Climate change, trade unions and the promise of climate solidarity in the UK, 1997-2010.

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Abstract

Contemporary climate change politics, dominated by neoliberal and ecological modernisation framings, has reached an impasse. This thesis investigates whether a Marxist critique focused on trade unions might offer an alternative approach. It critically analyses the social science literature on climate change and utilises insights from the employment relations literature to interrogate trade union activities.

The thesis makes original contributions to both the climate change and employment relations literatures. First, it offers a critique of the dominant climate politics and suggests an alternative framing. Second, it proposes a theorisation of organised workers and trade unions as strategic climate actors, applying Hyman's triangular model of market, society and class to understand union behaviour on climate change. Third, it contains a theoretically informed and empirically grounded investigation of UK trade union policy and practice on climate change at the start of the 21st century.

The main findings are that some socialists, trade unionists and activists in the UK have introduced a working class perspective into climate discourse, including challenges to property relations, climate inequality and through mobilisation. Some trade unionists have foreground the occupational aspects of climate change and climate policy, and made distinctive demands for a radical just transition, climate jobs and socially useful work.

Trade union climate representatives ("green reps") in some workplaces have made an independent contribution to climate mitigation and adaptation. The occupation of the Vestas wind turbine manufacturing factory and the resulting climate solidarity illustrate the potential power of workers' climate action.

The principal conclusions are that workers have the interest and collective capacity to reduce greenhouse gas emissions, to address the differential impacts of climate and climate policy, and to coalesce other actors to tackle climate change. The recent experience of UK trade unions suggests they have a vital role to play as climate actors and, suitably reconfigured, the capability to lead a renewed climate movement.

1) Introduction

1.1 Aims of the thesis

1.1.1 Objectives

The main objective of this thesis is to articulate the valence of organised workers for climate politics. It aims to critically assess the dominant social science framings of climate change and to extend a Marxist theoretical approach to climate politics. The study further aims to investigate workers' climate interests and capacities, and the potential for workers' climate agency.

The thesis assesses how far UK trade unions, as representatives of organised labour, articulate working class interests in their formulations of climate change policy. It examines whether trade unionists have developed distinctive conceptualisations, forms of representation and mobilisation strategies that can contribute towards preventing dangerous climate change. It further asks whether trade unions can lead a social movement to tackle climate change.

1.1.2 Scope

The study centres on the period 1997 to 2010. The year 1997 is a good starting point, because first, it was the year of the Kyoto Protocol, intended as the first tentative step towards a global agreement to reduce carbon emissions. Second, it is a suitable juncture politically in Britain, because it was the year when the Labour government led by Tony Blair was elected, with promises of climate leadership. The year 2010 is an appropriate end point for similar reasons. Global talks hosted by the United Nations Framework Convention on Climate Change (UNFCCC) finished without the long-promised international agreement to succeed Kyoto. Politically, the Labour Party was defeated in the general election, bringing to an end a significant era in modern British political history. The economic transition from boom to crisis also forms a relevant backdrop.

1.1.3 Originality

This thesis makes original contributions to the field of climate change politics and the discipline of employment relations. First, it critically examines the dominant political economy of climate change and offers a critique of neoliberal and ecological modernisation framings. It develops elements of a Marxist approach to climate politics.

Second, the study offers a conception of workers and trade unions as strategic climate actors. It proposes that the interlocking processes of exploitation and ecological degradation provide workers with good material reasons to make climate change their own particular interest. It also argues that workers' location within capitalist relations of production and their organisation in trade unions give them a unique social power to affect climate mitigation and adaptation action.

Third, the thesis extends Hyman's (2001) model of trade union ideologies operating between the market, society and class to understand their role in climate change politics. It contains an original, theoretically informed and empirically grounded investigation of UK trade union policy and practice on climate change at the beginning of the 21st century.

1.2 The impasse of contemporary climate politics

1.2.1 The failure of climate politics

The first decade of the twenty-first century was the best of times and the worst of times for climate change politics. It was the age of climate science, but also the age of stupid. It was the era of inconvenient truths, but nonetheless one of climate denial. It should have been the springtime of hope, yet it ended with the winter of despair.

The failure was not principally with the physical science evidence for climate change, despite the assault from certain critics.[1] As Barker (2008b: 16) put it, assessment reports published by the Intergovernmental Panel on Climate Change (IPCC) provided "the up-to-date authoritative (but somewhat conservative) consensus from the peer-reviewed literature on the existence, impacts and mitigation options and costs of climate change". The influential Stern Review (Dietz et al 2007: 229) described a "growing consensus" around the physical science of climate change: "the climate system is now warming significantly; this warming is more likely than not to continue and could be rapid; human activities are the major cause of it; potentially very large risks are involved; hence it is an immediate priority for public policy to pursue both greenhouse gas emission reductions (mitigation) and adaptation."

The fourth IPCC report (2007a) found that evidence of warming was "unequivocal". Global average temperatures rose by 0.74°C over the twentieth century, together with rising sea levels, changes in precipitation and to ecosystems. With increasing statistical confidence, the IPCC claimed that observed increases were "very likely" due to anthropogenic greenhouse gas concentrations. The report estimated that the global atmospheric concentration of carbon dioxide had increased from a pre-industrial value of about 280 parts per million (ppm) to 379ppm in 2005. The 400ppm threshold was exceeded as this thesis was concluded (*The Economist* 2013).

[1] See Fleming (1998) and Weart (2003) for readable histories of climate science and Pearce (2010) for a good account of the "climategate" scandal.

The fourth IPCC report predicted global average surface warming of between 1.8°C and 4.0°C by the end of this century. Impacts were identified on water, ecosystems, food, coasts and health at global, regional, national and local scales. The IPCC suggested a range of technologies and measures to reduce emissions and adapt to the consequences of past, current and future emissions.[2] The United Nations Framework Convention on Climate Change (UNFCCC), which has organised annual Conferences of the Parties (COPs) since 1995, has identified a 2°C increase as constituting "dangerous climate change". While the body (UNFCCC 2011) heralded the need for a "paradigm shift" towards a low-carbon society, such a transition is presently a long way from becoming reality.

The current political response to climate change is not commensurate with the identified risks. There is currently no successor treaty to follow Kyoto. The climate conference at Copenhagen in 2009 produced only an Accord. Although it highlighted the 2°C threshold and called for emissions reduction, the absence of a binding commitment or timescale rendered the Accord largely immaterial. Most alarmingly, World Resources Institute figures (2013) show that global greenhouse emissions have risen by more than 40% since 1990, while physical scientists now warn of the risks of 4°C increase (see New et al 2011). McKibben (2012) suggested that the global "carbon budget" – how much oil, coal and gas could still safely be burned and still have some reasonable hope of staying below two degrees – is roughly 565 gigatonnes of carbon dioxide by mid-century (see Allen et al 2009). However financial research (Carbon Tracker 2013) found that there is already five times that amount on the books of major fossil fuel corporations.

The International Energy Agency (IEA 2012) proclaimed a new global energy landscape, where fossil fuels remain dominant. It registered a resurgence in oil and gas production, spurred by unconventional sources such as tar sands and hydraulic fracturing (known as fracking), with coal demand growing faster than renewables. The report warned that if global society embarked on "a golden age" of fossil fuels and no action is taken soon, then much of the energy infrastructure would be locked in for decades and mitigation targets would not be met. This extreme energy scenario

[2] The fifth assessment reports are expected by 2014.

threatens to derail global efforts to prevent dangerous climate change (Broderick et al 2011).

1.2.2 Bringing society and politics back into climate change

The subject of this research is not climate change as a scientific hypothesis, for this is increasingly robust, although still evolving and variously contested. The thesis starts from a critique of current climate sociology and politics. Three decades ago Chen, Boulding and Schneider (1983: 9, 17) proposed a multidisciplinary approach to climate change, because "at the very base of the pyramid of CO_2 issues is neither physics nor chemistry nor biology, but rather social science". They argued that it is "society that is the subject of research – not climate". For Crutzen and Stoermer (2000: 17) a new epoch of the Anthropocene has commenced, in which humankind is foreground as an ecological agent. Climate change represents the most significant example of humanity's capacity to transform the planet all the way down. There have been many passionate demands for social science expertise to be brought to the centre of climate research (Von Storch and Stehr 1997; Rayner and Malone 1998; Pielke and Sarewitz 2005; Agrawal et al 2012). O'Brien (2012: 668) argued that a "new science on deliberate transformation" is needed to supplement current research on climate mitigation and adaptation.

Shove (2010: 278) argued that climate change policy proceeds on the basis of "an extraordinarily limited understanding of the social world" and is for the most part "untouched by theoretical debate of any kind at all". Prins and Rayner (2007) criticised the top-down nature of climate policy, at the expense of bottom-up approaches. Beck (2010: 254-5, 260) regarded the dominant climate frames as "an expert and elitist discourse in which peoples, societies, citizens, workers, voters and their interests, views and voices are very much neglected". Climate change politics often concentrates on the post-hoc consequences and "ignores the conditions and causes which produce and reproduce the climatic (and other) problems as 'unseen side effects'". Giddens (2009: 201, 4) criticised Stern's Review because, it contained no mention of politics and "no analysis of power or of the tense nature of international relations". He concluded that "we have no politics of climate change".

Climate change is in its infancy so far as critical political and social theory is concerned. Hay (2002: 113, 91-4) argued that mature political science requires a mode of analysis and corresponding social ontology "capable of reconciling structural and agential factors within a single explanation". Structure and agency is not so much a problem as "a language by which ontological differences between contending accounts might be registered". Structure means context and refers to the setting within which social, political and economic events occur and acquire meaning, while agency refers to action, specifically political conduct. Agency can be defined as "the ability or capacity of an actor to act consciously and, in so doing, to attempt to realise his or her intentions".[3] Jessop (1990, 2007) developed a promising reconciliation of structure and agency known as the strategic-relational approach. As Hay (ibid: 128) explained it, this approach seeks to bring agency into structure – producing a structured context (an action setting) – and to bring structure into agency – producing a contextualised actor (a situated agent). A repeat move identifies "a strategic actor within a strategically selective context". This thesis is premised on the search for strategic climate actors.

The relevance of structure and agency to climate politics has been recognised by some climate scholars. Berkhout and Hertin (2000: 166) argued that "the question of what is agency and what is structure, and how the two combine to shape changing relationships underlies all social and economic analysis, including analyses of future changes". Okereke, Bulkeley and Schroeder (2009: 69, 74) suggested that "structures do not define outcomes, they do define the potential range of alternative strategies from which different agents can choose", but also emphasised "how actors work to alter the contours of existing structures". McLaughlin and Dietz (2008: 104) emphasised that attempts to develop a comprehensive theory of vulnerability to climate change, "must be capable of addressing the interrelated dynamics of social structure, human agency and the environment(s)".

However Davis (2010: 33) summed up the systemic inadequacies of the IPCC's socio-economic projections for future global emissions, which are based on different

[3] See also McAnulla (2002) for structure and agency debates in social theory. Martin and Dennis (2010) contested the structural element of politics.

storylines centred on population growth, economic and technological developments.[4] The IPCC has in effect "bet the ranch, or rather the planet, on a market-driven evolution toward a post-carbon world economy". Although the IPCC never spells it out, its mitigation targets "necessarily presume that windfall profits from higher fossil fuel prices over the next generation will be efficiently recycled into renewable energy technology and not wasted on mile-high skyscrapers, asset bubbles and mega-payouts to shareholders". Every scenario assumes the continuation of capitalist social structures.

1.2.3 Workers, trade unions and the promise of climate solidarity

The dominant climate discourses also fail to identify the strategic agents for progressive social and ecological change. Swyngedouw (2010: 219, 223) was scathing about the hegemonic framings of climate change, which do not identify "a privileged subject of change", but instead invokes "a common condition or predicament, the need for common humanity-wide action, mutual collaboration and cooperation". There are no social tensions or internal generative conflicts: "the people" or global humanity, "are called into being as political subject, thereby disavowing the radical heterogeneity and antagonisms that cut through 'the people'". Climate change discourse does not currently have a "positively embodied name or signifier; it does not call a political subject into being that stands in for the universality of egalitarian democratic demands".

Climate politics has largely ignored employment relations and other social divisions, despite the importance of work to both the changing climate and to human society in general.[5] IPCC reports attribute the causes of global increases in greenhouse gas concentrations to general types of human activity, such as fossil fuel use in transport, heating and cooling buildings, from manufacturing and deforestation, agriculture, natural gas distribution, landfills and fertiliser use. British government figures (DECC 2012a and 2012b) indicate that work-related greenhouse gas emissions from

[4] The notion of "affluence" in I-PAT and Kaya identities is particularly problematic.

[5] Novotny (2000) defined the environment as where we work, live and play. Marino and Ribot (2012: 324) recognised that "social stratification, the division of societies into different groups with different resources, interests and options" shapes climate trends, events and interventions, because societies are "differentiated by class, castes, gender, profession, race, ethnicity, age, and ability".

electricity generation, manufacturing and construction, work-related road transport, other business and commercial activities and agriculture account for around a half of total greenhouse gas emissions by end user and at least one-fifth by source in the UK. These sources are revealing, if rather shallow. The dominant discourses do not explain the particular social relations of production that give rise to greenhouse gas emissions or the social agents that are responsible. Nor do they delve beneath the superficial level of analysis to probe issues of ownership and control.

The discipline of employment relations investigates production, industrial and related work relations (Heery et al 2008). Clarke et al (2011: 242-3) argued that the discipline focuses on "the regulation, control, and – in the currently fashionable term – governance of work and the employment relationship". It is a multidisciplinary (or ideally interdisciplinary) field of study drawing on economics, law, sociology, psychology, political science, and history. The discipline provides a multilevel understanding of relationships at work, analysing the interconnections between workplace, company, sector, national, European and global levels. The employment relationship involves "multiple stakeholders, with contradicting and at times conflicting priorities and interests" and is concerned with multiple and competing goals, such as efficiency, equity, voice, productivity and workplace justice. This study applies some insights from the employment relations literature to climate change politics.[6]

This thesis seeks to contribute to an exciting synthesis proposed by Uzzell and Räthzel (2012a: 3, 10), who ask provocatively: where is the environment in labour studies, where is the labour in environmental studies? They propose a new field of research – "environmental labour studies" – to provide the necessary synthesis for emerging themes, tasks and issues that are "multiple, urgent and unsolved". These scholars noted the virtual absence of explicit discussion of organised labour within mainstream climate politics. This thesis attempts to address the hiatus. The importance of climate change for working lives and the possibilities of workers'

[6] An emphasis on workers and organisations such as trade unions does not assume a generic 'worker' who turns out to be white and male. Nor does it assume that the structure of work is simply filling empty places. Class relations do not preclude other relations of domination, such ethnicity, gender, nationality and sexuality. These forms of oppression intersect and interpolate with class relations, just as they are fractured along class lines. Working class movements striving for social transformation cannot ignore other divisions (Moore 2010; Acker 2006; Skeggs 2004).

action on climate change animate this study. While there has been considerable research on the role of employers as climate actors, the actual and potential role for workers has been largely overlooked. Yet workers, organised in trade unions generally represent the largest voluntary organisations within states and historically have been forces for progress. Workers as climate agents organised in trade unions can offer what might be called "climate solidarity": distinctive framings of climate questions, together with specific forms of representation and mobilisation on climate matters. The climate promises made by trade unions could become more than rhetorical pledges. Unions offer a potential pole around which a revived climate movement might coalesce.

1.3 Methodology

1.3.1 Theoretical approach

There have been a range of efforts to frame nature-society relations (Schmidt 1971; Latour 2004) and to comprehend climate change in positivist (Bolin 2007), constructivist (Demeritt 2001) and post-modernist terms (Glover 2006). This thesis is informed by critical realism for its philosophical underlabouring (see Archer et al 1998). Bhaskar and Parker (2010: viii) argued that even those who see climate change as an urgent issue for the most part "lack a framework for coherently integrating the findings of distinct sciences" and "for integrating those findings with political discourse and action". Critical realism is a philosophical framework encompassing "an ontology that ranges from the metatheory of so-called hard sciences through biology and evolutionary theory, to social sciences, to a critical engagement with the 'cultural turn' and the importance of discourse to human action and identity and action". This approach has many attractive features: the interdependence of natural and social worlds, the stratified depth of reality, the importance of generative mechanisms and the critical engagement with different theories.

Cornell and Parker (2010: 31-2) suggested that the critical realist approach is highly applicable to climate change, because it promulgates an ontology centred on the reality of the material dimension of the problem, together with an epistemology that recognises the social dimensions of knowledge. For these authors, critical realism can "coherently combine assertion of the independently existing powers and capacity of natural systems with the capacities of humans to take transformative action". Bhaskar (2010: 22-3) insisted on the importance of "concrete utopianism", or the exploration of hitherto unactualised possibilities, which involves "thinking how a situation or the world could be otherwise, with a change in the use of a given set of resources or with a different way of acting subject to certain constraints". Radical intellectuals need to show how "alternatives futures can be coherently grounded in the deep structures of what already exists, of what people already know and have". Adapting Gramsci, critical realism provides climate politics with "realism of the intellect, optimism of the will".

However critical realism is compatible with a wide range of social and political theories, with proponents holding a range of interpretations – for example on the relationship between agency and social structure. This study utilises a Marxist framework in juxtaposition to the dominant discourses found in climate politics, particularly those centred on the market and on the state.

There is no single, homogenous Marxism. The interpretation utilised here was probably best summed up by Marx (1985a: 14) in the rules of the First International: "That the emancipation of the working classes must be conquered by the working classes themselves". Draper (1977; 1978) charted how the principle of working class self-liberation recurs repeatedly in Marxism. The young Marx (1975a: 186) evoked the idea of workers as "a class with radical chains" in which, as he expressed it in his 1844 manuscripts (1975b: 280), "the emancipation of the workers contains universal human emancipation". Shortly before his death, Marx (1989: 340) argued "that the emancipation of the producing class is that of all human beings without distinction of sex or race". Emancipation means freedom from exploitation, oppression and all forms of domination. It also denotes freedom for human flourishing, where the labour movement plays a hegemonic role leading all kinds of liberation struggles. This conception takes cognisance of the ecological context and can be extended to climate change.

Marx believed that the development of an organised labour movement in response to capitalist relations of production was the crucial agency for affecting emancipatory social transformation. In the *Communist Manifesto* (1976c: 493), he lauded the combination of workers into trade unions, "permanent associations in order to make provision beforehand for these occasional revolts" and the "organisation of the proletarians into a class and consequently into a political party". The task of trade unions (1985c: 54) was to prove that "the working classes are bestriding the scene of history no longer as servile retainers, but as independent actors, conscious of their own responsibility".

This vision of working class self-emancipation has several other prominent attributes, which can contribute fruitfully to climate change politics. First, the identification of global capitalism as ultimately the root cause of all forms of

exploitation, oppression and degradation. Second, the common experience of waged labour together with the interdependence of global circuits of capital affords workers the potential to become an international social agent with interests and powers to effect the desired emancipation. A further claim is the commitment of the best sections of the working class movement to consistent democracy.

The democratic element is an integral to the alternative mechanisms for governance that Marxist scholars counterpose to the dominance of private corporations and existing states. In this vision, conscious control of the political economy through collective, democratic planning replaces the imperatives of the market. Similarly, the goals of meeting social needs, understood not just as material necessities but also greater free time for leisure and cultural activities, replaces the drive for profit. By extension, these needs can include the requirements for a sustainable biosphere. The argument for consistent democracy also extends to workers' own organisations. The collective strength of organised labour is expressed through definite forms, such as political parties, trade unions, workplace councils or committees. But for these organisations to avoid bureaucratic degeneration, they require the light and air of democratic freedom to determine collective objectives, as well as to formulate the strategy and tactics to achieve agreed goals.[7]

Marxism offers an intellectually coherent alternative explanation of evolving global realities, together with a political approach that can shape movements for immediate improvements while seeking much deeper social transformation. Such a vision is notably absent from much of contemporary climate discourse.

[7] It should be clear that this interpretation of Marxism has nothing in common with the official ideology of former Stalinist states of the USSR and Eastern Europe, or indeed other "Communist" states, such as China, North Korea, Cuba or Vietnam. See Matgamna (1998) and Van der Linden (2007) for Marxist efforts to understand Stalinist class societies.

1.3.2 Research methods used in this study

Blaikie (2009: 57-8) argued that it is only through research questions that "choices about the focus and direction of research can be made, that its boundaries can be clearly delimited, that manageability can be achieved and that a successful outcome can be anticipated". Research questions make it possible to select research strategies and methods of data collection and analysis with confidence. Mason (2002) argued that research questions should be clearly formulated, intellectually worthwhile, and researchable. Tashakkori and Teddlie (1998: 20) went so far as to advocate "the dictatorship of the research question".

After several decades of research into climate politics, a number of key questions have emerged from the literature.[8] These were well summarised by Newell and Paterson (2010). Their central question was: what will determine whether, as a society, we can avoid the most dangerous aspects of climate change? In particular they were keen to investigate whether capitalism can effectively respond to climate change. Paterson's earlier research (2000) also yielded important questions: If the structures of power prevalent in modern society are anti-ecological, then what sorts of political responses are consistent with ecology?[9] How might we envisage transitions from present systems to such sustainable ones and who might be the agents of such social and political change? Discussing the symptomatic silence of sociology on climate action, Lever-Tracy (2008) asked: What agents would have the power and interest to achieve positive outcomes and who would benefit and who would lose from such changes? These questions, centring on the agencies for tackling climate change, inform the choice of questions in this study.

[8] Glacken (1967: vii) found three reoccurring questions on humanity's relationship to the earth in the history of Western thought: "Is the earth... a purposefully made creation? Have its climates... had an influence in moulding the character and nature of human culture?... In what manner has man [sic] changed it from its hypothetical pristine condition?"

[9] Ecology refers to a wide range of natural relations and interdependencies, including human relations with nature. For Dobson (1990: 13) the difference between "ecology" and the "environment" is that "ecologism argues that care for the environment... presupposes radical changes in our relationship with it, and thus in our mode of social and political life", whereas environmentalism is a "managerial" approach, "the belief that they can be solved without fundamental changes in present values or patterns of production and consumption".

The central question in this thesis is: Do workers organised in trade unions have the interest and capacity to tackle dangerous climate change, or specifically, whether unionised workers can become strategic climate actors? The term "strategic" spotlights the structural constraints and enabling conditions, which may privilege waged labour as a plausible alternative social agency for leading a movement to tackle climate change. Second, following Hyman (2004), this thesis asks whether trade unionism in the 21st century can succeed by re-inventing itself as a virtual social movement, including around climate change. This turns on whose interests unions represent, which issues they embrace as relevant for the task of representation, and what methods and procedures they adopt in undertaking this task. The study therefore examines not only the potential of organised workers for climate action, but also the actual practices of trade unions in climate politics.

Scholars have long recognised the virtues of an interdisciplinary approach to the study of climate change. Naess (2010: 78) argued that "the objects involved in explanations of climate change and efficaciousness of possible response strategies belong partly to the natural sciences, partly to the social sciences, and are partly of a normative or ethical character". They also belong to different geographical or organisational scales. Events and processes influencing climate change must be understood in terms of "physical, biological, socio-economic, cultural and normative kinds of mechanisms, types of contexts and characteristic effects".

This study draws on literature from over one thousand books and journal articles across a wide range of disciplines and fields, including politics, economics, geography, sociology, employment relations, environmental studies and international relations. The main peer-reviewed journals in the field were scoured, notably *Environmental Politics*, *Climate Policy*, *Global Environmental Politics*, *Nature*, *Global Environmental Change* and *Science*, along with others that featured climate discussion. The fierce political economy debates (including around the Stern Review) took in *World Economics*, *Climatic Change*, *Ecological Economics*, the *Oxford Review of Economic Policy* and other journals. Radical geography perspectives on climate were found in *Antipode*, the *Annals of the Association of American Geographers*, *Geoforum* and *Economic Geography*.

Climate discussions in *The Political Quarterly*, *Critical Social Policy*, *Current Sociology*, *Theory, Culture & Society* and *Organization and Environment* were also useful. Similarly, employment relations perspectives were gleaned from the *Industrial Relations Journal*, the *British Journal of Industrial Relations*, the *European Journal of Industrial Relations* and *Transfer*. Excursions were made into *Historical Materialism*, *Capital & Class*, *Capitalism Nature Socialism*, *Monthly Review*, *New Left Review*, *Socialist Register* and as far as *Anthropology Today*. In addition, good use was made of stimulating grey and non-peer reviewed literature. Alongside Bryman's textbook (2008), the journals *Qualitative Research*, *International Journal of Social Research Methodology* and *Journal of Critical Realism* were fertile sources of methodological insight.

Use was made of my paid employment and involvement in trade union discussions, meetings and events attended on climate change since 2005. A wide range of documents were collected, which provide a comprehensive record of trade union discourse and activity on climate change over the period. Other work during this time involved self-initiated and commissioned research, including obtaining survey (LRD 2007; TUC 2009d; TUC 2012c) and other data from union representatives. Although these data came from self-selected union reps and were not a representative sample, they were nevertheless indicative of qualitative attitudes, behaviours and activities. Professional involvement in the labour movement also afforded opportunities to access key individual actors, including attending trade union meetings. This experience has been brought to bear on the study.

It is reasonable to ask whether this professional involvement introduces unavoidable bias or prejudices the noble pursuit of objectivity. No doubt it is impossible to research untainted by personal and political sympathies, or by what Hobsbawm (1998) called the problem of partisanship, of taking sides. Although there is no privileged vantage point – or watchtower – objectivity can be attained (or at least aspired to) through transparency about theoretical assumptions, methods, data sources, funding, interests as well as the self-critical analysis of interpretations. In his study of non-state climate actors, Newell (2000) argued that being a participant in the activities studied provides valuable insights that are not otherwise available to the academic observing from the sidelines.

The primary research data in this study consists of published and unpublished documents produced by trade unions on climate change. The critical analysis of those materials was chosen as the main methodology because the field has hardly been explored in the UK, and it made sense to begin with public and semi-public documents. The TUC Library collection at London Metropolitan University contains rich and previously neglected sources of documents accessible to researchers. Individual unions and the TUC made materials available from their own collections, which added to the materials accumulated during professional work. Documents identified include: Trade union and TUC Congress resolutions; magazines, pamphlets, guides and campaign materials; contributions to government consultations; climate conference speeches and notes; internal position papers; press releases; minutes of union, TUC and TUSDAC meetings; and newspaper cuttings reporting union views and actions. The critical interrogation of union, TUC and activist blogs supplements this method of research.

