University of Sheffield

**Understanding UK trade union responses to climate change:
a multi-level case study of union concerns and capacities
in Yorkshire and the Humber, 2008-2019**

Jenny Patient

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This thesis is dedicated to the memory of Nick Nuttgens, climate communicator, activist and friend, whom we lost in the early days of 2023. Nick had undertaken his own PhD journey, which, like his immensely fruitful life, was cruelly cut short. Beaming love to the man who, if he was still here, would doubtless be preparing me for my viva. This one's for you, Nick.

Abstract

Climate change alters the political economy that trade unions face. As a wicked, global, social problem, it strains the meaning of Just Transition: unions' demand to ameliorate hardships as environmental problems are solved. My thesis addresses trade unions' limited engagement with climate change, and how the potentials of their role in achieving a Just Transition can be activated.

In a decade of exclusion by government, legislative pressures, and reducing memberships, UK unions represented their memberships' interests in high-carbon industries through close relationships with key employers. However, in Yorkshire and the Humber, where previous transitions were unjust to whole communities, a regional, cross sectoral, Just Transition taskforce created by the Trades Union Congress in 2016 developed new engagement processes and narratives.

My thesis explores how UK unions nationally and within the region were developing their concerns and capacities around Just Transition in 2018-19, as young people brought climate justice to popular notice. This multi-level case study, combining participatory activist research, interviews and documentary analysis, investigated unions' framing of their social and environmental concerns, and the development of their capacities to engage around climate change and promote a Just Transition. The thesis extends labour environmentalism theories, to acknowledge climate change as global and social, and supports trade union engagement around climate.

My research findings were, first, nationally, where unions had no seat at the table, the development of union capacities was constrained by their narrow framing of concerns for energy workers. In contrast, in the TUC Yorkshire and the Humber Taskforce, the role of unions was developed through regional bodies seeing them as partners, developing unions' capabilities to articulate broader and deeper concerns. Thirdly, geographical inequalities and historical injustices in the region made the social and economic aspects of place-based climate action more salient for unions.

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Declaration

I, the author, confirm that the Thesis is my own work. I am aware of the University's Guidance on the Use of Unfair Means (www.sheffield.ac.uk/ssid/unfair-means). This work has not previously been presented for an award at this, or any other, university.

Chapter 1: Introduction

"Not everything that is faced can be changed, but nothing can be changed until it is faced." -- James Baldwin, 1962

1.1 Trade unions in a climate changed political economy

Climate change alters the political economy that trade unions face. As representatives of working people in the economy and society, unions could play a key role in the transition to low carbon, yet in practice have little relationship with the wider climate movement. Climate change, as a wicked, global, social problem, puts strain on the meaning of Just Transition, a concept originally defined by unions in terms of ameliorating the hardships for workers and communities in solving local environmental problems. The issue my thesis addresses is why trade unions have such limited engagement, and how the potentials of their role can be more fully activated.

This thesis considers climate change as embedded in society and economy and giving rise to issues of justice. Climate change brings our greatest contemporary social challenge, most increasing risks in the lives of the most vulnerable globally, and intersecting with every other issue, be they labelled as 'social justice' or 'environmental'. The industrial growth economy rolls on, destroying forests and polluting oceans, filling ecological space in its own image. Driven by greenhouse gases that are produced by the most mundane human activities, deeply embedded in the global economy, climate change presents its wicked face, destabilising even our notions of time. Producers and consumers are linked with victims of global heating by embodied carbon (Baker 2018), enmeshing every local economy in issues of climate justice. Environment cannot be hived off from society - neither should be considered in distinction from the other.

Just Transition, only recently a term in common usage, had, for trade unions since the 1980s, described a desired outcome for workers and communities facing environmental problems and solutions that threatened to distribute hardships unjustly, such as whether or how an oil-processing facility would be cleaned up (JTRC 2018). Only with international trade unions' success in seeing Just Transition included in the preamble to the Paris Agreement on climate change (UNFCCC 2015; Rosemberg 2020), did the process begin of working out what justice for workers and communities looks like in the climate transition (e.g., Morena, Krause and Stevis 2020). My thesis contributes to this, through exploring, in a UK context, the meaning of Just Transition in trade union concerns and practices.

Trade unions, historically, originated from workers finding shared belief and values in their occupational communities, and combining around a 'common rule' - their willingness to struggle for pay and working conditions. The consolidation of this was double-edged, as institutionalisation through government legislation or the modern corporation gave stability to the rules but detached their normative foundations. In this

process, as the common rule becomes vulnerable to counterattack, "trade unions need to discover, rediscover or refocus their role as protagonists in civil society" (Hyman 2001, p.60) - a process known as "union renewal" (Fairbrother 2015). In the face of a political economy so altered by climate change, how can trade unions renew their role as protagonists in civil society, to unravel the justice issues embedded and embodied in our precarious world?

1.2 Motivations, aim and objectives of my research

My initial motivation arose from my experience, where my perception of climate change as a social problem has guided my engagement over 15 years as an active citizen in Sheffield, a post-industrial city in the former Yorkshire coalfields. Seeing climate action as having co-benefits in public health and the local economy, I focused on advocacy and organising, building organisational relationships across sectors in the Sheffield city region. For me, as an activist aiming to make a difference to climate action on a local scale, trade unions appeared to be natural allies. My earlier career in the UK railways had included positive involvement through my trade union in collaborations around sustainable transport, which had educated me in environmental politics. Yet, from my position in the climate movement, such alliances seemed difficult to build. At times, I felt alienated by the enthusiasm for high-carbon projects expressed by Unite the union (of which I am a member).

At an international level, the International Trade Union Confederation (ITUC) organised a conference for trade unionists in advance of the Paris climate talks in 2015. With support from other union activists, I approached Unite to encourage participation, and consequently represented my union at this conference and in ITUC activities around COP21 in Paris. This in turn connected me with the UK Trades Union Congress (TUC) in Yorkshire and the Humber and motivated me to dig deeper into the dynamics of trade unions' engagement with climate change, nationally and subnationally, and thereby support union efforts to achieve a Just Transition. In 2016, the cross-sectoral Just Transition Taskforce was set up in Yorkshire and the Humber, an act of leadership by the then TUC Regional Secretary, Bill Adams, and the development of its work has provided the canvas for my research.

Since 2008, the context for UK unions to engage with climate change has shifted. It has been characterised by increasing exclusion from government policy development, along with pressures from aggressive legislation and reducing memberships. Unions organising in energy, where the decarbonisation of power has been the main plank of UK climate strategy, have typically represented their existing membership through close relationships with key employers around technological change. In a wider context, the UK's highly unequal economic geography and limited devolution have been major factors for unions organising in regions such as Yorkshire and the Humber, where previous

transitions away from coal and steel have been unjust to whole communities. While nationally the energy unions were the dominant voice, in Yorkshire and the Humber the cross-sectoral taskforce created by the Trades Union Congress was developing a wide range of different engagement processes and narratives.

The assumptions with which I approached my topic were the importance of climate change as a social and justice issue, the need to tackle it within an ecological paradigm, and the significance of the local scale. I believe that workforces need to be included in climate action, and that trade unions are key actors in this, despite the challenges they face in a globalised, neoliberal world. My academic background at master's level was in social sciences, grounded in systems thinking and working with communities, summed up by the ecological insight of Gregory Bateson that "the system is organism *plus* environment". This, combined with my professional background in adult education, community regeneration and sustainability, gave me the skills and will to approach my PhD as embedded activist research.

My long-term inspirations in the academic literature on climate have been work that, in Bill McKibben's phrase (350.org 2012; Stephenson 2012), "does the math" to understand the scale and urgency of the climate transition at different scales and for different sectors. As a local climate activist, I found such inspiration from Stockholm Environment Institute's presentation on carbon footprints to Sheffield City Council (Sheffield City Council 2008), and the Mini-Stern Review for Sheffield City Region (Gouldson et al 2013), as well as the One Million Climate Jobs project (Murphy 2009) and Zero Carbon Britain reports (Centre for Alternative Technology 2007). These helped the climate movement locally to grapple with the scale of climate action needed and the social benefits of that, such as healthier homes and lower bills. This social agenda encouraged me to seek alliances with trade unions, around the jobs and skills that would be needed to implement climate action.

In understanding trade unions and their environmental concerns, the pioneering work of Nora Räthzel and David Uzzell (2013), and that of Dimitris Stevis and Romain Felli (2014; 2015; 2016), and Darryn Snell and Peter Fairbrother (2010; 2011) and Paul Hampton (2015) has been invaluable. Their work broadly considers labour environmentalism - the environmental initiatives of working people - and unpacks the history and commitments of the term 'Just Transition' as promoted by trade unions. Trade Unions for Energy Democracy (TUED) has also been an inspirational international campaign, with its network and publications engaging around democracy and power in the climate transition (TUED no date).

The formation of the Just Transition Taskforce by TUC Yorkshire and the Humber (TUC Y&H), as a credible force both in the trade unions and beyond, was a precious opportunity for positive change. My research fieldwork was through a placement with TUC in Leeds in

2018-2019, where, as an embedded activist researcher, I researched the dynamics of this contribution by unions to just climate action at a subnational level, within a mainstream UK union context dominated by the concerns of unions organising in energy generation.

Drawing on my experiences as an activist and my initial engagement with the academic literature, my research aim was to explore the conditions that would allow unions to become more engaged in the climate change agenda and to realise a Just Transition. I wanted to understand trade union concerns in relation to the self-reinforcing technical and social aspects of proposed pathways to low carbon, and how unions may develop their capacities as a protagonist in civil society in the context of local climate action. To achieve this, I researched a case study that provided new empirical evidence; developed an analytical framework at the junction of unions, climate change and Just Transition; and gained practically useful knowledge for trade unionists and activists through taking an embedded approach. The objectives of my research were:

To investigate unions' concerns, particularly in relation to the depth of environmental concern and breadth of social concern around low carbon.

To analyse how unions are developing their purpose, resources, capabilities and norms, and whether there is a renewal process from an institutional role to a social movement role.

To examine the extent, nature and impact of unions' engagement with place-based climate action.

1.3 Importance of my research

My research provides critical insight into how UK unions nationally and within Yorkshire and the Humber were developing their concerns and capacities around Just Transition over the period 2008-2019. Evidence for the earlier period is from desk research and experiential learning, while fieldwork in 2018-19 took place at a timely and important juncture, as the concept of Just Transition entered the mainstream and young people brought climate justice to popular notice. My thesis extends existing theories of labour environmentalism to produce conceptual models which acknowledge the global, social nature of climate change, and offers practical knowledge to support activists' efforts to bolster trade union engagement on climate.

My thesis matters as a contribution to realising a Just Transition. This term emerged in the mid-1990s to describe an idea that had a history in trade unions since the 1980s, in terms of ameliorating, for workers and communities, the impacts of environmental improvements (JTRC 2018; Snell 2018). In trade unions, the main focus is specific social protection for workers directly affected by the removal of jobs, though action by states to protect incomes and enable new skills and employment (e.g., TUC 2008). When I formulated my PhD proposal in 2016, the term was little known in wider circles. Following sustained campaigning by trade unions, Just Transition had been included in the

preamble of the Paris Agreement on climate change (UNFCCC 2015) and was gaining some academic interest (e.g., Healy and Barry 2017; Heffron and McCauley 2018) and some recognition in the climate movement. In 2019 it was brought to wider notice by the youth climate movement, the Silesia Declaration (see Robins 2018) and by the inclusion of the phrase in the UK Climate Change Committee's report on Net Zero (CCC 2019a). By focusing my thesis around "Just Transition" as an essentially contested concept, I help to clarify "the substantive political arguments with which the term is concerned" (Jacobs 1999, p.26), and promote more productive conversations about how "pathways to low carbon" align with social justice concerns, and what a just and transformative transition to low carbon would look like.

My research, in studying the work of the TUC Just Transition Taskforce in Yorkshire and the Humber, has application at the level of the regional economy, and a particular focus on hard to decarbonise sectors. The Taskforce emerged from a European comparative project across seven industrial regions, the analysis for which highlighted the exposure and importance of the carbon-intensive industries, for example, processes to produce steel and glass, across the region (see Balderson, Trappmann and Cutter 2022). Although directly representing little more than 1% of jobs regionally, the jobs were an anchor of local economies. For unions, these companies represent some of their highest membership density and most well-organised sectors. The contrast is stark with conditions and organising in other sectors, such as retail, hospitality and care, especially in regions such as Yorkshire and the Humber, where low pay is endemic following ill-managed transitions away from coal-mining and steel over the last 40 years. Regions such as Yorkshire and the Humber, which have a bigger reliance than average on high-carbon industries and have lost out economically over decades of globalisation and a recent regime of austerity, face a huge challenge in the transition to net zero carbon. Focusing my research on a region scarred by a history of "unjust transitions" (Diski 2021; Beynon and Hudson 2022) that left low pay and precarity in their wake illuminates obstacles to change which may be strongly present here but also significant more widely. In the huge and urgent transformation of an industrial economy to meet carbon budgets, the involvement of the workforce is key, and trade unions provide a ready-made vehicle for that involvement, but need to develop their capacities to fulfil this role.

The broad timescale of my research covers the period since the Climate Change Act 2008, then focuses in on the juncture of 2018-2019, when my fieldwork was carried out. In line with UK government carbon reduction action from 2008-2019, unions' limited capacity nationally had focused on the power sector, where the unions organising there, Unite, Unison, GMB and Prospect, had worked together as "energy unions" to lead an agenda for Just Transition. While carbon-intensive sectors and manufacturing industries have had their wider interests well-represented by the unions generally, they had received less

climate policy attention in both government and unions, and remained difficult areas of change for decarbonisation (Climate Change Committee (CCC) 2020a, p.19; 2020b).

My position in this research is as a climate activist at the city scale, where I had found it difficult to build alliances with unions, even as a committed trade unionist. My personal history and commitments as a mature student have provided a distinctive opportunity for engaged research alongside trade unions and the climate movement to understand the dynamics and potential for change in a specific place. My approach to this research was to take an embedded role with the TUC Just Transition Taskforce in Yorkshire and the Humber, which enabled me to build trusting relationships and to reflect on the dynamics of unions' engagement with climate that I saw in action, including through national, subnational and local institutions and practices. I interviewed key regional and national trade union officers and activists to connect the everyday dynamics of unions regionally with their more formal (usually national) policies and strategies, and the influences of particular individuals. My research is thus distinctive in using a participatory activist research approach to develop a case study of union dynamics around climate action, in a subnational region freighted with a high-carbon past. It develops new frameworks to both analyse trade union roles in the climate transition and to support engagement practices in trade unions and the climate movement.

1.4 Contribution and conclusions of my research

The contribution of my research is as a case study providing new empirical material on an under-studied phenomenon and in providing a new analytical framework for understanding the dynamics of unions' concerns, capacities and roles. My multi-level case study examines a geographical region – Yorkshire and the Humber - where no other studies of trade union responses to climate change have taken place. There are studies of the social and economic impact of the loss of the Yorkshire coalmining industry and other significant industries such as fishing in Grimsby and Hull, but none that focuses specifically on trade unions in the region, as Snell and Fairbrother's (2010; 2011; Snell 2018) work has done in Australia, for example. Whereas other studies of trade unions consider particular industries, such as automotive manufacture (Farnhill 2018) or how work on environmental issues impacts the organising success of unions (Hrynyshyn and Ross 2011; Wills 2001), my work looks at the role of unions on climate change across sectors (although with some focus on carbon-intensive industries), and unions' engagement with policy agendas as well as in organising the workplace.

My case study also makes a contribution because it is timely and relevant, following the adoption of Just Transition in the Paris Climate Agreement in 2015 (UNFCCC 2015) and the 2018 Silesia Declaration (Robins 2018) within the longer context since the Climate Change Act 2008 (Grantham Institute 2020). My study focuses on a time of significant change, in 2018-2019, within what had been a difficult decade for unions in many ways. My fieldwork

coincided with the rise of the youth climate movement up to late 2019, a major factor of change in the public (and union) mindset on climate change.

Situating my research in the academic literature has meant unpacking the ideas on sustainability embedded in work on Just Transition, to ensure that the systemic, social nature of climate change and the scale and urgency of the needed post-carbon transformation of society are accounted for. It has meant bridging some gaps between climate literature which does not much feature trade unions, especially in the context of local climate action, and literature on trade unions' capacities for change, where discussions on labour environmentalism are slim.

The *matrix of environmental and social concern around Just Transition* and the *framework of change towards justice in trade unions* which I have created build on and extend theory around trade unions and sustainability. These tools unpack the significance, for existing labour environmentalism frameworks, of climate change as a wicked, global, social issue. My research is thus of theoretical and practical use – helping to conceptualise the roles unions can play around climate action, and to illuminate for the unions and the climate movement the dynamics of union capacities and concerns. Through a distinctive opportunity for participatory activist research with unions in Yorkshire and the Humber, I have identified and built potentials for trade union engagement around climate change, and for achieving a Just Transition to low carbon.

My research suggests that, to understand unions' potential for agency on climate change, their outward-facing role must be considered in conjunction with their more inward-looking concerns for their own members. As the focus of climate action shifts from nationally-driven policies on decarbonisation of electricity to agendas around homes, transport and food, the role of trade unions at a subnational scale becomes significant, shaped by their concerns driven by local and historical factors, and this is where my research has focused.

My study found that unions' environmental concerns were taking their lead from government policy on decarbonisation and employers' market-led action, focused mainly on environmental efficiencies. Although unions saw themselves as "signed up" to the Paris Agreement (net zero carbon within short timescales), this was not the main driver of their concerns. With a lack of opportunities to reinforce this big-picture view, the immediate concerns of energy workers as a core membership sector were prioritised over unions' long-term values and concern for wider citizens. Unions' social concerns were widened in 2019 as the youth climate campaigns raised members' interest. Although this posed a question in terms of the interests of young people, unions organising energy workers struggled to integrate the need for rapid emissions reductions with their members' interests. Demand reduction and wider process change threatened disruption, given the lack of UK government plans for managed change.

In TUC Y&H the limited cycle of concerns, goals and capacities seen in the energy unions had begun to be transmuted into a wider cycle, where opportunities to engage as social partners had opened a wider role for unions, motivating further development of their capacities, and expanding their framing of concerns both socially and, to some degree, environmentally. Widespread understanding of place-based injustices in the region supported unions' vision of economic and social, not just technical, change. The energy unions nationally did not have a comparable impetus from the UK government to develop narratives around the wider interests of working people. My overall conclusions are that, as action on climate change shifted from a purely national, energy-focused agenda to a place-based agenda that encompassed the everyday economy, a new role for unions widened their concerns and developed their capacities, but only to the degree that stakeholders in climate governance accorded them, and unions were able to embrace, a role in articulating the interests of working people around climate change.

1.5 The structure of this thesis

The chapters of this thesis are structured as follows: they provide the rationale for my research and my framework for understanding (Chapters 2-3); set out my specific research questions and the methods and approach taken (Chapter 4); analyse the empirical data gathered (Chapters 5-8); and set out my conclusions and contributions (Chapter 9).

Chapter 2 explores the literature on sustainability and climate change and synthesises a distinction between sustainability approaches that reflects the significance of ecological limits. In this chapter I consider how pathways to low carbon entangle social, ecological, economic and normative factors as well as scientific and technical ones, and the significance of this for my topic. From this, I synthesise my *matrix of environmental and social concern around Just Transition* to help analyse trade unions' social and environmental concerns. This suggests fruitful areas for study, and I discuss the importance of these in the light of my prior experience as an activist.

Chapter 3 introduces the literature on trade unions and their drivers and capacities for change, and explores the concept of Just Transition as a key union approach. Here I work with a distinction between trade unions as institutions and as social movements, and relating this to a model of justice-seeking change in organisations, I synthesise my *framework for change towards justice in trade unions* to explore development of trade unions' capacities. I go on to assess the importance of the study area that emerges, against my experiential learnings.

In Chapter 4 I set out my research questions and methods, underpinning my participatory activist research approach and my multi-level case study.

Chapters 5 to 8 set out my empirical findings, from documentary analysis, interviews with trade union officers and embedded research. Chapter 5 brings together my detailed

findings from policy, grey literature and engagement in meetings and events, to characterise the dynamic context of UK and local climate governance and how trade unions organise in Yorkshire and the Humber and the UK.

In Chapter 6 I investigate unions' framing of their environmental, social and justice concerns around a Just Transition, focusing on the nationally dominant energy unions' perspectives. I make use of my *matrix of environmental and social concern around Just Transition* to assess the depth of their environmental concern and breadth of social concern around low carbon.

Chapter 7 goes on to analyse the development of the energy unions' capacities to engage around the low carbon agenda. Using my *framework for change towards justice in trade unions* I consider how the unions were developing their purpose, resources, capabilities and norms, and whether there was a renewal of their role around the low carbon agenda.

In Chapter 8 I examine unions' engagement with place-based climate action – focusing on TUC Y&H and its Just Transition Taskforce, using evidence from my participatory activist research as well as from interviews. This enables me to assess, using my *matrix* and *framework,* how the concerns and capacities of unions were developing in relation to place-based action in Yorkshire and the Humber, and to compare this with the picture built for the energy unions nationally. In Chapter 9 I summarise the conclusions from my research and set out my contribution to knowledge.

Chapter 2: A matrix of environmental and social concern around Just Transition

"More and more it is the remaining natural capital that now plays the role of limiting factor. The fish catch is not limited by fishing boats, but by remaining populations of fish in the sea" (Daly 1995, p.50)

2.1 Introduction

This is the first of two chapters where I create a conceptual framework which will help me to analyse empirical data from my fieldwork. I take as my starting point the theory developed by Stevis (2018) and Stevis, Uzzell and Räthzel (2018) that analyses the depth, breadth and agency of labour environmentalism, and I develop new groundings for this theory in the specific natures of climate change and of trade unions. In this chapter I examine concepts and theories around sustainability and climate change, with the aim of analysing trade unions' concerns around the low carbon agenda.

My overall thesis is that climate change poses the greatest threat to human society, on an urgent timescale, and requires huge social transformation, not least to the world of work – a process to which trade unions can contribute in many ways. As described in Chapter 1, my research aim was to explore the conditions that would allow unions to become more engaged in the climate change agenda and to realise a Just Transition. My work exploring how trade unions engage with the climate agenda therefore balances more abstract theory with concern for what will be most helpful to actors in a local situation to achieve emancipatory progress.

In approaching the social science of climate change, I share John Urry's (2011) view that "post-carbon sociology" is very much needed but lacking, and that the science-driven models supporting international climate negotiations have mainly shown "relatively little understanding of how 'societies' are organized and, indeed, might be reorganized so as to change the likely causes and consequences of climate change" (Urry 2011, p.2). If, as Urry suggests, most social thought is carbon-blind, "never interrogating the resource and energy bases of economic and social life" (Urry 2011, p.16), then for trade unions, representing workers in an "essentially carbonised modern world" (Urry 2011, p.16), this divide between social and environmental concerns is even more stark. Trade unions are practical organisations, which respond to environmental issues within the terms of their specific role, combining the protection of immediate interests with the promotion of long-term values, as I consider further in Chapter 3. Unions are in a dialogue with businesses and governments who mostly cluster policies and technologies around a technocratic conception of how sustainability is to be achieved, and the justice aspects of the transition are side-lined or excluded (Stirling 2010). However, given the imperative of a green transformation, a key challenge is to unravel the "co-constructed complexes of

technology, infrastructure, institutions and politics" (Scoones, Leach and Newell 2015, p.8) - in which trade unions too are embedded - to create alternative pathways.

Further, as theorised by Nightingale et al (2019), "climate change can tell us something about capitalism" (2019, p.3), which can move us "beyond the 'technical fixes' and 'capitalism is the cause' impasse" (2019, p.4). Their insight is that "areas of the world where climate emissions are produced… are not simply by-products of our political economy, they are productive of it" (Nightingale et al 2019, p.3). Instead of climate change being abstract and separate from people's lives and from societal change, we can look, as Baker (2018) suggests, at socio-economic and ecological inequality through a lens of embodied climate emissions. The underlying dynamic of uneven development suggests the importance of the local scale in the social dynamics of climate change, where in turn, as Castán Broto (2017, p.11) highlights, "attempts to govern climate change in urban areas reconfigure the politics of climate change".

As my key starting point, the work of Stevis (2018), Stevis, Uzzell and Räthzel (2018) and the Just Transition Research Collaborative (JTRC) (2018) on labour environmentalism and Just Transition is grounded in a model of sustainable development produced by Hopwood, Mellor and O'Brien (2005). In section 2.2 I relate theories around social-ecological worldviews, sustainability conceptions and narratives of green transformation to this model, to provide a more secure footing for using it to describe a climate-changed world. In section 2.3 I assess how thinking about sociotechnical pathways is nuanced by insights around co-production and inequalities, and the significance of the local scale of governance emerging from this discussion. In section 2.4 I present my *matrix of environmental and social concern around Just Transition*, which builds on existing literature, including Hopwood et al (2005), and in section 2.5 I review the importance of the emerging study area in the light of my prior experience. I draw together ideas from all the preceding sections to form conclusions in section 2.6.

2.2 Conceptions and narratives underlying environmental concerns

I take as my starting point the "varieties of labour environmentalism" model, analysing the environmental engagements of workers' organisations, such as trade unions, developed by Stevis (2018), and expanded on by Stevis, Uzzell and Räthzel (2018). Stevis (2018), in an article exploring the environmental initiatives of US unions, theoretically grounds an analytical framework to evaluate "the depth, breadth and level of agency of the variations of labour environmentalism" and Stevis et al (2018) consider the prospects of this approach to bridge environmental theory and practice, within the field of "labour environmentalism" (Räthzel and Uzzell, 2013).

In analysing how trade unions take account of the relationship between labour and nature, Stevis et al (2018) consider that both social justice and concern for the environment must be equally centred – neither can be taken as given. Stevis (2018) cites

Hopwood, Mellor and O'Brien (2005) as usefully differentiating "amongst sustainability worldviews and proposals using the dimensions of social equality and concern for the environment". Stevis (2018) uses Hopwood et al's model to underpin the dimension of "depth" to assess labour environmentalism. In exploring how Stevis (2018) has used Hopwood, Mellor and O'Brien's (2005) heuristic, my aim is to consider more closely the specific relationships between concern for the environment and concern for social justice in order to subsequently analyse how each drives unions' responses to climate change.

Figure 1 - Adapted omitting detail from Figure 1 in Hopwood, Mellor and O'Brien (2005)
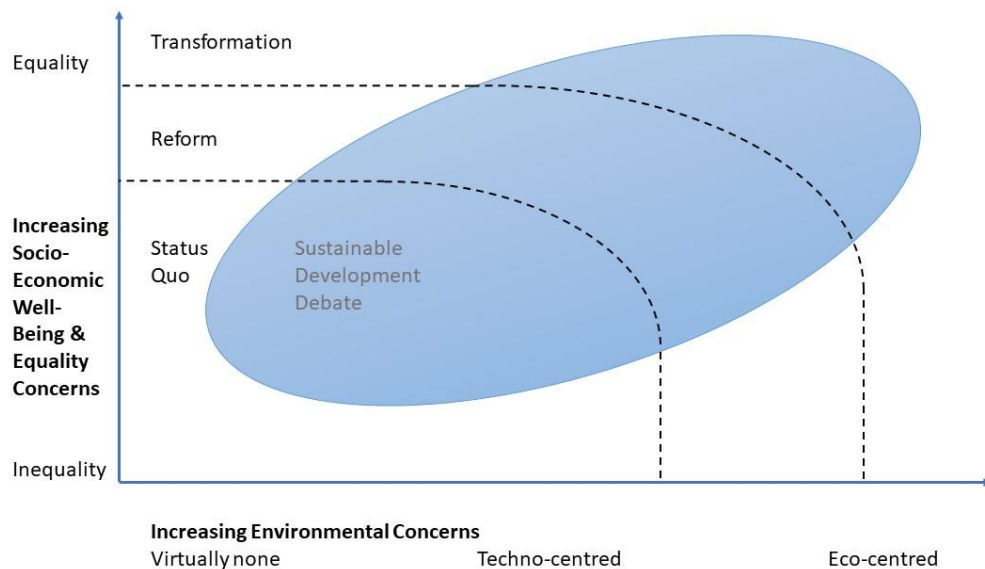
Hopwood, Mellor and O'Brien (2005) create a matrix on axes of "increasing environmental concern" and "increasing socio-economic wellbeing and equality concerns". This is reproduced in Figure 1, omitting the detailed examples of approaches located on the matrix in Hopwood, Mellor and O'Brien (2005). Within this map, Hopwood, Mellor and O'Brien plot a central oval that represents sustainable development (where levels of social and environmental concern are balanced) and identify three broad bands across the map representing an increasing level of both kinds of concern: Status Quo, Reform and Transformation. They then distinguish between those who are in favour of transformation *without* sustainable development (as they are concerned for *either* social equality *or* environment), and those who are concerned for both social and environmental justice who propose "transformation *and* sustainable development". Stevis (2018) relates the "depth" of justice in labour environmental initiatives to "the combined social and ecological priorities and commitments of labour unions" (2018, p.456), corresponding to the positions within sustainable development, where there is a balance of social and environmental concern. The Just Transition Research Collaborative (JTRC) (2018) have

used a similar dimension to analyse varieties of Just Transition, which I consider further in Chapter 3.

Hopwood, Mellor and O'Brien (2005) see the major divide as between those who may use the language of sustainable development to defend the status quo, and those who seek transformation. Within the Reform agenda, the focus is on large shifts in policy and lifestyle, achieved through existing economic and social structures, with governments introducing reform, and much being achieved through technology change. In contrast, the Transformation agenda is likely to be driven by bottom-up political organising through social movements. Hopwood, Mellor and O'Brien (2005) conclude that while 'transformation' is essential, "reform now is better than nothing" (2005:49). They conclude that if humanity depends on the environment, and wealth creation for some is linked to poverty, injustice and environmental degradation for others, transformational ways forward for humanity cannot ignore the environment.

To meet my objective of developing a framework to analyse union concerns around low carbon, I take three key pointers from Hopwood, Mellor and O'Brien (2005). First, that social and environmental concerns should both be included, but not be reduced to each other. Secondly, that the difference between reform and transformational change is important. Thirdly, that to identify the conditions for transformational change requires differentiating between levels of environmental concern – here Hopwood, Mellor and O'Brien (2005) used labels of "techno-centred" and "eco-centred" in their matrix, drawing on O'Riordan's (1989) categorisation. In showing where on their matrix certain schools of thought or initiatives would be located, they build on a linear map of this axis by O'Riordan (1989). The division between techno-centred and eco-centred approaches on the environmental concern axis relates to a question of what it means to overcome environmental limits through technology, which is at the heart of debates about sustainability. To further unpack and underpin this division, Dobson's (1996) analysis of sustainability conceptions is helpful.

Dobson (1996) roots his analysis in ideas of environmental sustainability, separate from the remedies that are offered to problems of unsustainability ("diagnostic packages"). He aims to pinpoint how Sustainable Development is discussed in the literature, in terms of environmental (or physical) sustainability, and to this end he identifies "conceptions" of sustainability, based on answers to four key questions. These questions are: "What is to be sustained?" "Why?" "What are the objects of concern?" "How far can human-made capital substitute for natural capital?" From analysing correlations in answers to these questions in sustainability literature, Dobson (1996) identifies four underlying conceptions of environmental sustainability.

Of these four sustainability conceptions, Dobson (1996) identifies two as "anthropocentric" and thus as related to Sustainable Development. What is key here is Dobson's definition of the boundary between these anthropocentric conceptions. They are separated by the degree to which humanmade capital can substitute for natural capital – that is, whether technology can indefinitely solve environmental problems, or whether limits will be reached. Dobson bases the definition on Solow (1992), who states: "The duty imposed by sustainability is to bequeath to posterity not any particular thing … but rather to endow them with whatever it takes to achieve a standard of living at least as good as our own … We are not to consume humanity's capital, in the broadest sense" (Solow 1992, p.15). Dobson equates this with Daly's (1992) definition: "Maintaining total capital intact might be referred to as "weak sustainability", in that it is based on generous assumptions about substitutability of capital for natural resources in production." (1992, p.250)

For Dobson, the divide between the weaker and stronger anthropocentric conceptions "is the point at which the sustainability debate meets the limits to growth debate" (1996, p.411), with his weaker sustainability conception meaning that "services provided by the environment … can always be substituted for by human-made capital through resource substitution, technological advance, and so on" (Dobson 1996, p.412). In the stronger of Dobson's anthropocentric sustainability conceptions, natural and human-made capital are complementary and the one in short supply is limiting. Dobson (1996, p.411) cites Daly's example here:

> "More and more it is the remaining natural capital that now plays the role of limiting factor. The fish catch is not limited by fishing boats, but by remaining populations of fish in the sea" (Daly 1995, p.50).

In addition, in the stronger conception, "the sense of futurity is stronger" - future human needs take precedence over present generation human wants, because ecological processes operate over long time-scales (Dobson 1996, p.413). Dobsos (1996) sustainability conceptions contain a critique of mainstream ideas of "environmental efficiency" and "green growth", in that such activity will eventually bump against "natural capital … playing the role of limiting factor" (1996, p.411).

Dobson's (1996) divide between weaker and stronger forms of anthropocentric sustainability conceptions can thus underpin the environmental concern axis in Hopwood, Mellor and O'Brien's (2005) matrix. To bring this into relation with trade unions' concerns, it is also helpful to understand how this divide plays out in Ecological Modernisation Theory (EMT), which has been a dominant approach in policy over recent decades (Langhelle, 2000). As global limits become apparent, two main approaches have been proposed to sustain growth – first, to utilise energy and resources more efficiently ("producing more with less"), or secondly, to "change the content of growth", to reduce

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overall resource use or make its impact more equitable (Langhelle 2000/2009, p.407). "Producing more with less" emerged as a key idea as, in the 1990s, global GDP growth slightly outpaced material output. The evidence since then, however, has completely contradicted the suggestion that wholescale "de-materialising" of the economy is possible (Hickel 2020: 101), but at the level of companies and industrial strategies, "producing more with less" has remained a powerful narrative.

Work by Christoff (1996) illuminates how such narratives are part of a contest for control of the environmental agenda and a response to pressure from economic globalisation – so a reflexive aspect of Ecological Modernisation Theory (EMT). Within EMT, Christoff distinguishes two approaches: strong (ecological) and weak (modernising). The strong form is a "broad and reflective" approach that "questions the trajectories of industrial modernity", whereas the "narrow and instrumental" weak form is about "improving environmental efficiency" (1996/2009, p.118). Christoff suggests that when applied without understanding the impact of economic globalisation, Ecological Modernisation remains focused on "end of cycle", and overvalues local achievements, not accounting for the "breakdown of technological escape routes" (1996/2009, p.110). Christoff's narrow "modernising" approach can thus be identified with O'Riordan's (1989) "techno-centred" approach and Dobson's "weak" conception, in being about "producing more with less". His "ecological" approach, as with the other "strong" approaches, "changes the content of growth" to remain within ecological limits. Christoff resonates with Langhelle (2000) and with Hopwood et al (2005), in seeing these approaches not as opposites, but with the narrow (weak) kind in some ways a prerequisite for the broader (strong) form (Christoff 1996/2009, p.113). Its "technological change, economic instruments [and] instrumental reason" need however to be "subsumed into and guided by the normative dimension of strong EM" (1996/2009, p.113).

Further to identifying strong (ecological) and weak (modernising) forms of Ecological Modernisation, Christoff (1996) explores how Giddens' concepts of reflexive modernity play out to displace certainty, to globalise, and to increase both trust and risk (1996/2009, pp.113-115). Christoff identifies how:

> "The emergent ecological critique … has a paradoxical relationship to the constitutive features of modernity… It makes radically problematic and contradictory the industrializing imperative which lies at the heart of modernisation…" (1996/2009, p.115).

For Christoff, versions of Ecological Modernisation that "are still embedded in notions of industrial progress… do not address the extent of this corrosion of trust in simple industrial modernity" (1996/2009, p.118). For trade unions, the notions of industrial progress embedded in the modernising approach to sustainability can be powerful, as they are clearly aligned with the desired outcomes of their work – better health and safety,

cleaner workplaces, and higher pay from more productive processes. Stronger, ecological approaches to sustainability, dependent on changing the content of growth and reducing overall resource use are a comparative unknown, and any "reduction" as a strategy is likely to ring alarm bells for potential loss of jobs. This illustrates why the environmental concern axis is so important to analyse, to understand the dynamics of unions' engagement with the low carbon agenda.

2.3 A new climate for society

The emergence of climate change as a global, social issue brings new complexities and challenges to approaches to sustainability and theorisations of modernity. Spaargaren and Mol (1992) spell out some underlying issues, which come to the fore with climate change:

> "It seems very difficult to grasp the consequences for the environment of human action for several reasons, including 1) the complexity of the ecosystems involved; 2) the displacement of effects in time and space; and 3) the rapidly increasing scale of the man-nature interaction, which is by now truly global" (1992/2009, p.62).

Ecological concern has certainly been expressed by the environmental movement for many decades, and was summed up in Gregory Bateson's argument, originally published in 1972, that "the organism which destroys its environment destroys itself" (Bateson 2000, p.491), so that an "ecological habit of mind" (2000, p.469) is imperative. Yet, as Urry laments in reviewing the prospects for a post-carbon sociology, the social science of climate change since 1972 has mainly been left to economics (2011, p.2). He notes how the 1972 *Limits to Growth* report, despite its foregrounding of likely catastrophe by 2070, "has been largely forgotten, partly because it was thought to have been 'disproved', especially by energy experts and economists" (2011, pp.165-166).

Welsh (2010) describes this context where,

> "modernity as a reflexive project, with the capacity to utilise knowledge and aesthetic resources to meet the challenges of globalisation, is confronted by the prospect of a systemic planetary crisis that is human in origin" (Welsh 2010, p.34).

The climate crisis is such that: "The adequacy of the nation state and of dominant forms of scientific knowledge and the primacy of free market economics are all challenged by the dynamics of climate change" (Welsh 2010, p.34). Climate change, driven by everyday energy use at work and home, has impacts far and wide in space and time. It escapes the bounds of the 'environmental' – as a problem with both social causes and social outcomes, it cannot be addressed by the same 'modernising' approaches that found success with local environmental issues.

Climate change raises distributional questions (Langhelle, 2000), which Langhelle sees as going to the heart of sustainable development (2000/2009, p.409). It "forces recognition of global interdependence" (IPCC 1996, p.118) and brings the distribution of efforts and benefits to the fore (Langhelle 2000/2009, p.404), thus raising 'climate justice' as a key global perspective. Unlike other forms of environmental justice, which are more amenable to local or national action, climate justice in this respect requires global agreement and processes. The importance of the Paris Agreement in this respect was to agree a limit (of global heating) from which could be derived national contributions, in turn defining the associated carbon budgets (UNFCCC, 2015).

Whereas de-materialising ('green growth') can easily be claimed as a win-win for society and the environment, the kind of structural change brought about by 'changing the content of growth' brings forward the possibility of 'losers' or 'victims' of the change (Langhelle 2000/2009, p.407-8), in sectors identified as: the construction complex, the road traffic complex, the energy complex and the agro-industrial complex (Jänicke 1997, p.19; cited in Langhelle 2000/2009, p.408). As these are heavily unionised sectors in many industrialised countries, this brings the threat of job losses to the trade unions' doorstep and makes structural change to meet ecological limits appear to be a very poor competitor to the "pollution prevention pays" approach (Hajer 1996/2009, p.83) favoured by companies and states.

Mol (1996) contrasts global environmental problems such as climate change with the 'normal' environmental problems that Ecological Modernisation Theory has as its frame of reference, such as water pollution, chemical waste and acidification. As well as the distributive justice issues raised, climate change brings complexity, or 'wickedness'. 'Wicked' issues have been defined as those not amenable to formal systems-theoretical approaches (Andersson, Törnberg and Törnberg 2014), and as akin to 'messes', "dynamic situations that consist of complex systems of changing problems that interact with each other" (Chapman, Edwards and Hampson 2009). Andersson, Törnberg and Törnberg's (2014) paper '*Societal systems – Complex or worse?*' sets out a heuristic for thinking about systems as simple, complex, complicated or wicked. They see societies and ecosystems as wicked systems, which are both "complex" and "complicated", where

> "complexity is associated with bottom-up self-organization – like the behavior of a school of fish or a crowd – while complicatedness is associated with top-down organization, such as in engineering" (2014, p.146).

As such, both complexity science and systems-based theories struggle to grapple with wicked systems. Andersson, Törnberg and Törnberg (2014) suggest that wicked systems tend to be "cast" to the domain of complex, complicated or simple systems to theorise them. In principle, say Andersson et al complicated or even complex systems may be decomposed for study, but near the wicked corner, "change strongly and rapidly feeds

back into the conditions for further change" (2014, p.152). The weak, modernising approach to sustainability tends to draw a boundary around an issue, excluding wider implications and impacts (such as the extraction of minerals needed for control technologies) or longer timescales and wider inequalities that raise questions of justice. Climate change and destruction of biodiversity are driven by economic growth filling ecological space, for example, the ability of the oceans to absorb heat, or of forests to absorb carbon dioxide. The complex feedback loops and the global, social and economic nature of climate change mean the "modernising" approach founders here – climate change requires a wider approach to redesigning economic activity within carbon budgets and to meet social goals.

Modernising and ecological pathways compared

Within a modernising approach of environmental efficiency through technological development, goods can be produced using less carbon, but, as Hickel (2020) demonstrates, material use globally - extraction of raw materials and waste produced - remains in lockstep with economic growth, leading to ongoing destruction of biodiversity. Jackson (2009) shows that increasing environmental efficiency to achieve carbon budgets while allowing for economic growth is unfeasible, and even more so in view of the huge disparities in prosperity globally. It becomes clear, that despite the hegemonic position of the modernising conception in industrial society, the pathways it underpins are inadequate to achieving sustainability in the face of climate change.

The ecological approach is defined around strongly constraining the substitution of humanmade for natural capital. Instead of efficiencies within the system, the ecological conception necessitates radical system re-design that changes goals as well as processes. The ecological conception of sustainability thus suggests "prosperity without growth" (Jackson, 2009), where positive indicators of prosperity must be agreed politically. Such indicators could be defined in terms of community wellbeing, biodiversity, ecological footprint or other factors, but would need to be negotiated in some form by communities. Stirling (2010) critiques technocratic approaches to progress that only question "how fast?" and "who leads?" (2010, p.210) and argues for a "more clear-eyed and empowered" approach to the "deliberate steering of progress" (2010, p.200).

The idea of "progress" is similarly questioned by the University of Cambridge Institute of Sustainability (CISL) report *Rewiring the Economy* (2017) which explicitly poses the question 'what should the economy be delivering?' and sets ten tasks for government, finance and business towards delivering the Sustainable Development Goals (United Nations, no date). This work is complemented by CISL Working Paper 3 (Silveira and Pritchard 2016) with an aim of outlining a justice approach that can inform sustainability leaders in policy-making and business circles, using an innovation lens. Recognising that "technological innovation will not come about … without organisational, social and

institutional innovation" (2016:18), they recommend that these forms of innovation are pursued together, implying a central role for government. They consider different forms of justice within the different fields of innovation, providing a framework for businesses to assess impacts and trade-offs and decide on innovation strategies.

However, the wider boundary of change of pathways underpinned by the ecological conception presents a challenge for businesses or even governments. An example to illustrate the difference between pathways underpinned by the modernising and ecological conceptions is found in the steel industry, which already recycles a huge percentage of steel in use globally – thus using less energy and producing much less carbon dioxide than producing new steel from iron ore. The industry has already made its processes, such as use of energy, very efficient, so that more investment would result in practically no gain. To further reduce the carbon footprint of steel, a way forward is to reuse, instead of melting down, structural steel components in the construction industry. These would need to be leased for use in a building, then returned to the owning steel company after, say, 30 years (DARE Alloys 2016). This system redesign, or circular economy, approach would require not only the standardisation of building designs and a system for tagging and tracking steel items, but a change of identity for the steel company and of roles and skills for its employees, and effectively for the whole political economy of steel use. The boundary of change is much wider than simply designing new technological processes within one company, so this kind of innovation requires a different kind of leadership and more collaboration, and tends to be side-lined in favour of more manageable, technological projects.

Trade unions are not sustainability specialists and are exposed to these conceptions mainly via businesses and governments, as they seek to reduce the hardship from proposed sustainability pathways. The modernising conception of sustainability is embedded in the culture of modernity, structuring everyday discourse on environment, providing practical, available alternatives, within an engineering or organisational mindset, without disrupting the status quo in terms of power relationships or economic institutions. The concept of 'pathways', as set out in Byrne et al (2011), is useful to interrogate how trade unions respond to "existing regimes or proposed low-carbon alternatives", especially how they and others "'frame' the complex energy system under consideration" (Byrne et al 2011, p.9), where technological, economic and social factors reinforce each other through co-development.

Reframing the challenges
A 'pathways approach' is laid out by Byrne et al (2011), to re-frame the challenges of energy and development, and "facilitate debate about the kinds of low-carbon pathways to pursue" (2011:46), building on Leach, Scoones and Stirling (2007). They examine the "range of mechanisms through which societies collectively commit to certain socio-

technical pathways rather than others" (2011, p.49), and how social, technological and environmental components interact across multiple scales and co-evolve over time, giving rise to path-dependent trajectories. They consider the reflexive import of the ways different actors "frame" energy systems (2011, p.9).

Byrne et al (2011, pp.30-31) see "crucial issues of framing, legitimacy and governance" and ask:

> "How are technological trajectories (and associated pathways) to be identified? Who decides which pathways to encourage, who benefits, who loses, and so on? Whose voices are most influential in the interactions from which pathways emerge?"

Thus, the pathways approach differs from the dominant myth of progress as a single path determined by technology. Indeed, Stirling (2010) identifies pathways as locked-in through power in society, and those pathways that would work best for the powerless are most likely to be closed down. Stirling (2010) has explored, in relation to innovation, how a technocratic control approach reproduces itself, considering how,

> "despite the diversity and complexity of these branching choices, adverse repercussions tend to fall most heavily on those people with the least resources, privilege, or power" (2010, p.201).

Byrne et al (2011) suggest pathways are mutually reinforcing within certain socio-technical dimensions: capabilities, economics, vested interests, politics and power, infrastructure, institutions and market and consumer cultures (2011, pp.48-49). They explain through an example:

> "institutions are required to train engineers and provide facilities for developing particular styles of technology. These must in turn be linked to market incentives, marketing possibilities and the needs of prospective consumers. Beyond this, broader social, demographic and ideological processes are at work" (2011, p.47).

Byrne et al also highlight the "enormous strategic and tactical efforts to resist serious moves towards low-carbon infrastructure and socio-technical practices" that exist in high-carbon regimes. This, they say, underlines the need for "a better understanding of the political economy of transitions and where and how powerful support for low-carbon pathways might be mobilised" (2011, p.58). These insights show how complex a social and economic transition is at stake, and further work on green transformations, by Scoones, Leach and Newell (2015), helps to assess how trade unions relate to this.

Mobilising for green transformations

Scoones et al (2015) contribute to thinking about the green transformation imperative and its politics – what would it look like, who will bring it into being, what makes it political, and which politics will shape the sorts of transformations that are possible? (2015, p.1). Transformations are "the product of competition and interaction between a number of pathways, supported by diverse social actors with highly uneven political power" (2015, p.3) and there are likely to be "hard trade-offs implied by attempts to square environmental aims with social justice" (2015, p.6). A key challenge here is to unravel the "co-constructed complexes of technology, infrastructure, institutions and politics" and create alternative pathways (2015, p.8). They identify four broad narratives, each embodying "a different perspective on what it is (if anything) that needs to be transformed" (2015, p.10), reflecting "different understandings, prejudices and theories of change" (2015, p.10) and suggesting a set of pathways to green transformations. The four narratives are characterised (2015, pp.10-16) as first, technological transformations – where "'greenness' is presented as if it were an attribute of a technology itself, and as if the technology had agency in economic transformation". Secondly, marketized transformations see the crisis as the result of market failures, and corporations are agents of change, with a goal of 'green growth'. Thirdly, state-led transformations are about states steering transformation and re-embedding markets, plus aspirations to global governance. Lastly, citizen-led transformations occur through the power of linked social movements, to demonstrate alternatives and challenge social and political-economic structures to achieve radical system change.

These narratives are likely to be combined in various ways, Scoones et al (2015) note, rather than standing alone. They see as notable that these narratives "neglect, explicitly at least, … questions of justice", although, in each, it is implicitly assumed to be delivered, whether through benign elites, market forces, state authority or popular will. If state and market are seen as captured by or with

interests aligned to capital, serving minority interests, "issues of ownership and control over the process and the tools of change (production, technology, finance and institutions) are key" (2015, p.19). In this alternative pathway, faith is placed in "the role of mobilized citizens to democratize technology, production and the institutions that oversee them" (2015, p.19). This reflects where momentum for change has historically arisen, and that it

> "requires thinking about transformations in terms of cultures, practices and mobilizations that create the pressure for change, acting both to disrupt incumbent pathways, but also construct alternatives" (2015, p.19).

In the politics outlined here, trade unions are fully embedded in the "co-constructed complexes" and have a stake in each of the transformation pathways, through the technology that impacts their members' jobs, the companies they bargain with, the governments they influence, and social movements of which they are one of the more significant.

Against the grain of ordinary human experience

In unravelling the "co-constructed complexes of technology, infrastructure, institutions and politics" (Scoones, Leach and Newell 2015, p.8) and attempting "to square environmental aims with social justice" (2015, p.6), human societies must rely on the abstractions of climate science to understand, measure and propose responses to climate change. However, Jasanoff (2010) highlights how societies have existing ethical commitments, so the "situated and normative imaginations of human actors" (2010, p.235) need help from social institutions that offer a bridge to an ethical interpretation. Climate science, Jasanoff says, "cuts against the grain of ordinary human experience" (2010, p.237). Climate is "everywhere and nowhere", in contrast to being "tied to places and particulars" (2010, p.241). As with the early campaigners for a Just Transition: "people view threats with greatest alarm, and are readiest to act defensively, when the place under siege is personally valued" (2010, p.241). Ethics are disrupted by the idea of 'future' as an open-ended concept, outside the scope of ordinary moral thinking about the immediate past and near-term future (2010, p.242). Relating Jasanoff's insights to trade unions, which are firmly rooted in the meaning-making, normative sphere, shows that they organise around situated human activity in actual communities, their politics is culturally conditioned nationally and subnationally, and their role is spatially limited and tied by historical differences. It is about ethically meeting current needs, not those of the infinite future. Climate science and ecological thinking, essential to understand the complex, global threat of climate change, are more alien to unions' ways of thinking, scientifically distant and with dislocating implications, not easily relatable to their local, practical and normative concerns. In the face of climate change dislocating global facts from local values - "divorcing is from ought" (2010, p.236) – Jasanoff (2010) finds purchase from the fact that

> "the truths uncovered by science and the useful technologies that science helps build must ultimately be received back into the humdrum rhythms of ordinary lives and experiences in order to 'work'" (2010, p.243)

If this fit to social practices is key (2010, p.243), I conclude that the problem is brought back directly to the door of trade unions.

If climate change seems abstract and separate from people's lives and from societal change, recent work by Nightingale et al (2019) looks for effort placed "on understanding how the climate challenge itself is imagined differently when we change the scale at which

it is assumed to operate and the knowledges needed to understand it" (2019, p.347). Bringing together ideas of co-production, as used by Jasanoff, with the critique of techno-managerialism developed in the pathways approach and an ontological broadening suggested by Amitav Ghosh (2016) in his essay *The Great Derangement,* Nightingale et al aim to "allow us to see climate change and vulnerability as produced by our current political economic system and the injustices that are inflicted on people" (2019, p.347).

Nightingale et al (2019) propose paying attention to industrial practices and economic flows that culminate in dangerous emissions. Areas of the world where emissions are produced "are not simply by-products of our political economy, they are productive of it" (2019, p.3). Using an example of carbon budgeting, Nightingale et al show that it may be used to argue against a carbon-intensive economy (citing Anderson, Stoddard and Schrage, 2017), or, if its values remain "overwhelmingly embedded within the status quo of a global capitalist economy" (2019, p.346), it may fuel research to simply enable continuing emissions. Nightingale et al (2019) and Jasanoff (2010) call to 'change the scale', which means considering local knowledges, practice and values This exploration of climate change and the local underlies an interest in place-based climate action.

Just spatial relations

Stevis (2018), in defining the "breadth" of labour environmentalism, sees a spatial dimension as important to incorporate in order not to ignore the adverse impacts that are externalised across the landscape. An underlying dynamic of uneven development suggests the importance of scale in considering the social relations of the climate transition. As summarised by While, Jonas and Gibbs (2010), the thesis is that although economic activity depends on the interaction of labour power with nature, it is social relations that determine distribution across space, and they do so in geographically uneven ways (Smith 1984). Gough (2010), considering workers' strategies to secure jobs, also firmly roots his thinking in "the justice of social relations and the ways in which these use scale, space and territory", seeing the relevance of geography not just in spatial outcomes but in "the ways in which space is implicated in relations of power, competition, control and resistance" (Gough 2010, p.137). It is clear just how critical this dimension is from Baker's (2018) work, which uses a lens of embodied climate emissions to explore socio-economic and ecological inequality. She concludes that a "national-level, technology-focussed perspective… risks presenting an 'unrealistic view into the kinds of transformation of energy consumption patterns that are needed'" (2018, p.58). She thus recommends that energy consumption be approached through focusing on institutions and sectors, acknowledging that emissions are generated in one country for the benefit of consumers in another, and that "dematerialisation on one side of the world may directly or indirectly result in the relocation of energy-intensive production elsewhere" (2018,

p.58). Baker identifies a need for research into the "role of labour and wage inequality in relation to embodied emissions" (2018, p.58), moving away from "a zerosum game between ecological stewardship and labour rights" to understand the "interaction and interdependence between ecological and socio-economic inequalities" (2018, p.58). The dynamics of uneven development brings complex geographies of justice into the equation, as climate change, embedded in the everyday economy, links producers and consumers in mutually distant places, each with its own history, culture and politics. For trade unions, organising workers relatively locally, but who are connected globally to environmental problems, this clearly brings a challenge to re-define justice and solidarity.

Bridge et al (2013) further add to the picture of the energy transition as a geographical process through "attention to spaces and places a transition to a low-carbon economy will produce" (2013, p.334). While the "current, carbon-intensive energy system" has a particular spatiality reflecting the former absence of carbon constraints, a low-carbon energy transition will involve significant spatial shifts for the contemporary energy system (2013, p.334). Already certain locations have been thrown into question by decarbonisation combined with de-industrialisation (2013, p.334). Energy policy has been scaled nationally in countries like the UK, "since the post-war nationalisation of utilities" (2013, p.338), so that "central government and the oligopolies … dominate national energy supply", and "'keeping the lights on' is a powerful political imperative" (Bridge et al 2013, p.337). Despite local government having been thus marginalised from energy governance, the significant role that cities play in energy consumption is becoming recognised, and thus "cities are potentially important sites for political action around energy transition" (2013, p.336).

However, cities dealing with the climate transition and climate impacts have their own justice and conflict challenges - Bulkeley (2013) highlights that, far from putting aside politics in favour of a common cause, "the reality in cities across the world is that climate change is currently serving to exacerbate, not reduce, inequalities" (2013, p.230). Responses to climate challenges are not "coherent or universal", instead being "mediated through existing political concerns, institutional capacities and sociotechnical networks", and "shaped by the changing nature of the (local) state and engagement of a host of non-state actors with the climate-change agenda" (2013:234). Governance changes from attempting to address climate change, Castán Broto (2017) says, are matched by "attempts to govern climate change in urban areas reconfigur[ing] the politics of climate change" (2017:1). Castán Broto sees that "cities are so different, so contingent", meaning that

> "recognizing their history, the way social and material relations have been produced and the trajectories that shape people's lives are essential components … of urban governance… directed toward addressing an existential crisis such as climate change" (2017:11).

This place-based approach has been developed in practice for UK local authorities by the establishment of the Place-based Climate Action Network (PCAN) under the auspices of the 2017 UK Industrial Strategy. PCAN champions climate action at a local scale, by and for local communities, through multi-level and multi-actor collaboration (PCAN, n.d.; PCAN, 2021).

In the light of the strong tension that climate change engenders between the global and the local, I have considered the role of the spatial in climate action, expanding on Stevis's (2018) attention to the externalisation of adverse impacts across the landscape. Bridge et al (2013) set out the terms of energy transition as a geographical process, while Gough (2010) and Baker (2018) show how workers, producers, and consumers are connected across space, with strong justice implications. Nightingale et al (2019) explore how "areas producing high climate emissions are not a by-product of our society, but are productive of it" (2019, p.3). Jasanoff (2010) highlights the disjuncture between local, practical, ethical concerns, that unions may focus on, and the demands of the global climate science. Work by Castán Broto (2017) sets the scene for the emergence of place-based climate action both practically and academically.

My conclusions from the discussion in sections 2.2 and 2.3 can be summarised in terms of study areas emerging. First, climate change brings to the fore the limits imposed by natural systems. The challenge is to understand what it means to distinguish between modernising and ecological approaches to sustainability, and how the social and environmental concerns of unions relate to each other. This understanding can be supported by tracking social and environmental concerns and by analysing 'environmental concern' in relation to modernising and ecological approaches to sustainability.

Secondly, climate change as a wicked problem is both complex and complicated – making the carbon reduction pathways selected critical. For any given pathway, the social and the technical aspects are mutually reinforcing, meaning there are considerable challenges of 'lock-in', i.e., difficulties breaking away from unsustainable pathways. The climate impacts of pathways bring global outcomes of major social concern – loss of livelihood, public health issues and displacement. Therefore, rather than assuming that demands for local social amelioration suffice, there is a need for research which interrogates unions' engagement with, and critique of, the technical pathways proposed, in terms of what they open up and close down socially.

Thirdly, climate change is a globalised issue embedded in the economy, but, outside of power generation, many climate action programmes concerned with process change and demand reduction require intensive subnational action and governance. Outside of

engagement by national level union organisations and Global Union Federations (GUFs), there is need for study of how trade unions may engage at the subnational level with place-based climate action. Trade unions have strong ethical and practical concerns, and develop their values and capacities relatively locally, so there is a need to explore further the dynamics of how trade unions are engaging with place-based climate action, and how this impacts on their concerns.

Lastly, when embedded greenhouse gases are recognised to link consumers, producers and climate impacts globally, climate change becomes the business of all of civil society, and justice in the transition cannot be confined to a specific set of workers. The challenge is to understand whether unions recognise these links between producers and consumers and their implications for justice. How inclusive is unions' pursuit of justice, and where do they focus, among changes to technology, organisations, institutions and society?

The challenges that climate change brings to the idea of Just Transition thus give rise to some needs for research - to understand how unions currently frame the proposed pathways to low carbon, how they see justice in the climate transition, how they engage with place-based climate action, and how unions' conceptions of sustainability relate to the wicked, global, social issue of climate change.

2.4 My matrix of environmental and social concern around Just Transition

Drawing on the above debates, there are four areas of critique in terms of how environmental and social concerns are represented in Hopwood et al (2005) and Stevis's (2018) original models. First, environmental concern should be treated separately to social concern; secondly, there is a need to assess the conditions for transformative change; thirdly, environmental concern needs unpacking into weak and strong forms of sustainability; and lastly, social concern needs to take account of the nature of climate change. These critiques lead me to propose a new matrix of environmental and social concern that better recognises climate change as a global, social problem.

In Stevis et al's (2018) model, the diagonal of Hopwood et al's (2005) matrix is equated with the depth of labour environmentalism (or of Just Transition in JTRC, 2018), so combining social and environmental concerns into a single measure. In the first step of my critique, I argue that taking 'depth' to represent an even balance of environmental and social concerns loses the useful distinction that Snell (2018) identified, between the social concerns to which unions are fully committed, and the environmental concerns which they find much harder to prioritise. This conflation is thus unhelpful to understanding the change processes around unions' concerns. In my model, I therefore move away from this conflation, to reassert, with Hopwood et al (2005), that environmental and social concern need to each be represented as independent axes.

Furthermore, again following Hopwood et al (2005) who consider transformational change 'essential', it is important to be able to distinguish the conditions for such change. My second step of critique is therefore to argue that, as social and environmental causes and effects become closely related under climate change, we need to analyse each of social and environmental concerns when grading worldviews varying between status quo, reform and transformational. My model therefore allows for assessing these factors independently. The third and fourth steps of my critique then relate to the meaning and gradation of each axis.

The third step of my critique relates to recognising as critical the qualitative boundary between weak and strong conceptions of sustainability (Dobson 1996) underlying environmental concern. In section 2.2, I discussed Dobson's (1996) well-defined distinction between approaches to sustainability that do or do not allow natural capital to be substituted by humanmade capital, and mapped these onto Christoff's (1996) 'modernising' and 'ecological' versions of EMT. This distinction provides a more in-depth definition of Hopwood et al's (2005) "techno-centred vs eco-centred" axis of environmental concern. An ecological approach recognising natural limits is key to addressing climate change. This strengthens further Hopwood et al's (2005) conclusion that we cannot ignore the environment, to suggest that transformational ways forward demand ecological rather than purely modernising approaches. In my matrix I further subdivide each approach, to reflect more concretely the kind of changes it represents.

In retaining separate axes of environmental and social concern in my model, following Hopwood et al (2005), my fourth step is to ground their definition of 'social concern'. For Hopwood et al., this is "the level of importance given to human well-being and equality" (2005:41). My task here, then, is to define social concern in a way that integrates the global, social nature of climate change. As we saw in section 2.3, climate change raises distributional questions which go to the heart of sustainable development (Langhelle, 2000). Structural change brings the threat of job losses in heavily unionised sectors in industrialised countries, so that particular workers become 'losers' or 'victims' of the change (Langhelle 2000/2009). Meanwhile, as Baker (2018) shows, embedded emissions link across space the 'human well-being' of producers and consumers with the creation of climate impacts bringing 'ill-being' elsewhere, so that well-being locally and globally involve each other. Issues of justice reach wide and long-term through the impacts of climate change on other nations and younger people. Climate justice thus becomes a key perspective, without which 'human well-being and equality' cannot be assessed.

In view of these points, the social concern axis of my matrix grades social concern in terms of widening circles of inclusion. Concern for a particular set of workers may be the starting point for unions, but the climate connections embedded in the global economy mean that increasing concern must be defined as geographically and socially wider concern. The

implication here is that to protect certain workers in the short-term does not protect their children's future or the people in the supply chains bringing them food.

Stevis (2018) also recognises inclusiveness as an important factor, and having defined 'depth' of labour environmentalism in terms of combined environmental and social concern, brings issues of inclusivity into his model through their parameter of 'breadth'. Breadth is defined in terms of initiatives 'lifting all boats', that is, more inclusively improving human well-being. JTRC (2018) also use a parameter of inclusivity in their mapping, relating this to Fraser's (1995) definitions of justice. These authors do not make explicit their interpretation of the social concern axis of Hopwood et al's (2005) matrix, and whether, for them, 'social concern' has a different meaning to 'breadth'. In my model, for the reasons outlined in my four steps of critique, I equate social concern with increasing breadth of inclusivity. As these issues relate directly to unions' definitions and approaches to Just Transition, I will present my matrix here but discuss further implications for my model in Chapter 3.

Figure 2 - My matrix of environmental and social concern in a Just Transition to low carbon
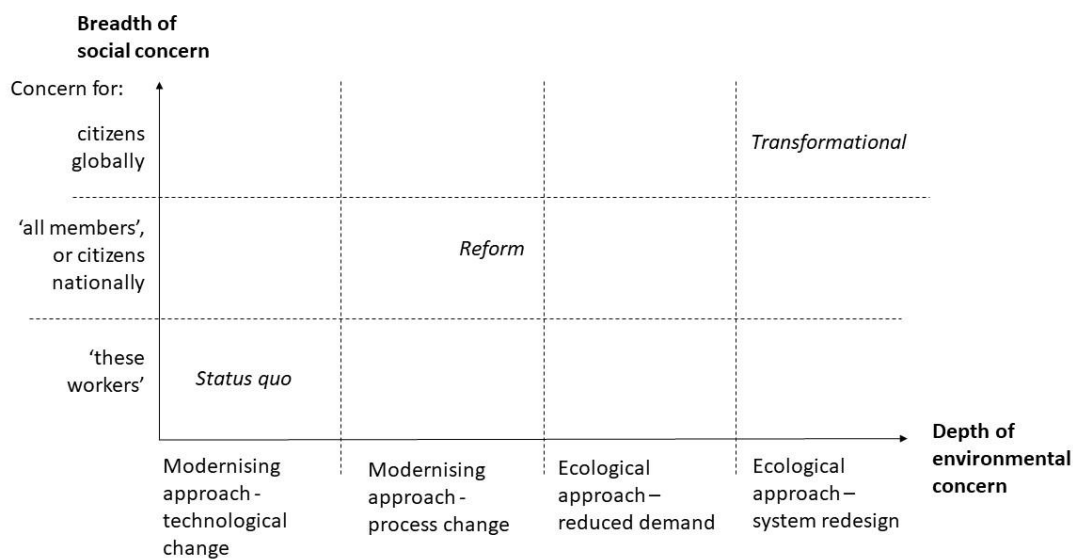
Matrix of social and environmental concern in a Just Transition to low carbon

Illustrated in Figure 2, my matrix shows a field defined by increasing levels of social and environmental concern, based on the matrix defined by Hopwood et al (2005). The ground of the figure represents forms of development based in different levels of social and environmental concern. Hopwood et al's (2005) levels of sustainable development – status quo, reform and transformational – are represented on the diagonal. This matrix enables us to track unions' social and environmental concerns separately, rather than conflate them. In recognition of similarities between my model and the varieties of labour

environmentalism model (Stevis, 2018), increasing environmental concern is referred to as depth, and increasing social concern is referred to as breadth.

In this matrix I grade the depth of environmental concern for the low carbon transition in terms of whether it embodies a modernising or an ecological approach to sustainability, taken as a key qualitative boundary. I further subdivide this axis to offer four grades of depth of environmental concern, as defined in Table 1. I grade the 'breadth' of social concern in terms of its inclusiveness, as shown in Table 2, ranging through concern for a particular set of workers, for all union members or citizens nationally, to a global concern for human well-being.

