. This moved beyond the standard 'green bond' approach to include social priorities such as access to services and socioeconomic advancement as well as environmental priorities (such as renewable energy, sustainable water management and biodiversity). Although the Framework does not explicitly reference the just transition, it provides a strong platform to connect the social and environmental dimensions of Yorkshire Water's business (Kelda Group, 2019). Its first sustainability bond was issued in April 2019, raising £350 million with a 22 year maturity.

Yorkshire Water sees itself as an anchor institution within the region, and its wide reach and long-term focus could be deployed to support the just transition, for example by partnering with community energy initiatives across the region.

Investor example 6

Abundance: Crowdfunding municipal bonds for the transition

The UK lacks the thriving municipal 'green bond' market that can be found in other European countries (such as Sweden). In the UK, local authorities must seek the cheapest source of finance possible, and the Public Works Loan Board (PWLB) currently offers funds at concessionary public sector interest rates (DMO, 2019). Crowdfunding models could, however, overcome this barrier by offering investors an interest rate with higher rewards than holding cash but low enough to provide finance that is sufficiently cheap for councils to meet requirements.

This model is currently being trialled for renewable energy by the University of Leeds and Leeds City Council (Davis and Cartwright, 2019). The pilot is aiming to install solar arrays on council buildings, funded by a crowdfunded municipal bond through the Abundance platform, and has been supported by the Department for Digital, Culture, Media and Sport, and Local Partnerships. The project plans to launch bonds open to citizen investors in Leeds later in 2019. The first 'Community Municipal Bond' model was issued by Abundance and Swindon Council in 2016, raising £1.8 million at 6 per cent over 20 years through local and national investors.

Investor example 7

Bridges: Exploring the role of social impact bonds

Bond structures are flexible and can be used to target different outcomes. In social policy, they have been developed to allow impact-driven investors to support outcomes-based social programmes focused on improving the lives of disadvantaged groups. The social sector organisations commissioned by the Government to deliver these programmes are paid for achieving successful outcomes, not just for delivering a service. This means they have more flexibility to tailor their approach to individual needs, plus a clear incentive to deliver the best possible results. Meanwhile, government gets more clarity and transparency about what works, without wasting money on things that do not.

Bridges is an impact-driven investment firm, which has a specialist team that provides working capital and management support for these programmes. It has supported a project in Yorkshire that uses these bonds to fund a programme to help young people who are homeless or at risk of being homeless – a cohort that often has complex and varied needs, requiring a range of different services. The bond was commissioned via the Government's Fair Chance Fund and the programme is delivered by a charity called Fusion Housing. Fusion was able to provide a much more tailored and better coordinated service and delivered markedly better results than under normal provision. Over a three-year period, Fusion worked with 350 young people – 100 more than the original aim – and exceeded all its outcomes targets by an average of 10 per cent. A similar approach could be used to support communities negatively affected by the transition away from high-carbon energy by, for example, structuring bonds to generate returns linked to re-employment rates or increased earnings.

Insights from the assessment

- **Environmental:** Yorkshire Water has committed to deliver net-zero performance by 2030 and is scaling up investments in land management, resilience and water efficiency. The proceeds of its first sustainability bond will be focused on environmental upgrades.
- **Workplace:** Yorkshire Water currently employs over 3,500 people with well-established mechanisms for collective bargaining and employee dialogue (Yorkshire Water, 2019a). In recent years, technology has cut the labour intensity of some functions. However, an increased focus on natural capital stewardship and resilience has resulted in a net increase in workers. The company will have new skills, hiring and apprenticeship needs as the transition progresses.
- **Community:** Partnership and dialogue will be vital to ensure that the transition is fair for the local community. Yorkshire Water's current planning framework involves local dialogue in conjunction with the Price Review Framework laid out by the Water Services Regulation Authority, Ofwat.
- **Consumers:** The Yorkshire Forum for Water Consumers already publishes an independent statement on the company's performance, evaluating the quality of its customer engagement. This process involves extensive customer research on affordability as well as issues such as carbon performance, where there is 86 per cent customer support (Yorkshire Water, 2019b). The Forum also considers Yorkshire Water to be a leader in the support it provides for vulnerable customers, another area of growing focus for the business.

Lessons for investor action

The Yorkshire Water example has clear lessons for investors in terms of capital allocation. Its Sustainable Finance Framework provides one of the clearest models for how the social and environmental dimensions of the transition could be managed for fixed income investors, moving beyond the single dimension that is captured in 'green bonds'.

Summary of early stage findings

These examples provide an opportunity to explore how the high-level aspiration to deliver a just transition can be translated into practical action, not least by investors. None of the them has used the framing of a just transition to describe their own approach to climate change, though relevant practices and impacts are clearly identifiable. In the assessment process we had to piece together examples and evidence from a range of sources.

Three early findings can be drawn:

- First, there is an urgent need for a shared approach to evaluate business performance in the just transition, bringing together different ingredients such as the Sustainable Development Goals, human rights and impact investing frameworks.
- Second, there is a central role for anchor institutions such as local authorities, regional businesses, trade unions, universities and long-term investors, in the creation of the economic ecosystem in which the just transition will flourish.
- Third, system-wide innovations to drive market transformation for a just transition are vitally important, whether in terms of new structures for dialogue in the workplace and the wider community, appropriate environmental regulation, or in terms of creating new financial markets that better respond to the social nature of the transition (such as new forms of bond investing).