The strengths and limitations of these research methods became clear during the study. Documents alone do not capture many of the perceptions and attitudes of organisations or social agents. Hammersley and Atkinson (2007: 130-3) acknowledged that data derived from official sources may be inadequate in some way. They may be subject to bias or distortion, or bureaucracies' practical concerns may mean that data are not formulated in accordance with scholars' interests. However they argued that rather than being viewed as more or less biased sources of data, official documents and enumerations "should be treated as social products: they must be examined, not relied on uncritically as a research resource". The thesis takes a critical stance towards trade union efforts to engage with climate change and reproaches are expressed throughout the thesis.

Chapter 7 on Vestas also forms a bottom-up, in-depth case study (Yin 2003). It follows similar methods to those employed by Gall (2011) and Cullinane and Dundon (2011). The chapter draws upon an array of media reporting of the Vestas occupation in print and online, with the accompanying strengths and weaknesses of utilising those sources. The empirical data were generated through primary and secondary documentary analysis, particularly a reliance on quality mainstream media, union publications and activist reportage. The benefits of this approach are

clear. As Cullinane and Dundon (2011: 628) explained, these sources provide "almost immediate and contemporaneous evidence of the occupation in action, particularly in terms of the workers' behaviour and their motives and immediate reflections on the events as they happened". The use of documentary material also offered access to data that otherwise would be difficult to collect. Finally, the use of different media sources and reportage perspectives provided "some rudimentary triangulation to the accuracy of events and the claims under dispute". The account of the Vestas occupation (Chapter 7) combines a range of sources to evaluate working class-based climate politics in the UK context.

1.3.3 Structure of the thesis

Chapter 1 introduces the current impasse in tackling climate change, which is related to theoretical failures to engage with crucial political, economic, social and geographical processes. The limited engagement with the employment relations aspects of climate change is a particularly glaring hiatus. This chapter establishes the theoretical approach, main research questions and methods utilised in the thesis.

Chapter 2 discusses how the dominant climate politics is framed in the literature, notably through neoliberal and ecological modernisation discourses, and offers a critique of these approaches. It then proffers an alternative, Marxist approach to the mechanisms that generate climate change and outlines the limits of climate capitalism.

Chapter 3 examines further challenges to working class-based politics and introduces insights from the employment relations literature. It draws evidence from environmental politics to suggest workers may become ecological agents with the power and interest to tackle climate change. Trade unions as workers' organisations are conceptualised, following Hyman (2001), as buffeted between market, society and class, but with the potential to embrace climate concerns as a core interest. The argument is made that trade unions could become strategic climate actors.

Chapter 4 is the first of four empirical chapters. It provides an overview of the climate politics articulated by UK trade unions over two decades, through the prism of TUC policy. The chapter focuses on specific policy areas such as the Climate Change Act, carbon capture and aviation, examining inter-union debates over how to articulate trade union climate concerns. It investigates how trade union representatives have framed climate change politics and how far they have expressed working class interests.

Chapter 5 assesses how some trade unions and the TUC have framed the employment impacts of climate change and whether they inevitably face a trade-off between jobs and climate. Through a discussion of climate jobs and just transition,

the chapter aims to show how some trade unionists have begun to integrate the employment impacts of climate change into climate politics in class terms.

Chapter 6 evaluates the perceived successes of some trade unions and unions reps with respect to climate change in particular workplaces. It addresses the extent to which some trade union representatives have been independent climate actors and whether workplace climate politics involves conflict or partnership. This chapter and the following one discuss trade union power with regard to climate change.

Chapter 7 examines the mobilising capacity of trade unions on climate issues. It investigates the workers' occupation of the Vestas factory in 2009. The chapter examines the significance of the occupation for climate politics and for particular climate actors, including the trade unionists involved.

Finally, Chapter 8 combines and integrates the results of the research with the theoretical analysis to assess the implications of the thesis for climate politics and for employment relations. It concludes by critically examining the extent to which trade unions are becoming effective climate actors and the potential role unions might play in tackling climate change.

2) Climate politics and its limits

2.0 Introduction

The aim of this chapter is to evaluate three important ways that climate change is framed in social science literature. Each framing offers a distinctive answer to the question of how society can avoid the most dangerous aspects of climate change. Cass (2007: 24) defined climate frames as "specific metaphors, symbolic representations, and cognitive cues used to render or cast behaviour and events in an evaluative mode and to suggest alternative modes of action". Hulme (2009: 226-7) suggested that climate change offers an almost unlimited variety of framing devices. Framing climate change as a failure of markets "implies that it is market entrepreneurs, economists and businesses that need to take the lead in 'correcting' this failure". But framing climate change as a challenge to individual and corporate morality, on the other hand, "suggests that very different cohorts of actors should be mobilised". These frames are comparable with what Hall (1993) described as policy paradigms, giving rise to particular goals and instruments.

This chapter seeks to present the strongest arguments of significant climate framings by their foremost exponents, together with trenchant critics. Section 2.1 evaluates one of the dominant discourses – the market-based, neoliberal framing of climate politics and offers a critique. Section 2.2 assesses the widely-held ecological modernisation framing and similarly presents a critique. Although the dominant climate politics is currently located between neoliberalism and ecological modernisation, these discourses elide important aspects of class politics. Section 2.3 sketches an alternative, Marxist framing, which focuses on the structures and processes within capitalism that drive climate change.[10]

[10] Such a three way division is inevitably somewhat stylised. Nevertheless, the discourses capture vital elements of market, state and class that are unavoidable elements for any social science effort to comprehend contemporary climate change. See also Rayner, Malone and Thompson (1999) for a market-institutional-egalitarian triangulation.

2.1 Neoliberal climate politics

2.1.1 Climate change and market failure

The dominant approach to climate change frames the physical science evidence (principally from the Intergovernmental Panel on Climate Change, IPCC) within already established economic and political assumptions. Helm (2005: 12) captured the essence of this approach when he wrote that, "Without the science, there can be no serious understanding of what the problem is; without the politics there can be no strategy for reaching a global consensus to reduce emissions and hence, defining international property rights; and without the economics, scarce resources are likely to be wasted on badly designed policy instruments".

This political economy of carbon is premised on the dominance of market mechanisms (Boykoff et al 2009; Bailey and Wilson 2009). As Newell and Paterson (2009) noted, climate politics is increasingly conducted by, through and for markets. McCarthy and Prudham (2004: 276) characterised the orientation towards markets as a neoliberal approach. Among the central elements of neoliberalism is a "near worship of the 'self-regulating market'", a market "increasingly wide in its geographic scope, comprehensive as the governing mechanism for allocating all goods and services, and central as a metaphor for organising and evaluating institutional performance". Heynen et al (2007: 15) argued that neoliberalism involves minimally "the subjection of more-and-more areas of social and environmental life to the logics of capital accumulation". This neoliberal logic of market ascendency is evident in academic and popular literature extoling the virtues of climate capitalism (see Lovins and Cohen 2011).[11]

Climate change within the neoliberal, market framing is held to be an instance of the tragedy of the commons (Paavola 2011; Bunzl 2009), whereby rational agents acting

[11] Neoliberalism for Gamble (2006: 21) is "a term little used by neoliberals. They tend to prefer other labels". Peck, Theodore and Brenner (2010: 96) noted that by the new millennium neoliberalism had become a "rascal concept", largely a critics' term, simultaneously circulating as "an oppositional slogan, a zeitgeist signifier, and an analytical construct". Castree et al (2010: 7) distinguished between neoliberalism as a fully formed political agenda and neoliberalisation as "a polymorphous, relational, process that involves ongoing reconstructions and reorientations". However the neoliberal label is increasingly accepted as capturing important elements of the market-driven logic within climate political economy (see MacNeil and Paterson 2012).

on their own self-interest despoil the common-pool resource of the earth's atmosphere by using it as a global greenhouse gas sink. Nordhaus (1977a, 1977b: 342) characterised greenhouse gas emissions as "the most extreme imaginable form of external diseconomy", where firms and households impose the costs of these emissions on other agents without paying for them. Stern (2007: 27, 1) also defined the problem in terms of externalities in his influential report. However he recognised that emissions are peculiar externalities, because of their global causes and consequences, persistent impacts, the considerable uncertainties involved and because some expected changes would not be marginal. It was from a pro-market perspective that he described climate change as "the greatest market failure ever seen". Subsequently Stern (2009: 99) surmised that the economics of cost "points us to the importance of market-related mechanisms, and to a price on greenhouse gases, as the best ways to promote the search for the cheapest ways of achieving these emissions reductions targets". Correcting market failure with market instruments became the *sine qua non* of neoliberal climate politics.

2.1.2 Neoliberal climate political economy

Few have expressed neoliberal climate political economy as brazenly as Hepburn (2009: 365), when he wrote: "The core objective of climate policy must be to internalise the social cost of carbon in firms' decisions, such that firms profit when they adopt cleaner modes of production." This has been achieved by the application of cost-benefit analysis to climate change (d'Arge 1975; Cline 1992; Nordhaus 1994; Hanley and Tinch 2004). Pearce (2005: 100-1) defined the social cost of carbon as, "the estimate of the monetary value of worldwide damage done by anthropogenic CO_2 emissions" or more precisely as "the monetary value of the global damage done by emitting one more tonne of carbon at some point in time". Such quantification is necessary because "it is not logically possible to avoid monetary valuation in the all-pervading contexts where policies cost money".

Helm (2005: 15) claimed the idea that carbon emissions have costs and benefits naturally leads to the idea that "CO_2 is a commodity", which can be valued and traded like any other. This means "it has a price, which is the outcome of supply and demand, and is amenable to application of the traditional economic tools of

valuation". The price is social because it is said to incorporate the social dimensions – the externalities and distributional effects across current populations and over generations. "Almost everyone agrees", assumed Helm (2009: 239), that "a long-term price of carbon is an essential part of the architecture of a climate-change policy regime": carbon pricing is necessary, although not sufficient. Nordhaus (2008: 22, 20-1) summed up this approach in pithy fashion: "Whether someone is serious about tackling the global-warming problem can be readily gauged by listening to what he or she says about the carbon price". He argued that economics contains, "one fundamental inconvenient truth" about climate-change policy: for any policy to be effective in slowing global warming, "it must raise the market price of carbon, which will raise the prices of fossil fuels and the products of fossil fuels", so that the carbon footprint is "automatically calculated by the price system".

Neoliberal climate policy revolves around the choice of market instruments to price carbon. For Solomon and Heiman (2010: 973), "a market-incentive (neoliberal) system is more effective, efficient, and equitable than traditional command and control regulation". However there is considerable debate about which market mechanisms should be relied upon. One candidate is carbon taxes, which involve setting a price for greenhouse gases and leaving it to emitters to choose how much to emit (Parry 2005). Another instrument is emissions trading, in which an emissions ceiling or cap is set and the price of determined by the trading of permits (Tietenberg 2005). Nordhaus (2008) advocated a hybrid "cap and tax".

Solomon and Heiman (2010) regard emissions trading as more closely aligned with neoliberal practice. The most prominent example is the European Union's Emissions Trading Scheme (EU ETS), with similar schemes under discussion elsewhere. Grubb (1989) and Victor (1991) were early advocates of trading schemes to manage emissions. The IPCC second assessment report (1995c) concluded that a tradeable quota system was the only potentially cost-effective arrangement where an agreed level of emissions is attained with certainty (see Calel 2011).

The neoliberal approach recognises that effective policy to mitigate or adapt to global warming requires international collective action. If the climate is regarded as a global public good, in the absence of a central authority to impose sanctions, actors

can "free-ride" on each other's efforts to mitigate emissions. Mendelsohn (2005: 138) argued that: "Because carbon benefits are enjoyed by every country, but abatement is generally financed by each country, it is in each country's self-interest to underinvest in global warming." There is significant disagreement over the Kyoto Protocol. Depledge and Yamin (2009: 441-2) defended the Kyoto regime, not least because it had ensured that "opposition to market mechanisms on ideological grounds is now confined to the fringes of the climate-change debate". However Barrett (2009) concluded that Kyoto ultimately failed to get key states to participate, to make participants comply and to require parties to reduce emissions substantially.

Much of the literature (Falkner 2008; Pinkse and Kolk 2009) emphasises the importance of business as a special interest group in climate politics. Stern (2007: 518, 644) praised multinational companies for taking the lead in demonstrating "how profits can be increased while reducing emissions from industrial activities". He concluded that with the right incentives, "the private sector will respond and can deliver solutions". Stern (2009: 99) predicted that much climate action would involve private firms. Climate policy is "not about a return to government control and rigid planning... it is about enabling markets and private-sector initiatives to work well".

This conviction of the efficacy of markets is reflected in the literature discussing the impact of pricing environmentally damaging activities on the level of employment (Morgenstern, Pizer and Shih 2002; Goodstein 2005). This literature confirms the OECD's (1997: 33) widely-quoted assessment, that the net effect of environmental policies on employment is "on the whole... slightly positive". There is a more specific market-orientated literature concerned with the impact of climate change and climate policy on employment. Fankhauser, Sehlleier and Stern (2008: 421-2, 427) suggested that climate policy will trigger "widespread structural adjustment" and episodes of "creative destruction". They concluded that "climate change has the potential to create many more jobs than it destroys in the long run". The neoliberal treatment of employment expresses a certain technocratic optimism that markets can be made to work and that no problem is too great for the private sector.

2.1.3 A critique of neoliberal climate politics

Spaargaren and Mol (2013: 178-9) highlighted three major criticisms of the neoliberal carbon markets approach: first, of carbon *markets* as legitimate modes of climate governance; second, of *carbon* markets in terms of their performance with regard to climate mitigation; and third, the negative social repercussions of these market instruments, dubbed "carbon markets plus". A stronger inference is that market structures and business agents are not the appropriate forces to prevent dangerous climate change.

The first criticism is that the neoliberal discourse of market failure misdiagnoses climate change. Underwood and King (1989: 320) regarded the reduction of all environmental problems to the inadequate application of property rights within prevailing institutional structures as "Panglossian". Spash (2002: 5-6) argued that defining greenhouse gases as externalities is "to engage in double-speak of Orwellian proportions". Profits are maximised "by making use of all the 'free gifts of nature' that are available, passing along costs to other agents (especially competitors) and avoiding as many waste disposal costs as possible". Far from having marginal effects, the entire population would be affected, while the responsible gases arise from sources integral to modern industrial society.

Barker (2008a: 174) blamed the delay of serious action to combat climate change on a "clique of economists" who misapplied cost-benefit analysis, crediting Stern with extrapolating it "to the point of destruction". He regarded cost-benefit analysis as "useless for the climate problem because of the uncertainty and risks of catastrophe". The discounting of costs and benefits in which risks are converted into certainty equivalents and discounted at market rates "has been shown to be misleading and biased". Ackerman (2009) argued that monetary values tend to understate the urgency of the climate problem in two different ways. Some of the most important benefits of mitigation have no meaningful prices, while most economic models minimise costs by suggesting that a little bit of global warming would be good for us. In short, compressing the potential damage wrought by climate change into a single price of carbon fails to capture the manifold effects.

This neglect is reflected in the neoliberal treatment of the occupational impacts of climate policy. The OECD (2004) noted that the Kyoto Protocol failed to mention

employment. According to Krause et al (2003: 91), in mainstream economic theory "if climate policy consists solely of a carbon charge with no simultaneous market reforms or compensating tax cuts, overall impacts on GDP, disposable income and jobs are negative". Guivarch et al (2011: 769-70) found that even complex general equilibrium models used in climate policy studies "assume a perfect labour market and ignore unemployment issues". This representation "contrasts with the imperfections of real-world labour markets". Even if climate-related employment appears to add value to the economy as a whole and in the long term, the neoliberal approach largely overlooks the particular effects on certain sectors and specific occupations.

The underlying fallacy for Barker (2008a) is that market forces lead by themselves to intrinsically good outcomes. Foley (2006: 3) described this central conceit as "Adam's fallacy" (originating with Adam Smith), that through the creation of a separate economic sphere of the market, "private selfishness turns into public altruism" (see also Jaeger, Schellnhuber and Brovkin 2008). Far from the invisible hand leading to the reduction in carbon emissions, Spash (2002: 6) argued that the "invisible foot" promotes "unintended harm and social misery". Taxes or tradable pollution rights will fail because, "the inherently social character of consumption and production activities combines with the physical laws to portray a rather different picture of pollution than is found in mainstream economics". Rather than attempting to correct market failure, climate policy requires alternatives to markets.

A second criticism is that market-based climate policy prescriptions are expected to fail. For Prins and Rayner (2007: v), the Kyoto process failed because it was "the wrong type of instrument (a universal intergovernmental treaty) relying too heavily on the wrong agents exercising the wrong sort of power to create, from the top down, a carbon market". Hansen (2009b) advised the Australian government that its proposed cap-and-trade scheme was "the temple of doom", whose "fecklessness was proven by the Kyoto Protocol". He decried that it had taken "a decade to implement the treaty, as countries extracted concessions that weakened even mild goals".

Although for Jordan et al (2010: 195), the EU ETS is a "hybrid of hierarchical and market-based modes of governing", it is nevertheless the flagship for carbon markets

and a suitable test for their effectiveness. Ellerman, Convery and de Perthuis (2010) studied the first phase of EU ETS and concluded that, despite considerable uncertainty, emissions were probably reduced by between 2% and 5%, while Laing et al (2013) credited EU ETS with 2-4% of attributable emissions savings. Bailey, Gouldson and Newell (2011: 690) argued that although these modest reductions partly reflected the price signal created by the scheme, in reality "recessionary effects rather than caps have so far been the main driver of emissions cuts". The collapse of the European carbon price and the absence of a paradigm-shifting transition in energy generation suggests that market mechanisms are at best insufficient and at worst a distraction from more radical measures.

A third criticism is that market mechanisms exacerbate existing inequalities. Baldwin (2008: 201, 204) suggested that market-based systems of distribution have "an inherent bias in favour of those parties who possess wealth and they tend to remove power from those who lack resources". If permits are allocated on the basis of historical or current emission levels, "polluters will not pay". Instead firms will be "rewarded for their records of pollution" and will be able to "maximise their rewards by exploiting their informational advantages and abilities to manipulate data to their advantage". Carbon trading "makes policy-makers responsive to multinational corporations, not local populations" (see also Lohmann 2006).

Parry (2004: 365-6) argued that "grandfathering" – allocating emissions trading permits free of charge – enacts income transfers towards higher-income groups at the expense of other households. This is because "they create windfall gains for shareholders, who tend to be relatively wealthy". Grandfathering is highly regressive, "the top income quintile is made better off, while the bottom income quintile is much worse off". Convery (2009: 128-9) noted that in the EU ETS, rent or "supra normal profits" accrued to the companies involved and because most of the companies involved were private, the gain "was accruing to shareholders and not the wider public, as could be the case with a state-owned company" (see also Caney and Hepburn 2011).

Bartle (2009: 700) argued that if the emissions cap is tight, a higher carbon price means the price of heating, transport, food and other goods and services "will rise

substantially and affect the poor disproportionately". Higher fossil fuel prices may increase the numbers of households in "fuel poverty" – those paying 10% or more of their income on energy bills. Gough (2008: 329) pointed to potential impacts in the UK, where "30 per cent of the poorest quintile of households use more energy than the national average, mainly because they live in such fuel-inefficient houses". A candid verdict on the early efficacy of EU ETS was provided by a Citigroup executive (Tickell 2008: 50): "Prices up, emissions up, profits up... so, not really. Who wins and loses? All generation-based utilities – winners. Coal and nuclear-based generators – biggest winners. Hedge funds and energy traders – even bigger winners. Losers... ahem... consumers!"

The neoliberal framing leaves the structures of global and national capitalism intact and unchallenged, while looking to private capital as the key actors. Yet capital is too internally fractured and too interdependent with fossil fuels to have a consistent interest in tackling climate change. Grundig (2009: 752) highlighted the conflicting interests between different business actors. First, there are groups representing the fossil fuel lobby and some associated industries that "favour much less abatement than the ideal policy". Second, there is a "moderate industry lobby", which includes the nuclear and renewable associations and environmental non-government organisations (NGOs). Third there is the insurance lobby, although its role is "ambiguous". On the one hand, the insurance industry is an institutional investor in the stock market, and "thus depends on returns from companies that would suffer from stringent emission targets". On the other hand, "the re-insurers in particular fear that extreme weather events might lead to big insurance payouts". The market is not a neutral entity; it is underpinned by contradictory and competitive relations between different fractions of capital that make business an unreliable and sometimes unwilling agent for tackling climate change.

Advocates of the carbon markets approach suggest that at least some business actors – such as finance – have an interest in preventing the impacts climate change and in the instruments designed to avoid these effects. As Lohmann (2012) argued, it seems obtuse to put the same actors responsible for the recent economic downturn in charge of reducing greenhouse gas emissions. A deeper problem is the interdependence of financial capital and fossil fuel corporations, from their relations of ownership and

control to the flows of revenue. A recent Carbon Tracker report (2013) warned that fossil fuel companies have perhaps five times the reserves of coal, oil and gas on their balance sheets and are allocating billions to developing more reserves. In climate terms these assets are unburnable: they will have to be left in the ground to avoid breaching the proposed carbon budget of 2°C. If so, these corporations (whether privately owned or state-run on a capitalist basis) are fantastically overvalued at present. The report also found that the New York and London stock markets were becoming more carbon-intensive, as financiers bet on further inaction on climate change. This represents the predicament of the neoliberal approach: either a carbon bubble leading to financial collapse, or continued profitable fossil fuel burning with dire climate consequences.

2.2 Climate change and ecological modernisation

2.2.1 Ecological modernisation

The neoliberal emphasis on markets is not the only discourse present in the literature, particularly given the role of the state in developing market-based climate policy (MacNeil and Paterson 2012). Mol, Spaargaren and Sonnenfeld (2009) identify ecological modernisation as a distinct framing within environmental sociology and politics, distinguished from market approaches and Marxist accounts. Mol and Jänicke (2009: 23, 24) emphasised ecological modernisation's reformist trajectory for change, aligned to the "possibilities, actuality and desirability of a green capitalism". Capitalism is neither "an essential precondition for, nor as the key obstruction against, stringent or radical environmental reform". Similarly, Young (2000) conceived of ecological modernisation as a late twentieth century strategy to adapt capitalism to environmental challenges like climate change. Ecological modernisation also appears to underpin efforts by some Green politicians, journalists and NGO leaders involved in the Green New Deal Group (see Elliott et al 2008).

Hajer (1995: 64) wrote that ecological modernisation is based on some credible and attractive storylines: "the regulation of the environmental problem appears as a positive-sum game; pollution is a matter of inefficiency, nature has a balance that should be respected; anticipation is better than cure". Christoff (1996) distinguished between "weak" and "strong" versions of ecological modernisation. Fisher and Freudenburg (2001) identified the emphasis on technological innovation in weaker versions of the discourse, while Pacala and Socolow (2004) conceived of climate solutions by scaling up existing technologies. For Young (2000), ecological modernisation suggested the possibility of modernising industry along ecological lines in response to environmental challenges, mapping out a qualitatively different kind of economic growth.

Stronger versions of ecological modernisation suggest a more state interventionist, government-led programme of action. Murphy and Gouldson (2000: 35) argued that the theory necessarily involves the "active engagement" of the state, requiring "strategic planning and the promotion of structural change at the macroeconomic

level". This is likely to require "a range of innovative policy instruments and approaches to replace the traditional understanding of the regulation of industry, particularly through the incentivisation of environmental improvement". Mol and Jänicke (2009: 19) proposed that the environmental state should move from "a bureaucratic, hierarchical, reactive, command and control state" towards "a more flexible, decentralised and preventive institution that creates networks with other societal actors and applies a variety of approaches and instruments to guide society into directions of sustainability". In this conception, the role of the state is to create the framework in which a range of actors can make more climatically-rational decisions.

Bäckstrand and Lövbrand (2006: 60, 67) pointed to the prominence of the ecological modernisation discourse in climate governance, with its emphasis on "the importance of decentralised and market-driven initiatives that involve a broad range of private and public actors in the quest for low-cost climate mitigation alternatives". Consequently, the ecological modernisation discourse has been "widely embraced" by global organisations as "a rationale for future action, enabling a new compact between developed and developing countries" (see also Bailey, Gouldson and Newell 2010). Similarly, the European ADAM project (Patt et al 2010) utilised ecological modernisation metaphors such "low-hanging fruit", building bridges, trial and error learning, removing technological "crutches" and "winners and losers". Ecological modernisation discourse was evident in the Low-Carbon Society scenarios research (Skea and Nishioka 2008: S5, S14), which compared business-as-usual with carbon price and "carbon price-plus" cases, where governments establish "the enabling conditions under which individuals, business and organisations can benefit from the opportunities offered by new low-carbon markets, technologies, products and services".

2.2.2 Ecological modernisation and climate politics

To what extent does ecological modernisation offer a distinctive approach to tackling climate change? Three key features stand out: first, proponents emphasise state and non-state actors as significant agents for constructing climate alliances; second they show greater sensitivity to the social implications of climate policy; and third, they advocate a wider range of instruments alongside market mechanisms.

First, ecological modernisation is more inclusive of a wide range of actors, with the state coordinating the efforts of firms and other stakeholders in a more unified effort to tackle climate change. Mol and Jänicke (2009: 19) argued that in stronger versions of ecological modernisation, a range of state and non-state actors such as "producers, insurance companies, consumers, retailers, unions, credit institutions and market institutions" are considered capable of working for environmental reform. Strachan, Foxon and Fujino (2008: S19) highlighted the range of stakeholders included in the Low-Carbon Society scenarios: "business, the investment community, technology vendors, local government and consumers".

The role of the state is pivotal to this framing of agency. Cass and Pettenger (2007: 236-7) suggested that "the state is fundamentally the 'master discourse', which serves to legitimate other discourses". Instead of treating the state "as a bounded institution, a single homogenous entity", Okereke, Bulkeley and Schroeder (2009: 73-4) employed a more complex conception, "whereby ruling elites, dominant classes and civil society relate dialectically in ways that give rise to multiple centres of calculation". Pralle (2009: 788) pointed to a "climate change advocacy coalition" – the sum total of actors who are active in this policy area and have an interest in getting and keeping the issue high on public, governmental and decision agendas. These include "environmental advocacy groups, scientists, journalists, agency personnel, legislators, cabinet members, and perhaps even leaders in renewable energy technologies".

Paterson (1996) and Newell (2000) emphasised the role of non-state actors in climate policy formation, in contrast to the privileging of capital and its states. Later Newell and Paterson (2010: 165) suggested that the progress of climate capitalism depends

politically on "an awkward alliance of technocratic civil servants, opportunistic environmental NGOs and profit-seeking financiers". Okereke, Bulkeley and Schroeder (2009: 70) argued that even some non-state actors that ordinarily occupy weak positions within existing structures "can still leverage and exert significant influence through the use of well-timed effective strategies".