Table 1 - levels of environmental concern in my matrix

Technology change (Modernising)	Technology change is seen as the answer – making industries cleaner, but without thought to the wider impacts.
Process change (Modernising)	As well as changing the technology, the process is more radically changed to solve the problem differently, but not necessarily to reduce material throughput or energy use.
Demand reduction (Ecological)	As well as changing technologies and processes, there is a reduction in the carbon footprint cradle to grave, e.g., through reducing demand.
System redesign (Ecological)	As well as all of the above changes, the system is redesigned to be zero carbon, waste-free and circular.

Table 2 - levels of social concern in my matrix

Concern for 'these workers'	A specific set of workers is identified who are threatened with hardship by the transition to low carbon, and justice is sought for them.
Concern for 'all union members' or citizens nationally	The transition to low carbon is seen as an 'all member' issue, and justice is sought for working people or citizens more generally.
Concern for citizens globally	The transition to low carbon is seen in the context that climate change affects everybody – justice is sought for those most vulnerable to global climate impacts now and in the future.

In conclusion, in creating my *matrix of social concern and environmental concern in Just Transition* I have produced a tool for assessing how unions frame a Just Transition to low carbon, both in environmental and social terms. My matrix re-grounds the definitions and re-calibrates the 'depth' and 'breadth' of labour environmentalism (Stevis, 2018) to account for climate change as a wicked, global, social phenomenon.

2.5 The importance of this study area from my own experience

In this section I reflect on the importance of this emerging study area in terms of my prior experience, which knowledge informed the direction of my research. In the Yorkshire and the Humber Just Transition Taskforce, I have heard reactions from trade union officers, when confronted with the carbon implications of certain technological pathways, that they lacked scientific knowledge. Union officers, I found, as non-specialists in climate matters themselves, lacked independent critique of pathways and technologies – a point made by a union rep at a fringe meeting on climate change (JP-2017-09-TUC), who asserted that unions need an 'honest broker' between the analyses of companies, governments and campaigners. This lack of scientific knowledge may lead to a more blind faith in technology, or in a particular technology. In 2013, I spoke in a debate *"Is Clean Coal an Act of Faith?"*, opposite Terry Fox, a former officer of NACODS (the pit deputies' union in the coalmining industry) and later Labour leader of Sheffield City Council. Whilst my co-presenter and I argued that too much reliance and faith was being placed on unknown, undeveloped technologies that had major risks associated, our opponent celebrated the technology he had seen in development and in use in the coal industry but did not engage with the wider scientific context.

As a member of one of the largest energy unions, Unite, I regularly received the quarterly members' magazine, often featuring articles on high-carbon sectors (roads, vehicles, airports, for example), and celebrating policies of expansion that will create jobs, but not questioning the implicit reliance on fossil fuels and the risk this brings for both the climate and for the future of work in that sector. This lack of analysis in the labour movement of the wider footprint of proposals was exemplified around fracking proposals for Yorkshire that were critiqued by campaigners because of the risk of leakage of methane (a powerful greenhouse gas). The 'solution' proposed by a local Labour MP was to encase the pipes in more steel and concrete, not taking account of the extra fossil fuels that would be used in creating this steel and concrete. At a Unite national policy conference which I observed in 2016, I saw a parallel example of the 'jobs through technology' versus wider ethical concerns playing out, in a debate on the proposed renewal of the UK's Trident nuclear weapons. The well-unionised workplaces building the submarine engines were a major concern to many speakers, and the debate highlighted that employer relationships were held as more important overall in the union than relationships with civil society campaigners critiquing nuclear weapons in wider justice terms.

My own experience included leading in the local climate movement from 2010 to 2017 on campaigns around the *One Million Climate Jobs* that could be created through climate action (OMCJ, 2013), but I found when speaking at Sheffield Trade Union Council meetings that the discussion rarely did credit to the economic significance of this idea. Conversely, at economic consultation and partnership events held in Sheffield 2010-17 by the Local Strategic Partnership or the Local Enterprise Partnership or around the Framework for an

Inclusive and Sustainable Economy (Sheffield City Council 2018), I never met trade union representatives. Whereas around the issue of low pay, for example, unions have led and considerably influenced the city's agenda, on climate change as an economic issue for Sheffield in my experience they have been mainly silent.

As I engaged with Unite around climate in 2015-16, I learned that in the union nationally, climate change responsibility was with the International Department. At the international level, some capacity was being developed around climate - I attended International Trade Union Confederation events on behalf of Unite, and learned of the work done by Global Union Federations (GUFs), such as ITF (International Transport Workers' Federation) and IndustriALL (GUF for heavy industry). In contrast, at the level of the city and city region, where most of my climate activism around the economic and social co-benefits of climate action was taking place, unions were effectively absent.

Thus, my experiential knowledge in this area shows that unions' environmental concerns are quite limited compared to their social concerns, with little critique of technological pathways. Also, not only is there a gap in theory around trade unions engaging with place-based climate action, but there is a gap in the practice of such engagement. This supports the importance of understanding what enables or prevents unions engaging, especially around more ecological approaches such as energy demand reduction through changes in housing and transport.

2.6 Conclusion – the study area suggested by my synthesis

In this chapter, to ground trade unions' perspectives on climate change and a Just Transition to low carbon, I have delved into both the ecological dimension and the social dimension of sustainability. I found that climate change places strong ecological demands on sustainability, escaping the limits of a 'modernising' approach that can only improve environmental efficiency. Secondly, climate change necessitates a form of social analysis that recognises the coevolution of technology and society, and the significance of place, in order to develop pathways to low carbon that are resilient in the face of uncertainties and complexities. My *matrix of social concern and environmental concern around Just Transition* enables assessment of how unions frame a Just Transition to low carbon, both in environmental and social terms. My matrix re-grounds the definitions and re-calibrates the 'depth' and 'breadth' of labour environmentalism (Stevis, 2018) to account for climate change as a wicked, global, social phenomenon. The promising area for study emerging is unions' social and environmental concerns in a context of multilevel climate policy and action.

This area is important to study because trade unions are a mainstay of civil society in the field of economic development. If unions work solely within a narrow framing of sustainability that relies on technological change, they are not effectively engaging in this space. In a climate-constrained economy, ecological approaches to sustainability, and

climate governance at a local scale are key to just outcomes. Thus, the technology-centred, modernising conception of sustainability, ignoring the transition of the everyday economy, is inadequate to respond to climate change as a wicked issue embedded in society. Relying on this modernising conception may thus form an obstacle to trade unions' engagement with climate action and their success in achieving a Just Transition.

To summarise, there is a need for research asking how unions frame the pathways to low carbon, in terms of their environmental and social concerns. Consideration is needed for the definitions in their policies, practices and calls for Just Transition, and in how they talk about the climate transition and associated proposed pathways. The question of how these are influenced by employers' and government's policies and practices is also important, as is how they see justice being done in a Just Transition, and what kind of changes they consider necessary to achieve justice. Related to this, there is a need to study unions' engagement with place-based climate action, and its relation to their concerns, both environmental and social, and the development of their capacities. As, increasingly, low carbon pathways are being proposed and implemented at a subnational level in the UK, especially around transport, buildings and food, this becomes an important scale of governance at which unions may both influence the agenda and develop their agency around climate change.

In Chapter 3 I present and synthesise theories of how trade unions define interests and solidarities in the face of changing demands, to understand how the development of their capacities offers renewal of their role and agency around a Just Transition to low carbon.

Chapter 3: A framework for change towards justice in unions

"The question of what is in workers' interest, and how workers are motivated by such an interest, therefore needs to be re-conceptualised: it is a question of what forms of workers' organisation and culture, and what transgressions of capital's power, can feasibly be constructed? This, of course, has no abstract answer, but depends on the spatial-historical conjuncture." (Gough 2010, p.137)

3.1 Introduction – trade unions, environment, and change

My aim in this chapter is to continue grounding a framework that can allow scholars and practitioners to assess unions' concerns and roles in the transition to low carbon. Whereas in Chapter 2 I addressed how the 'depth' of environmental concern and 'breadth' of social concern can be assessed in a climate-changed world, here I tackle the third parameter of Stevis's (2018) varieties of labour environmentalism model, the "agency" which workers and unions exhibit. By synthesising literature on unions' roles and how they renew themselves in a changed political economy, I aim to create a framework to assess the development of their capacities with respect to the low carbon agenda.

In Chapter 2 I reviewed and synthesised literature around sustainability and climate change, distinguishing a strong 'ecological' approach to sustainability from a weak 'modernising' approach. I explored how the differentiation between 'modernising' and 'ecological' conceptions of sustainability becomes more critical when climate change comes to the fore of environmental concern, as a wicked, global, social issue. It is significant that the mutual reinforcement between social, technical and environmental aspects of low carbon pathways raises the stakes and makes unions' roles around environment more important, at different scales including the national and subnational. Given this, and the aim of my research to explore the conditions that would allow unions to become more engaged in the climate change agenda and to realise a Just Transition, in this chapter I focus on unions' agency around the transition to low carbon, taking my starting point again as Stevis's (2018) model of depth, breadth and agency.

In section 3.2 I consider how climate change puts strain on the meaning of Just Transition, originally defined by unions in terms of local environmental issues. I introduce Snell's (2018) case study of a transition in a coal-producing area and his insights around a union's own role in Just Transition, based in his research on subnational union activity. Drawing on Snell's findings and implications from my synthesis in Chapter 2, I highlight some issues that emerge around the concept of Just Transition. I also consider recent work that has assessed different positions on Just Transition in terms of the depth of their transformative approach and their inclusivity (JTRC 2018) and discuss this in relation to my matrix of social and environmental concern.

In section 3.3, I consider the criterion of 'agency' in labour environmentalism, unpacking how within their specific role a union may be proactive, to build on the use of these terms

by Stevis (2018) and Stevis, Uzzell and Räthzel (2018). To do so, I reflect on Hyman's (2001) work around how unions develop solidarity around interests, both the immediate interests of their members and long-term class interests in social, political and economic change. In section 3.4, I mobilise Fairbrother's (2015) insight that the space unions have for agency is the development of their capacities, purpose and organisation in the face of a changed political economy, a process that constitutes union renewal.

I consider how union renewal has been characterised by various authors (Fairbrother and Webster, 2008; Lévesque and Murray, 2010; Fichter et al, 2018; Lehndorff et al, 2017a, 2017b), particularly in terms of organising, the development of power resources, and a union's social movement role.

In section 3.5 I bring to this thinking a lens of change for justice in organisations (Rao et al 2015), and synthesise these models to create my *framework for change towards justice in unions,* which analyses how unions are developing their purpose, resources, capabilities and norms, and whether there is renewal towards a social movement role. In section 3.6 I assess the importance of the emerging study area in terms of my prior experience. I draw together my conclusions in section 3.7, about the potential areas for empirical research emerging from this synthesis of the literature and my framework.

3.2 Just Transition in an age of climate change
A case study of union action for Just Transition in a coal-producing region

In unpacking how climate change puts strain on the meaning of Just Transition, a recent study by Darryn Snell (2018) is helpful to introduce some of the key issues which my research analyses. His research examines the theory and practice of Just Transition through a case study of subnational union activity in Latrobe Valley, an Australian coal region where a transition is occurring. He argues that Just Transition

> "requires more than government provisions and interventions and that unions must perform an active part in the 'Just Transition' process through their relations with employers, workers, government, and community" (2018, p.550).

Snell (2018) defines the need for Just Transition, following United Nations Environment Programme (UNEP, 2008), as occurring in "carbon-exposed regions potentially suffering disproportionate hardships that necessitate government interventions" (2018, p.551). Beyond immediate workplaces, such regions will need "pro-active assistance in creating alternative jobs and livelihoods, acquiring new skills, and weathering the transition to new industries" (2018, p.551).

Snell sees that conceptual clarity around Just Transition "is likely to remain a challenge for some time"; as a conceptual 'ideal type' with "multiple and contested interpretations not dissimilar from other inherently political concepts" (2018, p.561, citing Connelly 2007).

To aid clarity, Snell identifies three main parameters of different interpretations of Just Transition (JT) (2018, p.552) - first, "the balance between social and ecological 'fairness'", where, compared to other actors, unions "tend to place a greater emphasis on social fairness than ecological outcomes" (2018, p.552). Secondly, "the role of the state and the type of state formation required to achieve JT" (2018, p.553). Thirdly, he identifies "policy provisions and action", where most interpretations of Just Transition consider that the state has key responsibility for ameliorating hardships arising from its environmental policies, but Snell highlights both the responsibilities of private industry and the role unions themselves can play. Snell sees this role, in terms defined by Lévesque & Murray (2013), as involving unions expanding "their 'repertoire of action' and capacities beyond policy provision advocacy" (2018, p.554).

In his case study, Snell lists six findings from the attempt to put Just Transition (JT) principles into practice (2018, p.559-561), which I summarise here in three areas. First, the importance of unions' building capacity to perform proactive roles throughout the Just Transition process – making the most of social dialogue but not expecting governments to formulate Just Transition plans, instead driving the agenda themselves. Secondly, citing Pape, Fairbrother & Snell (2016), Just Transition requires a long-term commitment to regional and employment revitalization and maintaining solidarity with those disadvantaged, which argues for the importance of collaboration between unions, government, employers, and community organizations in realizing a Just Transition.

Finally, unions' concerns about environmental policy impacts on workers and communities must move beyond government policy and regulation to include the environmental policies of private firms, and Just Transition also requires unions to innovate and move beyond the traditional industrial model of unionism they have performed when confronted with closure situations. All these points challenge a narrow version of unions' role and suggest the development of unions' role, capacities and relationships are important to achieving a Just Transition in carbon-exposed regions likely to suffer disproportionate hardships.

Snell (2018) has thus set out parameters and findings around union action in a subnational carbon-exposed region that are very compatible with the concepts underlying my research. Another piece of research on the parameters of Just Transition, by the Just Transition Research Collaborative (henceforth JTRC, 2018), has very different objectives: to map different Just Transition initiatives in terms of how transformative and inclusive they are (JTRC 2018). In discussing this work, I will highlight four areas of tension I have identified in terms of how the idea of Just Transition relates to my synthesis around climate change from Chapter 2. These tensions each relate to the hardships created by change, and how a boundary should be drawn around that change in order to tackle the hardships.

Mapping Just Transition(s) to a low carbon world

The first area of tension is that the term Just Transition was used historically to refer to ameliorating environmental issues that directly affected workers and communities in the local area (such as the clean-up of an oil refinery). In *Mapping Just Transition(s) to a Low Carbon World,* JTRC (2018) review the history of the term Just Transition and how unions have organised around this since the 1970s. They draw attention to the union campaigners who were early proponents of a Just Transition and believed in promoting, "through the mobilization and collaboration of workers and communities", public policies that both addressed environmental challenges and secured decent jobs (2018, p.6). The very earliest examples of such campaigns, from 1973, related to the oil company, Shell, in the USA, and some later organising in the 1980s was around the idea of a 'Superfund for Workers' to clean up hazardous and polluting sites. Such campaigns, to an extent, are able to draw a boundary around a workplace and the community it is polluting, in order to demand cleaner processes that will benefit workers and local people as well as the environment more generally. This means that they can relatively easily gain support from those who stand to benefit, compared to campaigns for a Just Transition to low carbon, where the victims of climate change are less immediately definable and visible.

In describing these early campaigns for Just Transition, the phrase "sectors that shed workers even while economic growth takes place" (JTRC 2018, p.4), points to the second area of tension - the difficulty of drawing a boundary around where economic hardships for workers are coming from. Räthzel and Uzzell (2011) have analysed the dynamics of the dilemma which workers often see between protecting jobs and protecting the environment, showing it does not tally with the macro-economic evidence. What employers say is important: "Workers are more likely to be influenced by arguments which correspond to their lived reality, than by macro-economic models" (2011, p.1216). Companies make decisions to 'shed workers' for a complex of reasons but may choose to blame environmental regulation.

The third area of tension widens the second area, to note that calls for a Just Transition are made by unions in a world where structural change is ubiquitous and perennial, whether or not climate change is being addressed. Theories of uneven development (Smith 1984; Harvey 1996) see economic injustice as more than a by-product, in fact a structural outcome, of the capitalist economy. But, as JTRC (2018) identify, the "jobs versus environment binary inhibits any debate on a more profound transition that could transform the economic and political structures that reproduce and exacerbate inequalities and power asymmetries" (2018, p.3-4). The analysis offered by Nightingale et al (2019) sees the need for structural change in the fact that, as emissions-producing areas "are not simply by-products of our political economy, [but] productive of it", we most importantly need to address why society is geared towards high consumption and high

emissions. (Nightingale et al 2019, p.3). Addressing hardships of the transition may thus throw the boundary very wide.

The fourth and final area of tension relates to the remedies sought for the hardships of the transition, and again, to where the boundary is to be drawn in who is included. In their mapping of Just Transition, JTRC (2018) define two dimensions: The first is an 'affirmative-transformative' dimension that relates to the diagonal of Hopwood et al's (2005) matrix as discussed in Chapter 2, and the second is 'scope', in terms of inclusion and exclusion, on which I quote them at length:

> "Assuming that all people eventually benefit from Just Transition initiatives (the purpose of which is to drive the necessary change towards a low-carbon future), scope considers which actors or constituencies are to be directly supported (in the form of some kind of resource allocation), and ranges from exclusive—benefiting a specific group— to inclusive—benefiting society as a whole." (2018, p.12)

By thus differentiating the "scope" spectrum in terms of "direct support in the form of resource allocation", JTRC (2018, p.12) are failing to take account of the wicked, global, social nature of climate change, which is itself already reallocating resources dramatically. Pathways that do not offer reductions in emissions across the lifecycle of products and processes are themselves reallocating the means of life through climate impacts, which dwarfs the kind of "direct support in the form of resource allocation" that Just Transition is concerned with in JTRC's (2018) model. As Nightingale et al (2019), Baker (2018) and Räthzel and Uzzell (2019) show, high carbon, "business as usual" modes are impacting disastrously and persistently on the most vulnerable globally through embedded carbon emissions. The linkage that Baker (2018) makes clear between workers and climate impacts through embodied emissions must be taken seriously, at the detailed level of the pathways to low carbon.

The structural changes demanded by ecologically sustainable development will impact on specific, densely unionised sectors as 'victims' of the change, as Langhelle (2000) has shown. The role of unions representing workers in these sectors is often delineated as ensuring that such workers are "directly supported with resource allocation" (JTRC 2018, p.12). However, given the four areas of tension I have identified around climate change and Just Transition, unions seeking justice in a climate-changed world need to look at a bigger picture. Snell's (2018) recommendations are helpful here, placing action on Just Transition as part of a wider and long-term approach to supporting a carbon-exposed regional economy, and insisting on the role of both companies and unions as well as governments. To enable me to analyse how unions can build capacity to perform proactive roles throughout the Just Transition process, as Snell suggests, I consider theory around the identities and roles of trade unions, and how they build solidarity, to

unpack the concept of "agency" in labour environmentalism (Stevis 2018, Stevis, Uzzell and Räthzel 2018), which I first review.

3.3 Trade unions' agency, identities, solidarities and roles
Union agency as a parameter of labour environmentalism

On the question of what agency means for trade unions, for Stevis (2018), as a criterion to assess labour environmentalism, a higher level of agency is exhibited where unions act on their own behalf rather than follow governments' or companies' lead on environmental matters. With agency, Stevis (2018) is concerned to assess "the ability of unions to influence policy" (2018, note 6 to p.457). Agency is to be judged by whether unions are proactive in their environmental initiatives, or, conversely, "react to initiatives in which they may have limited input", being "forced into an inferior position or accepting the primacy of others in order to be 'at the table'" (2018, p.457). The definition of agency, Stevis (2018) says, is intended to "allow us to ascertain whether unions have agency independent of whether that agency challenges capitalism", and independent of whether the initiative has depth or breadth (2018, p.457).

My critique of this definition of agency as proactivity is that, as a union's role is, at core, responsive to the conditions where its members are employed, it will always to some degree be responding "to the initiatives of others" and to the social and labour market conditions that pertain. This parameter of agency thus needs more subtle investigation for trade unions than it may for other subjects of labour environmentalism, such as worker or peasant collectives.

Stevis, Uzzell and Räthzel (2018) are aware of the difficulty of defining agency for a union in terms of the complex nature of its role and its prioritisation of the interests it represents. They add further definition of this parameter of agency, particularly in relation to its internalisation and diffusion within a union. We cannot assume, they say, that within unions as "complex and variable" organisations, there is "consensus of interests and perspectives, as well as knowledge and understanding" (2018, p.446). They therefore suggest further questions that a systematic study of labour environmentalism needs to address, including to what degree the environmental priorities of a union are reflected in its internal organization, leadership and allocation of resources. (2018, p.446). To move beyond a purely descriptive approach requires systematising the questions that Stevis, Uzzell and Räthzel (2018) identify, around a union's leadership, priorities for bargaining, organisation and resources, and the way it is developing its capabilities, e.g. through training reps. These are not side issues for a union, but part of its core process of forming an identity, aggregating interests to represent, renewing its purpose, and acting as a social movement.

How trade unions define identity and solidarity around interests

For unions, as associations of employees, the wage-labour relationship is a key concern, and they cannot ignore the market. Also, whatever their ideology in that regard, they cannot escape a role as agencies of class. Yet they exist in a social framework that constrains them even as they aspire to change it – as part of society they must co-exist with other constellations of interest. Hyman (2001) discusses trade unions as social movements and their processes of building identity and solidarity around interests, within this triangle of forces between market, class and society (2001, pp.3-4). They cannot fully escape any of these factors, although at any particular time, two may dominate. Hyman rejects the idea that unions can be purely institutions in the marketplace, for

> "to exert influence on the market, trade unions must address the state, and in order to assert the relevance of an alternative 'moral economy' they must also participate in civil society" (2001, p.15).

Further, while "class relations are a reality" and "exploitation and insecurity are persistent features of the employment relationship", nevertheless, "class-based trade unionism is elusive" and even unions which define themselves as class actors "regulate and normalize the employment relationship" as well as engaging in struggle (2001, p.36).

Following Gramsci, Hyman (2001) takes civil society to be a terrain of struggle, where unions with others may play a role in "subjecting market forces to conscious social control" (2001, p.59). Hyman asserts that for unions, their

> "ability to exert influence over the conditions of work and social existence required that first they forged a sense of collective capacity on the part of their own constituency: collective identity and thus external effectiveness rested on a sustained process of internal dialogue" (2001, p.60).

He notes the corollary, of "the consolidation of a bureaucratic mode of representation eventually resulting in an erosion of unions' legitimacy and organising capacity" (2001, pp.60-61). Hyman quotes Flanders (1970, pp.15-16) to express this tension: "trade unions have always had two faces: sword of justice and vested interest" (2001, p.61). Hyman observes that as trade unions re-engage in social issues, they must "redefine their ideals and objectives in the light of contemporary circumstances and their constituents' contemporary aspirations" (2001, p.61). There can also be a tension between unions' status as 'social partners' to those with economic and political power, and their effort to reshape beliefs and values in wider society through contentious politics. Further, important as alliances are with other social movements, unions may only consider them when forced by the decline of their autonomous influence (Hyman 2001, pp.61-62).

Unions are always balancing mutually dependent internal and external influence, as they follow a process of establishing which interests come under the wing of their solidarity. Hyman (2001, p.170) asserts that the notion of interests has both objective and subjective

dimensions, but not in any fixed relation. He sees that through the 'mobilization of bias' unions can help shape workers' own definitions of their individual and collective interests (2001, p.170). "The aggregation of interests which is essential for any coherent collective action involves establishing priorities among a variety of competing grievances and aspirations" (2001, p.171). Thus, some process must occur to decide 'which' interests - purely workplace or wider social issues - and 'whose' interests. Workplace collective bargaining priorities were normally set by 'core' employees (typically white, male and stable employees), while in national labour movements priorities have been imposed by large unions of engineers and miners (2001, p.171). However, this domination by particular interests is counterbalanced by the salience of class or society – as "sectional interests were perceived as best pursued through a more general commitment to social justice" (Hyman 2001, p.171). Clearly these insights from Hyman (2001; 2012) can be applied to unions renewing their role in the light of climate change.

Trade unions as a particular kind of social movement
Hyman (2001) thus sees trade unions as social movements, acting where "material circumstances and structural forces… contain some scope for collective initiative which can in turn produce structural change" (2001, p.60). Uniquely positioned as they are between market, class and society, unions' immediate concerns must be broadened to take in "the wider social and political dynamics which structure the labour market". As with other social movements, there is a process of 'identization' in play (Melucci, 1996, p.132), whereby unions define these interests and form a collective identity, in order to act, and through action.

Fairbrother & Webster (2008), in their discussion of trade unions as social movements, take up Hyman's insight that trade unions are social movements that arose out of a questioning of the "principles of the prevailing economic and social order" (2001, p.60). Further, their class role is expressed as their being caught between two competing pressures, towards "businesslike service organisation" or towards "expression or vehicle of the historical movement of the submerged laboring masses" (Herberg, 1943/1968, p.238). Fairbrother and Webster (2008) see this as a specific feature defining trade unionism – "Trade unions are social movements rooted in the interface between market and society. Trade unions are defined by pressures that underwrite accommodation and autonomy" (2008, p.312). In a later work, Fairbrother (2015) relates these dimensions of the union role to theories of union renewal that emerged as union's institutional role came under increasing pressure.

3.4 Unions developing their purpose, capacities and organisation
Union renewal and union purpose
"Union renewal" has been discussed in terms of how unions have redefined their own role as, since the 1980s, they faced difficulties of falling membership and a lack of leverage in a neoliberal global economy. Fairbrother (2015) describes the union renewal debate as

counterposing a view that union membership is in long-term decline, and that unions are narrowing their focus (e.g., Kelly, 2012), with a belief by others that, in response to these challenges, a union renewal may occur (e.g., Simms and Holgate 2010). Fairbrother considers that,

> "in the context of on-going social and economic restructuring [unions] face choices between pressures towards participative, accountable and campaigning forms of unionism and pressures towards sectional, instrumental and relatively unaccountable forms of unionism" (2015, p.562).

Fairbrother (2015) presents "a revision of the union renewal thesis…, suggesting that union renewal should be examined as a process of transition", and identifies "three analytic dimensions of renewal …: union organisation, union capacity and union purpose" (2015, p.561 - Abstract). This renewal can be viewed in terms of a transition along a spectrum (Fairbrother and Webster 2008), between their traditional role as a bargaining and service organisation, accommodating to existing institutions, and towards acting as a social movement that develops its own identity and autonomy and aims for social transformation.

Unions as environmental actors

Fairbrother's (2015) model draws on two local case studies by Snell and Fairbrother (2010, 2011) of how Australian unions are renewing their purpose in the context of climate change, both the more internal moment and the outward facing political aspects. As Snell and Fairbrother (2011) summarise it, unions build on what they have always done as collective organisations and "seek to influence the direction of enterprises and public policies as well as policy-making processes so they better serve the interests of working people" (2011, p.99-100). Usually operating "within the political parameters of the prevailing political economy" (2011, p.100), unions are drawing a balance "between job protection as such and preparing for an uncertain future" (2011, p.100), in ways that play out differently in localities and communities (2011, p.100).

Constraining factors for union environmental politics identified by Snell and Fairbrother (2011:84-86) include the position of unions in relation to production leading to a constant tension between their acting in terms of 'vested interests' or 'social justice'. Union capacity is bounded in space and time and relates to specific industries, economies and communities, and "challenges are strongest in those communities where carbon-emissions industries are based" (2011, p.100). Unions build and extend collectivism in specific ways, through alliances and solidarity, so there is a need to think about the ways unions organise and operate (Fairbrother 2000); the conditions for and exercise of capacity (Lévesque and Murray, 2002) and the formulation and implementation of union purpose (Snell and Fairbrother 2010).

Snell and Fairbrother (2010, p.411) show how "unions are caught in a tension between pressures to ensure job creation and pressures towards environmental responsibility". In considering how unions develop their purpose, they argue "that the social, economic and industrial implications of social change stemming from climate change provide possibilities for unions to renew themselves with a new sense of purpose, but doing so is not a straightforward process." (2010, p.413). Snell and Fairbrother (2010, p.420) argue, from these Australian local case studies, that unions are in the process of redefining their purpose in two respects: first, drawing on established capacities and extending them, to organise and operate in relation to the environment, and secondly working with "the possibility of building forms of solidarity to address environmental matters" (2010, p.420).

On the second point, of building solidarity, Snell and Fairbrother say

> "it is when unions work with each other, and with other organizations in the local community, that they are able to turn the question of job protection into arguments for social change that is environmentally respectful" (2010, p.421).

This involves unions taking tentative steps "as voluntary collective organizations that can provide visions of a 'green' future" (2010, p.421). Thus, Snell and Fairbrother (2010) argue, climate change can act as a "crisis that provides unions the opportunity to seek out and develop alternative futures" (2010, p.421). This can provide "an impetus or an occasion for renewal", through which "unions come to reshape their purpose" (2010, p.421). However, this will be limited by the needs of members for economic activity, such that the new purpose is "most often within and not necessarily counter to the dominant globalized production relations" (2010, p.422), as moving beyond would require "a monumental shift on the part of unions" (2010, p.422).

Union renewal as a transition

While Fairbrother (2015) does not specifically discuss climate change as "an occasion for renewal", he alludes to the low carbon transition as constituting a changed political economy that unions must respond to. He seeks to understand what the conditions are for the transition "from forms of business, responsible and political unionism, to the more participative and campaigning unionism that is social movement unionism" (2015, p.562). Several case studies of union renewal cite this work, including some relating to labour environmentalism, such as Lundström (2017) and Farnhill (2018).

Fairbrother sees "a dialectic relation between three analytic dimensions: union purpose, union organisation and union capacities", and these interacting dimensions can help to specify "those processes over which trade unions have control in relation to the political economy in which they operate" (2015, p.563), thus separating structure from agency. Fairbrother goes on to define each of these dimensions, and further to relate them to the terms of the existing renewal debate. First, Fairbrother (2015) defines union "organisation" as referring to

"the way unions operate and organise, in the workplace as well as across the levels that make up unions. … Organisation covers the structures of relationship as well as the forms of governance, … Central to these provisions is the texture of the relations among members, activists and leaders" (2015, p.563).

Secondly, union "capacities" refer to

"the abilities of unions to address and define union concerns. Capacities can be exercised when trade unions have the capabilities to do so, (aptitudes, competences, skills)… [that] can be 'developed, transmitted and learned'" (2015, p.341).

Fairbrother cites Lévesque and Murray (2010) as saying that "capabilities without resources, particularly power resources, are not enough and vice versa. Such resources include infrastructure (material, organisational), internal solidarity (collective identities and practices) and external solidarity (embeddedness – within community and political structures)" (2015, p.563).

Thirdly, union "purpose" refers to

"the aims of unions as collectivities and the key values that are expressed or implied therein. The task is to frame and articulate these values, either implicitly in relation to policy advocacy or explicitly as goals unions seek to realise. These values may refer to short-term immediate concerns, … they also may involve long-term goals about the defence and improvement of social, economic and political arrangements" (2015, p.563)

For Fairbrother (2015), this "transition refers to the on-going and tentative construction of unions in relation to collective organisation, capacity and purpose" (2015, p.565). He cites Voss and Sherman (2000) in saying that developments in the political economy of work and employment are crystallised in the form of a major change or 'crisis' that can provide opportunities "for unions to reposition and rebuild themselves" (2015, p.565). A unique feature, Fairbrother (2015) says, is his focus on 'purpose' - whereas previous work on union renewal relates to 'organising' strategies (Simms and Holgate, 2010) and to the process of renewing 'capacities' (Lévesque and Murray, 2010), Fairbrother aims to redress the understated reference to union purpose, and to acknowledge the relation between these dimensions (2015, p.565-566). Related to this is Fairbrother's assessment (2015, p.571) that previous renewal analysis has failed to address unions in relation to the political economy of capitalism. He considers that "The irresolvable tension is that unions are on the one hand rooted in workplaces, usually focusing on immediate work and employment questions, while on the other hand, they face challenges of a recomposed political economy of work and employment" (2015, p.571).

For Fairbrother, it is important to see union renewal "as a *process of transition*" (2015, p.571). This is

> "a dialectic whereby union memberships reassess their organisation, their capacities and their purpose as collective actors. In these circumstances, unions and their confederations can evolve and develop as policy actors – for example, addressing the circumstances of transition to a low carbon economy…" (2015, p.572).

Resources and capabilities for renewal

Fairbrother (2015) leans on definitions from Lévesque and Murray (2010), who consider union power in terms of 'capacity to'. Fairbrother considers that their framework of power resources and strategic capabilities is superior for discussing union renewal. Lévesque and Murray (2010) argue that "particular resources … appear to be of special importance to the capacity of local unions to influence the regulation of work in their increasingly globalized workplaces" (2010, p.335). These resources are highlighted as internal solidarity (cohesive identities and deliberative vitality that support unity of purpose), external solidarity (embeddedness in horizontal and vertical networks of unions, social movements and other actors), narrative resources that can be mobilised to frame new situations and aggregate identities and interests, and infrastructural resources (material and human resources, and organisational practices, policies and programmes).

Furthermore, Lévesque and Murray (2010) see that "power resources are a necessary but insufficient condition to contend with the rapidly changing conditions affecting unions", and that "actor capabilities also play a key role" (2010, p.336), among which they see four as strategic: intermediating, framing, articulation and learning. 'Intermediating' represents arbitrating conflicting demands to foster collaborative action and activate social networks (2010, p.341). 'Framing' defines a proactive and autonomous agenda to shape regimes within and beyond the workplace (2010, p.343). 'Articulating' is the ability to arbitrate between different levels of action, over time and space, in a context where substantial rescaling is occurring. In this "construction of and relationship between different forms of worker solidarity, it is the combination of these levels over time that seems important", say Lévesque and Murray (2010, p.343). 'Learning' is the ability to reflect on and learn from change in contexts and organizational practices, in order to anticipate and act upon it (2010, p.344).

Analysis of power resources of unions is not limited to Lévesque and Murray's work, and has been used to produce practical resources for unions (such as Trade Unions in Transformation – TUiT, 2020) as well as academically (e.g. Fichter et al, 2018; Lehndorff et al, 2017a, 2017b). The focus of the Power Resources Approach (Fichter et al 2018) is narrower, and it does not point the way for trade unions to engage with green transitions. In contrast, the models offered by Fairbrother (2015) and Lévesque and Murray (2010)

have been applied to thinking about how unions' purpose, organisation and capacities can respond to the low carbon transition (e.g. by Murray (2017) and by Lundström, Räthzel and Uzzell (2015)). Murray (2017) provides a review of what has been learned from three decades of union renewal, under headings including collective action repertoires. He summarises the impact of such repertoires, citing Ganz (2000): "their practical impact (the actors know what to do), their normative impact (they think they are right) and their institutional impact (these actions are embedded in specific organisational and institutional structures and resources)" (Murray, 2017, p.15). Murray considers examples of collective action repertoires, including new types of political campaign, such as the '*Fight for 15*' in the US and *Living Wage* campaigns in the UK. He comments that the enlargement of collective action repertoires also concerns new union roles such as green transitions (2017, p.19). In respect of green transitions, Murray (2017) sees "the transformative potential of a union environmental agenda, at least when larger citizen concerns connect with workplace concerns in ways that can transform worker identities" (2017, p.19). He sees the continuing experimentation entailed by such enlargement of union collective action repertoires as the kind of transitional process defined by Fairbrother (2015),

> "requiring new capabilities in terms of developing a narrative about how these new actions connect with a larger union purpose and an ability to articulate between an older repertoire of union actions and the potentially transformative nature of a new expanded repertoire" (2017, p.20).

To summarise, then, for Stevis (2018), 'agency' is concerned to assess whether unions are proactive in their environmental initiatives, or, conversely, "react to initiatives in which they may have limited input" (2018, p.457). However, I have shown here how a union's role must be, at core, responsive to the conditions where its members are employed and the social and labour market conditions that pertain, within the constraints of the market-class-society triangle (Hyman 2001). As unions are very much reacting to others' initiatives, a better definition of agency than 'proactivity' is needed.

Union renewal in response to a changed political economy is a key facet of Fairbrother's (2015) theory, providing a basis to go beyond agency as proactivity, through looking at how unions develop their own purpose, organisation and capacities when climate change rewrites the political economy. Work on Just Transition as called for by unions has not yet significantly homed in on these aspects of agency, although Snell (2018) finds that the role and capacities of unions are key in the Just Transition process and Murray (2017) sees renewal as "developing a narrative about how these new actions connect with a larger union purpose". Considered together, this lack of exploration to date of how trade unions are developing their purpose, organisation and capacities to meet the changed political economy of climate change, and how this relates to their role as institution or social

movement, give rise to a need for research on how this expresses unions' agency around the transition to low carbon.

3.5 My framework for change towards justice in trade unions

An area emerging in this chapter as lacking understanding is around the implications of climate change, embedded in the globalised economy, for the trade union role. By mobilising Fairbrother's (2015) suggestion that unions have agency through developing their purpose, capacities and organisation, I have created a framework to assess the development of union capacities and agency, which augments Stevis's (2018) model of varieties of labour environmentalism.

Fairbrother considers dimensions of purpose, capacities and organisation specify "those processes over which trade unions have control in relation to the political economy in which they operate" (2015, p.563). To create a framework to assess development of these broad capacities of trade unions, I have related these to an analytical framework proposed by Rao et al (2015) around change towards justice in organisations. Rao et al (2015) focus on "how change happens in real organizations – big and small – to challenge and change social norms that perpetuate exclusion and inequality" (2016, p.10). Their framework has been used to look at gender inequality and broader issues of social justice (Green, 2016), including with four South African trade unions. Rao et al's (2015) framework has two axes, informal-formal and individual-systemic, defining four quadrants, as illustrated in Figure 3.

Figure 3 - Gender at Work analytical framework, based on Rao et al (2015, p.26)
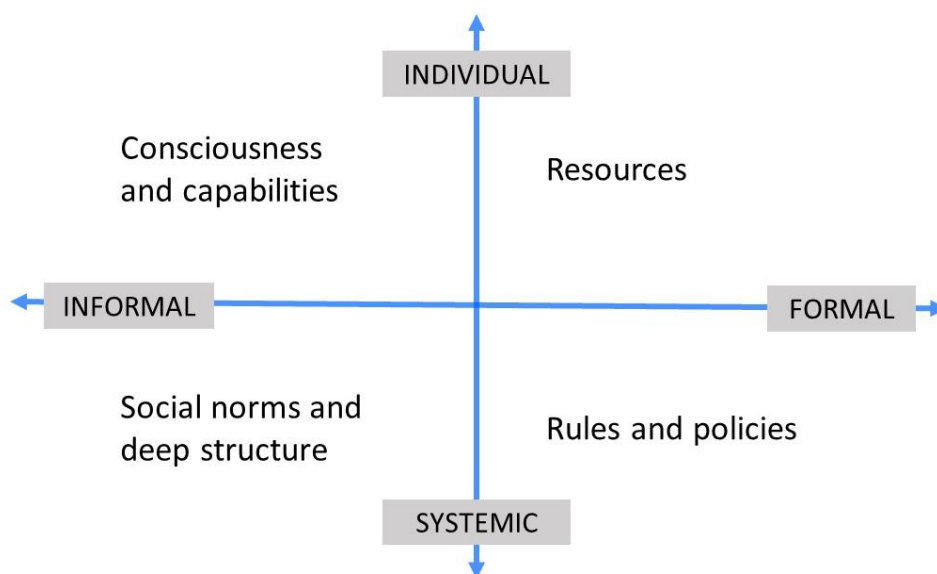
In creating my framework, I have borne in mind some key connections between Rao et al (2015) and trade union theorists. First, as Rao et al emphasise, the relationships between quadrants are important – so the aim is to understand the dynamics between them, emphasised by Fairbrother's statement that "the organisation dimension (the basis of agency)" is located "in relation to the utilisation of … capacities to realise union purpose in relation to specific political economies and objectives" (2015, p.571). While I have related 'purpose' from Fairbrother (2015) primarily to the 'rules and policy' quadrant, reflecting how purpose is enshrined formally in a union, I note that Fairbrother also relates it to 'social norms and deep structure': "Unions frame their concerns and objectives in ways that underwrite collective identity and purpose" (2015, p.567).

Secondly, Ganz (2000) highlights that a collective action repertoire binds together actors "knowing what to do" and "thinking they are right" with the organisational structures and resources to act – this statement provides a heuristic for the quadrants in my framework, so that 'capabilities' reflect knowing what to do, and 'norms' reflect people thinking they are right, while the more formal organisational structures and resources are represented in the right-hand quadrants.

Thirdly, Rao et al (2015) consider there is a tendency for the 'social norms and deep structure' quadrant to be neglected in favour of the others, but they note that it is likely to be important: "sooner or later a successful change effort must come to grips with the social norms and deep structure issues of the bottom-left quadrant" (2016, p.38). Several labour theorists also recognise the significance of norms, seen in the stories unions tell themselves. These stories are a form of "identization" (Melucci 1996, p.132), they provide "fortifying myths" (Lévesque and Murray, 2010) to keep unions going despite defeats, and they define the solidarities that are key to unions knowing how to act collectively. "Building collective solidarity is in part a question of organizational capacity, but just as fundamentally it is part of a battle of ideas… Unions have to recapture the ideological initiative" (Hyman 2001, p.173).

As an approach to achieve change in norms, key for Rao et al (2015), is the creation of 'interstitial spaces': "spaces in the margins that do not directly pose a threat to dominant individuals or groups", where change agents can "cultivate the seeds of solidarity, analysis and reflection, resistance and reformulation" (Rao et al 2015, p.158). Such changes relate closely to Lévesque and Murray's (2010) formulation of the strategic capabilities and power resources that are developed in union renewal. This also tallies with Fairbrother's (2015) process interpretation of organisation, as "organising" or "the basis of agency".

My framework, illustrated in Figure 4, also integrates Fairbrother and Webster's (2008) spectrum of the dimensions of trade unionism, defining their role between their 'institution' and 'social movement'. For each quadrant, I have distinguished the capacities

which relate to the institutional dimension of unionism from those which relate more to a social movement role, so that each quadrant has a spectrum within it. In the figure, the institutional dimension is located towards the centre of the diagram, inside the shaded circle, whilst the social movement dimension is towards the outer edge of the quadrant, with the ends of the spectrum indicated by the double-headed arrow in each quadrant. Fairbrother's (2015) suggestion that union renewal can be seen as a transition between the institutional and social movement dimensions thus represents an outward movement along the spectrum in each quadrant.

Figure 4 - Framework for change towards justice in trade unions
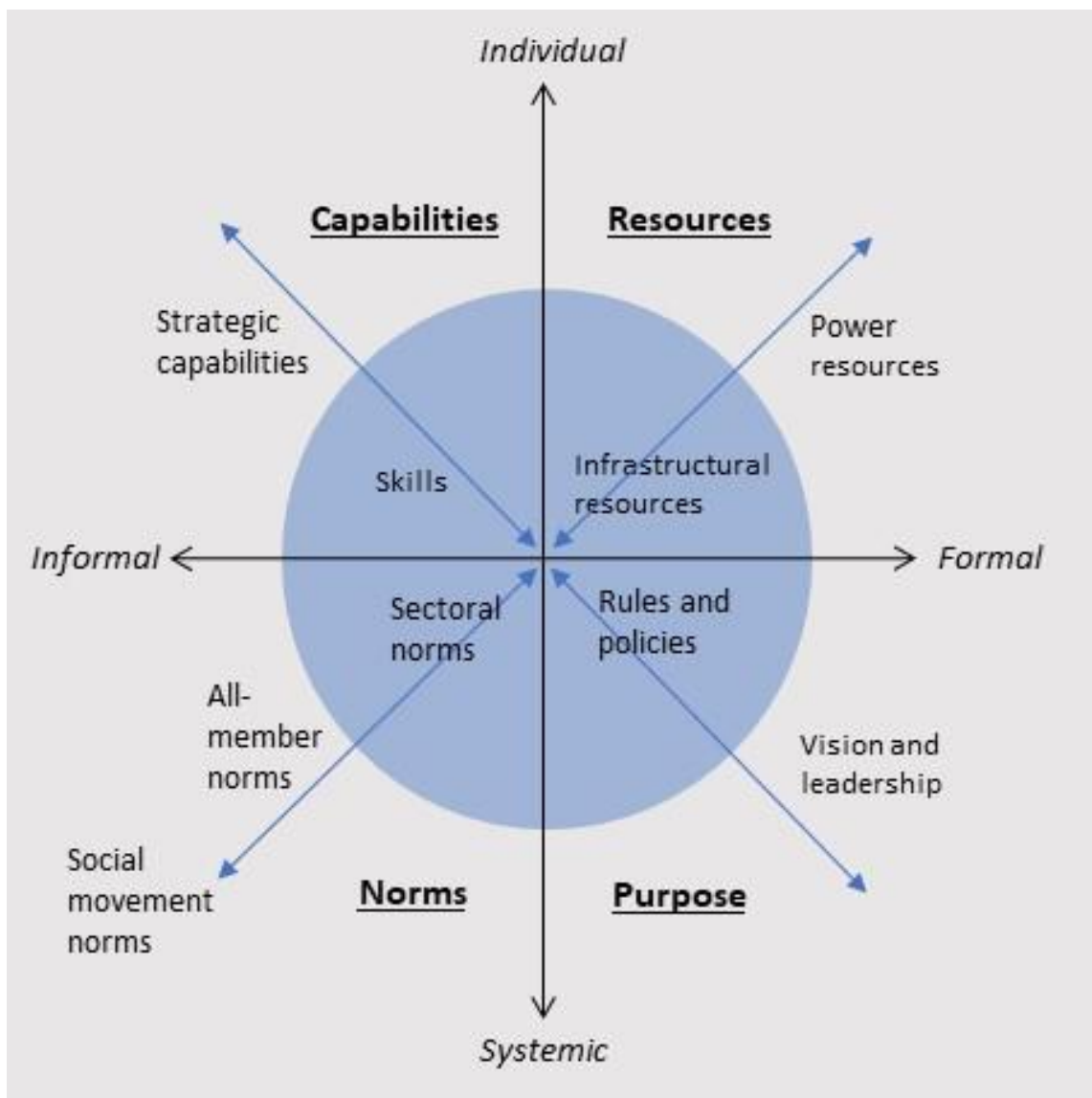
In describing my framework in Figure 4, I consider the quadrants in the expected direction of most influence: purpose, resources, capabilities, and norms. The first quadrant, 'purpose' sets possibilities in turn for resources and capabilities and is more formally defined than norms. For Fairbrother (2015), "union purpose refers to the aims of unions as

collectivities and the key values that are expressed or implied therein". In my *framework for change in trade unions towards justice*, I differentiate "purpose" into the stable rules and policies which support a union's institutional role (the inner circle in the figure) – written down in the union's rulebook and policy manual - and the more dynamic vision and leadership which enable a union to respond to change, and thus support its social movement role.

Fairbrother (2015) speaks of organising as "bringing together capacities to realise purpose" and the capacities which a union can muster, in this sense, are its resources plus its capabilities, thus spanning the second and third quadrant here. Lévesque and Murray (2010) also relate resources and capabilities when they note that "capabilities without resources, particularly power resources, are not enough and vice versa". Following Fairbrother (2015), I take the second quadrant, labelled resources, as encompassing the union's organisation and its power resources. Organisation is "the way unions operate and organise, in the workplace as well as across the levels that make up unions" – the structures and textures of relationships are to be considered, as well as the forms of governance (Fairbrother 2015, p.563). A union's "power resources" are its internal solidarity, external solidarity, narrative resources, and infrastructural resources.

In my framework, I differentiate resources into the infrastructural resources which support a union's institutional role – funds from membership subscriptions, enabling union staffing, for example - and those power resources which support a social movement role, such as internal and external solidarity, and narrative resources. Internal solidarity equates as a resource to a cohesive identity, forged through participation and deliberation, while external solidarity describes a density of links with other unions and allies as unions build relationships with external organisations, or embed themselves in shared networks to resource their engagement with the climate agenda. Narrative resources, finally, give frames for action.

The third quadrant considers the capabilities unions develop to engage around the low carbon transition. Capabilities are the aptitudes, competences and skills that enable trade unions to exercise their capacities (Fairbrother 2015), and that can be "developed, transmitted and learned" (Lévesque and Murray, 2010, p.341). Relating this quadrant to Ganz (2000) suggests that if responding to climate change falls within a union's collective action repertoire, then its members, reps and officers will "know what to do". Lévesque and Murray (2010) see four capabilities as strategic: intermediating, framing, articulation and learning. In my framework, I differentiate capabilities into skills which support a union's institutional role - the development of skills through training is generally a core union activity - and the strategic capabilities which support a social movement role. 'Articulating' represents a key capability in a world where change is happening and must

be responded to at different scales, to forge solidarity that neglects neither the immediate interests of 'these workers', nor the long term global interests at stake.

The final quadrant of my framework reflects the fact that unions' capacities are used in the context of the norms that operate, the stories that are told, what is valued, how people 'believe what they do is right' (as per Ganz (2000)). Even where such norms are not the subject of conscious development by a union, they play a powerful role, Rao et al (2015) warn. Norms in a union may be influenced by its developing narrative resources and network embeddedness, or by its developing capabilities such as raised awareness and new framings. In my framework, I differentiate norms into sector-based traditions and pride which would support a union's institutional role, and norms that widen towards inclusiveness, supporting a social movement role.

My *framework for change towards justice in trade unions* synthesises work by Hyman (2001), Fairbrother and Webster (2008), Fairbrother (2008, 2015), Ganz (2000), Lévesque and Murray (2010) and Rao et al (2015) to consider the development of a union's purpose, capacities and organisation in respect of climate change, and widens out the picture of unions' dynamics by also considering the social norms in play. It enables assessment of such change in terms of a union's 'institutional role' and its 'social movement role', and the implications for union renewal of climate change as a major factor of political economy. My framework thus provides an ability to assess how change is happening as a union develops its capacities in relation to the low carbon agenda, through its own agency. This augments Stevis's (2018) model of the varieties of labour environmentalism, making more tractable the idea of a union being proactive. It relates labour environmentalism to the question of whether climate change acts as an 'occasion for renewal' in unions (Murray, 2017). It supports further study of Snell's (2018) findings around the importance of unions' building capacity to perform proactive roles throughout the Just Transition process.

3.6 The importance of this study area from my own experience

The area for empirical research here is to discover whether and how trade unions are developing their agency and renewing their role in respect of climate change. This relates to my experiential knowledge from activism, for example when I helped to run a national conference in Sheffield in 2015 on the subject of 'Climate, Jobs and Justice', aimed at trade unionists as well as climate activists. The conference attracted an audience including many who were trade unionists already active on climate, and had as a keynote speaker the Chair of the local Trade Union Council, but it did not attract any full-time union officers or trade union activists who were not already active around climate. This absence could relate to a lack of capacity in terms of purpose of the unions, lack of resources or relationships to support involvement, or the attitudes, skills and norms of unions not encompassing such an event.

Also in 2015, I ran a training day for climate activists to engage their MP around climate. A local Labour MP spoke at the event, and commented on the large number of attendees for a separate event being run downstairs by the Orgreave Truth and Justice Campaign. This group had made alliances not only with other trade union campaigns, but with climate activists campaigning on police infiltration. The event was supported by key unions in terms of logistics and communications, perhaps motivated by the 1984-85 Miners' Strike as an iconic part of trade union history in Sheffield underpinning the norms and attitudes that support collaboration. This example was an interesting comparator to understand that unions regionally can form alliances with civil society and engage with a wider social and political agenda. This experience adds importance to finding out how this could be different in the case of climate change. These two areas of my experiential learning highlight a gap in practice whereby trade unions are not aligning their purpose, resources (including alliances and relationships), capabilities and norms with the struggle for climate justice in the way that the theory suggests is possible, and that happens with other justice struggles. This experiential knowledge of a gap in practice thus underpins the importance of understanding what it would take for unions to engage more fully around climate change and to develop their own capacities to do so.

3.7 Conclusions – the study area suggested by my synthesis

In this chapter I have explored the agency of trade unions around environment and Just Transition, with an aim of understanding how unions can engage around climate change as a wicked, global, social issue. The idea of Just Transition represents unions' demand to ameliorate the hardships suffered by those impacted by the transition to a low carbon economy, but their own role in achieving this has not been fully explored. The tension in unions' role between the immediate interests of members and wider justice issues both inspires and constrains the ways they build solidarity. Relating the development of unions' purpose, resources, capabilities and norms to how their role may be renewed in a political economy altered by climate change is the foundation of my *framework for change towards justice in unions*. This synthesis opens a potentially fruitful direction for research, which I have reviewed in terms of my prior experience to assess its importance.

The area for research here, then, is to ask how unions are developing their broad capacities in the face of climate change altering the political economy in which they operate. Research is needed to interrogate how unions are developing their agency around climate change, through renewing their purpose, resources, capabilities and norms. Using the lens of union renewal as a shift towards acting as a social movement, research is needed on whether and how this is happening or can happen in respect of union engagement with the low carbon agenda.

As I have explored in Chapter 2 and Chapter 3, the theoretical links between the field of climate and sustainability and the field of trade unions are relatively thin. I have mapped

the state of the art of related theory, and identified areas for study where the significance for Just Transition of climate change as a wicked phenomenon embedded in the globalised economy has not been fully explored. Through analysing the literature and synthesising my *matrix of environmental and social concern around Just Transition to low carbon* and my *framework for change towards justice in trade unions* I have identified areas that need research and explored their importance in relation to my experiential knowledge. In Chapter 4 I develop my research questions, and set out my approach and methods.

Chapter 4: Research Questions, Approach and Methods

4.1 The aim and objectives of my research

In this chapter I set out my research questions, approach and methods in the light of my broader goals, and justify the selection of my multi-level case study. The overall aim of my research is to explore the conditions that would allow UK trade unions to become more engaged with the climate change agenda, and to realise a Just Transition. As reviewed in Chapter 1, my experiences have driven my practical goals for this research, which are around contributing to positive developments in trade unions' thinking about Just Transition and their engagement with climate action.

As well as being influenced by these goals, my research objectives are set within a conceptual framework which I have synthesised from literatures on sustainability, climate change, just transition, and on trade unions' development of their purpose, capacities and organisation. My matrix and framework, developed by synthesising existing theories, lead to fertile areas for study which I identified in Chapter 2 and Chapter 3, where I also examined the importance of these areas in the light of my prior experience. From this I have identified three objectives for my empirical work:

To investigate unions' concerns, particularly in relation to the depth of environmental concern and breadth of social concern around low carbon.

To analyse how unions are developing their purpose, resources, capabilities and norms, and whether there is a renewal process from an institutional role to a social movement role.

To examine the extent, nature and impact of unions' engagement with place-based climate action.

As set out in Chapter 1, the motivations and goals of this research draw greatly on my life experience, approaching my PhD as a mature woman. My goals for this research thus include contributing to transformative action to tackle the climate emergency, grounded in both climate science and climate justice. The importance of this for the local economy, and specifically for my home city of Sheffield and the Yorkshire and the Humber region are key motivations. My commitment as a trade unionist to the interests of working people and to those marginalised by the economic hegemony form another plank of my approach. While my background in trade union activism and local climate activism affords me tacit knowledge to grapple with the dynamics of union engagement with climate, my values of participation and action drive me to produce knowledge that is practically useful as well as rigorous. My aim and motivations argue for an action approach to my research, where the processes, as Greenwood (2007:133) shows, "aim to increase local capacity for participative, self-managing, and sustainable change processes". Through a participatory activist approach, working with existing governance in unions, my research aims to

contribute to "enabling people to forge a common will and work by negotiation and persuasion" (Kesby et al, 2007, p.22).

Having reviewed the goals and aim of my research in this section, I consider my research questions in section 4.2, and in section 4.3 look at what approaches suit my analysis, given my goals and the kinds of question under study. In section 4.4 I set out my case study selection including questions of access, research relationships and my positionality, before in section 4.5 discussing data collection methods. In section 4.6 I reflect on ethics, validity and limitations, and conclude in section 4.7 by summarising the choices made in my research.

4.2 Developing my research questions

In Chapter 2 and Chapter 3 I synthesised theories around climate change and trade unions that can help to support enquiry in some of the areas where there is a lack of understanding around my topic. I have identified three objectives for study, and the theoretical approaches that can help. For my research aim – to explore the conditions that would allow unions to become more engaged in the climate change agenda and to realise a Just Transition - it is key to understand how the wicked, global, social problem of climate change alters how justice can be achieved in the low carbon transition. Whilst unions and communities have historically formed many local alliances to campaign for environmental improvements that would benefit workers, local people and nature, climate change is itself driven by activities that are core to the global political economy. Tackling it necessitates structural economic changes that disfavour particular workers and communities and, worse yet, the creation of serious climate risks is driven by consumers and producers of ubiquitous economic activity. To address this, my matrix and framework develop Stevis's (2018) approach of assessing the depth, breadth, and agency of calls for Just Transition, taken as a form of labour environmentalism.

My first objective is to investigate the concerns of trade unions relating to the low carbon agenda. My research is situated in the context of work by classic labour theorists, who conceptualise the preoccupations of trade unions as spanning the immediate representation of workers in the marketplace, and a wider concern for the social conditions of the working class. Whereas unions are always grounded in the immediate concerns of their members, they thus have the potential for wider concerns – around environmental issues, for example, as expressed in greater depth and breadth of labour environmentalism. My research objective here is therefore to assess unions' framing of a just transition to low carbon in terms that relate to their concerns specifically as trade unions, to understand how these preoccupations could activate unions' engagement with climate change and help them to achieve a more just and transformative transition to low carbon.

My *matrix of social and environmental concern in Just Transition* enables the depth of environmental concern and breadth of social concern of unions to be assessed independently rather than conflated, and distinguishes between modernising and ecological forms of environmental concern. Whereas trade unions, as Snell (2018) identifies, usually think about Just Transition in social terms, as an ameliorative programme of planning and redistribution that governments should provide, the definition and implementation of justice must alter significantly as climate change becomes the key 'environmental' issue – in fact, a global social and economic issue. Here, the area for empirical research is to understand how unions frame "a just transition to low carbon" in terms of their environmental and social concerns, drawing out how unions' conceptions of sustainability relate to climate change, and how they define justice in the transition to low carbon.

My second research objective relates to the capacities that unions may develop to engage around low carbon. Sayer (2000:13) says, "in the social world… what one person or institution is or can do depends on their relation to others". Rooted again in the two faces of a trade union as institution and social movement, the scope for unions' agency has been conceptualised as their development of purpose, capacities and organisation, in a renewal of their role in the political economy. A trade union's capacities (or powers) are like those of any organisation where there is change towards justice, but their specific roles and concerns as trade unions structure their capacities in certain directions. Social phenomena such as trade unions, Sayer says (2000:13), may not be enduring unless they 'make changes to stay the same'. Trade union renewal can be seen as this change that may be needed to enable unions, as institutions, to persist when the world changes around them - in the case of my research, when the political economy is altered by climate change. As the structures change, what agency do unions have to change themselves accordingly?

My *framework for change towards justice in unions* augments Stevis's (2018) view of agency by relating it to Fairbrother's (2015) suggestion that unions' space for agency is in developing their organisation, capacities and purpose. The second area for empirical research identified is to ask how unions are developing their broad capacities, in terms of purpose, resources, capabilities and norms, and the associated conditions for union renewal, in the face of climate change as a global, social issue.

My third objective, where my interest relates to how trade unions engage with place-based climate action, brings a focus on action in a specific place. As the ecological and social ramifications of the low carbon transition have led to increasing significance of place-based climate action, aimed at changes in the everyday economy as much as in the high-carbon sectors, there is a need to study the conditions for and impacts of unions engaging with climate action at a more local scale. The final area for empirical study is

thus to examine the extent and nature of union engagement with place-based climate action, and how that impacts on union concerns and capacities around low carbon.

In a place other than 'the nation as a whole', the geo-historical context may result in different actions and outcomes. In a subnational region the levers for change may be more limited, but my *framework for change towards justice in trade unions* allows the possibility that capacities can be exercised informally, at the level of the individual or group rather than the institution. We are here considering nested collective agency, from the individual member, up through branches, national unions and federations to the labour movement as a whole. While the situated role of a trade union, as discussed above, may provide a logic to action, it shapes engagement differently within different contexts.

Figure 5 - Areas to be addressed by my research
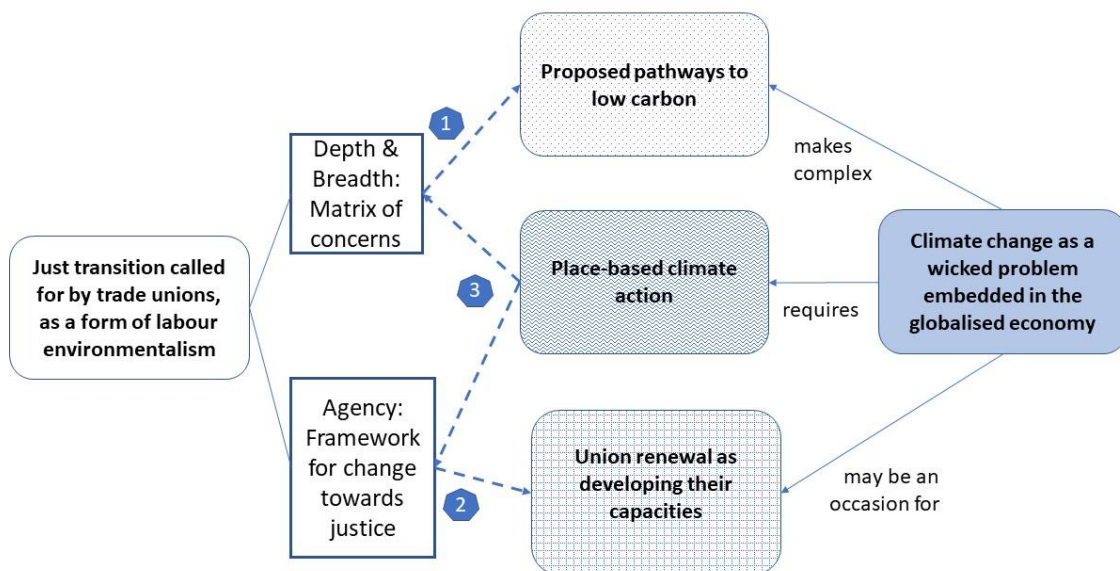
To summarise, as represented diagrammatically in Figure 5, my research explores the space between calls for Just Transition as a form of labour environmentalism, and climate change as a wicked, global, social problem. The areas of interest are how the pathways to low carbon are framed by unions in terms of their environmental and social concerns; how unions are developing their capacities and whether that represents union renewal; and how union concerns and capacities are developing in relation to place-based climate action. The empirical questions that emerge are:

RQ1:

How are unions framing a Just Transition to low carbon in terms of their environmental, social and justice concerns? This requires investigation of unions' concerns, particularly in relation to the depth of environmental concern and breadth of social concern around low carbon.

RQ2:

How are unions developing their capacities to engage with the low carbon agenda, and what potential does that represent for changes in their role? This requires analysis of how unions are developing their purpose, resources, capabilities and norms, and whether there is a renewal process from an institutional role to a social movement role.

RQ3:

How are the unions' concerns and capacities developing in relation to place-based climate action? This requires examination of the extent, nature and impact of unions' engagement with place-based climate action.

4.3 A critical realist approach to the research

Here I discuss what methodological approaches will suit these objectives and my broader goals. The above analysis of my research question and the underlying understandings of the world points towards a critical realist approach that can "uncover the structures of social relations in order to understand why we then have the policies and practices that we do" - not simply collecting observations but explaining these within theoretical frameworks (May and Perry 2022, p.11). In critical realism, the causal mechanisms that underlie events and regularities are "generated out of the dynamic of structure and agency" (Zotzmann et al 2022), and further, according to Sayer (2000:97), "without causality, any concept of responsibility, agency or freedom is meaningless, for we can only be responsible for what we can influence" (Sayer 2000, p.97).

The meanings attached to Just Transition and climate action by trade union actors are key to my research. Sayer says "social phenomena are intrinsically meaningful and … that meaning is not only externally descriptive of them but constitutive of them". Such meanings can act as causes (Sayer 2000, pp.17, 18). To achieve an understanding of unions' concerns and capacities requires an interpretive approach that gives an account of the meaning given to terms, situations and events by the people studied (Maxwell 1992; 1996). This in turn requires different, linked methods of investigation from which conclusions can be drawn.

A critical realist ontology allows for the nesting of agency, emergent beyond individual agency and action. This is to say that "collectivities have a reality beyond the individuals who constitute them" – not only formal institutions, but "social collectivities based on interests or identities or both" (Byrne and Callaghan, 2008:41). Concerning what

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constrains such agency, Byrne and Callaghan (2014:125) express how "individual and collective agency [are] sedimented in social structures over time … in a continuing, recursive relationship with structure". Sayer says (2000:18) that "…actions presuppose an already existing set of structures including shared meanings, although these owe their existence to the fact that at an earlier time people reproduced or transformed them". This suggests that in developing their capacities, trade unions are always working within existing frameworks of agreed policy, available resources, established capabilities and prevailing norms, concerns, meanings and frames.

In terms of a critical realist approach, then, my research seeks to identify how trade unions frame their concerns and use their agency at different nested levels to develop their capacities around the low carbon agenda. It hypothesises mechanisms rooted in trade unions' identity and roles, and interrogates how both the sedimented structures and the space unions have for agency shape their engagement within different contexts. It seeks to build a clearer picture of the potential for renewal of the union role around climate change. My research uses interpretive social scientific methods to understand constitutive meanings and probe the mechanisms at work. Interviews and document analysis contribute evidence to enable understanding of why people have done things in a particular way. My normative motivation, towards enabling the trade union movement to be more fully engaged around climate change, drives a participatory activist research aspect. This embedded fieldwork provides opportunities for observation and interactions that help to ground meanings. Through helping unions to build their capacities, it also illuminates the possibilities and difficulties, providing evidence of the mechanisms at work and thus an understanding of what conditions activate engagement. In the next section I set out the relationships supporting my research and justify the selection of my case study, before moving to discuss my research methods in more detail in section 4.5.