Below we look at each of these findings in more detail.

i) The need for a shared approach to evaluating the just transition

The absence of a shared approach to evaluating the just transition is a major barrier to broad-based action. For large companies such as Drax, Hermes, Siemens and Yorkshire Water, international frameworks such as the Sustainable Development Goals and the Six Capitals model provide ready

frameworks for linking climate action, decent work and efforts to reduce inequality. Even under the guidance of these frameworks, however, there is still an instinctive siloing of the environmental and social dimensions of the transition, and companies have little experience of analysing how climate action could generate impacts in the workplace or wider community. A new social impact tool for use across the community energy sector could help to remedy this.

ii) The central role of anchor institutions

In the context of regional development, an ‘anchor institution’ can be defined as one whose scale, rootedness and community links are such that they are acknowledged to play a key role in local development (Morris et al., 2010). Many of our examples emerged as anchor institutions. These include Drax in terms of its potential role in a net-zero cluster on the Humber; Siemens and the development of an offshore wind hub in Hull; AMRC and the creation of an innovation manufacturing platform in Sheffield; Wellington Place and the regeneration of central Leeds; and potential linkages between Yorkshire Water and enterprises and communities across the region. Universities also play a key anchor role across a number of the examples, not least at AMRC and at Green Port Hull.

Alongside these largely corporate examples, trade unions can also play an anchor role (for example, through the TUC’s Low-Carbon Task Force in Yorkshire), as can new multi-stakeholder partnerships such as the Leeds Climate Commission and the Leeds City Region Climate Coalition.

A key question for the just transition is how to create the incentives that encourage established institutions to think beyond their narrow institutional interests and create positive spillovers, while also encouraging disruptive innovations from new entrants. Furthermore, anchor institutions can play a particularly important role in working along supply chains and bringing SMEs on board.

iii) The importance of system-wide innovations for a just transition

Beyond the implications for individual assets and institutions, the examples also show how the just transition could require system innovations to drive market transformation. In the UK context, one recurrent theme is the need for new models for dialogue, whether in the workplace and the wider community or between organisations and across sectors. Another priority is the need to create new financial markets that better respond to the social aspect of the transition (such as new forms of bond investing). In addition, there is a clear need for a more holistic approach to the various components of the environmental agenda, not least to connect the zero-carbon and climate resilience dimensions, but also to connect this to the urgent need for the regeneration of nature.

At the heart of these system innovations will be improvements to the current policy framework. Table 3.3, on p38, summarises some of the key policy linkages from each example, illustrating the broad range of factors that will need to be brought together. Connected to all the examples is the need for policy that enables investment in green and blue infrastructure that will enable businesses and communities to minimise and mitigate the negative impacts of climate change.

Table 3.3. Key policy linkages emerging from the Yorkshire and Humber examples

Example	Policy linkages
Drax Power Station	<ul style="list-style-type: none"> ● Importance of renewable energy subsidies for the development of biomass generation. ● Support for the development of carbon capture technology for use in BECCS at Drax to provide important greenhouse gas removal capacity. ● National industrial policy to facilitate the development of a zero-carbon industrial cluster on the Humber estuary using carbon capture and storage in the North Sea. ● Local industrial policy to revitalise the historically coal-dependent Selby area, in partnership with the private sector and trade unions.
AMRC	<ul style="list-style-type: none"> ● Long-term development finance for research and innovation of new technologies aligned with the low-carbon transition. ● Apprenticeships and training in new low-carbon technologies in partnership with the private sector and trade unions.
Siemens Gamesa	<ul style="list-style-type: none"> ● Credible clean energy incentives via Contracts for Difference to attract long-term investment. ● Active industrial policy to realise wider spillover effects in the regional economy. ● Strategic partnerships with universities to develop skills and innovation.
Wellington Place	<ul style="list-style-type: none"> ● Long-term partnership with local authority to deliver environmental and community benefits. ● Regulation of building standards on carbon and labour standards so that new buildings have a clear net-zero future.
Citu	<ul style="list-style-type: none"> ● Vital role of public finance from local and national sources to support breakthrough business models. ● Planning support for developments that show net-zero alignment and community integration beyond industry best practice.
Energise Barnsley	<ul style="list-style-type: none"> ● Reliable renewable energy incentives to support community-based initiatives. ● Local authority partnerships to reach under-served communities. ● Market reforms to realise the potential of crowdfunding models for local authority and community projects.
Yorkshire Water	<ul style="list-style-type: none"> ● Regulatory requirements for the water industry to manage the cost of resilience and resource management. ● Potential for local partnerships to utilise water assets for renewable energy generation that provides benefits to local consumers. ● Support apprenticeships and training in new low-carbon technologies in partnership with the private sector and trade unions.