Some non-state actors can be understood as social movements. Doherty, Paterson and Seel (2000: 14) maintained that environmental social movements have four typical characteristics: they are "based upon informal networks"; those involved "must share a set of beliefs and a collective identity"; they are involved in "collective challenges and may threaten their opponents with sanctions"; and they use "protest and cultural practices, which may or may not be confrontational". Rootes (2009: 201-2) argued that Britain has the "oldest, strongest, best organised and most widely supported" environmental lobby in the world. The top ten environmental NGOs exceed five million supporters, with many putting resources into climate change campaigning. In the first decade of the new millennium, novel climate bodies such as the Stop Climate Chaos Coalition, the Campaign against Climate Change (CaCC) and Climate Camp emerged as distinct organisations (Saunders 2008).

The importance of non-state actors in broadening the dominant climate political economy should not be discounted. Newell (2008: 148) argued that civil society groups have succeeded in bringing "a significant and often underestimated degree of democratic accountability to the global politics of climate change". Political action has gone further than it would otherwise do, "from making government (at all levels) and business answerable for their (in)actions on climate change", to "providing a range of incentives and disincentives towards compliance with social demands". No account of climate agency can afford to ignore those who devote their free time and energies to climate campaigning and activism.

A second distinctive feature of ecological modernisation is its engagement with important aspects of climate justice. Schlosberg (2007) observed how environmental justice concerned matters of equity, recognition and participation in political action. Chatterton, Featherstone and Routledge (2013) registered comparable interest in climate justice, reflected by the networks intervening at climate talks. Much

discussion is centred on assessments of justice between states in the North and South, or between generations, on inequality and the regressive distributional impacts of climate change and climate mitigation policy (see Büchs, Bardsley and Duwe 2011 for a recent summary). For example, Cromwell and Levene (2007) advocated the "contraction and convergence" approach originally developed by Aubrey Meyer. Gough (2008: 328-9) noted that climate change is likely to "exacerbate social inequalities, lines of conflict and patterns of migration". Socio-economic equity is raised by both climate change impacts and climate policies. The poorest will be on average more vulnerable to climate change because "lower-income households are more likely to live in higher-risk areas, marginal lands and floodplains; they have fewer resources to cope and have much lower rates of insurance cover; they may also suffer from poorer health and resistance".

The social justice aspects of adaptation to climate change have also received attention. Leichenko and O'Brien (2006: 99) noted that although adaptation may provide a "win-win" opportunity, they warned that "structural winners and losers emerge from larger societal processes, where the distribution of the impacts are unequal, and gains and losses accrue differentially to participants". Adger, Paavola and Huq (2006: 14, 3-4) highlighted both procedural justice, meaning "the degree of recognition and participation"; and distributive justice, which refers to "the distribution of the beneficial and adverse effects of climate change and adaptation". The distribution of climate change impacts "is likely to be unjust and climate change impacts are likely to create new vulnerabilities, the causes and distribution of which are unfair". Actions taken to adapt to climate change can themselves have important justice implications "because their benefits and costs are frequently distributed in ways that consolidate or exacerbate vulnerabilities rather than reduce them".

Discussions of "green jobs" appear particularly congruent with ecological modernisation. Bezdek, Wendling and Diperna (2008: 67-9) provisionally defined green jobs as those which, "as a result of environmental pressures and concerns, have produced the development of products, processes, and services, which specifically target the reduction of environmental impact". Crowley (1999: 1021) divided environmental employment into "light green" jobs that remedy ecological decline; "ecologically modernist" jobs that involve technological innovation; and "deep

green" jobs that preserve ecological integrity. McEvoy, Gibbs and Longhurst (2000: 29) pointed to the win–win scenario, which "conceptualises the opportunities that exist for adopting policies that improve environmental conditions, whilst simultaneously creating additional employment". Jones (2008: 54-5) argued that in the context of economic recession and climate change, new green-collar jobs offered working people "a powerful incentive to support a green-growth agenda as long as green partisans embrace broad opportunity and shared prosperity as key values". Ecological modernisation appears cognisant, at least rhetorically, of the employment implications of the proposed climate transition.

A third feature of ecological modernisation is a willingness to employ market and non-market instruments in pursuit of reducing carbon emissions. Barry and Paterson (2004: 767) argued that although the Blair-led Labour government stressed the context of globalisation for British political economy, their environmental policies were "best understood as an attempt to implement something like an ecological modernisation agenda".[12] The New Labour election manifesto (1997) promised to cut national CO_2 emissions by 20% by 2010, while the Labour government agreed at Kyoto to reduce greenhouse gases by 12.5% by 2012 compared with 1990 levels. Lorenzoni, O'Riordan and Pidgeon (2008) and Carter and Ockwell (2007) summed up the range of policies and strategies employed to tackle climate change. In 2001, the government introduced the Climate Change Levy (CCL), a tax on fossil fuel sources, offset by a reduction in employers' National Insurance Contributions and investment in renewable energy through the Carbon Trust. It also established the UK Climate Impacts Programme (UKCIP), introduced Climate Change Agreements (CCAs), the Renewables Obligation, the Energy Efficiency Commitment (later Carbon Emissions Reduction Target, CERT) and a UK emissions trading scheme. The Labour government also created the Department of Energy and Climate Change (DECC) in October 2008.

Carter (2009) noted a significant upturn in the Labour government's climate policies in its final term in office. For Lorenzoni, O'Riordan and Pidgeon (2008: 106-7) the Climate Change Act 2008 was an "original and forward-looking proposal... making

[12] See Jacobs (1999) for an early articulation of Labour's "environmental modernisation" and Barry and Paterson (2003) for another assessment of Labour's environmentalism.

the UK [the] first country to make long-ranging and ambitious targets legally binding". The Act committed the UK to emissions reductions of 34% by 2020 and 80% by 2050, created a carbon budgeting system to cap emissions over five year periods, established an expert body, the Committee on Climate Change and mandatory emissions trading for large non-energy intensive commercial and public organisations, the Carbon Reduction Commitment. Labour's mix of market instruments and regulation was a triumph of ecological modernist discourse.

2.2.3 A critique of ecological modernisation

Ecological modernisation has been subjected to a range of criticism. Even proponents such as Mol and Jänicke (2009) recognised concerns with its undertheorised notions of power, limited attention to social contexts or ethical issues, neglect of emancipatory concerns and failure to link environmental reform with social justice. Giddens (1998: 57-8) argued that "ecological modernisation skirts some of the main challenges ecological problems pose for social democratic thought" and that, as a result, the theory is "too good to be true".

First, Hannigan (1995: 184) claimed that weaker versions of ecological modernisation were "hobbled by an unflappable sense of technological optimism". Bäckstrand and Lövbrand (2006: 53) argued that this technocratic greening of industrial production "has been silent on the experiences of developing countries in equity and poverty issues. The predominant focus is on flexible and cost-effective environmental problem-solving rather than social justice".

The second significant criticism concerns the role afforded to the state in stronger versions of ecological modernisation. Private interest theory emphasises the pressure of self-interested business groups to "capture" regulators and legislators. Bartle (2009: 691) stated that "this may explain why the record of climate change regulation in many countries is mixed at best". Compston's (2009a: 659) acerbic verdict was astute: "At present the main political strategy seems to be the implementation of measures that target a broad range of emissions sources while not antagonising business groups or electorates". States under capitalism cannot permanently restrain the animal spirits of capital.

A third concern with ecological modernisation is the limited leverage of non-state actors have against capital and its states. For Newell (2008: 148-9), the lack of enforceable sanctions available to non-state actors constrains their ability to act as effective accountability enforcers. The forms of accountability that civil regulation often succeeds in producing "are often temporary, unenforceable, subject to tokenism and publicity cycles and are as likely to reflect the campaign priorities of vocal or media savvy groups as address the largest and most serious contributors to climate change". A further limitation is a tendency to accommodate to states and to the dominant interests of business, to secure funding and gain legitimacy. Vlachou (2004: 943) argued that ecological modernisation legitimises the intervention of the state and "makes efforts to include major middle-class environmental groups in aspects of policy formation". However it "places off-limits a radical reorganisation of society towards a collective production and appropriation of surplus which would also be ecologically sustainable". None of the visible agents designated by ecological modernisation appear to have the interest and the capacity to tackle climate change adequately. Capital has power, but is internally antagonistic and pursues other objectives. States do not rise above the fray of competing social actors. NGOs may have a more resolute ideological commitment to tackling climate change, but they lack the power to oppose capital all the way down.

Furthermore, ecological modernisation also fails to address a range of inequalities within states in the context of climate change. The IPCC's second assessment report (1995c: 393) acknowledged that most early climate models did not give "insight into income distribution or employment issues", whilst the third assessment report (IPCC 2001b) only fleetingly mentioned employment in the net ancillary costs and benefits of mitigation. Beck (2010: 257) argued that "one cannot conceptualise inequalities and power any longer without taking the consequences of climate change into account, and one cannot conceptualise climate change without taking its impacts on social inequalities and power into account". Baer (2006: 131, 146) highlighted "the distribution of liability can be differentiated between classes within nations" and that the same distributional principles which "apply between nations should apply within nations, with increased liability for those who are more responsible".

These limitations are well illustrated by the narrative of "green jobs". Stevis (2012) argued that green jobs are neither well defined nor definable, while Kouri and Clarke (2012) concluded that while the conception was widely discussed in the British media, precisely defining a green job may well be impossible. For Cock and Lambert (2012) green jobs are one component of a new green capitalism that is trying to avoid fundamental change through an emphasis on expanding markets and new technologies. Uzzell and Räthzel (2012a: 8) questioned whether the demand for green jobs leads to "shallow reforms", or whether it transcends the present forms of production and envisages an economic system beyond the growth paradigm. The ambiguities around green jobs were well summed up by the Labour government's announcement of its low-carbon industrial strategy. Mandelson (DECC 2009a) claimed that the British economy already supported 880,000 "low-carbon jobs" and was poised to create a further 400,000 green jobs by 2015. However an assessment published by *The Times* (Pagnamenta 2009) revealed the "extraordinarily loose" definition of the term, which included jobs in the supply and manufacture of animal bedding, providing equestrian surfaces and in the recycling of footwear, slippers and carpet wear. Redefining disparate occupations as "green jobs" provides no security for workers fearful of unemployment (see Chapter 5).

If the Labour government's climate change policy is taken to represent ecological modernisation, then the results were disappointing. Although the UK ranked as one of the more successful states in integrating climate change into national politics, its targets, strategy and specific policies have been criticised. Government territorial figures (DECC 2012a) found that the UK met its Kyoto target, although this was attributed to fortuitous events such as the dash for North Sea gas. The manifesto promise of a 20% cut in CO_2 emissions was not achieved, despite the economic slowdown. Barrett et al (2013: 454) found that consumption-based accounts (which include imported emissions from international trade) showed an average 1% annual *increase* in UK emissions between 1990 and 2009. Bailey (2007) argued that pressure from industry associations was sufficient to ensure that few targets went much beyond business-as-usual emissions. For Lorenzoni, O'Riordan and Pidgeon (2008: 119), the problem was with "the government's predisposition towards ecological modernisation and market mechanisms that focus on incremental change, and its tendency to shy away from bolder actions that politicians may believe (in

some cases incorrectly) will be resisted by corporate sectors or the electorate" (see also Compston and Bailey 2008).

Finally, ecological modernisation suffers from the same shortcomings as neoliberalism, namely the failure to grasp the underlying causes that give rise to climate change, reliance on market mechanisms and business actors, and the reinforcing of existing inequalities. Nugent (2011: 60-1) accepted that ecological modernisation sometimes challenges neoliberalism. However some articulations of ecological modernisation discourse "can indeed be co-terminus with neoliberalism", what he referred to as "ecoliberalism". Bailey and Wilson (2009: 2338) called this synthesis "neoliberal ecological modernisation". Levy and Egan (2003: 821) argued that ecological modernisation's win-win paradigm is "a key discursive foundation for the emerging climate compromise and a more stable historical bloc". Although the discourse proposes a broad alliance of agents to tackle climate change, the direction of policy is dictated by capital and its states. The tendency for ecological modernisation to dissolve into softer representations of neoliberalism is a serious limitation.

Both neoliberal and ecological modernisation approaches suffer from a deeper problem: an apparent dualism between nature and society, an anthropocentric estrangement that hampers engagement with the significance of climate change. Schneider (1997: 134) argued that many economists went so far as to accept that "society is almost independent of nature". Neumayer (2007) argued that the irreversible and non-substitutionable damage and loss of natural resources that will result from climate change cannot be adequately valued in monetary terms. Climate change challenges the dominant political economy all the way down, hence the demand for a radical reframing or paradigm shift by many climate activists.

2.3 Marxism and climate change

2.3.1 A Marxist framing of climate change

Karl Marx lived long before climate change was well-established in physical science. Nonetheless, a contemporary Marxist framing provides vital insights into the social structures and processes that drive climate change, the uneven impacts it has on people's lives and the potential agents capable of tackling it. A Marxist framing of climate change begins with recognition of the dualism within hegemonic discourses on nature and society, including neoliberalism and ecological modernisation, and an effort to supersede such dualism. Benton (1989: 77) explained that "ecological problems of any form of social and economic life would have to be theorised as the outcome of this specific structure of a natural/social articulation".

Smith (1984: 2, 31) highlighted two significant nature/society dualisms. The first treats nature as *external*, pristine and ripe for anthropocentric mastery, where society is separate. The second treats nature as *universal*, dissolving everything into it and thereby naturalising social relations and rendering them immutable. Instead Smith posited the quixotic notion of "the production of nature", which begins with "the relation with nature as a unity and derives as a simultaneously historical and logical result whatever separation between them exists". In this way "the social priority of nature is not something that must be infused from the outside, but something that already exists in the social relation with nature". Without denying the ontological priority nature over human society or the laws of nature, the production of nature implies "an historical future that is still to be determined by political events and forces, not technical necessity" (see also Castree 1995).[13]

The production of nature approach draws into sharp relief the impact of modern global capitalism in reshaping, remaking and reworking nature all the way down. Writing before climate change became widely discussed in the social sciences, Smith (1984: 56) argued that, "No part of the earth's surface, the atmosphere, the oceans,

[13] Mann (2009) argued that Marxist and political ecology approaches both have two broad explanatory goals: "to account for the production of nature and environment, and to understand the ways in which (produced) natures and environments help shape social relations".

the geological substratum or the biological superstratum are immune from transformation by capital" and that "the alteration of climate by human activity" was an expression of this phenomenon of the social production of nature. For Smith (1998: 273), the dominant approaches to climate change generally "focus on the technical (and geographically selective) curtailment of these emissions without questioning either the specific social relations that organised prevailing production and consumption choices or even the global social restructuring implied by technical emission abatement policies".

Smith (2006) argued that labour is the fulcrum of the production of nature and should therefore be at the centre of environmental politics.[14] Similarly, Vlachou (1994: 124) claimed that "a rich knowledge about nature/society interaction can be produced by employing social relations, specifically the class process, as an entry point to our analysis". This is so because "the interaction between society and nature is mediated by social labour, which is performed within class relations in class societies". Altvater (2006) rejected the conception of a market in nature; rather it is labour that turns nature into commodities. The foremost metaphor in contemporary Marxist framings of nature-society relations is the notion of metabolism (Schmidt 1971; Foster 1999, 2000; Moore 2000). Metabolism suggests a dialectical interdependence between nature and society, and is used in three senses: to define how labour mediates the relationship between society and nature; to describe how class societies generate metabolic rifts in the ecology of the earth; and to outline the systemic conditions necessary for metabolic restoration (Burkett 1999, Foster 2009).

First, in Marx's *Capital* volume I (1976a: 283), the concept of metabolism expressed the prominence of labour in mediating social relations of nature. Labour is a process by which humanity, through its own actions, mediates, regulates and controls the metabolism between society and nature. Through the appropriation of the materials of nature and adapting them to its needs, humans "act upon external nature and changes it" and simultaneously changes its own nature. Climate is a condition of

[14] Ekers and Loftus (2012: 2) argued that for Smith, "this focus on productive activity was a politically inspired move aimed at placing labour at the centre of environmental politics". Gramsci (1971: 352) argued that humanity "does not enter into relations with the natural world just by being himself [sic] part of the natural world, but actively, by means of work and technique".

human existence, but the labour process in contemporary society modifies the climate.

Second, metabolism is used to conceptualise the breakdown in humanity's relationship with nature. Marx (1981: 949) explained in *Capital* volume III that capitalism "produces conditions that provoke an irreparable rift in the interdependent process of social metabolism, a metabolism prescribed by the natural laws of life itself". Marx's account of agricultural degradation can be extended to the way fossil fuel usage generates greenhouse gases. Climate change can be understood as an expression of the rift between humanity and the biosphere, a state of crisis brought about by particular social relations with nature.

Third, metabolism captures the need to restore the relationship between humanity and nature. Marx (1981: 911, 959) wrote of the absurdity of the private ownership of the earth, instead suggesting that humans are "simply its possessors, its beneficiaries, and have to bequeath it in an improved state to succeeding generations". Under a socialist system of democratic control over production, "the associated producers, govern the human metabolism with nature in a rational way, bringing it under their collective control, instead of being dominated by it as a blind power; accomplishing it with the least expenditure of energy and in conditions most worthy and appropriate for their human nature". In short, a different set of social relations with nature are necessary to tackle climate change, centred on democratic control over labour time, which Burkett (2006: 320) designated "communism as a form of sustainable human development".

If labour is pivotal, then core Marxist concepts can be used to help understand important aspects of climate change. Callinicos (1987a) argued that the key Marxist concept for understanding different forms of society is the mode of production, consisting of a specific combination of productive forces and production relations. The productive forces include the labour process, the technical combination of labour-power (capacity to work) and the means of production employed in order to transform nature and to produce use-values, thereby determining a particular level of productivity. Production relations are the relationship of the direct producers to the means of production and their labour-power, the nature of any non-producing owners

and the mode of appropriation of surplus-labour from the direct producers by any such owners. Secondly, the specific economic form in which unpaid surplus-labour is pumped out of direct producers is the basis of exploitation and arises from society's particular relations of production. The mode of surplus-extraction determines the class structure, so that classes are defined by their objective relationship to the means of production and labour-power and to other classes. This exploitation gives rise to class struggle, or at least the potential for it in all class societies.

Thirdly, exploitation informs the particular form of political domination and is therefore the basis for Marxist theories of states, international relations and ideology. Burnham (2001) regarded the state as a form of social relations, understood in capitalism as a political moment within global capitalist social relations. States and state managers seek to act in the interests of capital-in-general (rather than for particular fractions of capital) to resolve crises within the circuit of capital. Jessop (1990; 2007) argued that states are nevertheless vital sites of political strategy in international geopolitics and in domestic affairs, and play an integral role in extending capitalist social relations of production, shaping capital accumulation and mediating class struggles.[15]

The Marxist conception of class starts from exploitative production relations, so that classes begin with the common positions within the social relations of production. Ste Croix (1981: 43-4) defined class as essentially a relationship "the collective social expression of the fact of exploitation, the way in which exploitation is embodied in a social structure". By exploitation he meant "the appropriation of part of the product of the labour of others". Under capitalism this involves the appropriation of surplus value. Wright (2005: 25) argued that exploitation is a particularly explosive form of social relation, because first, exploitation constitutes "a social relation which simultaneously pits the interests of one group against another and which requires their ongoing interaction, and second it confers on upon the disadvantaged group a real form of power with which to challenge the interests of

[15] Class societies also rest on a particular relationship with nature. Therefore changing society also changes relations with nature. We therefore reject O'Connor's (1988) conception of a second contradiction outside of the productive forces/production relations distinction. Spence (2000) argued that natural "conditions of production" are integral to the productive forces/production relations, not set apart from them.

exploiters". Exploitation is not simply a matter of theft or exceptionally low wages, but of social production relations masked by the wage form, as well as an explanation for the origin of profits.

Carchedi (1977; 1987) derived classes in capitalist society from the social relations of production, consistent with Marx's labour theory of value. He defined the capitalist class or bourgeoisie as all those who exploit, have real economic ownership of the means of production, perform the global function of capital and derive their income from surplus value. The working class or proletariat are all those who do not own the means of production, perform the function of the collective worker, are exploited and who consequently are paid a wage. The extent of this wage is determined by the value of their labour power. Workers are either paid back part of the value they themselves produced or are paid out of the surplus value produced in the productive spheres. Carchedi (1991) argued that intermediate classes perform some of the global functions of capital (such as the control and surveillance or workers) without owning means of production. Similarly, Wright (1978: 63) acknowledged that high-level managers and supervisors occupy what he called "'contradictory class locations".[16] These core class relations define both the structures that predominant in capitalist society as well as the most significant agents within it.

2.3.2 Towards a Marxist political economy of climate change

Despite persistent efforts to bury it, Marxist political economy centred on the value theory of labour continues to flourish (Saad Filho 2003; Harvey 2010; Heinrich 2012). Arguably, Marxist approaches have undergone something of a renaissance at a time of economic crisis (Brenner 2006; McNally 2010; Kliman 2011). Although differences of interpretation persist, scholars taking a Marxist approach generally argue that the capitalist mode of production is a class society in which capital exploits waged labour to produce for profit. Under capitalism, capital extracts surplus labour (in the form of surplus value) from workers who produce commodities under the veil of wages. This means exploitation is not transparent. Rather, social relations

[16] Carchedi (1987, 1989) criticised Wright's methodological individualism and his abandonment of the Marx's value theory. See also Gubbay (1999).

of production under capitalism are fetishised or reified, and Marxist political economy attempts to uncover the relationships between people that are mystified by the relations between things such as commodities, money and capital.

Rubin (1972: 62) argued that in the capitalist economy, production work relations among people necessarily acquire the form of the value of things, and can appear only in this material form; social labour can only be expressed in value. The point of departure for research "is not value but labour, not the transactions of market exchange as such, but the production structure of the commodity society, the totality of production relations among people". Under capitalism, there is a systematic tendency for workers' capacity to work (labour power) as well as the "free gifts of nature" to take the form of commodities and this explains capitalism's expansive vitality. For Wainwright (2010: 988), a society organised on capitalist lines cannot deny this drive for capital accumulation: "Accumulation begets accumulation, without end or purpose: This is the source of capitalism's undeniable dynamism". If capitalism is principally about the production, appropriation and distribution of surplus value, and the competitive drive for capital accumulation, then the capitalists' hunger for profit knows no bounds – and certainly no ecological limits.

In the Marxist framing, capital extracts surplus labour (and surplus value) from workers and this valorisation process shapes and refashions the labour process. One means of extracting more surplus value is simply for the capitalists to force workers to work longer. Marx called this the creation of absolute surplus value, or *the formal subsumption of labour to capital.* Assuming that the costs of reproducing the worker (the proportion of time spent producing for their means of subsistence) remains the same, the extra hours of work will create extra surplus value for the capitalist.

However what distinguishes capitalism is the development of more dynamic ways of extracting surplus labour, making the labour process more productive, more intensive or more efficiently organised (Fine and Saad Filho 2004; Foley 1986). This process Marx called the creation of relative surplus value, or *the real subsumption of labour to capital.* The three forms discussed in *Capital* are cooperation, the division of labour and the introduction of machinery. The strategy of relative surplus value is to increase productivity in order to drive down the value of labour-power. Increased

productivity allows capital to extract more surplus-value from the same sum of new value added. With real subsumption, capital really takes control of the labour process and forces workers to cooperate with each other, often in a common workplace but certainly as part of an interdependent production process. The tasks workers are expected to carry out are specialised, so that more can be done in a given working day. The application of machinery is imposed to speed up and simplify the production process. Individual capitals recognise that by transforming the labour process they can appropriate higher-than-average returns, extracting additional surplus value and through its reinvestment, accumulate greater and greater capital. The process of the concentration and centralisation of capital extends the capitalist mode of production spatially, incorporating new means of production and turning other direct producers into workers. Ever more areas of social life are enclosed and commodified.

Boyd, Prudham and Schurman (2001: 557, 565) extended these insights about the exploitation of labour to ecological degradation and introduced the concepts of *the formal and real subsumption of nature to capital.* Under the formal subsumption of nature "firms confront nature as an exogenous set of material properties and bio-/geophysical processes, but are unable to directly augment natural processes and use them as strategies for increasing productivity". In contrast, with the real subsumption of nature "firms are able to take hold of and transform natural production and use this as a source of productivity increase". In adapting these concepts from notions of the formal and real subsumption of labour, the scholars intended to highlight some of the different ways in which biophysical systems are industrialised and, in some cases, "can actually be made to operate as productive forces in and of themselves". Castree (2008: 145-6) also argued that the real subsumption of nature involves altering biophysical properties so that it offers enhanced possibilities for capital accumulation. For example, in agriculture and forestry, "hybridisation and now genetic modification are two key technologies in subsuming nature to the demands of capitalist firms". With real subsumption, capital circulates through nature as opposed to around it. Biological systems are made to act as actual forces of production.

It is possible to extend these conceptions further to explain the drives that generate climate change, to what might be called *the subsumption of climate to capital.* The

formal subsumption of climate means the release of polluting gases into the air, into rivers and the sea, the scourging of the earth for raw materials, the mining of coal and metals. It means the by-products of capital accumulation are dumped into ecological sinks. For energy it means the utilisation of available fossil fuel sources of power to drive the production process in factories. The advent of factory night shifts, forcing waged labour to work extended hours, was simultaneously a draw on energy resources for power and lighting. Therefore the formal subsumption of labour to capital coincided with the initial, formal subsumption of nature and the climate to capital.

However it was the real subsumption of labour to capital that really spurred the transformation of climate and broke the energy budget. The process of replacing living labour with machinery – the product of other, past labour – required an enormous expansion of energy to power such labour processes. Christie (1980: 16) argued that capital increasingly needs energy "as it uses machinery to protect its ownership of property... to control workers; to control production; to deskill production processes; to speed up production; to speed up transport etc". Capital needs more energy as it uses more machinery "to increase relative surplus value while decreasing working class power in the process of class struggle". Because capital needs machinery to expand the accumulation of surplus value, and because it needs machinery to "substitute" or control workers in struggle, capital therefore needs energy. Overall, energy powers the ongoing technological revolution "whereby capital has been winning the class struggle" (see also Keefer 2010).

Clark and York (2005: 403) extended the metabolic rift approach to climate change. They argued that it was not until the rise of capitalism and especially the development of industrial capital that anthropogenic CO_2 emissions greatly expanded in scale, "exploiting the historic stock of energy that was stored deep in the earth and releasing it back into the atmosphere". Foster (2002: 45) identified this substitution as crucial to climate degradation. He argued that "increased throughput and more substitution of energy for machines for labour mean a more rapid depletion of high-quality energy sources and other natural resources, and a large amount of wastes dumped into the environment". Expanding scales of production, which are a corollary of the valorisation logic of capitalist production, "normally coincide with

greater amounts of throughput of raw materials and auxiliary substances, especially in the form of fossil fuels and of available energy".