4.4 Selection of my case and establishing research relationships
My research objectives identify my interest in unions' different framings of a Just Transition, either emphasising or ignoring place-based climate action, and the different roles and capacities which unions might bring to the transition. These interests in differences in unions' concerns, framings, capacities and roles need to be interrogated between different contexts, where there are different organisational constraints and different opportunities for engagement. Investigation of union concerns and capacities in both subnational contexts and in the national mainstream can uncover the workings of mechanisms across the grassroots or centralised organisation of unions. This indicates a multi-level case study, allowing interrogation of how the mechanisms play out in these different contexts.

To define this case, I needed to identify the levels and contexts where I would focus my data collection. I wanted to identify a national context which represented the mainstream,

dominant agency in UK trade unions. Such a context, as well as having its own geo-historical significance, is the site of much union action, and also structures subnational contexts – for example, setting policy parameters and resource constraints for lower organisational levels. It was also important to identify one or more subnational settings where trade union capacities were developing, and where engagement with place-based climate action was at least a potential factor. My pre-existing relationships in Yorkshire and the Humber weighed for that region constituting a setting for my research. In what follows, I show how I selected my case and its different contexts, beginning with the regional context that I knew best.

The subnational level I selected was the TUC in Yorkshire and the Humber and its Just Transition Taskforce. The selection of this context within my multi-level case study was, to a degree, an organic process of "digging where you stand". My prior involvement in Yorkshire and the Humber, as described above and in Chapter 1, had developed my interest and knowledge around the topic and led to questions about the processes in play there. This context fulfils the purposes and objectives of my research. In terms of my aim towards a trade union movement more fully engaged around climate change, and understanding the conditions for that, I felt most able to act on that in my home region where my networks and knowledge were strongest.

Certain factors present in the Yorkshire and the Humber context related to my research questions. The concerns of unions in Yorkshire and the Humber were strongly influenced by historical 'unjust transitions' away from high carbon industries, however, Yorkshire and the Humber still had one of the highest dependencies on carbon-intensive industries in its regional economy, as evidenced by its inclusion in the EU/European Trade Union Confederation (ETUC) *Industrial Regions and Climate Change* programme (ETUC, 2016). In terms of both the TUC region setting up its Taskforce, and the role of its Regional Secretary as UK representative on the ETUC climate committee, the statement was often made that TUC Yorkshire and the Humber was more advanced than other TUC regions in developing its capacities. In terms of my third research question around the significance of union engagement with place-based climate action, there was Leeds Climate Commission in the region, and related academic work at Leeds University (e.g., Leeds Climate Commission, 2017). I expand on the context in Yorkshire and the Humber related to my research questions in Chapter 5, which presents my findings around economic and climate governance and trade union organising nationally and in the region.

The selection of TUC Yorkshire and the Humber as the subnational context in my case study was therefore justified in terms of each of my research objectives. There were strong grounds for social and environmental concerns in Yorkshire and the Humber because of its history of unjust transitions combined with its continuing reliance on energy-intensive industries. Although there was a lack of economic governance instruments available at

the subnational level, there were innovative forms of place-based climate action emerging, and TUC Yorkshire and the Humber was developing its capacities around low carbon through the instigation of a Just Transition taskforce and by representing UK unions in a supranational ETUC body. Although Scottish unions may have formed a similarly justified context in terms of concerns, capacity building and place-based climate action, my knowledge and relationships in the region argued for embedded work with TUC Yorkshire and the Humber and its Taskforce.

Also having a UK national-level focus for my case study was important for several reasons. It reflects the fact that much union decision-making, resource allocation, policy advocacy and representing members with major employers happens nationally, and this makes it an important level for union structure and organisation. The UK is a centralised country, with little devolution of powers around economy and industry, especially in England. Unions were attempting to influence the formation of relevant UK government policy at a predominantly UK level and, in the decade up to 2017, UK-scaled decarbonisation of the energy sector dominated public policy on low carbon and was the focus of union policy advocacy. Unions' own policies are decided nationally, and the shape and priorities of their organisation are also chosen at that level. Although the larger unions and TUC have relatively autonomous sections in Scotland and Northern Ireland (or Ireland as a whole), and Wales in some cases, the scale and role of these sections is such that they are more akin to union regional organisations in many ways, although in Wales and Scotland productive relationships with government have opened opportunities. Most UK unions have their headquarters in London, and base a large proportion of their staff there. Their key resources in any field, such as research staff or specialists, tend to be centralised in their national headquarters. Thus, it made sense for many reasons to take head office staff as the UK focus for my study, to understand the overall UK picture.

The role of TUC nationally was my starting point in selecting the national level. Its work nationally supporting policy advocacy and common organisational interests for its affiliated unions would be a good context to assess union concerns and capacities around low carbon. However, a capacity gap at TUC, and the domination of its low carbon agenda by some of its affiliated unions led away from that. The capacity gap around low carbon work at TUC nationally emerged after the departure of Philip Pearson from his post as Industrial Policy Officer at TUC nationally in late 2015, as the new incumbent was focusing on other aspects of industrial policy. In this gap, and even before the policy debate at TUC 2018, it was clear from the agenda at the Trade Union Sustainable Development Advisory Committee (TUSDAC) meetings in 2016-17 that the four unions organising in energy sectors were playing a dominant role in defining the low carbon agenda for TUC nationally, to the exclusion, for example, of public sector unions such as PCS and FBU that had strong agendas around climate change. These four 'energy unions' were Unite, UNISON, GMB and Prospect. Although 3 of the UK energy unions are large general or

public sector unions as well, their focus for Just Transition and low carbon was firmly on their energy sectors.

Selecting the energy unions as the national level focus for my multi-level case study thus made sense in terms of their approach dominating whatever consensus was being formed at TUC, through TUSDAC and through Congress. As an interest grouping around energy, it had its own direction in terms of concerns and capacities. It is common, internationally, for unions organising in energy-intensive industries (EII), including the energy sector, to act differently around environmental issues to those in other sectors, in terms of their policies and alliances (Möller, 2018). As well as dominating the national union agenda around low carbon, the energy unions were developing their capacities at a time when TUC's own capacities nationally around low carbon were being diminished rather than developed. Understanding the processes at play in the energy unions thus became important to my research on the concerns and capacities of UK unions.

The energy unions and their agenda were also significant for the work of the TUC Taskforce in Yorkshire and the Humber, which had a focus on energy-intensive industries. The subnational context mirrors the national, in that the largest unions are the energy unions, and they are key players in the region, for example in the Regional Executive Council of the TUC in Yorkshire and the Humber. These two contexts within my case study - energy unions nationally and TUC's Taskforce in Yorkshire and the Humber - therefore, offer scope to investigate the mechanisms effective in the development of union concerns and capacities, and the significance of unions' engagement with place-based climate action.

Research relationships within the multi-level case

Considering the relationships that I needed to undertake my research, first, I needed a broad contextual knowledge of the sphere of trade unions, and of climate change politics, to identify the main structures, mechanisms and agents. Secondly, I needed access to a network of potential participants, or to gatekeepers who could provide such access, and lastly, I needed a relationship of trust with key people if I was to become an embedded researcher and thus be able to gather rich evidence through participatory activist research. I had built some of these relationships prior to my research, and others still needed development.

In terms of the relationships built prior to my research, I had developed my knowledge of union activities in the UK and built contacts as a union member since 1986. This had deepened in the period 2014-2018, through my active participation in conferences and campaigns. My prior activist involvement around climate change since 2007 had familiarised me with the roles of environmental organisations and local governance bodies, and around 2014 I began to link my climate activism to trade unions and worked alongside trade union activists to publish campaign materials and run conferences locally

and nationally. This led to a process where gaining knowledge, building relationships, achieving useful outputs and developing a network were in a virtuous circle. My part-time paid work as a climate campaigner allowed me much flexibility to respond to opportunities to get involved, and I received a great deal of support to do so, from key individuals in trade unions. A key example was that I attended a conference held by the International Trade Union Confederation (ITUC) in the run-up to the Paris climate talks (COP21), and subsequently acted as one of two representatives of the union Unite to the ITUC programme at COP21.

From relationships I built with UK trade unionists at COP21, I built connections in Trades Union Congress (TUC) in Yorkshire and the Humber, around their participation in the European Trade Union Confederation (ETUC) *Industrial Regions and Climate Change* programme. I became part of a small working group on Just Transition in Yorkshire and the Humber that supported Bill Adams, Regional Secretary at TUC, with his work on low carbon. By 2017 I had thus built a great deal of knowledge, trust, and willingness to co-operate around the low carbon agenda within the TUC region, and was linked to union climate activist networks nationally.

At the point of starting my research, other relationships needed to be built. To research unions nationally, I needed trusted access to key participants to enable me to interview those with most agency in the low carbon agenda within unions. My involvement during 2016-17 in meetings hosted by Trade Unions for Energy Democracy (TUED, no date) provided knowledge of the key players in the energy unions, and my relationship with Bill Adams at TUC Yorkshire and the Humber provided the formal access to these participants, helping to address and rebalance power imbalances in seeking interviews with senior union officers. My embedded research at TUC Y&H was structured by a *Memorandum of Understanding* between TUC Y&H, the University of Sheffield and myself, as discussed above.

4.5 Data collection and analysis methods

In this section I consider how my research questions could be addressed, in terms of the data I needed to collect, and then detail and justify each of my research methods: documentary analysis, participatory activist research and interviews. Table 3 relates my research questions to what kind of data is needed to answer them, and how to collect it.

Table 3 - Data needed to answer my Research Questions (RQs)

What data do the RQs need?	What methods to use?
Generally: National union policies, conference agendas and communications, identifying: RQ1: unions' broader concerns and formal positions on environment. RQ2: unions' purpose (as policies), and relations with social movements. RQ3: any union involvement in place-based climate action.	**Document analysis** of policy documents, reports on activities of unions, grey literature.
RQ1: Unions' perceptions and interpretations of how their social and environmental concerns relate to each other. RQ2: Unions' perceptions and interpretations of capacities needed/developed around low carbon and how low carbon links to their social movement role. RQ3: Unions' perceptions and interpretations of significance of place-based climate action for their concerns, role and capacities.	**Participating**, observing and contributing to events/meetings with unions.
	Interviews with key union officers nationally and in Y&H

Data collection methods

My data collection methods encompassed participatory activist research (PAtR), documentary analysis and interviews. Through an embedded placement with TUC Yorkshire and the Humber region, I supported its Just Transition Taskforce, on a part-time basis over an extended period, from February 2018 to September 2019. I carried out interviews in the period May-September 2019. My embedded research activities and my analysis of documents during this period helped to develop the topics discussed in interviews.

Kelle (2014) shows how knowledge of actors' lay theories is "often highly relevant for the understanding of specific life worlds since it guides the perceptions, interpretations and actions of their members" (p.563). This was important for my research, given that trade unionists have many understandings and practices that are specific to the role and experiences of trade unions, and thus present a challenge for interpretation by the researcher. Kelle further states that although participants may be able to explicate some of their knowledge, other parts "have to be reconstructed by observing or asking the members about their daily action and interaction routines" (p.563). Thus, my participatory activist research method of data collection supported my understanding of the specific life world of trade unions.

Given the study areas of my research, a period of participatory activist research enabled through an embedded placement with TUC Y&H allowed me to interrogate trade unionists' lay theories about what a Just Transition is, and how it might come about, how their own capacities might be developed, and their understandings of place-based climate action. It also provided an invaluable sense of the landscape in which action happens – relationships and divisions, key agendas and actors. PAtR data alerted me as the researcher to apparent contradictions, as I compared my own understandings of climate change, just transition and place-based climate action with those of the trade unionists I worked alongside, and this helped to first pose, and then unlock, the puzzles of my research. Participatory activist research as a form of embedded research involves acting with unions in support of their goals. This brought the opportunity, through working together, to build trusting relationships and to discuss unions' motivations and goals and the related blocks and challenges.

Documentary analysis identified the main thrust of policies and issues that are key to the union agenda and thus provided important lenses through which to interpret other data forms. Interviews with key union officers and activists complemented these approaches, by giving an 'on the record' account of key perspectives on the questions and interpretations gleaned from documentary analysis and embedded research. Interviews also allowed the formal, organisational story to be linked with personal histories and sedimented meanings that have motivated actions.

Participatory Activist Research as part of my data collection strategy

My goals of contributing to positive developments in trade unions' thinking about Just Transition and their engagement with climate action, and my need to understand differences of meaning, led towards an embedded, action research (AR) approach aiming to achieve a cycle of knowledge creation in collaboration with unions. Within this broad approach, my research is best described as participatory activist research. My role was as an embedded researcher with TUC Y&H, supporting the work of the Just Transition Taskforce, in the period Feb 2018 – Sept 2019, typically spending 1-2 days a week in this role, which as well as office-based tasks included many opportunities to attend related events. This embedded research was structured by a Memorandum of Understanding between TUC, University of Sheffield and myself, included as Appendix E.

In undertaking what Pickerill et al (2021) characterise as "participatory activist research", I was involved in working with a community to help further their own aims, and learning from the experience and from an ongoing conversation with the community about the aims, obstacles and progress of the work. Compared to the related participatory action research (PAR), this 'activist' version decentres the specific interventions or outcomes and recentres the role of the individual as an enabler or agent of change. It therefore promised to be helpful to the development of the Taskforce by offering my labour as an activist -

putting myself in the service of the organisation where I was embedded (i.e., TUC), based in an ethic of care. This approach of tapping into the existing governance structures in the organisation, rather than creating new structures, was appropriate for my research in being less onerous and more flexible for the TUC to commit to. As this form of research works through the existing goals of the organisation (in this case, developing the work of the Taskforce), its outcomes and outputs were more likely to be valuable to that community. Participatory activist research (PAtR), with its aim "to collaborate on the diagnosis of a problem and the development of a solution for research partners" (Mason, 2015, p.498), was therefore appropriate for my research with trade unions, in terms of these commitments to democratic knowledge-making and human agency (Mason, 2015).

Pickerill et al say that PAtR "looks beyond surface explanations and verbal accounts" and involves the researcher in the detail of what participants do (2021, p.3). PAtR has roots in 'scholar activism', an approach appropriate to my goals and research questions, in that one of its key tasks "is to attempt to find, generate, and resource potential rather than merely provide intellectual critique" (Driscoll-Derickson and Routledge, 2015, p.6). Thus, my goal to contribute to positive developments in trade unions' thinking and engagement around climate change was supported by, as Driscoll-Derickson and Routledge (2015) describe, making effective and relevant interventions through working "with … groups over an extended period of time… as a participant working to advance the broader objectives of the organizations" (2015, p.5). Through developing what Nagar and Geiger (2007) call 'situated solidarities', built on mutual trust, admiration and benefit, I was enabled to "engage, constructively challenge approaches and assumptions, and engage in a genuine coproduction of knowledge" (Driscoll-Derickson and Routledge, 2015, p.5). Kesby, Kindon and Pain (2007) offer a reconceptualization of PAR as governance, to address post-structuralist critiques of participation. This view of governance characterises how my research was able to bring "positive effects of power … namely negotiation, persuasion and 'authority-among'" (Mason, 2015, citing Kesby, Kindon and Pain 2007, p.22).

Pickerill, Pottinger and Ehgartner (2021) say that PAtR, influenced by feminist and postcolonial frameworks, "asks us to read the world for difference, and to notice the mundane and the everyday" (Pickerill, Pottinger and Ehgartner 2021). I found, in agreement with Pickerill et al (2021), that observing, listening carefully, and asking questions was able to expose complex issues, and that taking part in activities helped me to identify barriers to goals. Writing observational notes, sharing findings, reflection with and without the group, and semi-structured interviews were all sources of data (Pickerill, Pottinger and Ehgartner 2021). This approach resonates for me with 'accidental ethnography', described by Fuiji (2015), who comments that, in reflecting on observations, "all require analysis to understand how they inform the larger project … The goal … is to link observations from accidental moments to larger research questions

and themes and to other methods and data" (2015, p.530). The PAtR aspect of my research led to many such 'accidental' observations within the context of my placement, that could be reflected on and analysed in relation to my research questions.

A formal Memorandum of Understanding (included at Appendix E) with the TUC in Yorkshire and the Humber set the terms for my fieldwork placement and enables navigation of the ethical considerations of such an engaged approach. The aim agreed with TUC for my placement was to provide additional capacity for, and support the development of, the TUC Y&H Just Transition Taskforce. This was supplemented by a schedule of tasks and activities, which in practice were adapted over the time of my placement to react to opportunities and barriers that emerged. Documentary analysis and semi-structured interviews were undertaken as part of my placement, these are considered separately in more depth in the following sections.

Data recording in my participatory activist research

My embedded placement had two phases – an initial, informal phase between February and June 2018, which enabled me to refine and clarify my research questions and approach, followed by a longer and more formal phase from July 2018 to Sept 2019. Over this whole period an average of one day per week was spent either in the TUC Y&H office or working on TUC tasks or at events or meetings on behalf of TUC. This included formal meetings and informal contact with TUC staff and other trade unionists and climate activists in different contexts. I acted as an intermediary between trade unions and forms of climate governance or active citizenship – which enabled me to compare narratives and attitudes. I led on specific pieces of work for TUC Y&H, including the administration of two training courses on Just Transition, a briefing for full-time trade union officers on low carbon, a funding bid to support more in-depth work, and provided general support to TUC Y&H Task Force meetings.

I used notebooks to record meetings, events and conversations as they happened or immediately afterwards, and to reflect on recordings of meetings and interviews. This resulted in ten notebooks, each typically covering 2 months, and including 4-8 key sections reflecting on events or incidents from my placement (see Appendix F for a log of these entries). My reflections at the end of the day or week typically thought about what was positive, negative, and strange or unresolved in events or conversations. I used analytical and reflexive notes in the margins of my notebooks, colour coding by theme, and highlighted unresolved questions for key incidents (May and Perry 2022, p.179). This process helped to identify distinguishing categories and codes, building on the framework developed from my review and synthesis of the theoretical literature.

Documentary analysis

I analysed documents "as the sedimentation of social practices", having "the potential to inform and structure the perceptions and decisions that people make", constituting

particular interpretations of social events, and telling us about aspirations and intentions (May and Perry 2022, p.124). Documents selected included items such as conference and meeting agendas and minutes, reports of union activities, email correspondence, websites and publicity materials. My selection and analysis of documents focused on two broad categories, first, on more formal, published documents that provided insight into framings, policies, engagements and plans of unions and other actors. Secondly, I focused on internal and 'grey' documents such as correspondence, meeting agendas and reports that represented how unions were communicating amongst themselves and that illuminated key debates and actors within unions. These were documents without a mass audience, even if published. I selected these documents through a 'snowballing' process based on my activities during my embedded placement, and what participants told me was important to their practice, and following up further leads and references that emerged. To some extent, my placement role also included producing documents (e.g. training course publicity, funding bids, agendas for meetings) that required researching and synthesising existing documents. A list of documentary sources is included as Appendix C.

Interviews as part of my data collection strategy

Interviews have a dual purpose in my research – first, to gather data on the perspectives of key union officers on their union's concerns, role, and capacities around the low carbon agenda, and secondly, to enable findings from documentary analysis and participatory activist research to be discussed, to produce an on-the-record account. As May and Perry (2022, p.146) suggest, my semi-structured interviews aimed to understand "how interviewees generate and deploy meaning in social life". As interviewees may "make sense of the social world in ways the interviewer may not have anticipated" (May and Perry 2022, p.146), it is necessary to be receptive to their ways of understanding (Mason 2002). I reflect further below on the process of interpretation I used to make sense of my interviews alongside data from my PAtR and documentary analysis.

Interviews enable in-depth interaction with key people, unpacking their experience and views. There may be tensions between representing their organisation and personal understandings, so I needed to ensure that each interviewee understood what was required of them in this role. The interview structure started with the individual's own role and attitudes, to build confidence and rapport and to hear a personal 'take' at the start of the interview. This approach gives an opportunity to hear the meanings that the interviewee attaches to how they have become involved in the low-carbon agenda, and to explore their learning from key moments (Flick 2014). Further into the interview the questions are about the approach taken to the low carbon transition by their organisation (and industrial sector), and how they view these strategies and their likelihood of success. The interview asks for examples of connections between the low carbon agenda and other union concerns.

Interviews were carried out face to face, usually at the interviewee's place of work, offering a better way to establish rapport and avoid technology problems than online interviews (Simons 2009). My earlier experience with the Taskforce had shown that access to shop floor workers and workplace reps was much more difficult to achieve, but TUC's planned training course on Just Transition for union workplace representatives was expected to offer some opportunities to interact with representatives.

Interviews fulfilled two purposes in my research – to directly explore my research questions, and also to test and validate what I had learned from my embedded research and provide consent for the use of this data. I used an 'hourglass' structure for interviews, narrowing down then widening again, moving through positioning, narrating, to testing/exemplifying, and in some cases to analysing. The first two stages had the same questions for all interviewees, whereas the later stages were individually tailored, in testing out evidence from documentary analysis and PAtR, and as an opportunity for participatory analysis of my wider findings. The first stage consisted of open questions to set the scene, around their current role, what they were grappling with, and their priorities. I asked how they became involved in the low carbon or Just Transition agenda. In the second stage I asked them to narrate their organisation (and sector) – what, how, who, so what? (This narrows down to their own organisation and the field they work in.) Then in the third stage I tested specific analysis from the embedded research and documentary analysis, so it was 'on the record' with consent. In some interviews there was a fourth stage asking their opinion on my wider observations, including their reaction to apparent inconsistencies. A schedule of interview questions is included at Appendix A, although as semi-structured interviews, the order of asking varied.

My invitation to interviewees early in their interviews to tell the story of how they became involved in the low carbon agenda provided a 'life history' element that allowed them to make connections between different aspects of their work role and possibly their wider life or career history, beyond the organisational policy of their union driving their day-to-day work. This was important in understanding the meanings that participants were giving to 'just transition' or to 'the low carbon agenda', or 'sustainability', all of which were contested terms. It allowed me some insight into deeper motivations, which questions focused at the purely organisational level could not have achieved.

In selecting and prioritising interviewees, I requested an interview with at least one person in a senior position in each union (energy unions, TUC, other unions active on the Taskforce), who could provide answers on organisation policy and direction. In addition, I wanted to interview activists around trade unions and climate change to provide context and to test some of my interpretations. I drew up a list of potential interviewees in consultation with the TUC Regional Secretary, making use of my own contacts from previous events, and his knowledge. Interviewees were prioritised who had high proximity

to the low carbon agenda, from a national or subnational perspective. I selected union interviewees to achieve a balance across seniority, scale and proximity to the agenda. There was a good response to interview requests and not all options needed to be followed up. In some cases (Unite and GMB), the union preferred to offer different interviewees to those originally requested, but this resulted in interviewees with high proximity and a good balance of levels of authority. The fact that these interviewees were offered as an alternative, rather than in addition to my requested interviewees, suggests that each energy union made a judgement about which was the correct person (or role) to provide the union's agreed position on the 'low carbon agenda'. While these interviews were willingly granted, there was no encouragement to interview a wider set of officers at national level in the energy unions. The interviews took place at a time when union officers were pressed on several fronts, with the Brexit arrangements being put in place, and with national politics in a great deal of flux. Thus, although in the face of these constraints, the number of interviews was small, the sample met the criteria of the objectives of my study.

In TUC, my shortlist had one national officer and two regional officers. Of these, only the two regional officers were interviewed, as the national officer concerned was not available. In the energy unions, a total of 6 staff nationally and three regional staff were on the shortlist, most at 'officer' level. Interviews were carried out with 5 national staff and one member of regional staff from the energy unions. From other union staff active in the regional Taskforce, two were shortlisted and one interviewed. Four activists were shortlisted, and two of them were interviewed. This totalled 11 interviews across 5 unions (including each of the four energy unions) plus TUC.

The activist interviewees were shortlisted as having a strong union background and being active in organisations that are working closely with unions around low carbon. Their knowledge of current and historical activity and policy was strong. Some of these were part of the Taskforce; one was in a parallel but unconnected initiative and brought a good overview of union engagement with climate change. Union activists at workplace and branch level were not interviewed, but I interacted with them at various events in the course of my embedded research, for example at a Just Transition training course held in Leeds, which led to notes and reflections in my PAtR data.

I invited interviewees using a letter of introduction from Bill Adams, the TUC Y&H Regional Secretary, explaining my role at TUC. This was accompanied by an information sheet about my research and a brief explanation of what was requested for the interview. These documents are provided in Appendix D.

Within my participatory activist research, interviews had some potential to engender change. Asking for an interview, or asking an interviewee to go on record with a particular statement, could influence their attitudes or behaviours, for example, how they see

themselves, or their commitment to a stance. Being interviewed recognised their knowledge and their involvement, so may affect their self-identity as 'an expert' or 'an activist' around low carbon. The interview process itself may bring new perspectives or stimulate the interviewee's reflection on the issues, as suggested by Way, Kanak Zwier and Tracy (2015), potentially bringing "flickers of transformation". As Way et al identify, a dialogic approach "encourages perspective-taking and non-judgmental engagement" (2015, p.721), thus "creating a safe space for participants to hear themselves articulate their beliefs" (2015, p.729). The dialogic approaches taken included asking probing questions, asking for interviewees own definitions of terms when this was not clear, and trying to avoid interrupting an interviewee's train of thought, thus allowing them to completely explain their thinking, rather than closing off the topic.

Any potential for power imbalances and gender dynamics between my interviewees, mainly men in positions of some authority and seniority, and myself as a female student was lessened by my being a mature student with plenty of work, life and trade union experience. In my interview planning, a letter of introduction from Bill Adams, a respected figure, gave weight to my role as interviewer by setting out why my research was important to TUC. I considered where interviews should take place and chose to visit trade union offices where possible - the factor of reducing power imbalances by using more neutral spaces did not outweigh what could be learned from visiting union offices.

Data analysis strategies and techniques

My data ranges from formal interview data to notes of observations and the content of emails, and my own reflections on meetings, events, interviews and critical incidents. Broadly, initial codes derived from my research questions were used to analyse my data, but "connecting strategies" (Maxwell 2012, p.44) were also used to deliberate on the overall meaning of particular items of data, for example, specific interviews and my notes from certain meetings and events.

The status of documents depends on the ways they are integrated into fields of action (Prior 2003, p.2). For document analysis, I used an interpretive approach to understand histories, framings and policies, rather than quantitative analysis (e.g. word-counting), aiming to approach the text "through understanding the content and context of its production" (May and Perry 2022, p.136). To analyse the documents selected, including policy documents reports and grey material, my notes on the content, context and meanings were compared to highlight contradictions or questions that emerged, and these observations and reflections could also be discussed in meetings or queried in research interviews.

During the embedded research placement, I made reflective notes about my participation in events and meetings and my work with TUC to develop the Taskforce. Notes included description of what happened and who was involved, and reflected on what seemed

important, or stood out as meaningful, difficult to understand, surprising or frustrating. These notes were analysed through an ongoing process, to identify key themes and vocabulary emerging, and key actors and influencers. I looked for what knowledge was embedded in what happened, and for situations where such knowledge was not available to me. Puzzles, things that jarred or contradicted each other or changed over time were also subjected to scrutiny. These notes, and my analysis of them, guided further observation and reflection, and prompted conversations that explored the missing pieces of the puzzle, or the knowledge in play, and also guided probing questions in the interviews.

To analyse interview data, I initially made my own rough transcripts and notes on my interview recordings, soon after the interviews had taken place. These notes highlighted quotes that seemed important, high-level codes, and queries about meaning and apparent inconsistencies. Then the recordings were professionally transcribed, and that transcript was used as the basis of my further analysis. I used two main approaches to my interview data, first a categorising strategy through coding each interview based on my research questions. Appendix B contains a list of codes, which was added to as PAtR, document analysis and interview data were analysed. Secondly, for a subset of interviews, especially those at national energy union level, I created interview profiles, to help to uncover the internal logic and meaning. This strategy analyses data in a connecting way, to show contiguities in the data, instead of differences and similarities (Maxwell 2012). This enabled me to clarify and reflect on the meanings and intentions expressed in a particular interview, so that when analysing it in relation to other interviews, I could understand common dynamics even when expressed in terms of different examples.

My process of data analysis

My prior experience with the climate movement and with trade unions informed the design of my research and specifically my research questions. As I started my initial embedded placement with TUC in early 2018, my research already had a focus around three study areas, the importance of which was set out in sections 2.5 and 3.6:

a) Looking at the ecological and social concerns of unions.
b) Awareness that policy change was not sufficient for unions to engage with climate, but wider capacities were needed – e.g. specialist staff, training, narratives
c) Awareness of differences in narratives between the TUC Y&H Taskforce and the energy unions nationally (potential importance of place-based aspects).

The theoretical constructs relating to these areas developed through my engagement with the literature, but also through my interpretation of data collected in my initial phase of PAtR and through document analysis.

For example, Stevis, Uzzell and Rathzel's (2018) *Depth, Breadth and Agency* (varieties of labour environmentalism) model was a helpful step to a more complete theoretical basis, but my ongoing analysis of the data from my PAtR and from documents highlighted to me the significance of climate change and the challenge this presented to models developed for more localised 'environmental problems', leading me to develop my own *matrix*, based on Hopwood et al (2005).

During early 2019, in my placement I helped the TUC Y&H Taskforce to apply for funding for further in-depth work on the low carbon transition. Analysis of the data I collected developed my understanding of trade union capacities around climate change and place-based aspects of climate action. The significance of the youth climate strikers also became a key theme for investigation, as the 'Fridays for Future' and associated events built up during late 2018 and early 2019. These in turn helped to focus my interview questions and the probing questions which I asked in interviews.

Willig (2014) considers that as qualitative researchers we need to ask the question "what does this mean?" in relation to the written and spoken accounts that constitute our data (2014, p.137). What such interpretation may generate includes, Willig offers (p.137): understanding of the author's intended meaning; of what may have motivated the author to say what they said; and of the social, and cultural context which made possible (or necessary) the author's expression. In analysing my interview data, I found myself grappling with these layers of meaning. Document analysis, and my embedded experience of working with trade unions, was able to shed light on the political, economic and historical contexts that led trade unionists to highlight or take for granted certain aspects in their accounts. My PAtR, and the relationships of trust built through it, also tuned my understanding of possible underlying motivations for what was said in interviews, or how it was said.

From mid-2019, analysis of my interview data commenced, which solidified some of the emerging learning from PAtR. It included evidence relating to different energy-intensive industries and other sectors such as transport that are key for the transition to low carbon. This data enabled a more systematic analysis of gaps in policy and practice, and combined with PAtR data enabled me to identify different perceptions between those working at a policy level and those mainly engaged with company bargaining, and between perspectives from the energy unions nationally and the TUC Y&H Taskforce members.

In my interpretation and analysis of my research data, my own knowledge and concern about climate change enabled me to see gaps and contradictions in the account of trade unionists, but at the same time, in order to understand their accounts, I had to learn much about trade union action and the structural, cultural and affective forces that constrained it. This concurs with Gadamer's (1991) "fusion of horizons" needed to generate new

insights. My extended period of close collaboration with TUC Y&H in my PAtR placement enabled this learning for me as a researcher. Without this learning, interviews might have presented me with a polished and optimistic picture of how the energy unions were addressing climate change, or alternatively with an unintelligible morass of comments I could not interpret.

More broadly, as an action research project, my study aimed for a better understanding of how social change comes about, through "involvement in the process of collectively identifying goals and implementing strategies to reach these goals" (Willig 2014, p.146), which was enabled through my PAtR. Whilst theoretical input on labour environmentalism helped to structure my analysis, interpretation of my PAtR data and documentary analysis alongside interview data enabled me to disentangle the wider structural forces, and the cultural obstacles and capacity gaps that constrained agency. Table 4 summarises the phases of my data collection and the development of my data analysis, distinguishing between my prior experience and my field research.

Table 4 Summary timeline of phases of research and data analysis

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Phase	Activities, data collected, development of data analysis
To Dec 2017:	**Prior experience** informed study areas and emerging research questions: RQ1 - Interest in ecological and social concerns of unions - Jobs vs environment narratives RQ2 – Aware policy change insufficient for unions to engage with climate – interest in wider capacities – e.g. specialist staff, training, their own stories RQ3 - Aware of different engagement with place in Y&H and energy unions
Jan-June 2018:	**Initial placement at TUC:** Data collection from training courses, Taskforce meetings **Initial lit review:** developed my *framework*.
July 2018 – Nov 2018	**Main placement**: Data collection from Taskforce meetings and intermediary activity. Document analysis. **Further lit:** Varieties of Labour environmentalism (DBA) model published and brought into my analysis - developed my critique in terms of climate change (my *matrix)*.
Nov 2018 – May 2019	**Main placement**: Data collection from funding application process, intermediary activity - youth strikes. Document analysis. **Data analysis:** Using my *framework* to analyse developing union capacities, and *matrix* to analyse union concerns. Developed interview questions.
May – Sept 2019	**Main placement**: Data collection from interviews, Taskforce meetings, intermediary activity. **Data analysis:** Interviews, interpreting in the light of PAtR and document analysis.
Sept 2019 onwards	**Data analysis:** Interviews, document analysis and PAtR data together, using my *matrix* and *framework* - relationship between national and Y&H data – emerging patterns around place-based engagement.

4.6 Ethics, validity challenges and limitations
Reflecting on my own identity in the research
In the account above of selecting my case and building research relationships it is clear that my prior involvements, motivations and commitments are key. Some of the factors of my own identity that led towards this project are set out in Chapter 1. In order to "guard against forms of projection and selection which misrepresent [my] objects" (Sayer, 2000:53), in this section I reflect on my own influences, standpoints and social contexts. To do this I examine the implications of my own position in the relationships of this research, "turning back on [myself] in order that processes of knowledge production become the subject of investigation" (May and Perry 2014, p.109). For example, it could be charged perhaps, that I have an overly favourable view of TUC Y&H due to my close relationship with them, and a biased, critical view of the energy unions. Guarding against misrepresentation here requires effort to stay open to the different stories and meanings that present themselves. Reflecting what I have learnt from my prior experience, such as developing strong relationships with an energy union nationally to enable representation at international climate talks, helps to avoid such bias.

An important aspect of the social context of my research is how I was "different" in many ways to my participants in the trade unions, and yet how contiguity in time and place allowed nonetheless for relationships to be built (Sayer 2000; Maxwell 2012). From my own perspective, I had an authentic, personal, broad aim of supporting the work of trade unions through helping them to become more engaged in the climate change agenda and understanding the blocks to that. This research was part of my larger, long-term commitment to that goal, in line with my valuing participation in decision-making by those most affected by change, and desiring redress of social injustices to enable human flourishing. The sense of difference expressed by Bill Adams in an interview in 2016, that the main conflict in Just Transition was between unions and the climate movement (ref: JP-2016-11-ADAMS-01), was thus, for me, part of the puzzle motivating my research, something I wanted to reconcile. At the same time, a possibility of critique that confronts established power was certainly needed in my research.

Work by Cindi Katz is helpful here, in offering a way of situating research fieldwork by contextualising it in a range of power relations. A key question from this scrutiny is "how does the work deploy and confront power - whose power, where, and under what conditions?" (Katz 1994:69). My conceptual framework, emphasising the modernising-ecological divide in sustainability, could present a challenge to union affiliations and practices. There is thus some tension apparent between the goal of my research to support unions in engaging around climate change, and a conceptual framework that may unsettle power by confronting powerful players with this challenge. In a wider societal

context of climate change denial and greenwash serving the interests of the powerful, my goal includes promoting the truth about the risks and impacts of climate change. Building relationships of trust with trade unionists was important to enable conversations in which I could potentially uncover uncomfortable contradictions without closing down communication. A dialogic approach was helpful both in interviews, as discussed above, and in wider interactions - a willingness to listen to and respectfully probe participants' own thoughts and beliefs. My background in teaching adults in community settings and in facilitating conversations about conflictual topics helped me here.

There were class and gender axes to the difference between my participants and myself. Being an academic can be perceived as having a middle-class status, and it entails having access to education, resources and thinking time (Parr, 2015). Similar judgments are often made about climate activists – that they seem to be unconstrained by everyday concerns such as earning a living. Trade unions often have an overtly working-class culture, performed through appropriate social activities and modes of expression. There was also a gender aspect – most of my participants were male, and I am female. Gender stereotypes abound in trade unions, while being actively and politically challenged by many. My years of working in a male-dominated, engineering environment in the railways and in participating in trade union activities helped me to read cultures here while remaining authentic.

In trade unions, 'contiguity-based solidarity', as discussed by Maxwell (2012), citing Williams (1988), seems to act as a way of dealing with difference. As in the 'street work' Williams studied, I noticed that trade unionists "do all they can to understand the details of one another's biographies" and "memorise others' reputations" (2012, p.57). Connections around reputation and personal, political biography can overcome mistrust with those who appear different. Having been on the right side in a famous battle, or being connected to friends or family known to the other helps greatly in being accepted in a trade union environment. In terms of how contiguity and connection helped me to build relationships, I have identified three stories that helped overcome my alienness as a woman scholar and climate activist. One was my known commitment to Yorkshire and the Humber, especially to Sheffield, and my sense of care for communities that had met injustice through the transition away from coal. The second was my history and current activity as a trade unionist, and my friendships with respected trade union figures. The third relates to the fact that, at the time of my fieldwork, there were clear political divides extant around both 'Brexit' (the UK leaving the European Union following a referendum in 2016) and Jeremy Corbyn's leadership of the Labour Party (2015-19) - my position on each helped me to fit in. This importance of relationships carries over into my approach to ensuring the ethical integrity of my research.

Ethical considerations

A key ethical consideration in my research was to obtain informed consent for the use of data created through participatory processes, and to respect the confidentiality of participants as they desired, in a setting where individuals could be easily identified, and where specific regulations control data recording trade union membership. As well as these issues that could be addressed through well-designed procedures, the nature of participatory activist research required attention to "microethics" – ethical responses to issues arising at "ethically important moments", that could not be planned for (Guillemin and Gillam 2004).

Participatory activist research involved observation and reflection as a trusted participant in a relatively low-key way, which situation was not always conducive to directly attaining individual informed consent. There was potential for ethical issues to arise in practice at times when my role may not have been clear: e.g., after a time participants forgetting that I was a researcher; my roles as participant and researcher were blurred; I was 'off-duty' as a researcher but still in a position to hear and note what is said. Because of these factors, I had an extra duty of care to exercise confidentiality, vigilance, judgment and restraint in the use of data. If I was unsure of the consent associated with data, I have either put it onto an informed consent basis (through requesting consent), or do not use it in this thesis. Here, Rowley (2014) shows how being an embedded researcher, straddling the classic insider-outsider divide in research, can build strong and trusting relationships that help the data-collection process but also support ethical practices, as a member of the community who may better understand the concerns of participants (2014, p.22).

In terms of ethical issues which could be planned for, many of my participants were trade union members, which is a Special Category of data under the General Data Protection Regulations (GDPR). The consent form used therefore included a question of whether the participant agreed for it to be known that they are a member of a trade union. If someone who is being interviewed because of their trade union role had not answered yes to this question, the interview would not have proceeded. Given the close nature of the community I was working with, and the limited number of trade union roles, it would be easy to identify people within the project, and potentially more generally, so that I was unable to guarantee complete anonymity in final, published work. The approach taken was to agree quotes with those who can be identified by their quotes. To facilitate this process, there was an enhanced consent procedure, whereby the consent form gave a default option to waive anonymity, which, if agreed, made the participant aware that their comments could be quoted with identification and without specific checking. Alternatively, if the participant was unwilling to be 'on the record' in this way, the consent form explained that any quotes published would be checked on a case-by-case basis with the participant before using them, and any identification agreed. Following this checking process, certain evidence has been anonymised in my thesis (the source shown only as

X.n). Similar issues around research ethics are documented by Pickering and Kara (2017), who explore issues of lack of anonymity in small communities; moving away from anonymity as a default; and the competing 'ethical goods' that arise when an interviewee is allowed to veto the inclusion of material that may identify them uncomfortably.

Validity challenges and limitations

As Maxwell (2012) shows, validity of qualitative research cannot be guaranteed through selection and use of methods. Instead, Altheide and Johnson (1998) argue, assessing validity in qualitative research needs to place "the researcher, the topic and the sense-making process in interaction" (1998:291), and where dilemmas arise, for the researcher to report how they have achieved "pragmatic resolution of these dilemmas" (1998:295). I here consider the three categories of validity that Maxwell applies to qualitative research – descriptive, interpretive and theoretical validity – as they apply to my research.

Descriptive validity concerns the factual accuracy of the account and asks that the researcher not make up or distort things they heard. In quoting interviewees, I have chosen to omit 'filler' words ("er", "um", "you know", etc) and to not show every pause or break with ellipses. I have added punctuation to match the original audio and make the quotes more readable, without changing the meaning. These representations could in principle be checked against audio recordings to ascertain whether a person said what I have written. In some cases, I have paraphrased what the interviewee said, in order to include significant data that was expressed in a roundabout or digressing way. These approaches were chosen so as to present a relatively clean text to interviewees who had asked to agree their quotes, and to make the exposition of my arguments flow for its audience. This choice was made to provide a clear account of the concerns and actions of unions, rather than focusing on individual modes of expression, except where I saw these as significant. Recognising that this choice removes some emotional content from what is presented, I have discussed cases where this adds meaning to what was said.

In terms of interpretive validity, Maxwell (2012) says that this "pertains to aspects of an account for which the terms are emic", that is, derived from the participants' own language, and "experience-near" (2012, p.138). The development of accounts of these meanings are based on participants' own statements and reflect their conscious or unconscious intentions, concepts and values. In this respect, my embedded research has provided opportunities to understand the participants' "theory-in-use" (Argyris and Schön 1974) and achieve interpretive validity. Producing interview profiles for key interviews helped to understand their meaning in a holistic way, drawing out the implications of the themes or conclusions that were present or not in a specific interview. Gathering data through different methods helps to rule out reactivity as a validity challenge, where participants' responses are influenced by the presence of the observing researcher.

Maxwell's third category of understanding and validity – theoretical validity – "goes beyond concrete description and interpretation to explicitly address the theoretical constructions the researcher brings to the study" (2012, p.140). In the case of my research, theories around social and environmental concerns, and the development of capacities, are applied to the data to achieve an account that functions as an explanation. The development of such theory is the form in which my qualitative research may be generalised. Researcher bias in applying constructs is a challenge that could be invoked here – my approach uses reflexivity to characterise my interests and possible biases, as discussed above. My own theoretical constructs developed throughout my research in response to the data I gathered and the interpretations I made.

Reflections on my embedded role

My placement brought the opportunity to learn through being embedded in the organisation, which gave the opportunity to observe as a participant, to contextualise formal communications with informal experience, and to build relationships of trust over the longer term. These relationships and understandings brought more depth to the interviews I carried out. I was able to provide extra capacity to enable TUC Y&H to respond more actively around the low carbon agenda. As a member of the Taskforce since its inception, I had brought different perspectives and wider connections to the Taskforce, through my links to the climate movement and to universities. Given my previous paid and voluntary roles in Sheffield Climate Alliance and Zero Carbon Yorkshire, and my status as an academic researcher, I brought opportunities for wider connections such as attending energy strategy consultations and taking the union voice into these spaces, and building relationships in universities and the climate movement that may not have developed otherwise.

In my Participatory Activist Research role, I wrote notes, recorded meetings and reflected on what had happened. I wrote memos of critical incidents which I have used as evidence in my analysis.

Compared to interviews, which effectively gave a snapshot of union views in May-June 2019, my Participatory Activist Research enabled me to assess change over a longer time in concerns, but especially capacities. Although concerns drive the development of capacities in any organisation, my thesis also poses the question of how the development of capacities in trade unions may change concerns. The opportunity through my PAtR, in the service of the Just Transition Taskforce, was to be part of developing capacities around low carbon, and thus to gain a deeper sense of how they were changing. Meetings with Bill Adams, to discuss plans, strategies and to evaluate action, were also a source of knowledge about his ongoing concerns. Whereas my perception of concerns needed to be validated in my interviews, the development of capacities was more observable, and could be reflected on during fieldwork.

As a result of my participatory activist research approach as an embedded researcher with TUC Y&H, I gained privileged insights into institutional dynamics, cultural norms, and conflicts which would not otherwise have been visible. Through putting myself in the service of TUC and its Taskforce, and acting within the existing governance structures, I gained a deeper insight into the priorities of the organisation and into what were perceived as obstacles to progress. I came to understand some key dynamics that I explore further here.

A strong underlying dynamic I observed is that unions wish to be autonomous, even from one another – they defend their own culture and priorities, rooted in their membership and history. Boundaries in this sense are very carefully policed, so assumptions should not be made about one union based on what others may do. At the same time, open dissent is often painful – when unions form collective policy, such as at TUC conference, there is a desire that conflicts are handled offline rather than publicly. However, when the conflict cannot be resolved privately, there may be a 'gloves off' public fight, as at TUC 2018.

Another dynamic I quickly became aware of was how important personal reputation and trust are to trade unionists in building relationships and working with others. Information about people, but also other kinds of knowledge, is sought and updated through trusted personal networks which can be dense and long-standing. Having and using such networks of mutual respect and obligation can be important to achieving goals - approval of plans through networks is often just as important as objective evidence in moving things forward. An example was the knowledge effective in changing Bill Adams' judgement from 2016 that, for unions, "the main conflict around climate change was with the climate movement", knowledge achieved through relationships with activists and academics he came to trust.

I saw examples of how this reliance on personal networks had potential to act against fairness, equality and diversity, thus contradicting principles that trade unions are also very committed to. Strong networks could reinforce cultures such as the engineering mindset, or the importance of the coalfields' history, through the power of 'industrial masculinity' (Beckwith, 2001; Connell 1995, 2005), that identified masculinity with tough and dangerous work. Although I was familiar with these narratives from previous experience, I was surprised how powerful and prevalent they were in the unions as a way of articulating solidarity between differing interests, in a hostile world. Selbin (2010) talks about stories as ways to explain causes and origins of how things are, and how they can be better. Alongside the stories of unjust transition in the context of industrial masculinities (*Class Work* (Rowley no date)*; Shafted* (Williams 2016)*; Survivors of Steel City* (Beattie 1986)) are stories of women's proactive role in campaigning for their communities (*The Vigil* (Spence 2017)*; You Can't Kill the Spirit* (SWAPC Pit Camp Project Group 2018)), but in unions these stories may be at one remove from the core solidarity of 'these workers'.

As a climate activist I found some contradiction between the unions saying they were 'signed up' to the Paris Agreement, and their not extending their environmental concern accordingly – although I note that this contradiction is present in society more widely, it is not unique to trade unions. The implications of climate science were less salient for unions than other knowledge that could be assessed through their own trusted networks, such as social concern for protection of 'these workers', sustained through personal networks with the trade unionists representing the workers. TUC Y&H was a small and close-knit community but with some conflicts arising from differences of style. I was able to navigate through this, relying on the formal agreement (MoU) as a baseline when needed. My own mature age, concomitant experience of office politics, and willingness to be assertive probably helped here. My close relationship with Philip Pearson, himself a very respected and trusted ally of TUC Y&H, gave me more standing in being accepted and listened to.

To understand my role in my embedded research as an enabler or agent of change, developing capacities and tackling obstacles, I here look at how I mobilised my position as an insider and an outsider, what I was and was not able to do, and what conflicts arose and how I dealt with them. My placement with TUC Y&H brought them additional capacity – in the simple sense of an extra pair of hands for part of the week - but also contributed to leadership, embeddedness, capabilities for change, and new narratives and stories bringing the low carbon agenda to life. This made TUC Y&H more responsive around the agenda than it would otherwise have been, and the parameters of my formal role (my 'placement') helped keep it in view within immediate timescales, not postponed too far. I was a witness who, even if silent, influenced what was said. The interest implied by my research role enabled the agenda to be taken more seriously, and gave unions a sense they were being taken seriously by others.

My "insider" position was helped by my having been a long-term member of the Taskforce, so a known ally, and personally an active trade union member for many years. But I was also very much an "outsider" – as an academic researcher, which was alien to many of my union contacts at a regional level, and as a climate activist who was known to have radical green views. Being an outsider brought strengths in enabling network embeddedness (a different set of helpful contacts, relationships of trust that extended in different directions). It contributed to my ability to intermediate or 'bridge' - being able to understand and critique both 'sides', seeing connections between agendas and raising them.

4.7 Conclusion

In initiating my research, I made certain choices about its scope, approach and methods. Within my overall aim, to explore the conditions that would allow unions to become more engaged in the climate change agenda and to realise a Just Transition, and for the fruitful

study areas identified from my synthesis of existing theories, I derived three research questions:

RQ1:

How are unions framing a Just Transition to low carbon in terms of their environmental, social and justice concerns? This requires investigation of unions' concerns, particularly in relation to the depth of environmental concern and breadth of social concern around low carbon.

RQ2:

How are unions developing their capacities to engage with the low carbon agenda, and what potential does that represent for changes in their role? This requires analysis of how unions are developing their purpose, resources, capabilities and norms, and whether there is a renewal process from an institutional role to a social movement role.

RQ3:

How are the unions' concerns and capacities developing in relation to place-based climate action? This requires examination of the extent, nature and impact of unions' engagement with place-based climate action.

Reflecting on how these questions relate to each other, and their implied underlying view of the world, led me to adopt a critical realist approach, grounded in the interplay of structure and agency and seeing causative mechanisms producing outcomes in different contexts. This approach guided the selection of a multi-level case study, to focus my study around a national context of the energy unions and a subnational context of the TUC Y&H Taskforce. Relationships were already established to some degree through prior engagement and were developed to support my research.

I chose to take an action research approach, best characterised as "participatory activist research", a form of scholar activism. Within an embedded placement with the TUC Y&H, supporting its aim of developing the capacities of its Just Transition Taskforce, I employed methods of observation and reflection, document analysis and semi-structured interviews to gather data. To ensure an ethical treatment of participants I ensured that clear consent was provided for any material presented that could identify individuals within the close community of trade unions, and that learnings from participatory research were put on the record through interviews. These choices support my overall aim of understanding the conditions that would allow UK trade unions to become more engaged with the climate change agenda, and to realise a Just Transition.

The structure of the empirical chapters that follow is that Chapter 5 combines documentary analysis with context from my own experiences as an activist and observer

over several years before this research. Its purpose is to provide context for the three chapters that follow in terms of UK climate policy and governance, trade union organising, and the economic context of Yorkshire and the Humber. This context is not only background, but can be considered as contributing to and shaping the outcomes around framing and capacities - at the different scales. Chapter 6 analyses interview data for the energy unions nationally to address RQ1, and Chapter 7 addresses RQ2 for this national context. Chapter 8 analyses RQ3 for both the TUC Y&H Taskforce and the national context.

Chapter 5: The context shaping unions' concerns and capacities

5.1 Introduction

This chapter reviews findings about the context of my multi-level case study, based on document analysis and informed by my prior experience and my activities during my research placement. It explores the UK climate policy context; what was distinctive about Yorkshire and the Humber region; and how trade unions were organising in the national and subnational contexts. The aim here is to illuminate the context in which trade unions were developing their concerns and capacities. Such outcomes, as well as depending on what unions do, depend on the context where the process occurs. This chapter thus provides a key element for my analysis of how processes around union concerns, capacities and engagement led to certain outcomes in certain contexts. It sets out the common background nationally and the specific background of Yorkshire and the Humber to contextualise the three empirical chapters that follow.

Concerns of unions, as addressed in RQ1, are responsive to both the workplace experiences of their members and the policies, mainly national, that drive economic and social change. The capacities of unions interrogated by RQ2 are developed partly nationally, especially around purpose and resources, and partly subnationally and closer to workplaces, where attitudes and norms, local knowledge and relationships will be important. In RQ3, union engagement with place-based climate action clearly relates to the significance of this approach in national policy, but also to what is happening in particular places. Answering each of my research questions thus involves both what the unions do, but also the context that I set out in this chapter.

In section 5.2 I consider UK policy around low carbon and how it developed in the period 2008-2019, since the Climate Change Act was passed, and I review various critiques that were made over this period. I then set out in section 5.3 some background about trade unions in the UK, how they organise across different sectors, and what opportunities they had to engage around the low carbon agenda, again since 2008. I focus in on the 'energy unions', which were dominating this agenda nationally at the time of my research, and consider what policies and approaches they were each committed to.

In section 5.4 I consider the context in Yorkshire and the Humber in terms of the economy of the region related to the low carbon agenda, and the local and regional governance of the economy and climate action, again focusing on a similar period, 2008-2019. In section 5.5, I look at the role and governance of the TUC in Yorkshire and the Humber, how it created its Low Carbon Taskforce in 2016-17, and the activities of that taskforce at the time my research commenced. In section 5.6 I draw these sections together to identify key contextual factors shaping the development of unions' concerns and capacities in a multi-level context.

5.2 UK climate policy 2008-2019

In this section I first review UK climate policies and their drivers and outcomes, before also considering the UK economic situation more generally, especially through the lens of geographical inequality.

UK climate policy is framed by the Climate Change Act 2008, and the independent, statutory body it created, the Climate Change Committee (CCC, earlier called the Committee on Climate Change), the purpose of which is "to advise the UK and devolved governments on emissions targets and to report to Parliament on progress made in reducing greenhouse gas emissions" (Climate Change Committee, no date). Overall targets recommended by the CCC have responded to the IPCC 1.5 degrees report in 2018 (IPCC, 2018) to move to a 'Net Zero by 2050' target adopted by the UK Government in June 2019 (UK Government, 2020). Progress towards the overall target is measured against carbon budgets set for each 5-year period by the CCC, who also monitor progress of government policy and action against these budgets. The progress report presented by the CCC to Parliament in June 2020 shows that in the period 2008-2018, "emissions reductions have been predominantly driven by acceleration of power sector decarbonisation, which went from being the highest emitting sector at the beginning of the decade to the fourth highest in 2019", with over half the emissions saved coming from this sector (CCC, 2020a, p.74, p.72). Of other major sectors, the report comments: "policies to drive emissions reductions … are generally far from complete and leave significant gaps" (CCC, 2020a, p.19). The report identified these policy gaps as including Heavy Goods Vehicles (HGVs); industry and hydrogen strategies; and the need for the heat and buildings strategy to transform heating (CCC, 2020a:112; 2020b). These gaps around heat, industry and transport had been highlighted as early as 2016 by the Green Alliance, as big areas where policy was not well-advanced (ref: JP-2016-03-LCWG-01).

Power sector decarbonisation has happened in the context of a privatised UK energy sector, with sub sectors of generation, distribution and retail run by regulated private companies, following privatisation of electricity and gas companies in the 1990s. Market signals have been used to achieve decarbonisation of the power grid, moving away from coal-fired generation and towards nuclear power, gas-fired, bio-energy, and renewable

energy generation, especially off-shore wind generation (Carbon Brief 2015). This shift, as noted by the Climate Change Committee (CCC 2019a) was the main focus between 2008 and 2018 of government action to achieve carbon budgets, and has been claimed as a victory by the Conservative government (UK Government 2019a; UK COP26 2021). UK grid decarbonisation has been a behind-the-scenes activity that does not need to engage much with citizens (with some controversial, if otherwise marginal, exceptions). In terms of Scoones, Leach and Newell's (2015) model, this decarbonisation has mainly been achieved through technological change and marketized policies, driven by state leadership in adopting the Climate Change Act 2008 targets.

Specifically, in the context of gas-fired power stations having increased in number during the 1990s "dash for gas" following electricity privatisation, the 2013 Energy Act (UK Government, 2013) put in place targets and instruments for a shift to low carbon electricity, underpinned by "neoliberal logic" (Gillard and Lock 2017, p.646). Although its long-term objective was emissions reductions, this "was caveated with short-term concerns about cost and supply" and its "electricity market reform (EMR) targeting low-carbon supply… [was] based on the premise that increased competition would solve the trilemma most efficiently" (Gillard and Lock 2017, p.646).

The 2013 Energy Act aimed to phase out coal power stations and develop a market for renewable power. By 2015 all the deep coalmines in the UK had closed, through market pressures and the implications of the regulations. Coal mining is a high-carbon industry, but the closure of UK mines was not initially accompanied by the closure of coal-fired power stations - instead coal was imported from the USA, Colombia and Russia, and a few other smaller sources (ref: JP-2016-CAN-01, CAN 2015), although there were also attempts in this period to create new opencast coalmines in the UK. So, although in terms of reducing emissions within its borders, the UK claimed to be a world leader (UK Government, 2019; UK COP26, 2021), the reduction was not purely because the grid had been decarbonised, but was also due to the offshoring of coal mining and of high-carbon production such as steel. The shift to renewable energy was defined to include biomass use as a power station fuel, such as the use of imported wood at Drax power station, where four of six units had been converted from coal – a major energy development in Yorkshire and the Humber (Carbon Brief, 2019; JP-2019-10-JTTF-01). With the transition away from coal-fired generation underway, the next steps were more complex, and as of 2019 the UK was not on track to meet its fourth and fifth carbon budgets (CCC 2019b). The implications, at that point, of strengthening the targets to meet 'net zero' only created further pressure. Although the legal commitment for the UK to achieve net zero carbon by 2050 was signed off in 2019, the detailed approach did not emerge until late 2021, beyond the timescale of my research.

As decarbonisation of power has been the main UK carbon reduction achievement, with coal power-stations being replaced by gas power-stations, increased renewable generation and extended-life nuclear plants, 'low carbon' has become synonymous with the decarbonisation of electricity. This was to ignore other vast areas of change needed – for example, energy demand reduction; alternative sources of heat for homes and industrial processes (both use mainly fossil gas, currently); the transition away from oil-fuelled transport; making land-use and agriculture a carbon sink instead of a source of emissions. Jacobs et al (2016) show that "progress made towards the decarbonisation of the power sector has not been matched in the other principal sectors responsible for GHG emissions" (2016, p.43-44), with emissions from buildings and transport having barely fallen over the four years to 2016. More recent reports from the Climate Change Committee (e.g., CCC 2020a) have begun to raise these questions, through discussing net-zero targets, and highlighting the policy gaps outside the power sector that remain to be filled.

Considering industrial emissions other than from power, the policies put in place by the Climate Change Act 2008 and the associated Low Carbon Transition Plan (UK Government, 2009a) and Low Carbon Industrial Strategy (UK Government, 2009b) were not significantly built on after 2010 until the Industrial Strategy and the Clean Growth Strategy were published in 2017 (UK Government, 2017a, 2017b). An exception was that outline roadmaps for energy-intensive industries were published in 2015 (UK Government, 2015) addressing issues such as the need for forms of heat which cannot be generated electrically (for example in glass and ceramics production), and key processes which produce greenhouse gases, aside from the power employed (e.g. in cement and steel production). Hydrogen is proposed as an alternative source of heat to overcome some of these issues, but this leaves open how the hydrogen is produced – for example, as 'blue' hydrogen from fossil fuels with carbon capture and storage, or as 'green' hydrogen by using large amounts of renewable electricity to electrolyse water. Both such approaches required major investment in infrastructure that did not yet exist, and around technologies that were unproven in production. Blue hydrogen had been critiqued in terms of its overall climate footprint (Energy Research Partnership 2016).

The UK Heat Strategy was long awaited, and fully published only in 2021 (UK Government 2021a) along with a Hydrogen Strategy (UK Government 2021b). At the time of my research and my prior engagement, between 2015-2019, there was a lack of clear direction from the UK Government on policies around heat, and little consultation happening around industrial heat and the use of hydrogen. This lack of activity on energy-intensive industries, as contrasting with earlier government strategies, was raised in a meeting in 2016, of the TUC Yorkshire and the Humber Just Transition Taskforce with the Chair of Leeds LEP and his team, which included staff seconded from the Department of Business,

Energy and Industrial Strategy (BEIS), but no follow-up action resulted (ref: JP-2016-06-Leeds-01).

To achieve decarbonisation of the economy and specifically of high-carbon industries, within many of the proposed pathways Carbon Capture and Storage (CCS), or Carbon Capture, Utilisation and Storage (CCUS), emerges as a required technology. Yorkshire Forward, the Regional Development Agency for Yorkshire and the Humber, led on the designated Low Carbon Economic Area (LCEA) for CCS, in view of both the industrial profile of the region and the geological opportunities (UK Government 2009b; Bird and Lawton 2009; Bradbrook et al 2010). Even after the abolition of Yorkshire Forward, up to 2015 the White Rose project to build CCS facilities attached to Drax power station in Selby had expected to receive government support for development, but this was cancelled in the December 2015 Budget. TUC had argued at the time, in a report with the Carbon Capture and Storage Association, that a more cost-effective option would be a facility in the Humber serving a cluster of energy-intensive industries (TUC 2015).

From 2019, national support for industrial decarbonisation was through the UK Government's Industrial Clusters Mission (UK Government 2019b) and UK Research Institute (UKRI) funding (UKRI, no date; UKRI, 2020). With this support, large-scale projects emerged in Yorkshire and the Humber to support CCS for decarbonisation pathways based in Bio Energy Carbon Capture and Storage (BECCS) at Drax power station, and for blue hydrogen production in relation to chemical industries around the Humber (Humber Zero, 2021; Zero Carbon Humber, 2022). At the time of my research, however, the future of CCS and how this would impact on Yorkshire and the Humber was unclear, even though its use was implicit within the 2017 Clean Growth Strategy. The main trajectory of UK climate policy during 2008-2019, then, was the decarbonisation of the power sector and the closure of coal mines. Wider programmes of decarbonisation, and approaches to the economic benefits regionally and nationally had been underdeveloped since the advent of the Conservative government in 2010.

Critiques of UK climate policy

Debates on decarbonisation have often been conducted based on promotion and critique of different technologies, but from a more ecological perspective, it is necessary to consider a wider scope of systemic change. A technology does not operate in isolation but in the context of social structures, work practices, regulation and economic activity. I therefore consider some critiques that have been made from several angles of UK Government strategies on low carbon, and alternative scenarios that have been proposed.

A critique at the widest scale is made by Anderson (2015), who shows that the carbon targets in the Paris Agreement are based on an assumption of the use of unproven technologies to suck carbon dioxide from the air (such as Bio Energy with Carbon Capture and Storage, or BECCS) that could not be scaled up to an adequate level without

dispossessing millions from land that grows food. Critique has been made of inadequate approaches to measuring emissions - the UK approach, also stipulated in the Paris Agreement, is to measure and address territorial emissions, rather than consumption-based emissions. Because both consumption and infrastructure development typically involve imported goods, emissions are shifted to lower regulation economies instead of eradicated. With a critique that global reductions can only be achieved if we also account for imported and exported emissions, Scott and Barrett (2015) propose a methodology that can calculate the ecological footprint (or carbon footprint) of processes, institutions or countries, and related work has shown that the economy of the UK is totally dependent on embedded carbon emissions from around the globe (Barrett et al 2013).

It is also clear that decarbonisation through technological change has wider impacts through extraction, waste disposal, health and employment effects that fall heavily on disadvantaged people especially in the Global South, suffering unintended destructive consequences for developing nations in terms of slave and child labour, mineral extraction and toxic e-waste (Sovacool et al, 2019). Emissions reductions in industrial sectors such as cement, steel and glass are challenging for two reasons – first the emissions are embedded in the production process rather than purely linked to energy use, and secondly because production in these foundation industries is driven by materials use in many other sectors, notably construction. For these reasons, the most effective forms of emissions reduction could be from changes in other sectors, to reduce or modify the materials and methods used (Giesekam et al 2014; DARE Alloys 2016). A further critique of supply chain impacts is the wider implications of using biomass for energy in BECCS, which have been set out by Sir John Beddington (Carbon Brief, 2017).

UK low carbon policies since 2010 have often focused on market signals and assumed that the transition can be achieved within a 'Business as Usual' framework, ignoring many wider shifts in social norms and practices required for net-zero carbon. Some such market-focused and business-led programmes, including the 'Green Deal' for domestic retrofit introduced in 2013, have quickly failed and been abandoned as ineffective (Rosenow and Eyre, 2016). Busch et al (2018) note that "low carbon transformation… involves changes to industrial systems that include new institutions, business strategies and user practices, as well as new technologies" (Busch et al, 2018:121).

UK climate policies assume trajectories of GDP growth, although the UK's independent Sustainable Development Commission in its report *Prosperity Without Growth?* (SDC 2009) argued that to make consumption sustainable, the subject of prioritising quality over quantity would have to be broached (Jackson, 2017, pp.xxv-xxix). Analysis of material use and environmental efficiencies show that sustainability cannot be achieved without radical changes to the goals of the economy as well as its processes (Jackson, 2017).

As well as this kind of critique of government climate policy, alternative scenarios have been produced by academics and civil society organisations to demonstrate that there are feasible pathways to low or zero carbon for the UK. A high-level scenario was published in 2007 as *Zero Carbon Britain* by the Centre for Alternative Technology (CAT 2007), showing how the UK could achieve zero carbon by 2027, and this was developed in further versions in 2013 and 2019 to address critiques. In these scenarios, changes in agriculture and diet allow land to provide carbon sinks and biofuel sources, and surplus night-time renewable electricity enables the production of green hydrogen as an energy store for later use. These scenarios show that transition is possible, and clarify the scale of changes needed, the timescale, and broad options or direction of travel. The *Absolute Zero* report (Allwood et al, 2019) is another scenario report, focusing on materials and carbon-intensive industries, that critiques relying on CCS and hydrogen to achieve the legally-binding targets of the Climate Change Act.

In summary, the climate policy trajectory of the UK in the period 2013-2019, although often promoted as world-leading, was somewhat stalled – while power decarbonisation was underway, other more difficult areas still lacked decisions, strategy and investment. Although multiple lines of critique could be levelled at the policies, in public discourse and among non-specialists there was a general sense that the transition to low carbon was already underway and under control. Political debates were more likely to focus on the pros and cons of different sets of technology such as nuclear power, hydrogen or wind energy than to discuss how the whole UK economy, encompassing homes, transport and food, could be made low carbon.

UK economic inequality and issues

As the challenge of climate change alters the political economy, I here unpack some of the wider issues of the UK economy, especially those which have strong implications of geographical inequalities. Jacobs et al (2016) show that the UK has a highly geographically imbalanced economy, with London and the rest of the South East accounting for almost 40% of national output, following 20 years of population, productivity and output growth shifting south-east. Although regional concentration exists in many advanced economies, Jacobs et al say, the UK's is an extreme version, unprecedented among European countries. They identify two main drivers of the imbalance. First they note a shift away from manufacturing, more concentrated historically in the north of England, Wales and Scotland, towards the financial and service sectors, and as well, new industrial centres growing in the South East. This relocated economic activity and London's self-reinforcing growth as a global financial centre brought feedback and spillover, concentrating "higher skill" jobs in managerial and professional occupations in London and the South East. The second factor Jacobs et al identify relates to lack of devolved "regional" tier of governance within England, and to the distribution of public resources. With few subnational powers over taxation, and investment in transport infrastructure receiving over six times the

amount per person in London as in the North of England, the cities of the north of England are not able to develop economically as they might.