4. Conclusions and recommendations: A roadmap for investor action in the UK

Moving beyond the recognition phase

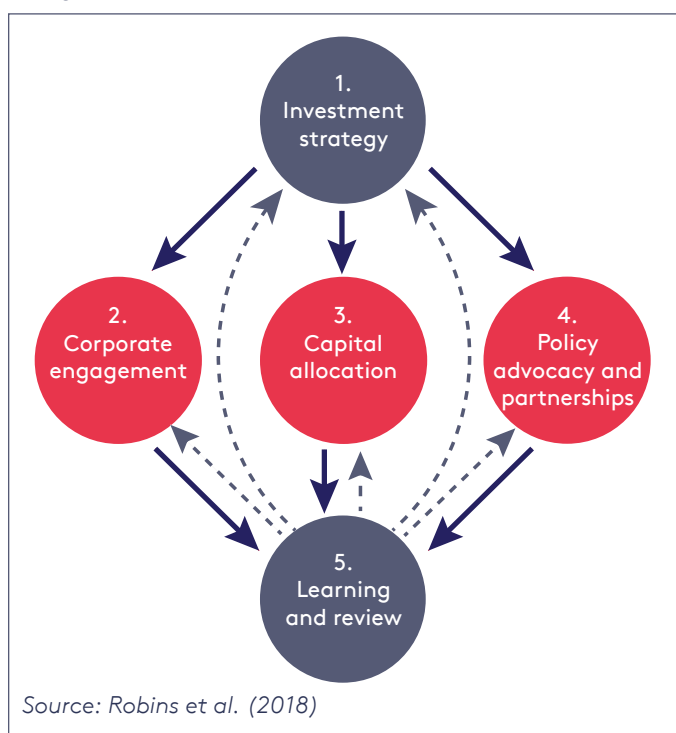
The just transition is moving from the margins into the mainstream of the climate change and sustainable development agenda, both in the UK and internationally. This shift is also reflected in the investment community, where asset managers and asset owners are increasingly recognising that social justice needs to be at the heart of efforts to avoid the systemic risks to the financial system that climate disruption now presents.

Core to effective climate action is a clear delineation of the responsibilities of different actors. As signatories to the Paris Agreement, governments bear the primary responsibility for building a resilient, net-zero economy and for doing this in a way that is fair for all. The elevation of the just transition to become a core part of overall climate and sustainable development strategy should not be seen as a burden. Rather, it is as a way of winning social acceptance for the profound changes that will be needed and of generating potentially significant co-benefits, for example in terms of additional high quality jobs and improved health outcomes. Businesses, workers, trade unions and civil society organisations also have important responsibilities for translating the just transition into practical action in workplaces and communities across the country.

Institutional investors can play a potentially significant role in supporting the just transition as fiduciaries on behalf of millions of savers, as allocators of capital to the real economy and as stewards of assets, ensuring that the voice of beneficiaries is heard by both business and policymakers. Our research in the Yorkshire and Humber region has also highlighted that investors could become important anchor institutions in the transition, notably by providing long-term patient capital for the business and social innovations and physical infrastructure that will be needed in the coming decades. In addition, individual investors have a key role in expressing their preferences and directing savings through ISAs and other savings accounts as well as by engagement with pension funds and other investment providers. Empowering consumers so that they can feel confident that their savings are supporting the things they care about will be an important step towards a just transition.

Working with the PRI and the TUC, along with many investors, businesses and third sector organisations, we have explored how the principles of the globally applicable guide for investor action (Robins et al., 2018) can best be implemented in the UK. Based on dialogue at a national level and the insights from the place-based research in the Yorkshire and Humber region, we have tailored the global action framework shown in Figure 4.1 above to UK priorities. The result is a roadmap for investor action in five stages, designed to be implemented over the two-year period 2020–21, with the focus on piloting effective practices.

Figure 4.1. Five key areas for investor action on the just transition



Action Area 1: Investment strategy

A growing number of investors recognise the need for a just transition; the challenge is one of operationalisation. We have identified four steps that will help to embed the just transition at a strategic level within investment institutions: commit, partner, expect and assess.

a) Commit: Investors need to incorporate the just transition into investment strategy and signal the importance of the social dimension of the climate crisis along the investment chain. This needs to be done methodically and starts with investment boards and committees making a public and strategic commitment. The process of making this commitment provides an opportunity to raise questions, address concerns and engage in dialogue with key stakeholders such as beneficiaries, clients and savers as well as key intermediaries such as investment consultants. Commitments can be made via the international investor statement (PRI, 2019), statements of investment principles, and responsible investment and climate change policies. Action on the just transition could also be included as part of investor efforts to implement their duties under the Stewardship Code, overseen by the Financial Reporting Council.

The Northern Local Government Pension Scheme (LGPS) is a leading example of how a major asset owner has made this commitment in the UK – see box.

b) Partner: Investors need to establish effective collaborations across the different parts of the investment system along with key stakeholders so that they can understand the priorities for those affected by the transition and achieve critical mass. In the UK, a growing number of investor groups have expressed interest in working through what the just transition means for their specific needs and duties. These include charities and faith investors, local authority and other pension funds, as well as groups focused on climate change, responsible investment and sustainable finance more broadly. Many of these have overlapping memberships, making collaboration a starting point for effective action. For investors to make a meaningful contribution to the transition, this ambitious collaboration also needs to extend to other major stakeholders, including business, trade unions, civil society and policymakers. This means listening to other stakeholders so that workers and communities are able to contribute their own ideas and experience to the transition process and how investment capital could be deployed.

c) Expect: One urgent priority that emerged from the regional examples was the need for investors to establish clear expectations of the companies and assets they hold, based on national and international standards for labour practices and broader social performance. A first task for collaborative action, therefore, would be to draw up a common set of investor expectations on the just transition in the UK. These expectations would need to be coordinated with international investor efforts, but tailored to UK circumstances.

Investor example 8

Northern Local Government Pension Scheme (LGPS) and the just transition

Northern LGPS is a partnership between the Greater Manchester Pension Fund, Merseyside Pension Fund and West Yorkshire Pension Fund, parts of the Local Government Pension Scheme (LGPS). It has assets under management of £46bn and represents about a fifth of total LGPS assets, with approximately 880,000 members and over 1,100 contributing employers.