This process might be called *the real subsumption of climate to capital.* Altvater (1993) argued that fossil energies are particularly congruent with capitalist production because of their flexibility, fitting capitalist society's particular relationship to nature. Technical change may lead to energy-saving machines and less carbon-intensive energy generation – but under capitalism, only if it is profitable to do so. Accumulation requires capital to reduce the circulation time of commodities produced, to get them sold faster in order to realise the surplus value needed for further accumulation. Marx highlighted in the *Grundrisse* (1986: 448, 463) the "annihilation of space by time" – the development of more streamlined and just-in-time labour processes, faster forms of transport to take commodities and workers (and capitalists) to their workplaces – hence the development of trains, faster ships, cars and later aeroplanes. This process helps to explain the growth in emissions from transport and communications (York, Rosa and Dietz 2003). A virtue of the Marxist approach is to burrow down to deep social processes that drive the generation of greenhouse gas emissions. These processes of commodification, accumulation and exploitation, essential to the capitalist mode of production, drive huge, unplanned technical changes, which require enormous inputs of energy, land and materials. Efforts to reduce accelerating quantities of greenhouse gas emissions run up against this logic of capital, from which there is only limited room to escape. It is the structures prevalent within capitalism that simultaneously drive emissions and prevent its ruling agents (both capital and its states) from adequately tackling climate change.

2.3.3 A critique of the Marxist approach

Marxist approaches to climate change emphasise that rising greenhouse gas emissions are caused by capitalism's long-term tendency to expand the scale of production and by the associated increase in material and energy throughput. Two significant challenges to Marxist climate political economy are discussed below: a critique about climate action under capitalism and a critique from ecologists concerned with economic growth.

Koch (2011: 37-8) acknowledged the strength of Marxist perspectives, but argued that they are too abstract to explain differences in the emissions of particular states or capitals, nor sufficient to explain "capitalism's capability to adapt and adjust to changing 'external' conditions, including the foreseeable end of fossil fuels". Boyd, Boykoff and Newell (2011: 609) posed a related dilemma: capitalism of one form or another provides "the near-term context in which we have to respond to climate change". Hence their emphasis on "mobilising the influence of powerful fractions of capital". Whatever the merits of a critique of capitalism as the ultimate cause of climate change, the urgent need to mitigate emissions cannot wait for systemic, structural transformation.

A Marxist approach does not deny that capitalists have some interest in climate conditions. Vlachou and Konstantinidis (2010: 33) accepted that the intensification of global warming is expected to have "adverse effects on capitalist firms and economies which will (at least in part) register as increases in costs, values, and prices, resulting in changes in profits, rents, and wages". If climate is a condition of existence for capitalist production, then natural resources constitute elements of constant and variable capital in this production. Even when natural conditions and resources are not commodified, they still affect the value of commodities through their impact on labour productivity.

Burkett (1999: 19, 94, 98) accepted that capitalist states can use market instruments to partially account for climate change. However the tendency to undervalue natural conditions remains, because of the distinction between use value and exchange value, and the divergence between value and prices under capitalism. He argued that Marx's rent theory recognises that "exchange values may be assigned to valueless but scarce and monopolisable natural conditions", but the value-nature contradiction "cannot be resolved by private rents or by grafting 'green' tax and subsidy schemes onto an economic system shaped and driven by money and capital". The market view presupposes that the price form can adequately represent nature's use value, but capitalism's goal of profitable accumulation and its inherent competitiveness "makes it impossible to adequately regulate greenhouse gas emissions through market channels and their political superstructures". Smith (2006: 19) scathingly referred to

"ecological credits, mitigation markets and environmental derivatives" as examples of what Marx called "fictitious capital".

Koch (2011) suggested that regulationist theories are the necessary supplement to the systemic critique of capitalism. The mid-range concept utilised in this study is neoliberalism. The paradox of neoliberalism, despite the emphasis on the overwhelming role of markets, is that it ultimately depends upon states for implementation. Panitch and Gindin (2005: 110, 113) argued that the liberalisation and expansion of markets may be economic, but neoliberalism is "essentially a political strategy to shift the balance of class forces". The neoliberal turn entailed "the restructuring and opening of the world's states... to economic competition, the free movement of capital and the deepening of capitalist social relations". Financial markets and institutions played a crucial role in facilitating this process, but states (particularly under the superintendence of American imperial power) have been the authors and enforcers of neoliberalism (Panitch and Gindin 2012; Harvey 2005). Heynen et al (2007) demonstrated how neoliberalism operates in relation to the environment, although its development is highly uneven. Bond (2012) argued that neoliberal climate policy involves the increased commodification of nature and spatio-temporal fixes linked to financial markets, which largely displaces emissions rather than manages their reduction.

A Marxist analysis allows room for regimes of capitalism other than neoliberalism (such as ecological modernisation), which may tackle climate change more adequately. Meaningful reforms to reduce emissions can be fought for and won in the short term, without overturning the structures of global capitalism. But without large-scale structural transformation and collectivist, democratic social relations of production, mitigating climate change in the long term is highly unlikely. The immediate political significance of the critique of neoliberal capitalism is to reject claims that capital and its representatives are the necessary social actors to which climate policy must defer. Instead, it recognises that capital will have to be driven through regulation, pressure and mobilisation to undertake necessary climate mitigation and adaptation measures.

A more profound critique questions an assumption that appears to underpin Marxist, neoliberal and ecological modernisation approaches, namely the objective of perpetual economic growth. For Daly (2007), ecological limits including climate change require a steady-state economy, while Jackson (2009) and Victor (2008) advocated "degrowth", the planned reduction of economic output. These authors challenge claims of the decoupling of economic growth from material throughput through technological innovation. Kallis, Kerschner and Martinez-Alier (2012: 174) summed up the argument succinctly: "combating climate change equitably will include an unprecedented degrowth, with a dramatic restructuring of the state and a reconfiguration of work." They propose targeting investment towards low-carbon infrastructures and ecological protection as well as more radical measures, such as reductions in working time.

There are good grounds for accepting the existence of a variety of ecological limits or planetary boundaries (Lynas 2011). However the steady state and degrowth critique contains a number of flaws from a Marxist perspective. Blauwhof (2012: 255-6) argued that degrowth exponents operate within the boundaries of capitalism, leaving markets and private ownership of the means of production largely intact. Degrowth advocates define capital as a static stock of physical wealth, whereas for Marxists, capital is a process, "'value set in motion', invested to make a profit, following the cycle of money to commodity to money plus profit". As Foster, Clark and York (2010: 203) point out, steady state and degrowth proposals under capitalism feed "an abstract notion of growth divorced from the specific form that this takes" and focused "almost exclusively on scale and relatively little on system" (see also Dale 2013). The accumulation of capital is a systemic necessity. Capitalism can either grow or collapse: it cannot degrow voluntarily. Growth, in the sense of the production of more and more use values, is not the goal of capitalist production. The objective for capitals is profit.

Many of the policy proposals made by degrowth thinkers are remarkably mild. Jackson (2009) supported EU ETS, while other proposals such as retrofitting building with energy-saving measures, renewable energy technologies, redesigning utility networks, public transport facilities and greening public spaces, would all count as GDP growth. More radical proposals such as reducing working time appear

to challenge the dominant political economy, except they are premised on cutting wages, which would allow capital to continue to make profits. A socially just steady state economy is possible, but not feasible within the social relations of capitalism.

Mason (2010: 151-2) argued that there is "a major explanatory gain" from applying critical political economy approaches such as Marxism to the understanding of climate change, particularly the "plausible account of the role of power relations in driving carbon-intensive (and socially dislocative) economic development paths". The worldwide structural lock-in to the fossil fuel-intensive mode of production is not the outcome of a natural play of market forces or pluralistic decision-making, but "the result of the political dominance of capitalist interests in determining the social allocation of resources". When orthodox economists designate anthropogenic climate change as market failure, an unfortunate side-effect of economic growth, "they miss the systemic mechanisms by which market relations produce social and ecological harm". Wainwright (2010: 987-8) suggested that if scholars pride themselves on pondering the great questions of our time, "we must be willing to ask whether the very form of social and economic life – capitalism – is not an underlying cause of climate change". If society is to successfully avoid the most dangerous aspects of climate change, then the critique of capitalism (rather than accommodating to it), is the logical starting point.

2.4 Conclusion

The current impasse of climate politics can be traced to the misframing of vital matters by the dominant discourses of neoliberalism and ecological modernisation. If market failure really is the cause of emissions proliferation, then it seems obtuse to rely on the same capitalist societal structures and the same social agents (largely business actors, and ironically states) to resolve the problem. Similarly, while ecological modernisation appears to offer the possibility of a reformed, state-led and technologically rearmed capitalism, this framing does not challenge the dominance of market imperatives or the processes that give rise to climate change.

A Marxist approach offers a distinct framing of climate social relations and structures, centred on labour. The valence of this approach resides in its ability to identify and explain the social processes that have accelerated greenhouse gas emissions over the last two and half centuries. The real subsumption of climate to capital parallels the transformation of the labour process by the production of relative surplus value, unconstrained by climate imperatives.

This approach has the advantage of naming the "enemy" of climate change as the structures of capitalist production and thereby rejects efforts designed to tackle climate change through the profit-seeking firms. It highlights the likely inequalities that arise not only from climate change itself, but also from market-led policies aimed at limiting it. A further advantage of the Marxist approach is a sharper focus on political subjects and forces, which points towards a more adequate account of the social agency required for climate politics. This is discussed in the next chapter.

3) Workers, trade unions and climate change

3.0 Introduction

The previous chapter sought to understand how climate change can be framed through different discourses: neoliberalism, ecological modernisation and Marxism. This chapter examines the neglected social agency of organised labour within climate politics. It asks whether trade unions might have the interest and the power to participate in, inspire and even lead a climate solidarity movement. Section 3.1 reviews the literature on the potential of organised labour as social actors. Hyman's employment relations trichotomy of markets, society and class is utilised to explain political, economic and ideological pressures on trade unions. The potentialities of solidarity and social movement unionism are also explored. Section 3.2 assesses whether trade unions represent significant ecological actors. Section 3.3 discusses these insights in the light of climate politics, outlining the extent to which trade unions can be regarded as strategic climate actors.

3.1 Trade unions as social actors

3.1.1 Workers and social agency

The previous chapter argued that capitalism is the real structural cause of climate change and identified key exploitative processes within the subsumption of labour to capital, which also subsume the climate to capital. But a Marxist perspective goes much further than simply a critique of the dynamics of capitalism. This chapter discusses Smith's (2011: 262) "outrageous proposal" to put labour at the centre of ecological politics and by extension, climate politics. Such a move requires deeper engagement with the concept of class.[17] For Crompton (1998: 11) class has two principal meanings: firstly as a general description of structures of material inequality and secondly as actual or potential social forces, or social actors, which

[17] Ekers and Loftus (2012: 10) warned that there is no universal subject that labours; rather there are particular classed, gendered and racialised groups that are involved in the production of nature across time and space (see Moore 2010; Acker 2006; Skeggs 2004).

have the capacity to transform society. This is consistent with Marx's distinction (1976b) between class-in-itself and class-for-itself.

In Chapter 2, class was defined as an objective, antagonistic relationship based on exploitation and formed in production (Callinicos 1987b). Wright (2005: 10) argued that class relations in capitalist societies refer to the fundamental contrast between owners of means of production and owners of labour power, since owning is "a description of rights and powers with respect to a resource deployed in production". Class structure is the sum total of class relations, while class locations designate the social positions occupied by individuals within class relations. Wright (2005: 20-21) described class interests as "the material interests of people derived from their location-within-class-relations". An account of these interests provides the "crucial theoretical bridge" between the description of class relations and the actions of individuals within those relations.

Wright (2005: 21-2) argued that the rights and powers people have over productive assets is a systematic and significant determinant of their standards of living: "*what you have determines what you get*". Further, the rights and powers over productive assets is a systematic and significant determinant of the strategies and practices people engage in to acquire their income: "*what you have determines what you have to do to get what you get*". He defined class consciousness as the subjective awareness people have of their class interests and the conditions for advancing them. An important outcome of class relations and class consciousness is the likelihood that class formations will be organised. Class formations are collectivities formed in order to facilitate the pursuit of class interests, ranging from highly self-conscious organisations such as political parties and trade unions to much looser forms of collectivity such as social networks and communities. As long as exploitation exists and inequalities derived from it persist, there remains the potential for workers to coalesce around those interests for collective action.

Mulhern (1984: 22-3) succinctly restated the thesis that workers are potential actors for affecting social change. The working class is the privileged social agent because of "its historically constituted nature as the exploited collective producer within the capitalist mode of production". As the exploited class it is caught in a systematic

clash with capital, which cannot generally and permanently satisfy its needs. As the main producing class, it has "the power to halt – and within limits redirect – the economic apparatus of capitalism, in pursuit of its goals". And as the collective producer it has "the objective capacity to found a new, non-exploitative mode of production". This combination of interest, power and creative capacity distinguishes the working class from every other social and political force in capitalist society.

Wood (1986: 185-6) argued that the possession of strategic power and the capacity for collective action are essential in identifying the agents of social transformation. Working class movements, she suggested, have more consistently than any other social collectivity stood on the side of various progressive causes. There has been "no other identifiable social force that has even come close to their record of emancipatory struggles, either in the breadth of their visions, the comprehensiveness of the liberation they have sought, or in their degree of success". This account elevates the working class to a unique position as the essential progressive agent of social change under capitalism, with the best prospects of winning struggles for reforms within it, as well as developing new social relations to replace it.

However for several decades there has been a feverish retreat from this kind of working class politics, which for some scholars turned into a rout. Pakulski and Waters (1996) regarded class as dead or at least dying, no longer coherent, empirically verifiable or relevant. Yet Skeggs (1997: 6-7) has argued convincingly that to abandon class as a theoretical tool does not mean it has ceased to exist; only that some scholars do not value it. If class is abandoned, "we need to ask whose experiences are being silenced, whose lives are being ignored and whose lives are considered worthy of study". For Skeggs, to think that "class does not matter is only a prerogative of those unaffected by the deprivations and exclusions it produces". To make class invisible is to abdicate responsibility from the effects it produces.

In terms of its global social weight, the waged working class has grown both absolutely and relative to other classes during the contemporary period. A World Bank study by Filmer (1995) found that over one-third of the world's employed labour force were waged workers. McNally (2010: 51-3, 134) highlighted the continued growth of the global waged working class, which appears to have at least

doubled in size in the last three decades. Far from disappearing, the majority of the world's direct producers now probably do waged work rather than (or alongside) work for themselves in peasant agriculture. Recent decades have witnessed one of the great migrations in history, with the majority of humanity now living in urban environments where waged labour predominates. Far from disappearing, waged labour remains essential to global capitalism.

However for some scholars (van Gyes 2001), the connection between class-in-itself and class-for-itself is both vexed and multifaceted. Hyman (2001) suggested that class, objectively defined, is no predictor of collective consciousness or action. Hobsbawm (1978) judged that structural changes within capitalism (and to British capitalism in particular) had halted the forward march of organised labour. He suggested that sectionalism between different strata of workers, along with other divisions (such as gender and migrant labour) had undermined the coherence of collective working class interests. He pointed to the weakening of trade union organisation, the decline in working class voting for Labour and the marginalism of other socialist parties, which signified the limitations of the organised labour movement. Hobsbawm was praised by some for his unflinching realism, but criticised by others for propagating a self-fulfilling prophesy.

In retrospect, working class politics have generally been in retreat for three decades, if not far longer. The neoliberal period since the late 1970s has been a somewhat one-sided class struggle in Britain and globally, unleashing privatisation, cuts to welfare spending and restrictions on trade unions, involving the co-option of social democratic parties and major set-piece defeats such as the 1984-85 miners' strike. Trade union membership in Europe and North America may have diminished compared to previous highpoints, but trade unionism remains a million's strong collective force. Trade union organisation continues to spread, with powerful labour movements in South Africa, Brazil and South Korea, and emerging movements in Indonesia and Nigeria. Therborn (2012) noted that workers strikes and trade union organisations played an important role in the recent democratic movements across the Middle East and North Africa. The ITUC international union confederation claims to represent 175 million workers in 153 countries. Bryson and Forth (2010) argued that trade unions in Britain still constituted the largest voluntary organisation

in the country, representing seven million employees, and negotiating on behalf of one-third of all employees. It would therefore be mistaken to conclude from some conjunctural defeats that workers' social position has been definitively atomised or that the historic potential of the labour movement has been exhausted.

Some Marxists have conceived of class struggles taking place on three fronts: the economic, the political and the ideological.[18] Class originates in the economic sphere with exploitation, but whether it leads to workers' collective action depends on a wider range political and ideological pressures, both from the context and from within the workers' organisations. The attainment of class consciousness leading to collective action is therefore never automatic or inevitable, nor does it assume workers have a privileged position of perception with regard to social relations. Michael Mann (1973: 13) delineated four elements in class consciousness: identity – defining oneself as working class; opposition – the perception that capitalists and their agents are the enduring antagonists; totality – acceptance of these two elements as the determining characteristics of social position; and finally the conception of an alternative society to be realised through struggle with the antagonists. He concluded that "true revolutionary consciousness is the combination of all four and an obviously rare occurrence". The point however is that class consciousness is not simply all or nothing: revolution or alienation. Rather it takes many forms. Eley and Nield (2007: 173) argued that once class consciousness is treated as "an unstable, shifting, and indeterminate faculty", it is possible to show "how sociologically specified class capacities could be made to materialise in action and effects". Gramsci (1971: 641) conceived of "contradictory consciousness", where elements of class consciousness coexist alongside ideas uncritically absorbed from capitalist society (see Thomas 2010).

In this thesis, working class politics is not restricted to scarcely attainable levels of class-consciousness. A more modest standard of class agency is proposed, whereby organised labour as a potential social force and climate agent starts from contemporary conditions in the UK trade union movement, (although networks of activist groups within and between unions are also referred to). In particular, this

[18] This conception, attributed to Engels, was developed by Lenin in *What is to be Done?* (Lih 2008: 697ff) and adopted by Gramsci (1978: 287-88).

dimension of class focuses on elements of independent organisation, participation and representation that are separate from and sometimes antagonistic towards employers. A further element of class agency in this respect is the mobilisation of trade unionists and other workers to take action, both at work and outside the workplace, on matters of climate interest. These activities, which take a multiplicity of forms from official industrial action to demonstrations and direct action, are a vital part of what it means to regard workers as climate actors. In terms of ideology and the articulation of demands, the focus is on workers and their organisations confronting the private ownership and control of means of production, particularly in energy and transport, where the bulk of greenhouse gas emissions are generated. Challenges to existing social relations include clashes over property relations, struggles over the frontiers of control at work and at a lower level over the distribution of gains and losses. Although class should not be reduced to occupation, demands for socially (and ecologically) useful types of employment, improved conditions at work and other occupational issues are an important part of the class analysis of climate change.

3.1.2 Trade unions in employment relations

Hyman (2001) questioned the extent to which trade unions can be regarded as consistent class actors, when he asked whether unions are a bargaining agent, a social partner, a mobiliser of discontent, or all of these at one and the same time. There are a wide range of trade union theories in the literature from each of these perspectives, corresponding to manifold empirically-observed behaviours of unions in history. This section discusses the variable geometry of trade unionism.

The foundations of the economic appreciation of trade unions as bargaining agents within the labour market were laid by the Webbs (1920: 1), who defined unions as "a continuous association of wage earners for the purpose of maintaining or improving the conditions of their employment". They recounted the origins of trade unionism in craft and friendly societies in England during the industrial revolution, which produced sectional and particularist struggles over pay and employment conditions in individual workplaces. Their contemporary, the American trade union leader Samuel

Gompers summed up this approach as "pure-and-simple trade unionism", a stance that was regarded by Lenin (Lih 2008: 220) as "economism".

The political characterisation of trade unionism, usually attributed to Ross (Poole 1984), considers unions as essentially political agents operating in an economic environment. Streeck and Hassel (2003: 335-7) argued that this approach treats unions as "interest groups, emphasising their political activities and their relations to political parties". Trade unions act in two areas: the state and politics on the one hand, and the labour market and collective bargaining on the other. After 1945, most unions recognised "the primacy of the liberal-democratic state and of parliamentary democracy", just as they accepted "private property and the principal rules of a – socially embedded and regulated – market economy". Such a stance feeds the notion of unions as social partners (Heery 2002), who promote more co-operative relations with employers as well as government regulation of the labour market.

Marx on the other hand considered trade unions as a means of organising the working class as a class-for-itself. He regarded unions (1976b: 210) as "ramparts of resistance" against capital and (1985b: 192) as "organising centres of the working class in the broad interest of its complete emancipation". More recently, Contrepois (2005: 367) argued that trade unions are "subversive institutions" juxtaposed to the requirements of free markets and the imperatives of capital. However Hyman (1989: 26) suggested that "unions are not cohesive class organisations, uniting all who work for a living behind one common purpose". Rather, while class opposition forms the basis of work relations in capitalist society, "this is overlaid and often concealed by the immense variety of specific work contexts and distinctive group interests", as implied by the sectional term "trade". Further, "a whole battery of ideological pressures discourages workers from defining their interests in class terms".

Flanders (1970: 15) perceived the tension between unions functioning as a "vested interest" and their role as "swords of justice". These observations suggest the essential plasticity of trade unionism. Writing in the shadow of more representative factory councils in Turin, Gramsci (1977: 265) argued that the trade union "is not a predetermined institution. It becomes a determinate institution, i.e. it takes on a definite historical form to the extent that the strength and will of the workers who are

its members impress a policy and propose an aim that define it". It is clear from these different perspectives that trade unionism generates a series of contradictions, for example between conflictual oppositionists and cooperative partners.

Hyman (2001: 3-4) attempted to capture the variable geometry of trade unionism in ways that are fertile for the discussion of unions as climate actors. He argued that trade unions face in three directions. As associations of employees, they are concerned to regulate the wage labour relationship, the work performed and payments received. Unions cannot ignore the market. But as organisations of workers, they embody a conception of collective identity that divides workers from employers. Whether or not they endorse an ideology of class division and class opposition, "unions cannot escape a role as agencies of class". Yet unions also exist and function within a social framework, which they may aspire to change but which constrains their current choices. Survival necessitates "coexistence with other institutions and other constellations of interest". Unions are part of society. Hyman pointed to three major ideal types of European trade unions, each of which reflects a distinctive orientation: towards the market, society and class. In the first, union are perceived as labour market institutions engaged in collective bargaining; in the second, unions focus on improving workers conditions and status in society, advancing social justice and equality; in the third type, they are schools of class conflict in the struggle between capital and labour. He illustrated these with reference to employment relations in Britain, Germany and Italy. Hyman (2012) accepted that his conception was a stylised model, which necessarily oversimplified and underplayed differentiation between trade unions within any national context (see also Frege, Kelly and McGovern 2011). However the framing provides a useful heuristic for evaluating trade union engagement with climate change.

Kochan, Katz and McKersie (1986) introduced the concept of strategic choice into the employment relations literature. Frege and Kelly (2003) argued that by looking at the cognitive processes of how the union as an actor translates and acts upon changes in the environment, they hoped to achieve a better understanding of these dynamics. Hyman (1997: 515) suggested that to become strategic agents, unions have to answer three fundamental questions: "whose interests they represent, which issues they embrace as relevant for the task of representation, and what methods and procedures

they adopt in undertaking this task". Whether unions act strategically depends for Hyman (2007: 198-9) partly on their organisational capacity, understood as "the ability to assess opportunities for intervention; to anticipate, rather than merely react to, changing circumstances; to frame coherent policies; and to implement these effectively". Strategy requires a long term perspective and is closely related to leadership. Union effectiveness requires leaders to have the capacity to "interpret, decipher, sustain, and redefine the demands of the represented, so as to evoke the broadest consensus and approval". Strategic thinking is "reflexive and imaginative, based on how leaders have learned to reflect on the past, pay attention to the present, and anticipate the future". Trade unions in this model, although structurally constrained, nevertheless make strategic choices.

Trade unions face a range of structural and contextual constraints because they operate within capitalist society and face not only individual employers but states, the media and a range of institutions often hostile to even their minimal goals. They also face internal, agential constraints as a result of their organisational forms.[19] Hyman (2004: 25, 28) understood that unions may take the line of least resistance, and seek to consolidate organisation around traditional core constituencies, or seek to "compensate for the decline in former strongholds by appealing to distinctive interests of the new elite sections of the changing workforce". This will inevitably confirm unions' status as "a vested interest defending the position of the relatively advantaged". The alternative is to assert trade unions' role as a popular movement, developing the capacity "to represent the losers as well as the beneficiaries from economic restructuring". Trade unions embody the latent force of organised labour, but whether they utilise this power depends heavily on how their members and leaders frame their goals and the methods they utilise to reach them.

[19] Like other organisations, trade unions suffer from the "iron law of oligarchy", where the interests of the leadership can diverge from those of the members (Voss and Sherman 2000). Even an "iron law of democracy" may not be sufficient to prevent union officials from becoming managers of discontent or labour lieutenants of capital. See Darlington and Upchurch (2012) for a discussion of the traditional dichotomy between the trade union bureaucracy and the rank-and-file, and McIlroy (2012), who regards bureaucracy not so much a stratum as a relationship permeating trade unionism.

3.1.3 Reimagining solidarities and social movements

Olson (1965) questioned why rational individuals take collective trade union action even when they share common interests. Whether trade unions can act for workers' interests in general and for more universal human interests depends to high degree on how their members and leaders perceive the idea of solidarity and internationalism (O'Brien 2005). Hyman (1999: 94) explicitly acknowledged the processes by which working class interests are socially constructed and the important role that trade unions play in this. He argued that some notions of worker interests rest on "imagined" or "mechanical solidarities", so that expressions of the general interests of the class have sometimes been representations of the particular interests of relatively protected sections. Instead he proposed a trade unionism based on more "organic solidarities", particularly on the reassertion of the rights of labour against the imperatives of capital, to integrate and promote a far broader set of interests than previous movements (see Simms 2012 for a useful discussion).