As well as the specific regional problem identified, Jacobs et al (2016) identify problems with investment, trade, income and carbon in the UK, which feed into one another and can be expected to play out in distinct ways in Yorkshire and the Humber. The problems they identify point to the need for active industrial policy aiming to reduce emissions in energy intensive sectors, and to increase the UK's exports, particularly in manufacturing, and reduce its import dependence in key industrial supply chains. The UK invests substantially less than our peers, and Jacobs et al (2016) identify a loop between investment and productivity, with weak investment causing low productivity, that feeds back through lower output to weak investment. They conclude that in Britain, since the reduction in labour costs after the 2008 crisis, employment has been sustained at a high level at the cost of overall productivity - as labour markets become more 'flexible', it is cheaper for firms to buy labour than to invest in new plant. Again, the reduction in manufacturing and the relative lack of alternative employment to carbon-intensive industries in Yorkshire and the Humber exacerbate these trends and the downward pressure on income in the region. In Britain, most of the gains from economic growth flow to a small minority of the rich, while the incomes of those on lower incomes stagnate, Jacobs et al (2016) show. For the UK as a whole, and more intensively for Yorkshire and the Humber, the shift from relatively highly paid jobs in manufacturing sectors to relatively low-paid jobs in the service sector was more dramatic than in some competitor countries, and the rise in wealth inequality and low wage growth further exacerbated income inequality.

5.3 UK trade unions and their engagement around low carbon 2008-2019

Given the trajectory of UK climate policy and economic development in the years 2008-2019, I now consider how trade unions were engaging with the low carbon agenda over this same period, in terms of their policy advocacy, how they were consulted by government, and what capacities they were developing. Mainly here I focus on the unions organising in workplaces, and later look further at the role of the Trades Union Congress in section 5.5. My understanding of these processes was informed by my involvement with unions around climate change from 2014, for example attending Unite's policy conference in 2016, and by my conversations with Philip Pearson, who had held the climate change brief at TUC 2004-2015.

A key consultation body over this period had been the Trade Union Sustainable Development Advisory Committee (TUSDAC), which was set up under the Labour government in 1998 (TUC 2002) with threefold aims: to enable constructive dialogue with the Government on sustainable development; to provide a trade union perspective on the employment consequences of climate change; and to help mobilise the trade union

movement to become more involved in better environmental practice in the workplace. Although initially co-chaired by unions and a government minister, in the period leading up to my research, TUSDAC had had little ministerial presence.

In the period of Labour Government up to 2010, TUC had engaged with government around the Low Carbon Industrial Strategy (UK Government, 2009b), and a four-sided Forum for Just Transition was set up, with Green Alliance represented as well as government, employers and unions. This forum looked at what the government needed to do around the motor industry and skills development, and the leaders of CWU, Prospect and Unite trade unions and TUC attended (JP-Interview-PP). Under the Coalition Government from 2010 (Conservative and LibDem government), there was the Green Economy Council, formed in January 2011 (UK Government, 2011), which did work on Energy Intensive Industries, leading to the *Industrial Decarbonisation and Energy Efficiency Roadmaps* being published in 2015 (UK Government, 2015). TUC had some involvement in this work, although the aims of the Council were to "support the government" and "minimise costs for business and maximise opportunities" (UK Government, no date; JP-Interview-PP).

In terms of how unions had been developing their capacities, in the early period of the Labour Government, several unions, including PCS, GMB and Unite, had been pursuing environmental initiatives and seeking TUC support (JP-Interview-PP). Philip Pearson had started working as the Industrial Policy Officer at TUC nationally in 2004, and held that role until 2015. In starting his new role, he had experienced pressure from some of the TUC-affiliated unions to ratify an environmental training course they had piloted, against a less enthusiastic response from TUC: "…when I started work at the TUC in 2004 I was handed the environment brief with an implication of 'don't do anything about it, much'" (PP.01a). At this point, then, key TUC-affiliated unions were keen to build capabilities among their members and representatives ("reps") to tackle environmental agendas, while climate was less on the agenda of the TUC until Philip Pearson responded to this impetus from affiliates. In 2008 TUC published a guide for workplace reps (TUC 2008) with practical information and guidance on how to raise environmental issues in the workplace. In this period, TUC also supported training for green reps, in conjunction with several affiliated unions (JP-Interview-PP).

In the period before the Paris COP in 2015, some UK unions, including Unite, had delegated work on climate change to their international departments and to the Global Union Federations (JP-2015-10-Unite-01) and were not organising around climate change or Just Transition at workplace, company or regional level. In terms of trade unions engaging with the climate movement, where most environmental organisations are active nationally and subnationally, this meant a disconnection, and difficulties for climate groups engaging unions. When the international environmental civil society organisations

supported ITUC in campaigning for a Just Transition statement in the Paris Agreement, this catalysed some relations nationally, developing the 'network embeddedness' of UK unions around climate (2015-COP21-01).

The period leading up to my research was a time of multiple strong pressures on trade unions, when many commentators saw their role as defunct. In the UK, mechanisms that had allowed unions to be consulted by government around low carbon (and other issues) had been removed or ignored over a decade or more preceding my research (JP-Interview-PP). Trade unions were lacking resources – their membership levels had fallen, and low pay was prevalent, compounded by the economic crisis of 2008. Trade union rights had been removed by the Trade Union Act 2016 (UK Legislation 2016), and unions risked losing resources if they fell foul of increasingly restrictive laws on industrial action. In the face of such pressures, areas of higher membership density and better agreements with employers around representation and bargaining are important to unions. Higher risk sectors, such as manufacturing, mining and construction, and public sector employment tend to have higher density of union membership (Beynon, Davies and Davies 2012). The energy sector, even since privatisation in the 1980s, has remained well-unionised, although where new entrant companies entered the UK energy market they had no legal compulsion to hold dialogue with trade unions.

Following from the trends outlined above, the energy sector was a major area of union interest and sensitivity, given high union membership density and significant overall numbers, some retained national bargaining machinery and the cultural residue of the industrial strength enjoyed from historic links with the coal miners, rail and dock workers. During a period when power sector decarbonisation represented the main plank of UK climate policy, workers in energy were a priority for unions to protect, as changes in the energy sector had disrupted jobs and skills: closure of coal power stations and a shift to gas power stations, increased use of renewable energy, smart meter implementation. The four trade unions organising in energy, Unite, GMB, UNISON and Prospect, began to collaborate on policy advocacy and to dominate the agenda of the Trade Union Sustainable Development Advisory Committee (TUSDAC). The membership and policy of each energy union in the period just before my fieldwork were as follows.

The energy unions: Unite
Unite organises in power (including coal and nuclear), engineering, automotive, process industries, offshore oil extraction, public transport, construction, local authorities, health, universities, voluntary sector. Unite vies with UNISON to be the largest UK trade union, but with a centre of gravity in industry rather than public services. The union has resulted from numerous mergers between unions in different sectors, and today it is hard to think of an area where it does not organise to some degree, but some of its big concentrations are in transport, manufacturing such as automotive, engineering, energy and technical

services, although it also organises in local government and the voluntary sector. Its history of mergers has also led to political differences that can still be traced to some degree in relationships between its sectors.

Reviewing Unite's policy debates shows that, up to 2018, 'Energy and Environment' was a relatively small section of its agenda, discussed on the last day of its biennial policy conference. The policy agreed was centred on defending a 'balanced' energy policy, that is, even-handed between different energy subsectors in Unite, including in 2014 continuing use of coal. There are also broader views such as affiliation to the 'One Million Climate Jobs' campaign, and opposing fracking. The more outward-looking policies agreed are often in broad terms, difficult to action – whereas the sector-specific policies adopted are more tightly worded in terms of specific asks. In 2016 there was a shift in the terms of Unite's call for a "balanced energy policy", to campaign "for this policy to include green energy measures which includes tidal turbines and geothermal initiatives" – here naming sectors without much existing membership to defend (JP-2016-07-Unite-02; JP-2016-Hooke-01).

The energy unions: UNISON
UNISON is a huge union of some 1.3m members, organising in the public sector and its privatised successors, mainly across local government and health and energy administration. UNISON's agenda at its conferences between 2014-16 included a range of climate issues, and policy motions were agreed in favour of action on energy efficiency and fuel poverty, support for renewable energy, and divestment of local government pensions, with the caveat that this must be in line with their fiduciary duty. There is a call for new sources of energy and for further debate on the pros and cons of fracking, but on the whole the motions put forward are less focused on technological change than on social and economic impacts and ways of working with other organisations for political change (JP-2016-Hooke-01).

The energy unions: Prospect
Prospect has members in engineering, managerial and scientific work roles, with a large segment in power generation companies. It has members in public and private organisations across engineering, communications/utilities, the civil service and government agencies, museums and galleries. As of 2017, Prospect was reviewing its energy policy, to clarify aspects including the UK's commitments to meet carbon emission targets, and initiatives to reduce the impacts of climate change. To understand their concerns, members were surveyed – members in energy constituted one-sixth of Prospect's members at that time, down from one-third due to mergers across other sectors (Prospect, 2017). Prospect's policy and research are strong on skills development, reflecting its membership in professional work roles. Prospect was collaborating with IPPR North to report on the skills transition needed in power generation in the north of England (Emden and Murphy, 2019).

The energy unions: GMB

GMB (the union's name now being the acronym) was formerly the General, Municipal and Boilermakers union - this still gives an idea of its membership, with clusters in local authorities, energy and manufacturing, and a wide general membership. Its energy sector membership is largely related to gas, including domestic boiler fitters and gas grid maintenance, although includes power stations such as Drax. Policy motions agreed by GMB in the period up to 2016 were supportive of coal, gas, nuclear and CCS, in a similar "balanced energy policy" vein to Unite. Cautious and sceptical motions submitted on fracking were "referred" to the Executive Council in 2015 and in 2016 a compromise appears to have been reached that GMB would take fracking workers into membership but not promote fracking. There are motions in 2016 calling for GMB to take a green and ethical approach in its own work, and to campaign for investment in wind energy, subsidies for solar energy, and help for flooding victims – the issues raised by the membership were thus quite alert to climate issues, even if these motions were in some cases 'carried with qualifications' or 'referred'. (JP-2016-Hooke-01)

To summarise and compare these - each of the energy unions has different areas of strength in the energy sector, for example, UNISON is stronger in retail energy companies, and GMB is stronger in the gas distribution network companies. Concerns for job protection underpin Unite's long-standing commitment to a 'balanced energy policy', which promotes a mix of different forms of power generation, including coal, gas and nuclear, and more recently renewable power. This even-handedness could be puzzling, until the logic is understood that Unite's policies must be negotiated between its energy sub-sectors with different, even if overlapping, interests. The compromise position arrived at is that all Unite policy adopted on energy explicitly states a commitment to all the sectors where its members work. Unite had maintained its commitment to coal, even as it has been assessed as a climate risk, through caveating coal use with Carbon Capture and Storage, even as coal power generation was being reduced by government climate policy interventions and members' jobs had shifted away. This bottom-up logic of a 'balanced energy policy', while allowing for renewable energy to be introduced, does not actively promote it. A similar dynamic, of the union being a large amalgam of different sectoral interests, can be seen with UNISON, which, even as a public sector union, now has members in successor private companies in the energy sector, whose interests are given some priority in the processes by which policies are decided. In GMB, another large general union, its members in gas – who work fitting boilers or maintaining the gas grid – also enjoy a high status. In each of these unions, a relatively small section of energy workers has brought forward specific policies on the low carbon transition, such as favouring the use of hydrogen. The approach of importing coal following the closure of UK mines was at times criticised by unions on human rights grounds - the eviction of villages in Colombia and persecution of indigenous communities in Russia in favour of huge

opencast mine developments. In the USA, "mountain-top removal" processes have extreme environmental and social impacts through air and water pollution and halting all other land-uses (Coal Action Network 2015). However, the main justification used by unions supporting renewed coal mining in the UK tended to be that it would create jobs.

With the closure of the last deep mine at Kellingley, West Yorkshire in 2015 (Wakefield Express 2022), the critiques of the human rights implications of imported coal, and the withdrawal in 2015 of support for the White Rose CCS pilot project (Guardian 2015), the emphasis of union policy advocacy shifted. As market mechanisms steered power companies to close coal power stations in the period up to 2019, some workers were able to move within or across companies to retain their employment in the sector. This reduced the overall job losses, but impacted severely on some individuals, as there was no explicit overall management of the change, systematic retraining or income support. Moving from a coal power station to a gas power station or nuclear power station could be possible, but the skillset and geography are likely to preclude a move directly into offshore wind, which, once built, employs fewer people per megawatt generated.

The wider agenda implicated in climate action – for example, industrial and domestic heating, transport and food, the changes needed in skills, norms and practices, and the adaptation and resilience aspects of climate change - were at this stage not being addressed in the mainstream of unions. Most of the critiques and alternative scenarios put forward by academics and civil society organisations were not informing the debate in unions, which was dominated by technology and market issues around the power sector, although the Corbyn leadership of the Labour Party from 2015 did open up debate on renationalisation of the power sector, and how this should be designed, and in 2016, UNISON commissioned research about renationalisation of energy that started a debate within unions.

Many of these factors were in evidence in unions' discussions in 2017, at a UK event hosted by Trade Unions for Energy Democracy (TUED, no date), an organisation engaging with unions internationally around achieving social and environmental outcomes through democratic control or public ownership of energy. TUED's research (e.g., Sweeney and Treat 2017) suggests that planning and investment by states is necessary to achieve sufficient investment in renewables for a transition to zero carbon. TUED's engagement of UK unions in 2015-19 included discussions around whether and how UK energy companies should be renationalised under a hoped-for Labour government, and the importance of the ex-nationalised 'Big Six' (at the time) energy companies to the energy unions was apparent at their 2017 event (JP-2017-05-TUED-01).

Energy unions' day conference and statement
The energy unions held a day conference for reps in the four unions from across the energy sector in autumn 2018. Reflections on this conference were made in my interviews

with senior energy union officers. Following this conference the energy unions jointly published a statement on Just Transition in October 2018, in the form of a leaflet, *Demanding a Just Transition for Energy Workers* (Energy unions, 2018). This highlighted that "Just Transition is about the fair treatment of workers and communities most affected by change as we move to a lower carbon world". The focus of the demands was "over 200,000 members right across the energy and energy-intensive industries". What senior reps in energy had said they wanted "for their members, their families and their communities" was summarised in 10 bullet points. The overarching concern was that: "Ten years on from the Climate Change Act, the UK still does not have a plan that puts workers, future skills and affected communities at the heart of energy policy" (Energy Unions, 2018).

Energy and climate change debate at TUC 2018

When the TUC affiliated unions came together at Trades Union Congress in September 2018, three motions pertaining to energy, climate change and the low carbon agenda were debated in the same session on the second day of the conference. There was a motion on Just Transition which referenced the work of the energy unions (Motion 7), a motion on fracking with proposed amendments (Motion 8), and a motion on 'strategy for a low carbon industrial region' which referenced the work of TUC Y&H (Motion 9). I focus here on Motion 7 on *Just Transition* and Motion 9 on *Strategy for a low-carbon industrial region*.

The Just Transition motion (TUC, 2018: Motion 7) was moved by a senior officer from GMB, seconded by Prospect, and carried, with some dissent, after hot debate. Its wording included congratulations to:

> *"…GMB, Prospect, UNISON and Unite for calling a just transition conference to ask members employed in energy precisely what they, their communities and industries want and need from an energy sector of the future"* (Motion 7).

While this was accepted by those opposing the motion, the more contentious point was when it went on to propose that:

> *"…the views of the workers affected, as expressed through these trade unions, should be paramount and central to development of all TUC policies on energy, industrial strategy and climate change, and that the TUC should develop a political and lobbying strategy led by the voices and experiences of energy unions and their members"* (Motion 7).

In moving Motion 7, the GMB speaker expressed that the test of a Just Transition is whether those affected lead - so energy workers from Unison, GMB, Unite and Prospect should be setting the agenda, not "politicians, advisers and axe-grinders". He implied that closing down the gas industry would mean that 30,000 workers would be 'thrown under a bus'. The motion was opposed by several speakers who commented that climate change

affected many workers, that the motion was divisive and excluded, for example, firefighters and steelworkers, and that Just Transition, industrial strategy and climate change were far wider agendas than energy. The motion was passed, although with substantial votes against.

The motion 'Strategy for a low carbon industrial region' (TUC, 2018: Motion 9) was moved by a young woman delegate on behalf of the TUC Trades Union Councils Conference – she was new to the subject and nervous about speaking, especially after some delegates had challenged her before the debate about the wording of the motion and suggested it should be withdrawn. It was seconded by a senior officer from a mid-sized union, who had also opposed the GMB motion. The motion supported "encouraging Trade Union Councils in other regions of England and Wales to work with their regional TUC to develop appropriate low-carbon regional strategies". Highlighting emissions from energy-intensive industries, and the need for "a just transition for workers so that no-one is left behind as industry and commerce adjusts to a low-carbon future", it called for TUC "to put the fight against climate change at the heart of its campaign strategy". The motion was overwhelmingly carried, leaving TUC to integrate these two approaches into its standing policy.

To analyse the conflict that arose - the GMB motion began to appear divisive in saying "there is no shortage of voices who believe they are qualified to say what energy workers and communities want and need" - implicitly criticising those who expressed an opinion on what a Just Transition could look like. Then the GMB speaker added verbally that those with an axe to grind (perhaps politically, this was not spelled out) were aiming to dominate the debate and introduce unrealistic policies, and that moving away from gas as a form of energy distribution would be a disaster for employment in the sector. The temperature was raised when he expressed this as "throwing workers under the bus". To a trade union audience, this accusation of lacking solidarity with threatened workers could be taken as a deep insult. The motion was seconded by Prospect and supported by Unite - their speakers did not use the same kind of conflictual language, but by supporting, endorsed the wording of the motion.

At the 2019 Congress of TUC, one year later, the debate on climate was completely different. A unifying motion from Unite (TUC, 2019b: Motion C02) said that no part of the economy was untouched by climate change and that

> "Congress believes climate change is a trade union issue. The future of our planet is at risk if we don't organise now to force governments to cut emissions in line with the IPCC report" (TUC, 2019b: Composite Motion C02, p.5)

The motion, composited from several motions submitted, lauded the youth strikers, and called for a TUC action to support their next global school strike. It supported the TUC's

statement on Just Transition published two months before. No opposition was voiced and it was clear from what was said that the main cause of the changed debate was the actions of the school students in the intervening year.

In July 2019 TUC had published a short report *A Just Transition to a Greener, Fairer Economy* (TUC 2019a)*,* which was based on four principles:

> "A clear and funded path to a low-carbon economy; workers must be at the heart of delivering these plans; every worker should have access to funding to improve their skills; new jobs must be good jobs".

While energy-intensive industries would be key to achieving this transition, it stated, "this is a project that will require change right across our economy, and trade union members have the expertise to deliver it" (TUC 2019a, p.4). There was a strong focus on the investment needed, in skills as well as technology and infrastructure, and the need for involvement of workers and social protection. Global impacts of climate change were mentioned as causing displacement, especially of women. With this more principled stance, TUC was looking towards a potential Labour government, and was including changes such as household energy efficiency and improved public transport, alongside its main demands around industrial production.

Conclusion – energy unions' focus on power generation dominated nationally

With the UK government's history since 2010 of excluding and ignoring unions, on low carbon issues as on other matters, the energy unions were pursuing a focus on technologies needed to ensure a transition of power generation without loss of unionised jobs. This was a rational focus in terms of the decarbonisation policies being implemented by government at the time, and the significance of the formerly nationalised energy sector as a source of good jobs and a site of strong memberships with productive bargaining conditions. It was narrower than the emerging concerns of the energy unions' membership in general, which extended to issues such as the need for subsidies for renewable energy and for divestment of pensions from fossil fuels. Different perspectives on Just Transition were exposed at TUC 2018 conference, as the energy unions came together to promote the needs and voice of energy workers, and the local trade union councils supported a place-based approach. Although TUC 2019 found a consensus around a more radical view, it is in the context of TUC 2018 that developments in Yorkshire and the Humber need to be considered, where my fieldwork took place between TUC 2018 and 2019.

5.4 Yorkshire and the Humber economy and governance up to 2019

Yorkshire and the Humber is a region in the north of England with a population of 5.48m in 2021 (UK ONS nda), including both significant conurbations and large rural areas, and with

the third lowest GVA per capita of English regions (UK ONS ndb). The potential for climate action in the region has been shaped over the decade preceding my research by through the reorganisation of local and regional governance and national austerity policies. Over the longer-term there has been de-industrialisation, and considerable impact from the regional economic inequalities discussed above in section 5.2. Then, in the decade before my research, a series of changes in governance structures and a national austerity programme presented further challenges to the region, its economy and its capacity for subnational governance of environmental and social issues. Despite this, some pioneer initiatives around place-based climate action have developed in Yorkshire and the Humber.

Yorkshire has experienced, from the 1980s to the present, what is often described as an "unjust transition" from coal. The transition away from coal power in the UK described in section 5.2 has had strong geographical implications, including major shifts in employment and skills demand (Bridge et al 2013). Identifying wider social impacts of coal closures, Johnstone and Hielscher (2017) note the "risk of insufficient attention regarding the broader implications of such discontinuity processes around the impacts on local coal communities and future prospects of the workforce" (2017:457). The impact of such transitions in terms of loss of trust is explored by Powell et al (2019).

In discussions with unions, and in wider public debate in Yorkshire and the Humber, the historical transitions that have affected the region, for coal and for steel, are typically characterised as 'brutal' and 'unjust'. , These industries have been lost or substantially reduced in employment capacity, in imposed industrial transitions which are a cause of loss, pain and likely resistance to changes over which local communities do not feel they have control. The political fault lines associated with the struggles around coal and steel since the 1980s make this a hot issue for unions. In 2015, in the region, shortly before my research commenced, the last deep coalmine in the UK closed and the White Rose CCS pilot project foundered.

Despite the historic major loss of high carbon industries, Yorkshire and the Humber region still has one of the highest dependencies on carbon-intensive industries of UK regions, with a significance both economic and cultural - as a source of pride and a defining factor of place. Structural economic problems and factors of economic inequality, discussed in section 5.2, and impacts of austerity policies since 2010, have made remaining high-carbon industries proportionally more important as economic 'anchors' in Yorkshire and the Humber's local economies, where low investment, low productivity, low skills, low pay and precarity were prevalent. The inclusion of Yorkshire and the Humber in the EU/ETUC *Industrial Regions and Climate Change* programme (ETUC 2016; Renews 2016) had highlighted much of this already and shown many common concerns across areas in seven nations facing challenges of decarbonising energy-intensive industries that formed

an economic backbone of their region – the findings of this programme are discussed further in section 5.5.

The austerity agenda pursued in the UK since 2010 has meant public service cuts that have impacted badly on Yorkshire and the Humber, especially its cities, where more jobs are in the public sector and there are more low-income areas. Gray and Barford (2018) show that austerity "pushed down to the level of local government in the UK has resulted in (i) a shrinking capacity of the local state to address inequality, (ii) increasing inequality between local governments themselves and (iii) intensifying issues of territorial injustice" (2018, p.543). They see this as likely to lead to a downward spiral of disinvestment in people and places, as local authorities are forced to focus on mandatory services at the expense of wider social and physical infrastructure. Over the same period since 2010, regional and local governance structures that relate to place-based climate action were radically restructured (Liddle 2012). Local Strategic Partnerships and Regional Development Agencies were replaced by private-sector led Local Enterprise Partnerships.

Local Strategic Partnerships (LSPs) had been introduced by the Local Government Act 2000 and by 2006 were established in all areas (usually coterminous with Local Authorities), but ceased to exist beyond 2014. Their role was to develop coherent service provision and genuinely sustainable communities. LSPs prepared and implemented a Sustainable Community Strategy (which set out the vision and priorities for the area agreed by all parties, including local citizens and businesses) (Fudge, Peters and Wade, 2012). LSPs did not include representation of trade unions, but included representatives from business as well as from public sector and third sector bodies (Bailey 2003). At a wider scale, between 1999 and 2012, Yorkshire Forward was the Regional Development Agency for Yorkshire and the Humber, established, alongside 8 other RDAs, to transform the region through sustainable economic development. (Yorkshire Forward, 2012) As well as business and employment support, its work included a programme around low carbon, and in response to the importance of energy-intensive industries in the regional economy, Carbon Capture and Storage was a major theme of this work. TUC Y&H was involved in the work of Yorkshire Forward.

Following the 2010 General Election, the Coalition Government replaced RDAs and LSPs by Local Enterprise Partnerships, with a much more limited representation and objectives. Local Enterprise Partnerships (LEPs) are private sector-led voluntary partnerships between local authorities and businesses, set up in 2010 by the Department of Business Innovation and Skills, to help determine local economic priorities and lead economic growth and job creation within the local area (SYMCA, 2021). LEPs in Yorkshire and the Humber have included Sheffield City Region LEP, West Yorkshire LEP, Humber LEP and York and North Yorkshire LEP – some of which underwent changes of name and boundaries as Combined Authorities were created, and devolution deals established. LEPs

have little mandate or capacity to consult or involve. In 2017, Bill Adams, Regional Secretary of TUC in Yorkshire and the Humber, became a member of the Sheffield City Region LEP, the first LEP nationally to include a trade union representative on its Board.

In terms of the low carbon transition, in the period leading up to my research many of the forms of governance that had existed under the Labour Government had radically reduced powers. The abolition of the Regional Development Agencies, including Yorkshire Forward, meant there was no governance at Yorkshire and the Humber regional level for major infrastructure decisions. Local Authorities had lost almost all capacity for work on the low carbon transition, as LSPs had been abolished and their budgets almost halved under national austerity programmes since 2010 (Gray and Barford, 2018). The creation of Combined Authorities and Mayoral devolution deals were later to enable wider planning around transport and coordinated delivery of business and skill development support, but their powers around low carbon were very limited in Yorkshire and the Humber at the time of my research. Government had mandated LEPs (or Combined Authorities) to create Energy Strategies, and then more recently, Local Industrial Strategies (UK Government, 2018), which led to some limited consultation events (JP-2018-07-SCR-01, JP-2018-07-SCR-02). Devolution opportunities sparked a campaign for devolution of a Yorkshire and the Humber-wide region, *One Yorkshire,* in which Bill Adams played an active role (One Yorkshire, no date). On a wider scale, Transport for the North, having emerged as a lobby in the 'Northern Powerhouse' grouping of local authorities across the north of England, was accorded a strategic planning role around transport from 2018, which had potential to be significant for the low carbon agenda (Transport for the North, no date).

Place-based climate action, as defined in Chapter 2, is climate action at a local scale, by and for local communities, through multi-level and multi-actor collaboration (Howarth et al, 2021). At the time of my fieldwork, this was relatively undeveloped and untheorized for the UK, but certain factors were emerging that formed the basis for place-based climate action. First, given the Nationally Determined Contributions (NDCs) instigated by the Paris Agreement, these NDCs would require pushing down to a regional or city level in order to achieve the detail of how they would be implemented. Secondly, the climate movement, notably Extinction Rebellion and the youth climate strikers, were campaigning for more rapid action to meet these targets, and, in response some local authorities had declared a Climate Emergency, and were working on plans for their local contribution to targets, including using sortation methods to achieve buy-in to decision-making. Thirdly, there was research showing the necessity and possibilities of reducing carbon through place-based action around not only energy generation but transport, housing, food and waste, powers around some of which were being devolved to new Mayoral authorities at a city region level.

Work foreshadowing what was to become the Place-Based Climate Action Network (PCAN, no date) produced the Mini-Stern Review for Sheffield City Region and similar reports for Leeds City Region and others. (Gouldson et al, 2013; Wesselink and Gouldson, 2014) This showed that to achieve feasible carbon-reduction measures locally, and achieve the national carbon targets, would require several billion pounds of investment in energy supply, energy efficiency and transport, at a time when austerity-hit city regions such as Sheffield did not have the devolved powers or staff capacity to initiate such a programme.

The Leeds City Region Strategic Economic Plan in 2016 (Leeds CREP, 2016; JP-2016-06-Leeds-01) saw that, although there were an increasing number of high-skilled, high paid jobs in the city region, these were numerically and economically insignificant compared to the loss of a mass of jobs from the 'eroded middle' and the growth of precarious, low-paid work in sectors such as hospitality and care. This factor was identified as a 'hollowing out' of the job market "with growth in both higher- and lower-paid jobs, but a loss of jobs in the middle with impact on opportunities for career progression and scope for people to move out of low pay" (Leeds CREP, 2016, p.45). This increase in low pay and insecure work and its relation with austerity was investigated by Thomas et al (2021) in work for the campaign *Sheffield Needs a Payrise* (SNAP). They show that Sheffield City Region, is "the low pay capital of the UK, having the highest proportion of workers on low pay compared with all other City Regions (as of 2019)" (2021, p.23). They root the increases in precarious work since the 2008 crisis - part-time work, working below 10 hours a week, and zero-hours contracts (ZHCs) all above the national average – in a combination of deindustrialisation, financialisation and austerity.

Figures collated by Thomas et al (2021) show that in the period up to 2019, Sheffield had lower job density (that is, jobs per population) and higher unemployment, people seeking work and part-time workers than the national average. Between 2012 and 2018, employment in public administration and defence fell by 20% - sectors having above average rates of pay and full-time work. Using National Audit Office (NAO) figures, Thomas et al show that Government funding for local authorities fell by an estimated 49.1% in real terms from 2010-11 to 2017-18. Rather than the public sector being used to boost employment provision in Sheffield, the story has been one of continued decline. They further argue that deindustrialised regions such as Sheffield City Region have been disproportionately affected by the welfare reforms and benefit cuts which in turn have consequences for economic and employment growth (Thomas et al 2021). Given this picture of governance restructuring and economic transformation for the region, the emergence of specific forms of place-based climate action in Yorkshire and the Humber was potentially significant for the move to a low carbon economy.

A development of climate governance pioneered in Yorkshire and the Humber was the city-level Leeds Climate Commission, set up by Leeds City Council and University of Leeds,

to bring together partners across sectors for climate action in the Leeds local authority area (JP-2017-09-LCComm-01). It was the first such place-based climate commission, launched in September 2017 (Leeds Climate Commission no date), of which further examples were later developed as part of the Place-based Climate Action Network (PCAN, no date), including the Yorkshire and Humber Climate Commission (YHCC), launched in March 2021. These were not statutory bodies, but only able to work through cross-sectoral consensus and collaboration of partners including businesses, universities, voluntary organisations and public sector bodies. The commissions established at the city and regional level were both willing to include trade unions as partners – although capacity issues limited how involved TUC could become in the Leeds Climate Commission.

Analysis of the local employment and skills impacts of the low carbon transition has been taken further by the *Investing in a Just Transition* programme (Robins et al, 2019), which established close links with TUC in Yorkshire and the Humber (JP-2018-04-IJT-01). This work concluded that around 20% of jobs in the UK would be seriously impacted (in a positive or negative fashion). Analysed by place, this shows some variation in the overall proportion of jobs affected. At a more local scale, a significant issue was reported, that low-income neighbourhoods or towns with poor infrastructure may be particularly dependent on significant employers where major transitions of employment and skills are needed. This may compound already existing regional inequalities in levels of pay, skills, productivity and investment.

Robins et al (2019) see the potential for connecting climate action with positive social impact across the country, and aim in their report to identify how investors can realise that strategic opportunity which the just transition offers them. They estimate that nationally around 10% of workers have skills that could be in more demand in the green economy, while 10% are more likely to need reskilling - not that these latter jobs will be lost, but this is where particular attention will be needed. Nationally, this is equivalent to more than 6 million people, and Yorkshire and the Humber is one of the three regions with the highest proportions of jobs that could be exposed to the transition. Robins et al (2019) assert that, although this is not a given, "managed well, the transition will both prevent the immense human and economic costs of climate disruption and also improve growth, generate net new jobs and reduce inequality. In fact, the transition is essential to maintaining decent work and thriving communities." (2019, p.5). Ensuring that the transition is inclusive can accelerate climate action and optimise its benefits, they argue – there is thus a need to take account of the distributional consequences so that no one is left behind.

Robins et al (2019) create a case study of Yorkshire and the Humber. The carbon intensity of the region is shown - with 6.4% of UK GDP, the region accounted for 10% of carbon emissions. They map the 258,000 workers in the region whose skills could face falling

demand in the transition against the areas already suffering from multiple levels of deprivation, showing that 48,000 are in such areas. Those parts of North East Lincolnshire, Hull, Bradford and Leeds that are among the 10% of places in the UK facing the highest levels of deprivation have many such jobs facing a need for reskilling. The report recommends that "as well as making the most of the upside employment opportunities associated with the transition, putting in place measures to address the downside risks is crucial too" (2019, p.24).

Conclusion – a region beset by economic inequality and injustice

Yorkshire and the Humber represents an extreme case of many of the democratic deficits and structural economic issues that beset the UK, especially England. Because of the greater reliance of the north of England on manufacturing and carbon-intensive industries, privatisation and offshoring have had more significant impact on jobs and wealth, and the lack of national policies and investment to address the decarbonisation of industry is more concerning. Energy-intensive industries represent anchors in many communities where low pay and precarious work are endemic, and the political and cultural significance of further threats of deindustrialisation is huge because of the experience of other brutal transitions within living memory. The sense of unfairness and lack of control have been compounded by the abolition of regional economic governance, and the effects of the national austerity policies from 2010 shrinking capacity of the local state and increasing territorial injustice.

5.5 TUC in Yorkshire and the Humber and its Just Transition Taskforce

This regional context, embedded within the policy frameworks set nationally and roles of energy industries, shaped the emergence of new ways of trade unions operating in the region. In particular, the context for my empirical work was shaped by the role and workings of TUC both nationally and in the region, the relationships that supported the priorities of TUC in Yorkshire and the Humber, and their setting up of the Just Transition Taskforce.

The Trades Union Congress (TUC) is a national trade union centre, a federation of UK unions that aims to stand up for working people and make the world of work a better place (TUC, no date). TUC does not organise directly in the workplace, but supports organising by its affiliates, and wider cross-union efforts. It is run democratically by the unions affiliated to it, and it offers capacity to the union movement around shared aims. Key to its role are four objectives: supporting unions to thrive and keep pace with the changing world of work; publishing evidence and campaigning for change; advocating for trade unionism and for working people to be put at the heart of economy and politics; and running learning programmes to help union members (TUC, no date). TUC lobbies government and other bodies on behalf of unions, and acts as the broker of overall union policy. TUC policy nationally is agreed by a democratic process through 'Congress' –

affiliated unions coming together annually in conference to debate and vote on policy motions - and through the year work is steered by the TUC Council and committees. There is a preference for unions that consensus be reached at Congress, but in 2016-2018 several policy motions on low carbon and Just Transition were hotly contested on the floor of Congress.

At this time there were 6 regional offices of TUC in England, including that for Yorkshire and the Humber, each of which has its own Regional Executive Council made up of representatives from affiliated unions and local trade union councils. TUC policy agreed nationally sets the terms of engagement for the regional offices, with local activity being steered by the Regional Executive Council which, at its Annual General Meeting agrees priorities from within TUC policy, to define the workplan of the respective regional office. Although TUC's overarching objectives can be related to the TUC developing its capacities around low carbon, the priority given to low carbon within a TUC region depends on the workplan. Whereas in its affiliated unions reps and members contribute to resourcing union activities, TUC in Yorkshire and the Humber was reliant on a small staff (3.5fte at the time of my fieldwork), plus supportive efforts from affiliates, volunteer activists, and allies.

Up to 2016, TUC Yorkshire and the Humber was a participant in the European Trade Union Confederation (ETUC)-led EU programme on *Industrial Regions and Climate Change* (TUC and Orion, 2015) that took place across 7 nations. Given the scale of this programme, Philip Pearson as TUC national Industrial Policy Officer had been heavily involved, up to his retirement in December 2015. Research had been carried out for TUC by an external consultancy to scope out the problems and recommend responses in Yorkshire and the Humber (TUC and Orion, 2015). A further report for TUC by Orion Innovations Ltd (TUC, 2015) focused on making the case for Carbon Capture and Storage to be implemented in such a way in Yorkshire and the Humber that it increased the benefits for energy-intensive industries, not just power generation. Later, a delegation from TUC Y&H attended the final conference of the programme and the launch of the ensuing report on Just Transition by ETUC (JP-2018-03-ETUC-01; JP-2018-10-ETUC-01; ETUC 2016). Following on from the ETUC programme, and reflecting the capacity gap around low carbon in TUC nationally, the TUC Yorkshire and the Humber Regional Secretary, Bill Adams, became the UK representative on the ETUC's Sustainable Development and Climate Change Committee.

Leading on from the region's involvement in the ETUC *Industrial Regions and Climate Change* programme, in 2016, Philip Pearson gathered a small group of other climate and union activists, including myself, around the outputs of that project, aiming to take forward the theme of Just Transition in Yorkshire and the Humber. A briefing was produced, including key findings from the Orion research, notably the 'bubble map' identifying large point sources of carbon from energy-intensive industries in Yorkshire and the Humber (JP-2016-05-Brief-01). A programme of engagement with unions, LEPs and

companies was agreed with Bill Adams, and a TUC Low Carbon Taskforce was formalised in 2016 (and later renamed the Just Transition Taskforce). This Taskforce had a wider scope than the decarbonisation of energy and extended to the needs of energy-intensive industries because of their significance in the regional economy.

The question addressed by the Taskforce was how carbon emissions could be reduced, without the industrial sites losing jobs – Carbon Capture and Storage (CCS) was seen as a large part of the answer, adopted from earlier strategies for the region developed under the former Regional Development Agency (RDA), Yorkshire Forward, and the *Industrial Regions* research. The Taskforce was cross-sectoral, including members from LEPs (the later disbanded Humber LEP was especially active), universities (especially around place-based climate action and CCS development), sustainability staff from industry (notably including Cemex), climate campaigns (Friends of the Earth and Sheffield Climate Alliance), as well as trade union officers. Some of the most regular union attendees were from Unite, but they also included supportive TUC Regional Executive Council members from unions not focused around energy-intensive industries, such as USDAW (Union of Shop, Distributive and Allied Workers) and BFAWU (Bakers, Food and Allied Workers Union). This broad scope and membership led to opportunities to engage around wider economic thinking subnationally – for example, with the Leeds City Region LEP about their Strategic Economic Plan - linking the low carbon transition with issues of economic geography, such as industrial profiles and social inequalities (JP-2016-06-Leeds-01). In 2017, the Taskforce held a seminar in partnership with the Carbon Capture and Storage Association (CCSA), to discuss how regional plans could be developed for CCS (JP-2017-10-CCSA-01).

Considering the capacities of the TUC affiliated unions as they stood in 2017, there was little or no research capacity in the regions of any UK unions, where their officers tend to focus on workplace reps and issues and to have limited involvement in the policy-advocacy work that is concentrated in London headquarters. Larger UK trade unions such as the energy unions are structured more by sector than by region, and their research capacity tends to focus on specific sector-related issues (e.g., automation affecting motor industry). For example, when Prospect trade union produced a report with IPPR in 2017, assessing skills and equalities issues in the transition of power generation in the north of England, this was led by Prospect nationally rather than regionally (JP-2018-IPPR-01). Beyond sponsorship of local councillors by Labour-affiliated trade unions, there is little involvement of unions in policy or politics at subnational levels, and even under the later Mayoral devolution deals this has not increased significantly – such engagement is very much delegated to TUC.

The informal relationships formed by TUC Yorkshire and the Humber - such as Bill Adams' involvement in the *One Yorkshire* devolution campaign - connected unions to key partners in the region and gave a basis for embedding unions into governance structures, including

TUC membership of the Local Enterprise Partnership in South Yorkshire and the Yorkshire Leaders' Board (YLB). Having a seat at the table enabled formal influence but also a chance to build relationships around common interests, such as with the South Yorkshire and West Yorkshire Mayors when they were elected. In terms of how capacities were being developed around low carbon in TUC, Yorkshire and the Humber region began to be seen in the unions as ahead of the pack in developing its capacities, both through setting up its Just Transition Taskforce and through representing the UK on the ETUC climate committee. In a region of over 5 million people with no government of its own, and with a patchwork of other overlapping or discontinuous agencies, the TUC in Yorkshire and the Humber brought together a cross-sectoral Just Transition Taskforce, which brought unions together with wider partners. This work on Just Transition was rooted in acting as the UK representative in climate work through the ETUC, and building relationships in the region around devolution.

5.6 Conclusions

UK climate policy has focused on decarbonising the electricity supply, leaving other large sources of emissions such as heavy goods transport, industrial and domestic heat, and food and agriculture unaddressed. Industrial strategy has been generally lacking, and key policy decisions on the role of hydrogen and CCS were yet to be taken at the time of my research, although they are the subject of much lobbying. Government plans for meeting carbon budgets have assumed continuing economic growth, have failed to assess the full lifecycle or carbon footprint of proposed changes or their social impact, and have limited their scope to technology change through market regulation. Critiques of government policy and alternative scenarios show that many of the assumptions on current pathways are unsound or politically chosen, but mainstream politics has not engaged with options at this level.

Unions were excluded or ignored from government consultation on low carbon strategies in the period 2010-19 - there has been a lack of inclusive steering bodies. The 'energy unions', Unite, UNISON, GMB and Prospect, dominated union processes, notably at TUSDAC, although wider perspectives and concerns existed across the union movement. The energy unions each represent a much wider spectrum of workers than just the energy sector, but their own policy formation around low carbon and Just Transition has prioritised energy, taking most notice of the decarbonisation of power, rather than the wider sectors' transition. Different views of Just Transition emerged at Trade Union Congress in 2018 in the form of policy motions promoting a narrow and a contrasting wider view. Structural economic issues and a lack of strategy from government increased the pressure to work with employers to solve transition issues.

Governance of the economy and environment at a regional level underwent major change from 2010 with the abolition of the Regional Development Agencies and Local Strategic

Partnerships, and the austerity programme which reduced local government funding by around half over the ensuing decade. Geographical inequalities affecting the north of England have increased over this period, which means that Yorkshire and the Humber has significantly lower investment, productivity, skill levels, and income levels than average, with hotspots for low pay including Sheffield and its city region. However, climate action innovations focused on Yorkshire and the Humber include Leeds Climate Commission formed in 2017. Such initiatives, combined with the TUC's strong relationships in the region brought opportunities for unions to engage regionally in the low carbon agenda, for example by forming a cross-sectoral Just Transition Taskforce. In Yorkshire and the Humber there is widespread acknowledgement that previous industrial transitions away from coal and steel were ill-managed and led to hardships not just for the immediate workforce but for whole communities. Combined with the compounded economic disadvantages for the region that have worsened over the last decade, there is a high level of awareness in unions, and in politics more generally, that the challenges of the low carbon transition pose wide threats to economic and social wellbeing and demand positive management to ensure a Just Transition. In Chapters 6, 7 and 8, I explore how the unions nationally and regionally were responding to the low carbon agenda in terms of the concerns they expressed, the capacities they were developing and their engagement with place-based climate action.

Chapter 6 How were the energy unions framing the Just Transition in terms of environmental and social concerns?

6.1 Introduction

This chapter addresses, for the national level within my case study, my first research question: How were UK unions framing a Just Transition to low carbon in terms of their environmental, social and justice concerns? By investigating unions' environmental and social concerns around the transition to low carbon, I aim to contribute to understanding the conditions that would allow UK trade unions to become more engaged with the climate change agenda, and to realise a Just Transition. As discussed in Chapters 4 and 5, the nationally dominant union context around low carbon at the time of my research was provided by the unions organising in energy. UNISON, Unite, GMB and Prospect came together to express a collective voice on Just Transition, and had the weight to dominate forums such as TUSDAC. Within a context set by more general concerns expressed by these unions, I investigate the responses of the energy union interviewees around how they, their union and their sector were involved in the low carbon agenda, and what needed to happen to achieve a Just Transition. I mobilise my *matrix of environmental and social concerns* to analyse the depth of unions' environmental concern and the breadth of their social concern around low carbon, and thus the degree to which these concerns represent more transformative and inclusive approaches to Just Transition.

As explored in Chapters 2 and 3, unions' conceptions of Just Transition were originally developed in relation to local environmental demands - such as making a factory's processes less toxic - at a time before climate change had emerged as a wicked phenomenon embedded in the global economy. With this first research question, I interrogate the energy unions' framing of a Just Transition through a climate change lens. In my *matrix of social concern and environmental concern in Just Transition*, I relate environmental limits and climate justice to unions' social and environmental concerns in their call for a Just Transition, to provide a tool for assessing how unions are framing a Just Transition to low carbon, environmentally and socially.

The energy unions' discussion of the low carbon transition did not always make explicit their specific objectives for that transition. Instead, as I asked about how their union prioritised or organised around low carbon issues, their answers were frequently set in the context of other concerns the union had. Therefore, in section 6.2, I analyse these other concerns the unions expressed, for different sectors where they organise, ranging from the energy sector, through other high carbon sectors, to manufacturing and the public sector. Considering the energy unions' concerns across these sectors, I seek patterns in these concerns and what drives them, and reflect on the action unions were taking in the light of these concerns.

In section 6.3 I first recap the structure of my *matrix of social concern and environmental concern in Just Transition.* I then analyse, for each of the different sectors identified in section 6.2, how the energy unions see the low carbon transition, in terms of the depth of environmental sustainability expressed in their environmental concern. For each sector, I assess whether unions are advocating a modernising or an ecological approach, and the finer grading within that, to build a picture of the energy unions' environmental concerns around the transition to low carbon.

In section 6.4 I consider the breadth of unions' social and justice concerns around low carbon. The kind of action that was demanded to make the transition just, and whom that benefits, are explored. I consider whether unions offered a critique of transition pathways in social terms, or whether they were less critical in this respect. I ask how wide the unions' model of justice extended – was it only to the workers affected in a particular industry, or did it take a wider concern? I look at the unions' responses to calls for global climate justice, and whether these were being taken on board.

In section 6.5 I draw conclusions about the energy unions' framing of the transition to low carbon in terms of their environmental and social concerns, what they said about how it can be made just, and what they see as their own role in a Just Transition.

6.2 Drivers of union concerns in different sectors

The transition to low carbon is one among many issues that concern unions, and which they may or not prioritise to address either in bargaining with employers or in policy advocacy. Before investigating the level of environmental and social concern that unions have specifically around low carbon, I review the wider concerns elicited in my interviews, and offer some analysis of patterns emerging by sector and by the drivers of change. My aim here is not to compare union against union, but to assess which sectors were mentioned and which concerns were raised, in aggregate. Analysing these issues by their drivers, in terms of policy, technology and market forces, gives insight into how unions are speaking about and responding to other change issues they face, alongside the low carbon agenda.

I was initially alerted to these patterns by a comment in Philip Pearson's interview: "There's plenty of other priority drivers in unions. And two big ones recently for unions have been austerity … in the public services, and currently Brexit. And the faltering state of manufacturing in Britain. These are all really big issues" (PP.03b). Inspired by this list, I have reviewed the issues raised in interviews with energy union officers nationally, and offered some analysis, set out in Table 5, to contextualise the energy unions' concerns and actions around low carbon.

The sectors listed are based on those mentioned in interviews, and broadly grouped into energy, energy-intensive industries, manufacturing, and the public sector. These are all areas that are important in the transition to low carbon and are referred to in many analyses of the transition to low carbon. An important factor here is unions' bargaining strength - that is, they are stronger in sectors and companies where they have a combination of membership density and agreed bargaining machinery. Each of the broad sectors listed in the table includes some areas of bargaining strength for at least one of the energy unions. Each of the energy union interviewees, while having a responsibility for low carbon, had their own, widely varying, background and job role, and took examples from sectors they were familiar with. Unite interviewees made much mention of manufacturing and energy-intensive industries, UNISON of local government, which are strong areas of membership for each respectively, while the GMB and Prospect interviewees focused more closely on the energy sector. Largely, if a sector was mentioned by an interviewee, a spread of issues within it was mentioned.

Table 5 - Concerns raised in interviews with energy unions

Employment sectors mentioned	Energy unions organising in this sector	Key issues and concerns in this sector raised in interviews with this union	Associated structural changes, driven by Policy / Technology / Market
Energy generation, distribution and retail	Unite	Just Transition, protection of jobs, new jobs in renewable energy, technology	**Policy:** Privatisation and introduction of energy market, regulation to promote low carbon generation
	UNISON	Just Transition, protection of jobs in Big Six, loss of conditions in new entrants to retail energy and renewables, technology	
	GMB	Just Transition, need to retain gas distribution infrastructure to protect jobs and reduce costs of transition, technology	**Market:** increasing international ownership, fragmentation by new entrants
	Prospect	Just Transition, jobs in renewable energy, skills and diversity in energy transition, technology	**Technology:** Renewable energy technologies, smart meter and grid technologies
Energy intensive (heavy) industries	Unite	Just Transition, protection of jobs, cost of energy and pressure to decarbonise, ownership issues in steel, technology	**Policy:** Pressures to decarbonise, lack of industrial strategy and investment

	GMB	Not mentioned significantly	**Market:** Cost of energy, increasing international ownership
Manufact-uring	Unite	Brexit, Industry 4.0, decarbonisation as energy cost saving, *Road to Zero* and diesel phaseout	**Policy:** Brexit, *Road to Zero* and diesel phaseout **Market:** increasing international ownership and offshoring, competitive pressures to decarbonise **Technology:** Industry 4.0
	GMB	Not mentioned significantly – brief mention of helping the supply chain	
Public sector - local government and health	Unite, GMB	Not mentioned significantly	**Policy:** austerity – leading to reductions in funding, leading to squeeze on pay, casualisation and staff shortages.
	UNISON	Austerity as a key concern for public sector workers – difficult lived experience of staff reductions	

In mentioning different issues and concerns, interviewees sometimes compared them in priority to low carbon; or gave the issue as a reason why more was not happening on low carbon; or used them to illustrate how busy the unions were with multiple priorities; or suggested that the issue should be worked on in conjunction with the low carbon agenda. I consider them therefore as context of the kind of pressures, issues and concerns that were salient in each broad sector, and how unions were responding to them.

I have categorised the issues and concerns raised for each sector by three broad drivers: policy, the market and technology. Market changes, such as company ownership moving abroad, or technology changes, such as smart meters being introduced, may be huge drivers of workplace change affecting jobs and skills. Policy-driven change is also important, feeding through from strategic decisions by government, although possibly implemented via market or technology changes. Emerging here then is a picture of issues that are affecting employees in each sector associated with these different drivers of change, and which unions may be addressing in different ways, through political

engagement or through sectoral, employer and workplace level bargaining and consultation, and usually through a combination of these.

Various patterns emerge from this table and the data which it summarises – first, that Just Transition is mentioned in only limited sectors; secondly, that changes are all tending to make unions' work harder; thirdly, the level of frustration expressed around policy-driven compared to other change; and fourthly, the importance to unions of being involved in the implementation of changes.

It is noticeable in Table 5 that Just Transition was only mentioned in the context of the energy sector, except that Unite included energy-intensive industries in this. While my questions referred to 'the low carbon transition' and to what might be needed to achieve a Just Transition, the responses from the energy unions used the term Just Transition in a narrow sectoral context. This is consistent with the GMB motion to TUC 2018 and with the leaflet produced by the energy unions' day conference. While changes in other sectors were recognised as being connected to the low carbon transition, for example changes in automotive manufacturing and aviation, the term Just Transition was strongly focused on the energy sector. This suggests it is defined in a bottom-up way – as being related to changes in energy generation - rather than starting with the wider implications of the low carbon transition and assessing top-down what would be needed for a Just Transition in different sectors.

It appears that the changes in the table all push in the direction of making unions' job harder – whether the structural drivers are market changes, technological disruption or policies. As discussed in Chapter 5, privatisation, deregulation and market fragmentation in energy generation have reduced union density through changes in demographics and employment conditions, and have made the remaining large employers key areas of membership for unions to defend. Austerity has led to job losses and to outsourcing, pressure on employment terms, and workplace stresses in the public sector. The unwillingness of the UK government since 2010 to engage with unions, as discussed in Chapter 5, reduces unions' ability to take part in tripartite dialogue or sectoral collective bargaining and thus influence issues at the level of government policy or sector practice. This tends to relegate unions to representing members only at an employer or workplace level, and in a more fragmented way. Unions thus face more and more effort just to stand still in terms of organising and supporting their memberships and bargaining and influencing effectively on their behalf.

In terms of the level of concern interviewees had for different issues, some were mentioned in a matter of fact, quite stoical, way, as something that the union was addressing with employers, while other concerns were a source of great frustration. The market and technology driven issues were generally talked about in the interviews as a necessary evil, perhaps even an opportunity for positive change in skills, investment,

diversity and safety, for example. Certain issues, however, had a higher emotional weight when mentioned, suggesting a high level of concern, and perhaps frustration at an inability to act effectively. The issues that were discussed emotionally tend to coincide with areas which are policy-driven, relying on decisions by government. Comparatively, change which is driven by government policy is a source of frustration in the interviews. Given unions' exclusion from social dialogue, this correlates with union officers feeling more unable to act effectively to counter or influence change which is policy-driven.

Some of the examples where frustration emerged in interviews around policy-driven issues were as follows - each of these was described in a way that expressed not only disagreement with policy positions but frustration with processes that excluded trade unions. A Unite interviewee expressed concern around a lack of industrial strategy having a negative impact in the steel industry, in the face of changes of ownership of key companies and the involvement of private equity investment. Brexit was seen by a Unite interviewee as a policy driver that led to huge uncertainty for companies in the automotive sector and tied up government resources so that government ministers were less responsive even than usual. Austerity policies that negatively impacted the experience of its public sector members were of great concern to UNISON and had come to dominate its campaigning attention. The GMB interviewee was frustrated by waiting for government strategies to be made that would direct major investments. My Prospect interviewee talked about how a lack of coherent skills policies led to problems in industry.

In contrast to the heated mentions of policy, when interviewees talked about technology-driven and market-driven incremental change, there was a level of acceptance and matter-of-factness. This was clear around issues where unions were bargaining at a company level and setting up processes with employers to track desired outcomes, such as reduced Health and Safety issues, improved equality and diversity of the workforce, and adoption of new technological processes (under a banner of Industry 4.0). Changes that were driven through technology change and market forces could be seen as 'natural' and something that employer and employees had a common interest in adapting to, even if this involved a 'shake-out' of jobs. As was commented by an energy union, the bigger risk is sudden change, without groundwork, which is likely to mean jobs lost.

Considering the above points about the concerns the energy unions were expressing, there is a relationship with how the employing companies are dealing with changes. For change that is adaptive and incremental, unions and employers have a common interest in jointly managing change – an example is to implement new arrangements safely and reduce accidents at work. Here the future is not too dissimilar to the past, so an open conversation is possible, bringing in the knowledge of employees as union members. When disruptive change looms, however, from new technology or regulation or changed competition, an employer is more likely to keep its information more closed, as a

management prerogative, before taking a possibly 'transformational' course of action, such as automation, or moving production to a different country, that is likely to impact heavily on jobs. Here a union may only be able to act once the change is already being implemented. For prospective changes coming from policy, when the government is not willing to consult unions, a union is mainly dependent on the employer for knowledge about the proposed changes, and further it has the challenge of understanding the technical implications of any technological change. The logic of these scenarios does make sense of the level of frustration expressed by the energy unions around policy-driven change.

To summarise the patterns in this data, first, the term Just Transition was used to refer almost exclusively to the energy sector. Among the drivers of union concerns there was a high level of frustration around policy-driven change, which corresponds to the difficulty of working with employers when disruptive change is expected. In contrast, planning with employers to manage incremental change is a bread-and-butter approach for unions. Being excluded from consultation with government is likely to drive unions to adopt knowledge and advocacy stances from employers where they can, but when change is disruptive and uncertain, employers may well not share that knowledge.

6.3 What were unions' environmental concerns in the transition to low carbon?

In this section I recap on my model of environmental and social concern, then mobilise it to analyse unions' environmental concerns for the transition to low carbon. My matrix, as introduced in Chapter 2 and illustrated in Figure 2, shows a field defined by different levels of social and environmental concern, similar to the matrix used by Hopwood, Mellor and O'Brien (2005) to analyse sustainable development. The ground of the figure represents forms of development based in different levels of social and environmental concern.

My matrix enables tracking of unions' environmental concerns independently of their social concerns, rather than conflating these, and it distinguishes a techno-centred or modernising approach from an ecological approach, each further subdivided, to provide four grades of environmental concern. In this matrix I equate the 'depth' of labour environmentalism (Stevis, 2018) with environmental concern for the low carbon transition. I equate the 'breadth' of labour environmentalism with the social concern axis, and whether the transition 'lifts all boats' (Stevis et al 2018). My matrix defines three grades of breadth in terms of the inclusiveness of social concern, ranging through concern for a particular set of workers, to all members, to a global concern.

The levels of increasing environmental concern in my matrix are defined in Table 1. In what follows, using the environmental concern axis of the matrix to grade their concerns, I consider unions' positions for each of the four broad sectors: energy, energy-intensive industries, manufacturing, and the 'climate jobs' sector.

The transition to low carbon as policy-driven

In terms of the drivers identified in section 6.2 – policy, market and technology – the main driver of change around low carbon between 2008-19 was government policy. Market driven changes - such as a public reaction against plastic waste and increased popularity of vegan foods and electric vehicles (EVs) - were also occurring at the time of my research, and these were mentioned in some interviews, but with less prevalence and concern. As discussed in Chapter 5, following the passing of the Climate Change Act 2008, the main thrust of UK policy for climate change mitigation was to decarbonise the electricity supply. This was achieved through implementing regulation and market-based measures that rewarded low carbon generation and penalised fossil fuel generation, so that companies responded with investment in technology change and infrastructure development. Thus, even where technologies and markets made an important contribution, such as in offshore wind power capacity, the impetus was still mainly from policy, and this was reflected in the interviews.

In a context of change driven by policy around power decarbonisation, as set out in Chapter 5, the government had withdrawn from consultation with unions, and this picture was common across my interviews. At the time, systemic national policies to decarbonise heat (in homes and industry), transport, food production and industrial processes were not well-developed, and government strategies were awaited in several of these areas. As discussed in Chapter 3, the overall macro-economic impacts of environmental regulations may be neutral or positive, but for a union representing workers in a particular company, this is still likely to represent a disruptive factor.

The energy unions knew that big decisions were needed in a timely way, to deliver infrastructure to meet the UK's legal climate commitments. There was a common perception of a lack of a UK national plan around low carbon – the unions hoped to influence the Energy White Paper and the Heat Strategy awaited at the time, but there was scepticism expressed about how soon these would appear. In the meantime, the energy unions had engaged with the independent Climate Change Committee (CCC) and most cited CCC reports in interviews. They expected to engage further with the CCC, whilst recognising that this did not represent government policy making. The lack of a clear plan was a common concern to the energy unions, who were waiting, as suggested in section 6.2, for decisions that would move future, uncertain, disruptive change to being part of the plans of employing companies, whether adaptive or transformational, that the unions could influence and bargain around. Meanwhile the energy unions were each lobbying government, as they could, for preferred approaches, which I consider for each broad sector.

As the implications of the low carbon transition varied by sector, I consider the story emerging for each of the four broad sectors of employment that are defined in Table 5.

Whilst for the energy sector itself there were strong low carbon policies driving change, for heavy industrial processes low carbon policy was mainly lacking. Policy headlines had been set for some key areas of manufacturing, such as the phase-out of diesel cars, but the general approach of the government to manufacturing was to let the market decide. There was a lack of effective policy around key areas of energy demand, such as homes and transport, that could have had potential to create jobs in manufacturing and the public sector. In the following subsections I address unions' environmental concerns across different sectors.

Energy sector

In my interviews, the focus of the unions around the transition matched that of the UK government - on the decarbonisation of power, as a major area of union interest and sensitivity. The uncertainty about the heat strategy and the future of gas at the time meant considerable interest in some of the energy unions for "bridging the gap" to renewable energy and protecting jobs through the use of carbon capture and storage (CCS) and hydrogen. These approaches represent technology change, within a modernising paradigm. The move to renewable energy generation was being tentatively grasped by the energy unions, with some caveats. This represented a process change – a different way of generating energy but without much questioning of how much energy is used – another modernising approach.

In my energy union interviews, "low carbon" was mainly being interpreted purely in terms of electricity decarbonisation – the agendas of energy and environment, I was told, had become fully entwined at the point when policies were instituted to reduce coal-fired generation of power. Consequently, compared with 2008, the trade union sustainable development advisory body, TUSDAC, now had more of a focus on low carbon and Just Transition in energy generation rather than wider workplace environmental issues. Energy union interviewees, explaining how energy companies were working on low carbon, focused on technology-led, 'modernising' approaches already in train, as coal-fired power stations closed and changes such as smart networks and electric vehicle charging were incorporated into the grid.

The energy unions spoke about the need for changes in 'energy infrastructure': setting roadmaps out, deciding who pays, and getting long term investment. The scope of this infrastructure was seen as energy generation and distribution – wind and solar farms, grid upgrades, hydrogen production and CCS, rather than any wider infrastructure change for low carbon - no mention was made, by any interviewee, of action to reduce demand for energy.

For GMB, the focus in terms of energy infrastructure was on the future of the gas grid. While for Unite and Prospect, their energy sector members are mainly employed in electricity generation and distribution, GMB sees the gas grid as a key national asset that

its members maintain: "I say this unapologetically – gas pipes leak, our members' job is to fix them" (SFG.16d). What GMB advocated was for the gas grid to be retained and used with "low carbon gases" (partly hydrogen), with workers who maintain the gas grid keeping their existing jobs (SFG.04b). For GMB the low carbon agenda was therefore "very much about low carbon or decarbonisation of gas… the whole agenda around hydrogen, biomethane, biomass, anaerobic digestion" (SFG.01d). GMB was seeking to find common cause with energy users in reducing the costs of the transition, through avoiding the costs and challenges of electrification. The GMB interviewee expressed this as a need to "maintain an industry that's been successful over 50 years in providing good, high-premium, well-skilled jobs for people… And [helping] the whole supply chain and everything that goes into it" (SFG.21d).

Whether infrastructure for decarbonisation should be paid for by energy companies, industries or a wider customer base was seen as a key issue by GMB (SFG.09c, SFG.09d), and retaining the gas grid using "other forms of clean or greener gases" (SFG.04b) was seen as sound economics and the way for the industry to contribute to climate targets. Carbon Capture and Storage (CCS) was suggested for production of hydrogen from natural gas: "The technology that's out there, that could really help, costs a lot of money. But it's doable. We have the means of doing it. It's going to take very major decisions" (SFG.27f). UNISON had similarly made a "conscious decision to promote hydrogen as a low carbon gas, whether through carbon capture and storage or generating using renewable electricity." (SL.04d). Sampson Low, then Head of the Policy Unit at Unison HQ, described his role (SL.04a) as supporting the National Executive, having "the overview across the UK of policy", and engaging with the Labour Party, TUC, and Parliament. He was prepared to see the contradictions in such an approach to hydrogen, where the essence remained that positivity about the potential of technology was not matched by critique of the wider carbon footprint of such a strategy, or whether the timing of its implementation could meet the UK's legally mandated carbon budgets. In this 'modernising' approach, a huge amount of technology is proposed, to avoid having to change the process of providing heat to people's homes and to industry.

While there was a strong assumption in the energy union interviews that increasing renewable electricity generation is a large part of the transition to low carbon, there is not much discussion of the detail of this. There was a level of scepticism expressed about wind power, the form of renewable energy that had seen most development, in terms of the number of ongoing jobs created being few in relation to the capital investment needed. As Sampson Low explains:

> "renewables will have enormous capital investment for tidal turbines and wind farms, infrastructure and supply chains. But once they're up and running, they require very few jobs. That's the dilemma: a large wind farm, which operates 365 days a year, 24 hours a day, only requires about 30 people to run it. A little

bit of maintenance, some billing, some finance, a control centre and that's it" (SL.10f).

Tony Burke from Unite was Assistant General Secretary with a focus on International and offers a similar critique: "some industries have developed new processes, but I don't see thousands of jobs being created" (TB.10c). To unions looking for the creation of high-premium, skilled jobs, the renewables industry did not seem to be delivering, compared to past experience of power generation. In addition, many of the active companies had avoided being obliged to consult unions:

> "five out of the Big Six energy companies have avoided collective bargaining - because they've set up [their renewables divisions] as separate legal entities, they haven't signed a collective agreement" (SL.10d).

Unions face a situation, then, where there are relatively few jobs to organise in renewables, and they have no agreed bargaining machinery, making it hard for them to prioritise effort to organise in this sub-sector. The union fight has to move to the territory of company law and labour law, calling for the protection of decent employment. Even though the unions generally have good relationships and bargaining strength in the ex-nationalised energy companies, these companies have opted to implement change in a way that is disruptive instead of adaptive for the workforce.

To summarise how the unions saw the transition in the energy sector, GMB and UNISON focused on the gas sector, and each union had developed policies on hydrogen to advocate continued use of existing grid assets, offering their members a future in the gas industry. Prospect wanted to see skills policies that supported its members in power generation being able to move between companies. The interviews with Unite took a wider focus than energy itself, reflecting its membership in manufacturing and heavy industry, where hydrogen, CCS and nuclear energy are seen as essential to support the intensive usage of energy. Energy unions wanted to see union representation in renewable energy companies, but legislation was not helping to achieve this.

Across these variations there are two main patterns. First, in terms of the low carbon transition already being implemented in the energy sector, the unions are working with key employers to manage change around technology (and to some extent processes) of how energy is produced and distributed, and the skills and job roles that go with that. There was concern around more thoroughgoing change to renewable energy processes, which was being implemented through market mechanisms and with weak labour laws in a way that brought disruption of the workforce, of their skills and of the union's role. Secondly, in terms of further policy-driven change expected, the energy unions' framing of the transition, in terms of environmental concerns, is that technologies such as CCS and hydrogen production held potential to protect existing jobs while achieving cleaner

production. Ecological approaches to sustainability such as demand reduction and system redesign were not mentioned.