Northern LGPS's purpose is to ensure the assets of its funds perform effectively so that members receive a pension that enables them to enjoy their retirement in dignity. To deliver this purpose, it has adopted a wide-ranging Responsible Investment (RI) policy that details its ambitions to uphold the highest standards of corporate governance at its investee companies and make investments that deliver financial, social and environmental benefits across the North of England.

Northern LGPS's long-term goal is for 100 per cent of assets to be compatible with the net-zero emissions ambition outlined in the Paris Agreement (and now the UK's new legislated target) by 2050. In addition, the scheme actively promotes 'decent work' as part of its approach to employment standards and human capital management. Bringing these two themes together, the Responsible Investment policy states that the scheme will "give consideration to supporting the objectives of a Just Transition to a low-carbon economy, and will actively engage with the social aspects of responding to climate change". The scheme considers that this commitment "fits well with our objective of seeking to ensure a regional dimension to our RI activities" (Northern LGPS, 2019).

Developing these expectations would largely be an exercise in consolidation rather than invention and would draw on the following three elements to ensure that there is no reinventing of wheels:

- **International frameworks**, such as the ILO’s core labour standards, the UN’s *Guiding Principles on Business and Human Rights*, the OECD’s *Guidelines for Multinational Enterprises*, the ILO’s *Guidelines for a Just Transition Towards Environmentally Sustainable Economies and Societies for all*, and the Recommendations of the Task Force on Climate-related Financial Disclosures.
- **Investor initiatives**, such as the Committee on Workers’ Capital’s *Guidelines for the Evaluation of Workers’ Human Rights and Labour Standards*, the Corporate Human Rights Benchmark, the Transition Pathway Initiative and the Workforce Disclosure Initiative.
- **National priorities**, such as the TUC’s just transition statement, *A Just Transition to a Greener, Fairer Economy*, as well as specific issues such as the living wage, apprenticeships, local employment and community energy.

These expectations could then form a foundation for investors to use in assessing corporate performance, shareholder engagement, capital allocation decisions and dialogue with policymakers and other stakeholders.

d) Assess: A further step at the strategic level is for investors to assess the performance of the assets they hold, using these just transition expectations. This will mean bringing together the increasingly sophisticated analysis of climate risks and opportunities with an evaluation of social performance in terms of workers, communities and consumers. These are issues that are routinely evaluated by sustainability and ESG rating agencies; what has been missing to date is the combination of the climate and the social aspects to generate a rounded perspective that can help in understanding a company’s alignment with the just transition. One sustainability rating agency that has started to explore how this could be done is Vigeo Eiris.

Investor example 9

Vigeo Eiris: Measuring just transition preparation in the UK energy utility sector

Independent ESG researcher Vigeo-Eiris has explored ways of measuring corporate preparedness for a just transition. Its approach measures the alignment of companies with the energy transition and gives scores for the management of socioeconomic issues, particularly those related to the concerns of workers and communities. Combining the two gives an overall assessment. It has applied these scores to all the electric and gas utilities operating in the UK.

The top rated three companies are all based in continental Europe, while the lower four are UK-based. Higher performance is underpinned by stronger labour relations practices, which are also extended to suppliers.

Overall, Vigeo-Eiris concludes that: “Electric and gas companies operating in the UK could do more to prepare themselves to address the full scope of challenges posed by the just transition. More governance, technological and human capital investments will need to be made by all companies to build the framework that will allow more just conditions for all impacted stakeholders” (Vigeo-Eiris, forthcoming).

Alignment of European electric and gas utilities operating in the UK with a just energy transition

Company [anonymised]	Energy transition score /100	Socioeconomic score /100	Just energy transition score /100
Utility 1	74 – Advanced	69 – Advanced	71 – Advanced
Utility 2	61 – Advanced	56 – Robust	58 – Robust
Utility 3	37 – Limited	55 – Robust	49 – Limited
Utility 4	55 – Robust	44 – Limited	48 – Limited
Utility 5	31 – Limited	46 – Limited	42 – Limited
Utility 6	32 – Limited	36 – Limited	35 – Limited
Utility 7	37 – Limited	35 – Limited	36 – Limited

Action Area 2: Corporate engagement

Investors are significantly ramping up their collective engagement with the businesses and assets they own to ensure alignment with the Paris Agreement. To date, this has focused on ensuring that companies put in place targets and plans that are aligned with the Paris Agreement, backed by robust governance frameworks and made transparent through disclosure in line with the recommendations of the TCFD. Global investor initiatives such as Climate Action 100+ have delivered real results over the past year through engagement with companies such as BP, Equinor, Glencore and Shell. The just transition is now emerging as a natural extension to this engagement strategy and is already referenced within the Climate Action 100+ framework.

Of course, the companies that investors own have operations around the world and manage global supply chains. Looking specifically at the UK, there are a wide range of potential engagement targets, with power generation along with construction and real estate emerging as early priorities.

a) Power generation

The UK is committed to phasing out coal-fired generation by 2025; it looks likely that this could be achieved earlier than planned. With Canada, the UK is also the co-founder of the Powering Past Coal Alliance (PPCA), which seeks to accelerate the phase-out of coal internationally. The PPCA involves governments, companies, investors and other partners (such as universities) and is addressing the just transition in its work (PPCA, 2019). Investors could usefully engage with the utilities operating the remaining coal-fired power plants in the UK to ensure that closure is handled in a responsible manner for workers and communities. Engagement in these facilities would generate important insights for how to deliver a just transition in coal-dependent communities elsewhere and also for other parts of the fossil fuel-based energy sector, notably the upstream and downstream oil and gas industry.