Johns (1998: 256) argued that some solidarity campaigns "are designed to confront the class relations between workers and employers regardless of the consequences for any particular locale within the space-economy", what she called as "transformatory solidarity". However other actions, dubbed "accommodationist solidarity", whilst giving the outward appearance of seeking to defend common class interests, "are actually protesting about particular workers' privileged positions within the spatial division of labour and may have nothing to do with challenging the extant class relations of capitalism". Herod (2002: 98-9) took up the distinction between transformatory and accommodationist solidarity, and warned that some international trade union campaigns were "quite politically regressive" and designed "precisely to preserve the vaunted position of some workers in the global economy" – for example those in the global North at the expense of those in the global South. Sometimes segments of capital and labour might construct vested interests in spatial fixes that are complementary of one another. On these occasions "workers may participate in cross-class coalitions not as dupes of capital but as fully aware social actors who perceive their own futures as being dependent upon the success or failure of local boosterism and who act accordingly". Solidarity in the progressive sense of

the term cannot be assumed: it is a path consciously chosen and has to be constituted through struggle.

Social movement theory provides insights into forms of solidarity and the role of trade unionism as a form of social movement (Tarrow 1998; Kelly 2005; Fairbrother 2008; Saunders 2009; Tattersall 2010). The concept of "social movement unionism" originated as a description of militant unions, notably in South Africa, (Lambert and Webster 1988), the Philippines (Scipes 1996), Canada (Gindin 1995), United States (Robinson 2000), New Zealand (Parker 2011) and Britain (Kelly 2005, Parker 2008). As a theoretical development seeking to overcome existing models of economic or political unionism, it is generally credited to Waterman (2001: 26, N.7), although he subsequently abandoned his original conception.[20]

Moody (1997: 4-5, 276) extended the original interpretation of social movement unionism to the international arena in the context of neoliberal globalisation. He argued that social movement unionism aspires to be "deeply democratic", because that is the best way to mobilise the strength of numbers and to apply maximum economic leverage. It is militant in collective bargaining, in the belief that retreat only leads to further defeats. It emphasises solidarity – "an injury to one is an injury to all". It is grounded at workplace level, where organisation is powerful. It is political, acting "independently of the retreating parties of liberalism and social democracy, whatever the relations of the union with such parties". It multiplies its political and social power by "reaching [out] to other sectors of the class, be they other unions, neighbourhood-based organisations, or other social movements". It fights for all the oppressed and enhances its own power in the process. Social movement unions "ally with other social movements, but provide a class vision and content that make for a stronger glue than that which usually holds electoral or temporary coalitions together". This implies "an active strategic orientation that uses the strongest of society's oppressed and exploited, generally organised workers, to mobilise those who are less able to sustain mobilisation: the poor, the unemployed,

[20] Waterman would now reject the interpretation given here as "workerist". For example he has written (2001: 26 N.8): "The assertion of the working class's vanguard role in the struggle against neoliberalism would seem to be empirically in error and prescriptively counterproductive." However Waterman (2008: 307) conceded that "whilst labour is not the privileged bearer of the new global solidarity, it is essential to it".

the casualised workers, the neighbourhood organisations" (see also Voss and Sherman 2000). Democracy, solidarity, militancy, internationalism, independence, workplace organisation and activism: these are crucial values that constitute social movement unionism.

Frege, Heery and Turner (2004: 137-8) argued that integral to social movement unionism is the belief that unions should act in concert with other progressive social forces and particularly new social movements. They defined coalitions as involving "discrete, intermittent, or continuous joint activity in pursuit of shared or common goals between trade unions and other non-labour institutions in civil society, including community, faith, identity, advocacy, welfare, and campaigning organisations". This definition is implicitly opposed to joint union action with state agencies, mainstream political parties and between unions and employers. Turner (2006: 87, 93) believed that for unions to expand their influence, they are required to become "strong, organised actors to promote alternative viewpoints and to build the progressive coalitions". He argued that unions should look in the direction of ecology, because it is "difficult to imagine preservation of the earth and a broadening of human rights unless unions join such coalitions as enthusiastic proponents and partners". Social movement unionism in the context of ecology and climate change would therefore involve transformative, collective solidarity action in pursuit of emancipatory goals together with other progressive allies.

3.2 Trade unions as ecological actors

3.2.1 Class and ecology: a natural synergy?

The environmental, economic and sociological literatures are replete with the notion that workers cannot be ecological agents. On matters of ecology, organised labour has largely been consigned to the recycling bin of history. Scholars supportive of the market approach such as Yandle (1985: 430) believe that trade unions support environmental regulation only in so far as it benefits their members' health or jobs, and that "any resulting rents from environmental regulation may be shared with the union through the bargaining process". Fredriksson and Gaston (1999: 666) also conceived of union environmental activity as rent-seeking or rent-preserving, arguing that this type of environmentalism "can arise without explicit environmental concerns among workers". Unions calling for carbon taxes may be regarded as "foul-weather allies" or "Cheshire Cats", retaining their own job security while foisting unemployment on other (often non-unionised) workers.

Similarly, some proponents of ecological modernisation have rejected a worker-based approach to ecological questions. Mol and Spaargaren (2000: 41) agreed with Beck (1992) that global environmental risks are "democratic", in the sense that they make no distinction between social classes, so "traditional class differences are no longer adequate to understand the distribution of these risks among the population". None can escape the greenhouse effect, mad cow disease or pesticides. Although rejecting Beck's "overstatement of the dissolution of classes in the distribution of risks in late modernity", they agree "the tendency that socio-economic categories (classes) and environmental risks no longer run parallel by definition", and that all members of society have to deal with modern environmental risks one way or the other.

Green political thinkers also share these objections. Eckersley (1992: 123-4) argued that even "ecosocialist theorists recognise that the industrial working class has not only shrunk in size relative to other classes, but has also become increasingly conservative by virtue of its economic dependency on the capitalist order". Most ecosocialists, she believed, accept that the working class – whatever its history – is

"no longer the central agent of progressive social, cultural, and political change". Instead change is more likely to emanate from "a broad front of allied new social movements that operate outside the traditional labour movement and that are not easily defined by their class location". For Eckersley, "environmental problems go beyond class issues". Kovel (2007: 241) has been a trenchant critic of capitalism as the "enemy of nature", while simultaneously rejecting any special role for workers in ecological politics. He argued that the agency of eco-socialism "can be found almost anywhere" and that there is "no privileged agent of ecosocialist transformation".

In 1983 the Ecology Party, forerunner of the Green Party of England and Wales stated that "the politics of class consciousness are at an end" (quoted in Pepper 1986: 116). Porritt argued that the advent of die Grünen in Germany marked the end of "the redundant polemic of class warfare and the mythical immutability of a left/right divide" and that the "genuine redistribution of power can no longer be simplistically interpreted in terms of setting class against class, special interest against special interest: the need to serve the general interest of humanity now transcends any such old-world divisiveness" (quoted in Ryle 1988: 13, 21). Norton (2003: 97-8) was careful not to endorse "environmentalism without class" and keen to champion the positive contribution made by workers to ecological movements. Nevertheless he argued that "generative class theories of environmentalism (as expressive of a particular class interest or class outlook)... are not supported by the sociological evidence". He argued that protagonists in contemporary sociological debates are increasingly less willing and able to defend generative theories of class, even when they accept the existence of class distinctions. For some scholars such as Gorz (1982, 1983) embracing ecology coincided with bidding farewell to the working class. Leahy, Bowden and Threadgold (2010: 863) argued that workers whose daily lives are dominated by hierarchical work discipline cherish their increased remuneration and associated consumer spending, as compensation for their alienated labour. That makes them "unlikely allies for any kind of environmentalist plan that might threaten jobs, raise taxes or reduce consumer spending, all of which seem certain to be necessary to restructure energy and transport to avoid global warming". Here the dull compulsion of capitalist relations simply denude workers of any concern with ecology.

Similarly, the record of organised labour on ecological matters has been challenged. Barry (2012: 227-8) argued that the labour movement has uncritically embraced orthodox economic growth and capital accumulation, and consequently had "an overly narrow focus on issues around formal employment, pay and conditions", supporting coal production, nuclear power and airport expansion. Unions have often "explicitly mis-portrayed environmental conservation issues in terms of 'jobs versus the environment' and sided with political forces for unsustainability – such as the nation-state and corporations – against environmentalists". The trade union movement has become "effectively depoliticised and divorced from a vision of its purpose as the fundamental transformation of social, economic and political structures within society".

These objections all boil down to one crucial area: whether workers and their organisations have a coherent interest in ecological matters. In the case of neoliberal market thinkers, workers interests are reduced to narrow, particular and sectional economic motives, in keeping with their instrumental view of rational actors. In the case of ecological modernisation, worker interests have no particularity at all; they are simply dissolved into a wider general interest. Most ecological political thought echoes these positions while rejecting politics based on class, whether rooted in the limited goals of trade unionism or wider transformatory socialist ambitions. The following section evaluates the arguments for the particular interests of workers in ecology, while the next examines important empirical evidence of trade union engagement in ecological struggles.

3.2.2 Workers and ecology

Utilising the exploitation-based conception of waged labour, it is possible to reconstruct the interests of workers with respect to ecology. Newell (2005) recognised the potential of approaching ecological politics through the lens of class, defined in terms of exploitation, without precluding other lenses such as race and gender. Similarly, Vanderheiden (2009: 45-6) argued that anthropogenic climate change is a case of the world's affluent benefiting at the expense of the world's poor, in a relationship that "can be plausibly described as exploitation". He applauded the fundamental role exploitation plays in Marxist accounts of climate justice.

Burkett (2006: 300) posited the working class as the social agent with the special interest and strategic power to tackle ecological questions. The working class is the agency whose everyday life-activities and struggles (individual and collective) are rooted in, but not limited by, capitalism's dominant form of productive activity: wage-labour and capital accumulation. He argued that workers are the only systemically essential group that "directly experiences the limitations of purely economic struggles over wages and working conditions as ways of achieving human development, given the increasingly communal and global character of the environmental problems produced by capitalist production". Workers are therefore the only agency capable "not just of envisioning but of practically undertaking a planned and life-guided recombination of economic and environmental reproduction". To lead this project, organised labour must struggle not just for "the demarketisation of production and its necessary conditions", but for "its own collective taking, holding and utilisation of these conditions and their conversion into means of sustaining human development".

There is some support for these arguments in the literature. Buttel and Flinn (1978: 435, 445) found it quite problematic "to assert that the working class... is inherently ambivalent toward environmental issues". They found equally compelling reasons why workers should be environmentally concerned, namely that "blue collar workers are clearly subjected to disproportionately large amounts of workplace pollution and working class families objectively possess the most impure and aesthetically displeasing residential environment". They concluded that working class hostility toward environmental issues had "probably been overemphasised in the literature". Similarly, Keil (1994) stressed that working class environmentalism concerned not only the workplace, but also relates to working class communities, including ecological hazards affecting working class neighbourhoods and the greater exposure of economically disadvantaged people to such hazards.

More recently, Obach (2004: 29, 30-1) summarised the sense in which workers have interests in ecological matters. First, "the working class bears a disproportionate share of the harm due to environmental destruction", giving working-class people "a clear interest in environmental protection". Lower-income groups suffer disproportionately from the effects of environmental degradation in terms of its

negative health consequences and other quality of life issues. He added that, "sometimes as a matter of policy, hazardous, environmentally undesirable facilities are sited in or near low-income communities", with serious health implications for those living there. Second, policies designed to protect the natural environment "tend to impose a greater economic burden on the working class". Obach also argued that some research had demonstrated that "environmental concerns are widespread among the working class and that lower-income people are actually more willing than others to sacrifice economic expansion in favour of environmental protection".

The argument developed in this thesis is that workers, as principal victims of ecological degradation, have a special interest in tackling the source of this damage. It is precisely the same mechanisms that give rise to exploitation (longer working day, the reorganisation and mechanisation of the labour process) that also give rise to ecological damage. These analogous, simultaneous processes have a common root in the drives of capital. Silverman (2004: 133) put it succinctly: "By understanding the domination and exploitation of workers and of nature is inextricable, labour environmentalists situate humans within the natural. Exploitation is the unifying term, which makes the common enemy common" (see also Silverman 2006). This implies that workers, who have the incentive to mitigate and ultimately abolish their own exploitation, also have a significant and privileged stake in abolishing the processes that give rise to the degradation of the natural environment. Herein lies the real value of "class-as-exploitation" – it posits working class agency as potentially capable of embracing the general, universal interest of ecology as its own special interest.

These claims in the ecological literature can be extended to workers as climate actors. The IPCC's fourth report (2007b) contained a chapter on industry, settlement and society, which illustrated some of the ways climate change might impact on workers. These included the effects of extreme weather (floods, droughts, storms and fires) on particular industries from energy to tourism and agriculture, to internal working conditions, transportation, migration and health. It briefly acknowledged that many workers' livelihoods can be particularly sensitive to changing conditions affecting local economies. Both Hurricane Katrina and the 2007 floods in England, although not necessarily the direct result of climate change, illustrated the impacts of

extreme weather on production, critical infrastructure, working class communities and particular workplaces (see Elliott and Pais 2006; Pitt 2008).

Workers are likely to be among those most vulnerable to the physical impacts of climate change and to have fewer resources to adapt to climate change, given levels of wages and limited access to means of production. However workers are also likely to be the victims of government policies designed to tackle climate change, especially those that shift the costs of mitigation and adaptation from capital onto labour. Vlachou (2000; 2005) and Brunnengräber (2006) expected workers to struggle against the impacts of climate change and climate policy, generating class struggles between antagonistic social actors. They predicted that climate politics will become another terrain in which class struggles are played out. These struggles may take the form of workplace-based strikes and other forms of industrial action, or they may involve working class communities battling particular climate policies in their locality. These struggles may take a political form in clashes over taxation and fiscal policy, particularly when this impacts on employment.

3.2.3 Trade unions as ecological actors

If workers do suffer disproportionately from ecological problems and from market and state-led efforts to internalise the damage, then one might expect to encounter a reaction on the part of workers to resist these impacts, including organising collectively to do something about it. Gould (1988) traced worker engagement with ecological issues back at least as far as the nineteenth century.[21] Siegmann (1985) examined research on US and German public attitudes towards ecology and found that trade union members were more supportive of environmental concerns than the general public. Whilst trade unionists in white-collar occupations were more sympathetic to environmentalism than blue-collar members, there were significant examples of blue-collar unions enjoying good relations with environmental groups.

[21] William Morris identified working class action as essential for protecting the environment. Shortly after his conversion to socialism (Meier 1978: 425), he looked forward to a time "when the workmen of some manufacturing district will strike to compel their masters to consume their own smoke". Morris made the point more explicitly in a public lecture on 12 December 1882. He said (Lemire 1969: 51): "I have taken note of many strikes, and I must needs say without circumlocution that with many of these I have heartily sympathised: but when the day comes that there is a serious strike of workmen against the poisoning of the air with smoke or the waters with filth, I shall think that art is getting on indeed."

Mason and Morter (1998) examined successful trade union action on ecology in the UK. They found that the TGWU, FBU and ASTMS unions were involved in a high-profile campaign in the 1980s against the use of the pesticide 2,4,5-T, while the NUS seafarers' union and ASLEF train drivers' union campaigned to ban the dumping of nuclear waste at sea.

Despite these experiences, Le Blansch and Lorentzen (1996: 449, 463), reflecting on subsequent European research (the IRENE project) in the 1990s, concluded that workers' and trade unions' inputs on environmental protection were narrow and limited. They found that instead of playing an active, constructive and innovative role, "conflicting interests tend to lead trade unions to play a rather reactive role, primarily defending traditional workers' interests". Only to a small extent were they contributing to environmental protection in a strict sense. For Gregory et al (1996: 442), trade union strategies were "concentrated on the core issues of interest representation: growing or steady income and ensuring optimal employment and working conditions, in the main guaranteed by economic growth and post-war prosperity". They found that workers' views of environmental issues tended to depend on positive or negative linkages to the preconditions and effects of affluence. Gregory et al (1999) found that indifference from national environmental authorities, few legal channels for industrial relations negotiation and limited employer willingness explained these weaknesses.

However certain environmental labour historians have highlighted some outstanding examples of trade union action on ecological issues. These include cases from the United States (Minchin 2003; Rose 2000), Canada (Adkin 1998; Bennett 2007), Germany (Behrens, Fichter and Frege 2003), Italy (Baccaro, Carrieri and Damiano 2003) and Spain (Hamann and Martinez Lucio 2003). The phenomenon is not confined to advanced economies. Workers' action on ecological matters has been evident in Bolivia (Olivera and Lewis 2004), South Africa (Bond, Miller and Ruiters 2000) and Brazil (Estabrook, Siquiera and Machado (2000). In all these cases, workers action allied with environmentalists to form significant and effective coalitions.

Probably the most impressive working class-based ecological movement was led by Australian building workers (see Haskell 1977 for an early assessment). In the first half of the 1970s, the New South Wales Builders' Labourers Federation (BLF) imposed around 50 green bans in the Sydney area. Burgmann and Burgmann (1998: 8) found that the term "green ban" – refusing to work on environmentally injurious construction – was coined by BLF secretary Jack Mundey as a more appropriate description of the conscious refusal to work, known then as "blacking". Some green bans were permanent, some achieved their aims, while others were lifted at the request of local resident action groups or the National Trust.

Mallory (2005) described the BLF at its height as a highly political union taking ecological action. First, most of the BLF leadership were dissident communists receptive to new left ideas. Second, the union had been transformed a decade before by a rank and file caucus who fought for democratic structures within the BLF. Third, the union was able to take advantage of a favourable economic and political situation to improve the immediate conditions of its members by militant direct action. The union also used its power to wrestle more control over the labour process, winning the power to elect foremen and safety officers. Finally, the BLF forged strong links with community organisations. Residents groups appealed to the union for support, but the BLF only gave it if there was a groundswell of local backing. The BLF showed that a trade union committed to green objectives was well placed to achieve these ends. Burgmann and Burgmann (1998: 4) characterised the BLF as an archetypal exponent of social movement unionism. Mundey emphasised that ecology is vital matter of the working class self-interest (Burgmann 2000: 98): "The myth that the environment movement is the preserve of the do-gooding middle class must be exploded. It is, in fact, the workers who are most affected by the deterioration of the environment and it is therefore up to the trade union movement to give it a higher priority to fighting to improve it." In its scope and effectiveness, the green bans movement has yet to be surpassed as an exemplar of trade union ecological mobilisation.

However the BLF were not alone in radically reconfiguring trade union ecological politics.[22] During the 1970s, a significant number of workplace rank and file union organisations in Britain produced workers' plans, in response to employers' restructuring and unemployment. These plans invariably questioned the logic of capitalist production for profit and asserted the need for "socially useful production" – often making explicitly pro-ecology proposals. Probably the most famous was the Lucas Aerospace Corporate Plan, published by the cross-union combine committee in 1976. The plan stated (Wainwright and Elliott 1982: 101-2): "New, renewable, sources and more efficient methods of conversion must be developed. Solutions to the problem based on nuclear power give rise to new problems of health, safety and even survival. Instead R&D should focus on new sources of energy and new types of energy conversion transmission and storage." The stewards detailed designs for ecological heat pumps, solar and fuel cells, windmills and flexible power packs, as well as road-rail public transportation vehicles, hybrid power packs for motor vehicles and airships.

Beynon and Wainwright (1979) found that organised workers in major military contracting firms such as Vickers and Rolls Royce produced similar initiatives.[23] Chrysler car workers also developed this approach, demanding diversification into public transport and agricultural vehicles. A statement from Chrysler stewards stated (Wainwright and Elliott 1982: 142): "The widespread ecological and environmental criticism of the private petrol-driven car as a socially irresponsible form of transport suggests to us that we must explore the feasibility of new kinds of products of a socially useful kind to harness the skills of the existing plant and machinery, and direct it away from a commodity whose profitability and usefulness is rapidly declining." Other similar workers' plans emphasised renewable and environmentally friendly technologies. Workers at GEC Trafford advocated wave, wind and nuclear power – for example in the Severn Estuary (Conference of Socialist Economists

[22] Mundey visited the UK in 1975 and helped spark a struggle to defend the central post office in Birmingham, which involved an unusual alliance between the UCATT building workers' union and the local Victorian Society (Burgmann and Burgmann 1998: 284). The late Peter Carter, a key union organiser in Birmingham at the time, kindly provided press clippings from the campaign, which succeeded in retaining the facade of the post office during the development (communication 24 April 2008).

[23] Dave Elliott generously made his primary source material on Lucas and other worker plans available. As well as versions of the original Lucas plans, the collection included materials from manufacturing firms GEC Trafford, Parsons, Ernest Scraggs, Dunlop and Clarke Chapman.

Energy Group 1977). Räthzel, Uzzell and Elliott (2010) recognised the relevance of these Lucas-inspired workers' plans for climate change (see chapter 5 for further discussion). Whilst it would be mistaken to equate these peaks with an inevitable trajectory, the examples nevertheless demonstrate the potential of organised labour in ecological matters and that ecological interests are a recognisable emergent property of trade unions in certain conditions.

3.3 Trade unions as climate actors

3.3.1 Trade unions and climate change

There is a small emerging literature on trade unions as climate actors, after a long period of neglect. Räthzel and Uzzell (2011) found that despite the inevitable impact of climate change and climate policy on production, research in this field is scarce. Despite being one of the principal social actors in the labour process, trade unions have been largely ignored. Environmental textbooks and climate research into social actors often include business leaders, NGOs and other agents, but few engage directly with workers or with trade unions. This section examines some significant discussions about the climate politics of organised labour, before setting out a theoretical approach for examining UK trade union climate practices.

Trade unions policy has been considered fleetingly within the framework of neoliberal political economy. Boom (2002a: 241-2) argued that "environmental policy is not the core interest of unions, and hence, they often have no policy on this issue". However on environmental policy, "workers prefer direct regulation because this gives the highest level of employment". Boom (2002b: 273) discussed union policy with respect to carbon emissions trading. He predicted on the one hand that trade unions may have a reason to prefer no international emissions trading, because "if the industry has low abatement costs, international emissions trading may mean a loss of jobs". On the other hand, if emissions trading leads to higher profits for industry, this will give unions "a greater opportunity to press for higher wages for their members". Hence trade unions, "not only in high cost countries, but possibly also in low cost ones, will support emissions trading". But Boom also assumed that unions want "costs for industry to be as low as possible", so he expected they would reject a cap on trading, because "such a cap will increase the cost of compliance for industry". These claims appear incongruent: unions may either oppose or support carbon trading while opposing caps on emissions, even though some sort of cap is essential to these trading schemes. Boom seemed largely unable to conceptualise a coherent climate interest for workers.

Recently, other approaches have emerged in the ecological and employment relations literatures. Uzzell and Räthzel (2012b: 255) highlighted the conjunctural importance of climate change for trade unions, a moment when they recognise that "it could be decisive for their future, not only in terms of the effects it will have on jobs, but also for the impact it could have on international solidarity". Similarly, Snell and Fairbrother (2010: 413) argued 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". These scholars have raised the potentialities of union solidarity on climate matters, as well some of the possible contradictions union climate action faces.

Snell and Fairbrother (2010: 421) warned that trade unions confront three analytical challenges as climate actors. First, although vested interests and social justice should not always be viewed as stark alternatives, they do create ongoing tensions, which is why unions are often caught between the dilemma of defending current jobs and making jobs more environmentally responsible. Second, if the social implications of climate change raise the possibility of green jobs, then such jobs are not automatically decent and socially useful jobs. Third, the prevailing ways that most unions organise and operate in relation to environmental concerns are often quite limited. Distinctive forms of solidarity may be necessary to develop awareness and construct strategies to address climate change. To trigger such movement for renewal, there has to be "an impetus or an occasion – a 'crisis' of concern – for leaders and their members". Climate change is just such a crisis. Some unions are in the process of constructing a "politico-ecological" role for themselves that "expresses a 'green' vision for the future of work". However they still need to protect the interests of the workers and members they represent, whose lives depend upon the continuation and expansion of economic activity. Union representatives may be discovering and even embracing a new sense of purpose, but they have to do so within the context of existing global production relations.

The argument can be extended further to suggest that organised labour (principally the trade unions) has the potential to play a hegemonic role in climate politics. Vlachou and Konstantinidis (2010: 47) argued that only a large, sustained coalition of labour and environmental movements, able to "reveal the interconnectedness of

climate change with the class aspects of modern capitalist societies at a global level", could lead to "effective radical interventions to protect the global climate in sustainable and just ways for the worker-citizens of the world". Similarly, Neale (2008: 97) suggested that it is impossible to stop climate change without trade unionists and the left (and much wider forces), because environmentalists cannot do it on their own. A mass climate movement "has to include and mobilise large numbers of working class people". Not all workers are union members, but "the easiest way to mobilise workers is still through the unions". Hale (2010: 263-4) argued that trade unions could become powerful motivators for climate action by working with "third sector" organisations such as local community groups. This is because "individual action on the scale necessary will only emerge through collective decisions in the networks and communities with which people have strong personal affiliations, and which can give them both the motive and opportunity to act".

During the first decade of the new century, the challenge of climate change confronted trade unions across the globe, whether they wanted to face it or not. Some trade union representatives grasped both the conjunctural and epochal importance of climate change, for the sake of their own members, their class and for wider society. Some seized the moment to reorientate themselves for organisational renewal and turned outwards towards new alliances. For others, more immediate and sectional matters continued to dominate. As we shall see, trade union leaders and their members' conceptualised climate change using a variety of discourses and tropes to produce a mélange of responses.

3.3.2 Trade unions and climate discourses

Räthzel and Uzzell (2011: 1221) offered a synthesis of the frames used by unions to articulate their climate politics, based on interviews with key officials. First, the "technological fix" discourse looks to improved technology to both safeguard jobs and protect the environment. The problem with this approach is that "it does not address the societal context in which technological innovations are embedded. The social effects of technological development, like reduced employment, are naturalised". Second, the "social transformation" discourse proposes a comprehensive policy in which environmental protection and societal change are

interconnected. Workers' fears of losing their jobs are understood in broader terms, acknowledging that "people develop their identities through work and therefore transforming production must take into account socially constructed images of work and professions, including social power relations".

Third, Räthzel and Uzzell (2011: 1221-2) registered the "mutual interests" discourse, which focuses on the legitimacy of workers' immediate interests. It aims to resolve the contradiction between jobs and environment by entering into a "horizontal dialogue" with workers about "how their immediate interests can be redefined and reconciled rather than abandoned". It replaces an abstract morality with a focus on interests, cooperation and solidarity. The fourth discourse is dubbed the "social movement" discourse. It includes workers' immediate interests, but places them within a broader notion of general interests. Unions are defined as "actors in the production process, whose role is not only to defend jobs but also to question the given forms of production and develop alternatives". It conceptualises unions as representing not only the interests of workers at work, but society as a whole. Further, Räthzel and Uzzell also discerned a hiatus concerning the role of nature in trade union discourses, bridged only by a South Africa trade unionist who talked about "the metabolic rift between nature and humans". These scholars argue that this conceptualisation "opens up a new perspective, namely the relationship between humans and nature".