Energy intensive industries

The next broad sector where I consider on unions' environmental concerns covers the energy-intensive industries (EII, or foundation industries, such as steel, cement and glass making) and also the aviation sector. Although aviation is a very different industry to the foundation industries, which also each have their own unique features, in terms of the transition to low carbon they all have important aspects in common. In each industry, large amounts of specific forms of fossil fuel energy are used, which are hard to replace with electricity, and the industries each produce a large amount of carbon emissions per pound of product value. Demand for the products of these industries is driven by growth of the economy, as they form a key part of the supply chain of many other businesses. As discussed in Chapter 5, demand reduction through action further along the supply chain could therefore contribute to reducing the carbon footprint of these industries. However, it is noteworthy that these supply chain approaches were not mentioned in the interviews.

The energy intensive industries have variable levels of union organisation but with pockets of high membership density, in Unite, GMB and another smaller union Community (chiefly in steel). Interviewees from Unite focused quite strongly on these industries and their low carbon transition, whereas the other energy unions did not. As discussed in Chapter 5, the energy intensive industries are difficult areas for decarbonisation, and in the interviews there was a clear hunger for technologies which could be used to solve problems in these industries. The approaches which were mentioned were Carbon Capture and Storage and the use of hydrogen, to replace aircraft fuel, or to replace natural gas (fossil methane) for industrial heat. Hydrogen was held up as an 'alternative fuel', although more accurately it is a form of energy storage and distribution that must itself be created through industrial processes, of which there was little critique in the interviews.

Unite's discussion of these industries provides many examples of how they, faced with a lack of engagement around industrial strategy by the government, chose to build relationships with employers, in some cases promoting the technologies and projects which the companies favoured, and pushing industry to adopt lower carbon approaches and reduce their impact. Tony Burke, Assistant General Secretary of Unite for International, was clear that the transition to low carbon was very significant for heavy industries:

"Heavy energy users in industry have had a rough time. … the cost of energy for the steel industry is astronomical. And all of the work that the industry's done on carbon…, it's astronomical - when other countries just appear to be carrying on" (TB.04c, TB.04d).

His background organising workers in the paper industry had built his awareness around low carbon. There,

> "we have a good relationship with the employers' federations, and the [paper] mills. This was an issue coming up over and over again - our members were saying, 'Look, this is a real issue'" (TB.07a).

The close relationship with employers highlighted here was mentioned in several interviews, and Unite officers explained that their union 'promotes' such technologies and developments favoured by the employers. Tony Burke mentioned the oil and chemicals industries: "In the oil industry – we have a good relationship. Industries that need some help. [They ask] 'What are the unions saying?'" (TB.07d). Further examples which represent union alignment with employers' preferred technological pathways were Unite's support, at the time, for the Cadent project, turning natural gas into hydrogen, and for a third runway at Heathrow airport.

Here, the positive relationships between employers and unions, which have helped to manage adaptive change, are being called upon to form alliances to advocate for policies seen by unions as less disruptive. Such 'promotion' of the favoured technologies and projects of employers represents a clearly 'modernising', and largely technology-led, approach to sustainability. While there are benefits for employees' health from cleaner aircraft fuels made from waste, for example, it is not an at-scale solution to reducing flight emissions in line with UK net zero carbon targets.

The energy unions environmental concern around the energy-intensive industries sector is mainly structured by the lack of government industrial strategy to provide clearer pathways around such issues as industrial heat and the future of the gas network. The unions' wider concerns in this sector included the lack of investment and foreign ownership taking company decisions further away from the workplace, which are very salient for the transition to low carbon. The cost of energy was seen as a key issue for energy intensives as large users, but the interviewees were not explicit about who should pay for low carbon infrastructure. For aviation, issues around government planning that impinge on airport development were raised. Overall, the unions' responses were very protective of these industries, and the companies active in them, in the interests of protecting the good employment they represented.

In terms of the environmental concern axis of my matrix, the responses were focused mostly on technology change such as hydrogen and carbon capture. Widening out from technology change would often take the change beyond the boundary of a single employer, making it much harder for unions to bargain, in a context where they do not have sectoral arrangements and are not being consulted on policy. So, it is perhaps

unsurprising that process change was not discussed much in the interviews, and demand reduction or more systemic change did not feature in the responses.

Manufacturing

Manufacturing industry, and especially the automotive sector manufacturing road vehicles, are a key area of organising for Unite, and this sector was mentioned many times in interviews with Unite officers. Although GMB also organises in manufacturing, this was not raised, as the focus of the GMB officer interviewed centred on workers in the gas and water industries.

Manufacturing relates to a huge range of products with diverse issues around the low carbon transition – those products mentioned in these interviews included wind turbine blades, buses, cars, and beer. In this section I focus mostly on automotive manufacture, as the example about which I heard most in interviews, especially from Unite. In this sector, a complex cocktail of policy, market and technology were driving change, with the low carbon transition only one issue among Brexit, Industry 4.0, the diesel scandal, and the rise of shared mobility. Unite was tackling these issues both in workplace consultation and bargaining across different employers, and in policy advocacy with government and sectoral organisations.

A common criticism across interviews was that industrial strategy was being neglected by government, leading to unplanned, market-driven change disrupting jobs and skills. The perception was that government did not care about or prioritise manufacturing in its thinking: "The challenge is that government is not committed to manufacturing in any guise – big emitters or not - not committed to keeping manufacturing in [this country]" (SC.10b).

For Tony Burke, the risk was sudden disruption to jobs when policies were implemented rapidly, and this meant a Just Transition agreement was needed:

> "we just can't say, 'By 2030, this is all going to be phased out.' We need to have something in its place. A lot of people work in these industries. We just can't finish them… Not just in autos, but in aerospace, in the whole of the transport industry, and that includes [manufacture of] passenger vehicles [buses and trains]" (TB.03f).

Alongside low carbon policy implementation in automotive manufacturing, digitalisation and automation were already well underway and Unite had developed its policies to respond. Tony Burke agreed Unite had taken work on digitalisation further than that on low carbon:

"We've been very much involved in the whole question of Industry 4.0… We recognised what's going to happen. It's like electricity: you're not going to un-invent it. It will happen … There's a big problem for jobs in the long run as people get shaken out of steady, well-paid jobs…" (TB.04a, TB.04b).

Brexit was a source of uncertainty at the time of the interviews, swamping the civil service – "as we predicted after the Brexit vote, Brexit would subsume every waking moment, and it has done" (TB.09a). It was also affecting the automotive industry in terms of its imports, exports and supply chain, and how transnational companies might relocate production to adapt (TB.09d).

A scandal around poor air quality and car manufacturers using deceitful vehicle emissions tests had led to precipitate action by the UK government to enact a rapid phase-out of diesel cars (previously promoted as having lower carbon emissions). Tony Burke said this was "damaging to the production and purchase of diesel cars", commenting on how it affected market demand: "Would you buy a diesel vehicle now? No, nobody will. It's died" (TB.03b).

This mix of issues was illustrated as follows:

"Ford [have]… just kept changing their minds about how many units they're going to produce. Brexit's affected them; diesel has affected them… they make petrol engines at Bridgend, it's going down. And they're working for the future" (TB.09d).

Although these other changes – Brexit, digitalisation, the diesel phase-out - seemed more immediate in Unite's concerns, the union had managed to submit its assessment of the low carbon transition in automotive to government, which had, however, been roundly ignored. Tony Burke commented:

"On *Road to Zero*, their policy on cutting carbon emissions, we argued the case for massive infrastructure investment in the automotive industry - batteries, recharging points, recycling of batteries, sourcing of the materials … we wrote all this stuff down, they never came back" (TB.15b).

Unite's thinking, then, around internal combustion engine (ICE) vehicles being replaced by electric vehicles (EVs), recognised that manufacturing EVs was not enough, and the public infrastructure needed to be adapted – most obviously to charge vehicles. Also, a huge skills transition was needed, not only in manufacturing, but also to maintain EVs and to install charging points (TB.07). Trends that altered demand, such as increasing use of platform taxis, or consumers rejecting plastic packaging, were mentioned by the unions as market forces affecting manufacturing companies, rather than as something that should be encouraged by policy.

In consultations and bargaining with specific employers, Unite interviewees reported difficulty in getting climate issues onto the agenda, to climate-proof workplaces. In answer to what these difficulties were, Tony Burke said:

> "Because employers are so busy doing other things, worrying about whether they're going to have a business. And we're worried about whether we're going to have these businesses in operation, and our members lose their jobs" (TB.18c).

Another less senior Unite interviewee from Yorkshire and the Humber, Simon Coop, had a slightly more positive perspective - that low carbon and specifically energy usage was an all-pervasive issue, that should be on the table:

> "When you're in meetings with businesses – there are agenda points, 13-14 points, and no doubt that low carbon would come into it. If you're having good meetings, energy usage will come into it" (SC.16a).

There is a hint here, that, given the number of other priorities to discuss, these issues may not make it to the discussion. As discussed in the energy sector section above, the low carbon agenda is mainly equated with energy usage – the immediate emissions of a company, rather than its wider carbon footprint or 'Scope 3 emissions'. The same interviewee commented that environmental reps in some of the bigger employers, such as Heineken UK, were "making sure that the carbon footprint is the lowest possible… though sometimes focused more on efficiencies for the business…" (SC.06a). This interviewee thus recognise that financial outcomes may be the main motivator of change in a business. As union reps tread a line between helping companies to achieve efficiencies that will protect employment and ensuring workers get a fair deal from it, the complexities of wider carbon reduction would add a further complicating parameter.

In their responses around both policy advocacy and employer negotiations, Unite interviewees were thus expressing the need for a modernising, process change approach in the transition in manufacturing, as well as technology change, but not stepping beyond that to adopt a strategy of demand reduction.

Public sector

Housing and transport form large sources of carbon emissions in the UK, and carbon reduction in these sectors is an important area of change affecting the public sector. Electrification and use of renewable power are part of the solution, but reducing and changing the pattern of demand would make this more cost-effective and sustainable (CCC 2016; CAT 2007). In transport this means achieving "modal shift" away from private car use and air travel towards active travel, public transport and shared mobility. For housing, a key issue is that UK homes leak heat badly and need a co-ordinated programme of retrofit to insulate and draught-proof them, thus reducing their demand for energy for heating. These approaches would create jobs in the construction sector, and

have been shown to create jobs, save carbon emissions and stimulate local economic activity. Such programmes also offer public health benefits, as air quality problems and fuel poverty problems are reduced. My interviews pre-dated the trend of local authorities declaring a climate emergency (Gudde et al, 2021), but at that point it was already clear that local authorities have a key role in achieving these transitions in homes and transport, as well as an interest in the wider social and economic outcomes they would produce (CCC 2012).

Three of the energy unions organise in local government, and two in the construction sector. For UNISON, local government is a key area alongside health. Unite organises transport workers, especially bus drivers. Deregulation and privatisation of buses since the 1980s has threatened transport workers' conditions and made them harder for unions to defend. Where unions have campaigned on public transport, it has mainly been to promote rail, as a national and more infrastructure-heavy sector (e.g., Action for Rail campaign, see TUC, 2014). In my interviews, when asked about the low carbon transition, these approaches around demand reduction and process change for homes and transport received little comment.

Looking at energy use in homes, while GMB claimed a strong interest in tackling fuel poverty, their perspective was based more in the pricing of energy than in insulating homes. Stuart Fegan, National Officer in the Commercial Services section of GMB, saw retaining the gas grid as enabling cheaper home heating and commented:

> "fuel poverty is central to this discussion … it's an issue that would touch every single parliamentarian, all the regulators. Ofgem have within their terms of reference obligations to look at fuel poverty and try to eradicate it" (SFG.16a)

Sampson Low from UNISON also recognised that with the use of hydrogen in a mix in some parts of the country, "you don't have to move to electrification of home heat" (SL.07b) so that insulation and home heat pumps were no longer the only option (SL.07b). He discussed, in the context of the retail energy sector, how home heating electrification could offer a future for UNISON members' jobs:

> "If you're going to persuade customers, 26 million or so, that they've got to refit, take out gas boilers they like and put in more expensive electrical boilers potentially … then you're going to need a front-end and ideally a publicly-owned front end to interface with the customer as well" (SL.08e).

The potential role of local authorities in the transition was also raised briefly by Sampson Low, as an exception to the lack of jobs created by green measures:

> "that's where our membership is at - local authority and health - I think that would be more jobs intensive, somebody trusted going around door to door talking about insulation [and] energy efficiency" (SL.10h).

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Overall, on energy use in homes there was a lack of a joined-up vision in these interviews, to create jobs and address social issues. The transition envisaged was focused more on technology change - a change of the gas used - or a modernising change of process to use renewable electricity, rather than demand reduction through insulation of homes. The energy unions' concerns did not extend to the kind of system change around home energy that would meet carbon targets.

In terms of the transition in transport, electric vehicle charging and related changes to the electricity grid were mentioned by Unite and Prospect, but other transport infrastructures were not identified as needing investment. Despite buses being an important area of organising for Unite, the importance of public transport for the low carbon transition was not really acknowledged. Transport was raised as an issue in the context of difficulties for health staff due to stagnant real pay, anti-social hours and longer commutes due to the cost of housing. The UNISON interviewee mentioned that measures such as the Workplace Parking Levy became sites of conflict for hospital workers:

> "Some union activists, the greener ones, are saying we can bargain around that, yes it's the right thing to do. Others are opposed. You can pack out a union meeting at a hospital if parking charges are on the agenda for staff" (SL.13d).

In this case, measures that could contribute to modal shift and hence carbon reduction in transport were becoming problematic for UNISON to support.

New possibilities in transport offered by digital platforms were recognised by Tony Burke from Unite, who cited personal experience rather than research to illustrate his reflections, in the context of speaking about the future of automotive manufacturing. "People are using alternatives, either public service or Ubers/platform [taxis], where you can split the bill between the four of you, and you don't have to have any [cash], either" (TB.14e). He thus noted market and technology changes that are being adopted by young people especially, but without commenting on how policy should respond.

As with addressing housing energy demand, the economic outcomes of climate action around transport were unclear to the energy unions – in the absence of hard information and commitments from government, they were loath to believe confident analyses from others about how many jobs will be created:

> "when politicians talk about the green jobs revolution - these hundreds of thousands of jobs - unions and frontline activists might be sceptical - it jars with their reality, that maybe fossil fuel industries were more labour-intensive" (SL.10j).

In the interviews, green jobs are identified with renewable energy generation, and climate action to reduce energy demand from homes and transport are mainly off the unions'

radar. This may be because the jobs would be created in non-unionised employers (as in construction), or in sectors where unions already have their plates full dealing with austerity (as in local authorities) and fragmentation (as in buses). So although there is some vision of process change (use of renewables), the transition in homes and transport does not verge far into ecological approaches of demand reduction, but stays mostly at the technology change end of the environmental concern spectrum.

Conclusion – unions' environmental concerns for the transition to low carbon

The energy unions' position on the environmental concern axis with respect to the transition to low carbon was characterised by a modernising approach, of technology change and process change, not an ecological approach addressing demand reduction or ecological system redesign. For changes that are already being implemented and adapted to in the workplace, the energy unions in many cases work closely with employers to manage the impacts and improve outcomes for workers and the environment, making use of knowledge from members. For policy directions that are still uncertain and likely to be disruptive, and given the lack of consultation of unions by government, unions lobby as best they can and often follow the employers' narrative about preferred technology pathways.

For the sectors which they consider to be more core to the low carbon agenda, energy and energy-intensive industries, the energy unions have considerable faith in technological solutions that promise to enable the low carbon transition while minimising changes to their members' jobs. Hydrogen and Carbon Capture and Storage technologies, which appear suitable to be 'plugged in' to existing systems, gain more approval than forms of renewable energy, such as wind power, that change the processes as well as the technologies.

In the manufacturing sector, Unite had a clearer grasp of market and technology driven change affecting automotive, than the policies that would drive the low carbon transition, where the government had ignored the union's submissions. Approaches to energy demand reduction in homes and transport form an important part of the low carbon transition in the public sector, specifically local government. Despite strong membership here, the energy unions showed little perspective on such approaches, or their potential social benefits, making more mention of technology change such as using hydrogen in the gas grid.

The energy unions were thus focused on the technical 'how' in particular sectors, rather than the vision for a bigger transformation. The interviews were not critical of the technology pathways proffered by businesses or government, or of existing production, in terms of their carbon footprint or the impacts of climate change. They did not advocate for the system redesign needed to stay within global carbon budgets, but for incremental and technological change that produced least disruption to their members' jobs.

6.4 What were unions' social and justice concerns in the transition to low carbon?

In this section I consider unions' social concerns around the transition to low carbon, and the breadth of their concerns around justice – between ameliorating the hardships for the workers affected, or broader concern for those suffering climate impacts. I explore the action that unions demand to make the transition just, the dynamics of union action around their concerns, and whether they have a critique of the social impacts and wider fairness of transition pathways. I look at the unions' responses to calls for global climate justice, and whether these were being taken on board.

In what follows, I consider unions' positions using the social concern axis of the matrix to grade their concerns, with the increasing levels of concern defined as in Table 2. Unlike the environmental concerns discussed in the previous section, which were related to specific sectors, the social concerns expressed were not much related to sectors. Unions' concern for specific sets of workers directly impacted by the transition to low carbon is, as we have seen, not in any doubt, and this is the first category of concern. The next category of concern is for 'all members' – with union members forming a demographically wide section of UK society, this also implies the interests of all citizens of the UK. Finally, the category of concern for citizens globally corresponds to wider global climate justice narratives that have been expressed by the youth climate strikers and championed by the ITUC at the COP climate talks.

Tensions between the levels of social concern

In "signing up" to the Paris Agreement, the energy unions were expressing concern for citizens globally, and they certainly also had concern for workers specifically impacted by change and for 'all members'. What is interrogated here therefore is the tensions that existed between these different categories of concern in what the energy unions said in my interviews.

Sue Ferns emphasised her long involvement with the environmental agenda, beginning when she worked at TUC and had responsibility for the Trade Union Sustainable Development Advisory Committee (TUSDAC), created around that time. At Prospect, her job role brought together the industrial and policy aspects of responsibility for science and environmental issues and work with TUC and TUSDAC (SFP.01c, SFP.01e). She had "developed Prospect's environmental policy and action plan, done environmental training for people, written the policy, worked on energy policy" (SFP.01d). thus articulating the union's concerns at different levels.

Sue Ferns described Prospect's work on low carbon as having four aspects: first, helping to implement policy through their members' expertise; second, organising in new areas such as renewables; third, lobbying on future policy; and lastly, making Just Transition "into a practical industrial strategy that has meaning for people and really protects them"

(SFP.03f). This latter, specific sense of Just Transition is clearly for 'these workers' who are directly undergoing change, but the examples of lobbying provided also address issues of wider fairness for all UK workers, around the "importance of workforce diversity, skills, health and safety as part of a whole resilience and quality piece for the future energy system" and "talking about the impact of price regulation, the regressive impact on consumers if it's all done through the energy bill" (SFP.03e). With concerns for fairness clearly existing at the level of 'these workers' and 'all UK citizens' the question is whether conflicts arise, and how these would be resolved.

A further statement linking these different levels was from Sampson Low, talking about the Just Transition seminar held by the energy unions in 2018, where: "it was about Just Transition, it wasn't about climate change denial or similar… energy workers accepted the need for change, accepted the Paris climate change targets, it was the 'how' really, that they wanted to feel involved with" (SL.10b). The need for change in terms of the global Paris Agreement, limiting carbon emissions, was the starting point, but the energy workers at the seminar wanted to feel involved in how this would be done – naturally they wanted to protect their own interests in the process. In what follows, setting out concerns expressed at the different levels, I bring out potential contradictions or conflicts with other levels of concern.

Concern for the workers affected

First, I look at how unions' concerns were being expressed for specific sets of workers directly impacted by the transition to low carbon. Where unions see climate policies feeding through into companies and workplaces that they organise, they have a strong social concern to ameliorate hardships for the workers affected. With climate policy in the UK in 2008-2019 driving change largely through market mechanisms ensuring the decarbonisation of electricity, there was a direct effect on employees in the power sector, and an indirect effect on those in energy-intensive industries, that came through strongly in my interviews, in terms of the members' sense of uncertainty about the future, and whether they had the right skills.

Sampson Low was aware of transition issues that had arisen for another energy union, GMB, as coal power stations closed. The transition had been made less painful by the fact that workers were employed by the Big Six energy companies, so "they've been able to have some options for either redundancy or transferring to other sites - but if you start to break up the energy market and you don't have big providers, then you can't actually do those sort of things" (SL.08c). The more fragmented the energy sector, the less straightforward it is to provide security and continuity for workers in the transition – the energy unions coming together were aiming to maximise co-operation across the energy sector.

Although it was clear that workers in manufacturing, especially automotive, would be disrupted by climate policies, this was part of a cocktail of disruption in which Brexit was the chief headache for unions at the time, and the details of the low carbon transition were far less clear. UK policies on heat, transport, food and homes were still in formation at the time of my fieldwork, and unions had less developed thinking about how workers in these wider sectors would be affected in the transition. In the interviews, then, if a specific set of "these workers" were mentioned as needing a Just Transition, it usually referred to those in the energy sector and in heavy industry or energy-intensive industries.

In terms of the kinds of action that are called for to ameliorate the hardships for "these workers", the overriding concern is that jobs will be lost, and that this is likely to lead to a loss of income for workers, and a downgrading in the quality of their employment. To protect from this, planning and co-ordinated action are needed, as repeatedly raised in my energy union interviews. One comment from an energy union encapsulates this perfectly: "Changes done quickly without groundwork mean jobs lost. We don't have buy-in of Government and employers to get Just Transition in place, so a company forced to change way they operate is forced to dump staff" (X.4). The implication of this is that Just Transition as a process would enable the groundwork to be done – plans to be made and measures to be funded that cushion the impact of change, ensuring that income is sustained and skills are developed to enable the affected workforce to transition to new opportunities, and that they are involved in the process rather than 'dumped'. Tony Burke expressed similarly that unions are seeking a structure agreed between government, employers and unions to provide protection in such scenarios: "We need a Just Transition structure that people understand, that industry understands, that working people understand, and are bought into. It's no good just turning round and saying, 'Well, we're going to lose our jobs anyway'" (TB.10a). Tony Burke hoped that such social concerns would become an overriding reason for action: "it will dawn on people that there's good jobs going here, and you just can't throw people out. It's working out how you make that transition over, what you do to protect employment, and then going forward. The other important thing is going to be skills" (TB.10b).

In some statements in the interviews there is a further line of action proposed to protect the interests of workers in high-carbon industries, which was for unions to support employers' interests around a shared agenda that is seen to lead to a strong business and therefore more secure employment. There is a strong example in GMB's commitment to protect the gas grid. National officer Stuart Fegan says "We took a decision 150 years ago to build this fantastic network we've got, and my view is that it's fit for purpose, it can still continue to serve the UK very well. But we have to move away from methane into other forms of gas." (SFG.16j; SFG.16k). The logic of Stuart Fegan's argument is that the interests of the workers who maintain the gas grid coincide with the national interest.

A further example of a union helping to shift government towards the employers' position is a statement by Tony Burke, around a case where the European Union were going to reduce emissions very strongly (TB.08a). By raising major concerns around jobs, the union was able to add their social concerns to the employers' concerns around rapid change, creating a mix which appeared to this officer to have succeeded in slowing down the rate of this specific transition and thus protecting jobs, while convincing the employers to "move on, and recognise this reality" (TB.08b). Associated with this is social critique of the low carbon pathways, in terms of 'these workers' or perhaps UK workers more generally: "We'll just import more and more electric cars from overseas, instead of making them here - that's the big worry. We want to make them here" (TB.08e).

In these examples, unions were not being critical of the social impact of either 'business as usual' or proposed low carbon pathways. In adopting employers' favoured strategies to managing technological, policy and market driven change, in order to protect jobs, the unions were not critiquing the pathways proposed by employers to achieve low carbon. Social protection for the union's members in specific industries was being prioritised over wider concern for those impacted by climate change. Decisions by politicians who ignore these social concerns are strongly condemned: "The big problem is, we just can't see thousands and thousands of skilled workers thrown out of work because some politician makes a decision" (TB.08c). Throughout my research, I heard a social mantra of jobs and skills relentlessly from unions – a song that they were not hearing the UK government singing.

Concern for all members, or citizens

Next, I consider the unions' concern for 'all union members', 'all workers', or 'all UK citizens'. It was not uncommon to hear in my interviews that climate change was a 'citizenship' or an 'all member' issue – meaning an issue that may affect any of the working people that unions represent in their wider aims. For example, Simon Coop from Unite saw that "it needs to be a Unite all-member perspective. …it needs to be pushed by everybody, because there's an ultimate aim in this, and this is a low carbon climate" (SC.10b). These positions seemed underdeveloped, though, in terms of the hardships 'all members' would experience, or what should be done to protect them. At the time of my research, flooding events were beginning to be associated with climate change, but links were not yet being widely made to experiences of increased extreme weather impacts such as storms, forest/moorland fires and extreme temperatures, and systemic impact of climate change on the UK economy was not envisaged.

A concern expressed by unions for 'all citizens' was the nature of the jobs on offer in a low carbon country – would these be high premium, secure, skilled jobs, or instead low-paid, insecure and unsatisfying? The current trajectory of the UK economy, with examples of struggling former steel towns and warehouses next to the motorway, suggested the latter,

and was a big concern for unions. Simon Coop spoke about the histories of high carbon industries closing, not transitioning into other skilled manufacturing jobs: "those skills have gone, we've never adapted them into any other technologies" (SC.05c). In the renewables sector, there was no skills framework "that allows people to gain accredited skills, enabling mobility, flexibility and choice about which employer you're going to work for" (SFP.04f), thus shifting market power away from workers towards employers. Tony Burke talked about the low quality of jobs emerging, for example in "giant warehouses by the motorway, that don't employ many people. Not brilliantly-paid employment, lots are precarious work, on short-term or zero-hours contracts" (TB.12a). In a former steel town many ex-steelworkers are self-employed cab drivers (SFG.23b), but Stuart Fegan asked, "is that really producing good, high-premium employment, and how's it actually benefiting our economy, communities?" (SFG.23b) However, in contrast to the specific policies advocated for high-carbon sectors, there was not a clear policy ask here. I specifically asked my interviewees to make links between the low carbon agenda and other issues their union was concerned about, but often these comments on job quality arose only after probing – high quality jobs are core to unions' agenda, but the link was not automatically made to what the desired transition to low carbon looks like.

Another concern expressed at the level of 'all UK citizens' was that Parliament needed to make decisions around low carbon for the good of the country. The issue for UK citizens was in some cases characterised as who would pay for the new infrastructure needed to achieve carbon targets. Stuart Fegan thought it critical that there should be a "proper debate in Parliament about how is this going to be done, who's going to pay for it" (SFG.09c). While the majority of people would agree the UK

should meet its climate change commitments, if asked who should pay for it, he thought there would be "a whole different range of answers" (SFG.09c). GMB had its own clear idea of what strategy should be adopted nationally, but recognised that the strategy and how it was paid for was a question that needed to be agreed democratically.

To some degree Just Transition and climate change were being talked about as distinct categories - Just Transition was seen as ameliorating hardships only for 'these workers' in energy-intensive industries, whereas climate change was a 'citizenship' issue. When I asked Tony Burke about Unite taking a citizenship approach to climate change, he said that in its conversation with the Labour Party, "a holistic approach… includ[ing] everybody that has got an interest" (TB.21a) was important, but just as important was getting shop stewards and reps from the energy sector involved in the energy unions' Just Transition seminar. Despite being part of the unions' conversation with the Labour Party at the time, the wider, and more socially significant, question of how to restructure the UK economy to meet agreed carbon budgets and timescales was not much broached. Such a restructuring would necessarily involve demand reduction and system redesign, with

huge impacts on a great proportion of jobs, but this was far from clear in government statements at the time. There was a lack of knowledge in the unions (SL.11a; TB.11e) of reports that assessed such change, such as that published by the *Investing in a Just Transition* programme (IJT) (Robins et al 2019). Whereas risks to the UK population from such a restructuring were mentioned - as potentially higher taxes to pay for infrastructure, energy protests, state diktat, and worsening quality of jobs (SL.12b, SFG.05b, SFG.10a, TB.04e) – potential co-benefits of climate action were not much envisaged. Benefits of demand reduction and redesign, such as cleaner air, less energy poverty, shorter working hours and more contact with nature were little mentioned.

Issues around democracy in industry and in public life were also raised in connection with climate change. A comparison was made between the UK and Germany, by Tony Burke, in terms of how unions could influence major social issues such as the transition to low carbon. In Germany, he said, they are able to "get on with it" because they have 3 things: first, social dialogue – "governments … accept that as part of the structure, to do anything, they have to talk to the unions, and the employers' federations" (TB.18d). Secondly, there are "strong employers' federations, and strong unions with a say in companies and industries" (TB.18d). Thirdly, "because you've got sectoral bargaining, that means that the employers, with confidence, can meet on a tripartite basis with the government or the federal government" (TB.18e). In contrast, all of my interviews identified issues with the UK government's approach to working with employers and unions on low carbon, and a critique of the wider political system was broached by Sue Ferns of Prospect:

> "It just feels like politics is broken in terms of what we need from it for this agenda. It's all very well politicians saying it is an emergency, but there's more responsibility on them that that. …What are they going to do? …everybody is waiting for those signals, for that direction, for that support … What we're being asked to do is really step up the pace, …and it just doesn't feel like there's political support to do that" (SFP.10b).

Concern for global citizens

Concern for global citizens was acknowledged in the interviews, in terms of the agenda of the youth climate strikes and campaigns such as Extinction Rebellion, each seen as having changed the conversation about climate change. Since the emissions of a single UK power station could increase deleterious climate impacts in vulnerable places globally, and given their belonging to an international movement of workers, there is a clear logic for trade unions to adopt global concerns. Yet the logic of global concern was largely resisted in the interviews, with the justification given that unions were unable to influence the international climate talks, and needed to focus on the workers they represented, rather than wider concerns. The rapid transition timescales used in the 'climate emergency' narrative were often seen by the energy unions as too impractical to implement.

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All energy union interviewees stated clear acceptance by their union of the terms of the Paris Agreement, but reconciling those terms with the interests of their members in energy could sometimes be difficult. Most thought that energy workers knew change was coming, but needed to know what it meant for them. Sue Ferns of Prospect saw that the Climate Change Committee (CCC) "sets out a vision which is compelling" (SFP.09a), but saw the need for more detail, and felt sceptical about how quickly major carbon reductions can be made, in terms of changes to technologies and infrastructures: "we still have questions about what the road map to 2050 looks like" (SFP.09a). The overall message is 'yes' to low carbon, but at a pace of change that reduces disruption to workers. In this way, unions could be seen to be rejecting the imperative of rapid climate action to keep emissions within global carbon budgets. When they talk about these policies, the interviewees critique them in terms of their local jobs and skills impacts rather than their global, environmental impacts.

At the time of my interviews there had been a 6-12 month surge in activity by Extinction Rebellion and the youth climate strikes in the UK. This was mentioned consistently in interviews as changing the conversation around climate change. The presence of young people on the streets, describing themselves as "on strike" was clearly especially compelling. The reach of the youth strikes in the unions was compounded, as the children of active trade unionists became climate activists, bringing a new conversation to the breakfast table. As attracting younger workers into membership was a priority goal for unions, the visibility of articulate and well-organised young people hit home. The generational injustice of climate change was suddenly clear: "if the young want to protest and tell us what we should be doing, then of course they should be telling us it, and we should be listening to them and we should be helping them protect their children and grandchildren" (SC.17b). On the other hand, for some, there was a limit to the usefulness of having climate impacts spelled out: "[I] essentially support their central message - it's about, if we don't do these [things], these are some of the consequences. Which I accept. But what are going to do, then? … How are we going to deal with the essential challenges that we've got?" (SFG.14b). Chapter 7 will further explore the cultural significance for the trade unions of the youth climate strikers, but I note here that concerns around the practical challenge of rapid climate action could still outweigh it.

Social concern for the transition to low carbon

In my interviews, there was little evidence of unions pushing for government or employers to implement the climate transition faster or more effectively, to protect people globally or nationally. Instead, the climate transition was taken more or less as a given, and unions' role was seen as to make it more just to their members, especially those in high-carbon industries, and to working people more generally. The social concern of unions, then, focuses mainly around 'these workers' – workers in specific sectors clearly affected by the transition already in progress, where unions have some scope to bargain with

employers, or ask government, to soften the hardships for workers. This matches the modernising, technological focus of their environmental concerns in the interviews – where technological change is often characterised as a way to protect ongoing employment and good jobs in a sector, as much as to reduce climate change. To say that the focus is around "these workers", however, is to underrepresent the passion with which I always heard unions speak of their social concerns for workers – for decent work, for health and safety, for upgraded skills and portable qualifications, for security, rights and fair pay, not precarity and low pay – these formed a constant background.

Once climate change is acknowledged as an 'all member' issue, much may follow from that. If climate change will impact all union members, it affects all citizens, globally not just in the UK. The energy unions were having difficulty taking this implicit step, in which the science of the carbon budgets implicit in the Paris Agreement then mandates rapid system redesign as the only approach that can reduce the risks of climate change to all. Instead, although accepting the Paris Agreement, they were to some degree rejecting climate emergency-level action, as they could not see how this could practically be achieved with enough groundwork to protect jobs.

There was unanimity in the interviews that unions needed to be heard by government, but that this was not happening, and neither was government accepting any need to redesign the economy to meet social needs, so unions were retaining a logic of atomised rather than globalised problems. Swamped by enough difficulty organising in fragmented sectors through a time of public austerity and Brexit, unions were focusing on the territory of representing their members with employers. Around low carbon, they were adopting the modernising environmental perspective they found most helpful to alleviate the hardship to 'these workers' in high-carbon industries.

6.5 Conclusion

In this chapter I have addressed my first research question, around how the UK energy unions were framing a Just Transition, in terms of their environmental and social concerns. The first thing to note around the concerns expressed by the energy unions is the variation across the sectors where they organise, although in general they found change driven by technology and the market more tractable than that driven by government policy. With technological and market change, they could bargain with employers and achieve some managed change in the face of a 'shake-out' of jobs or a transition of skills. This was partly because of the refusal of the UK government in 2010-19 to include trade unions as partners in strategy and policy development, which led unions to mainly focus on processes with employers, while still advocating for policy with TUC, Labour Party and government. The implication was that only when government policies feed through into workplace impacts did unions get to grips with the issues, and their

concerns then focused where they had bargaining strength, that is in sectors and companies where they had membership density and bargaining machinery.

The energy unions' environmental concerns around the transition to low carbon expressed themselves as modernising approaches to sustainability, where new technologies offered cleaner production – the use of hydrogen was a key example. To some extent process change, such as a shift to renewable generation, has been grasped, but the energy unions were disappointed about the low number of jobs being created there. More systemic change to reduce demand, for example by retrofitting homes for energy efficiency, would create jobs in far larger numbers. This did not appear much on the energy unions' radar, although their members' potential role in a major retrofit programme had put this onto UNISON's agenda to some degree. A fully ecological approach, to reduce carbon footprints through addressing demand and redesigning systems, did not emerge.

In the absence of a government that was prepared to make firm plans and involve them in the detail, the energy unions were following the lead of employers, who were acting through technology within the existing market and regulatory landscape to maximise their own benefit. Assuming a broadly positive relationship with a major employer, the energy unions did not critique developments that appeared to bring investment and expansion of employment. One outcome of this was that trade unions tended to support employers' preferred low carbon strategies. In working with employers to manage change, whether driven by policy, the market or technology, unions adopted the preferences of employers around technology pathways. Unions were often reliant on their own members in technical employment to supply knowledge of the pathways and their implications. This knowledge had a natural bias, then, towards the pathways that benefited the interests of the company, its stability and market share, and an uncritical approach towards these pathways or "business as usual" in terms of their climate implications.

Unions' concern that workplace change is effected with the groundwork in place that protects jobs and conditions, and their reliance on employer perspectives about what is practical or viable, made them sceptical of the rapid timescales for climate action that were being promoted by Extinction Rebellion. The top-down targets derived from the Paris Agreement implied global carbon budgets that in turn demanded rapid climate action to limit total emissions over time. But from unions' mainly bottom-up perspective, their concern was that changes should be practicable in terms of development and investment timescales, and implemented in consultation with unions, which argues for action at a steady pace. This conflict, arising from the nature of climate change, is a major source of tension between environmental and social concerns for unions.

The energy unions were allowing the interests of their energy sector membership to dominate their concerns around low carbon. Even though largely excluded from full consultation with government, their concerns were dominated by the rapid policy-driven changes in the energy sector ensuing since the Climate Change Act 2008, where they saw that a managed transition was clearly needed to protect employment conditions and enable skills development. The energy unions understood the low carbon transition as a technological change, with some process change, focusing on power generation and other energy sectors, and to some degree, heavy industries that were major energy users and greenhouse gas emitters. Their justice concerns were mainly limited to ameliorating the hardships that were being, or were expected to be, experienced in these sectors. In their wider sectors where union membership was strong, such as manufacturing and the public sector, competing concerns were being prioritised over the low carbon agenda. Concerns were reported around automation and digitalisation, lack of investment, increasingly distant company ownership, the government's austerity programme since 2010, and Brexit – but little linkage was made between these concerns and concerns around low carbon.

The narratives of the youth strikers that highlighted the interests of young people, the responsibilities of governments and companies, and the 'strike' as a key tactic, had begun to have an impact on unions' framing of the climate issue. This was seen in the shift in narrative between climate motions brought by affiliated unions to TUC 2018 and 2019. That the social justice implications of climate change were beginning to challenge the modernising approach to environmental concern could be seen in the interviews in the energy unions' concern with "how" the necessary rapid decarbonisation could occur. Their broadened social justice concern had not, however, led the energy unions to demand a climate-safe economy. The developing position of the energy unions on my matrix is illustrated in Figure 6.

Despite being 'signed up' to the Paris Agreement, there was little evidence of the energy unions engaging with climate change as a global, social phenomenon that would seriously affect the most vulnerable globally and have implications for the whole UK economy. They were not keen to participate in the COP process, which was not seen as offering any influence to UK unions, given the unfriendly government. The message of the youth climate strikers and Extinction Rebellion was being listened to, but in the energy unions' view the scale and timescales for change seemed impracticable, so detailed conversations were not being prioritised. The outcome of the dynamics described here was that the energy unions' definition of Just Transition was under strain, especially in terms of their social concerns, where the youth strikers brought a compelling claim for a more inclusive justice. However, the incumbent power of the modernising approach to sustainability was such that, although the energy unions were starting to ask "how" such a rapid transition could be achieved, they were not envisaging change that took the economy over the

dividing line into demand reduction and systemic change. In Chapter 7 I explore whether and how the energy unions were developing their capacities around the low carbon agenda, and how this related to the environmental and social concerns I have analysed in this chapter.

Figure 6 - Position of energy unions on my matrix
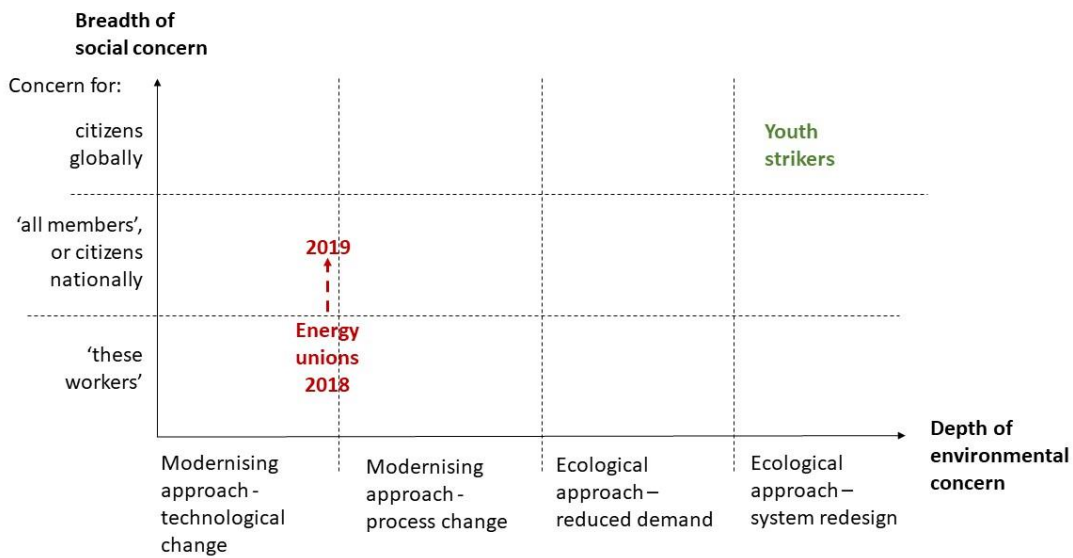
Matrix of social and environmental concern – position of energy unions

Chapter 7 How were the energy unions developing their capacities for engaging around low carbon?

7.1 Introduction

In this chapter I address my second research question, for the national level of my case study, to ask how the energy unions were developing their capacities to engage with the low carbon agenda, and what potential that represented for changes in their role. Using my *framework for change in trade unions towards justice*, here I analyse how the unions were developing their purpose, resources, capabilities and norms, and whether there was a renewal process evident from an institutional role to a social movement role. Through this I aim to contribute to understanding the conditions that would allow unions to become more engaged in the climate change agenda and to realise a Just Transition. For each of the four quadrants of potential change in my framework, i.e., purpose, resources, capabilities and norms, I explore how the four unions (Prospect, UNISON, Unite and GMB) were developing their capacities, to build an overall picture of the energy unions' approach in each quadrant, then assess what this means for their roles as institution or social movement.

I explored in Chapter 6 what the concerns of the energy unions were, both environmental and social, with respect to the transition to low carbon, and identified some patterns in how these concerns were structured by sector, and how they related to the energy unions' wider concerns and their drivers. I concluded that the energy unions saw the low carbon transition as a technology and process issue for the energy sector and heavy industry, and were not generally relating it to wider change in key sectors such as manufacturing and the public sector, or to its implications for the UK economy as a whole or for global justice.

I recap the structure of my *framework for change in trade unions towards justice* in this section and consider how union concerns and capacities are related. In sections 7.2 to 7.5, I ask what changes were occurring in the respective quadrant of my framework for the energy unions. I assess the development of their capacities and what constrains this development, drawing out dynamics between the quadrants. In section 7.6 I then consider the implications around the unions' roles, between institution and social movement. In 7.7 I draw together my conclusions around the overall picture for these unions in terms of their developing capacities and their roles, and whether climate change is acting as 'an occasion for renewal' for these trade unions.

I analyse interviews with key officers from each energy union, whose job roles varied between leadership, policy, research, or collective bargaining. Their individual focus and examples vary accordingly, but each claimed to be expressing a view in line with their union's policy.

Recap of my framework

My *framework for change towards justice in trade unions* is synthesised from theory on the specific roles of trade unions, to enable a better assessment of the level of proactivity, and hence agency, of unions in labour environmentalism. My framework, developed in Chapter 3, builds on Fairbrother's (2015) characterisation of union renewal as a transition from an institutional role to a social movement role, involving the development of purpose, organisation and capacities. Specifically, my framework has four quadrants, enabling analysis of the development of a union's purpose, capabilities, resources, and the social norms in play. Through this it assesses change in terms of a union's institutional role and its social movement role. It can be used to understand whether union renewal is occurring as climate change becomes a major factor of political economy. My framework thus provides greater ability to assess how change is happening in a union's agency, both internally and externally, in Stevis et al's (2018) terms, and to consider climate change as a possible "occasion for renewal" (Murray 2017) in unions.

Table 6 - Definitions of quadrants in my framework

Quadrant	*Capacities relating more to an institutional role*	*Capacities relating more to a social movement role*
Purpose	Unions' aims as collectivities – based in long-term values and immediate concerns. Framed and articulated for policy advocacy and as goals to realise.	
	Stable rules and policies agreed and written down.	More dynamic vision and leadership that enable a response to change.
Resources	The way unions operate - relations, structures and forms of governance, texture of relationships.	
	Infrastructural resources – funds from membership subscriptions, union staffing and organisational structure.	Power resources: internal solidarity, external solidarity and network embeddedness, and narrative resources.
Capabilities	Aptitudes, knowledge, competences and skills that can be passed on through training and development.	
	Skills and competences, technical knowledge.	Strategic capabilities: intermediating, framing, articulation and learning.
Norms	How trade unionists 'know what they do is right'. Deep structures that guide action.	
	Sector-based identities, traditions and pride; all-member norms in a union.	More inclusive and intersectional movement norms such as fairness for working people, solidarity, equality and diversity.

My framework for change towards justice in trade unions is represented by the quadrants diagram in Figure 4. As there is interaction expected between the quadrants, I find it most

helpful to consider them in the direction of most influence, considering 'purpose' first, which sets possibilities in turn for resources and capabilities and is more formally defined than norms, so: purpose, resources (and organisation), capabilities, and norms. **Error! R eference source not found.** defines the four quadrants and the spectrum of roles within each, by summarising key statements from the related literature (Fairbrother 2015; Lévesque and Murray 2010; Ganz 2000; Rao et al 2015).

7.2 How were the energy unions developing their purpose?

Here I am considering how the energy unions were taking on low carbon as part of their purpose – making climate change 'their business'. Unions developing purpose, according to Fairbrother (2015), are developing their aims as collectivities, their values and how they frame and articulate them - both for political advocacy and as goals to realise. His discussion of this and of unions' development of purpose from each of "immediate concerns of members" and "long-term values" is the lens here, and draws out links between the concerns discussed in Chapter 6, and the development of union's broad capacities as the current focus.

Given the picture of the energy unions' concerns and framing in Chapter 6, in this section I dig deeper into how the energy unions were developing their purpose, often based in those same concerns. Some material is revisited, but with a lens of the development of purpose. I first assess purpose as developed from underlying long-term values, and then from immediate concerns. I then look at how these were developed into both their aims for outward-facing policy advocacy role, and to realise other goals.

Aims based on long-term values

The exploration of the energy unions' concerns in Chapter 6 has already given insight into how they were developing their long-term values around low carbon. At the level of formal policy, all of the energy unions accepted that climate change needs to be addressed in some way by unions, always in the context of their primary purpose of representing their members' interests. If being "signed up" to the Paris Agreement is an indicator, with its implications for global carbon emission budgets, there is evidence that the energy unions had a long-term value that carbon emissions should be cut to net zero. The interviewees also showed some recognition of the urgency of carbon cuts, based in the mainstream policy consensus for what needed to happen around low carbon up to 2050, from the Climate Change Committee (CCC, no date), rather than more radical perspectives.

A response from Unite illustrates how climate issues were present as a headline, but thinking was underdeveloped. At the time, Tony Burke had joint responsibility strategically in Unite on "CO_2", which he was clear throughout his interview was "a major issue" for Unite (TB.02a, TB.03g). Although the union had not taken as much action on CO_2 as it had on digitalisation, he saw Unite's raised awareness in 2019 reflecting society-wide concern: "CO_2 has become big issue, with the schoolkids getting people thinking"

(TB.02c). However, this headline value was not translated into aims that Unite was pursuing around climate change, whereas the immediate concerns of the energy and energy-intensive sectors were much clearer:

> "So, you've got a number of heavy industries where Unite has members, that are affected by the whole transition. You've not only got the energy producers such as nuclear power stations and fossil fuel … but you have industries that are heavy energy users" (TB.04e).

The day conference held jointly by the energy unions in 2018, and the statement that emerged (outlined in Chapter 5) from that, show a value around working together to produce a coherent union response across the energy sector around low carbon. As discussed in Chapter 6, the values espoused in the actions of the youth climate strikers – that climate change was a global and intergenerational justice issue – were sitting uncomfortably on the periphery of the energy unions' vision at the time of my research, and had not been integrated into policy through motions from the unions' membership. Given the unions' wish to organise and represent young people as workers, this would have to be worked through.

Aims around immediate concerns

As discussed in Chapter 6, the energy unions were reacting to different immediate interests around low carbon, and at the same time to other issues that may not have meshed with the low carbon agenda. Where interests clashed, a consensus needed to be reached to create union policy, and different unions have different constitutions that determine how such policy is made. Unite's commitment to a "balanced energy policy" illustrates this, in terms of constraining its policy to even-handedly protect the jobs of all its members in energy generation.

At the time of my interviews, there was pressure for policy on low carbon both from members in energy with immediate concerns, and from activists, union-wide, concerned to see values of justice brought to how climate change was tackled. Sampson Low described how the union's purpose must be negotiated, formally or informally, with the unions' members, who may have quite different interests. Union policy conferences of delegates from the whole membership happen annually or biannually, and current concerns are sent forward to the annual conferences of the TUC and Labour Party and set the remit for lobbying government. Whereas, 20-30 years ago, "…the TUC was a sort of brokering point between different industrial and occupational unions in industry, … engineers and others" (SL.02a), UNISON is now, for example, "bigger than the whole of the Finnish trade union movement", and, like other large UK unions, is a "mini-federation in [its] own right" (SL.02a).

The tension between values and interests was apparent in UNISON's policy formation, as described by Sampson Low. While climate change was an issue for all members, UNISON's

energy sector had some autonomy: "Of course, green sustainable development is a citizenship issue, and so would be discussed at different levels and it's never quite clear really, [if fossil] fuel workers have autonomy to set policy in this area" (SL.02c). At the same time, even within UNISON's energy sector, members' interests could vary considerably, between energy management professionals in power stations earning £50-70,000 (SL.07d), and the more typical member in a call-centre: "a part-time worker [likely to be female] in British Gas earning £23,000 a year" (SL.07e).

Two levels of response – to specific policies in energy impacting upon members, and to a stepping up of wider public concern – ran in parallel through my interview with Prospect. Asked about priorities around low carbon for Prospect, the immediate concerns of the energy sector are significant:

> "the huge transition going on [in energy means] a lot of the priority is about how that's managed in terms of people's employment, how it affects the work that they're doing, the skills that they need to use, work intensity, work patterns" (SFP.01a).

However, Prospect's aims around low carbon are not just driven by their membership in energy, but by their more diverse membership with different occupations and opinion, and "as a union we know that workers are also citizens and consumers" (SFP.03a). Here then, the specific transition in energy already taking place is giving rise to immediate concerns, but these are balanced with long-term values of fairness and protection for citizens and consumers.

In talking about GMB's purpose around low carbon, Stuart Fegan, set a clear context: "what we should do as trade unions, is ... first, second and third to defend and promote the interests of our members" (SFG.02a). He elaborated three things GMB members ask for: "They want us to campaign to make sure their jobs are worthwhile and meaningful... Providing a service, not just to the customer but obviously in the national interest" (SFG.02b). This was followed a close second by bargaining for better pay and conditions and thirdly, "being told thank you when they've done a good job" (SFG.03c, SFG.03d). What is expressed here relates directly to members' concerns, but offers a longer-term not just immediate perspective. As an answer about aims in an interview around low carbon it is, however, not specific.

Asked about how he had become involved in the low carbon agenda, it was clear that to some degree Stuart Fegan had personally encouraged GMB's learning around the agenda, recognising its importance: "I don't want to say it was just me... far from it. If I've had any influence on a personal level, I would say I've tried to raise the profile of us starting to think about this, particularly – not exclusively - for our gas sector membership" (SFG.25a). Now, GMB was taking a position that "the issue around decarbonising of gas is absolutely central to the interests of our members" (SFG.07a).

To summarise, then, both immediate concerns (typically for the energy sector) and longer-term values (typically expressed as a 'citizenship' approach) were informing the development of purpose in the energy unions. These often had to be reconciled through democratic and managerial processes, of which the different interviewees emphasised different aspects. None of them, however, had developed their stated longer-term value of commitment to the Paris Agreement into clear aims for their union, either in terms of policy advocacy or other goals to realise.

Aims as policy advocacy

The energy unions each had policy positions around low carbon which formed the basis of their policy advocacy with government, as well as with TUC and the Labour Party, as alternative routes to influence. These policies reflected their different priorities based in areas of organising, but in the interviews were dominated by the needs of their energy members. There was frustration, as discussed in Chapter 6, about not being consulted by the government, and little expectation of a change of approach, unless a Labour government was elected. The energy unions were working jointly on lobbying around issues such as regulation of energy markets and energy pricing. Sue Ferns of Prospect explained this need to lobby effectively on "how we regulate and invest and fund future energy developments" (SFP.03e) and that, at the time, the energy unions were:

> "working together in lobbying Ofgem around pricing reviews, and talking about the importance of workforce diversity, skills, Health and Safety …, and also talking about the impact of price regulation, the regressive impact on consumers if it's all done through the energy bill" (SFP.03e).

There were common themes in what the energy unions were lobbying for around low carbon, which have already been identified in discussing their concerns in Chapter 6. Some, such as good jobs and skills were uncontroversial but two themes, hydrogen and renationalisation, had some conflicts around them, and will be further explored in section 7.4, relating to how unions were managing to 'articulate' between different levels around these issues. There is common ground amongst some of these themes, in that what is demanded is government engagement in strategy, planning and frameworks to make the transition less threatening to workers.

Another common theme in what unions were lobbying around was concern for the quality of jobs that emerged from the transition. GMB had taken a lead in organising in the gig economy (SFG.23d), and in Stuart Fegan's interview he saw the transition to low carbon as more of a threat to job quality than a way of investing in good jobs. While he saw jobs in energy as "on the whole good, high-premium jobs, in parts of the country that need good high-premium employment particularly" (SFG.23a. He acknowledged that "something we haven't focused on - and we probably need to focus on a lot more - is the job generation that potentially could come from decarbonising" (SFG.19a). Here he cited the HyNet

project in Manchester (a hydrogen trial) which "has a potential of creating 5,000 good, high-premium jobs" (SFG.19b).

The future of the gas grid was a key issue for GMB's policy advocacy, which was seen as going beyond defending its members' jobs. They had appraised their energy policy and concluded that their members' interests coincided with the national interests (SFG.25d), in terms of retaining the gas grid but using low carbon gas. Stuart Fegan averred that GMB had "a very clear view on what needs to be done" (SFG.09b). Although he saw a public consensus that climate change must be tackled, the funding of the transition was more contentious (SFG.09d). GMB saw "that it should be paid out of general taxation" (SFG.09e), and through public ownership of energy (SFG.17b).

Low carbon issues were rising up UNISON's policy agenda, after some years of diminished importance to the union, stimulated by interest in "low carbon technology, [and] what a green new deal in the broadest sense might look like in the UK context" (SL.05a). Such policy work, "using Keynesian economics about a jobs-built recovery" (SL.04c) had earlier been put aside in favour of headlining the frustration of frontline UNISON members under austerity (SL.04c). Now it was back on the agenda in the context of "a sort of expansion of interest under Jeremy Corbyn [leader of the Labour Party 2015-19] about what would an active and expansive state look like, and a Green New Deal" (SL.04c). UNISON had also previously done policy work around the issue of fuel poverty and energy efficiency, issuing a report "ahead of the 2015 election, about what a mass programme would look like" (SL.05a), but this theme had now been joined in priority by the promotion of hydrogen.

Aims as goals to realise

Whereas the energy unions each had policy on low carbon and lobbied on it, purpose in the other sense – as goals to realise themselves – was underdeveloped. This was the question of what unions would do about the low carbon agenda, and how it affected their workplace and collective bargaining roles. A union's purpose goes beyond its formal policy, to encompass forms of leadership it takes within a wider labour movement, and how it works with key employers and their industry associations on desired pathways for the sector.

Interviewees from Prospect, Unite and GMB, unions with a strong engineering tradition, each spoke about how important it was to their members and reps to engage with the "how" of the low carbon transition. This theme was not apparent in the same way in the interview with an officer of UNISON, which organises mostly customer-facing and administrative staff in energy. In the three unions where this arose, their members in energy of are often technical experts, for whom their job revolves around "how", although there is a new challenge of how these forms of energy generation mesh together in a low carbon world.

In 2019, Prospect was developing its own purpose around the low carbon transition by bringing together, for the first time, its members from different sectors of power generation. Whereas previously, the interests of members in nuclear power, fossil fuel generation, and renewables may have been seen as quite distinct, this move indicates that the union wanted to forge a common purpose. This had been preceded by some debate on strategy around the changing energy industry, concluding that "we really want to ensure that renewables is a big part of what we do in the future" (SFP.08c). This therefore represents a renegotiation and widening out of the union's purpose in response to the low carbon transition. It also demonstrates the use of strategic capabilities by the union – intermediating, through debate, the distinct sector interests, learning in the light of industry changes, and framing issues in a way that brings people together across the union.

The GMB interviewee told me that the Just Transition day conference held with the other energy unions in 2018 was "essentially just to discuss our common agenda and what we want to see from a Just Transition, and what should we be doing and how should we be engaging with policymakers, parliamentarians, etc" (SFG.24a). Although he had not attended it himself, he thought that it had achieved a general consensus, as expressed by the flyer that was produced (SFG.24b). These examples from Prospect and GMB show that the energy unions were in the early stages of building a bigger purpose around low carbon, at least for the energy sectors, in and across unions.

Many examples arose in the interviews where energy unions had worked closely with employers (and their sectoral associations) to pursue mutual interests. In the interviews with Unite officers nationally, working with employers seemed a natural part of the landscape, for low carbon as for other issues. In the interview with a GMB officer, there was an explicit defence of working with employers at the policy level, while industrially being on different sides of the table. It was clear that the UNISON officer interviewed had a depth of knowledge of what the employers' interests were, and that in many cases, members would identify the employer's interest as their own. In the Prospect interview, working with employers to develop policy proposals and advocate for them was also mentioned.

Given such absence of opportunities to influence government and bargain systematically, Tony Burke talked about how Unite works with employers, to lobby together more effectively together for coherent change at a manageable pace. The lack of national structures for sectoral collective bargaining means that relationships with particular employers, and employers' federations such as Make UK (formerly the Engineering Employers' Federation) and the Society of Motor Traders and Manufacturers, become important. Tony Burke described some of these federations as "good people", "good organisations that we have a lot of time for" and whom "I would meet …on a regular

basis… have the dialogue as to what we needed to do", and who produced good research on "what's going to happen with the technology" for low carbon (TB.16b, TB.15d). He respected their role and their right to be consulted, "they're a social partner, …and they speak for the industry, the same way that we speak for our members" (TB.16a) and suspected that many employers' organisations would, like Unite, welcome more formal national tripartite bargaining structures (TB.18g). However, he thought these employers' federations were also being ignored by the government, seen as representing "sunset industries", whereas, for government, "the real go-getters are the service industries" (TB.18g).

Developing purpose

To conclude, then, both immediate concerns (typically for the energy sector) and longer-term values (typically expressed as a 'citizenship' approach) were informing the development of purpose in the energy unions. These often had to be reconciled through democratic and managerial processes, of which the different interviewees emphasised different aspects. At this point, the unions' immediate concerns about the energy sector dominated their purpose, and none of them had developed their stated longer-term value of commitment to the Paris Agreement into clear aims for their union, either in terms of policy advocacy or other goals to realise.

The immediate concerns around which purpose was being developed naturally varied between the energy unions in terms of the sectors they represented, as seen in Chapter 6, but even within each of these large unions varying interests would require effort to achieve consensus. There were strong common themes between the unions around quality of jobs, skills and training, and the need for national strategies and frameworks to support orderly change. There was frustration, as discussed in Chapter 6, with not being consulted by the government, and little expectation of a change of approach, unless a Labour government was elected.

Whereas the energy unions each had policy on low carbon and lobbied on it, purpose in the other sense – as goals to realise themselves – was underdeveloped. This related to questions of what a union would do about the low carbon agenda and the leadership it would take within the wider labour movement. The lack around how it affected its workplace and collective bargaining roles may partly be because the detail was more varied and not easy to summarise. There were examples provided of how the unions were working with employers within specific sectors to manage and influence change around low carbon, even if this was not integrated into a 'big picture' of the low carbon transition or the role of the union in it. This also reflected how important it was to their members and reps to engage with the 'how' of the low carbon transition.

Perhaps developing their big picture, the energy unions had come together in a day conference on Just Transition in September 2018, and subsequently were working jointly

on lobbying around issues such as regulation of energy markets and energy pricing. Two of the unions were now bringing the different subsectors of their energy membership together, to develop a common purpose in their union that integrated organising in renewable energy and lobbying at different levels for favourable approaches around energy. While work to develop their purpose around low carbon was in progress in the energy unions, the contradictions between a narrow sectoral concern and a wider concern with climate change as an issue for all citizens were starting to be felt. Some aspects of this will re-emerge in discussing how resources, capabilities and norms were developing, in the following sections.

Assessing the development of purpose around low carbon from the perspective of a trade union's roles between institution and social movement, the energy unions were not fully engaging with either role at this time. Their institutional role was constrained by laws, practices and structural changes that reduced the rights and ability of UK unions to even be consulted about workplace change. Therefore, the energy unions were, as Chapter 6 discussed, reacting to the low carbon transition only as it reached implementation in workplaces – chiefly, so far, in the energy sector. Their concerns for specific workplaces were the main drivers of their policy and policy advocacy, rather than a wider view of threats to citizens in general. Although the energy unions espoused the Paris Agreement, the urgent logic of staying within its carbon budgets was invisible in their interviews. Almost no examples were given of how their aims would find common cause with social movements around climate change – challenging the investment strategies of municipal pension funds was the one exception, from UNISON. So, although the unions had policies around the low carbon transition, they did not have a clear vision of what the big picture of that transition looked like, or how to develop their own role and purpose to achieve a low carbon world.

7.3 How were the energy unions developing their organisation and resources?

For Fairbrother (2015), a union developing its organisation and resources is developing ways of operating, relations, forms of governance, and power resources. Fairbrother also talks about the 'texture' of relationships between members, activists and leaders. The power resources of infrastructural resources, internal and external solidarity, and narrative resources are key (Lévesque and Murray 2010). Internal solidarity consists of identity and practices, while external solidarity is seen in embeddedness in community and political structures.

Organisational structures and staffing

The first kind of resource I consider is infrastructural resources – money from subscriptions enabling staffing and office resources. I look at whether the organisation structure was responding to the low carbon agenda in its allocation of such resources. A key conclusion from my interviews was the overall slim level of resources that the energy

unions were devoting to the low carbon agenda. While each of the unions had appointed some staff to related roles - in policy, research or industrial bargaining – these represented a very limited resource.

In Prospect and in UNISON the members themselves were cited as a key resource. In the past, large numbers of UNISON members had volunteered as green reps in their workplace. However, green reps, unlike Health and Safety reps, do not have a legal status that brings them 'facility time' or the right to attend training, which is a severe constraint on union resources around low carbon at the workplace level.

UNISON had earlier been a pioneer in resourcing a network of green reps to enable peer support and collaboration, but austerity had reduced possibilities, as Sampson Low explains: "The financial crash happened and the infrastructure of grassroots green reps in workplaces has gone backwards over 10 years" (SL.01b). UNISON had been "under pressure to get more resources and money and staff to the frontline", he explained, to "support branches where they've had redundancies, dismissals, where the lay activists are under incredible pressure" (SL.07n). UNISON is not alone in this, Sampson Low said:

> "it's not being pushed by any union in any great numbers. There's been a lost decade with austerity, because unions have been under the cosh for 10 years - with plant closures, cuts, redundancies, at head office and regional level, the numbers have shrunk and turned inward, ... all unions are struggling." (SL.01c).

Sampson Low thus reported: " I let [the green reps' network] die because I had other priorities" (SL.11). This was despite members having volunteered to be active as green reps:

> "There were a couple of hundred people, in 2010, signed up, who were interested in engaging their employer about recycling, energy efficiency, solar panels, travel to work, buses, car parks." (SL.11).

Now, again, preceding my interview in mid-2019, Sampson Low had found that environment "has shot up the political agenda, public consciousness as well. And a reigniting of activists becoming interested in it again. I'm getting asked questions - where's our green activist network?" (SL.12). Whether this 'climate moment' of increased public concern would lead to a permanent increase in resources, or once again be derailed by other priorities, was not clear.

As discussed, Sampson Low saw the sheer lack of resources available as a primary driver for UNISON's organisation around low carbon. Whereas under a Labour government up to 2010, unions had been encouraged to have green developments (SL.05f), with the crash, "in 2008, that all did grind to a halt pretty quickly" (SL.05f). Later, Labour's support was more hedged:

"there were competing priorities [before] the 2015 election, whether [a potential Labour government] would give statutory rights to equality reps or green reps, but they weren't going to give both - equality reps won out" (SL.05f).

Although Labour have not since been in government to implement such rights, this illustrates how a union's capacities are not strictly bounded by the organisation but depend on 'external solidarity' across a wider movement – in this case, UNISON had allocated resources according to wider movement priorities. A further factor around external solidarity, for Sampson Low, was that:

"the general social partnership bodies have generally been struggling across the public sector. Where advisory bodies have been created, they've often not had union places on - very different to the rest of Europe" (SL.07l).

Amidst other pressing priorities, and with little encouragement, finding capacity to work on climate issues suffers, as Sampson Low said: "I have a big range of things, and don't have enormous capacity or resource to direct" (SL.09). His hope was that this "may shift over time, there's definitely more interest coming" (SL.09).

Another issue related to resources in UNISON was that the energy sector members were important financially to the union, as the subscription rate depended on income: "they tend to be quite well-paying members historically – well-paid, and therefore pay more subs" (SL.03c). Sampson Low also confirmed that these members also had some veto in setting policy relating to their industry: "We couldn't impose, as the national union, issues on our energy members who represent, in UNISON, 20,000 of 1.2 million paying members" (SL.03b).

Sampson Low saw reasons for the energy unions to work together to effectively organise the renewable energy sector, building union membership in new industries where job growth could counteract closures in fossil fuels. Here, unions were working on a difficult pitch, because of UK labour laws not insisting on rights to union bargaining in new companies:

"The problem is, in five out of the Big Six energy companies, their renewable divisions have avoided collective bargaining because they've just set them up as separate legal entities, not signed a collective agreement" (SL.08d).

This necessitated collaboration:

"The energy unions do need to act together, because cracking greenfield sites in the UK is incredibly hard, and only when unions really come together, invest resources in it, can you start to do it" (SL.08e).

Although working together would go against "the British tradition that unions collaborate but compete [in the same sector]" (SL.07), common ground was expressed between the energy unions about the importance of ensuring good, unionised jobs in these new sectors.