In addition, investors should engage with utilities to ensure that the growth in the renewables sector realises the potential for growth in high skill and high pay jobs, notably in the offshore wind industry. Concerns have been expressed that best practice workplace and community standards have not always been consistently applied in the expansion of the renewable energy sector, thereby reducing its overall contribution to inclusive growth in the UK. Through engagement with listed utilities as well as privately-owned developers, investors can signal the importance of robust social standards in this growth sector. This would help to build confidence that the shift away from a fossil fuel-based energy system will not be accompanied by weaker social standards (in areas such as union recognition, health and safety and pensions).

One way that investors could support a just transition in the power generation sector would be to encourage companies to commit to the Business Pledge for a Just Transition and Decent Green Jobs, supported by leading European energy firms Ørsted and Enel (B Team, 2019). Beyond this initial focus on power generation, there could be further engagement opportunities with operators of transmission

Investor example 10

Friends Provident Foundation: Engaging with utilities on the just transition

Friends Provident Foundation has been engaging the energy utilities market in partnership with Royal London Asset Management and the European investor network Shareholders for Change. Engagement has focused on the '3D energy transition' to a decarbonised, decentralised and, increasingly, democratised energy system, examining business model resilience, lobbying and just transition.

This engagement has been extended to the just transition, examining company positioning in terms of strategy, governance and risk management. For example, the group has engaged EDF on the closure of Cottam coal-fired power station and future plans to close West Burton coal plant as well as several ageing nuclear plants. These engagements have covered worker and community relations, worker redeployment and retraining, site reuse, and community reinvestment. A series of positive meetings were held with EDF committing to a just transition in the closure of all plants.

Friends Provident also encouraged EDF to roll out its R&D pilot 'Project CommUNITY' nationally, a project developed with community energy group Repowering London, providing social housing residents in Brixton with electricity from a community-owned solar array with battery storage and blockchain-based peer-to-peer trading. Energy utility initiatives such as this at scale would support the community and consumer dimensions of a just transition.

and distribution networks for both power and heat. Some investors are already engaging with companies on the just transition, including the Friends Provident Foundation (see box).

b) Construction, real estate and housing

More than 10 years after the Climate Change Act was passed, the CCC has concluded that “there is still no serious plan for decarbonising UK heating systems”, especially in the housing sector. Rectifying this situation means ensuring that all new housing meets zero-carbon standards and all buildings, commercial and residential, are retrofitted to net-zero standards in the coming decades. For investor engagement, this points to the need for renewed engagement with listed construction and property companies, not only to generate additional commitments to net-zero operations, but also to make sure that these benefit low-income communities facing fuel poverty.

Workers in the construction sector are also the most exposed to the upside opportunities and downside risks in the transition, with 60 per cent estimated to be affected: 30 per cent of construction workers have skills that will be in more demand during the transition, while 30 per cent have skills that could face falling demand (Robins et al., 2019).

Investor engagement could also extend to the banking sector to make sure that mortgage provision supports the UK’s net-zero goal and is consistent with the just transition. The banking sector has recently launched a new project, Banking on a Just Transition, to explore the implications across the UK. Investor engagement could provide a positive market signal (Grantham Research Institute on Climate Change and the Environment, 2019).

Action Area 3: Capital allocation

Investors can shift their allocation of capital to specific assets aligned with the just transition, particularly through place-based strategies. Currently, however, investors face an inadequate supply of assets that meet the goals of the just transition. Today’s policy and market frameworks still do not reward the development of sufficient equity- and debt-based assets that both drive a just transition and meet investors’ risk-return requirements. Two areas stand out for further action to scale up capital flows into assets that can support a just transition: the bond market and impact investment.

a) Co-create a thriving sustainable bond market

The bond market is a particularly promising area for local issuance by communities, companies and public authorities as well as national level issuance by major corporations and the Government itself. Taking action in this area would see a focus on developing a ‘sustainable bond’ market in the UK that combines environmental and social outcomes to underpin a just transition, as illustrated in the Yorkshire Water example.

The UK has demonstrated many strengths in the growth of these markets. However, overall the UK ranks 12th in terms of green bond issuance at the country level, performing below expectations (Climate Bonds Initiative, 2019). To resolve this, investors, issuers, key market intermediaries and the Government could work to co-create a plan to establish a thriving sustainable bond market in the UK. This would identify the barriers facing this market and highlight practical options to scale up issuance of community, corporate and public sector bonds.

One focus for this plan could be to develop a ‘local sustainable bond’ market. This would encompass issuance by regional companies and local authorities (for example, through crowdfunding and other mechanisms), as well as community enterprises and geographically-focused issuance by banks.

Green, social and sustainability bonds explained

Green bonds enable capital-raising and investment for new and existing projects with environmental benefits (ICMA, 2018a).

Social bonds are ‘use of proceeds’ bonds that raise funds for new and existing projects with positive social outcomes (ICMA, 2018b).

Sustainability bonds are bonds where the proceeds will be exclusively applied to finance or re-finance a combination of both green and social projects (ICMA, 2018c).