The employment relations literature is beginning to yield evidence of a variety of discourses held by particular union leaderships. Snell and Fairbrother (2011: 87-90) examined the activities of four Australian unions, each representing different formulations of climate politics. The Australian Workers' Union (AWU), which represents workers in primary and traditional manufacturing industries, promoted a partnership approach. It has been a vocal opponent of emissions trading, arguing that the Australian government should only introduce it if a global scheme is implemented, because of the threat of carbon leakage. The Construction, Forestry, Mining and Energy Union (CFMEU) adopted a jobs-defence position, while lobbying strongly for federal government funding for carbon capture and storage (CCS) projects. The Electrical Trades Union (ETU), representing workers in power generation, has preferred to encourage the development of renewable energy. Finally,

the Australian Manufacturing Workers Union (AMWU) argued for a comprehensive industrial policy, laying the foundations for a just transition to a low-carbon economy. Like the AWU, the AMWU is likely to lose membership if carbon intensive industries reduce or close their operations. In contrast to the AWU, the AMWU is considered to have the most progressive union environmental policy.

Similar discourses have been found in other case studies of unions elsewhere. The Canadian Auto Workers (CAW), for many years regarded as a model social movement union and now part of the Unifor union, appears before the merger to have accommodated to the same kind of market pressure as the AWU. Hrynyshyn and Ross (2011: 17, 22) argued that the CAW found itself at the intersection of several important political tensions, a clear conflict between "the vested interests of the auto-industry membership in defending their existing (and increasingly scarce) jobs" and the "global ecological interest in averting catastrophic climate change by transforming the industry in which they work, the transportation system, and the urban infrastructure built around it". This was evidenced by CAW leaders' support for automakers' decisions to produce sports utility vehicles (SUVs) in Canadian plants, hostility toward Japanese hybrid vehicles and distancing themselves from the Canadian environment movement.

Nugent (2011: 60-1) studied the United Steelworkers of America (USW) and discerned competing tensions between its own conception of steelworkers' interests with regard to climate change, and those found within ecological modernisation and neoliberal discourses. As early as 1980, a resolution at a USW convention presaged the threat of global warming. In 1990, it adopted a report forewarning that climate change "may be the single greatest problem we face". Nugent argued that the USW "have articulated a particular version of ecological modernisation that seeks to renew postwar Fordist relations between labour, the state, and domestic capital – especially so-called green industries". This alternative discourse – called "green new dealism" – does not fundamentally challenge capitalism, but "it does oppose the free-market logic of neoliberalism and the downward pressures this places on wages and working conditions".

Further evidence for a range of climate discourses at work has emerged from research into "climate champions", which in the UK context are employees who are given a voluntary, unpaid, but semi-official climate role by their employer. Swaffield and Bell (2012: 249-50, 258) found that these champions "consistently constructed the process of social change in neoliberal terms" and "do not challenge the limits that neoliberalism imposes on how we can tackle the problem of climate change". However participants also used a different set of discourses when asked about their own reasons for involvement in the scheme, appealing to ideas of justice, responsibility to future generations and "doing the right thing". Lewis and Juravle (2010: 490-1) found three distinct discourses articulated by climate champions: the neoliberal view that free markets can solve environmental problems; advocacy of some kind of government intervention; and a "dissenter" view. One dissenter argued that "the interests of capital, land (environment) and labour are not the same – they are constantly in conflict – and the idea that 'engagement' could get everyone to sit down and thrash it out amongst friends is flawed... typically labour and more recently the environment, will always tend to be on the losing side".

This three-fold division between market, state and dissenter discourses is similar to the one utilised in this thesis, as the following synthesis will show. Of course, any such synthesis risks conflating important and contradictory ways in which climate is framed. However, as Hulme (2009) pointed out, there do appear to be some strong and distinct meta-narratives for the social construction of climate change, with significant differences of assessment and political conclusions arising from them.

3.3.3 Trade unions as strategic climate actors

Chapter 2 argued that neoliberal and ecological modernisation discourses are hegemonic in current social constructions of climate change. The neoliberal framing conceptualises climate political economy in terms of market failure and concludes that market-based instruments are the principal tools for solving the problem. The role of the state in the neoliberal interpretation is confined largely to making the conditions for markets to function, for example by establishing property rights for emissions trading or by imposing carbon taxes. This framing looks mainly to private business actors to respond to price signals and change the behaviour of firms. The

ecological modernisation discourse accepts the predominant role for markets, but also provides scope for command and control measures, regulation and other non-market instruments in climate policy. This framing extends beyond business and government actors to include non-state actors, such as environmental NGOs and even occasionally trade unions. The Labour government's climate policy between 1997 and 2010 was located between neoliberalism and ecological modernisation, while global climate policy emanating from the UNFCCC and the IPCC also appears on the same terrain.

A Marxist critique of the dominant climate political economy revealed the absence of class dimensions within these discourses. This is reflected in a largely uncritical acceptance of existing structures and institutions as adequate for tackling climate change. In particular, the dominant framings elide the connections between capitalism as the world's dominant political and economic system and the causes of climate change. With an inadequate grasp of the real generative mechanisms driving the burning of fossil fuels, there is no systematic discussion of how to transform and reconfigure social relations to create a low-carbon economy. Class is also largely missing from assessments of the impacts of climate change, from evaluations of the effects of climate policy and from analyses of social agents capable of tackling the issues. Workers are largely ignored, both as interested parties affected by climate change and policy, but also as active agents in remaking social climate relations.

If workers are understood as exploited waged labourers, then it is possible to establish their real interests and powers in nature-society relations, including climate change. However working class interests are not mechanically transposed into working class organisations, nor must ecological matters inevitably translate into working class action. This chapter suggests the potential for trade unions, as workers' organisations within existing political and economic structures, to come to terms with ecological questions. Hyman's (2001) trichotomy of trade union identities and discourses between market, society and class is the primary conception utilised in this study. It is not an abstract normative model, but one that coalesces real structures, social agencies and ideological discourses. The relevance of this model for ecological questions has been noted by Räthzel and Uzzell (2011). In employment relations terms, business unionism prioritises labour market issues such

collective bargaining and the representation and protection of occupational interests. By contrast integrative unionism emphasises wider social justice, political reform and social integration. The class moment is distinguished by a more anti-capitalist orientation, with workers' class interests advanced though militant socio-political mobilisation.

This model can be extended by mapping the ecological and climate discourses onto trade unions. This mapping associates neoliberal climate discourse with the market pole; ecological modernisation with the social integration pole; and the Marxist perspective with the class pole. Using this model, it is possible to deepen our understanding of the policies, behaviours and practices of trade unions with respect to climate change. Trade unionists approaching climate change primarily as a market issue tend to emphasise similar concerns to their employers, including the impact on competitiveness, profitability and employment. These union representatives are generally supportive of market-based instruments such as emissions trading, though they are mindful of effects on the viability of the businesses they organise in. Their climate solidarity will tend to be "accommodationist" towards employers, in the sense used by Johns (1998). Taking neoliberal globalisation as given and in the absence of a global compact, they are likely to fear the effects of "carbon leakage" for employment.

By contrast, trade unionists orientated towards social integration often embrace the discourse of ecological modernisation, with its pursuit of co-benefits and win-wins for social partners. They tend to look to the state for an active industrial policy, one that promotes low-carbon technologies and new green jobs, especially in renewable energy. They are concerned with the wider social justice impacts of climate policy, including the effects of higher prices for fuel poverty and with adaptation to climate changes already underway. These union representatives are likely to "accommodate" more closely with their local states.

Finally, other trade unionists take a more explicitly class-based approach. They are more critical of existing efforts to tackle climate change and are unwilling to entrust action solely to states and markets. In particular they underline the question of who pays and conceive of existing climate policy as taking measures at the expense of

workers. These trade unionists emphasise radical alternative structures and social relations, both domestically and internationally, even when staying within the boundaries of states and capital (such as the workers' plans). They avoid collaboration with employers and the state, but seek an independent stance based on identifiable class interests. They will probably ally with community and other organisations in coalitions and engage in more militant tactics around matters of "transformative" solidarity.

The attitude to climate change represents a strategic choice for trade unionists: the framing of interests, the modes of representation and the methods used to engage with it are likely to depend on individual unions' organisational capacity, leadership reflexivity and their chosen orientation within the market-class-society triangle. The approach does not ignore differentiation between and within trade unions. Union leaderships may pursue strategies incongruent with the general interests of workers, in particular by juxtaposing their members' perceived interests to those of other workers. Similarly, different unions may conceive of climate solidarity in various ways and make diverse alliances or coalitions in framing their own stance on climate change. These strands can be tested empirically by assessing UK trade unions climate practice between 1997 and 2010.

3.4 Conclusion

Understanding capitalism as an exploitative, class society is an important ingredient for climate politics, because it helps to explain the social processes behind greenhouse gas emissions. But the importance of class goes beyond the causes of the problem. Class is vital for understanding the differential impacts of climate change on societies and communities. Workers are among the most vulnerable groups susceptible to the effects of climate change. Workers are also likely to bear the brunt of government and employers' policies designed to tackle climate change in their own way. These tendencies are likely to give rise to class struggle over climate matters.

Trade unions are often regarded as quintessential working class organisations, given their social composition: they are composed of workers who live by selling their labour power for wages. Trade unions may be class formations, but whether they adequately represent class interests depends upon their members, their leadership, internal democracy and political orientation. Some trade unions, their leaders, activists and members have been able to articulate a distinctive class-based ecology in certain conditions. The high points historically of these efforts are probably the "green bans" movement in Australia and the workers' plans in the UK during the 1970s.

There are some signs that trade unions across the globe are beginning to grapple with the implications of climate change. As expected, unions exhibit a wide range of responses to climate change, which depend heavily on the industries they organise in, their leadership and the ability of rank and file members to debate the issues. Trade union climate politics can usefully understood as lying between the market, social (or state) and class structures in which they operate. Whether unions can become outward-facing social movements that incorporate climate change into their core mission is possible, but contingent on the circumstances they work in and the strategies they pursue. These parameters can be tested empirically and form the basis of the following four chapters.

4) The TUC, trade unions and climate politics

4.0 Introduction

This chapter assesses various stances taken towards climate change by trade unions in Britain, principally through the prism of the TUC. This provides an overview of common trade union discourses and draws out some of the contradictions between different union framings, corresponding to the variable geometry of trade unionism identified by Hyman (2001).

Why begin by analysing TUC policy? The peak union body has been neglected by researchers, despite its important relations with other actors. There are a wide range of published and unpublished documents, statements, booklets, minutes and more recently blogs available to scholars for critical examination. According to its official history (Taylor 2000), the TUC is a key national institution in public life. Parker (2008: 563) defined the TUC's role as "a union policy 'think tank', labour movement symbol, exemplar and guide for affiliates, federation to aid the reconciliation of union and other interests, possible coalition partner and supporter of affiliates' revival efforts". The TUC has helped develop, albeit unevenly and cautiously, a workable consensus among UK union on climate change. According to Heery (1998: 342), the TUC's strategy seeks to establish it as a body that speaks "on behalf of a broadly conceived labour interest". The TUC's role makes it a worthwhile site of study.[24]

The approach in this chapter is necessarily top down, although it does not ignore a number of contradictions and tensions. Taylor (2000: 13) quoted the TUC's 1970 report on structure and development, which registered its "perennial problem of reconciling the special interests of particular unions or groups of members with the general interests of the trade union movement and of deciding when which set of interests should prevail". Heery (1998: 356) highlighted the heart of the

[24] TUC policy is set at its annual Congress, which debates individual motions from affiliated unions and also votes on the General Council's annual report. TUC policy papers and submissions to government consultations are voted on by its Executive Committee and General Council, which are made up of senior union and TUC officials.

contradiction, between "attachment to social partnership and a commitment to campaigning and organising trade unionism, which is necessarily oppositional in its stance towards employers". McIlroy (2000: 13) argued that "the TUC pursued an insider strategy... It accepted 'the rules of the game' for insiders", meaning that it is regarded (and regards itself) as a legitimate social actor with access to government.

The focus on the TUC suggests a number of questions: How do trade unions frame climate politics? To what extent have unions really engaged with (or accommodated to) the dominant climate politics? To what extent have unions as a movement articulated their own distinctive conception, based around a separate working class interest? How does the TUC reconcile competing interests, discourses and framings? What are the limits of trade unions' framing? Section 4.1 examines union climate framing in terms of ecological modernisation. Section 4.2 examines the extent to which unions have reflected market, neoliberal discourses. While these framings have been dominant, section 4.3 examines more explicitly class-focused stances.

4.1 The TUC and ecological modernisation

TUC climate policy is probably best characterised as following the ecological modernisation approach. A number of common themes from the ecological modernisation literature are found in the TUC's framing of climate issues: an emphasis on state intervention to deal with recognised market failures; support for target-setting and other non-market forms of regulation; an emphasis on science and technology; a focus on social justice and on social integration; and the conception of unions as a legitimate stakeholder partner deserving of a place in national (and international) policy making. This is drawn out by examining the origins and development of TUC policy on climate change. Although there were pressures in other directions too – notably from the market and from class – understanding TUC climate policy initially through ecological modernisation provides the best starting point for evaluating its behaviour.

4.1.1 Origins: climate change within a "balanced energy policy"

From the early 1970s, trade unions began to engage with the burgeoning environment movement. Probably the earliest significant reference to climate change in the TUC literature came from John Davoll (TUC 1972: 46), director of the Conservation Society, who warned a TUC *Workers and the Environment* conference in July 1972 "your carbon dioxide and burning of fossil fuels changes the composition of the atmosphere and raises the possibility of changing global temperature". Historically, the TUC supported the "balanced" development of all energy sources – a formulation that encapsulated a series of ecological modernisation themes around state intervention, technological solutions and multi-stakeholder interests. This "balanced energy policy" (TUC 1988d: 3), formulated just before the first oil price hike and reaffirmed subsequently, assimilated climate change during the mid-1980s.[25] An early mention can be found in an internal TUC document, *Acid Deposition and Power Station Emission Control (Draft)*, 19 July 1985. The report stated (TUC 1985c: 1-2): "There is also much concern, in another context, about the so-called 'greenhouse effect', which has been variously traced to emissions of carbon dioxide, methane, ozone, chlorofluorocarbons, nitrous oxide and certain rare gases." This paragraph was also used in *Acid Deposition and Power Station Emission Control. A Statement from the TUC Energy and Social Insurance and Industrial Welfare Committees* (TUC 1986c), the first TUC public policy statement that mentions global warming.[26]

Another early reference came during acrimonious discussions around nuclear power, when leaders of the NUM and FBU unions advocated phasing out nuclear energy and were opposed by larger unions organised in the energy sector. In 1987, the TUC General Council report *Nuclear Energy* (TUC 1987c: 44) highlighted "a particular concern, on which too little is yet known, must be the so-called 'greenhouse effect', whereby carbon dioxide emissions from all fossil fuel burning is thought to be

[25] Walker and Cook (2009: 388) argued that the notion of balance "is fundamental to all forms of ecological modernisation".

[26] Paul Hackett (1991: 17), the TUC's first environmental policy officer, argued that it had taken so long for trade unions to tackle issues such as climate change because "the 1980s were, after all, an extremely difficult period for unions. Rising unemployment, massive industrial restructuring, falling membership, the assault on union organisation and the ascendency of free market policies preoccupied unions and left little scope for developing new priorities".

causing long-term changes to the world's climate, which could have catastrophic consequences". A further report, *Nuclear Power and Energy Policy* (TUC 1988d: 13) expressed the scientific uncertainty at the time. It stated: "In the longer term, all fossil [fuel] burning involves emission of carbon dioxide (CO_2), which is associated with the possible 'greenhouse effect', whereby some of the sun's rays hitting the earth are unable to be reflected back into space, so causing a rise in the temperature of our atmosphere." The report concluded: "Too little is still known about the greenhouse effect to be sure of its causes and consequences, but it is giving rise to concern in many countries."

In 1988, climate change was discussed for the first time at TUC Congress, although it was hardly an auspicious beginning. Global warming was raised during another fractious debate between advocates and opponents of nuclear power. Bill Brett of the IPMS union (TUC 1988b: 548), spoke on behalf of members who had brought climate science to public attention, as well as members in the nuclear industry. He called for "a greater research and development impact on the problems created by acid rain and, perhaps more seriously, the greenhouse effect". He moved an amendment to a motion on nuclear energy at the TUC on 7 September 1988, which stated (TUC 1988b: 681): "Congress expresses its concern about the substantial environmental impact of non-nuclear energy and calls upon the government to commit substantial resources to research into the growing problems of 'acid rain', the 'greenhouse effect' and the environmental impact of tidal barrage schemes." Other contributions focused on the contentious issue of phasing out of UK nuclear reactors rather than climate change. Both the amendment and the motion were defeated in the stalemate.

Nevertheless climate change came back as part of an environment motion to the 1989 Congress (TUC 1989b: 582), where the gathering recognised "the now incontrovertible evidence that global warming, acid rain and the depletion of the ozone layer together pose a major threat to the survival of humanity". The motion was passed with much hyperbole, with Brett (TUC 1989b: 385) warning that "if we do not do something about the greenhouse effect it will end civilisation". The Congress endorsed the TUC's *Towards a Charter for the Environment* (1989d: 10), which called for governments to implement United Nations targets for a 20%

reduction in global CO_2 emissions by 2005, compared to 1988 levels. Hackett (1992) noted that the TUC established an Environmental Action Group, consisting of prominent general secretaries and other officials to investigate the issues further.

However the connection between climate change and other trade union concerns remained fraught, as an exchange (TUC 1989b: 482-3) during the energy policy debate the following day made clear. Gordon Bellard (EMA) argued provocatively that, "The increased awareness of the effects on the environment through the burning of fossil fuel, acid rain and the so-called greenhouse effect, has cast doubt on the increased use of coal as a major source of energy production". Arthur Scargill (NUM) responded that emissions targets could still be met while retaining the existing coal industry and opposing nuclear power.

At the 1990 Congress, the General Council produced a *Report on the Environment* and delegates discussed the first separate motion devoted to climate change. The resolution (TUC 1990b: 560-1) recognised "the enormous threat to the people of the world from the effects of 'global warming'", stating that, "It would seem that unless immediate action is taken to reduce the emission of numerous industrial gases into the atmosphere, millions of people around the world face catastrophe within the next ten to twenty years". The resolution recognised that the newly-established Intergovernmental Panel on Climate Change (IPCC), whose reports on global warming "will have profound implications for industry". Congress resolved to set up a special climatic working group that would "examine how, with the minimum damage to jobs and the standard of life, progress can be made towards reducing the threat of the devastating consequences of global warming". The motion (TUC 1990b: 353-5), moved by Diana Warwick from the AUT university teachers' union called for "steep cuts in emissions of carbon dioxide and other greenhouse gases". The Thatcher government had proposed a target to stabilise 1990 emission levels by 2005, which Jimmy Knapp (NUR) said many in the unions regarded as "too modest".

Having grasped the rudimentary science, trade union leaders appear to have baulked at the political consequences of following through consistently on policy. In particular, they began to perceive that the effects of climate politics on jobs and workers' living standards might be quite stark. The climate group was never

constituted. Facing another Conservative government and with the onset of recession in 1992, as well as the pit closures crisis and further decline in membership, unions appeared to recoil from the challenge. For Carter (1997: 196) this was illustrated by their response to the Labour Party's *In Trust for Tomorrow* (1994), which emphasised sustainable development and renewable energy and called for a moratorium on road building. At the 1994 Labour conference, "the powerful TGWU and AEEU voted against accepting and GMB abstaining, as union leaders expressed concern about jobs in the open-cast mining, nuclear energy and road-building industries". For several years afterwards, union climate politics fell into abeyance.

4.1.2 TUC climate policy under Labour (1997-2010)

The election of the Labour government gave a significant spur to TUC framing of its climate policy in ecological modernisation terms. In December 1997 after the Kyoto agreement, Tony Blair called business and trade unions leaders to a green summit and asked them to help combat the threat of climate change. One of the fruits of this insider status was the formation of the Trade Union Sustainable Development Advisory Committee (TUSDAC) on 6 July 1998. Its terms of reference (TUC 1998a: 153-4) included "to provide a trade union perspective on the employment consequences of climate change, and the response to it". TUSDAC was precisely the kind of government-stakeholder vehicle propagated by ecological modernisation thinkers.[27]

Perhaps the best illustration of the TUC's ecological modernisation approach was its support for the Labour government's third term climate policies. A key role was played by TUC policy officer Philip Pearson, who was responsible for the TUC's environment work from 2004 and convened TUSDAC meetings. Environment secretary David Miliband (TUC 2006b: 79) addressed Congress in September 2006 and appealed for trade union engagement with climate change in ecological modernist terms. He also spoke to the TUC General Council on 25 April 2007 in

[27] The final *Climate Change: UK Programme 2000* document (DETR 2000: 45) stated: "There is great potential for trade unions and their representatives to work in partnership with the government and businesses to address environmental issues and to promote initiatives in the workplace. Trade unions can help to ensure employee support for new programmes that are aimed at reducing emissions." A similar statement was included in the 2006 programme (Defra 2006: 60).

support of the Climate Change Bill. He argued (TUC 2007h: 6) that trade unions were central to the climate battle, how climate change would "hit the poorest hardest", emphasising the new jobs potential and how unions could recruit new members.[28]

TUC general secretary Brendan Barber (TUC 2007k) welcomed the Climate Change Bill when it was first read in parliament in March 2007. The Bill was discussed at the TUC's *On Target?* conference in June 2007. Going further than the government's proposed 60% target for CO_2 emissions reductions by 2050, union officials (TUC 2007a: 65) argued "for a tougher 80% reduction target, in line with the latest scientific evidence". The Bill proposed an expert climate change committee to advise government on progress towards targets and a mandatory annual report to parliament on progress. The TUC Congress in 2008 endorsed support for the Bill, including amendments on adaptation to climate change. The TUC called on the government (TUC 2008a: 75) "to provide stakeholder representation on the Committee on Climate Change, or set up a similar tripartite body" and lobbied for a distinct trade union role and employee engagement. TUC officials and representatives from Unison public services union worked with NGOs to lobby MPs, adding their weight to demands for a higher long-term target to curb emissions. Whilst it did not gain further representative rights, the TUC (2007a: 65) "secured funding from the Carbon Trust to develop a GreenWorkplaces project to build capacity within the trade union movement to address climate change and energy issues in the workplace" (see chapter 6 for a detailed discussion).

The TUC's approach to adaptation also had clear ecological modernisation undertones. Congress (TUC 2005b: 25) called on the government to develop and implement climate change adaptation strategies. Work on developing a distinctive union approach began with a seminar for affiliates in November 2007, where "speakers from TUSDAC, the UK Climate Impacts Programme and the Association of British Insurers examined the impacts of climate change and some of the

[28] At the TUC's *Going Green at Work* conference, 15 March 2010, climate minister Ed Miliband posed union engagement with climate change in terms of equity with three dimensions: intergenerational justice; between developed and developing nations; but also more significantly "at home", for example with higher energy bills. He argued that this view of equity required a "just transition" approach to resolving climate change (Field notes, 15 March 2010).

adaptation options". In April 2009, the TUC published a report by AEA consultants, *Changing Work in a Changing Climate* (TUC 2009a), which recommended government guidance on adapting workplaces to deal with the impacts of climate change. It argued that employers should be encouraged to adapt buildings so staff could work securely and comfortably, and renewed a longstanding health demand for a maximum indoor workplace temperature, above which employees would not be expected to work.

The report cited the FBU's demand for a statutory duty on fire and rescue services to respond to flooding, as evidence of union's adapting policy to climate risks – in this case the 2007 floods (see FBU 2008; FBU 2010). An important distinction was made between inward-looking and outward-facing adaptation. The study found that "a number of employers were beginning to think seriously about the impacts of climate change and adaptation in an outward-facing manner: that is, looking at impacts on their business planning, markets and services". However, very few were also looking at inward-looking adaptation: "the need to look at impacts on workers and engage with them to develop adaptation measures that are workable, fair and sustainable in the longer term". The TUC was given a representative on Defra's adaptation partnership board alongside employers' organisations and NGOs (Field notes 2 November 2009).

Another illustration of the ecological modernisation framing of its climate policy was TUC support for state intervention to shape the low-carbon economy. Congress 2005 passed a resolution (TUC 2006a: 78) that called for the government "to develop a green industrial strategy, embracing the employment, training and research aspects of a new energy policy". In its April 2009 submission, *A Budget for jobs and green growth* (TUC 2009c: 5), TUC officials called for £25bn public investment, including a green public works programme. Pearson (2009d) called the TUC's package "a stimulating two-thirds pure green", with proposals for green manufacturing and renewable energy, a green rail stimulus, making the UK "a leader in low-carbon vehicles and action on home insulation". It also called for a range of "environmentally-neutral labour market support programmes".

At its *Green Growth* conference in April 2009, the TUC published its *Unlocking Green Enterprise* pamphlet (TUC 2009e), which called for a more state-interventionist green industrial strategy. TUC Congress welcomed the government's low-carbon industrial strategy, published in July 2009, arguing (TUC 2009a: 72-3) that "in order to make progress during the economic slowdown, an active industrialism approach was necessary, including government intervention around regulation, procurement and funding mechanisms". The General Council report enthused about the planned "Forum for Just Transition" made up of unions, business and government to advise on climate change policy to oversee the low-carbon industrial strategy.[29] In addition, TUC leaders welcomed the announcement in the March 2010 budget of a £2bn Green Investment Bank, with a mandate to invest in the low-carbon sector, considering new energy and transport projects in particular, and focusing initially on offshore wind generation. TUC policy officer Tim Page (2010) blogged that "surely the days of laissez faire industrial policy, when only the 'market' decided what was in the country's economic interests, are well and truly behind us?" Such technological optimism was short lived; the policy and the Forum were jettisoned by the Coalition government two months later.

A final illustration of TUC framing on climate change that fits closely with ecological modernisation is the emphasis on union partnership with employers and government. This was clear from the initial grounding of union environmental work in a less confrontational approach to employment relations. An early TUC memorandum (TUC 1991e: 9-10) stated that active trade union involvement in environmental protection at the workplace level "requires a new approach, based on partnership, cooperation and joint working. The traditional adversarial approach to industrial relations is not sufficient and may undermine environmental protection". This partnership approach was evident with the creation of TUSDAC. The TUC General Council report (TUC 1998a: 152-3) argued that TUSDAC formed the basis for a partnership or multi-stakeholder approach based on the "interested parties" concept.