Relationships and forms of solidarity

Internal solidarity equates as a resource to a cohesive identity, and a vitality of deliberation in the union. I consider it here alongside external solidarity, which describes the density of links with other unions and allies that unions build to resource their engagement with the climate agenda. An example of deliberative vitality and developing identity was Prospect's conference for its whole energy sector, as mentioned in section 7.2, an attempt to develop a more overarching and forward-looking vision within the union, that saw renewable energy as "a big part of what we do", thus intermediating beyond the silos of its different energy sub-sectors.

The energy unions, as we have seen, worked together to organise a day conference of their lay reps, which set out their principles of Just Transition, for the energy sector and to some extent, energy-intensive sectors. A colleague of Sampson Low, UNISON's national negotiator for energy, "was a prime mover" of the day conference, which had led to "a bit more coherence around the four main energy unions" (SL.08b). There were speakers from European trade union federations, ahead of COP24 in Poland, where the Silesia Declaration was to express trade union unity on just transition – thus building external solidarity around low carbon. International developments - particularly the International Trade Union Confederation (ITUC) getting "just transition" referenced in the Paris Agreement - had led to wider interest within the UK. Sampson Low commented: "I've never had more approaches from think-tanks and others, wanting to suddenly know about this Just Transition and what it could involve" (SL.06a). Now, he thought, "unions are playing catch up, but they are coming to it again, and it is a lot more real now, with the UN reports on climate change" (SL.06a).

Looking at network embeddedness for Unite, alliances that fell under Tony Burke's remit were Unite's relationship with IndustriALL - the Global Union Federation of unions representing workers in heavy industries and fossil fuels - and the development of *Workers Uniting* – a 'global trade union federation' between Unite, the US United Steelworkers (USW) union, and the Mexican Los Mineros union. Tony Burke thought that the United Steelworkers' (USW) long-term participation in the US *BlueGreen Alliance* (BGA) was influencing Unite – it had "had an effect and is influencing some of the things we're saying" (TB.02a). He later contrasted the "very, very well-respected" BlueGreen Alliance (TB.22f) with Extinction Rebellion (XR) in the UK, whose campaign actions he considered controversial. Even though XR "had got people talking about it", Tony Burke considered

that "you've got to be careful about how you do it", expressing a recurring sense of wariness about the unions' relationship with climate movement organisations.

When asked about how the relationship with campaigners could be made better, Tony Burke was concerned that unions would lose control of the agenda to campaigning groups, and he raised a bugbear that had come up in his dealings with anti-nuclear campaigners, who had lazily used the wrong terminology around an issue (TB.23a). He wanted climate campaigners to talk the unions and the TUC, "But I think people have got to be careful about telling us what's good for us, and not really bothering about jobs" (TB.22h). He wanted to see more trade union officials on campaign platforms, but "not too technical arguments - largely about jobs, Just Transition, protection of employment" (TB.23c). The picture here was not rejecting a closer relationship with the climate movement, but an expectation that climate campaigners would be the ones to develop it, through approaching and listening to unions, and being careful to speak in terms that trade unions could relate to. These comments thus relate to the strategic capabilities, such as articulating and intermediating, that I consider in the next section.

An area where UNISON had worked with non-union partners as part of a network was their campaign to reduce fossil fuel investments and gain worker representation in the Local Government Pension Scheme (LGPS). Here,

> "local activists [are] interested in what's happening on their funds, [but] the local government managers and councillors have tended to keep workers out and it's been a 30 year struggle to try and get some representation on the local government schemes" (SL.06c)

Following a motion from a Scottish branch about fossil fuel divestment, UNISON had done a report with Share Action, and received a grant for joint work on training trustees (SL.06d). Fossil fuel campaigning had therefore re-energised a long-running UNISON campaign for union representation on pensions, and provided a wider motivation for training trustees and influencing pension funds. The divestment campaign was seen as having loose ends, and perhaps taking the union agenda into new, unmapped areas. The radical demands of the original branch motion had mutated as the campaign has met practical and political constraints, but it had engendered external solidarity with the wider movement, new areas of union influence, and new 'narrative resources' about the climate transition, and had taken its place as one of UNISON's 'top three' priorities on environment.

Tony Burke had an overall negative assessment of how Unite could currently bargain and influence systematically around low carbon: "We have not got national collective bargaining, not all over. We've got a government who don't really care about what we say…"(TB.18f). His main conclusion was that a change of government was needed – to a government committed to "sitting down with all parts of the industry - with the

employers, the CBI, the TUC, the unions", to bring "a structure, discussions, an understanding about what we need to do" (TB.18f). In his high-level role, he was not aware of employer-level negotiations on low carbon, but "a lot of stuff will be going on down at local level, where the shop stewards would tend to do that" (TB.18a). He expected employers to "raise it, and our guys will pick it up. And they understand it" (TB.18a). Other Unite interviewees, closer to employer bargaining, put more emphasis on the union having to raise low carbon issues itself.

There was agreement in the Unite interviews that even if low carbon issues were tabled, they often fell off the end of the agenda. Simon Coop, a regional Unite officer in a role supporting bargaining with companies around the Humber 'energy estuary', and a committed Taskforce member, commented: "in meetings with businesses, there are 13-14 agenda points - and no doubt that low carbon would come into it. If you're having good meetings, energy usage will come into it." (SC.15). He highlighted the kind of issues the union will raise when a company is already in the throes of change:

"We go to meetings and we're talking about putting rescue packages together to protect jobs, talking about protecting pensions, talking about the everyday running of business and making sure our members and their customers are listened to" (SC.04).

Union efforts can get swept away by issues which are "not necessarily priorities, but they come in, in the short term, and you deal with the short term, then you've got to get back onto the Just Transition, which is a priority" (SC.05g). Here there was a strong sense of purpose around getting Just Transition onto the agenda with companies, but even so, these efforts may be derailed. What Simon Coop saw was needed was that low carbon

"should be part of the proper negotiated bargaining structure, where we get an agreement with both sides, under a trade union and company banner, just like you would through an automation agreement" (SC.06f).

The territory of a company implementing an automation programme feels more familiar, and provides a model of the items that could be agreed:

"These are going to be our targets, between the trade union and the business, this is how we're going to adopt it. And they will be open for review, but this is where we'll be in three, five, 10 [years]… And all the workforce can then engage, bearing in mind that there will be security around their employment and work, and training will be put in place to do it" (SC.06f).

This kind of signed agreement between employer and union could produce a structured framework for change, bringing confidence to the workforce.

The policy agenda agreed by GMB led to an allocation of resources to working with other stakeholders. Stuart Fegan commented: "it's about campaigning with government, other

stakeholders - the [gas] industry at large just need to start getting things moving" (SFG.15a). Stuart Fegan was clear that "you should collaborate with employers particularly on areas of mutual interest" (SFG.26a). He saw that collaborating to lobby government was a separate aspect to bargaining: "naturally we have a relationship with employers in an industrial context but, in each case, we have a relationship in a policy context as well" (SFG.26a). At the union's 2019 Congress (annual conference) was being held "a joint exhibition with all the gas distribution networks, talking about the future of gas - hydrogen and biomethane, biomass" (SFG.06c). The exhibition was an "example of how we are working together on something that absolutely we see as mutual interest, the future of the gas industry" (SFG.26b). This was another approach to building network embeddedness, or external solidarity, around the low carbon agenda.

Narrative resources

An important narrative resource referred to in interviews was the TUC statement on Just Transition that was published around the time of my interviews. The unions had contributed to this through discussion involving a range of union representatives in different parts of the country. The product as well as the process undertaken was valued by Prospect:

> "It gives us a good platform for lobbying government and others about what we think Just Transition should mean in practice, and what it requires in terms of investment and policy at national, regional and local level" (SFP.05b).

As a narrative resource, the TUC statement made it clear that unions have a legitimate voice in the debate around low carbon, as well as representing the workers in energy who need to be listened to by government to get the details of the transition right. This is part of what Sue Ferns saw as a major question of "how we move from an international policy position [on Just Transition] into a practical industrial strategy that has meaning for people and really protects them" (SFP.03f). The value of the 'power resources' created is clearly recognised here, but the purpose centres on protection for energy workers from disruption of their sector, rather than wider concerns. The 'international policy position on Just Transition' is taken as a given, rather than UK unions interrogating what climate change means for the economy.

Another narrative resource, that related why Just Transition was important, was seen by Stuart Fegan as the story of the "yellow vests" (*gilets jaunes*) protests in France and their relation to fuel prices: "it started as… an energy protest…, it's moved into other areas" (SFG.10a). He thought that unless the central question of 'who pays' for UK low carbon infrastructure was resolved, there could be a backlash: "if we're serious about decarbonising, we have to get serious about engaging with the public about some of the quite significant decisions we're going to have to take as a country" (SFG.14a). An illustration offered was "how we converted from town gas to methane back in the 60s and

70s, considered a very successful national infrastructure programme" (SFG.14f). Stuart Fegan cited the Committee on Climate Change in support: "[The CCC] said very clearly, 'If you don't engage with the public then a Just Transition will stall. It will not happen.'" (SFG.14d). Although GMB, in his view, knew what needed to happen, Stuart Fegan was asking for a wider narrative that the union could be part of.

As well as the public-facing narrative, another aspect, highlighted by Simon Coop, was the role of narrative resources for reps, in building internal solidarity:

> "Nationally [my union] wants to push forward [on climate change] and the only way is to bring members along – so reps are essential. Officers are supportive - they see the only way is to bring reps along - not instruct them - if they are not engaged, there's no way at company or sector level" (SC.10).

Developing resources and organisation

All that unions do has to be funded through their membership subscriptions, with only rare exceptions, for example, specific grant-funded work. Protecting and, if possible, growing that income is always key – it makes areas of dense membership in core sectors such as energy very significant. With a seismic shift in the production of energy underway, and no compulsion for new employers to work with unions, the energy unions found it essential to protect their existing membership and, if possible, break new ground in renewable energy companies. The constraints on union income over the previous decade meant that union staffing was also at a premium, with little scope for employing specialists around low carbon. Members and reps were a key resource, with much union organising happening through voluntary effort and small amounts of 'facility time', where reps had a right to that, with peer support through networks, if that could be resourced.

The interviews with energy unions show them rather locked into a company-level focus that constrains their engagement with climate transition issues. Even there, none of the energy unions was well-advanced in bargaining with employers around their company carbon footprint or climate transition, for example, turning change into a signed agreement as they would for an automation programme. The difficulties of scaling up from the company level were a cocktail of: unions having a very thin layer of staffing for issues that exceed one company; the absence of 'social dialogue' that would enable higher-level planning; the complexity of the 'collaborate and compete' patterns between different unions in the UK; and the fact that cross-company industrial action is effectively outlawed in the UK.

The relationships that unions build – both internally and externally - are also a key resource. Around the low carbon agenda, most relationships were being built with respect to the narrow view of the climate transition as a change of technology and process in energy. Working with energy employers around mutual interests, to develop understanding and narratives of change was key – this extended into lobbying

government together. Internal solidarity was about developing an identity for a changed world - for GMB this was about the future of the gas network with low carbon gas, and for Prospect it was about renewable energy being seen as a big part of what they do. External solidarity and joint narratives across the labour movement were also an important area – for example, building a picture of green Keynesianism with the Labour Party, or developing rights for green reps.

Certain forms of external solidarity were held up as a source of pride in the interviews – for example, Unite's alliance with steelworkers' unions internationally, or the long involvement of ITUC to achieve commitments on Just Transition at the COP. There were examples given of unions working with industry federations, universities, and to some extent sympathetic thinktanks or campaigns (such as Prospect's work with IPPR North, and UNISON's collaboration with ShareAction), but there were no examples of energy union partnerships with environmental campaign groups. The climate movement was seen as 'well-organised', 'well-funded', 'good at PR', but somewhat unaccountable, and therefore a difficult partner for unions who wanted to retain their autonomy and needed to show accountability to their membership.

The work done in collaboration by the energy unions had played a key role in the development of their capacities by those unions. They had worked together to lobby OFGEM, established a shared position around Just Transition and worked on a Just Transition statement adopted by TUC that formed a useful narrative resource for the energy unions. Bringing together reps in energy had developed internal solidarity, shared awareness and norms in each union.

A further narrative resource which had played a significant role in developing union capacities was the internationally agreed position on Just Transition in the preamble to the Paris Agreement and in the Silesia Declaration (see Robins 2018). These were statements that had validated to a much wider audience the unions' commitment to a Just Transition, and had brought researchers and NGOs to their door to understand more. Difficulties in 'articulating' these statements across all levels of union activity will be explored further in section 7.4.

7.4 How were the energy unions developing their capabilities?
In my framework, capabilities are those informal, individual capacities that can be taught and learnt, including aptitudes, competences and skills. These include the strategic capabilities, learning, intermediating, articulating and framing, as identified by Lévesque and Murray (2010) which for Fairbrother (2015) are key. I first consider the skills and competences that would be the subject of more usual trade union education and training,

and then look at the strategic capabilities – learning and framing together, then intermediating and articulating.

Skills and competences

Trade union activity uses and builds on the existing knowledge and skills of its members. An example here was that Prospect relies greatly on the job expertise of its reps and members to validate policy proposals: "Because they are practical people - we look at the policy agenda and we put it through that lens of their knowledge and expertise about how we make it work in practice" (SFP.03c). This expertise is clearly a valuable resource to the union, but the approach suggests that policies and pathways would mainly be analysed in terms of their engineering and technical feasibility, within a particular industrial context.

Stuart Fegan, as a key agent in GMB around the low carbon transition, was developing his own knowledge as a resource for the union: "there's loads of good work - I go to workshops and talk to [experts]" (SFG.14e). He cited a recent example at Imperial College, with Professor Goran Strbac, looking at the economics of scaling up the use of hybrid gas (SFG.14e1). As well as bringing this kind of analysis to the policy side of his work, he saw it as key to "educate our 600 reps, who represent our 620,000 members" (SFG.15b). Also, for GMB to take action with decision-makers, and "get everyone moving in the one direction" (SFG.15b), GMB needed to "educate our members in terms of where we get our energy from, how we produce it" (SFG.11a). The route to this at the time was a GMB campaign, *Switched On*: *Securing our Energy Future*, designed to spread knowledge between different energy sectors: "workers who work in nuclear don't necessarily know how gas is produced and people in gas don't necessarily know about electricity" (SFG.11a) Further, the campaign was "trying to create a cadre of energy voices - people, predominantly from the industry, to go and out talk to local politicians and local people about how we decarbonise" (SFG.18c).

For Simon Coop, from Unite, developing environmental reps through training and skills was helpful towards achieving Just Transition agreements, but it was coming from a low base: "especially in Humber, [Unite] have work to do to increase environmental reps" (SC.06b). Currently, "in regard to the energy and utilities sector, environmental reps are few and far between" (SC.06a). He thought statutory learning provision was needed, to "allow us as a trade union movement, to train environmental reps towards Just Transition to low carbon, to then dispel the fears that our reps and members have" (SC.06c).

Strategic capabilities in learning and framing

Learning as a strategic capability represents an ability to act upon the union's organizational self, whereas framing is a capability of defining a proactive and autonomous agenda. Within the environmental agenda for Prospect, Sue Ferns

recognised continuity and evolution - her thinking had developed, because "the whole industry's developed, environmental science has developed, our awareness of it has developed" (SFP.01f). There is evidence here of reflecting and acting organisationally on change by Prospect, within the scope of the rapidly developing energy industry. For the wider energy unions, their joint day conference on Just Transition in 2018, bringing together lay representatives from all the four unions for the first time, had clearly required framing Just Transition in energy to define a motivating, overarching aim.

The capability of framing was crystallised in my interview with Philip Pearson, who commented that the unions were still not bringing their banners, buses, and balloons to climate rallies, even to the rally outside Parliament about the Net Zero commitment, in early 2019. He observed about Unite's leader, "I don't know if he's ever made a speech about climate change, or 'my members' jobs need to be green ones'" (PP.09a). For Tony Burke, in the senior leadership of Unite, climate campaigners threatened to dominate the agenda, but there was a gap that needed filling around engagement, focused on the union's agenda of protecting jobs (TB.23b). Both perspectives suggest that the lack of framing by Unite leadership was limiting how changes in grassroots awareness could take root in Unite.

The issue for UNISON of parking charges for health workers illustrates a loss of environmental framing, since 2005-10. Previously UNISON had engaged around green transport plans, but now, the previous positive framing, of social improvement, had been replaced by a framing of the unfairness of charging hard-hit key workers. Under the stress of austerity and with a lack of opportunities to influence strategies, UNISON had not managed to widen out this framing to call for policies that would benefit working people more generally.

Strategic capabilities in articulating and intermediating

'Articulating' refers to integrating between different levels and over time, to achieve coherent forms of solidarity around a union's aims, while 'intermediating' addresses conflicts between different interests to find a way forward. Some of the contradictions between an agenda shaped around the energy sector and climate change as a citizenship issue are discussed here in terms of 'articulating' as a strategic capability. Stuart Fegan expressed this issue as needing to resolve wider and narrower interests across different timescales:

> "Unions are notoriously criticised for being too short-term and not long-term. Within GMB policy, we absolutely recognise that climate change is an issue, we support the UK legal commitments. So how do we marry those two up with the fact that we've got 25,000 members in the gas sector? How do we look after their interests in terms of how we transition to low carbon alternatives?" (SFG.25b).

GMB's response to this was to "take those arguments to policymakers, parliamentarians and say, 'this is what we're demanding on behalf of our members'" (SFG.25c), aiming to integrate upwards from the paramount needs of their members in gas.

Sampson Low made clear that conflicts may need intermediating between a purpose to address climate change and a purpose to protect jobs. Giving autonomy to sectors and retaining some powers nationally does not resolve all issues: "when it comes to citizenship issues, it is possible for different bits of the union to start taking different views and for it to be mediated by the national executive or the national conference" (SL.03). His own senior policy role has often been key in intermediating different interests within UNISON:

> "I've had to get more involved, to manage our own internal Just Transition discussions. [We] now represent such a wide range of interests - members exposed to fossil fuel transitions directly in their jobs, and others who are just committed politically" (SL.06b).

Although renationalising energy was agreed policy for GMB and UNISON, their interviews reported members' concerns in the Big Six around Labour's proposed approach to energy renationalisation. UNISON's concern was that the Big Six companies were being increasingly exposed to internet-based competitors who did not have the same social responsibilities or a unionised workforce. The idea of public regional energy retail companies, like 'Robin Hood Energy', was popular in the Labour Party, but seen as unhelpful by UNISON, in undermining better working conditions in the Big Six. They argued that the Labour Party should adopt "a strong policy offer on the retail supply side of the industry, which is a face-to-face thing [with] customers" (SL.07g), that could also enable domestic energy efficiency:

> "If you're going to persuade 26 million [households] that they've got to retrofit, then you're going to need a front end, ideally publicly-owned, to interface with the customer" (SL.07g).

Here, however, Sampson Low saw the "more critical" issue for UNISON as protecting the existing jobs and conditions of their members from the destructive forces of a privatised energy market. This illustrates that unions have the depth of involvement in their sector that means they can often see strategic issues, but because of fragmentation and lack of dialogue with government they are unable to influence "big picture" policy accordingly, and so focus on defending the immediate job interests of their members. For GMB, around this issue of renationalisation, Stuart Fegan said the union had "absolutely an obligation to represent interests of our members in their current employment" (SFG.17e), and expressed confidence in tackling these conflicts: "we've never shied away from having difficult conversations" (SFG.18d).

Another area where conflicts would require intermediating, Sampson Low recognised, was that UNISON's support for use of hydrogen to replace natural gas in the grid, which had been agreed in broad-brush terms. Once the origin of the hydrogen was spelled out, however, this could be in conflict with TUC policy and the climate movement – as it was likely to mean grey hydrogen (from fossil gas, without carbon capture), rather than blue (with CCS) or green (renewable), if these facilities were not developed. As in GMB, the policy had gained priority as members in the gas sector had seen it as protecting their industry. The use of hydrogen in the grid, championed by fossil energy companies which would stand to gain, had been critiqued by scientists outside fossil energy companies, and was not part of government strategy. However, Sampson Low explained that UNISON gas members "see that hydrogen could offer them a future in their industries, and a transition fuel in that sense" (SL.07b). This development illustrates how UNISON policy had developed from the immediate interests of a group of members "who have been very articulate and decided to promote hydrogen" (SL.05d)., without assessing a bigger scientific picture. Only determined pressure from "more political, environmentally minded activists" (SL.09a) was likely to dislodge this priority. We can conclude that in UNISON a relatively small group of articulate and determined members can promote a policy direction and get it adopted as a key priority, even where there is an underlying conflict with TUC policy and with sound science which threaten UNISON's ability to articulate its aims at the different levels where it may need to build solidarity.

The state of the debate on Just Transition between wider TUC unions was a subject that Sue Ferns came to, when asked whether there was anything to add to her interview. She thought it was "about [energy unions'] role in safeguarding the interests of our members in that process of change" rather than "saying it's all about the energy worker" (SFP.11a). Having achieved such consensus across the energy unions through framing and intermediating, the discord seen at TUC 2018 seemed a source of frustration, indicating difficulties articulating different forms of worker solidarity. At this point in the interview, I reflected on how I had experienced unions interacting in the COP process, where, in Paris and Bonn, I had heard from wider ITUC unions a powerful moral case on climate change that laid a challenge to unions in industrialised nations. Whilst the energy unions had managed to articulate their actions within the UK energy sector, they had not managed to combine this with wider forms of worker solidarity being constructed around climate change, through TUC and ITUC.

Developing capabilities
Concerns for rep training around low carbon were not much present in my interviews with the more policy-focused energy union officers nationally. The scale of training and ongoing support needed to build the capabilities of workplace union reps around low carbon and climate issues is potentially huge, and technically diverse across different sectors and employers. Some of the capabilities needed (critical thinking skills,

understanding of wider justice implications) would need to be integrated into unions' political organising and training. Training for reps, long a core activity for unions supporting near-voluntary effort of members in the workplace, has suffered from various pressures. Training around low carbon has not been integrated, but in interviews was recognised as needed by those closer to workplaces.

For the energy unions nationally the climate issue was seen as mainly a technical challenge, where their members would respond within their work roles. Where the energy unions were developing knowledge around low carbon among their reps and members, the scope was more around energy than around wider aspects of climate change – GMB was organising an exhibition on low carbon technologies at its Congress, and Prospect was bringing together its reps from different energy subsectors to share knowledge on energy issues. The Just Transition day conference held by the energy unions had clearly exercised strategic capabilities of framing - as an issue for the energy sector - and intermediation between different interests of the subsectors, just as was acknowledged to be happening in each energy union.

Some issues show conflicts of articulation and intermediation – where different levels or different groups cannot accept the same story. Whilst the energy unions had managed to 'articulate' their actions within the UK energy sector, they had not managed to combine this with wider forms of worker solidarity being constructed around climate change, for example, by the ITUC articulating the wider interests of working people globally.

7.5 How were norms developing for the energy unions?

Norms in my matrix occupy a position as a systemic but informal factor. For Rao et al (2015), social norms and deep structures are a key element of change towards justice in organisations, guiding action so that actors "know what they do is right" (Ganz 2000). I distinguish in my analysis between those norms focused on the traditions of a sector or union, and more outward-looking norms around fairness and solidarity. Although these relate to the values that help develop purpose in trade unions, here I am looking at what may be unconsciously driving individuals, rather than the espoused values of the organisation. To assess such norms, I consider clues in the interviews where there are signs of surprise, contradiction or avoidance, as well as what was explicitly said.

Sectoral norms

The norms apparent in Prospect are a belief in scientific and technical knowledge being applied to problems, a belief in Prospect's members as workers key to the energy transition, and a belief in the importance of fairness – seen, for example, as applied to opening up opportunities in energy for women and BME communities, and to investment in new energy infrastructure being paid for in a fair way.

The norms for UNISON expressed in this interview relate to the importance of public services and the workers who deliver them, and the pain caused by the government programme of austerity since 2010. Even where services are now privatised, there was some sense of loyalty to employers where there were seen to be good conditions for the workers, such as, at the time, at British Gas.

Outward-looking norms of fairness and solidarity

Asked about how optimistic she was that Prospect's strategy would move things on around low carbon, Sue Ferns saw that the climate campaigns and the CCC Net Zero report (CCC 2019a) had "galvanised people's interest, people who wouldn't necessarily ask us about these things, so it has created a momentum which we believe is important to build on" (SFP.10a). Sue Ferns seems to be talking here about a shift in attitudes among Prospect members - a public debate about fairness has raised new interest, but this needed to be reconciled with Prospect members' valid question about the "how". There is some tension between wider norms of fairness and sectoral norms about the importance of technical knowledge.

A similar conflict was playing out in UNISON, with the interests of the energy sector members seen as clashing with the interests of climate activists within the union. Whereas in the past, the interests of the energy members had been seen as critical, now the outcome of the conflict was more uncertain and in the light of the climate emergency their interests might be overruled:

> "We've got to go at a pace where our energy members are comfortable, or [other activists] may just override and say it is a climate emergency and we've just got to go hell for leather for it, notwithstanding our energy members" (SL.09a).

 It seems, though, that this characterisation of the direct interests of energy members clashing with addressing a climate emergency is to focus on only one part of the picture.

The visions that were changing norms, attracting sympathy, inspiring enthusiasm, in UNISON at the time of this interview were "the surge of climate strikes, Greta Thunberg, the big UN report before Christmas on how little time we have left, shrinking Arctic Circle, biodiversity on the decline as well, David Attenborough and plastics, Blue Planet" (SL.10). The challenge laid down by the youth strikers and Extinction Rebellion about the speed of change needed was still being digested through the union, but Sampson Low was sceptical that such a programme could be sold politically: "It would require a scale of nationalisation and public intervention not seen since the Second World War period, frankly. I don't know if the green left are ready for that level of intervention actually" (SL.10).

Summing up the moment of change in norms that was 2018-19, Sampson Low commented:

> "it's been a very dynamic year. You may have got slightly different answers six months ago - the last six months it definitely has shot up the political agenda, public consciousness as well. And a reigniting of dormant stuff around activists becoming interested in it again, after a tough decade actually" (SL.12a).

Experiences in 2018-19 around the wider social movement campaigns on climate such as the youth strikers and Extinction Rebellion (XR) seemed to be bringing some learning in Unite around climate. They had raised awareness and debate, and brought salience:

> "I think [the reps] are now talking about it. Whatever anyone's opinion of XR or people coming out of school, they are starting to ask questions about it and conversations are being had in households - whereas they hadn't been - which is positive. [These conversations] are happening in workplaces." (SC.17e; SC17f).

For Simon Coop personally, his conscience had been raised by his teenage children: "it's having a go at Dad and saying, you know, 'A man in your position, what are you doing about it?' And quite rightly so" (SC.17b). This had informed his sense of what was right: "I think that brings it home to me - people who can change it, it's our generation now" (SC.17b) This increased awareness and sense of responsibility was thus coming from the 'citizenship' direction, rather than from conscious purpose and organising on the part of Unite.

Tony Burke, in a senior leadership role, was aware of the same grassroots debates in Unite, but offered somewhat differing analyses of the youth strikes and Extinction Rebellion. He stated three times that the youth strikes had brought climate change up Unite's agenda: "Well, I think the school kids [demonstrating], because it was very newsworthy and you saw young people arguing for their futures, I think that affected a lot of people" (TB.22b). He thought there were 'mixed views' about Extinction Rebellion (XR), which he described as a "one-issue organisation" (TB.22c). Tony Burke specifically mentioned criticisms made within Unite, that some of the direct action tactics being proposed by Extinction Rebellion at the time were potentially dangerous. Contrastingly, civil disobedience was seen by Simon Coop as acceptable in some circumstances: "as a trade unionist, if bad laws are there, then civil disobedience sometimes is another way of trying to move forward and make your point" (SC.17d) There clearly was debate happening in Unite around Extinction Rebellion, the school strikes and other climate protests, over the boundaries of what was right, and what the union's response should be.

Similarly to other union interviewees, Stuart Fegan was clear that he does not meet climate change denial in the gas industry: "I've never heard anybody … say, 'Oh, don't worry about it, climate change doesn't exist, so it's not a threat,' or, 'We don't have to do anything, we'll just sit on our hands'" (SFG.15c). To the contrary, he emphasised again the union's commitment to the Paris Agreement, but was somewhat unwilling to report on how GMB members saw climate change. Asked about whether GMB members' and reps' thinking had been influenced by Extinction Rebellion's recent actions, Stuart thought "we've seen [them] and people like Greta Thunberg … having an impact on the political discourse" (SFG.27a). He cautioned that in GMB there would be "a whole range of views in that 620,000 [members], but I think it's clearly had an impact" (SFG.27b).

Stuart's analysis of what he termed the "environmental lobby" was that it is generally well-organised, "kind of very well-funded", and "punches above its weight and that's not a bad thing" (SFG.27a). He admired the tenacity behind the youth strikes for climate, and overall expressed quite a positive view of climate activism, but again like other union interviewees, identified a gap when it came to the practical details of how the climate transition is to be tackled: "The bit I have a slight problem with is, well, what are we going to do about it?" (SFG.27c). For Stuart, "it's partly the how, it's partly the what, and it's partly the cost" (SFG.27e) as the areas that needed debate and dialogue.

Asked about the scope for more collaboration between the climate movement and the trade unions, Stuart thought it was not his place to say. At this juncture, near the end of the interview, he expressed a personal dislike of the slogan "There are no jobs on a dead planet", which was coined by Sharan Burrow, as General Secretary of the International Trade Union Confederation (ITUC). "When [people in the climate movement] trot out this phrase, now that just winds me up. It winds our members up as well" (SFG.28a). Although initially expressed as a personal opinion, Stuart went on to say he thought a lot of GMB members would feel similarly (SFG.28b). He said he was keen to avoid such entrenched, binary positions (SFG.28b) – "We need to have a much more sensible, grown-up conversation about how we do it. And that's what we're committed to doing" (SFG.28c). Thus, for Stuart Fegan, climate movement statements of ecological principles, even when quoting a trade union leader, can be alienating and lead to an impasse. The way forward he saw was to move to an agenda of "how to do" decarbonisation and "the cost" – about both of which, he had confirmed, GMB had its own very clear and fixed ideas. Though he aspires for the conversation to be "grown-up", it would not be open.

One energy union interviewee summed up a concern for the importance of listening, rather than looking for divisions, given that "when we have this debate, there's so much common ground between all of us" (X.1). The tension was between "taking a morally pure position" and "trying to make things happen" (X.2). Practically, "if you don't listen, you're not going to bring people with you, and people kind of then retreat on to their core

ground" (X.3). This sums up norms of acting together as a movement and listening to the most vulnerable, but also respecting practical expertise of those in the front line.

The norms expressed in the GMB motion at TUC 2018 included beliefs that those affected should centrally have their voice listened to; that workers should not be treated as disposable; and that workers in energy are especially under threat in the climate transition. As principles, these were supported rather than disputed in the debate on the motion, and the Trade Union Councils' motion expressed many of the same values – involving those affected, identifying the greatest risks, and protecting vulnerable workers – but with a very different programme of action, working cross-sectorally. Even across similar values, the norms in unions vary depending on an inward-looking or an outward-looking stance.

Developing norms

Although norms were not discussed explicitly in these interviews, I have attempted to identify where norms were changing, related to key employment sectors or to a wider movement. Sectoral norms were apparent around the pride and expertise that union members have in technical job roles, in their loyalty to public services, and in traditions that inform unions' sense of identity. The latter was evidenced by the little museum at GMB offices that celebrates the founding story of the union. Although an internationalist outlook is a core value of trade unions, around low carbon, solidarity across the trade union movement or across society was less in evidence.

Having already described the debates around climate change and Just Transition at TUC in 2018 and 2019 in Chapter 5, in this section I have attempted to capture the norms expressed, both in the debates, and about the debates in my interviews. Although the tide had greatly shifted over 2018-19 following the youth strikes for climate, there was a lack of on-the-ground engagement with climate campaigners, even youth strikers, by trade unions. There was agreement on the headline importance of tackling climate change, but unions had not found ways to productively talk together about "how". Not being listened to and accorded a role as social partners by government meant UK unions were not being pushed to develop a coherent narrative across different levels, although the TUC's statement on Just Transition in 2019 was a step towards this.

7.6 Was there a renewal process from an institutional to a social movement role?

 In this section I draw out, whether, in developing their capacities – purpose, resources and organisation, capabilities and norms - there was a shift from an institutional role towards the energy unions acting more as a social movement. In other words, was climate change was acting as an 'occasion for renewal' for the unions considered here?

A union's institutional role is based in bargaining on behalf of its members with its social partners – employers and government. It is the established, more static element of the union role. As described in Chapters 5 and 6, since the 1980s in the UK this role has been to a great degree taken away, hedged around and constrained, and generally made more difficult. Major unionised employers have been privatised, fragmented and restructured, or cut by austerity programmes, and their activities in many cases outsourced, often overseas, with the effect that coherent bargaining across a sector or even an employer has become much more of a challenge. Specific changes in UK law have also increased the difficulties for unions, for example, ballots for industrial action having stricter thresholds (UK Legislation 2016).

A union's social movement role is focused on its wider aims around social justice and better lives for workers across society. As a particular kind of social movement organisation, a union does not leave behind its members' interests, but sees and acts on them in a wider context, in collaboration with other social movement actors. An example, from the railways, is the rail unions' support for campaigns for better public transport, that would benefit workers, citizens, businesses and the environment.

It is clear that the diminution of unions' role by government was often driving unions away from putting issues into a wider context (as in the example of Unite's input on vehicle electrification being ignored by government), and the fragmentation that made it harder to organise, recruit and bargain was also forcing unions to focus on the immediate interests of key areas of membership (as in the example of hospital workplace car park charges). TUC, with its role as a national union centre being specifically to represent common and wider interests to government and business, may have fared better, but the reduction of TUSDAC from a partnership body to a union forum shows the same trend. Thus, in these interviews, unions consistently emphasised the interests of specific workers. This told me their institutional role was happening in an increasingly narrow context – where they had industrial strength within an employer or sector.

One response of unions in this position has been to move their focus to workplace organising. US unions have long faced a hostile environment, and have refined their organising approaches to enable them to win ballots for union recognition and become actors in wider campaigns. Such approaches consciously develop the 'power resources' and 'strategic capabilities' available at all levels of the union, but especially in the workplace. This is compatible with adopting a more social movement-oriented role, as workplace campaigning prioritises issues that affect wide groups of workers, and allies are sought in wider social movements. The Sheffield Needs a Payrise campaign (SNAP) shows this approach around low pay and precarity, where unions and partners worked together locally to develop campaign resources and build organising capacity.

This organising response was not in evidence in my interviews around low carbon, except perhaps in regard to organising new employers in the renewable energy sector, although some of the energy unions were applying it around other themes and in other sectors. To see climate change as an issue for all workers, and to begin to organise accordingly, might have been seen by the energy unions as diluting their commitment to prioritise protection of their members' jobs in the energy sector. While the climate campaigns and especially the youth strikers were posing this challenge in 2018-19, the response in these interviews was very much to justify their current focus on the energy sector and their demand for a Just Transition to protect specific workers from the technology and process changes already in progress.

It is clear in the evidence I gathered through interviews in May-June 2019, that, around low carbon, the energy unions were making policy and rules, organising, using the expertise of members and reps, campaigning, and lobbying government, in ways that focused primarily on the interests of their members' existing jobs in energy. None of the energy unions had yet developed their social movement role around low carbon or climate change, to form policy, allocate resources and build alliances, train and develop reps and set new norms based in social and climate justice concern for workers and citizens more widely. Climate change was not acting as an 'occasion for renewal' for these unions. However, at Trades Union Congress in September 2019 a much more positive motion around climate change was passed, moving the consensus position nationally to concern for all members. Interviewed after TUC 2019, Gareth Forest, a GMB activist with young workers as well as a member of TUC staff, had identified this shift in the climate debate between Congress 2018 and 2019. He thought that pressure from members, in the context of a 'profoundly' changed public debate, had led unions to move from "seeing it in quite a limited sphere" to "seeing the necessity to change all parts of our economy to fight the climate emergency" (GFL.16d). Gareth Forest saw an organising component to this - the importance of unions developing young members' abilities to organise and bargain in their workplaces – but there was no legal framework around climate strikes as for industrial action on specific disputes (GFL.15g). Union concerns had shifted in 2018-19, but how to organise workforces around climate change was far from clear.

7.7 Conclusion

In this chapter, analysis of interviews with energy union officers has explored how the unions nationally were developing their purpose, their organisation and resources, their capabilities around the low carbon agenda, and how wider norms were also developing.

Figure 7 - The cycle of concerns, goals and capacities
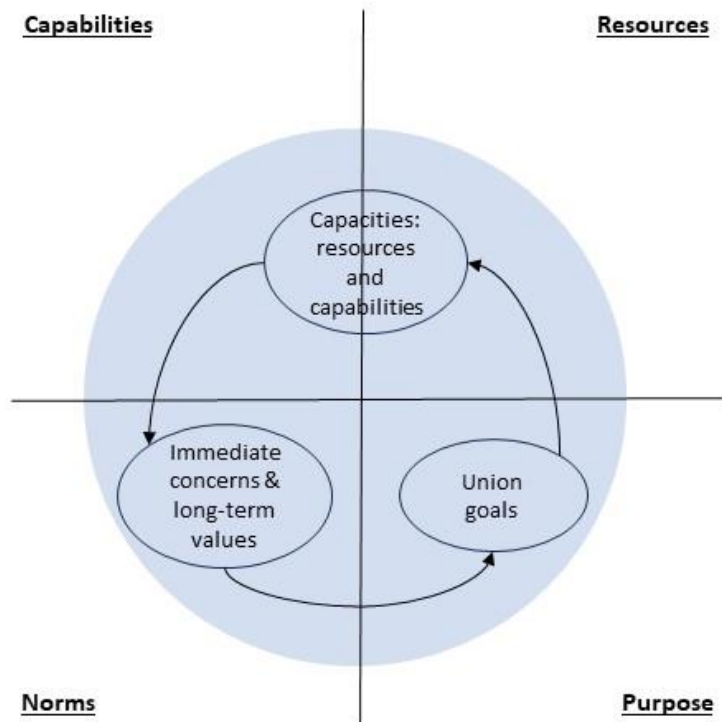
A link between capacities and concerns has become apparent, in line with Fairbrother's (2015) assertion that unions' purpose is developed as goals from both immediate concerns and long-term values. In my matrix, the shallower and narrower levels of environmental and social concern are more related to 'immediate concerns' of the membership – concerns around these workers, this employer, this technology upgrade, this process change already in train. The broader and deeper levels of concern are more related to 'long term values', such as fairness for all citizens, and long-term sustainability within ecological limits. These types of concern are inputs to union policy formation creating both goals to realise and goals for policy advocacy. To achieve these goals will require activities, which need capacities – both resources and capabilities – to support them. Union activities, using capacities to achieve goals, feed back into concerns for a union.

This cycle is illustrated in

Figure *7* - where concerns feed into goals, developing capacities, and feeding into concerns, all situated within the outline of my *framework*. As illustrated, this represents a more straightforward cycle, within an institutional role (the blue circle), where the goals require infrastructural resources, and skills and competences. However, such a cycle may also include the development for the union of narrative resources, internal and external forms of solidarity, and strategic capabilities such as framing and articulating (in the area outside the circle). I will use this summary diagram to illustrate my emerging conclusions for the energy unions and for the TUC Y&H Taskforce.

The development of the energy unions' purpose and policy around low carbon was to a great extent dominated by the interests of their energy sector members, even though their relative numerical strength was not that great. Within an energy union's identity, such sectors represented core memberships that traditionally had often had some autonomy over policies affecting them. The identification of "low carbon" with "energy and power decarbonisation" then led to the dominance of energy members over the union's low carbon policy. This fact co-existed in several of the energy unions with seeing climate change as a 'citizenship' or all-member issue for the union, but at the time of my interviews, the central right of the energy workers to be heard and protected was a key message.

In more limited contexts, the unions were offering vision and leadership around the climate transition such as UNISON's campaign on local government pensions, where the union was able to integrate a perspective that linked social and ecological concerns with the interests of its members, and to form a campaigning alliance with wider civil society around shared goals. More typical for the energy unions was to apply more effort towards relationships with employers and their federations than with social movements.

In terms of the development of their resources and capabilities, that is, their organising strengths, my findings demonstrate that unions have so far not dedicated much resource or training to climate change and its implications, and have largely relied on activist members and reps and a thin layer of mostly non-specialist staff to develop their work on low carbon. They have focused their research efforts on the implications of technology and process change in key sectors such as energy, to support employer-level bargaining.

I also considered how the energy unions were developing their "strategic capabilities" and "power resources" - ways that a union may renew its agenda. Here, gaining consensus in among their members in energy regarding low carbon pathways and acting collectively as energy unions had necessitated developing framing and intermediating capabilities, and narrative resources for the energy unions. However, there was difficulty 'articulating' this consensus with wider perspectives, such as the other TUC unions, the ITUC's climate campaigning, or the youth climate movement.

Alliances that unions form, developing their network embeddedness, can be viewed as a resource to their organisation. In my findings, the most common and committed alliances are sectoral, as unions work with employers' federations to lobby governments for favourable policies. For other areas of the trade union agenda, wider alliances and resourced collaborations with other civil society organisations can be evidenced, but this was not in evidence for the low carbon agenda.

Across all the unions where I conducted interviews, the strongest norms expressed were around fairness and protection for threatened workers, but there was also a strong belief in fixing problems through technology, especially in the engineering-based unions. The biggest impetus to change in the unions' norms on low carbon had come from the norms expressed by the youth climate strikers, who had used the unions' own idioms of organising and fairness to tell their own story about the injustices of climate change and the need for young people to be heard. However, as noted above, this challenge was partly being resisted, in any case, it had not been adopted into policy yet.

In the UK, the unions' institutional role had been severely eroded, or even swept away. Unions had the depth of involvement in their sector that meant they could see strategic issues, but because of privatisation and lack of tripartite dialogue over decades they were often unable to influence "big picture" policy accordingly, and this may account in part for why they resorted to mainly defending the immediate job interests of their members. Becoming a valued partner in the low carbon transition might be a way forward, but is not within unions' own control. Overall, there was not evidence that climate change was providing an 'occasion for renewal', or provoking a transition for unions to a greater social movement role.

To different degrees unions see climate change as 'their business', beyond the immediate interests of energy workers. For the energy unions, the core concern was how energy workers would be treated in the transition. Although there is a set of wider concerns expressed in the interviews, about technological change, social change, young people, and economic purpose, the vision and leadership, narrative resources, training, articulation and outward-looking norms to organise around climate change as a significant factor were lacking. Climate change had not yet become an occasion for the renewal of unions' purpose, organisation and capacities that would demonstrate agency and a proactive approach. In their pressured position of being excluded from decision-making and all aspects of their role becoming harder, the energy unions were keeping their environmental concerns shallow and their social concerns fairly narrow, rather than shifting to a social movement role around climate change.

Considering these outcomes in terms of the cycle of concerns, goals and capacities in

Figure 7, the energy unions' cycle is very much located within their institutional role, around existing bargaining and influencing opportunities. There is some development of resources, skills, and narratives to achieve goals for core members, and lobby for favourable policies. However, the lack of opportunities to influence wider strategies leads to a lack of development of strategic capabilities, which limits wider engagement, and concerns remain framed around the limited sets of workers that unions are best able to protect.

Figure 8 - inner cycle diagram summarising energy unions
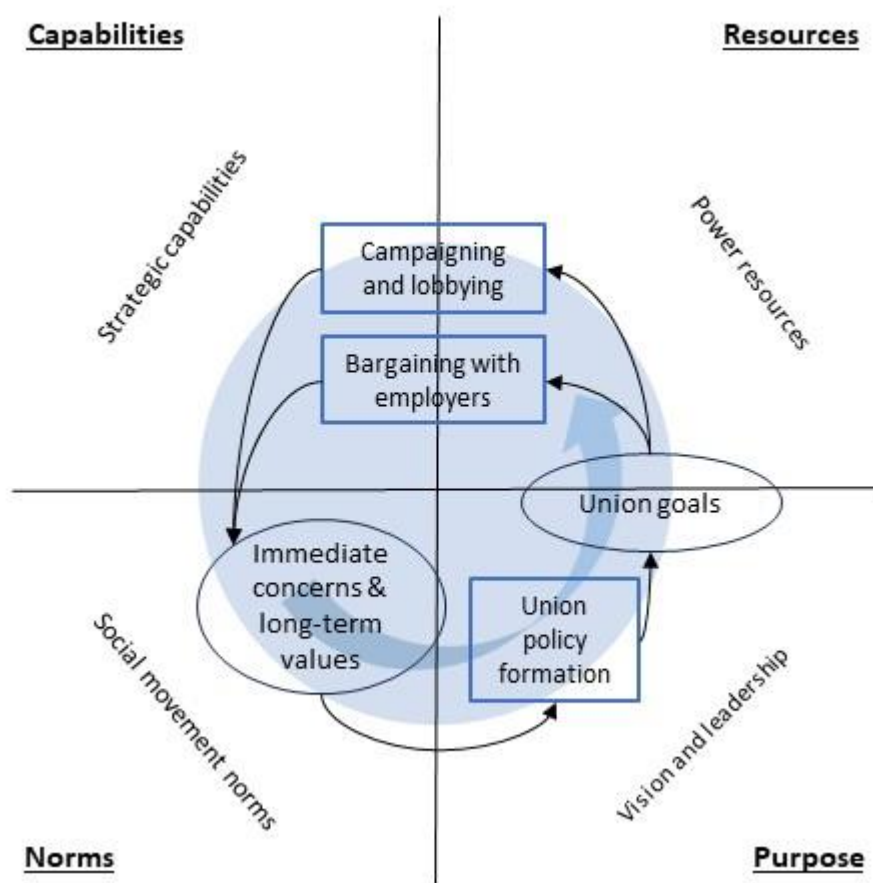
Figure 8 shows this "inner cycle" for the energy unions. In addition to concerns, goals and capacities, shown in oval shapes, core union activities are shown in rectangular boxes. The activities of "bargaining with employers" and "campaigning and lobbying" each make use of capabilities and resources, and are shown between those quadrants, while union policy formation is shown in the quadrant relating to purpose. Here, for the energy unions around low carbon, the cycle remains limited to developing capacities that relate to the union's institutional role, rather than encompassing power resources and strategic capabilities, vision and wider norms.

The energy unions were focusing their policies on the decarbonisation of energy supply, and their goals were very much related to a Just Transition in that industry. They were

developing their resources and organisation around low carbon, in the form of staffing, for example, extra researchers, and conferences for members and reps. These aspects were limited broadly to support for lobbying on technology options, although there was some aim to develop organising in new renewable energy companies, and capabilities were being developed among reps to have a broader understanding of the energy industry. The norms around low carbon were very much rooted in sectoral pride and defence of jobs and conditions in energy-intensive sectors.

Chapter 8: How were unions' concerns and capacities developing in relation to place-based climate action?

8.1 Introduction

This chapter addresses my third research question, to ask how unions' concerns and capacities were developing in relation to place-based climate action. It examines the extent, nature and impact of unions' engagement with place-based climate action, as part of my aim to explore the conditions that would allow unions to become more engaged in the climate change agenda and to realise a Just Transition. The aim of this chapter is thus to understand, through analysing union engagement, how union concerns, frames, roles and capacities were developing in relation to place-based climate action.

In Chapters 5, 6 and 7, I have shown how trade union engagement around climate change was constrained by several factors. These were drivers of three trends that I have identified for the energy unions, the unions which dominated the national mainstream, in terms of their shallow environmental concern, narrow social and justice concern, and capacities around the transition to low carbon which supported an institutional rather than a social movement role.

Taking this as the context, in section 8.2 I examine the extent of union engagement with place-based climate action, considering the involvement of the energy unions nationally and the TUC Y&H Taskforce. In section 8.3 I examine the nature of union engagement with place-based climate action. Whereas union concerns might be shared across national and subnational contexts, specific development of capacities was required to take opportunities to engage at different levels, so I structure my examination around the development of union capacities and role, using my *framework for change towards justice in trade unions*. For each quadrant in turn, I assess the development of purpose, resources, capabilities and norms and how this reflected the breadth and depth of social and environmental concern in the unions.

In section 8.4, I examine the impact of union engagement with place-based climate action, summarising how unions' concerns, roles, frames and capacities were developing in that

context. Specifically, I look at evidence about how acting as a social partner may develop unions' ability to articulate different interests and solidarities, and whether the development of union capacities represented a shift towards a social movement role. I also consider whether there is evidence of unions' framing of social and environmental concerns developing, in terms of my *matrix of environmental and social concern.* I draw together my conclusions around this third research question in section 8.5.

The evidence considered here for the TUC in Yorkshire and the Humber and its Just Transition Taskforce is from my participatory activist research with TUC Y&H, as well as from interviews with union and TUC officers in the region. I examine how trade union capacities around low carbon were developing through the work of TUC Y&H, its Taskforce and its wider campaigns, partnerships and embeddedness.

8.2 The extent of union engagement with place-based climate action

Place-based climate action, as defined in Chapter 2, is climate action at a local scale, by and for local communities, through multi-level and multi-actor collaboration. At the time of my fieldwork, as explored in Chapter 5, the need, opportunities and structures for place-based climate action were in a state of rapid development in the UK, varying with the diverse constitution of subnational governance. Yorkshire and the Humber region was further advanced than most - for example, the Leeds Climate Commission brought together multiple actors, from 2017, to explore and find consensus on strategies for local climate action and to integrate them with multi-level governance.

In considering the extent of union engagement with place-based climate action, importantly, the development of union capacities and concerns around the transition to low carbon at a national level was constrained by several drivers. Their institutional role was limited by the lack of tripartite dialogue and the absence of bargaining rights in many employers - including some that were key to the transition, such as renewable energy companies. Further, this was compounded at the time of my research by the UK government's specific exclusion of unions from strategic influence on climate action. These were each major drivers, which restricted unions to direct their efforts towards employers within key sectors where the low carbon transition was in train, and to focus their lobbying around change that was seen to protect jobs in these sectors, such as certain infrastructural technologies, for example, carbon capture and storage and the use of hydrogen.

This meant that, first, in terms of their environmental concerns, the energy unions had a shallow framing of the transition which focused on modernising, technological approaches to sustainability, or process change at most. Secondly, in terms of their social concerns, the energy unions employed a narrow framing of justice in the transition, which focused on a specific set of workers in energy, or UK citizens at most. These factors were illustrated by *Figure 6 - Position of energy unions on my matrix* in Chapter 6. Finally, the

energy unions' capacities around the transition to low carbon were those which supported an institutional rather than a social movement role, in terms of their purpose, resources, capabilities and norms. Structural factors around unions' exclusion from national influence and their lack of widespread institutional power resulted in capacities narrowly focused on technological change in the energy sector, an arena where unions still had some bargaining power and influence. Climate change as a wider social challenge and a global injustice was thereby neglected in the development of the energy union's capacities. The power resources and strategic capabilities around low carbon that would support unions' social movement role lacked development in the national mainstream, as was illustrated in Figure 8 in Chapter 7.

At the time of my research, the energy unions nationally were not engaging to any extent with place-based climate action – their focus was on national energy policy (through national officers and researchers) and on key employers in energy and energy-intensive industries (through employer-focused structures in the unions). When I raised research findings that related to place-based climate action, the interviewees were not aware of this work. The Trades Union Councils' motion at TUC 2018 (TUC, 2018: Motion 9) on strategy for a low carbon industrial region had expressed some tenets of place-based climate action without naming them as such, and although the energy unions had not spoken against that motion, some hostility was reported from conversations with their delegates. Engagement with place-based, multi-level governance and action would be more likely to be undertaken by TUC than by its affiliated unions, but it was clear that, at the time of my research, TUC nationally was not undertaking such engagement in respect of the low carbon agenda.   Where there was an interest in geographical issues, such as Prospect's work with IPPR on power generation in the North of England or UNISON members' interest in the Hydrogen21 project in Leeds, this did not at the time directly involve regional or local governance structures.

In contrast, the work of TUC Y&H and its Just Transition Taskforce had strong connections with place-based climate action as it was emerging in the region. Therefore, in the remainder of this chapter I examine how trade union capacities around low carbon were developing through this work. I consider how TUC Y&H found opportunities to engage at this subnational scale, and what capacities were used to recognise and take such opportunities. Whereas union purpose and material resources were of course constrained for TUC Y&H by national level decisions taken collectively by its affiliated unions, as discussed in Chapter 5, here I consider what scope existed to focus their purpose subnationally, and to develop resources, organisation and capabilities around low carbon. Although the role and resourcing of TUC is different to that of workplace unions, the energy unions were dominant in the direction of TUC regions just as nationally. I investigate how norms were a force at the subnational level, and whether authentic trade union stories were being told from the local level to develop new thinking on low carbon.

By thus examining the development of union capacities subnationally in relation to place-based climate action, I can compare the dynamics of union capacities and concerns in relation to place-based climate action against the national mainstream where this was not a factor.

8.3 The nature of engagement with place-based climate action in TUC Y&H

In this section I assess how capacities were developing in TUC Y&H and its Taskforce. In the subsections that follow, I move around the quadrants of my *framework* through purpose, resources, capabilities and norms, for each quadrant considering how the respective capacity was developing, also assessing what social and environmental concerns were expressed in this regard.

Purpose

As described in Chapter 5, the TUC regions adopt policy set nationally, through Congress, while having their own democratic process of selecting priorities for campaigns and projects, through their Regional Executive and its AGM conference. Here then, I consider how the low carbon agenda was being given priority by TUC Y&H, and whether vision and leadership were emerging around that. I consider the relationship to place-based climate action, and any relation to changes in social and environmental concerns.

Given the limited staffing of TUC Y&H, the roles of the Regional Secretary and the Policy and Campaigns Support Officer were a key element of realising purpose around low carbon. In my interview with him, Bill Adams described his key current campaigns as: "devolution, … climate change, Just Transition campaign, recruitment of young workers, and attempting to combat the rise of the far right" (BA.01a). Gareth Forest (up to 2019 known as Gareth Lewis), the Policy and Campaign Support Officer (PCSO) in TUC Y&H, described his role as supporting these same priorities, but spending "the majority of my time working on the issue of precarious work, low pay, zero hours contracts, especially with young workers" (GFL.01e). Gareth Forest said that, when starting his job in early 2017, he had been made aware by Bill Adams that "one of the key priorities in the region was exploring how to secure a Just Transition for Yorkshire and the Humber - it being the most exposed region in terms of high carbon industries - and all the changes to jobs that's going to entail over the next 10 years" (GFL.02b). Thus clearly the low carbon agenda was given high priority, as a factor guiding the work of TUC Y&H. This was supported by an interview comment from a Unite officer in the region, active on the Just Transition Taskforce, crediting TUC regionally with leadership on climate that was missing from the wider landscape: "I do not see a clear path, [but] Bill is creating his own vision and way of working on it – that's not happening in every region" (SC.13c).

In his interview, Bill Adams said that he personally had always been concerned about the climate, "but I saw the industrial scale of what could happen when I read about the Paris Climate Agreement and about the vulnerability of heavy industry in Yorkshire" (BA.02a).

He identified climate change as part of the purpose of unions: "I think the unions are going to have to grasp it and understand that our jobs are going to change. There may be fewer jobs, but that's part of the negotiation" (BA.04b). There was a need for long-term commitment (BA.09a), and while the high-level policy was there, unions' role with employers also had to be considered:

> "It is TUC policy to move to a lower carbon economy. My view is that unions can be at the centre of this, driving the agenda through collective bargaining. Where we have collective agreements, after pay and conditions, and Health and Safety, it should be the next item on the agenda" (BA.05a).

Wider social partnership was also seen by Bill Adams as essential to build worker confidence in the climate transition:

> "It is imperative that the government, unions and employers work out a scheme to meet these international targets that we signed up for, and we come up with a kind of social partnership which takes away that fear" (BA.05c).

Such agreements were seen as "a way forward to change society, change employment and ensure security for those coming in the future" (BA.09g). This statement shows a broadening of social concern, to encompass wider society and future citizens.

TUC Y&H had created a cross-sectoral Taskforce calling for a regional low carbon strategy and a cross-sectoral partnership, with unions at the heart, to create and implement it, and was seeking external funding for its climate project in collaboration with a variety of partners in universities and civil society. This represented its own approach to place-based climate action. Bill Adams described how concern about the energy-intensive industries had motivated the creation of the regional Just Transition Taskforce: "We decided to set up the Taskforce to raise awareness amongst unions within the region, that we have 30,000 jobs at risk and we need to do something proactive, rather than waiting for the slow death of climate change" (BA.01d). I discussed the purpose of the Taskforce, summarised in four aims, in a one-to-one meeting with with Bill Adams (ref:JP-2018-12-YHTUC-01). First, the aim was to work with partner organisations to analyse what was needed for a Just Transition in Yorkshire and the Humber, indicating a relation with place-based climate action in looking at the particular needs of the region. Secondly, to engage regional stakeholders around Just Transition – for example, getting funding with Leeds University to deliver project work, which would develop strategic capabilities and narrative resources. The third aim was supporting policy development by unions for climate action, and lastly, to train workplace reps to negotiate around low carbon. Each of these depended on capacity in affiliated unions working with others in the Taskforce, so that members, reps and employers could be engaged – again indicative of the development of wider solidarities and aims articulated at different levels.

In a one-to-one meeting to develop a funding bid (ref:JP-2018-YHTUC-01), I discussed with Bill Adams the difficulties for TUC around organising stakeholders to work together, and his role in that. He said it was 'his job' to "cajole the unions that this is a progressive thing and talk about how we can effect change and protect jobs". He spoke about the need for unions to be at the table, given that employers would be forced, by government or by the market, to 'press on' with the low carbon transition, but that the workforce could suffer in the process. These comments show Bill Adams going beyond his remit from TUC nationally, to grasp the low carbon agenda proactively and put forward a vision of the trade union role, and to collaborate to deliver that role. In his interview, he put forward his thinking about leadership on low carbon in the unions: "I think there's got to be a sea change in the leadership - a different approach. We can't keep going along the same path that we're doing now" (BA.08a). A regional Unite officer, Simon Coop, active in the Taskforce, had adopted this same sense that rapid, large-scale action was needed: "There are no doubts about climate change, it's more and more clear. But drastic action needs to be taken" (SC.03a). This awareness suggests that climate concerns were being effectively articulated by the work of the Taskforce.

The social concern of the Taskforce remit was wider than just energy workers, but, in extending to energy-intensive industries and manufacturing (championed by active Unite members), it was still built around concern for 'these workers'. Critically, however, concern also extended to the communities which depended economically on the vulnerable jobs at these large point sources of emissions. This related the Just Transition work of the Taskforce to place-based climate action, and opened up some possibility of a 'common cause' between unions and communities.

Bill Adams said in his interview, that he had realised "it's not just about power generation, not just about steel and concrete, glass and ceramics. Every single job is going to be affected by climate change and that's why I think the TUC have to be at the centre of it" (BA.03). He was very clear about the wider social benefits of acting on climate change, and of a Just Transition. He was explicit about the necessity for government policies that would provide security and confidence for those whose work or community would be disrupted by the transition: "good social policies around education and training for kids and workers and a decent retirement scheme for people who are going to be pushed out, probably a little bit earlier than they realised" (BA.04e). He could see that it could even be a popular policy – that given income security people would like to retire early (BA.04e). This concern is expressed around the workers and communities that would face disruption, but he also made links to wider co-benefits of climate action: "Wouldn't you like to live somewhere near where you work? Would you like to not have too many hours to work? Wouldn't you like to have an efficient home where it's not costing you a fortune to heat and light?" (BA.08d). Here, he was developing a narrative about the climate

transition that went beyond immediate concerns in unions, to express longer-term values about a good society that could emerge from that transition.

The environmental concern of the Taskforce was almost entirely technological – CCS to protect energy intensive industries was always cited as a major demand. Although TUC engaged with the LEPs and (from 2018) the South Yorkshire Mayor to advocate for skills, investment and fair work – thus making links made between climate change and key economic issues - a broader picture of an economy geared to social needs within ecological limits was not developed.

In terms of union purpose and whether vision and leadership were emerging around the low carbon agenda, TUC Y&H was clearly prioritising climate change from within nationally driven policy, and had set up a Taskforce focused around a Just Transition for energy-intensive industries, following on from its participation on the ETUC Industrial Regions programme. Bill Adams was clear about this priority and that it would require long term effort, and it had been agreed by the Regional Executive. The region was seen as working on this purpose in a way that other regions were not, under the leadership of a Regional Secretary who was clear that climate change was union business. In response to an opportunity for a funded project, TUC Y&H worked with partners to develop its own project whereby unions could work with key employers to achieve a Just Transition. In terms of the levels of environmental and social concern indicated here, broad social concern was expressed, encompassing UK citizens, and economic issues not just workplace specifics, but environmental concern still tended to focus around technological change.

Resources

In this section, as well as looking at infrastructural resources (money, staff, etc), I consider how TUC Y&H was developing other 'power resources' - narrative resources, and solidarity between and beyond unions through embeddedness in relationships. As discussed in section 8.3, around Purpose, the relationships formed around low carbon had begun to embed TUC Y&H in wider networks, so I interrogate how moving union relationships into new areas required, but also offered, new resources. I look at whether seeking external funding for the union role developed narratives or expanded the unions' vision of what their role might be. In terms of union organising, too, I look at how opportunities emerged to build solidarity between unions and allies and to develop new narratives relating to climate change.

The infrastructural resources available to TUC in the Yorkshire and the Humber region were limited by its allocation of TUC resources nationally, with priorities for the use of its resources guided by the Regional Executive Council, as described above. During the period of my research, TUC Y&H began to seek external funding to provide extra resources for its low carbon work. As discussed in Chapter 5, TUC Y&H had developed its leadership

on low carbon through its involvement in the ETUC-led project *Industrial Regions and Climate Change* (TUC and Orion, 2015). However, there was a need for its affiliated unions to allocate resources to the low carbon agenda to get real progress. Bill Adams commented: "I don't think it's top of the agenda for most unions … I think in this region we're probably ahead of most other regions in terms of union involvement. I think we're hampered by the lack of structure at a national level" (BA.06f). Workplace bargaining by unions was thus a very clear direction from Bill Adams: "If [unions] raised climate action in every workplace where we're recognised, that would be a great start. Get it up on the bargaining table. Have an allocation of time on every joint meeting of unions and management to talk about climate change and Just Transition" (BA.06b1). TUC could not direct this, but the Taskforce and its proposed project were an attempt to encourage and support such bargaining by affiliates.

Beyond raising climate issues on the bargaining table, there were some inspiring examples to draw on of workers taking initiative to restructure production - Gareth Forest saw this as the outcome of "taking power in the workplace and realising that it is their labour that is building all of this" (GFL.10d). However, he recognised the challenge implicit in this: "it is a huge amount of work to, not only think through that, but then campaign for that change, when the levers of power we have are quite blunt, in terms of industrial organising" (GFL.11c). However close to home the aim of industrial action, as a trade unionist, "you're taking on a huge amount of responsibility and a huge amount of risk, no matter how well-organised your sector is" (GFL.11d). When the 'ask' is "we need to fight climate change, change the nature of the economy", it is, to a very difficult extent, a "more amorphous ask" (GFL.11e). The state of union branch organisation was not always ready for such a challenge, with a demographic challenge looming: "the trade union reps, who are, on the whole, 50 plus and are going to be retiring in the next 10-15 years, they really want to get more young people into the movement" (GFL.15f). Young people organising around climate change might offer a way forward, "to bring these activists in the youth strike for climate into the movement" (GFL.15h). This would build on the adoption by the young campaigners of the union narrative of the strike, but would require unions to build new forms of external solidarity and new ways to articulate their aims.

What is apparent here, then, is that both Bill Adams and Gareth Forest were thinking in terms of integrating climate change with the mainstream concerns of trade unions – concerns for workplace bargaining, for organising workers to increase their power, and for ways to bring young people into trade unions and represent their interests. The low carbon agenda was seen as not just a case for policy advocacy around technologies and investment, but as something that trade unions could organise and build solidarity around.

A strength in TUC Yorkshire and the Humber appeared to be the ability to integrate relationships at many levels with its campaigns. Of the original European Trade Union Confederation project on *Industrial Regions and Climate Change*, Bill Adams said: "we had a lot of interest from Europe, and I organised a tour of Drax power station for ETUC members of the Sustainable Development and Climate Change Committee. At that point I became interested and active - I was tasked with attending the Committee in Brussels" (BA.01c). Setting up a cross-sectoral Just Transition Taskforce also ensued: "we starting making agreements and partnerships with local authorities, LEPs, employers and unions and universities to come together with this plan for Yorkshire" (BA.01d). At several levels, then, Bill Adams was embedding unions into external relationships and developing a place-based approach to climate action.

Following the connections made through the ETUC programme, then, Bill Adams acted as the TUC's delegate to the ETUC's Sustainable Development and Climate Change Committee in 2017-19. I accompanied him to Brussels in March 2018 for a meeting of the Committee and a seminar to prepare the final report on Just Transition from the ETUC's project. It emerged that TUC had not responded to a questionnaire ETUC had issued, designed to provide key evidence for the report. We arranged for this to be completed on behalf of TUC and incorporated into the final report (ref: JP-2018-03-ETUC-01). Following Brexit, the UK would not be fully involved in EU Just Transition plans, but ETUC wanted to continue to involve TUC as much as possible, so valued their link with TUC Y&H (ref: JP-2018-03-ETUC-01).

The scope of material covered in the ETUC Committee and seminar was huge, and many, though not all, of the trade union officers participating were specialists in environment or climate, and also well-versed in EU approaches to these. There were discussions that touched on how different sectors were implicated in the low carbon transition, and whether Just Transition should relate only to energy and energy-intensive industries, or encompass wider sectors where jobs could be created – such as housing and transport. Bill Adams was well-known and respected in this arena, and it was clear that the time he dedicated to building relationships in the ETUC helped to integrate UK unions with the viewpoints and concerns of wider European trade unions around the low carbon transition. His involvement with ETUC represents the building of external solidarity through different levels of union organisation, and articulation of union aims.