Another focus would be for the UK government to issue a 'sustainable sovereign bond', building on recommendations for a 'green gilt'. In the Green Finance Strategy, the Government indicated that it does not currently plan to issue a sovereign green bond. The experience from other countries indicates that sovereign bonds can have an important demonstration effect across the financial system and also within government, given the need to identify qualifying areas of public spending. In addition, sovereign bonds (along with issuance from other public bodies) can help to channel private savings to priorities that tend to be under-supplied by the market (such as R&D, skills and training, and SME finance).

b) Mobilise impact investors behind the just transition

The just transition agenda presents the UK with a strategic opportunity to bring together the environmentally focused agenda of 'green finance' and the social emphasis of 'impact investing'. This convergence is starting to get underway, as signalled in the Green Finance Strategy, and is set to deepen with the establishment of the new Green Finance Institute and Impact Investing Institute.

Beyond the bond market, our work has revealed an unmet demand for place-based investments that support the net-zero economy while delivering positive social impact. This includes a proposal for a dedicated 'just transition investment fund' across the Northern Powerhouse region⁶, and indeed other regions. The shape of the transition points to the need to mobilise capital for assets that are not only decarbonised and decentralised but also democratised in terms of community involvement and ownership. In terms of asset classes, this highlights the importance of developing investment products in the unlisted markets arena, through private equity, private debt and community assets, including infrastructure, enterprise and property. Realising this potential will require a similar strategy for co-creation, as proposed for the sustainable bond market.

Action Area 4: Policy advocacy and partnerships

Market and policy failures lie at the root of the climate crisis, not least inadequate pricing of carbon pollution, perverse subsidies for fossil fuels, insufficient support for R&D and deployment of sustainable technologies, and financial system flaws such as misaligned incentives, information asymmetries and pervasive short-termism. Not only do these failures need to be corrected through policy reform but also policy is required to create new markets that channel capital towards strategic public goods, as proposed by supporters of a Green New Deal, for example. Policy reform is equally important to address the social dimensions of climate change, not least because the just transition often involves changes to models of decision-making and questions of distribution that are best dealt with by public authorities. As part of its report on achieving net-zero emissions in the UK, the CCC recommended that the Treasury should "undertake a review of how the transition will be funded and where the costs will fall" and also that it should "develop a strategy to ensure this is, and is perceived to be, fair". The Committee added "a broader strategy will also be needed to ensure a **just transition** across society, with vulnerable workers and consumers protected" (CCC, 2019a; emphasis in original).

Investors have become active participants in climate policy, with 477 institutions with over US\$34 trillion in assets under management calling on governments to achieve the Paris Agreement's goals (The Investor Agenda, 2020). As part of the Global Investor Statement to Governments on Climate Change, investors specifically called for policymakers to "support a just transition to a low-carbon economy" (ibid.). The case for universal investors – such as pension funds and insurance companies – to advocate for just transition policy reforms is particularly strong, given that their returns are derived from overall economic health rather than specific stock picking.

A strategic framework for the just transition in the UK

In the UK, our work has underscored the importance of policy reforms to provide investors with the long-term incentives to reward sustained action on the just transition. As a result, investors should use their voice and call for national and local governments to introduce a strategic framework for the just transition; Table 4.1 shows elements it could include. This framework could build on the ILO's just

6. The Northern Powerhouse covers all 11 Northern Local Enterprise Partnership (LEP) areas plus North Wales.

Table 4.1. Critical elements of a framework for the just transition in the UK

- **Goals:** Set a specific goal to deliver a just transition within the Government's strategy to implement the new legal target to achieve a net-zero economy by 2050. Alongside this, the Government could include the creation of 'decent work' as an explicit objective of the UK's Industrial Strategy and Clean Growth Strategy.
- **Assessment:** There is still a lack of a consistent, comprehensive and robust baseline review of climate transition impacts that can be trusted and used by a wide range of public, private and civil society actors. This analysis and process does exist for physical climate impacts, for example through the UK Climate Change Risk Assessment. A similar exercise is needed for transition impacts, not least as a basis from which to manage the social implications.⁷ This transition impacts assessment could help to establish and apply a method for measuring co-benefits and identifying areas of risk in order to guide future decision-making.
- **Dialogue:** Establish an independent, multi-stakeholder Just Transition Task Force to advise the Government on how to translate these high-level goals into specific policy measures. This could draw on the experience of Scotland's Just Transition Commission, as well as international lessons from similar initiatives.
- **Public finance:** Make the just transition a priority within future Spending Reviews, including in the phase-out of the UK's high level of subsidies for fossil fuels.
- **Sovereign bonds:** Issue a sovereign sustainable bond with proceeds ring-fenced for environmental and social expenditures linked to the just transition.
- **Innovative financing:** Support new financing mechanisms that enable citizens to allocate capital to assets that deliver positive social and environmental benefits.
- **Sector deals:** Integrate the social dimension of the net-zero transition across the Industrial Strategy's sector deals, including indirect impacts on SMEs in supply chains, and include workers in their design.
- **Infrastructure financing:** Create a well funded sustainable infrastructure financing mechanism with a clear mandate for net-zero emissions, climate resilience and just transition, and a focus on aggregating small-scale, decentralised projects into a pipeline for investors. A new, independent and dedicated institution could be created, such as a National Infrastructure Bank, to provide transparency and credibility around finance for sustainable infrastructure. This will be needed to underpin market confidence given the uncertainty over future access to the European Investment Bank (see Rydge et al., 2018).
- **Standards:** Ensure high standards of workplace practices in industries exposed to the transition (including collective bargaining, consultation with workers, pay and conditions, protection of pensions, retraining and redeployment).
- **Carbon pricing:** Explicitly include principles of equity and fairness in the design of carbon pricing mechanisms. In addition, revenues from carbon pricing could be targeted to support a just transition. Compensation payments can be made visible and explicit, for example through a 'citizen dividend' (see Burke et al., 2019).
- **Skills:** Bring together the Industrial Strategy and the Clean Growth strategy to create a single forward-looking and coherent plan for strengthening the UK's skills-base and human capital for the net-zero transition (see Rydge et al., 2018). This could include the TUC's proposal to ensure that every individual has a funded entitlement to training.
- **Place:** Incorporate the just transition in Local Industrial Strategies, including the development of net-zero industrial clusters and support for community-based business models.
- **International:** Make the just transition a core component of the UK's International Climate Finance programme, including via the Department for International Development, CDC, the Green Finance Institute and UK Export Finance.