[29] The Forum for a Just Transition, formally announced by government at the TUC's Beyond the Crisis conference on 16 November 2009 by business minister Pat McFadden, met on two occasions (9 December 2009 and 10 March 2010). It was not convened by the Coalition government (McFadden 2009; Field notes 16 November 2009; TUC 2010g: 12).

The renewed emphasis on government climate action in the Labour administration's third term prompted the TUC to renew its multi-stakeholder approach. A TUSDAC paper (2005f: 2) on the UK climate change programme stated that "the social partners should work closely together in key sectors, such as energy and transport, to help achieve the government's climate change targets". However TUSDAC (2005b: 4) was initially disappointed that the government's climate change review lacked "a coherent vision of how the social partners are to work together successfully to achieve the government's challenging climate change targets". A Congress motion (TUC 2005b: 25) called for the government "to work with the TUC on the development and implementation of climate change mitigation and adaptation strategies". These must include "clear expectation of employers that they work in partnership with trade unions on this agenda".

Similarly, the TUC welcomed the publication of the Stern Review in these terms. Barber (TUC 2006i: 1) said: "This review shows that immediate action against climate change could boost the economy... [and] could also benefit British business and create jobs". The day after the Stern Review was published, ministers argued at a TUSDAC policy group meeting (2006c: 3) that it was "the route map for the post-carbon consensus". The TUC response was to offer "a partnership approach on climate change". Although the partnership envisaged by the TUC was never consummated with the Labour government nor with employers' organisations, the intention to engage with a wide range of social actors with climate change was articulated by leading trade union bodies.

4.1.3 Unions and carbon capture and storage (CCS)

In the last days of the Labour government, Peter Mandelson and Ed Miliband, the ministers responsible for climate policy announced (DECC 2010a: 1) that there was "no solution to the problem of climate change without a solution to the problem of coal". The solution they advocated was carbon capture and storage (CCS).[30] Tjernshaugen (2011: 228) suggested that some envisioned CCS as a magic bullet or even a "moon landing project" to solve climate change, while Gilotte and Bosetti (2007: 4) saw it more realistically as a pragmatic technology for difficult times. By contrast, Monbiot (2008) regarded CCS as "another great green scam", while Hansen (2009a) chastised "clean coal" as a "dirty trick", describing the trains carrying coal to power plants as "death trains" and coal-fired power plants as "factories of death".

Energy union leaders and TUC officials have long promoted "clean coal", although there was early acceptance (TUC 1988d: 13) that "there is unlikely ever to be completely clean combustion of fossil fuels". The NUM was a vocal supporter of British Coal's pressurised fluidised bed combustion project at Grimethorpe, but the Conservative government closed it in 1993. In the context of climate change, the NUM (2004: 4) expressed its view that "the Kyoto sacrifice in the UK has been made almost entirely by the mining communities, and they have little to show for it". A Congress motion (TUC 1997b: 28) stated that "the UK success in reducing CO_2 emissions has largely been at the price of colliery closures in 1993" and that the UK ability to meet its emissions targets "was largely related to the artificially imposed 'dash for gas'". EMA delegate Bob Milkins (TUC 1997b: 55) feared that Kyoto targets "would close or bar two coal fired power stations, close all other large combustion plants, close the remaining pits, all at a cost of some 70,000 jobs, and would result in the urgent need for another fifteen gas fired power stations".

The TUC wholeheartedly supported CCS in strongly ecological modernisation terms, though with an eye for a market opportunity. From 2002, when the first Congress resolution (TUC 2002b: 200) was moved by Sue Ferns (Prospect), support for CCS has stretched across the broad spectrum of union leaders within the "balanced energy

[30] See Scrase and Watson (2009a; 2009b) and Herzog (2009) for UK government CCS policy and IPCC (2005) for CCS in international climate politics.

policy" consensus. Pearson (2009b) articulated the union case for CCS clearly in ecological modernisation terms. Rejecting charges of "greenwash", he argued that unions' focus was not just on the capture of CO_2 from the UK's fossil fuel plants. Rather, "CCS is an essential if the increase in CO_2 emissions from the rapidly developing economies of China, India and other nations reliant on coal are to be contained and reduced". Although historic responsibility for CO_2 emissions lay with the developed world, "if developing countries need 'space' to grow their economies, then we have to provide the means for a low-carbon future". Pearson also took the wider heavy industry perspective, given that 60% of global CO_2 from fossil fuels originated from power stations and energy-intensive industries like steel, cement and aluminium. A critical argument concerned workers in those plants. He asked: "What do you say to the tens of thousands working in these plants? To shut them all down? Or, as we believe, to use cap-and-trade strategies to stimulate the application of low-carbon technologies in their place – through CCS, ultra-low-carbon steel making, and other technological changes". The success of CCS is "not simply an environmental necessity for trade unions" but could be extended to steel manufacture, chemicals, paper and pulp manufacture and other energy intensive sectors. CCS was not "blagged as an imminent fix", but rather "just a seriously urgent issue".

Other justifications for CCS were posed in terms of international market competition. At Congress in 2004, Patrick Carragher (BACM-TEAM) said (TUC 2004b: 51): "I seem to recall that 15 or 20 years ago the UK was at the forefront of research on clean coal technology... We have lost ground since the privatisation of the British coal industry on that issue". Tim Davison from Amicus union (TUC 2005b: 99) put the market perspective even more tersely: "Restoring the UK's international lead in clean coal technology could help develop a strategically important export industry". When the first CCS plant in Spremburg opened in 2008, Ian Lavery (NUM) told Congress (2008b: 103): "We are lagging behind Germany and other parts of the world in terms of innovation and the manufacturing of these clean coal carbon capture storage power stations, and it is not acceptable, comrades".

In 2006, the TUC established the Clean Coal Task Group, a joint industry, unions and government advisory body to progress its CCS policy. It published *A framework for clean coal in Britain,* and other documents highlighting the policies needed both

to successfully develop clean coal-fired power generation plant, linked to carbon capture technologies, and to secure a long-term future for UK-mined coal. The TUC co-organised a clean coal technology conference in Sheffield on 24 April 2007, attended by 100 delegates. The NUM report of the event (2007: 3) stated that CCS meant "coal need not be black, it can be green".

TUC and energy union officials lobbied the government with a range of proposals, arguing that the market alone would not provide CCS. A Congress resolution (TUC 2007b: 23) demanded "the urgent commissioning of new coal power stations that are carbon-capture ready" and for more fiscal and other inducements "to incentivise the investment in new capacity, such as carbon pricing or a clean carbon obligation comparable to the renewables obligation". TUC officials (2004b: 51; 2008f: 7) pressed the government and the EU to increase the number of CCS demonstration plants, with a view to full commercialisation, and for an appropriate regulatory framework. TUC leaders advocated a range of measures to fund CCS. An early Congress resolution (TUC 1999b: 13) suggested that the government should "use funds from the climate change levy to guarantee a programme of new clean coal technology power stations in the UK". Later TUC officials argued (2008f: 7) for "urgent consideration" for a CCS Obligation - a mechanism whereby "the additional cost of CCS would be spread over all electricity supplied, as occurs for renewable electricity, rather than falling on the Treasury".

A test case for TUC policy was the proposed new coal-fired power station at Kingsnorth in Kent, which energy firm EON planned to build on the site of its existing plant. The proposal was opposed by environmental organisations and was the site of the Climate Camp in August 2008. TUC and union officials with members on the site publicly supported both the building of the new plant and its inclusion in the government's CCS competition. TUC leaders (TUC: 2008n: 1) stated publicly that "new coal stations – like the proposed Kingsnorth project in Kent – are 20 per cent cleaner than existing coal-fired plants and will be 80-90 per cent cleaner once carbon capture and storage is added".

Pearson (2008a) blogged just after the Climate Camp that "we have supported Kingsnorth, unabated yes, but with the potential to become the UK's first clean coal

plant. But the government hasn't yet mandated CCS for coal, now or at a known future date. Nor has it set out a policy framework to secure clean coal and gas stations for the future". A TUSDAC discussion paper (2008c) on Kingsnorth welcomed the proposal to build the new plant, but wanted a clear commitment from EON and the government on carbon capture on the site. Pragmatically, it pointed out that "in practice, if Kingsnorth does not proceed this would likely mean extending the life of the older polluting fleet". The union position was conditional on the plant being "capture-ready".

Other union interventions into the debate were more-eye catching. Arthur Scargill (2008) made a rare public appearance at the Climate Camp, declaring that "coal isn't the climate enemy, it's the solution". This intervention was organised by NUM official Dave Douglass, who was also the driving force behind a debate between trade unionists and climate activists on 1 November 2008 (see Schlembach 2011: 203-4). The event, *Class, Climate Change and Clean Coal*, was held in Newcastle and backed by the NUM and RMT. Over 60 trade unionists, socialists, anarchists, greens and climate activists engaged in what Cunningham (2008) described as "frustrating attempts to find a middle ground". Although nothing further came from the debate, it certainly indicated some potential polarisation between class and climate.

In 2009, EON shelved plans to build the new plant and a year later withdrew from the competition to build a CCS demonstration plant at Kingsnorth. The TUC response was bitter. Pearson (2009i) blogged that EON's announcement "will accelerate gas dependency, despite the recession. It will also delay the UK's carbon capture technology platform". He argued for "a middle way to ensure that CCS is built in the UK, with at least four UK-based full size clean coal power plants with CCS going ahead, within a defined and urgent timetable together with full financial support".

It would be superficial to argue that CCS was a fudge between jobs and the climate. There were few direct or indirect jobs in CCS before 2010 and if unions were only really interested in jobs, then these were future notional jobs rather than actually-existing employment during this period. A more plausible argument is that CCS is a

climate fudge. As a potential technology, it could not immediately contribute to emissions reductions. It was promissory, holding out the possibility of future emissions reductions if the technology could be developed at a market cost acceptable to industry and government. The TUC and energy unions believed they were strategic and farsighted. Given the scale of coal reserves and the extent of demand for coal globally, the idea of "leaving it in the ground" had little purchase. CCS is a technological fix in in ecological modernisation terms, but not a fantasy technology, given that its basic components were already in use across the energy industry. But union leaders supporting CCS did not call for a moratorium on new coal-fired power station until CCS was developed. Such an approach would not be sustainable indefinitely in the context of aging UK energy infrastructure.

4.2 The TUC and the market

Although much of TUC framing of climate change was expressed in ecological modernisation language, other stances were articulated in market terms. As discussed in Chapter 2, there are fields of symbiosis between the two main conceptions of climate politics and this is reflected in union discourses. The latter accommodation was clearest with respect to market instruments such as the European Union's Emissions Trading Scheme (EU ETS) and with Heathrow expansion.

4.2.1 The TUC and EU ETS

Emissions trading has generally been the centrepiece of market-based, neoliberal responses to climate change (see Chapter 2). Emissions trading was proposed early in the development of climate politics and TUC officials expressed some reservations. The TUC's submission to the 1990 *White Paper on the Environment* (TUC 1990d: 14) stated that "some countries will find it extremely expensive and difficult to comply with permit standards". It warned of the danger of a "free rider" problem that could "hinder agreement on new targets, as countries with high compliance costs will be concerned at the impact on their domestic industries". However it also saw the advantages of traded permits between governments. This could mean "some of the industrialised countries, at the moment some of the biggest contributors to greenhouse gases, purchasing permits from less developed countries". This would allow "the industrialised world to ease the cost of transition towards less polluting production and could provide developing countries with valuable foreign exchange to protect their own environment and develop clean industrial technologies". The TUC submission warned that the practicalities of such a scheme would have to be worked out, and "two key considerations would be the need for effective monitoring and resistance to lobbying by industrial interests for the issuing of more permits".

TUC leaders contributed to government consultations on the various phases of EU ETS. In July 2004, TUSDAC (TUC 2004a: 64) discussed the likely impact of the first phase of emissions trading on manufacturing, electricity generation, coal-fired generation, renewables and nuclear, with particular emphasis on the employment impacts. The committee discussed a paper from the ISTC (2004: 1-2), which argued

that the way EU ETS was being introduced "is causing the steel unions and other unions with involvement in manufacturing and electricity generation some problems". It warned of the possible closure of the Corus plant on Teesside. The ISTC paper argued in market terms that "the British steel industry and manufacturing generally will be put at a competitive disadvantage to the rest of the EU because of the unduly rigorous way British ministers are approaching their commitments". A subsequent Congress resolution (2004b: 25) noted that "there is considerable uncertainty about the implications of the EU Emissions Trading Scheme for prices, investment and employment".

The renewed priority given to climate change during the third term of the Labour government convinced many union officials to back EU ETS and use it for both environmental and industrial objectives. A TUSDAC paper (2005c: 1-3) submitted to the government consultation on the ETS Phase II recognised "the central importance of the ETS in reaching the UK's Kyoto-plus commitments" and that the scheme was "seen to be an effective market mechanism for participating member states". It argued that development and offsetting projects should be subject to "rigorous standards" and "independent evidence of employee engagement". TUC officials (2006f: 2-3) also suggested that proposals for new entrant power plants under Phase II would "act as a disincentive to invest in clean coal technology allied to carbon capture, and have a negative impact on investment in the UK". These papers indicated critical support from TUC leaders and officials for the central market mechanism for tackling climate change.

The TUC leadership's view was pragmatic: EU ETS was better than no action by government and employers on climate change. They therefore sought to push through the market mechanism to win some bargaining gains. A TUSDAC draft paper (2007e: 1-2) on EU ETS argued that the scheme was "the most significant attempt by any nation, or set of nations, to impose an effective limit on greenhouse gas emissions" and "by a long stretch the government's most effective market-based initiative to deliver cuts in carbon emissions through carbon pricing". The paper said the TUC "supports the auctioning of a higher percentage of allowances, particularly for the power generation sector, to avoid distortion of the carbon price".

The TUC submission (2008j: 1-2, 9, 13) on Phase III stated that EU ETS was "central to our shift to a low-carbon future". It claimed that the success of the scheme was "vital in securing a stable long-term policy framework, cutting greenhouse gas emissions and securing quality jobs and investment". However based on experience to date, the TUC was concerned about "the effectiveness of this approach and about the scope for market manipulation". It urged the government to create "a joint ETS policy-making forum with industry and trade unions to secure the scheme's huge potential environmental, economic and social benefits", an observatory to monitor and report on the industrial and employment impacts of the EU ETS in carbon-sensitive industries, and for auction revenues to establish a just transition fund supporting the rapid shift to low-carbon economic growth.

These proposals were not taken up either by the EU or the British government. However earlier sectional tensions resurfaced within the TUC discussions. As Phase III approached, the TUC General Council report (2008a: 74) argued that energy intensive sectors were concerned "over the exposure of these sectors to international competition from nations not covered by carbon reduction policies". Unions in the sector called for impact assessments on such industries and for "a long-term policy framework capable of securing a realistic price for carbon to stimulate investment in low-carbon technologies". A Congress resolution (TUC 2008b: 20, 128) moved by Community demanded "an EU-wide import adjustment system for energy intensive industries", to avoid the problem of carbon leakage and the negative impact on the competitiveness. As Community general secretary Michael Leahy put it: "If the trading of emissions is not set up effectively, we run the risk of losing more than our manufacturing base. However, it is not only jobs that will be lost; it will almost certainly be the chance to reduce carbon emissions."

4.2.2 Other market instruments

Pearce (2006: 155) described the Climate Change Levy (CCL) as "an eclectic energy tax rather than a carbon tax concern". He argued that because of "traditional political allegiances" between the Labour Party and trade unions, it was designed so that "the carbon-intensive coal industry could not be damaged further". In fact, union discourse on the levy was openly sectional and largely within the bounds of

neoliberal market policy. Participants at an early TUSDAC discussion (1999a: 3), feared that trade unions would be used as "cannon fodder" between employers and the government. At Congress, John Edmonds said (TUC 1999b: 61-2): "If you look closely, you will see that the trades unions were not involved at any stage... the current negotiations between industry and government exclude the trades unions entirely. This is both stupid and dangerous." He said that unless government learned some hard lessons from the experience of the levy, "they run the risk of turning us from enthusiastic allies into rather resentful opponents. It is the duty of friends to give timely warnings, and that is what I give today".

Many of the contributions to the Congress discussion (TUC 1999b: 62-5) echoed business concerns. Edmonds said: "It looks as though the levy will hit much of manufacturing industry like a body blow, and this is the wrong time to put further pressure on manufacturing industry." David Boyle (GMB) argued that "there is a real danger that the Climate Change Levy will destroy jobs – British jobs – without making any improvement in the global climate". He added: "We say to the government, what is the point in achieving clean air at the expense of industrial wastelands?" Allan Card (AEEU) quoted from a business report, which estimated that over 150,000 jobs could be lost over the following decade as a result of the levy.

The General Council's assessment a year later (TUC 2000a: 92) expressed some satisfaction with the outcome of lobbying by employers and unions. It stated that concerns about the impact of the levy on competitiveness were "alleviated by the announcement in the pre-Budget report of greater discounts for intensive users and other changes in the way in which the levy will be charged". After the government implemented the modified levy in 2001, the General Council (TUC 2001a: 67) accepted that the changes had met its principal concerns on jobs.[31]

Another illustration of unions working through market mechanisms was the Carbon Reduction Commitment (CRC). The CRC was a market-based instrument arising from the Climate Change Act to create a CO_2 cap-and-trade scheme involving 20,000

[31] Subsequent research by Martin, de Preux and Wagner (2009: 3) did not find "any statistically significant impacts of the tax on employment" and suggested that "worries about adverse effects of the CCL on economic performance are unsubstantiated". The CCL also provided funding for the Carbon Trust.

of the largest public and private sector organisations in the UK – central government departments, local authorities, hospitals, prisons, schools, universities, shops, hotels and banks. The General Council (TUC 2009g: 2) supported the CRC because it provided "a major opportunity to encourage and develop active, pro-environmental employee behaviours at work". The Executive Committee (TUC 2009k: 17) argued that it provided affiliated unions with "further opportunities to deliver emissions reductions through social partnership".

TUC officials (Pearson 2009h) successfully lobbied the government for "employee engagement" to be one of the criteria for compliance. This would mean: "energy management training is offered to the majority of employees in your organisation"; "active employee working groups on energy management, which report to senior management, and take forward initiatives to reduce the organisation's carbon emissions"; and "where an independent trade union is recognised for collective bargaining purposes, energy management issues are considered in these joint discussions and members actively take forward initiatives to reduce the organisation's carbon emissions". Climate minister Ed Miliband (2009a) wrote to the TUC: "I agree with your view that employee engagement will be vital in achieving the kind of behaviour change that CRC seeks to generate. I am therefore pleased to say that we will be including a tick box as you suggest, which will form part of the voluntary information that organisations submit alongside their annual emissions data." The TUC and the PCS civil service union published guidance on the scheme when it came into force in April 2010 (Pearson 2010b). However it proved to be a pyrrhic concession, after the scheme was aborted by the Coalition government.

4.2.3 Union support for aviation expansion

Aviation expansion provides another example where some union leaders reduced class interests to sectional occupational concerns on climate matters. Aviation is for some the symbol of modernity, an exotic expression of freedom. Walker and Cook (2009) found that in the quarter of a century after 1981, international air passenger aviation increased threefold and UK aviation fourfold. Airlines travelling to or from the UK accounted for almost 10% of global passenger flights. Go-for-growth aviation expansionism has been an integral part of the neoliberal political economy, with the privatisation of British Airways and the British Airports Authority (BAA), low-cost scheduled airlines, together with the construction of new runways and terminals. This expansionism continued under Labour, with the official approval for a fifth terminal and third runway at Heathrow.

However aviation is also recognised as an environmental hazard and increasingly as a driver of climate change. Anderson, Bows and Upham (2006) warned of the impact of radiative forcing and showed that aviation would take up an increasing part of the carbon budget if airport expansion proceeded. The Labour government's own figures (DfT 2007: 138) for Heathrow predicted an increase in flights between 2020 and 2080 and an additional three million tonnes of CO_2 every year would be generated. It estimated the "social cost" of these emissions is around £4.8 billion. Howarth and Griggs (2006) summed up how the contradiction was sometimes evaded by the oxymoronic expression, "sustainable aviation".

The TUC and key unions organised at Heathrow (TGWU and Amicus – later Unite, GMB and BALPA) were highly visible advocates of expansion throughout the period 1997-2010. The TUC leadership supported proposals for a third runway from the beginning, in line with its longstanding position supporting expansion of the aviation industry in general, subject to limited environmental qualifications. A retrospective briefing note (TUC 2009n: 1) stated that the formal decision on the third runway at Heathrow was taken by the TUC's Executive Committee in November 2002 and expressed in the TUC's response to the Department for Transport consultation, which called for three new runways in London including at Heathrow and Stansted.

The 2003 Congress carried a motion entitled Keep Britain Flying (TUC 2003b: 12), which stated that "a viable air transport industry is vital for growth and jobs", creating directly 180,000 jobs and "sustaining hundreds of thousands more in tourism and related industries". The TUC took a high-profile role in other pro-expansion campaigns, such as Future Heathrow, Freedom to Fly and Flying Matters. Future Heathrow included the TUC, Amicus and TGWU, GMB and BALPA, along with the major airlines, the CBI and other business organisations. Barber (Future Heathrow 2007) spoke alongside BA, Virgin and BAA in support of expansion, claiming that "aviation supports around 500,000 jobs in the UK".

The TUC and aviation unions welcomed the Labour government's go-ahead for the third runway at Heathrow in January 2009. GMB official Charlie King (TUC 2009b: 127) bluntly expressed support for expansion at Congress in September 2009. He said those who campaigned against a third runway at Heathrow "do not understand how long-haul aviation works, do not understand about the problems of the economy and keeping an aviation-base in the UK for long haul, and are not concerned about the number of job losses that would occur if we did not do it". After the Coalition government halted plans for the third runway in 2010, the TUC wrote to ministers (TUC 2010a: 71) criticising the decision, warning that "Heathrow currently employs 72,000 people and supports many more jobs".

Whilst the emphasis in union support for Heathrow expansion was very much on the labour market opportunities it would bring, the climate implications were also filtered through market mechanisms. The TUC's submission to government's consultation (TUC 2003c: 1) stated that "to ensure that greenhouse gas emissions targets are met, the TUC also proposes the introduction of a tradable emissions quota system across all industries". In the early Congress debate on aviation (TUC 2003b: 131-3), Jim McAuslan (BALPA) said on the environmental impact the industry was "not beyond reproach", but "greenhouse gases should be down to international and domestic regulation".

In public, unions recognised that climate change was a "third factor", in addition to noise and air quality, that had entered the Heathrow debate. When the go ahead was announced in January 2009, Barber (TUC 2009q: 1) said: "We therefore expect the

government to... ensure that CO_2 emissions from aviation growth are consistent with the UK's new carbon budgets." TUC submissions (2006d: 43-4) concluded that the inclusion of aviation in the EU ETS would address climate concerns, alongside the industry's efforts to increase the fuel efficiency of its aircraft and reduce energy consumption in its buildings. A General Council submission (TUC 2007l: 4) to the European Commission supported the proposal to include aviation in the EU ETS. These arguments were developed in greater detail in specific publications produced by individual unions (BALPA 2007a and 2007b; Unite 2009b; GMB 2007). Support for Heathrow was perhaps the most graphic example of what Johns (1998) called "accommodationist solidarity" – union support for neoliberal climate politics. However as we shall see in Section 4.3.2, it did not go uncontested.

4.3 Unions, climate and class politics

The argument so far is that high-level TUC climate policy remained largely within the dominant framings, particularly between ecological modernisation and neoliberalism, or between social integration and the market. However, even with the examples discussed so far, there have been elements of class politics present, though often expressed in sectional terms. TUC policy had a strong occupational and employment strand from the beginning. This was reflected even in the least climate-conscious positions taken on energy intensive industries and on aviation. Second, even where it supported government climate policy, there were efforts to extend it to address workers' concerns, to widen worker representation and to open new fields of collective bargaining. This was evident with the Climate Change Levy, EU ETS and the CRC.

Third, unions took a critical stance on fossil fuel extraction and use. Significantly, Congress (TUC 2012b) voted to oppose the fracking method of gas extraction. Unions and the TUC encouraged, cajoled and at times pushed the government to create the conditions for a CCS industry. It pressured energy firms to commit to developing the technology early enough to make a significant contribution to emissions reduction. In this case, unions pursued a long term, strategic goal that was consistent climate concerns and not only with the interests of the immediate membership, but also of workers as a wider social class, both in Britain and across the globe. This may have upset some climate activists, but CCS was a more farsighted climate politics than some opponents would countenance.

Fourth, the TUC's emphasis on adaptation showed that it understood the need to make climate politics as much about immediate issues affecting workers now, rather than simply a matter of targets and restructuring for the distant future. This "bottom up" approach implicitly challenged the dominant, top-down climate regime. Finally, its questioning of benefits and losses drew out the very least the distributional consequences of climate change and from climate policy into sharper focus. This section looks at where unions went slightly further in developing the class politics of climate.

4.3.1 Distribution and property relations

The class dimension partly turns on how far unions have challenged the dominant social relations of production, or through strategic interventions helped tip the balance of forces between labour and capital in workers' favour. Challenging the distributional effects of climate policy is a tentative first step towards making such an approach and there is some evidence of it in union documents. When the TUC first began to grapple with climate politics, it engaged with leading scholars on the issues. For example on 17 June 1990 it held a TUC forum on "Energy policy 2000", with speakers including Dieter Helm. In January 1991 its Energy Committee was addressed by Scott Barrett, who advocated carbon taxes to combat global warming. The TUC's Energy Committee (TUC 1991a: 184-5) stated: "Although accepting that revenues from a carbon tax could be used to offset other distortions in the market, were not persuaded of the merits of such a tax." Unions also took up distributional issues arising out of climate policy under Labour. On taxation, a TUC pamphlet on just transition (TUC 2008c: 13) argued that indirect environmental taxation was regressive and required "a progressive direct tax system running alongside it to ensure that the poorest do not contribute disproportionately to public funds".

A more substantial intervention was made about the windfall profits gained from the EU ETS. In 2008, the TUC's Budget submission (TUC 2008m: 1) called on the chancellor "to introduce a green windfall profits tax on energy companies and to use the proceeds to increase spending on tackling fuel poverty, improving home insulation and other environmental and job creating initiatives". The call for a profits tax was based on the calculation by Ofgem, the energy regulator that the electricity industry would benefit from a windfall profit of around £9 billion from the free allocation of tradeable emission permits over the four years of Phase II of the EU ETS. This is on top of a previous DTI estimate of £800 million a year in extra profits to 2007 from Phase I of the scheme. Barber said (TUC 2008m: 1): "These excess profits do not flow from investment, innovation or hard work but simply result from the way that carbon trading has been implemented across Europe. While carbon trading has a crucial part to play in tackling climate change, these windfall profits will give it a bad name unless they are used to fund socially useful and green spending." The call was repeated at the TUC Congress (Pearson 2008b).