 Another area where TUC Y&H was building relationships that helped to embed unions in networks was with universities. Although relationships had existed with universities around technological elements of industrial strategy, such as CCS, the relationship around the economic and social aspects of place-based climate action was new, and it underpinned the core involvement of unions in what was to eventually become the Yorkshire and Humber Climate Commission. The TUC relationship with Leeds University

also led to a fruitful relationship with the *Investing in a Just Transition* (IJT) project at the Grantham Research Institute at London School of Economics (LSE), who were researching how investors and banks could support a just climate transition. The relationship with IJT also led to an opportunity to apply for funding for the TUC's low carbon work which I explore further below.

In a one-to-one meeting with me (ref: JP-2018-12-YHTUC-01), Bill Adams raised the subject of unions' attitude to private investors, as we discussed changes in the union approach to low carbon. Bill Adams recognised the need for private investors to play a role in the transition, to achieve investment that supports good jobs and skills, rather than relying purely on state investment. Working with the IJT project had raised the potential for private investors switching away from "risky investments in dodgy regimes", to invest in low carbon jobs in Yorkshire. Such change could be challenging to unions, who might be 'small c conservative' about such possibilities, but Bill saw that "good things happen when people are progressive and think outside the box" (ref: JP-2018-12-YHTUC-01). The IJT project's willingness to collaborate with unions meant Bill Adams had been invited to speak to events and join their steering group. As he confirmed later in his interview, for Bill Adams, this relationship developed an important narrative resource around "where these investments will come from" (BA.07b), to underpin what the Labour Party said it would do in government (BA.07a)

The opportunity to apply for external project funding to gain infrastructural resources for TUC Y&H, was a new approach for the Taskforce. Two unsuccessful bids were followed by a successful bid to another funder, over the course of two years. Such bids were unusual in TUC, and relied on support from allies, such as universities, to happen at all. For preparing the first bid, which formed a major part of my embedded role with TUC between Nov 2018 and July 2019, the IJT project provided help to draft the aims and approach, and to review the second stage bid (ref: JP-2019-04-AG-01; JP- 2019-05-BID-01], and other university partners were willing to work with us to deliver the project.

Writing a bid was a new endeavour, and many aspects of the project represented culturally unfamiliar ground. The project itself envisaged collaborative events with specific key employers, where there would be briefing/training of union reps and the wider workforce, and joint work to understand what a Just Transition would look like in that employer. This relied heavily on affiliated unions from the Taskforce collaborating to identify and involve workplace reps and employers, but it was difficult to establish a clear level of commitment to the detail of this work. It also relied on the selected employers being willing to share company information with unions that could be considered sensitive to their business interests. Starting from an unfavourable situation where there was a lack of clear government policy or effective regional governance around the low carbon transition, and where unions were challenged by declining membership, lack of

capacity and often hostile employers, this was an ambitious project plan. Although it failed to attract resources at this stage, the development of external embeddedness through this application process was considerable, especially relationships with academics.

A rather different example of TUC Y&H work that built power resources around low carbon was its bus campaign, which had started from a concern around the cost and unreliability of bus travel for young workers. Gareth Forest described in his interview how the bus campaign had developed, as a shift in priorities brought it up the agenda "driven by the unrelenting decline in [bus] ridership, and where that intersects with the new urgency around the climate emergency" (GFL.04e). Whereas previously the detailed work to research the bus campaign had been seen as out of scope for the resources available to TUC, by working with community campaigns, anti-privatisation campaigners, and Unite, which organises bus drivers, TUC Y&H had begun to build an effective campaign.

Gareth Forest articulated environmental and social concerns in this campaign, and located it as place-based climate action which he hoped would have "huge impacts for the environment and public health in the region, and help local authorities play their part in fighting the climate emergency" (GFL.03d). The bus campaign had:

> "taken the form of press interventions, and elite influencing with key MPs and council leaders, around declaring support for public control and a campaign for public ownership" (GFL.03k).

Because of the changing nature of work, there were difficulties that "trade unions aren't as embedded in local communities as they once were" (GFL.05a), but the campaign showed how unions could work with community campaigns, combining street-level action with more formal approaches to build up pressure on decision-makers. It developed internal solidarity, emphasising a role for unions on campaigning for decent bus services as a subject of interest to workers, and extending union environmental concerns by aligning then with the potential for investment and more jobs in public transport.

The organising approach talked about by Gareth Forest emphasised wider social concern – for all workers rather than a narrow subset. Bill Adams' comments about increasing union bargaining around low carbon suggest that, after pay and Health and Safety, low carbon should be the next item on the bargaining agenda - this makes it an issue for all workers, rather than a narrow subset. In terms of environmental concern, however, workplace and company level action relate to technology and process change rather than ecological approaches such as demand reduction.

The geographical focus of the ETUC project led to a concern for the impact of the climate transition on communities not just on 'these workers'. Through links with economic

governance bodies in the region and thus to university projects such as IJT, economic concern for UK citizens and concern for 'worker voice' for all workers were being expressed. In Bill Adams' work with ETUC, the question of whether low carbon was an issue for narrow or wider sectors was also being raised - it was not out of tune with the thinking of other EU unions present at the seminar.

The funding application I worked on was based around engagement of a few specific employers – in energy intensive industries and manufacturing – as a site for Just Transition planning. The TUC bid emphasised the role of unions as convenors of employers and governance bodies to facilitate work that helps local bargaining, but also impacts beneficially on local skills development, investment in the region, and national carbon targets. These narratives thus widened out social concern from 'these workers' to UK citizens. While the environmental concern expressed included the potential for process change, technological solutions remained the dominant environmental framing.

'Social movement' campaigning by TUC Y&H on buses put forward the environmental, as well as social, importance of good bus services – enabling modal shift away from car use and towards a net zero economy. Thus, a narrative was being developed around climate change that, as well as broadening social concerns away from specific workers to citizens, deepened their environmental concern towards demand reduction rather than just modernising approaches.

In the field of resources and organisation, opportunities were being taken to gain new funding for staff, build relationships with partners, and develop new narrative resources around climate change. Young people as workers were a key concern for unions, around which links could be made with the low carbon agenda, through social movement campaigning around bus services, for example. My own role, other key activists, and relationships built by TUC staff around devolution and the regional economy led to a wider embeddedness of the Taskforce, including with universities around social concerns about low carbon.

Capabilities

The capabilities quadrant includes the development of both skills through training and the 'strategic capabilities' that enable the deployment by unions of 'power resources'. Delivery of training around a Just Transition to low carbon was a major plank of the work of the Just Transition Taskforce in the period of my fieldwork. As well as evaluating this, I consider how the strategic capabilities of intermediating, learning, framing and articulating were being deployed and developed, by whom, and with what effect.

In 2018, as my participatory activist research commenced, there was clear enthusiasm in TUC Yorkshire and the Humber and in the Taskforce to provide training for workplace reps

around the climate agenda. In his later interview, Bill Adams explained this, seeing training for reps as a key element of union action on low carbon:

> "You can start by general secretaries and people like me say[ing] we must do something about climate change. But how do we actually effect that? So, my view is we push it down to workplaces and get our representatives in the workplaces raising it with employers. And our job is to support those individuals with training about how to do it" (BA.06a).

He thought the training needed included:

> "a bit around the science of it all, what it means, and then look at the effect it's going to have on those workplaces, how it's going to affect profits, workers, pay and conditions, retirements, skills. That's the role of the union" (BA.06b2).

Gareth Forest saw the training run by TUC in Yorkshire and the Humber as "equipping trade union reps to better negotiate with employers to reduce their carbon footprint in terms of their businesses process" (GFL.06a). These views suggest courses run for specific workplaces or in relation to similar employers, so that they can be tailored to the processes of the business and the impacts of the climate transition. The TUC Y&H project which external funding was applied for hoped to work with specific major employers to provide training for workers on a more tailored basis. However, in 2018-19, pilot courses were run by TUC, not specific to employers, but open to all reps and activists.

The value of training and education is deeply embedded in the labour movement, and accordingly, a training course was a central plank of how the TUC Y&H Taskforce thought about engaging around climate change. A 2-day Just Transition course was developed and run as a pilot in November 2018, and then again with slight changes in February 2019. The course was developed by a Greener Jobs Alliance activist, and it was delivered through a Further Education College which was the TUC's standard training provider in the region. I provided support through recruiting for the course, and was involved in developing and delivering it.

The course aimed to develop attendees' knowledge of national climate policy and unions' related policies and structures. Beyond that, it went some way towards developing skills in how to audit a workplace for environmental issues, and enabled reflection on the role of green reps, and what obstacles existed in their role. Through running a face-to-face course, this initiative also aimed to develop a network of like-minded activists and reps, who could support one another's work and build their own networks, even if constrained by lack of resources.

There were challenges to recruiting attendees to each course. The first course ran with a cohort of existing activists, and their inputs helped to tune the materials, structure and recruitment for the second course. The second course attracted more workplace reps to

participate, but this meant that for several participants it was difficult to commit to full participation because of conflicting demands from work and their lack of formal status and training rights. Green reps, unlike Health and Safety reps, at the time had no statutory rights to 'facility time' – paid time for union duties to enable their role - or to training for their role. Positive feedback was received during the review of the pilot course, which showed that the training was seen as having great potential but needing further development and a package of rights and resources around it to be really effective. The second run of the course, in February 2019, instead of 'Just Transition' was titled 'Protecting our futures - climate change and jobs', following a recommendation from the pilot course participants to use more widely understandable terms.

The second run of the course in February-March 2019, instead of running on consecutive days, had a week's gap between Day 1 and Day 2, during which the 10 participants were able to gather information about their employer's climate plans and try out some environmental audit activities. An email group was created after the second course, for participants in both courses to share information and feedback on their workplace actions after the course. This led to some good networking and collaboration around a motion to the TUC Regional AGM and input into an article and booklet being published by *Labour Research* magazine.

The online peer email group provided some feedback on the usefulness of the course and what actions it had supported, from one of the participants of the second course, a GMB rep in a plastics factory. He commented, one month after completing the course, that "since the course I've had a meeting with my health and safety manager and production manager and operations manager, I discussed with them on things that came out of the course and since then improvements have been made". Recycling in the canteen had been improved and staff had been briefed on this. The rep had attended a further course on auditing and was going to carry out regular audits around the factory. An environment noticeboard had been instigated, and he had been asked to present to shop floor staff on what was expected of them on recycling. He commented "I certainly think that the course which I had with you gave [my employer] a wake-up call and I will keep pushing on the environment." The feedback from this participant shows both the potential of training to support action for environmental improvements, and the difficulties of providing ongoing support to trainees without significant resources in place. This participant was the only one from a factory environment, so there was a limit to how much peer support he could gain from the other members of the email group.

After the first two courses in Yorkshire and the Humber, in 2019 TUC decided to integrate this training into their main training offer for reps, by transferring its delivery to the Further Education College that ran their main courses. The course was restructured around existing assessment units, to enable credits to be awarded to students, and

delivery to be funded through the mainstream process. This formalisation was necessary to ensure the course was financially sustainable, but this process reduced its links with the Taskforce and to any limited capacity available to provide ongoing support to networks of green reps.

Gareth Forest commented that the Just Transition course had been run before the public interest in climate change took off – and he was hopeful that with this new interest would lead to more success in training reps - "seeing the interest of our TUC partners and affiliates in other regions, and the move in TUC nationally to revamp green reps courses" (GFL.06e). He made a link to the training he had been involved in around industrial organising, with young workers (GFL.01h): "in terms of the skillset that we develop with grassroots members and reps, the thing that we can provide most effectively is training around how to organise - industrial organising, but that can take a variety of forms" (GFL.06e). He considered that "training on best practice and how to organise to green your workplace" would be a key factor in pushing forward the low carbon agenda, "if [reps] are equipped to be able to negotiate how to change the workplace…" (GFL.06f).

My overall assessment of the training course is that while there was clear consensus that it could be useful, motivation to run it, a clear need for training among reps, and the knowledge and skills to deliver a good course, the course foundered on the lack of practical support for union reps or branch activists to attend the training – to get paid day-release from work. This was a result of government and employers not according a role to unions and employers not involving their workforce in company decarbonisation plans. This aspect of unions developing capabilities around low carbon was therefore very difficult to achieve within existing resources and without being accorded more of a role by employers and government.

TUC Y&H was developing the strategic capabilities that enable the use of power resources by unions through the creation of the cross-sectoral Just Transition Taskforce, the development of training for reps, the building of relationships with universities, the bus campaign and the attempt to run an externally-funded collaborative project. "Learning" as a strategic capability was evident in the development of the training course and "intermediating" different interests was a capability displayed by Bill Adams, in his alertness to the perspectives of affiliates and other partner organisations, and the "cajoling" (ref:JP-2018-12-YHTUC-01) he referred to in talking to the unions regionally.

Bill Adams and Gareth Forest each brought strategic capabilities, and these were supplemented by other individuals as supportive union-focused activists. Several individual university contacts played a key role as willing collaborators, linking TUC to wider opportunities and discussions. Bill Adams saw a need for unions "to think a bit more

strategically", and TUC to lead, as "we've had the opportunity to think about these things" (BA.08c). He was aware there was a lot of work to be done "in persuading unions to come behind [this]", when they had "so many things on, trying to defend the members, that it's probably not top of their list, but it should be" (BA.09d). Gareth Forest saw the youth strikers providing "the shock [unions] needed, to reframe how we think in a positive way" (GFL.15c). This shock had encouraged unions "to reflect on how they can engage in this arena properly and industrially", having seen "our language and our techniques and our methods [of striking] being employed so radically, and hopefully so effectively, to call for change" (GFL.15c).

Active trade union members of the Taskforce, even those unrelated to energy-intensive employment were also key in developing and disseminating new framings that articulated solidarity at different levels. For example, the chair of the TUC Regional Executive, from the shopworkers' union USDAW, attended the launch of the ETUC Just Transition report in Brussels. Sarah Woolley, of the Bakers, Food and Allied Workers Union (BFAWU), was an active Taskforce member and had taken a lead in raising climate change up the agenda in BFAWU. She talked in her interview about how their activities attempted to integrate climate change into the mainstream agenda, rather than see it as a separate subject: "much the same as equality and learning and education, it should be as one on the agenda for a trade union" (SW.01d). She told of how her own wider social concern had been aroused: "it really was one of those moments where I thought, God, if we don't do anything, we're not going to have a world, never mind a baking industry" (SW.02b). Recognising the need for leadership by the union, she was aware of difficulties in communicating the scale of the challenge without turning members off:

> "getting people engaged means we have to talk to [members] and put it in a language that isn't overwhelming, because climate change and the green agenda is so huge" (SW.03a).

In their new green newsletter for members BFAWU had featured plastic waste issues, "just to give people information that they wouldn't necessarily get from anywhere else, to engage with them" (SW.03f). The newsletter included fun items such as recipes to help members understand the climate impact of food. Sarah Woolley was able to make links between the mainstream union issue of precarious employment and employers' lack of action to reduce climate impact (SW.04d). Her approach shows a commitment to develop members' and reps' knowledge and demonstrates evidence of strategic capabilities around the low carbon agenda. There was organisational learning in BFAWU as they created new forms of communication and developed their bargaining agenda, especially where employers such as Greggs responded positively. Re-framing was happening within BFAWU, and concerns were widening and deepening as co-benefits of climate action were recognised:

"Why wouldn't we want our members and their families to come home without nasty particles in their lungs? Or to have reduced heating bills with properly insulated houses? That's what we should strive for as a movement" (SW.04c).

Sarah Woolley was articulating the importance of low carbon at different levels, from how it affected BFAWU members in the workplace, to a critique of TUC adopting a narrow position on Just Transition based on the energy unions' conception. On this latter point, she wanted to move things on from defensive posturing between unions where "it gets a bit pigeon-chested" (SW.04b), towards a conversation about how different jobs and communities were affected, and unions working together "around educating people that [the transition is] a necessity, rather than it just being forced upon them" (SW.06b). From an energy union perspective, another active Taskforce member, Simon Coop, expressed the difficulty of articulating interests for Unite as a classic 'jobs vs environment' dilemma:

"The situation, for an industrial trade unionist, sometimes brings difficulties because, although industries are big carbon emitters, it's how do we convince our representatives - the workers who work in those industries - that in transitioning to low carbon their jobs will be protected?" (SC.05b).

The context for unions to articulate solidarity and frame meanings around low carbon was not always favourable. I set out here an example of a city region energy strategy consultation I attended during my TUC Y&H embedded research, at which I had a strong enough grasp of the agenda and pre-existing relationships to make useful contributions on behalf of unions. It was, however, an alienating and frustrating experience, that unions could not have participated in without my support, and that did not help unions to better articulate solidarity or frame issues around low carbon, so I explore some of the structural reasons why this was so.

The event was a cross-sectoral consultation event on energy strategy, run by the Sheffield City Region Local Enterprise Partnership (SCRLEP) in July 2018 (ref: JP-2018-07-SCR-01). The participants included people from different sectors who had been working on low carbon for many years, e.g., who pre-2011 had been members of the Low Carbon Working Group of *Sheffield First for Environment* (part of Sheffield's Local Strategic Partnership). The event would not have included any trade union representation had I not been invited through my voluntary sector involvement. Union officers from the region would in any case have struggled to engage with the more technical discussions of carbon targets and climate action across different sectors beyond energy.

In a presentation on the policy context, a speaker from BEIS (UK government department of Business, Energy and Industrial Strategy) stated that major change would be needed to achieve the carbon budgets which formed the legally binding targets developed by the Climate Change Committee (CCC). It was unclear what kind of powers the new regional Mayor of South Yorkshire would be delegated in respect of energy strategy. The research

presented at the event included an evaluation by Sheffield City Region LEP of different forms of action for low carbon, in terms of their economic and climate change outcomes. This was based on Carbon Trust figures and locally set economic priorities, of which economic growth (GVA) was the biggest weighting. This produced a ranking of different forms of action, with a high ranking to domestic energy efficiency work and a low ranking to nuclear, carbon capture and storage and biomass engineering.

The broad concerns of unions, in terms of growth of the local economy and jobs created, were well-represented in these priorities which SCRLEP had used to rank carbon-saving programmes of action, but the absence of the unions in this forum was a lost opportunity to develop their "articulation" of interests around the low carbon agenda, and to gain understanding of the links between social and environmental concerns, such as recognising that demand reduction through energy efficiency offered benefits to jobs and the local economy. Although I spoke on behalf of unions at the SCRLEP energy consultation, and brought back the research that had been presented on the economic and carbon benefits, there was a lack of integration of union voice in the decisions being made, thus not meeting the principles needed to enable a Just Transition that does not impose the upfront costs of the transition on workers and communities (Energy Post, 2019).

There was low representation of businesses as well as unions, so this important city region consultation around energy strategy did not set a clear consensus-based framework for work on low carbon by the Mayoral Authority. At the event some participants pushed a strong agenda, rejecting the calculated rankings and arguing instead for large projects in nuclear engineering, illustrating the predominant technocratic approach where 'big ticket' engineering projects are prioritised over less glamorous demand reduction work with greater environmental and economic potential.

With its Just Transition training course, TUC Y&H was framing the low carbon agenda in terms of the global consensus of environmental concern represented by the Paris Agreement, and social concern that extended to concern for "all citizens", who were at risk from the inadequate UK government response. In discussing the inadequate trade union response, where policy had been adopted but action was quite limited, the framing was that this was an issue for 'all members'. Low carbon was framed as something that could be organised around in the workplace, both in terms of practical actions such as environmental audit, and in terms of wider critical thinking about the employers' carbon footprint and technological change, encouraging a deeper environmental concern. These discussions on the course were significant to those who attended the training, but that number was few, due to the structural reasons identified.

The Taskforce's focus, wider than the energy sector and extending to on achieving a Just Transition for communities dependent on high-carbon employers, led it to engage with

wider economic thinking about climate change. This helped to re-frame the issues for trade unions in the TUC Y&H Taskforce to some extent, widening social concerns from solely 'these workers' in energy. Where TUC Y&H was offered a role as a partner, such as with the *Investing in a Just Transition* project, its articulation of interests across different levels and its intermediation of different approaches was strengthened. The same process can be seen for BFAWU, through its engagement with Greggs, who took seriously the role of the union on environment and collaborated to develop change programmes that could reduce energy use and impact. However, such relationships affording unions a role were limited, so the opportunities to articulate solidarity in a way that broadened social concern and deepened environmental concern were constrained. For example, as unions were not engaged as valuable partners at the SCRLEP energy event, but only accidentally represented, they did not have to formulate a response to its message that energy demand reduction was strongly positive for jobs.

Attempts were made to develop skills and knowledge among reps through training, although this was hampered by structural factors such as the lack of facility time for green reps. As the example of the SCRLEP energy event shows negatively, strategic capabilities need to be developed in relationship. Where unions have a role in relationship to other bodies, they can develop capabilities such as articulating different kinds of solidarity. This was positively demonstrated in the union perspective being integrated into the *Investing in a Just Transition* project, and the learning from that taken being back to the wider labour movement. The role of allies able to integrate unions with climate action is hugely important.

Norms

Although unions do not formally set the norms that apply, there is a process of reinforcement happening in which stories are remembered and retold in certain spaces. In Yorkshire and the Humber there were evident strong norms rooted in sectors that had been important to the history and the economy of the region. The idea of the workplace as a dirty, dangerous place, but with respected, high-value jobs, as in mining, engineering, steel or even fishing, was an example. The union members in such workplaces, mainly white and male and able-bodied, would be, as Hyman (2001) notes, a core concern of the unions. Trade unions that organised in public services – health, education and local government (where a high proportion of women are employed) – had often been seen, in union culture, as having a lesser rank. These norms interacted with the low carbon agenda via the energy unions' focus on a Just Transition for the energy sector, and infused debates in unions around climate change.

I met some of these attitudes when I was invited to speak to the Unite Metals branch in Sheffield (ref: JP-2019-UNITE-01), where the members present had long histories of employment in a major steel manufacturing company. The demographic was

overwhelmingly white, male and middle-aged. There were strong views in favour of technological development that could have enabled the clean use of coal, and sadness that little research and development was now happening in Sheffield's industrial sector compared to earlier periods. This represented an intense pride in engineering thinking and the ability to solve technical problems. There was bravado about workplace dangers but at the same time great respect for work being done to care for those with asbestosis. Compared to strong knowledge of technological approaches, there was little knowledge of social and economic impacts, such as how many jobs would be created by active climate change mitigation measures.

A contrasting picture comes from interview comments from Gareth Forest, who characterised some of the different things that in his experience, union members, especially young people, cared strongly about. Immediate workplace issues such as "wage theft, dignity in the workplace" as well as broader concerns about the cost of living and the failing state of public transport were identified. Gareth saw it as his role to help make political links from these issues to wider concerns such as climate change, and what a Green New Deal could look like (GFL.01j). He saw issues with common narratives about the climate transition alienating many trade unionists: "I think that they've resented this debate because of how it's focused. It's yet again a debate that excludes and blames working-class people for the problems of the richest in our society" (GFL.08a). Gareth thought that grassroots union members "have this important, profound sense of solidarity with people who are going to be hit the hardest" (GFL.09a), but there had not yet been a "sophisticated debate about climate change and how it touches every part of our daily lives" (GFL.07a), so the values were not yet integrated into union thinking. Against the negatives, Gareth was positive that "the youth strike for climate taking up the language of industrial action to call for urgent and radical change has really resonated with the trade union movement" (GFL.15b). "It chimes with the radical and progressive make-up of our movement. It excites people to see such potential for rapid change" (GFL.15b).

A key factor in the norms around low carbon was, for Gareth, "the profound mistrust that is still bubbling away in the communities" (GFL.12a). Around Wakefield, for example, there had been no Just Transition for former coalmining villages, where life was built around the pit (GFL.12d). Worse yet, "nothing has happened … over the past 30 years, to try and give people an educational transition into other parts of the economy" (GFL.12d), so that even where new low carbon projects are being developed, not a single local person may be employed there (GFL.12a). Whilst this had some resonance with the attitudes to deindustrialisation that I witnessed at the Unite Metals branch, there were also profound differences between the experiences of city-based, skilled engineers who had been able to find alternative employment, and those in poorly connected ex coal-mining communities.

Such communities were a focus at the first of two contrasting events I attended as part of Sheffield's *Festival of Debate* in May 2019. For me, these two events illustrated the cultural gap between unions and climate justice campaigners. The first event examined the post-industrial experience of communities in the coalfields and in the former fishing port of Grimsby, and unions were central to the discussion, but climate change was not raised except by the audience. The second event was entitled "How is Global Warming a Racial Justice Issue?" and was attended by a young and diverse audience, with a high proportion of students, different to the white and more middle-aged audience of the previous event. There was a global perspective on justice here, cultural more than economic, linked to colonialism, very different to the local perspective in the previous event - and here trade unions were not discussed.

The first event was hosted by Orgreave Truth and Justice Campaign and titled *"From the Miners' Strike to the Gig Economy"*, making links between the loss of union power following defeat in the 1984-5 strike, and the current preponderance of precarious and low paid work in Yorkshire and the Humber, for example in the care sector, which employs 1.45m people nationally. The aftershock of deindustrialisation brings regret and loss to communities, and the new jobs that may exist are often precarious and even subject to workplace surveillance. The Sheffield Needs a Payrise (SNAP) campaign described in Chapter 5 was celebrated as a union response to this. The speaker about Grimsby had a vision for change was through bottom-up initiatives that steer the economy onto a course benefitting local places. Although the Preston Model was cited as having added £200m back into the local economy, climate action was not raised as a way to create jobs benefitting de-industrialised places. The contrasts between the events highlight the cultural divide between different social movement allies of trade unions, and how climate change as a global issue expresses a very different culture and norms to a campaign rooted in trade union struggles.

The cultural divide in the example above was present elsewhere and was being confronted through work around the *With Banners Held High* trade union festival in Wakefield. The annual festival celebrates the pride of mining communities undented by the end of the 1984-85 miners' strike. In May 2019 a Just Transition workshop was organised as part of the festival, by a group that drew together trade union and climate activists. Their publicity for the event made explicit the importance of both pride in the past story of the workers and their communities in the face of deindustrialisation, and the challenge laid down by young people campaigning for a safe climate.   The workshop was titled *"Just Transition – a planet fit for our children"*. The publicity leaflet emphasized the way workers locally had suffered, individually and as communities, from unjust transitions previously, and asserted: "We cannot allow this to happen to again as we strive towards a zero-carbon Britain." The text went on to celebrate the leadership of young people "coming out onto the streets" to call for the Climate Emergency to be addressed, and as

unions to take a proactive stance of global concern: "The opportunity is one for us to grasp…. With just 11 years and counting down, the children have spoken."

The workshop attracted an interested audience, although I noted it was less well-attended than a session on the symbolism of historical miners' banners. On the panel, I spoke on behalf of the TUC Taskforce, and a speaker from Prospect talked about the energy sector, while a speaker from Unite read a short, prepared statement, but it was not possible on the day to get a speaker from Extinction Rebellion or the youth strikers. An audience member asked rather insistent questions from which it appeared that he was a climate change denier. Having a clear item on climate change at a festival at the heart of the union movement in Yorkshire was a milestone, from which the group *Just Transition Wakefield* emerged, and continued to develop union and climate links and build capacities.

In Sheffield and some other towns, the links between the climate movement and the trade union movement were facilitated by the local Trade Union Council, which offered support to the youth climate strikers' *Fridays for Future,* through stewarding their marches and rallies, and helping to organise day conferences. This provided informal spaces where the trade union voice was heard alongside the youth voice, but it did not take the climate justice arguments right into the mainstream of trade unions, although there was impact in unions through the wider visibility of the young campaigners.

In the landscape of trade unions in Yorkshire and the Humber, norms related to the solidarity of the energy sector and the pain of previous unjust transitions in Yorkshire and the Humber were complemented by norms that reflected unions as a social movement – organising strikes and direct action on the street, intersectionality of justice, the needs of young people. In the examples above, four different union cultures emerge, separated by their concerns and values, but also by their focus on the local or global, and their sectoral or social movement approach.

The 'engineering mindset' I described in the Unite Metals branch had a sectoral approach, with a great faith in technological solutions, and a narrow focus on 'these workers'. The 'coalfields mindset' that was expressed at the Orgreave Truth and Justice Campaign event and at *With Banners Held High* shared similar faith in technology and an energy sector focus, but was more inclusive in its social concern, based in previous injustice to communities, and seeing the local level of action as key. The third culture was the new organising campaigns in unions, typified by Sheffield Needs a Payrise (SNAP), who were focused on low paid and precarious workers as a key social and economic issue for the locality and an arena where unions could act. The youth strikers, in their alliance with trade unions, represent a fourth culture, learning from new forms of union organising, but with a strong focus on global justice, climate science and systemic economic change – which are all difficult things for unions to digest. As seen at the event *From the Miners'*

Strike to the Gig Economy, place-based climate action was not yet salient for all union activists.

The youth climate strikers' bold actions helped trade unions to relate their concerns to other issues of injustice affecting young people, around low pay and precarity at work, the high cost of housing and transport, and the need to make trade unions relevant to a younger membership. Links between union and climate movement agendas could to some degree be made through the need for justice for young people – "a planet fit for our children", representing a 'global' level of social concern. Certainly this was easier than shifting environmental concern to a 'demand reduction' approach with communities that had already lost so much - campaigns such as the TUC Y&H bus campaign worked effectively with the dominant norms by making their arguments in terms of improving services for communities. This 'social movement' work on buses did find common cause with climate campaigners around the importance of good bus services, but it did not change the unions' mainstream views to promote modal shift away from car use. Unions' environmental concerns were not shifting to include an ecological approach, but there were possibilities to see climate change as a social issue not just a narrow technical issue.

Norms were influenced strongly by the cultural influence of the former base of economy in coal and heavy industry. There were cultures around an engineering mindset, and around former coalfield communities full of mistrust, with some overlap around industrial masculinities, such as pride in 'dirty' work. There were contrasting cultures of young people in the unions, focused either around organising approaches such as the SNAP campaign, or young people in the climate movement focusing on ecological approaches to environment, without much relation to place or social concerns. While levels of social concern were clearly widening in the unions, as the low carbon agenda was seen more widely as an economic issue for communities, there was little movement on environmental concerns.

Dynamics of capacities and concerns

To summarise the development of unions' capacities and concerns, importantly, the relationships formed by TUC Y&H around regional devolution had connected them to key partners in the region, enabling unions to become embedded in governance structures. Relationships built with universities also helped this embedding in networks, led to further opportunities such as bidding for grant funding, and eventually underpinned the core involvement of unions in what was to become the Yorkshire and Humber Climate Commission (PCAN, no date).

It was important that the scope of the TUC Y&H JT Taskforce was wider than the decarbonisation of energy and extended to the needs of energy-intensive and manufacturing industries and their significance in the regional economy. This led to opportunities to engage around wider economic thinking subnationally – where it was

possible to link with issues of economic geography, such as industrial profiles and social inequalities. Individuals who were willing to build new relationships and narratives helped trade unions to engage at this scale and to take such opportunities for influence.

This move away from a sole focus on achieving a Just Transition in the energy sector and embracing wider economic thinking about climate change helped to re-frame the issues for trade unions in the Y&H Taskforce. Social concerns were thus widened from solely 'these workers' in energy, to wider communities impacted by economic change. Working with and aiming to influence regional governance bodies developed the narrative resources in use by trade unions and their forms of external solidarity (network embeddedness). Similarly, seeking funding for the union role developed narratives and expanded the vision of what their role might be. This engagement developed strategic capabilities of framing and articulating, so that different levels of solidarity could be integrated into new perspectives around low carbon. The development of these strategic capabilities could thus also change concerns - new framings of low carbon as a factor across the economy not just in energy production widened out social concern from 'these workers' towards citizens. However, a concomitant shift was not made to an ecological approach to sustainability through demand reduction.

The work that TUC Y&H developed around the importance of bus services had been initially motivated by social concerns for citizens, and especially young workers' access to workplaces. However, social movement work on bus services uncovered common cause with environmental groups around environmental importance of good bus services – enabling modal shift away from car use and towards a net zero economy. Thus, TUC Y&H began to develop a narrative on climate action that broadened their social concerns away from specific workers to citizens, and deepened their environmental concern towards demand reduction rather than just modernising approaches, and clearly linked environmental and social concerns.

The framing of climate change put forward by the youth strikers - as an issue of justice for young people, in the UK as well as globally – helped to shift norms in trade unions. It enabled trade unions to relate climate change to other issues of injustice affecting young people, around low pay and precarity at work, and the high cost of housing and transport - and consequently to see climate change more as a social issue than a narrow technical issue. This connection also opened up opportunities for the union voice to be heard in climate spaces, and the climate voice to be heard in union spaces. Norms related to the solidarity of the energy sector and the pain of previous unjust transitions in Yorkshire and the Humber were complemented by norms that reflected unions as a social movement – strikes and direct action on the street, intersectionality of justice, the energy of young people. Many of these shifts depended not so much on policy formation or the allocation of 'hard' resources, but the action of individuals who were able to "intermediate" and

"articulate" around climate issues, and to develop "soft" resources such as narratives and relationships.

8.4 The impact on concerns and capacities in relation to place-based climate action

My examination of the nature of unions' engagement with place-based climate action development in terms of the development their capacities has shown that strategic capabilities to articulate solidarity between multiple levels were key. They enabled narratives that were coherent across different levels, combining forms of solidarity rather than seeing them as in conflict – most obviously solidarity with future generations globally versus solidarity with 'these workers' who needed protection in the face of the immediate hardships of change. What appeared to help develop articulation was unions being treated as a social partner, given a role to represent working people more generally. To help answer my third research question, in Table 7 I summarise the impact of unions' engagement with place-based climate action on their capacities and concerns, and draw out the patterns emerging.

Different activities undertaken in Yorkshire and the Humber by TUC, Taskforce and unions to engage with degrees of place-based climate action are summarised in Table 7. Each initiative that unions were engaging with is graded low, medium or high, in terms of the degree to which it was place-based. These initiatives cannot be characterised as fully-fledged place-based climate action, as that had not yet developed in the region, but each area relates to the development of local climate action involving multi-level governance and multiple stakeholders. The impact of the engagement in terms of the development of union capacities and concerns is shown in further columns. Change in capacities particularly pays attention to whether the strategic capability of articulating interests at different levels was being developed. Change in concerns assesses whether social concern was broadening, and whether environmental concern was being deepened, or at least related more to social concern.

Impact on unions' environmental concern throughout was minimal – the most positive impact was to open a space in which environmental concern was able to be linked to wider social concern. Social concern was widened in some cases (rows 4, 5, 6 and 8) – this was when the low carbon transition began to be seen as an economic and social transition affecting all citizens, more than a purely technical transition. Whether unions linked environmental concern to social concern depended on the initiative engaged with having a clear environmental as well as social agenda. If unions were engaged as social partners by initiatives with a more social and economic agenda around the low carbon transition, it impacted unions' social but not environmental concerns (rows 1 and 2).

Table 7 - The nature and impact of unions' engagement with place-based climate action in Yorkshire and the Humber

Engagement area	Place-based?	Soc/ env focus	Unions' intent	Role as social partners?	Widened capacities?	Built or linked soc or env concerns?
1 Devolution agenda with LEPs, Mayors	High	Soc	Social partnership	Yes	Yes	Social
2 Regional economic planning	High	Soc	Social partnership	Yes	Yes	Social
3 Regional energy planning	High	Soc & Env	Social partnership	No	No	No
4 Unions campaigning for better buses	High	Soc & Env	Campaign / Social partnership	Somewhat	Yes	Linked environmental to social
5 Universities as partners involving unions	Med	Soc & Env	Social partnership	Somewhat	Yes	Linked environmental to social
6 Links with ETUC around low carbon industrial regions	Med	Soc & Env	Social partnership	Somewhat	Yes	Linked environmental to social
7 Unions' aim to run own JT project with employers	Med	Soc & Env	Bargaining / social partnership	No	Yes	Concern stayed narrow, technological
8 Relationship with Youth Strikers	Low	Soc & Env	Campaign	No	Yes	Linked environmental to social
9 Taskforce activity with CCSA	Low	Env	Social partnership	No	No	No

If engaging with an initiative gave unions an opportunity of being a social partner – being at the table representing wider social interests of members and all workers (rows 1, 2, 4,5, 6 and 8) – this acted as a powerful factor in developing union capacities and concerns, especially their strategic capability to articulate interests across different levels, and their linking environmental to social concerns.

Unions' concerns, especially, did not seem to be developed or linked together unless they were acting to some degree as a social partner, even if they were developing their capability to articulate (row 7). Here, only actually being given a seat at the table really seemed to embed the new narratives in a way that made sense of wider concerns. Place-based initiatives had impact on capacities and concerns, the new narratives having salience to unions, but only if they were included as partners – however, the degree to which they were place-based did not matter.

In rows 3 and 9, we see initiatives that failed to involve unions as social partners, and thus failed to impact on concerns and capacities. These two instances were very different – in the CCS case (row 9), unions were ostensibly leading partners, but there was no engagement with their social concerns by other partners, who were very focused on (technological) environmental concern. In the regional energy planning case (row 3), the agenda of the initiative explicitly linked social and environmental concerns, but unions were not invited to the table, and much of the actual discussion was technocratic. It is interesting to compare these to the relationship to the youth climate strikers (row 8), a 'campaigning' alliance, without a strong place-based element or formal social partnership, which had more impact on unions' environmental concerns, through posing a question in terms of unions' representation of social concerns (young people).

Row 7 represents the example where TUC was attempting to lead its own place-based climate action project, based in employer bargaining and collaboration. Employers were partners, and there was university support, but the project was not funded because, in the absence of a place-based partnership around this, TUC Y&H did not articulate its concerns beyond a modernising approach to environmental concern.

The overall pattern here is that, within any level of place-based climate action, unions being given a role as a social partner to represent working people was positive for the development of their capacities. Having an active role as a social partner particularly developed unions' capability to 'articulate' different interests into a coherent narrative, rather than seeing them as conflicting. To some degree, even when union activities were campaign-based, the demand to represent wider interests could stimulate strategic capabilities. If this role was related to social aspects of the low carbon transition, then unions' concerns developed accordingly, i.e., their social concerns widened. There was, however, no evidence of unions' environmental concerns deepening in the same way, although there was some evidence of environmental concerns becoming more linked to

social aspects, as unions developed narratives around the wider interests of working people, in ways that were compatible with ecological approaches to environmental concern.

Did this represent a transition from an institutional to a social movement role?

The narrow cycle of capacities, framing, goals and activities, within an institutional role, as described for the energy unions in section 7.7, had begun to widen out for TUC Y&H. Opportunities (and capacities) to engage and influence regionally had opened up a wider role for unions, to some degree acting as a social partner whose concerns were heard. This had motivated further development of their capacities, and expanded their framing of concerns both socially and environmentally.

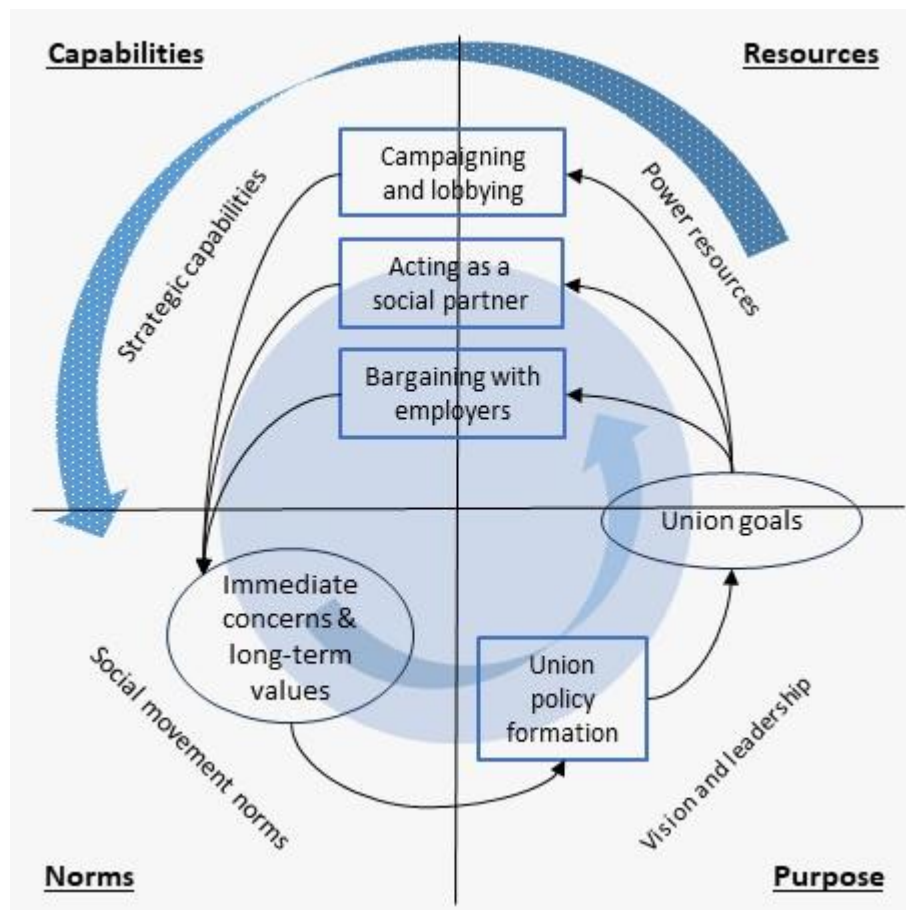*Figure 9 - cycle for TUC Y&H encompasses social movement capacities*

Figure 9 has the same basis as Figure 8, both show core union activities located on my *framework for change towards justice in trade unions,* linked by the cycle of concerns, goals and capacities (as in

Figure 7). In this case, there is a further union activity present - 'acting as a social partner' - and the development cycle sweeps wider, to encompass the capacities that relate to a union acting as a social movement, not just institutionally.

This wider cycle illustrates how the TUC Y&H Taskforce was developing its social movement role around climate change, and that the impetus for this included its opportunities to act as a social partner in the region. This developed power resources and strategic capabilities around place-based climate action – for example, the campaign for better buses, and the collaboration with universities. These capacities provided a platform for unions to find common ground with social movement norms, such as the commitment to climate justice expressed by the youth climate strikers. Vision and leadership from TUC staff, activists and Taskforce members was also present, but without engagement from other bodies working on place-based climate action it could not have developed far. The ability to build relationships based on a shared narrative with non-union bodies offering leadership in place-based climate action was key.

8.5 Conclusions: How unions' concerns and capacities were developing in relation to place-based climate action

In this chapter I have addressed my third research question, concerning how the unions' concerns and capacities were developing in relation to place-based climate action. To do so I examined the extent, nature and impact of unions' engagement, and here I set out my conclusions. Place-based climate action, as defined in Chapter 2, is climate action at a local scale, by and for local communities, through multi-level and multi-actor collaboration. At the time of my fieldwork, as explored in Chapter 5, the need, opportunities and structures for place-based climate action were in a state of rapid development in the UK, but, as concluded in Chapter 6, the energy unions nationally were unaware of most of this development, and were looking elsewhere, to national energy policy and key employers in energy intensive industries, for their involvement in the low carbon agenda. There was no evidence in my interviews of the energy unions engaging with place-based climate action.

In contrast, there was considerable evidence of engagement with place-based climate action by the TUC Y&H and its Taskforce, as summarised in Table 7. Although not a comprehensive list, these examples provide a sample of typical kinds of engagement. The initiatives with which they engaged varied considerably in terms of how much they can be described as place-based, and how much they had an environmental as well as a social agenda. For example, regional economic planning focused on social concerns such as the quality of jobs and problems of low pay in the context of the low carbon transition, rather than the environmental concerns embodied in the proposed pathways. However, 'climate action' cannot be hived off separately from economic and social policies, so I treat

regional economic planning as a form of place-based climate action in so far as it paid attention to the low carbon transition.

Given the contrast in my research between no engagement with place-based climate action nationally, and the multiple examples evidenced for TUC Y&H, I conclude that the extent of union engagement with place-based climate action was where TUC was acting at a regional level and where there was related action to engage with. In my research, this was at the subnational level of TUC Y&H and its Taskforce.

The nature of the engagement in Yorkshire and the Humber was, as analysed in section 8.3, most importantly encapsulated in unions' aim to act as a social partner around the low carbon agenda – representing the interests of working people in multi-level, multi-actor, place-based governance. Unions' engagement also extended to campaigning and lobbying around elements of a low carbon transition (such as bus services), and to developing their bargaining with key employers in the region (through training for reps, for example), but where their aim to be social partners came to fruition there was most impact on their capacities and concerns. If unions were invited to the table, listened to and taken seriously as representing the interests of working people around the low carbon transition, there was impact on their capacities and concerns.

In TUC Y&H, there was evidence that engagement with elements of place-based climate action was having an impact on developing union capacities, especially strategic capabilities and power resources, but also vision and leadership, and norms that related to a social movement role. Where unions were engaged as social partners to represent the interests of workers in the low carbon transition within forms of place-based, multi-level, multi-actor action, it developed capacities that supported their social movement role, especially strategic capabilities and power resources. The ability to articulate wider and narrower forms of solidarity was important here in widening social concern and beginning to relate environmental concern to that, for example the economic needs of whole communities in the transition, or the plight of young people in the face of climate change.

Figure 9 represents a positive cycle where the unions' social movement role around climate change is being developed, compared to the neutral cycle in Figure 8 where the energy unions were not developing their capacities much beyond their institutional role. This different outcome was related to the lack of opportunities nationally for unions to have their voice heard by those in power and to engage as a trusted social partner whose concerns were taken seriously. This absence undermined the energy unions' ability to engage with the social movement agenda around climate change, which seemed too detached from the issues they faced with employers, around job protection in the face of technology and process change. As there was no shared platform with climate governance

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to develop a union-friendly narrative of change, the power resources and strategic capabilities of the energy unions remained underdeveloped around the low carbon agenda. Instead of focusing on the wider social justice implications, they retrenched to work in the workplace realm, both bargaining and collaborating with employers, around technology and process change that was already in train.

In terms of their concerns, in the context of place-based climate action unions were more able to identify concerns for 'all workers' or 'all citizens', rather than focusing exclusively on workers in fossil-based industries. In being asked to represent social interests of workers more generally, they developed narratives that linked concerns at different levels, such as the need for investment to protect workers, communities and the local economy. Although engagement with place-based climate action failed to shift unions' environmental concerns to an ecological approach, it did open space in this regard. Even without the full force of unions being social partners, their campaign for better buses highlighted social needs, such as isolated former pit villages and young people working anti-social shifts, that demanded good public transport. This opened a door to finding common cause with environmental campaigners whose focus was modal shift to reduce carbon – an example of how environmental and social concerns could articulate together instead of being in conflict. The space opened here related concern for all workers or citizens with an ecological approach of demand reduction – constituting a space where considerable detailed work on the 'how' of the transition needed to be combined, through organising at all levels, with new narratives about the interests of working people in the low carbon transition.

Nationally, unions' concerns around the low carbon transition had not been impacted by engagement with place-based action as they had in Yorkshire and the Humber. The transformational agenda of the youth climate strikers was hard to engage with, for unions very concerned about the "how" of the transition and the impact of change without groundwork on their members' jobs. The UK government's unwillingness to offer unions any level of role in social partnership meant the strategic capability of articulating solidarities was not developed. The national agenda on the low carbon transition naturally cohered around energy generation and large infrastructure projects, and therefore encouraged a technological or at best process change level of environmental concern. At the national scale the salience of everyday economy sectors such as transport and housing was less than in place-based governance, so unions were not being required to consider the transition in these sectors.

In relation to my third research question, then, I conclude that unions' concerns and capacities around the low carbon transition were developing more strongly in relation to place-based climate action than without. The extent of their engagement was found in my

research to be limited to the subnational setting of TUC Y&H, where it varied in nature but was a major element of how the TUC Taskforce was engaging around a Just Transition. Opportunities for unions to act as social partners in relation to place-based climate action had a positive impact on the development of capabilities and narratives, which in turn widened social concerns and opened space to relate environmental concerns more closely to unions' agenda. In Chapter 9 I set out my overall conclusions, reflect on the use of my conceptual tools and review my contribution to knowledge.

Chapter 9: Conclusions

9.1 Introduction

In this chapter I present my contributions to knowledge, structured as answers to the three research questions and then a synthesis of these which addresses my overall aim, to explore the conditions that would allow unions to become more engaged in the climate change agenda and to realise a Just Transition. I conclude with reflections on the potential for empirical generalisation and on the theoretical contribution of my research, and make recommendations for taking forward the analytical knowledge gained.

The importance of my research relates to its distinctiveness as a multi-level case study, providing new empirical evidence of a subnational region – Yorkshire and the Humber - where no other studies of trade union responses to climate change had taken place. It is distinctive in looking at the role of unions on climate change across sectors and at unions' engagement with policy agendas as well as in organising the workplace. My research is also important in having extended the "varieties of labour environmentalism" framework to acknowledge climate change as a wicked, global, social phenomenon, and in having synthesised theories of union renewal and change towards justice to better understand agency in unions. Through its participatory activist approach in the service of union goals my research has enabled the development of capacities around climate change in trade unions.

My conceptual framework for this research was based in extending the varieties of labour environmentalism approach (Stevis 2018) to account for unions' specific role and the wicked, global, social nature of climate change. I created my *matrix of environmental and social concern* based on Hopwood et al's (2005) matrix for assessing approaches to sustainable development in terms of increasing levels of environmental and social concern. By relating the labour environmentalism parameters of "depth" and "breadth" to the axes of my matrix, I enabled unions' environmental and social concerns to be tracked separately, and graded in terms of both how inclusive and how eco-centred they are. My *framework for change towards justice in trade unions* synthesised work by Fairbrother (2015), conceptualising union renewal as a transition, with a framework for change towards justice in organisations developed by Rao et al (2015). This enables analysis on four quadrants of how unions' purpose, resources, capabilities and norms are developing

in relation to the low carbon agenda, with the aim of understanding the labour environmentalism parameter of "agency" (Stevis 2018) in terms of unions' specific role, between institution and social movement.

My research questions were:

RQ1:

How are unions framing a Just Transition to low carbon in terms of their environmental, social and justice concerns? This requires investigation of unions' concerns, particularly in relation to the depth of environmental concern and breadth of social concern around low carbon.

RQ2:

How are unions developing their capacities to engage with the low carbon agenda, and what potential does that represent for changes in their role? This requires analysis of how unions are developing their purpose, resources, capabilities and norms, and whether there is a renewal process from an institutional role to a social movement role.

RQ3:

How are the unions' concerns and capacities developing in relation to place-based climate action? This requires examination of the extent, nature and impact of unions' engagement with place-based climate action.

In section 9.2, I review the conclusions from each of my research questions, and I assess my achievement of my research aim in section 9.3. In section 9.4 I consider how far empirical generalisation is possible from my single case study. I then review, in section 9.5, the usefulness of my *matrix* and f*ramework*, how they contribute to concepts of labour environmentalism and their wider applicability and make recommendations for taking forward the analytical knowledge gained. In section 9.6 I sum up my contributions to knowledge.

9.2 Conclusions from my research questions

RQ1: How were unions framing a Just Transition to low carbon in terms of their environmental, social and justice concerns?

UK policy on climate change and Just Transition was an important context driving unions' concerns around low carbon. That policy had focused nationally on decarbonising the electricity supply, and had lacked wider industrial strategy and approaches to demand reduction. Government plans for meeting carbon budgets assumed a continuing economic growth trajectory, and measured carbon emitted within UK boundaries rather than assessing the full carbon footprint. Social impacts, such as structural changes in local economies, the need for reskilling or Just Transition, or the co-benefits of climate action

had not featured in government policy, or despite various critiques, in mainstream politics.

This lack of agreed high-level scenarios and comprehensive plans from government made it harder for trade unions in the UK to engage fully with the low carbon agenda. As unions had been excluded or ignored from most government consultation since 2010, nothing was driving unions to consider the big picture of climate action. This narrowly defined and technocratic policy environment, where impacts were scoped out for only limited sectors, required specialist technical knowledge for engagement, which was in limited supply in unions. The more visible and pressing transition was that already in progress around the decarbonisation of power, so the energy unions, and consequently TUSDAC, took that as the main scope they needed to respond to, seeing a managed transition as needed to protect employment conditions and enable skills development. They prioritised the immediate concerns and voice of workers in energy, as seen in the GMB motion at TUC 2018, over wider concern for all workers or UK citizens or longer-term values around climate impacts globally. Further, for each industrial sector where they organised, the energy unions expressed their environmental concerns through a technological, or at most process change, approach, rather than working from the big picture of what the Paris Agreement meant for carbon reduction, and how this would impact on working people. Their justice concerns were mainly limited to ameliorating the hardships that were being, or were expected to be, experienced in these sectors.

Exclusion from influence with government led the energy unions to focus on bargaining with employers around ongoing market and technology driven change, and on political advocacy for technologies that minimised disruption to energy workers' jobs. In both areas, union goals were driven by bottom-up, immediate sectoral concerns, rather than wider values. There were challenges for the energy unions in getting low carbon issues onto the bargaining table with employers – competing pressing concerns, lack of policy clarity from government, employers not putting low carbon onto the agenda. Unions had their own capacity issues – not in the immediate workplace technical context, but in linkage with the big picture and other priorities. The energy unions also had some scepticism about how many new jobs would be created by the low carbon transition, and considerable frustration that the new jobs emerging were often with employers that were able to avoid any recognition of unions.

Despite saying they were 'signed up' to the Paris Agreement, there was little evidence in my interviews of the energy unions engaging with climate change as a global, social phenomenon that would seriously impact the most vulnerable globally and have implications for the whole UK economy. None was keen to participate in the COP process, which was seen as not offering influence to UK unions, given the unfriendly UK government. The message of the youth climate strikers and Extinction Rebellion was

being listened to, but the energy unions' found the scale and timescales of change demanded impracticable. In the TUC Just Transition statement and Unite motion at TUC in 2019, there was clearly some shift in these views at a high level, but the capacities to act remained undeveloped.

Concerns in the energy unions nationally were framed within a modernising approach that saw technological change as key and the energy sector as the overriding domain of change, so that national level energy policy was prioritised, and the interests of energy workers were foregrounded. The unions did not find their modernising approach contradicted by the UK policy agenda, which was not addressing energy demand reduction or the global footprint of UK consumption. The unwillingness of the government to enable unions to actively participate in developing and implementing policy around low carbon alienated unions from the big picture of the low carbon transition as demand reduction and system change and from issues of wider justice around climate change. Trade unions' concerns are never abstract, but always focused around pragmatic concerns for actual workers or citizens. Given their limited capacities and stretched role, they focus on what they can change, while the huge task remains of unpacking their commitment to the Paris Agreement into goals representing a fair transition for working people.

In respect of RQ1, I conclude that unions' framing of Just Transition in terms of their environmental and social concerns can vary widely, and these concerns are important in determining the goals they take on to realise. Concerns can become fixed in a shallow and narrow position that would be unhelpful in realising an inclusive and transformative transition to low carbon.

RQ2 - How were unions developing their capacities to engage with the low carbon agenda, and what potential does that represent for changes in their role?

The development of the energy unions' policy advocacy around low carbon, identified with 'power sector decarbonisation', was to a great extent dominated by the interests of their energy sector members, representing core memberships with some autonomy, even if no longer numerical strength. In several of the energy unions this fact co-existed with beginning to see climate change as a 'citizenship' or all-member issue for the union, but without clear goals around this or a sense of affinity with the climate movement. The energy unions' goals were more focused towards relationships with employers and their federations than towards opportunities to represent working people in governance, given the unwillingness of government to accord them this role.

In terms of the development of their resources and capabilities, that is, their organising strengths, my findings demonstrate that the energy unions were not dedicating much resource or training to climate change and its implications, and had largely relied on members, reps and a thin layer of mostly non-specialist staff to develop their work on low

carbon. What they had achieved here was often limited to research on technologies applicable in certain key sectors such as energy. Network embeddedness constitutes a power resource for unions – for the energy unions the most common and committed alliances were sectoral, as they worked with employers' federations to lobby governments for favourable policies. The kind of external solidarity evident for other areas of the trade union agenda (for example, for precarious work and low pay), in terms of resourced collaborations with other civil society organisations, was not evidenced around low carbon.

Training and building capabilities was evidenced in terms of the role of reps and around specific technological change. In terms of developing their 'strategic capabilities', acting with other unions had developed 'framing' and 'intermediating' capabilities for the energy unions, but there was difficulty integrating the consensus achieved between the energy unions with wider perspectives, such as the other TUC affiliated unions, the ITUC's climate campaigning, or the youth strikers.

In the energy unions the strongest norms expressed were around fairness and protection for threatened workers, but there was also a strong belief in fixing problems through technology, especially in the engineering-based unions. The biggest impetus to change in the unions' norms on low carbon had come from the values expressed by the youth climate strikers, who had used the unions' own idioms of organising and fairness to tell their own story about the injustices of climate change and the need for young people to be heard. However, this left a distance between engineering and justice - there was a strong sense of a practicality gap. What was needed to fill this was a great deal of detailed collaborative re-design of work, skills and jobs, but how this would happen was not yet clear in the energy unions' goals.

In the UK, the unions' role had been depleted by the government's unwillingness to involve unions as social partners. Unions had the depth of involvement in sectors that meant they could see strategic issues, but because of fragmentation of workplaces and lack of tripartite dialogue over decades they were now often unable to influence 'big picture' policy accordingly. This was an impetus to focus on defending the immediate job interests of their members. The evidence was that climate change was not providing the energy unions with an 'occasion for renewal' or shifting them to a greater social movement role.

Climate change was not integrated into the energy unions' purpose, because their environmental concern was shallower, around technological change, and their social concern was narrower, around particular workers. The energy unions expressed their core concern around low carbon as how energy workers would be treated in the transition, but they did not much connect the low carbon agenda with their wider concerns, about technological change, social change, young people, and economic purpose. The energy

unions, at least before the TUC's Just Transition statement in July 2019, did not fully see climate change as 'their business', something that demanded a different role from them. There was evidence of their limited concerns constraining the development of capacities.

In the cycle of concerns, goals and capacities I have identified, the energy unions were more limited to an inner cycle (Figure 8) – developing only the purpose, resources, capabilities and norms that served their institutional role. They were not articulating solidarities between different interests around climate change to any great degree. Although the youth strikers were posing a question in terms of the interests of young people, the energy unions, dominated by a technical mindset and protecting specific interests of workers in the energy sector, were struggling to integrate the need for rapid reductions in carbon emissions with the interests of their members in energy. The low carbon pathways that the energy unions promoted tended to coincide with those put forward by employers and sectoral organisations, which their technically expert members also preferred. Pathways proposed by more independent researchers and campaigners, which tended towards demand reduction and wider process change, were less acceptable to the energy unions, because they implied greater disruption of their members' jobs in energy, and there was no interest from the UK government in planning for managed change in terms of skills, income support and the quality of jobs in new sectors. Facing a hostile UK government and conceiving of the low carbon transition in terms of energy generation, the energy unions lacked the impetus or opportunity through any social partnership role to develop narratives around the wider interests of working people in the transition. Their goals, capacities and concerns remained limited by the interests of certain workers in energy and energy intensive industries, and by technological change as their core approach to environmental concern.

In respect of RQ2, I conclude that in the development of union capacities there is a cycle between concerns, goals, and capacities that can either remain in an inner cycle relating to unions' institutional role, or widen to encompass the development of capacities for their social movement role. Change can be driven either from concerns to capacities or from capacities to concerns, which means that approaches that develop capacities, especially power resources and strategic capabilities can help to shift concerns.

RQ3 - How were the unions' concerns and capacities developing in relation to place-based climate action?

As the energy unions' concerns nationally were focused on energy workers and on modernising, technological change, it was apparent that the energy unions nationally were not engaging to any significant degree with place-based climate action. Their focus was on national energy policy (through national officers and researchers) and on key employers in energy and energy-intensive industries (through employer-focused structures in the unions). Even their related geographically-based projects around low

carbon issues did not generally form links to regional governance structures for the energy unions nationally.

TUC Y&H, in contrast, had strong links with regional governance and stakeholder bodies, and was using them in its work on the low carbon agenda. This role was developed both by TUC Y&H initiative, and by the willingness of regional governance bodies to involve them as partners in nascent place-based climate action. Given the previous governance changes and the impacts of austerity exacerbating geographical inequalities in Yorkshire and the Humber, the prospect of regional devolution was being grasped by key players, including in the unions. Previous ill-managed transitions away from coal and steel were widely understood in the region to have brought hardships not just for the immediate workforce but for whole communities. Some innovative forms of place-based climate action in Yorkshire and the Humber, such as Leeds Climate Commission, were committed to address social and economic aspects of the climate transition locally.

Union engagement with place-based climate action developed the different capacities of unions. Being involved as a partner in various programmes exposed TUC Y&H to new thinking and opportunities, and developed their capacities towards more of a social movement role, so that climate change was serving as an 'occasion for renewal' for unions in the region. The development of capacities in Yorkshire and the Humber was underpinned by factors that enabled social partnership. The relationships with key partners around regional devolution enabled TUC Y&H to become embedded in governance structures. Relationships built with universities also helped this embedding in networks, and led to further opportunities. Individuals who were willing to build new relationships and narratives helped trade unions to engage at this scale and to take such opportunities for influence.

The narrative resources in use by trade unions and their forms of external solidarity (or network embeddedness) were developed through working with and aiming to influence regional governance bodies, and through the Just Transition training course, the development of which helped to produce a new narrative about climate as unions' business. Similarly, seeking external funding for the union role helped to develop narratives and expand the vision of what their role might be. In these changes the development of strategic capabilities to articulate solidarity at different levels within a coherent story is key. Such a story highlights, for example, the creation and preservation of decent jobs through place-based climate action that ensures investment in communities reliant on high-carbon employers, with wider co-benefits for communities. Crucially, in Yorkshire and the Humber, links were also made to union priorities around the interests of young people and low paid workers. Common cause was uncovered with environmental groups around the importance of good bus services both socially and for a net zero economy. This opened up a narrative where broader social concerns for citizens

could relate to environmental concern in terms of demand reduction rather than just modernising approaches.

Norms in trade unions around low carbon were shifted by the framing of climate change as an issue of justice for young people, and by the "climate strikes". This related climate change to other issues of injustice affecting young people, so it could be seen as a social issue not just a narrow technical issue. In Yorkshire and the Humber, the place-based connections through trades councils to climate strikers opened up opportunities for shared platforms. Norms that reflected unions as a social movement were brought to the fore – strikes and direct action on the street, the intersectionality of justice, the energy of young people taking action – at a local level this had power to connect different cultures.

Although there was limited autonomy possible on purposes and resources in TUC Y&H, vision and relationships were used to good effect to achieve change. Processes of working together also impacted on norms, and reduced the gap between climate movement norms and union norms to some degree. An overall pattern was seen, that, within any level of place-based climate action, unions being given a role as a social partner to represent working people was positive for the development of their capacities, especially their strategic capability to "articulate" different interests, and this in turn enabled their social concerns around low carbon to widen.

In being asked to represent social interests of workers more generally, unions developed narratives that linked concerns at different levels, such as the need for investment to protect workers, communities and the local economy. Involvement in governance in a region suffering geographical inequalities gave unions the chance to make links between the low carbon transition and the social and economic needs of communities, in a way that did not happen in technocratic forums. The ground was ready in Yorkshire and the Humber, where accepted narratives around earlier transitions were of losses for whole communities, for a move away from a sole focus on the energy sector. Embracing wider economic thinking about climate change helped to re-frame the issues for trade unions in the TUC Y&H Taskforce, widening social concerns from "these workers" towards "all citizens".

In comparison to social concerns, unions' environmental concerns were not seen to deepen in the same way in Yorkshire and the Humber, although this could be because the partnership opportunities for unions had a stronger focus on social than environmental aspects of the transition. There was, however, some evidence of environmental concerns becoming more linked to social aspects, as unions developed narratives – such as the provision of excellent bus services – that showed the wider interests of working people as compatible with deeper environmental concern in reducing fossil fuel use. The space opened here relates on my matrix (see

Figure *10*) to an overlap of concern for all workers or citizens with an ecological approach of demand reduction. This constitutes a space where considerable detailed work on the "how" of the transition needed to be combined, through organising at all levels, with new narratives about the interests of working people in the low carbon transition.

Figure 10 - Positions of key actors on my matrix of environmental and social concern
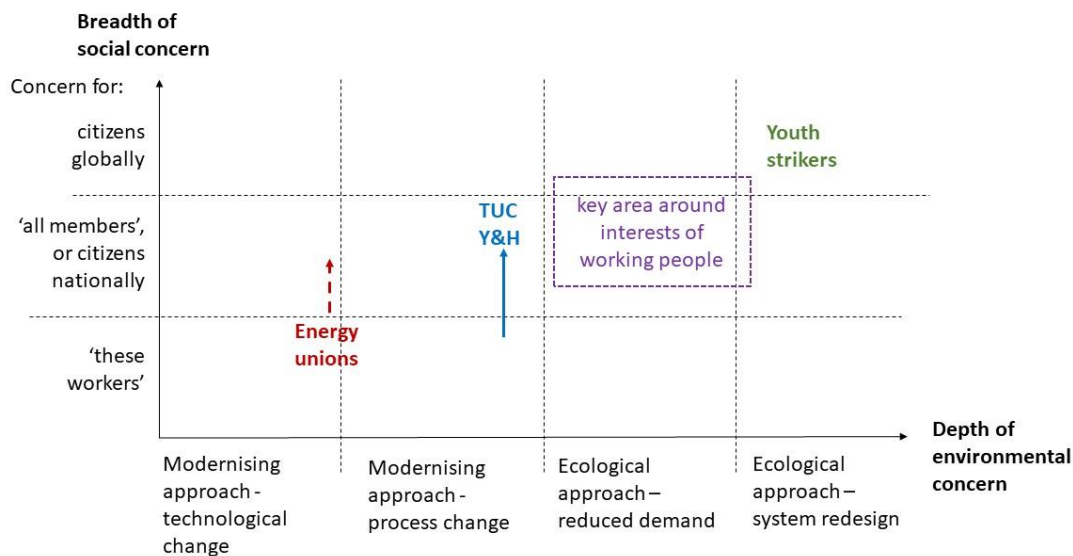
Matrix of social and environmental concern – position of different actors

Nationally, unions' concerns around the low carbon transition had not been impacted by engagement with place-based action as they had in Yorkshire and the Humber. The transformational agenda of the youth climate strikers was hard to engage with, for unions very concerned about the "how" of the transition, and lack of social partnership meant solidarities did not have to be actively articulated. The national agenda naturally cohered around energy generation and large infrastructure projects - technological change or at most process change – the salience of sectors such as transport and housing was less than in place-based governance.