7. We are grateful to Ben Caldecott of the Oxford Sustainable Finance Programme for discussions that informed this proposal.

transition guidelines (ILO, 2015) and could cover the key policy dimensions (e.g. macro-economic, industrial, regional, labour market and wider environmental policies) as well as public finance (notably the need for a dedicated sustainable infrastructure financing mechanism). It would also recognise the importance of decentralisation and devolved decision-making along with the need to engage all stakeholders in its design.

The success with which the just transition becomes a normal part of the UK's policy architecture will depend on the willingness to have frank discussions on tough issues. Investors can play a part in this: see the example of the Church of England Pensions Board below.

Investor example 11

The Church of England Pensions Board and dialogue on the future of mining in South Africa

By Adam Matthews, Director of Ethics and Engagement, Church of England Pensions Board

Over the past three years, the Church of England Pensions Board has been part of a dialogue in South Africa convened by the Archbishop of Cape Town, His Grace Archbishop Thabo Makgoba. This unique process has sought to bring to the same table key figures who often find themselves in disagreement or conflict with one another for a dialogue on the transition that the mining sector is facing in South Africa. Under the convening authority of the Archbishop and on behalf of all major faith groups in South Africa, this process, 'Courageous Conversations', has brought mining trade union leaders, company CEOs, cabinet ministers and community organisations together.

Initially, the process stemmed from the desire to resolve significant disputes that had occurred in the sector, in some instances leading to outbreaks of protest, violence and also loss of life. However, as the conversations have progressed, a broader process of reconciliation and collective understanding to address the challenges of a sector in transition has emerged. This is the transition all stakeholders will have to manage that arises out of the twin impacts of automation and climate change. In this context, mining companies need more than ever to maintain and secure their social licence to operate. This will not be an easy path as commodity demand will significantly change as a result of the low-carbon transition. Some of this change will be positive for the industry and those who benefit from it, and some of it will not. In addition to the challenge of climate there is an emerging realisation that automation will seriously challenge the way that many mines work. The process of Courageous Conversations is still in an early stage but it is clear the mining sector in 10 to 15 years' time will be very different to today, potentially with far fewer employees.

In some regions, such as Limpopo, mining is one of the key drivers of direct and indirect employment. For a potentially hugely disruptive change in employment to occur in a societally acceptable and just way, real honesty and new thinking will need to emerge from the process. The relationships between company and society will come under new scrutiny, and the role of companies as partners in development and the ways they contribute to the common good will need to be well understood and developed if this is to be a path without conflict.

As a pension fund, we recognise that society is intimately connected to the resources extracted by the mining sector (Church of England, 2018). Modern living and the low-carbon transition demands many of the resources that are mined. We recognise that it is vital we engage in a much more fundamental way with the systemic challenges the sector faces, be that changing commodity demand or automation, and the resulting impact on workers and communities. We also recognise that this cannot be an engagement over the short term. This requires much longer-term interaction and processes akin to peace and reconciliation processes, something that the Church as an institution is familiar with, to ensure trust is built and common visions/pathways are established.

We are under no illusion as to the challenge here. Processes like Courageous Conversations play a positive role in helping to re-shape the industry, and the hope of positive outcomes helps maintain our ability to remain invested in mining. As a long-term investor we feel a deep sense of our responsibility to think creatively and with a long-term time horizon in the way we engage with companies on issues that can affect the whole of society.

Action Area 5: Learning and review

As the just transition is still a relatively new dimension of the climate change agenda, investors will need to build capacity to deliver experimentation at scale for the just transition with effective monitoring, evaluation and sharing of outcomes. This means establishing effective ways of listening to, learning from and partnering with key stakeholders affected by the transition. One platform for this could be the newly launched Place-based Climate Action Network (PCAN – see pcancities.org.uk). PCAN is focused on translating climate policy into action ‘on the ground’, to bring about transformative change. The network, supported by the Economic and Social Research Council, brings together the research community and decision-makers in the public, private and third sectors through five innovative platforms: three city-based climate commissions, in Leeds, Belfast and Edinburgh, and two theme-based platforms on finance and business. Place-based engagement will be particularly important in the evaluation and learning phases to ensure that investor action is not detached from places and stakeholders.

Specific actions could include:

- The development of just transition training packages for trustees, analysts, fund managers and other financial professionals.
- The design of additional regional pilots to explore the role of investors in the just transition, building on the Yorkshire and Humber example.
- The incorporation of the just transition within emerging frameworks for investor reporting on impact investing, and within action on the Sustainable Development Goals.
- The design of Just Transition Innovation Labs to identify high-leverage options to make the UK financial system as a whole ‘fit for purpose’ for combining a rapid transition with social justice.

Finally, investors should incorporate the just transition in their own reporting on their climate performance. This can be done by building on the framework developed by the Task Force for Climate-related Financial Disclosures (TCFD). In its Green Finance Strategy, the Government signalled that it expects all listed companies and large asset owners to be disclosing in line with the TCFD recommendations by 2022.

Looking forward

Over the past two years, the just transition has become recognised as an essential ingredient in a successful shift to a net-zero-emissions and climate-resilient economy. The Investing in a Just Transition UK project has contributed to this by showing why and how investors can make their contribution. This report has moved from high-level aspiration to explore the practical implications by examining the place-based dynamics through the lens of seven examples across the Yorkshire and Humber region. It has also captured the fruits of dialogue across the investment community and with other stakeholders in terms of the key steps that need to be taken in the next phase of action through the investor roadmap.

This report has focused on the role that investors can play to support a just transition within the UK. The companies that investors hold have a global reach and so a new dimension for collaborative work with UK investors is to apply the just transition internationally, through engagement with global corporations (including international supply chains), as well as asset allocation into just transition investments in developing countries.

The task for the coming two years is to translate this recognition into real world actions that accelerate financial flows into vital net-zero and climate-resilient investments, generate positive social outcomes and deepen confidence in the opportunities that climate action will bring. This is a critical moment for the country, with political uncertainty over Brexit coming at a time when urgent climate action is needed. Furthermore, 2020 will close with the UK hosting the UN’s climate conference, COP26, in Glasgow. This provides a major opportunity to show how financing a just transition in the UK can also connect with wider efforts to achieve ambitious steps forward in climate action at the global level.

Technical appendix: Approach for assessing the jobs impact of the zero-carbon transition

Background: the challenge in defining green jobs

Defining jobs as green, not green, aligned with the transition or otherwise is challenging, as research and data are under-developed. To date, much of the discussion of the workplace implications of the transition has focused relatively narrowly on the growth in 'green jobs' as defined as jobs in specifically environmental sectors, such as low-carbon energy or recycling. The Office for National Statistics (ONS) estimates that these jobs amounted to around 208,000 full-time equivalents in 2016, about 1 per cent of the total UK workforce (ONS, 2019). However, jobs in a green economy will be varied in scope and not limited to purely environmental activities. They will include jobs in new or technologically altered 'green manufacturing' and service sectors, providing comparable goods and services to those we have today.

The skills-based approach used in this report

The research into the workforce impact of the transition in the UK presented in this report was carried out by adapting research into labour markets in the United States by Alex Bowen, Karly Kuralbayeva and Eileen Tipoe (2018), the methodology for which we explain below.

To get a broader view of the implications of the workforce transition, Bowen et al. analyse the workforce at the skills level rather than in terms of jobs or sectors. Those currently employed in high-carbon sectors and industries, including highly technical professions, may have skills that will be much needed in the green economy. Taking a skills-based approach accords with the approach taken by labour economists in this area (for example, see Marin and Vona, 2018; Vona et al., 2017).

The approach involves defining 'green skills' and 'non-green skills' and identifying the proportion of jobs characterised by each in the economy overall. To do this, Bowen et al. used the O*NET database, a cross-sectional database that includes information on the tasks and skills involved in different jobs, as well as a list of green tasks.

In our analysis we likewise use O*NET's definition of a green job as being any occupation that will be affected by 'greening' of the economy. Within this category there are various effects, which also form the basis of our assessment of UK jobs:

- **Increased demand** – "existing jobs that are expected to be in high demand due to greening, but do not require significant changes in tasks, skills or knowledge"
- **Enhanced skills** – "existing jobs that require significant changes to tasks, skills and knowledge as a result of greening"
- **New and emerging** – "unique jobs created to meet the needs of the green economy" (Bowen et al., 2018)

The 'increased demand' and 'new and emerging' jobs are ones that use skills that will increase in demand in the green transition, and thus we classify these jobs as '**transition-aligned**'. 'Enhanced skills' are jobs that will require changes; in other words, demand for the existing skills in this occupation will fall; we classify these as '**transition exposed**'. All other jobs are considered 'non-green', and greening will not affect the skills used in them; we classify these jobs as '**other**'.

These classifications match real jobs in the US economy, and a proportion of jobs aligned or requiring reskill in the transition can easily be identified for each sector. We simply apply this proportion to sectoral employment data in the UK, as provided by government data offices (from ONS et al., 2017). This provides the overall proportion of jobs in each category at regional level, and even to much smaller census district areas, for the whole country.

Lastly, it is worth noting that this research is based on the overall 'greening' of the economy, which encapsulates a greater scope of changes than would decarbonisation alone. For example, it includes ecosystem service-related jobs, which can be focused on many environmental issues, such as biodiversity and waterway cleanliness.

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The transition to net-zero greenhouse gas emissions needs to be an inclusive process, delivering social justice for workers, communities and consumers: this is the agenda of the just transition. This report sets out the role that investors can play in delivering a just transition in the United Kingdom. It seeks to understand the growing momentum in favour of a just transition and to illustrate the implications through a set of place-based examples from Yorkshire and the Humber, before setting out recommendations for investor action.

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