In TUC Y&H opportunities to engage and influence as social partners had opened up the cycle of concerns, goals and capacities as a wider role for unions had motivated further development of their capacities, and expanded their framing of concerns certainly socially and, to some degree, environmentally. In comparison, energy unions nationally, excluded from being social partners, remained dominated by immediate concerns of workers in the energy sector.

In respect of RQ3, I conclude that unions' capacities and concerns are developed in relation to place-based climate action, especially if unions are accorded a role as a social partner representing the interests of working people in the climate transition.

9.3 Reflections on my research aim

The aim of my research was to explore the conditions that would allow unions to become more engaged in the climate change agenda and to realise a Just Transition. I explored these conditions first in terms of how unions were framing a Just Transition in terms of their environmental and social concerns. Given the wicked connections between social and environmental problems which climate change brings, I needed to investigate the mix of social and environmental concerns that lay behind unions' formulation of justice in the transition, in order to understand how a Just Transition could come about, and be more inclusive and more transformative. If unions pushed for social amelioration of the climate transition, while environmental constraints made social problems worse, little would be gained. Developing and using *my matrix of environmental and social concern in a Just Transition* has uncovered some of the drivers which can keep unions' concerns environmentally shallow and socially narrow, and shown how it is relatively much easier for social concern to increase than for unions to make a concomitant shift in environmental concern. However, it has also indicated that broadening social concern to include all citizens at least opens a space for consideration of more ecological approaches to environmental concern – thus supporting a more inclusive and transformative transition.

For unions to engage in the climate agenda, this must happen *in their role* as unions – unions are a social movement, but a particular kind of social movement, as Fairbrother (2015) reminds us. Understanding the conditions for this brought a need to analyse the development of union purpose, resources, capabilities and norms as climate change alters the political economy unions are embedded in. My *framework for change towards justice in trade unions* allowed this analysis for both the nationally dominant energy unions and the TUC Y&H Taskforce with its engagement with place-based climate action, and showed a cycle between union concerns, goals and capacities that could either be restricted to the institutional role of unions or widen to encompass the development of their social movement role. While for energy unions nationally the development of their capacities was constrained by their narrow framing of the Just Transition to low carbon, for the TUC Y&H Taskforce the development of their capacities impacted on and widened their framing. The different dynamics playing out nationally and subnationally indicated that engaging with place-based climate action developed unions' vision, narratives, relationships, solidarities and norms around the low carbon agenda, and through this fed into wider social concern around Just Transition and made possible areas of common cause between the climate movement and trade unions. I have this identified a particular locus of change in a UK subnational region where the relationship between loss of high

carbon industries and poor social and economic outcomes was particularly clear, and where opportunities arose for unions to play a proactive role in achieving a more inclusive and transformative transition.

My research aim has thus been achieved through gaining knowledge about the conditions that enable unions to become more engaged in the climate change agenda, both in terms of widening their social concerns and opening ecological perspectives towards a more inclusive and transformative transition, and in terms of building their capacities to collaborate and act as social partners to represent the interests of working people in the climate transition.

9.4 The potential to generalise from this single case study

My research created a single case study, with multiple levels, so the question arises of how general this might be empirically. If similar research was undertaken in another subnational region, contextual differences might mean a difference in the outcomes, compared to my research findings, where first, nationally, unions had no seat at the table, and the development of union capacities was constrained by their narrow framing of concerns for energy workers. Secondly, in contrast, for the TUC Yorkshire and the Humber Taskforce, the role of unions was developed through regional bodies seeing them as partners, developing unions' capabilities to articulate broader and deeper concerns. Thirdly, geographical inequalities and historical injustices in the region made the social and economic aspects of place-based climate action more salient for unions.

These relationships established by my case study between union concerns and capacities, and their relation to place-based climate action, may not hold elsewhere. To assess the potential to generalise from this single case study, it is necessary to consider what was unique about the Yorkshire and the Humber context, that may not be the case elsewhere. What can be learnt from the national context is also important here.

The context in Yorkshire and the Humber was in some ways unique, and even quite extreme. In terms of the economic and social factors outlined in Chapter 5, Yorkshire and the Humber would have much in common with other regions in the north of England such as the North West and North East and somewhat less in common with Scotland, Northern Ireland and Wales due to governance differences. In terms of its historical unique factors, Yorkshire and the Humber would be an outlier in terms of how strongly it was affected by the transitions away from coal and steel along with more general de-industrialisation, the poor economic outcomes, its continuing reliance on high-carbon jobs and the geography that intensifies this for certain communities. Culturally also, Yorkshire and the Humber has a strong sense of identity built partly around these factors. In all of this it would have much less in common with other English regions, especially London and the South East with their large share of the UK's GVA and investment.

Thus, at the subnational level in my case study many factors make Yorkshire and the Humber very different to other regions or nations that might be studied. However, in terms of the drivers of the union context nationally for the UK, much would stay the same whichever subnational area was studied. (In countries with different geography and regional governance or union structures, this latter point may vary). As other authors have noted (Hyman 2001; Langhelle 2000), sectors such energy and manufacturing are typically seen as core to membership interests by trade unions, more widely than the UK. The key drivers for UK unions nationally relate to an energy sector and other high-carbon sectors where staffing, finances, investment and operations operate nationally, or internationally. In my case study the energy unions nationally are preoccupied with national and international factors and have little depth of awareness of subnational activities and concerns.

As set out in the preceding sections, in exploring the conditions for greater union engagement and a more transformative transition to low carbon, I have identified Yorkshire and the Humber as a locus of positive change, given its unique factors. This suggests that my approach might be fruitfully applied elsewhere, so I next reflect on the usefulness of the theoretical tools I developed in this research.

9.5 Reflections on the contribution of my framework and matrix
The usefulness of my matrix of environmental and social concern around low carbon
My *matrix of environmental and social concern* aims to enable better recognise climate change as a global, social problem in relation to trade unions' environmental and social concerns. It is founded on Hopwood et al's (2005) matrix, and was developed building on Stevis's (2018) 'varieties of labour environmentalism' and JTRC's (2018) work on approaches to Just Transition, which it aims to extend in a useful way. It embodies four principles, first, that environmental and social concern should not be conflated, in view of trade unions' greater difficulty in prioritising environmental concerns (Snell, 2018). Secondly, following from this, it is modelled on Hopwood et al's (2005) matrix, which separates these concerns on different axes, and it defines some grading for each axis. Thirdly, using work by Dobson (1996) and Christoff (1996), I distinguish environmental concern into modernising and ecological approaches (and subdivisions), and relate this to Stevis's (2018) concept of 'depth'. Lastly, I grade social concern in terms of inclusiveness, and relate this to Stevis's (2018) concept of 'breadth' in labour environmentalism.

The purpose of my matrix is thus to allow unions' environmental and social concern to be tracked separately, as expressions of the important parameters of labour environmentalism identified by Stevis et al (2018; Stevis, 2018) as depth and breadth. Given that climate change loops together social and environmental ills in ways that are challenging for organised labour, the aim of my matrix is to accurately describe trade unions' position in terms of concerns that are related but not synonymous.

The difficulties here were mainly in terms of gaining conceptual clarity in devising my matrix, around keeping environmental and social concerns as separate axes. Once this was achieved, it enabled me to make sense of what I was finding empirically. Although the conceptual terms (depth of environmental concern, breadth of social concern) were not used directly in my interviews, I had a focus on low carbon pathways in my questions that mapped well onto environmental concern as technological change, process change and demand reduction. Social concerns were discussed in interviews in terms of particular workers, a citizen or all-member concern, and the global framing offered by XR and the youth strikers.

Although it was an intuition preceding my research, I was still surprised to some degree just how little the trade unions crossed the line to ecological concern in their responses. Although their aggregate position had not crossed that line, there was a new insight from this matrix that the Y&H Taskforce was at least opening a more detailed debate around the overlap of citizens' interests and more ecological approaches through energy demand reduction.

I conclude that this matrix is a useful contribution to tracking environmental and social concern in trade unions, and as such enhances the power of the 'varieties of labour environmentalism' model. My matrix has a different relationship with Hopwood et al (2005) to that of Stevis (2018) and JTRC (2018) that brings out the differences posed by climate change as a social as well as environmental challenge, allowing more focus on how trade unions are responding to the need to reduce emissions drastically, while protecting and benefiting all citizens, a key challenge raised by the youth climate strikers.

The usefulness of my framework for change towards justice in trade unions

My *framework for change towards justice in trade unions* enables us to consider the development of a union's purpose, capacities and organisation in respect of climate change, and widens out the picture of unions' dynamics by also considering the social norms in play. It enables assessment of union renewal in the face of climate change as a major factor of political economy, tracking movement from an 'institutional role' to a 'social movement role' for unions. Synthesising work by Hyman (2001), Fairbrother and Webster (2008), Fairbrother (2008, 2015), Ganz (2000), Lévesque and Murray (2010) and Rao et al (2015), the purpose of my framework is to assess how change is happening as a union develops its capacities in relation to the low carbon agenda, through its own agency. My framework aimed to make more tractable the idea of a union being 'proactive' (Stevis, 2018), and support investigation of unions' capacities to perform proactive roles around a Just Transition (Snell, 2018).

Difficulties encountered again included upfront conceptual issues of mapping Fairbrother's (2015) three dimensions of purpose, capacities and organisation to Rao et al's (2015) four quadrants, and establishing concrete indicators of a union's institutional

and social movement roles. Fairbrother's (2015) descriptions of how union purpose is developed, and the importance he accords power resources and strategic capabilities in union renewal provided solid pointers. While evidence for policies, resourcing and skill development could be established straightforwardly, narratives, norms, cultures and concerns required a particular kind of listening to hear the underlying story or conflict being exposed or avoided – my participatory activist research approach was helpful here in providing intensity of exposure to identify repetition and difference. This framework may be of less use where this kind of embedded approach is not feasible.

While my quadrants framework was developed by synthesising theory, the 'inner cycle' and 'outer cycle' diagrams of concerns, goals and capacities emerged from my analysis of the data collected. As such they provide a picture of my findings about union engagement in the absence and presence of place-based possibilities for social partnership. The question is still open to some degree of whether *any* opportunities to act as a social partner are sufficient to shift trade unions' capacities and concerns around the low carbon agenda, or whether place-based climate action with its links to the local economy and culture is a key driver.

Given the significance of climate change in the political economy and the scale of detailed work needed to future-proof workplaces, the development of union capacities is a topic of high importance. My framework is useful in tracking the development of union capacities, and thus unpacking ideas of union 'proactivity' and 'agency', in terms of the specific roles of trade unions as accommodating institutions and autonomous social movements. As unions can never escape this tension between being a vested interest and a sword of justice (Flanders, 1970), it is key to understand their engagement with climate change in this context.

Recommendations for use of my *matrix* and *framework*
In creating my matrix and framework I have developed an analytical framework at the junction of unions, climate change and Just Transition. Each builds on and extends the literature around trade unions and sustainability and unpacks the significance, for the existing frameworks, of climate change as a wicked, global issue. They are thus of theoretical and practical use – helping to conceptualise the roles unions can play around climate action, and practically for the unions and climate movement to develop strategy and evaluate action as they engage at a subnational level.

The analysis made possible by my matrix and framework could be applied retrospectively to existing case studies, such as Snell and Fairbrother (2010; 2011; Snell 2018), to further assess their usefulness. These analytical tools could certainly also be applied to new case studies of unions acting in subnational regions, where the connections between sustainability approaches and social and justice concerns tend to be clearer. In the UK, this could be a fruitful approach for the nations of Wales and Scotland, which are of

similar economic size to Yorkshire and the Humber, but have more devolved powers and governments more willing to treat trade unions as social partners. These nations share features with Yorkshire and the Humber, in terms of the importance historically of coal and heavy industries, and painful transitions away from those. Case studies of other regions, such as the West Midlands with its automotive engineering focus, could also be analysed using my matrix and framework. While the specific cultural drivers and sectoral norms may differ, my framework and matrix could help to understand the dynamics of union capacities and concerns in different geographical and economic subnational settings, nationally, or in specific industries.

9.6 Further reflections on the contribution of my thesis

As I have set out above, my research reached conclusions around three empirical questions, adding to knowledge of my field of study and contributing to practical action by trade unions. The matrix and framework I created constitute an intellectual contribution to the study of labour environmentalism, with potential for wider use in examining unions' concerns and the development of their capacities. These conceptual tools are also of potential practical use – helping unions and climate activists to develop strategy and evaluate action as they engage at a subnational level.

My multi-level case study contributes to knowledge of union action on climate change at a subnational scale, shaped by local and historical factors, in the context of place-based climate action becoming more significant in a region, Yorkshire and the Humber, where decarbonisation of the economy is particularly challenging. It makes a contribution because it is timely and relevant in spanning a time of significant change in 2018-19, as Just Transition became a more widespread idea and the rise of the youth climate movement as a global phenomenon began to change the public, and trade union, mindset on climate change. Finally, my work celebrates the rich industrial history of the region that gives rise to problem-solving mentalities, solidarity in communities, and campaigning spirit that can underpin the social movement role and contribution of trade unions.

How my thesis takes forward theoretical debates on unions and climate change

In reflecting on how my thesis takes forward the theoretical debate about unions and climate change, I consider how my *matrix* and *framework* extend and complement existing literature, and how they relate to the later work of authors whose theories I built on, especially Stevis, Räthzel, Uzzell, Fairbrother and Lévesque. Each of these authors has produced recent work which my thesis relates to, in ways that take forward the theoretical debates around varieties of labour environmentalism, and union engagement with climate change and with subnational governance. In these reflections I also draw out the academic benefits of my participatory approach, some discussions around structure and agency, and ways that my contributions may inform practice. In Chapter 2 and Chapter 3, I showed how Stevis's (2018) model, and its development by Stevis, Uzzell and Räthzel

(2018), characterising labour environmentalism in terms of "Depth, Breadth and Agency" requires re-grounding to take better account of the specific nature of climate change and the specific roles of trade unions. I begin here by reviewing how my thesis takes forward the theoretical debate around these definitions.

In a study preceding my own on UK unions, Hampton (2015) distinguishes neoliberal, ecological modernisation and eco-Marxist framings of climate change, and advocates for the latter. He sees in this the potential for trade unions, as workers' organisations within existing political and economic structures, to come to terms with ecological questions. However, such theoretical framings, while coherent in themselves, are remote from unions' policies and approaches to climate change in practice, and Hampton does not show how to bridge that gap. My *matrix* and *framework* aimed to close this gap, by offering ways to think in more detail about the concerns and capacities of trade unions around climate change, that could support development towards fuller engagement. An academic benefit of my undertaking participatory activist research was thus to challenge theoretical binaries by understanding the world as it is.

In another important work preceding my study, Goods (2014) offers a typology of 'green jobs' as 'light green, mid green or dark green', and an analysis of their underpinnings respectively in neoliberal, ecological modernisation and eco-Marxist thinking, thus corresponding closely to Hampton's three framings. Goods relates this analysis of green jobs to the social relations of production and to a just transition, concluding that deep green jobs imply the needed radical transformation. Although my *matrix* is grounded not in eco-Marxist theory but in Hopwood et al (2005), Dobson (1996) and Daly (1995), correspondence can be made between Goods' green jobs model and the environmental concern axis of my own *matrix,* and in relation to our similar conclusion that the transition needs to be transformative. However, Goods (2014) includes the social and justice aspects of green jobs within the same dimension (deep, mid, light green), rather than as a separate axis – thus conflating environmental and social concerns in a way that reduces clarity (Table 9.1, p.196). This approach parallels the model of "Depth" offered by Stevis (2018), which I have critiqued. In contrast, as a major contribution to the academic debate on trade unions and climate change, my *matrix* illustrates that a position of high social concern but low environmental concern will not constitute transformative change. In a climate-changed world, although the linkages between environmental impacts and social injustices are key to understand and work with, it is important to recognise that this is far from an automatic connection. This is especially important in regard to trade unions' concerns, because, as Lundström et al (2015) show, "unions have been reduced and have reduced themselves to care only for one part of the inseparable relationship between nature and labour" (2015 p.169).

The perspective which underpins the definition of "Depth" in my *matrix* is that humanmade capital cannot substitute without limit for natural capital, thus necessitating

environmental concern that allies with nature. This need for a different relation to nature, as an ally rather thansomething to conquer is highlighted by Räthzel and Uzzell (2019). They thus bring "Nature" to centre stage of the debate on labour environmentalism, arguing that "every economic action implies a transformation of nature" (p.155). Using their lens of nature as ally, Räthzel and Uzzell (2019) provide insightful critique of ETUC materials on Just Transition "as reacting to … not the climate crisis but the measures … that might be taken by governments" (p.157). To address the concern of these authors that "Nature does not appear in this scenario", my *matrix* separates the dimension of environmental concern from that of social concern. My contribution to thus complementing and extending existing understandings is to enable the necessary "solidarity with nature" (2019, p.167) to become more visible by emerging from its conflation with "solidarity with fellow unionists" (2019, p.167) that was implicit in the definition of "Depth" in Stevis (2018) and Stevis, Uzzell and Räthzel (2018).

To conceptually ground environmental labour studies, Räthzel (2021) is seeking ways to think about the nature-society relation, grounded in Marx's definition of work as "… a process in which both human beings and nature participate, and in which human beings of their own accord start, regulate, and control the metabolism (Stoffwechsel) between themselves and nature" (Marx 1998). She brings Haraway's (2016) idea of *sympoiesis* and feminist work on relations of production (Haug 2005; Haug 2015) to offer a reconciliation built around work as the bridge between nature and society, and capital as alienating both labour and nature. Räthzel posits that this approach "overcomes the problem of simply absorbing nature into society which… makes it conceptually impossible of speaking about humans acting on nature, while wanting to differentiate between better and worse practices on nature" (2021 p.797). This reiterates the problem which my regrounding of Stevis's (2018) model of definitions of Depth and Breadth in my *matrix* addressed, by separating the axes of 'social concern' and 'environmental concern'. My thesis is thus conceptually in line with Räthzel's programme here: separating out nature from society, before finding ways to integrate our thinking about them. Although Räthzel is working at a high level of abstraction, she is motivated by the same practical need, to be able to talk about "better or worse practices on nature" (p.797). Rolling up environmental concern with social concern in the single parameter of Depth (as per Stevis (2018)) makes us unable to differentiate between practices that are worse or better for nature, in terms of substituting human-made for natural capital (shallower modernising approaches), or not (deeper ecological approaches). My thesis is here complementing and extending work on relations between society and nature and thus contributing to theoretical debates around trade unions and climate change.

In Stevis (2018) and in Stevis, Uzzell and Räthzel (2018), the definitions of "Breadth" and "Agency" are comparatively thin. Defining "Breadth" in terms of the scale and scope of

change raises the issue that the nature of climate change links the local to the global, and trade unions do not, any more than any player, have control over the outcomes. Similarly, to talk of "Agency" without acknowledging the specific role of unions, and the constrained position of workers in a capitalist economy, is to demand a "proactivity" that cannot be delivered. In both cases, there is a need for relational thinking, which my thesis develops and extends. Theories must allow for the fact that unions have a specific role, a limited field in which they can be proactive, and must react to initiatives introduced by employers and government, where the outcomes are not designed to "lift all boats" and are likely to have deleterious outcomes at a distance.

Goods (2014) is helpful in demonstrating a relational approach, by interrogating not just the actions of unions, but of corporations and governments on green jobs, based in his "substantive critical analysis of the labor-environment relationship, recogniz[ing] that broader political economic questions are at play" (2014, p.196), thus providing an example of what Stevis (2022) sees as a relational approach to environmental labour studies. My research can also be characterised as relational, complementing and extending existing understandings in terms of its attention to the wider relationships of "mutual constitution" (2022, p.611) between companies, states and trade unions. Stevis's (2022) relational approach to environmental labour studies, sees "interactions and transactions between capital and labour are emanating from and affected by their mutual constitution within these historical social, and not only technical, divisions of labour" (p.611). He contrasts this with a transactional approach that sees union action and policy as self-determined. My approach complements and extends existing theory by working with such a relational approach, in exploring union agency within the structural context of the political economy unions face, and drawing out the implications of place-based climate action for unions' choices and narratives.

My *matrix* shifts the focus of "Breadth" to the inclusivity of unions' social concerns, so that demands which show solidarity with 'all citizens', nationally or globally, can be distinguished from those concerned only with certain limited sets of workers. My *framework* allows for detailed analysis of how unions are developing their capacities, in the face of the changing political economy. Unions have agency in directing their policies and resources, in building their capabilities, organisation and framings towards certain ends. This form of agency can thus be tracked in detail, understanding the relationships within which unions sit, and how the approach of national or regional government, for example, in refusing to engage with unions or in developing place-based climate action, can influence the space which unions have to build their agency. The importance of the "strategic capabilities" which activate a union's "power resources" is that they are based in relationship with others. "Intermediating" develops abilities to work across different organisations; "framing" responds proactively to challenge the narratives imposed externally; "articulating" enables a consistent union narrative across different levels, e.g.

from the COP to the town hall; and "learning" responds to changes in context and organisational practice.

Thus, rather than the original, rather thin and unstable definitions of "Breadth" and "Agency", my *matrix* and *framework* offer a more relational approach that re-grounds the definitions in the specific nature of climate change and trade unions, and the relationships that constrain and enable a union's action.   In this way, my thesis bridges between theory and practice through bidirectional analysis – bringing practice back to theory to deepen existing understandings, through its participatory activist approach. In identifying wider factors in shaping union approaches to climate change – the historical social context, relationships with government and employers, place-based climate governance and the wider political economy, my research has examined labour environmentalism in a broadly relational way, combining, as Stevis (2022) suggests, "systematic empirical research with attention to the broader order in which their cases operate" (p.615).

The challenges of unions engaging with regional governance, "a relevant space to shape the future of work" (p.1), are considered in chapters of Lévesque, Fairbrother et al (2022) *Trade unions and regions: better work, experimentation, and regional governance.* Fairbrother and Lévesque (2022) distinguish two forms of experimentation - organisational and institutional - relating respectively to developing new organisations, resources or networks, and to forging and institutionalising common understandings, norms and rules. In various chapters of this book, both Lévesque and Fairbrother ground their analysis in concepts I have synthesised in my *framework,* for example, considering union renewal as a transition, examining the power resources and strategic capabilities in play, and analysing agency in terms of the proactivity of unions. The content of these chapters does not only relate to climate change and just transition, although the low carbon transition is cited as an example of the kind of transformative change which must be engendered through regional governance, among other "disruptive changes associated with globalisation" that must be dealt with at this level (Fairbrother and Lévesque 2022, p.9). They recognise that in the process of operating at different spatial levels and experimenting with new mechanisms and new rules, trade unions develop their capacities to address the challenges they face (Fairbrother and Lévesque 2022, p.9).

In a chapter on the Montreal aerospace industry, Lévesque et al (2022) consider the role of trade union strategic capabilities in institutional experimentation. As my thesis also identifies in the specific context of the climate transition, their strategic capabilities are a key factor in unions' ability to engage effectively with regional governance. Lévesque et al (2022) emphasise that "institutional experimentation involves a collective process where new rules, norms and frames scale up and spread new forms of thinking and acting amongst actors" (p.167). The authors identify that the involvement of unions in such experimentation "intertwines closely with the deployment of strategic capabilities"

(p.180). They conclude that in processes of experimentation, unions must have capabilities to act and collaborate at multiple levels, and conclude that "the achievement of active engagement in regional governance may involve unions developing their own strategic capabilities" (p.180-181). There is thus great resonance between the findings of Lévesque et al's (2022) study and my own conclusions here in terms of union engagement in place-based climate action, which argues for the importance of my contribution to research around how unions can amplify workers' voice at a regional governance level.

Through analysing processes of experimentation Lévesque et al (2022) provide an institutional analysis that relates structure and agency. As in my study, the wider structural context of economic forces, environmental change and developing social relations must be understood as a contributory cause of particular outcomes, enabling and constraining action. Unions act within this political economic context, helping to develop experiments for regional development either organisational or institutional. Fairbrother and Barton (2022) consider more specifically how unions contribute to this. I also return below to consider further how the roles of particular individuals can be conceptualised within my research.

Fairbrother and Barton (2022), also in Lévesque, Fairbrother et al (2022), examine unions interrogating regions and regionalism in Australia, through a comparative study of two sub-national regions. They look at "embeddedness", that is "the firmly established strategic economic and political practices of unions in relation to regional governance" (p.184) and the challenges and obstacles to this form of agency. The authors note the importance of sub-national regions in processes of economic development, and argue that they matter to trade unions and that unions can contribute to the "purposive agency" required for regional development. The difficulties of unions engaging with regional governance and the fragility of the outcomes are recognised. Fairbrother and Barton (2022) identify two conditions of success for unions in realising opportunities to play a role. First, and critically, unions must develop a shared narrative about how to "organise and operate to realise their purpose" (p.186). Secondly, experimentation requires conditions that allow the experiments to be embedded. The authors conclude from their study that if unions can build an affirmed common narrative, then "they may be able to take proactive steps to develop their capacities in ways that enable the development of a broad and layered sense of purpose" (p.198). In assessing unions' approach to this, Fairbrother's (2015) model is brought to the fore to relate union capacities, organisation and purpose – showing that my *framework*, which develops and extends Fairbrother's (2015) model, contributes to the theoretical debate and complements the most recent studies by significant authors on labour environmentalism and in labour studies more generally.

Reflections on how my thesis might inform practice

Having assessed my contribution to current theoretical debates, I now turn to consider how my findings might be useful for practice – considering evidence from my own experience, and in relation to a recently published guide for unions. In TUC Yorkshire and the Humber, since 2020, many aspects of my findings have been further developed – purpose and capacities have been built, and engagement with regional climate governance has continued. The work of the TUC JT Taskforce has been constituted as a formal committee of the region, and the annual AGM of TUC Y&H has included major sections, both in the fringe and main debates, on climate issues and Just Transition. These steps in developing the unions' purpose were enabled by the broadened agenda that came about through collaboration with the youth climate movement, leading to a focus on the interests of young and precarious workers, heightened by the circumstances of the Covid-19 pandemic. In addition, extra resources were gained by TUC to enable the equivalent of 1.5 full-time workers for two years to work on the climate agenda in TUC Y&H, building from 2021 a strong partnership with the Yorkshire and Humber Climate Commission, co-leading its Future Economy Panel with business leaders, and developing relationships with local and mayoral authorities around energy demand reduction issues such as public transport and housing retrofit. This work continued to develop the repertoire of climate narratives in use and the capability to articulate them across different levels, consistent with a shift towards more ecological concerns. Training and networking opportunities for workplace reps and activists have also been supported by TUC Y&H, and these developing capacities have shifted the norm in the region towards seeing climate change as part of trade unions' business, and their engagement with the regional Climate Commission as useful and important. These developments in TUC Y&H have also supported change in national arenas – success in TUC Y&H supported national bids for funding and provoked interest in other regions and nations in pursuing similar approaches. The fragility of outcomes identified by Fairbrother and Barton (2022) have also been in evidence, as the loss of key staff and organisational restructuring has presented challenges.

In addition to these developments in the TUC Y&H region, it is also helpful to look at my thesis in relation to a recent publication by the Institute of Employment Rights (IER) that has been seen as a significant practical guide for UK unions. This booklet by Crawford and Whyte (2023) for IER provides an overview, analysis and recommendations for UK unions working for climate justice. It is grounded in relevant employment law and environmental law but focuses on the economic sphere of production and recognises that "ecological sustainability depends upon a transformation that is global and transforms social existence inside and outside the workplace" (p.33). As such, this guide outlines recommendations for practice emerging from an analysis which is in overall terms very compatible with my study. Green reps' networks, environmental committees and

workplace monitoring are seen as critical steps towards a climate bargaining approach, for which unions face "a major capacity issue" and are hampered by "legislative attacks on union rights" (p.25). The challenges to be overcome include moving from a reactive approach to getting onto "the front foot" by identifying "how workers' long-term interests overlap with the issues of environmental sustainability" (p.25). In addition, the guide recommends moving from depoliticised, voluntaristic approaches to using available laws that provide access to information about the company's plans for investment and environmental impacts, and recognising that the latter are likely to be spread across long supply chains. A case study is included of the Chemical, Pharmaceuticals, Process and Textile (CPPT) sector in Unite, where worker-led industrial strategies have been developed, enabling reps to respond to the development of the Tees valley hydrogen hub, and the Tees Freeport. The guide notes that what stands out in this case is "the process of capacity building through research, worker education and strategic development which can enable the union to get on the front foot" (p.30). Thus, the practical recommendations for action in this guide concur with my research conclusions in terms of highlighting the need to understand how social and environmental concerns interact, the need to develop union capacities, especially framings and articulation across levels, and the way that engagement at a subnational level can develop these. This suggests that my thesis offers independent academic analysis underpinning contemporary debates and is able to strengthen the evidence-base informing policy and practice. It provides an additional case, not covered in the IER report, that adds weight to this wider movement to highlight and support the roles of unions in the just transition.

Reflections on the role of individuals and the structural context

I have discussed above how structural contexts are brought into my research in terms of what they enable or constrain. The role of individuals must also be considered, and here I look at how this took forward or restrained change. As set out by Lundström et al (2015), individuals play an important role in taking forward labour environmentalism, either as "committed unionists" (p.166) or "individuals in environmental movements, pushing their organisation to cooperate with unions" (p.166). These authors cite other studies that have investigated coalition building, with similar conclusions, that individuals with legitimacy across the coalition were important as "bridge-brokers" (p.166) and those familiar with the different cultures could help broaden thinking. Lundström et al (2015) aimed "to shed light on the relationship between individual and organisational trajectories within specific societal (political and economic) conjunctures" (p.166). They note that individuals trying to effect change in organisations are, by definition, not representative of a broad consensus in their organisation – although I would add that they may vocally represent a silent majority, against just as silent organisational inertia.

My research did identify individuals who were playing an important role in taking forward change, and to a lesser extent, I picked up some evidence of individuals acting as a drag on change, although generally through inaction rather than active resistance. The quadrants model of change towards justice from Rao et al (2016), which was a building block in my *framework,* helps to interrogate how change is being brought about in an organisation. Pressure and change in one quadrant can generate or free up change in another quadrant, and within this process it is often the agency of individuals and small groups that makes a difference. In the terms offered by Lévesque and Fairbrother (2022), organisational experiments are conducted, and may or not become embedded as institutional experiments. My own role through my participatory activist research helped to broaden thinking, by bridging unions to the climate movement, where my legitimacy matched that of Bill Adams within the unions. It helped to develop capacities within unions, for example, seeking grant funding, arranging training for reps, briefing full-time officers, interpreting technical information for the Taskforce, but this could only happen because other active individuals wanted to make such changes happen, and because the changing structural context also allowed or provoked change. In this respect, the academic benefits of my embedded approach are seen in how it enabled me to be close to the action and understand the dynamics of change, which has enabled my thesis to contribute to the debates around unions and climate change, by complementing and extending the existing theories.

Conclusion

In this section I have set out the contributions my thesis makes to theoretical debates around unions and climate change, and reflected on how my findings complement and extend those of other researchers, how they integrate the role of individuals as well as the effect of structural contexts and how they support the development of practice. Bringing together these recent contributions in relation to my thesis confirms the achievement of my aim and the contribution of my study to exploring the conditions that would allow UK trade unions to become more engaged with the climate change agenda, and to realising a Just Transition.

Appendix A – interview questions

Interview schedule

Stage	Questions
Stage A	What is your current role? What are you grappling with (generally)? What priorities do you have? How did you become involved in the low carbon agenda? Was there a particular point when you decided to get involved? What happened? What is the story? How have your opinions or concerns changed since you got involved? Why?
Stage B	Tell me how your trade union / organisation is working on the low carbon / Just Transition agenda: - Why is it working on this agenda? - How? Why like this? - What are its aims or goals, or priorities? - How does this agenda link to other priority agendas (e.g. low pay)? How would Just Transition impact on these other agendas? - Who is specifically working on this? - What are their roles?
Stage B	How is this agenda being addressed in your sector more widely? (e.g. the sector they work with as a union officer – such as the glass industry) - Which partners would your trade union like to work with on this? - What are any blocks in your trade union/sector) to working on this agenda? (Question for 'energy unions') How are energy unions working on this?
Stage B	Do you agree with the approach being taken by your trade union/organisation or within your sector? - Do you think it will be successful? Why? - What do you think needs to change?
Stage B	There has recently been a lot more public profile of climate change, for example the XR actions and the Youth Strike for Climate - what has been the reaction in your union?
Stage C	At the xxx event (on date), I think you expressed a view that "yyy". Is that right? Would you like to say more about that? Would you be happy to go on record with the following statement, "zzz"?
Stage D	What I have read about this field suggests that "aaa". Do you agree? Through my research to date, I think that what is happening is "bbb". Do you agree, or do you have other ideas? On a scale of 1 to 7, how much do you agree that "ccc"?

Appendix B – List of codes used for analysis

Code	Grouping
Level – Energy unions – TUC Y&H - activists	Level of study – who was responding?
What is your current role?	My question – role
What are you grappling with?	My question – grappling
What priorities do you have?	My question - priorities
How are you involved in the low carbon/ just transition agenda? Was there a particular point when you decided to get involved? What is the story?	My question – low carbon story
How have your opinions or concerns changed? Why?	My question – opinions changed
What are organisation's aims or goals, or priorities on low carbon agenda?	My question – organisation aims on LC
How? Why like this? What is the theory of change?	My question – organisation theory of change on LC
How does this agenda link to other priority agendas (e.g. low pay)? How would JT impact on these agendas?	My question – links LC to other organisation priorities
How is this agenda being addressed in your sector more widely? ('Energy unions') How are energy unions working on this?	My question – approach of wider sector
Do you agree with the approach being taken by your trade union/sector? Do you think it will be successful? Why? What do you think needs to change?	My question – will approach succeed?
What are the barriers to successful change, JT?	My question - barriers
What are the drivers and dynamics of union responses?	My question – drivers
There has recently been a lot more public profile of climate change, for example the XR actions and the Youth Strike for Climate. What has been the reaction in your union?	My question – reaction to XR and Youth Strike
Concern – social – high - low	Concerns
Concern – env – high - low	Concerns
Sustainability - Modernising – Ecological	Concerns
Scope – wider - narrow	Concerns
These workers - All members - All citizens – climate justice	Concerns
Justice in organisations - institutions – market - technology	Concerns
Green transformation narrative – technology - market – state – civil society	Concerns/Capacities
Critical of pathways – not critical	Concerns/Capacities
Relationships with – employers, government, civil society	Capacities/Concerns

Developing purpose	Capacities
Developing vision and leadership	Capacities
Developing resources & organisation	Capacities
Developing power resources – network embeddedness - alliances	Capacities
Developing capabilities	Capacities
Developing strategic capabilities – framing, articulating, learning, intermediating	Capacities
Developing norms	Capacities
Developing wider movement norms	Capacities
Institutional role	Capacities
Social movement role	Capacities
Role of TU - proactive	Capacities
Focus – employer bargaining – policy advocacy	Capacities
Proactivity or agency	Capacities
Focus of climate action – national - subnational	Place- based climate action
Social fabric and place affected	Place- based climate action
Addressing regional disparities	Place-based climate action
Climate governance	Place-based climate action
Everyday economy	Place-based climate action
LEPs	Place-based climate action
Changing concern	Obstacles/Dynamics
Fear in TU members	Obstacles/Dynamics
Emergency	Obstacles/Dynamics
Mistrust and exclusion	Obstacles/Dynamics

Appendix C – List of documents analysed

Reference: year-(month)-code-item	Document description	Location
JP-2015-09-ITUC-01	JP notes of attending ITUC pre-Paris union conference.	Notebook from 2015
JP-2015-10-Unite-01	JP notes of meetings with a Unite Executive Council member (Martin Mayer) and with Unite's International Secretary (Simon Dubbins).	Notebook from 2015
JP-2015-COP21-01	JP notes of acting as Unite delegate to COP21 in Paris.	Notebook from 2015
JP-2015-COP21-02	JP report to Unite International Sec on Paris COP21	Documents/emails
JP-2016-03-LCWG-01	JP personal notes of Green Alliance speaker presentation from an event attended run by the Sheffield Low Carbon Working Group (originally an offshoot of the LSP and the Sheffield Green Commission)	Notebook from 2016
JP-2016-04-TUED-01	JP notes on attending an event hosted by Trade Unions for Energy Democracy	Notebook from 2016
JP-2016-05-Brief-01	Briefing document prepared by PP for RISC meeting etc.	Documents.
JP-2016-06-Leeds-01	JP notes of a Taskforce meeting with Roger Marsh, Chair of Leeds LEP.	Notebook from 2016
JP-2016-07-Unite-02	Unite Policy Conference agenda	Booklets
JP-2016-11-ADAMS-01	Notes of Interview with Bill Adams, Regional Secretary, Nov 2016.	Document
JP-2016-CAN-01	Correspondence with Coal Action Network.	Emails
JP-2016-Hooke-01	Research by Catherine Hooke for MSc on environmental policies of large UK unions 2014-2016 (received by email).	Documents
JP-2017-09-TUC	JP notes of fringe meeting on climate change at TUC 2017	Notebook from 2017 and documents
JP-2017-05-TUED-01	JP notes on attending an event hosted by Trade Unions for Energy Democracy	Notebook from 2017
JP-2017-09-LCComm-01	JP notes on launch event of Leeds Climate Commission.	Notebook from 2017
JP-2017-10-CCSA-01	Notes of Taskforce event with CCSA	Notebook from 2017, documents
JP-2018-03-ETUC-01	Reflections ETUC meetings in Brussels March 2018	Notebook from 2018
JP-2018-04-IJT-01	JP notes of a meeting with Nick Robins, IJT.	Notebook from 2018
JP-2018-07-SCR-01	JP notes on consultation event held on Sheffield City Region Energy Strategy	Notebook from 2018
JP-2018-07-SCR-02	JP reflections on consultation event held on SCR Energy Strategy	Documents
JP-2018-10-ETUC-02	JP notes on attending the launch of the ETUC Just Transition report with members of the JTTF	Notebook from 2018

JP-2018-12-YHTUC-01	JP notes of a one-to-one meeting with Bill Adams, focused on the funding bid.	Documents, recordings
JP-2018-IPPR-01	JP notes of launch event in Leeds for IPPR and Prospect report.	Notebook from 2018
JP-2019-04-AG-01	Notes of a call with Andy Gouldson about the bid	Notebook from 2019, Documents
JP-2019-05-BID-01	Drafts of funding bid	Documents
JP-2019-10-JTTF-01	JP personal notes on a presentation by Drax during a visit by the JT Taskforce.	Notebook from 2019
JP-2019-UNITE-01	JP notes of attending Unite Metals branch meeting.	Notebook and documents
JP-Interview-PP	Transcript of interview with PP putting other conversations on the record	Transcripts

Appendix D – information about the interview and consent

Information sheet

This is an Information Sheet for Interview and Focus Group Participants – you can keep it for reference, plus a copy of your Consent Form

Title of Research Project: **Trade Unions and a Just Transition to Low Carbon**

Name of Researcher: **Jenny Patient, University of Sheffield   jspatient1@sheffield.ac.uk**

You are invited to participate in this PhD research, which will continue until September 2020 and is looking at UK trade unions' actual and potential responses to climate change, particularly in the energy intensive industries in Yorkshire and the Humber. Jenny is an embedded researcher at the Regional TUC for Yorkshire and the Humber, where the Low Carbon Task Force have been involved in defining the questions her research project will answer. Whilst there are no immediate benefits to those participating, it is hoped that this work will help trade unions achieve long-term gains for their members in a low-carbon society.

Aim and methods of the research
The aim is to explore how trade unions are working to achieve a Just Transition (i.e. reaching a low carbon society in a fair way), through understanding the experiences and perceptions of workers, trade unionists and other relevant stakeholders. Jenny will collect data by interviewing people, visiting industrial locations, participating in meetings and online forums, and holding focus group discussions.

The nature of the research is action research with participant observation, in which Jenny will participate, for example, as a member of the Low Carbon Task Force, an assistant on the training course, or by organising a meeting. After such events Jenny will write up her notes, observations and reflections, including quotes from what people have said.

Interviews will include open-ended questions covering topics such as: what the low-carbon issues in an industry are; how the interviewee got involved in the low-carbon agenda; and what the roles of the trade unions and the employers are in addressing climate change. At regular intervals Jenny will convene focus groups of trade unionists, who will help to interpret the meaning of the data she has collected. (The focus groups will only see summarised and anonymised information, not the full data).

Full names will not be used in the main data store, instead each participant will be given a pseudonym of a set of initials, and these will be used to identify any comments they make. The 'key' linking names to pseudonyms will be accessible only to Jenny. A participant's role and workplace will be recorded in the data store, and the Consent Form asks if you are happy for it to be known that you are a trade union member (as this is Special Category data in the GDPR and requires consent).

As the research takes place within a limited geographical area and a well-integrated community, it will be difficult to guarantee to preserve anonymity for participants, so you should assume that you will be identifiable in publications from your role, even if not named.

Interviews, focus groups and meetings may be recorded using audio equipment. Transcriptions of these recordings will be used only for analysis and for illustration in conference presentations and lectures. No other use will be made of them without your written permission, and no one outside the project will be allowed access to the original recordings.

The data store will be kept for up to three years after the completion of the research, then destroyed, during which time it will continue to be accessible only to Jenny and may be used to produce publications. It is not considered appropriate for this data to be made available more generally to other researchers.

How will consent be obtained?

Each Interview or Focus Group participant is given this Information Sheet to provide information about the research, and a Consent Form to record that consent has been obtained. The Consent Form asks if you would prefer to be 'on the record' in any interviews (and be named), or if you would prefer Jenny to later check with you (on a case-by-case basis) before using any quotes in publications, and agree whether you would be named in relation to them.

On the Consent Form, each individual participant is asked to confirm (if relevant to their being interviewed) that they are happy for it to be known they are a trade union member.

Our legal basis for holding your information, and what to do if you have concerns

The University of Sheffield will act as the Data Controller for this study. This means that the University is responsible for looking after your information and using it properly.

In order to collect and use your personal information as part of this research project, we must have a basis in law to do so. The basis that we are using is that the research is 'a task in the public interest'.

As we will be collecting some data that is defined in the legislation as more sensitive (information about your membership of a trade union) we also need to let you know that we are applying an additional condition in law: that the use of your data is 'necessary for scientific or historical research purposes'.

Further information, including details about how and why the University processes your personal information, how we keep your information secure, and your legal rights (including how to complain if you feel that your personal information has not been handled correctly), can be found in the University's Privacy Notice https://www.sheffield.ac.uk/govern/data-protection/privacy/general

This project has been funded by Mistra Urban Futures and has been ethically approved via the University of Sheffield's Ethics Review Procedure, as administered by the Urban Studies and Planning department. Taking part is voluntary and you have the right to withdraw from the research at any time without stating a reason.

If you need further information about your participation in this project, please contact Jenny, or her supervisor Beth Perry on b.perry@sheffield.ac.uk, or, if you think that the issue you've raised has not been addressed correctly, or if you have a complaint, you may instead contact Malcolm Tait, Head of Urban Studies and Planning at the University of Sheffield, m.tait@sheffield.ac.uk.

Consent form

Please tick the appropriate boxes	Yes	No
Taking Part in the Project		
I have read and understood the project information sheet dated 24/07/2018 or the project has been fully explained to me. (If you will answer No to this question please do not proceed with this consent form until you are fully aware of what your participation in the project will mean.)	☐	☐
I have been given the opportunity to ask questions about the project.	☐	☐
I agree to take part in the project. I understand that taking part in the project will include: being interviewed / being recorded (audio) / participating in a focus group	☐	☐
I understand that my taking part is voluntary and that I can withdraw from the study at any time; I do not have to give any reasons for why I no longer want to take part and there will be no adverse consequences if I choose to withdraw.	☐	☐
How my information will be used during and after the project		
I understand my personal details such as name, phone number, address and email address etc. will not be revealed to people outside the project.	☐	☐

I accept that, given the limited geographical area and well-integrated community under study, complete anonymity cannot be guaranteed to participants.	☐	☐
I understand and agree that my words may be quoted in publications, reports, web pages, and other research outputs.	☐	☐
YES: I agree that my words will be **'on the record'** and can be identified with my name in outputs 'OR IF 'NO': that I will be consulted about any quotes used in outputs on a case-by-case basis and have the right to ask for particular quotes not to be linked to my identity, or not to be used at all.	☐	☐
I am participating in this research in a trade union role. IF YES:	☐	☐
I understand that the research outputs may make my membership of a trade union publicly known. I agree for this information about me to be held, and I agree that it does not need to be kept private. (As this is a Special Category piece of information about you within the terms of the GDPR we require your explicit consent.)	☐	☐
So that the information you provide can be used legally by the researcher		
I agree to assign the copyright I hold in any materials generated as part of this project to The University of Sheffield.	☐	☐

Name of participant [printed]   Signature   Date

Jenny Patient

Name of Researcher [printed]   Signature   Date

Project contact details for further information: Jenny Patient: jspatient1@sheffield.ac.uk Supervisor: Beth Perry, b.perry@sheffield.ac.uk. In the event of complaint please contact Head of Department: m.tait@sheffield.ac.uk

Appendix E – Memorandums of Understanding for embedded research

Memorandum of Understanding 1 – from Jan 2018

This MoU is to share expectations on all sides of this relationship and has been drawn up in consultation with all parties.

1) PhD scope/subject/approach

Jenny Patient is undertaking PhD research, supervised by Beth Perry and Stephen Connelly of the Urban Institute at the University of Sheffield, and funded by Mistra Urban Futures through the *Realising Just Cities* programme.

The subject of the PhD study is the role played by trade unions in a low carbon transition, with reference to the energy-intensive, high-carbon industries in Yorkshire and Humber, e.g. steel, cement, glass, chemicals. The approach to be taken is a form of action research, which means collaborating with partners to analyse problems and develop and evaluate interventions (e.g. a training scheme). The aim is to achieve mutual benefit to all partners through contributing to wider environmental transitions and generating practically-relevant and intellectually rigorous insights.

2) Project background

The Regional Council of Y&H TUC has set up a Low Carbon Task Force including trade unionists and other stakeholders, with the aim of keeping industries and jobs in a low-carbon Yorkshire and Humber. The objectives of the task force include better collective bargaining around the carbon agenda, and training/support for workplace reps to better understand the low-carbon transition for their workplace. This PhD builds on longstanding relationships between Jenny Patient and Bill Adams, taken forward through this PhD.

3) Purpose of this MoU

From October 2017 through June 2018, the PhD candidate's main responsibility is to complete a research design to fulfil the University of Sheffield's requirements for PhD candidates. (The PhD will not proceed if this process – known as Upgrade - has not been successfully passed).

To inform the research design, the PhD candidate will engage in background research. This will also create traction and build legitimacy ahead of the implementation stage of the research design. One component of this is working in and with the Y&H TUC and its Low Carbon Task Force, and having regular meetings with Bill Adams (Y&H TUC Regional Secretary). This will enable the research design to be developed collaboratively, so that action research can be realistically implemented during the fieldwork stage from July 2018.

The research design will include statements of what/how data will be collected, and how it will be published, in the main phase of her research over the ensuing 2 years. The Upgrade checkpoint is required to ensure that the PhD candidate's research will meet the academic and ethical standards of the university.

4) Confidentiality and Research Ethics

The final research design will be subject to full ethical approval. In the meantime, this MoU and an interim ethics approval, is intended to ensure that initial research design work will be undertaken to the highest ethical standards; the PhD candidate's notes that are taken and observations made during her time with the Y&H TUC will be shared with supervisors to support the research design. All documents, information and communication throughout the duration of the PhD candidate's time in the Y&H TUC during this first phase of work will be held in confidence and shared only with the supervisory team. The PhD candidate is strictly prohibited from making public statements, either verbal or written, on behalf of the Y&H TUC unless the PhD candidate receives specific permission and consent.

After Phase 1 (Research Design), and upon successful completion of the Upgrade, a meeting will take place between all parties to define what is in and out of scope as data to be carried forward for inclusion in the thesis.

The Y&H TUC will also respect the ethos and principles of the Realising Just Cities programme. This includes recognising and accurately representing the funders (Mistra Urban Futures and the University of Sheffield).

4) Provision of facilities by the Y&H TUC:

- office desk space and wi-fi, printing and stationery facilities in the TUC office in Leeds for Jenny Patient for around 1 day per week. Jenny will use her own laptop computer and email address, and take responsibility for backing up and ensuring confidentiality of data.
- meeting spaces for interviews, focus group discussions etc.
- assistance in gaining access/introductions to key informants for her research, such as shop stewards, employers, union officials etc.
- a monthly meeting with the Regional Secretary to review the research design and other tasks as required

5) Outline work plan for Jenny Patient at Y&H TUC

- To be based in the office of the Y&H TUC one day per week, usually Mondays.
- To support small-scale research tasks that underpin the work of the Low Carbon Task Force – e.g. carbon emission and job statistics in different industries, low carbon technology options
- To assist with organising events linked to the Low Carbon Task Force, such as a panel discussion at the Regional TUC AGM in March 2018, and a seminar for trade unions and partner organisations in June 2018.
- To undertake initial interviews/meetings/visits with trade union representatives or officers and employers or other organisations that build a picture of employment, emissions and issues in relevant companies, and begin to define questions and problems that need addressing in a low carbon transition.
- To write/draft articles/blogs, for publication in relevant publications/websites on related themes such as the Clean Growth Strategy, the Paris Agreement, or international trade union action on climate change. Any such publications are to be agreed by the Task Force.
- To be a link to academic or other resources – for example, publications, expertise and events - that can support the work of the Low Carbon Task Force

- Through the above to generate collaborative agreement on design and implementation of action research project (design, questions, problem focus, change strategy, actions, reflections).

6) Conduct and confidentiality agreement

- Jenny will follow Y&H TUC guidance and rules, e.g. regarding conduct, confidentiality, health and safety
- In consultation with Bill Adams and other advisors, Jenny will draw up a Confidentiality Protocol that addresses concerns that companies or unions may have about the use of data collected. For example, to enable agreement in advance on whether photographs can be taken on a site visit, or what information is company confidential.
- As noted above, Jenny will make use of her own laptop computer and email address, and will back up data to her personal area on the University of Sheffield drives to ensure its integrity and confidentiality.

7) This Memorandum of Understanding is agreed between:

Signed:

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Date:

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Memorandum of Understanding 2 – from May 2018
This MoU is to share expectations on all sides of this relationship and has been drawn up in consultation with all parties.
1) PhD scope/subject/approach

Jenny Patient is undertaking PhD research, supervised by Beth Perry and Stephen Connelly of the Urban Institute at the University of Sheffield, and funded by Mistra Urban Futures through the *Realising Just Cities* programme.

The subject of the PhD study is the role played by trade unions in a low carbon transition, with reference to the energy-intensive, high-carbon industries in Yorkshire and Humber, e.g. steel, cement, glass, chemicals and power generation. The approach to be taken is a form of action

research, which means collaborating with partners to analyse problems and develop and evaluate interventions (e.g. a training scheme). The aim is to achieve mutual benefit to all partners through contributing to wider environmental transitions and generating practically-relevant and intellectually rigorous insights.

2) Project background

The Regional Council of Y&H TUC has set up a Low Carbon Task Force including trade unionists and other stakeholders, with the aim of keeping industries and jobs in a low-carbon Yorkshire and Humber. The objectives of the task force include better collective bargaining around the carbon agenda, and training/support for workplace reps to better understand the low-carbon transition for their workplace. This PhD builds on longstanding relationships between Jenny Patient and Bill Adams.

3) Purpose of this MoU

From June 2018 through Sept 2019 (and with possible extension in the period up to Sept 2020), having firstly completed her research design and ethical approval to fulfil the University of Sheffield's requirements for PhD candidates, Jenny will undertake the fieldwork for her research.

This fieldwork will involve working in and with the Y&H TUC and its Low Carbon Task Force, and having regular meetings with Bill Adams (Y&H TUC Regional Secretary), as well as other related work with trade unions around low carbon (e.g. attending conferences). In this setting, Jenny will pursue action research interventions, the nature of which has been agreed with Bill Adams in a meeting on 8 May 2018, and which are described in the attached table (see Appendix). A major element of Jenny's fieldwork will be linked to the Low Carbon training course for workplace reps that is planned to commence in Sept 2018. For example, she may attend the training course as an observer, possibly lead delivery of a training session, and get involved in follow-up support with the trainees when they are back in the workplace.

As Jenny's research is based on an interactive and iterative process of action research, she will carry out interventions with trade unionists, such as leading a workshop, writing a magazine article or blog, or co-organising an event with climate activists or academics. Feedback from these interventions will be analysed as part of the research. In addition, Jenny will interview individuals, and hold regular focus groups with members of the Task Force, to understand their perspectives, and will keep a field diary to record and reflect on events, meetings and conversations.

Any articles or web blogs published as part of her fieldwork will be reviewed in advance by Bill Adams.

4) Confidentiality and Research Ethics

The research design will be subject to full ethical approval by the University before fieldwork commences. Jenny's notes that are taken and observations made during her time with the Y&H TUC may be shared with her supervisors. All documents, information and communication throughout the duration of the PhD candidate's time in the Y&H TUC will be held in confidence and shared only with the supervisory team, except that an anonymised summary of data collected may be shared with a focus group or interviewees who are collaborating with her on the interpretation of the data. The PhD

candidate is strictly prohibited from making public statements, either verbal or written, on behalf of the Y&H TUC unless the PhD candidate receives specific permission and consent.

The Y&H TUC will also respect the ethos and principles of the Realising Just Cities programme. This includes recognising and accurately representing the funders (Mistra Urban Futures and the University of Sheffield).

4) Provision of facilities by the Y&H TUC:

- office desk space and wi-fi, printing and stationery facilities in the TUC office in Leeds for Jenny Patient for around 1-3 days per week. Jenny will use her own laptop computer and email address, and take responsibility for backing up and ensuring confidentiality of data.
- meeting spaces for interviews, focus group discussions etc.
- assistance in gaining access/introductions to key informants for her research, such as shop stewards, employers, union officials etc.
- a monthly meeting with the Regional Secretary to review progress of the research and other tasks as required

5) Outline work plan for Jenny Patient at Y&H TUC

- To be based in the office of the Y&H TUC, usually 1-3 days per week, as required.
- To support tasks that underpin the work of the Low Carbon Task Force – e.g. researching information about industries or low carbon pathways.
- To assist with organising events linked to the Low Carbon Task Force, and provide assistance with Low Carbon training delivery and support for reps carrying out tasks after the training.
- To undertake interviews/meetings/visits with trade union representatives or officers and employers or other organisations that contribute to her research.
- To write/draft articles/blogs, for publication in relevant publications/websites on related themes such as the Clean Growth Strategy, the Paris Agreement, or international trade union action on climate change. Any such publications are to be agreed by the Task Force.
- To be a link to academic or other resources – for example, publications, expertise and events - that can support the work of the Low Carbon Task Force
- Through the above to carry out action research on the role of trade unions in a low carbon transition.

6) Conduct and confidentiality agreement

- Jenny will follow Y&H TUC guidance and rules, e.g. regarding conduct, confidentiality, health and safety
- In consultation with Bill Adams and other advisors, Jenny will draw up a Confidentiality Protocol that addresses concerns that companies or unions may have about the use of data collected. For example, to enable agreement in advance on whether photographs can be taken on a site visit, or what information is company confidential.
- As noted above, Jenny will make use of her own laptop computer and email address, and will back up data to her personal area on the University of Sheffield drives to ensure its integrity and confidentiality.

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Signed:

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Date:

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Appendix to MoU2: Table – Trade unions moving towards a Just Transition in Yorks & Humber EI Industries

Trade unions' definition of problems in moving towards a Just Transition to low carbon	Trade Unions' (Task Force) ideas of interventions aimed to address these problems	Trade unions' (Task Force) desired outcomes from their interventions	My point of view on the interventions the Task Force proposes – within a broad agreement on first three columns
Problem a) There is a lack of investment in low carbon technology and skills	**Intervention e)** Take a lead to engage with the different stakeholders (in the region) – LEPs, industry, investors, LA's and climate activists.	**h)** Action is taken on investment and training, based on consensus built between stakeholders.	**m)** Some investment pathways could lead to less, not more, social and ecological justice. **n)** Commitment to the interests of the well-paid, well-organised labour in EII (in part linked to the continuing cultural influence in Y&H of traditional core industries around coal, power and steel) may hinder unions from taking on board the big social and economic picture and wider class or global interests.
Problem b) Trade unions don't have a seat at the table with Government or LEPs to work on solutions		**j)** By taking the initiative, gain progress with the LEPs and get a seat at table with Government.	
Problem c) Low carbon is not on the agenda of collective bargaining or consultation with employers.	**Intervention f)** Deliver low carbon training for grass-roots reps in industry to increase capabilities to add low carbon to the agenda.	**k)** Knowledgeable and motivated union reps push for low carbon action in workplaces/companies.	**p)** The complexity of evaluating low carbon options may mean that companies can still persuade union reps with 'greenwash'.
			q) As stated in problem d), trade unions may be unable to play a full role in evaluating different options for technology and investment.
Problem d) (as expressed by a Unite Exec member) "Trade unions hear different stories from the different stakeholders and can't evaluate the options from their own perspective and values"	**Intervention g)** Make the stakeholder engagement and training delivery work together - top down work with bottom up	**l)** Trade unions develop the capability and capacity to make their own judgments on low carbon options as part of the 'big picture' (economic, social as well as technical).	**r)** Bottom-up may not meet top-down because there is a lack of senior trade unionists prioritising low carbon, and a layer of full-time officials who are distracted by other matters and hard to engage.

Therefore, in my action research, I will work with the Task Force to offer interventions that:
s) Develop unions' perspectives and visions on **the 'big picture'** of how low carbon helps the economy and social justice.
t) Make the most of **good examples** from ETUC, Scotland or elsewhere to show what is possible.
u) Promote collaboration with **climate activists and academics** who can help to unpack the complexities of evaluating different low carbon pathways.
v) Learn from ILO / ITUC / IndustriALL / ETUC / TUC **policies / projects** that support Just Transition, and also initiatives being taken by the Labour Party and by Trade Unions for Energy Democracy.
w) Work with the **cultural phenomenon** of allegiance to traditional industries, through opening up dialogue around the values and strengths of trade unions.
x) Make links and offer **solidarity** around other union priorities – e.g. Brexit, low pay, equalities, young workers, digitalisation.
y) Engage and support the **'middle layer'** of trade union officials as much as possible to prioritise low carbon.

Appendix F: PAtR data - list of events and reflections recorded

Item number	Date and Item	Notebook entries	Related sound recordings	Related text documents
1	2018-01 Air Pollution training in Leeds	Notes in N.2		
2	2018-01 *Labour Research* article on Just Transition	Notes in N.2		
3	2018-02-05 Low Carbon Briefings for trade union officers in Y&H	Notes in N.2		Reflections
4	2018-02 Northern College Trade Union learning event	Notes in N.2		
5	2018-03-10 *Jobs and Climate* conference in London	Notes in N.3		Reflections
6	2018-03-15 Brussels with Bill Adams – ETUC Climate Committee	Notes in N.3		
7	2018-03-16?- Brussels with Bill Adams – ETUC synthesis workshop on Just Transition	Notes in N.3		Reflections
8	2018-03-24/25 TUC Y&H AGM Conference	Notes in N.3		Reflections
9	2018-04-18 Meeting with Bill Adams	Notes in N.3		Reflections
10	2018-05-08 MoU meeting with Bill Adams and supervisors	Notes in N.4	Recording in 'Supervision'	Reflections
11	2018-05-15 Brussels with Bill Adams and 3 Task Force members for Just Transition report launch	Notes in N.4		
12	2018-05-16 Eurostar journey with Taskforce members	Notes in N.4		Reflections
13	2018-06-28/29 Trade Unions for Energy Democracy (TUED) seminar at Wortley Hall	Notes in N.4		Written up as TUED May 2018
14	2018-07-02 Unite policy conference	Notes in N.4		Reflections
15	2018-07-05 TUC Just Transition Task Force	Notes in N.4		Reflections
16	2018-07-12 Westminster University conference on trade unions and climate change	Notes in N.5		
17	2018-07-19 Sheffield City Region Energy consultation event	Notes in N.5		Reflections
18	2018-08-29 TUED call with activists on Just Transition critique	Notes in N.5		Reflections
19	2018-08-02 Meeting with Bill Adams and activist	Notes in N.5		
20	2018-09-10/11 TUC Conference in Manchester *TUC 2018 report* and *TUC 2018 Day 3 Proceedings*	Notes in N.5		Reflections
21	2018-09-19, 09-25 and 10-03 Workdays at TUC Y&H	Notes in N.5		Reflections

22	2018-10-05 Call with Nick Robins and team re *Investing in a Just Transition*	Notes in N.5		
23	2018-09-28 TUC Regional Women's conference	Notes in N.6		Reflections
24	2018-10-09 Conversation with Gareth Forest-Lewis	Notes in N.6		Reflections
25	2018-10-09 Full-Time Officers briefing re course	Notes in N.6		Reflections
26	2018-10-11 Sheffield *Inclusive and Sustainable Economy* launch event	Notes in N.6		Reflections
27	2018-10-15 Call with Josh Emden, IPPR	Notes in N.6		
28	2018-10-29 Meeting with Bill Adams	Notes in N.6		Reflections
29	2018-11-12 Meeting with AIDC, Cape Town, re their work on unions and climate	Notes in N.7		
30	2018-11-15 Meeting with Bill Adams	Notes in N.7		Reflections
31	2018-11-22 Meeting with Bill Adams	Notes in N.6		
32	2018-11-26 & 27 Just Transition course pilot – final discussion	Notes in N.7	Recording in 'Meetings'	Notes and recommendat-ions written up
33	2018-12-10 Meeting with Bill & FPF bid	Notes in N.7	Recording in 'Meetings'	
34	2019-01-10 TUC Y&H Task Force meeting	Notes in N.7		In 'Meetings'
35	2019-01-16 mutual peer interviews on research		Recording in 'Supervision'	Notes and reflections written up
36	2019-01-29 Met Jim Mowatt, Director of Education at Unite	Notes in N.8		
37	2019-01-29 Greener Jobs Alliance AGM	Notes in N.8		
38	2019-02-06 Paul Allen from Zero Carbon Britain meeting with trade unions at Leeds University	Notes in N.8	Recording in 'Meetings'	Notes written up and reflections
39	2019-02-13 Workday at TUC	Notes in N.8		Reflections
40	2019-02-18 Workday at TUC	Notes in N.8		Reflections
41	2019-02-25 and 2019-03-04 Just Transition course	Notes in N.8	Recordings in 'Meetings'	Report written and notes of conversations
42	2019-03-18 Met Bill Adams	Notes in N.8	Recording in 'Meetings'	
43	2019-03-28 JP spoke at Sheffield Central Constituency Labour Party meeting re *Green New Deal*	Notes in N.8		Reflections, but not typed up
44	2019-04-05 Building a Carbon Literate Leeds	Notes in N.8		

45	2019-04-08 'A Hostile Climate' conference – conversations with climate activists	Notes in N.8		
46	2019-04-09 Launch event for IPPR / Prospect trade union report on power generation	Notes in N.8		
47	2019-04-09 Meeting with IJT team with Bill Adams	Notes in N.8		Reflections
48	2019-04-17 meeting with IJT team members	Notes in N.9	None	Reflections
49	2019-04-17 Local Authority Pension Funds event – Bill Adams speaker	Notes in N.9	Recording in 'Meetings'	Reflections
50	2019-04-24 Meeting with Bill Adams and PP re funding bid	Notes in N.9	None	Reflections
51	2019-04-25 Phone call with Andy Gouldson about funding bid	Notes in N.9	None	
52	2019-05-09 Orgreave Truth and Justice event *'Miners Strike to Gig Economy'* held as part of Festival of Debate	Notes in N.9		Comparison with event in next line written up.
53	2019-05-10 *How is Global Warming a Racial Issue?* Event held as part of Festival of Debate	Notes in N.9		Comparison with event in previous line written up.
54	2019-05-11 Festival of Debate *Our Planet* Hub Day co-ordinated by Sheffield Climate Alliance – my talk	Notes in N.9		Notes for my talk and notes of other speakers
55	2019-05-14 Met Bill Adams	Notes in N.9	In 'Meetings'	Reflections
56	2019-05-18 *With Banners Held High* event in Wakefield with Just Transition workshop where I was on the panel	Notes in N.9 of speakers		Article on Just Transition I co-wrote ahead of the event
57	2019-05-23 Leeds Uni research collaboration day – conversations with academics on climate and work	Notes in N.9		Reflections
58	2019-05-23 Meeting with Leeds Uni re funding bid	Notes in N.9		Follow up correspond-ence
59	2019-06-06 Round Table event co-organised by TUC with Rebecca Long-Bailey, Labour Shadow Economy spokesperson	Notes in N.9	Recording in 'Meetings'	Reflections
60	2019-06-10 Met Bill Adams and Nick Robins	Notes in N.9	None	
61	2019-07-11 Unite Energy and Just Transition event, Salford, for Not for Profit Sector.	Notes in N.10	Recording of FoE speaker	Reflections

62	2019-07-11 *Green New Deal* event in Sheffield	Notes in N.9	None	
63	2019-07-12 Sheffield City Region Energy Strategy event at University of Sheffield	Notes in N.10		Written up
64	2019-07-24 Climate Strike public meeting in Sheffield	Notes in N.10		Report written up
65	2019-07-29 Submitted FPF bid			Bid versions
66	2019-09-05 Coproducing Urbanism event - spoke on panel	Notes in N.11	Recording	
67	2019-09-09/10 TUC Conference, Brighton	Notes in N.11	Recordings of fringe meetings: TUCG with Asad Rehman; GJA; CACCTU	2019-09-10 Notes on TUC Conference 2019
68	2019-09-18 Met Bill Adams	Notes in N.11	Recordings	
69	2019-09-20 Climate Strike	Photos, notes for my speech to rally		Correspond-ence with STUC / TUC Y&H / Unite
71	2019-09-20 Climate Strike	Photos of the event in Sheffield		Correspond-ence with TUC Y&H / Unite

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