Similarly, TUC officials took up the question of fuel poverty. Government figures (DECC 2010b: 3) showed that 4.5 million people in the UK spent more than 10% of its income on fuel by the end of the decade. A motion at the 2008 Congress (TUC 2008b: 34) argued for a package "to help those facing most difficulty from the downturn – particularly the growing numbers facing fuel poverty, including pensioners, and those suffering from the difficulties in the housing market and construction sectors". The TUC called for mandatory social tariffs for energy providers and an increase in the Winter Fuel Allowance, funded through an immediate windfall tax on the huge profits being generated in the gas, electricity and oil industries. As we shall in the next chapter, efforts to frame climate policy in terms of "just transition" drew inequalities in production, employment and consumption into sharper relief.

Another challenge to the dominant climate framings, with stronger class connotations, was interventions aiming at the public ownership of industries and natural resources. There were consistent calls for integrated publicly-owned transport, notably of the railways and occasionally buses and aviation. Successive Congress resolutions (TUC 2007b: 14; TUC 2008b: 22) tied together industrial arguments for public ownership and control with driving down carbon emissions. Deputy general secretary Frances O'Grady (TUC 2008b: 146-7) reaffirmed "TUC support for a publicly owned and accountable railway. The General Council also welcomes the call to lobby for rail electrification". Demands for public ownership have been less prominent with regard to the energy sector, but they have been articulated – usually in response to the imminent collapse of firms or sectors. At the 2002 Congress, a motion was passed (TUC 2002b: 32) that called for the privatised and later insolvent nuclear firm British Energy to be brought back into public ownership. Congress (TUC 1993b: 503; TUC 2005b: 7) opposed the privatisation of the coal industry and voted repeatedly for its renationalisation. As we shall explore in more depth in Chapter 7, Congress (TUC 2009b: 29) also backed calls for "publicly-owned wind turbine manufacturing capacity, including at the Vestas site".

4.3.2 Union opposition to Heathrow expansion

Although the dominant position of UK unions favoured Heathrow expansion, there was also consistent opposition to the proposal throughout, from some significant Labour-affiliated unions, from transport unions, and some organising in the aviation sector. Unison opposed expansion of Heathrow in favour of regional airports (where it had members). Unison's response to the government's consultation (2003: 5-6) stated: "Uncontrolled and unplanned airport growth and expansion can damage the environment... Aviation emissions, for example, are a small but growing proportion of total global emissions and contribute to climate change." It added: "The full environmental costs of aviation must be taken into account in any cost-benefit analysis of air travel and airport expansion." Unison proposed an environmental tax on aviation fuel, related to engine efficiency in aircraft. Unison delegate Jean Geldart (TUC 2003b: 132) spoke against the Keep Britain Flying motion at the 2003 Congress.

Trade unions and their leaderships opposed to airport expansion were able to challenge arguments that equated more flights with more employment. The government's impact assessment (DfT 2007) showed slightly fewer people employed directly at Heathrow by 2030 with a third runway than there were at the time (63,000). Without a further runway, it estimated on-site employment would fall to 52,000. Sewill (2009) argued that even with a third runway, BAA and the airlines planned job cuts. Oppositional unions worked with activist campaigns to make the case for a high speed rail link as an alternative to expansion. The RMT (2008a: 9) published the report, *Who says there is no alternative?* compiled by campaigner John Stewart. The report pointed out that over a third of flights from Heathrow were short-haul, that more than 20% serve destinations already served by a viable rail alternative, and that 20% more were to places where rail is the potential alternative. It claimed that "a fast rail service which substituted for further expansion at Heathrow would result in significant environmental benefits... climate change emissions would not rise so fast. High-speed rail emits between 8 and 11 times less CO_2 than air travel". At its launch, general secretary Bob Crow (RMT 2008b) said: "This report shows that high-speed rail can provide a win-win solution for the economy and the environment." The report was backed by John McDonnell MP,

chair of RMT's parliamentary group and a high-profile opponent of the third runway, whose constituency was affected by the proposed expansion.

The RMT, along with rail unions ASLEF and TSSA, Unison, Connect telecom union and the PCS (with members in air traffic control, BAA and the Civil Aviation Authority), sponsored an advertisement in *The Times* newspaper, (14 October 2008) opposing Heathrow expansion. The advertisement stated: "If the government pushes ahead with expanding our airports, including Heathrow, the UK will never be able to meet the new target of cutting emissions by at least 80% by 2050 and play its part in fighting climate change." When the Labour government announced the Heathrow expansion would go ahead, these unions (PCS 2009a) argued that a third runway would make the airport the biggest source of carbon emissions in the country. Crow said that "a modern high-speed, low-carbon and sustainable rail network would simply do away with the need for a third runway", while PCS assistant general secretary Chris Baugh said it would mean "the government won't be able to meet the targets in the historic Climate Change Act". He added: "The government should instead produce a new transport strategy for the UK focussed upon a publicly-owned high-speed rail network that will create jobs and contribute to the transition to a low-carbon economy and the fight against climate change." PCS delegate Sue Bond also challenged the General Council report at the 2009 Congress (TUC 2009b: 127), arguing that in the light of climate change and the possibility of alternative transport and employment opportunities, the TUC should reconsider its support for the expansion of Heathrow. PCS reps in aviation subsequently contributed to a report (Molloy and Sealey 2013), which explored the positive arguments for the public ownership of aviation, the use of aviation taxation (such as VAT exemption and Air Passenger Duty) and proposals for a "Heath-wick" dual-hub linked to Gatwick by high-speed rail to protect existing jobs.

These arguments were on stronger climate ground than the advocates of expansion, and they were also mindful of class dimensions. Some opponents may have had sectional grounds for opposing Heathrow expansion (to promote their own aviation members elsewhere or to support alternative modes like rail), but they cast this opposition in more universal class and climate terms. They did not ignore the legitimate concerns around aviation employment, but incorporated the impact of

dangerous climate change on workers locally, nationally and internationally into their perspective.

4.3.3 Trade union mobilisation on climate change

Another, more independent and class-focused element of union climate politics during this period was the increasing importance of mobilising union members for protests going beyond existing government and international climate policy (or at least to push it further and faster). The TUC decided for the first time to support the national climate march on 3 November 2006, organised by NGOs such as the Campaign against Climate Change (CaCC). It continued to publicly support demonstrations during COP meetings, culminating in The Wave demonstrations in London and Glasgow on 5 December 2009, which attracted 50,000 people.[32] Between 2007 and 2009 three "green camps" were run at Tolpuddle (SWTUC 2011: 14), which drew dozens of trade union environment reps for debate and training. The most ambitious initiative was the "Jobs, Climate, Justice" demonstration on 28 March 2009, during a G20 meeting in London. Union leaders (TUC 2009m and TUC 2009l) made the initial moves, donated £20,000 to the costs of the event and was responsible for logistics, although it was fronted by NGOs. The TUC (2009r: 1) estimated that 35,000 people protested on the day.

Pearson (2009k) reported that TUC representatives and other international trade unionists joined the mobilisations outside the Copenhagen talks. He wrote: "100,000 people then, marching six kilometres to the UN conference, arriving in darkness beneath the metro flyover, with a huge inflatable Greenpeace snowman hauled sideways to get under the bridge. Amazingly, the musicians play on, the singing and energy still high." A massive green banner with the words "Unions have solutions: Just transition" was spread across the width of the march and held by the Belgian unions in green builders' hats with stickers that said, "Union solidarity: Just transition". In Copenhagen (TUC 2010l: 9), unions organised a three-day series of workshops at the World of Work Pavilion, hosted by the LO Denmark union

[32] Although unions such as Unison and PCS were enthusiastic supporters of The Wave demonstration, and managed to get the organisers to add the call for a "just transition" to the list of demands, not all TUC affiliates were so enthused, with Unite, Prospect and the NUM refusing to back the march because of its demand to "Quit Dirty Coal" (Field notes, 12 October 2009).

confederation. The TUC organised workshops on CCS and climate solidarity, while TUC delegates took part in events organised by international union bodies PSI, IMF and ETUC. The trade union presence in Copenhagen and at previous COPs, where links were forged between high-level representatives of unions both North and South, had positive elements of "transformatory solidarity" highlighted by labour geographers.

The TUC and its affiliates became more involved in wider climate coalitions. Congress (TUC 2009b: 28) passed a motion in support of Vestas workers, who had occupied their factory after the firm told them it would close. The TUC also began to develop links with climate campaigns, participating in CaCC trade union conferences (Field notes, 9 February 2008; 7 March 2009; and 13 March 2010) and engaging with the Climate Alliance activist network. Union officials held a joint NGO/TUSDAC meeting on climate change with representatives from Greenpeace and the Tearfund (Field notes, 23 March 2010; 31 March 2010). The TUC explored the idea of a "third sector alliance" (Scott 2009; Hale 2010), comprising trade unions, national voluntary organisations, local community groups and others – the closest it came to formulating a social movement conception of climate action. These interventions and mobilisations, although generally quite restrained, shifted some unions towards activity separate from government and employers, while coming closer to more militant advocates of class politics within unions themselves and to radical climate activists.

4.4 Conclusion

This overview finds that at the highest levels, UK union climate framing was closest to ecological modernisation during this period. This was particularly clear in TUC support for the Labour government's Climate Change Act, carbon capture, its "balanced" energy and aviation policy, and partnership. TUC leaders wanted a more active industrial strategy focused on the development of green technologies and believed the Labour government had been won to that perspective in the last year of its administration. However the election in 2010 and the subsequent Coalition government put paid to trade union efforts to tie climate and economic crises together. Less prominent, but still significant TUC framings were located closer to employers and deployed neoliberal market arguments, in particular over EU ETS and Heathrow expansion. Issues such as employment were sometimes posed in narrow, sectional terms or more blatantly in neoliberal terms close to business.

The limited nature of some union and TUC climate framing in class terms is clear from the examples cited. A class-based climate approach would have involved unions retaining a high degree of political, ideological and organisational independence from both employers and the state. There is some evidence of this in TUC fiscal policy, public ownership of rail transport and with the mobilisation of union members for climate goals (including opposition to airport expansion). However there are at least three further areas where such an approach was more pronounced. First, union conceptions of just transition and climate jobs have been more consistently class-focused; second, forms of climate representation at work have exhibited elements of working class organisation; and third, union involvement in the Vestas occupation indicated distinctive forms of working class action. Without ignoring neoliberal and ecological modernisation framings, the following three chapters explore these more explicit cases of working class representation in union climate politics.

5) Climate, employment and just transition

5.0 Introduction

This chapter analyses recent trade union discussion of climate change and employment. It examines the employment implications of climate change for workers and asks whether the demand for green jobs has been rendered coherent by trade unions. The meaning and significance of just transition are analysed, and it is suggested that the dominant union articulation is framed in ecological modernisation terms. It asks what kind of low-carbon transition trade unionists have envisaged and whether the outcomes differ from those discussed in the dominant literature. Section 5.1 discusses union fears of a trade-off between environmental protection and employment. Section 5.2 evaluates the distinctive union framing of the climate and employment relationship in terms of just transition. Section 5.3 sets out a more class-focused approach, through union demands for climate jobs and socially useful work.

5.1 Unions, climate and green jobs

5.1.1 Unions and the employment impacts of environmental policy

Jacobs (1997) observed that trade unions have historically campaigned to protect existing jobs, rather than support reforms that might lead to higher levels of employment overall, but would involve job losses in some sectors. However Carter (1997: 196) argued that "trade union fears about the employment implications of green policies are addressed by means of an environmental 'New Deal' that would create thousands of new jobs in industries such as recycling, energy efficiency and environmental protection". These contrasting positions can be identified in the UK union documents discussing jobs and the environment.

High-level trade union discussion in Britain in the late 1980s and early 1990s made much of the distinctive occupational dimension of the environment and climate change. An early General Council report (TUC 1990a: 50) stated that "trade unions have a special role and responsibility because most external environmental concerns

originate in the workplace – giving unions a frontline environmental responsibility". A TUC submission to government (1990d: 16) stated that it was not clear "what the potential is for environment linked jobs". Union leaders said it was not known whether higher environmental standards push up costs and lead to plant closures. However the document suggested that even if "actual loss or gain of jobs due to environment policies may be small nationally, they could be significant at the sectoral level and within local communities". Such uncertainty could not persist, so unions made some effort to assess the extent of any juxtaposition.

UK union officials discussed jobs and the environment at a conference on 22 November 1996. A report (TUC 1996c: 4, 8) by the Labour Research Department (LRD) commissioned for the conference stated that "there is scarcely any data to suggest that plant closures have been primarily, let alone exclusively, caused by environmental considerations". A UK study of plant closures had found that in only one case out of 193 were environmental costs listed as an important factor. The report referred to an earlier gathering of trade union officials from the TGWU, GMB and AEEU that year, which had discussed pollution arising from burning alternative fuels in the cement industry. Len McCluskey, then a TGWU national officer for the cement industry said: "We listened to all sides of the argument and the discussions got pretty explosive at times... This conference provides one model of how a union may go about facing up to its environmental responsibilities and developing sustainable jobs. We are key 'stakeholders' in the environment now."

Similar concerns were raised by a TUC submission on the employment implications of environmental policies. It stated (TUC 1999c: 1): "The industries most exposed to adverse effects are energy intensive industries (manufacturing industries with cement, iron and steel, water and brick being the most energy intensive)". The paper industry is "both energy and labour intensive and could be affected more seriously", while "energy producing industries will also be affected". These discussions suggest that genuine fear among union officials that some workers would lose their jobs as a by-product of environmental policy.

The more positive framing of environmental-related employment matters was expressed in the language of sustainable development. At the 1990 Congress (TUC

1990b: 354), Diana Warwick (AUT) argued that: "We need a new concept... that includes sustainable employment and sustainable living standards". However the limits of sustainable development were becoming clear by the turn of the century. The TUSDAC submission (2003h: 2, 4) to the government's *Learning the Sustainability Lesson* consultation argued that "the terminology of sustainable development – even the phrase itself – cloaks rather than lays bare its message". It claimed that there was a general feeling in workplaces that sustainable development was like rocket science, "theoretically complex, difficult to understand, time-consuming and expensive, necessitating the introduction of convoluted systems and massive upheaval". Union officials recognised that a different framing needed to be found.

5.1.2 Unions, climate change and employment

UK trade unions applied their scepticism about the impacts of environmental policies on employment to early assessments of climate change. An initial TUC submission to government (TUC 1991e: 22) emphasised "the absence of any real discussion or assessment of the employment and income effects of measures to combat global warming".

The TUC supported the Kyoto treaty (Stanley 2008), although it warned of the likely employment impacts of tackling climate change. The 1998 General Council report (TUC 1998a: 154, 156) stated that the trade union presence at Kyoto "pushed the question of employment up the agenda" and focused on "how to avoid the dilemma of jobs versus the environment". Union delegates "stressed the dangers to jobs of not acting on climate change and also the need to ensure a just transition in economic sectors where climate change policies will have an employment impact". The report stated that the TUC's strategy included the multi-stakeholder approach, "wherein companies develop dialogue with 'interested parties', including their own workforce and through a structured system of representation"; an employment impact assessment that includes "the possible costs to jobs of making environmental improvements" and the need to ensure a just transition with "an equitable distribution of costs". Policies to deal with climate change transitional measures would have to be discussed beyond company level, including at EU and international levels.

The expected employment repercussions of Kyoto were discussed at a TUC one-day workshop in October 1998, which indicated some difficulties unions faced. The report (TUC 1998c) from the energy workshop stated: "Job security was likely to be the key issue for trade unions. If the reaching of targets set by the Kyoto agreement meant job losses, this would be difficult for the unions." It was pointed out that "job losses would almost certainly be in different places and involve different people to job gains and that this could impose substantial strains on local economies and on the trade unions". The issue was not resolved satisfactorily. During the Montreal COP conference, Barber (TUC 2005e: 1) called for an "employment commitment" in the climate agreement. He said: "Trades unions are rightly looking for the development of an employment and industrial strategy alongside the Kyoto Treaty. Greenhouse gas reduction targets must be accompanied by action to help workers affected through education, training and consultation through their unions".

The most significant union study to date of climate and employment was produced by the ETUC in 2007, with support from UK unions and the TUC. The report (Dupressoir 2007) framed the issues largely in ecological modernisation terms. It estimated that expected employment changes resulting from climate change would be an overall net gain in employment of 1.5% by 2030 for the sectors considered. Dupressoir (2007: 37, 73) was critical of OECD and other studies, which it said took an "incomplete account of the effects on employment". The potential cost of the transition for workers in "losing" sectors "is not appreciated, nor is the vulnerability of some categories of workers in relation to the opportunities for re-skilling". The study identified a general risk that "the jobs that arise in new businesses in new services and products will be less well-paid, with less secure employment conditions, than in established branches". Trade unionists believed that it was necessary, "not only to promote the development of renewable energy sources and energy efficiency to secure or create jobs, but also to monitor the quality of those jobs". The report (ibid: 179-80, 187) warned that if not anticipated and dealt with appropriately, the "largely underestimated" questions of occupational transitions and training would "represent a significant roadblock to sectoral transformation required by European emissions reduction targets". It recommended the development of "social accompaniment measures" to reassure workers and enable them to adapt to the

structural changes in skills associated with the process of reducing greenhouse gas emissions.

A more explicitly neoliberal, market-orientated analysis of climate and employment in the trade union literature concerns the particular threat that climate policy posed for jobs in energy intensive industries such as steel, ceramics, cement and lime manufacture, aluminium, basic inorganic chemicals and other industries, which employed 250,000 workers in the UK. In 2010 the TUC published a report on *The Cumulative Impact of Climate Change Policies on UK Energy Intensive Industries* (Waters Wye Associates 2010), in order to inform government policy on issues such as employment, taxation and the carbon floor price. Pearson (2010c) argued that "the combined impact of the government's climate change policies imposed significant costs on the UK's energy intensive industries". Jobs essential to a low-carbon future were at risk and "without urgent review, current policies could see some prime UK companies leave the UK for good". A key threat was carbon leakage, which "could be the net result – the loss of jobs, investment and our ability to regulate carbon emissions – as competitors with fewer controls on emissions benefit". These concerns, articulated in sectional terms within the UK trade union movement, cannot be dismissed lightly, not least because they are made in the context where the market dominates and where government safety-nets for displaced workers are extremely limited, or non-existent.[33]

As UK unions began to engage more seriously with climate change, they went significantly further than the binaries of job protection versus "sustainable employment", in order to make a distinctive and coherent contribution to policy. Unions found the language of ecological modernisation – emphasising green jobs and just transition – provided a better means to come to terms with the employment implications of climate change. In the context of economic slowdown, the slogan "cut carbon, not jobs" encapsulated the linkage between climate policy and employment.

[33] Sato et al (2013) found that the empirical literature provided mixed evidence of carbon leakage.

5.1.3 Unions and green jobs

Union discussions of green jobs took place largely within the parameters of ecological modernisation. Pearce and Stilwell (2008: 131-2) found that discussions in Australia provide "a broad working class perspective, emphasising areas of employment growth that are skilled, well paid and sustainable". This was because much of this literature emanated from labour and progressive organisations concerned with their future direction in a changing environment. They highlighted three principles of green jobs: first, whether the job is environmentally sustainable; second, whether it is a quality job in the sense of being well-paid and secure; and third, when it replaces another, non-green job, whether it is located in the same community and targeted to the same worker.

International high level discussion between trade union officials over green jobs began in the 1990s. Gereluk and Royer (2001: 9-10) argued that green jobs "must form part of a two-pronged response to job dislocation that will occur in a transition to a sustainable economy". Investment in sustainable jobs "can provide alternative employment, but usually in the long-term; hence the need for a short-term strategy to ensure a 'just transition'". They pointed to union efforts to promote green jobs in Denmark to counter the jobs-versus-environment illusion. At Copenhagen, the ITUC international union confederation argued (ITUC 2009: 10, 12) that the priority was "to create green and decent jobs, transform and improve traditional ones and include democracy and social justice in environmental decision-making processes". Trade unions pledged to work "towards the transformation of all jobs into environmentally-friendly and socially-decent jobs. Green jobs are a first step towards the transformation".

TUC officials were inspired by international trade union efforts to grapple with the potential of green jobs, particularly as this tied in with Labour government pledges to create hundreds of thousands of such jobs. Pearson (2009a) enthused about the AFL-CIO trade union federation launch of a national Centre for Green Jobs at the "largest-ever" labour-green movement conference organised with the Blue-Green Alliance. TUC officials (Pearson 2008c) promoted an ITUC-backed green jobs publication. The report (Renner, Sweeney and Kubit 2008: 3-4) defined green jobs as "work in

agricultural, manufacturing, research and development (R&D), administrative, and service activities that contribute substantially to preserving or restoring environmental quality". It anticipated that employment would be affected in at least four ways as the economy oriented towards greater sustainability. First, additional jobs would be created, such as in the manufacturing of pollution-control devices. Second, some employment would be substituted, such as shifting from fossil fuels to renewables. Third, certain jobs may be eliminated without direct replacement. Fourth, many existing jobs, such as plumbers, electricians, metal workers, and construction workers "will simply be transformed and redefined as day-to-day skill sets, work methods, and profiles are greened". The report estimated that at least 2.3 million workers were employed internationally in green jobs, with over 20 million such jobs globally by 2030.

UK unions have promoted discussion of green jobs to address the employment impacts of climate policy. The 2010 TUC Congress (TUC 2010b: 20) pledged its support for "a campaign for one million green jobs". A UK trade union delegation attended the British-German Trade Union Forum on green jobs on 2-3 July 2009. At the event, Martin Jänicke (Doelfs 2009: 6) argued for a programme of ecological modernisation to create millions of new jobs. He said that "the rapid growth of renewable energy sources in Germany shows that this changeover does not only make sense in ecological terms; with the right political management, the economy and the labour market can also benefit hugely from this 'Green New Deal'". However the conference found it difficult to come up with an unambiguous definition of green jobs. One of the UK delegates, Jane McCann from the GMB union, warned against "making an ideological issue of the term green job in the debate about an ecological renewal of manufacturing industry". The trade unions should not get into a debate that "set bad old jobs against good new ones. A job is a job".

These considerations about green jobs were echoed elsewhere. Snell and Fairbrother (2010) examined the Illawarra Green Jobs Project in Australia, a collaboration between regional government, local business and union leaders to develop sustainable green jobs. Although presented as a progressive initiative, it looked like the kind of local boosterism labour geographers had warned of. Similarly, Räthzel,

Uzzell and Elliott (2010: 78) found some distrust within international union ranks. A Canadian delegate told them that green jobs was "a term from the environmental movement, not the labour movement". This suspicion towards green jobs was expressed even more strongly by another interviewee. He stated: "Green jobs are insulting. Steel are brown jobs? You can't build windmills and aircraft without steel – the steel job is a green job. A rigger is a rigger when he is working in a brown or green job. What is a green boss? A green boss is still a boss. A green capitalist is still a capitalist? Vestas – they might be green, but they are still bastards, and still bosses." These scholars identified other ambiguities with the demand for green jobs. Green jobs are not necessarily well paid, safe, and secure jobs. For Barry (2012) green jobs take for granted the assumption that economic growth is the right approach and does not particularly challenge the system of production that has led to climate change, although this was contested by TUC officials (see Stanley 2010). Uzzell and Räthzel (2012b: 242) also recognised that it is difficult for progressive trade unionists to put climate change on their unions' agenda when workers say, "I will die quicker from not having a job than from climate change".

As attractive as the slogan "green jobs" may appear, the conception has thus-far lacked clarity of definition and at times seemed ambiguous. Efforts to demarcate the boundary between green jobs and non-green jobs have yielded few theoretical gains. Steel production may not seem particular green and it is certainly energy intensive, with a significant carbon footprint. Yet steel is necessary for the production of wind turbines, a quintessential renewable energy source. In many respects, the greening of all work and of the economy as a whole, making every job subject to the metric of its environmental impact, is a more attractive option and one that unions appear to have taken in their discussions of just transition.

5.2 Just transition

5.2.1 The origins of just transition

The concept of "just transition" is the most distinctive trade union framing of climate change politics to date. Although usually expressed in ecological modernisation terms, it also has significant class undertones, and draws together a range of themes found in the climate literature from a trade union perspective. The idea is usually attributed to Tony Mazzocchi, an official from the Oil, Chemical and Atomic Workers Union (OCAW) in the United States. According to Leopold (2007: 413), Mazzocchi developed the idea from the late 1960s, after he realised that "there was no way to protect workers and society from toxic substances without banning them. But banning them would cause OCAW workers to lose their jobs". Mazzocchi's jarring solution was "for society to pay workers not to make poisons", because "conversion had its limits".[34]

Leopold (2007: 309, 417) argued that Mazzocchi took inspiration from his own experience to find a solution for workers displaced from their jobs in the name of the environment. The Serviceman's Readjustment Act of 1944 (known as the GI Bill) was designed for demobilised soldiers and provided an income, health benefits and college tuition fees for four years. Mazzocchi was one of its beneficiaries. He first adapted this idea after discussions with environmentalists about the fate of nuclear weapons workers. Mike McCloskey, the Sierra Club executive director told delegates to the OCAW's 1973 convention that the government should "indemnify workers who are displaced in true cases of plant closure for environmental reasons". Workers should not be made to "bear the brunt of any nation's commitment to a decent environment for all. Society should assume this burden". In the 1980s, Mazzocchi called the proposal for a four-year income and benefit guarantee for chemical and atomic workers "the Superfund for Workers". In the 1990s, environmentalists complained that the term superfund had too many negative connotations, so the name of the plan was changed to just transition.

[34] Snell and Fairbrother (2012: 147) also attribute the provenance of just transition to Leonard Woodcock's work within the UAW autoworkers' union in the early 1970s.

According to Leopold (2007: 433), Mazzocchi also organised the first US union conference on global warming, recruiting the Labor Institute's Mike Merrill to publish *Global Warming Watch* in 1988, which he claimed was "the first publication on the implications of climate change for American workers". The OCAW faced the closure of whole industries deemed too environmentally unsustainable to continue. While federal money provided millions of dollars to clean up contaminated land, there was no compensation set aside for workers displaced by the closures. Mazzocchi commented that "they were going to treat dirt better than workers". He also pointed out that "working people aren't going to commit economic suicide in order to advance the enhancement of the environment". The OCAW's 1997 conference (TUC 2008c: 19) committed itself to "fair and just transition to sustainable production that protects both health and safety and the environment, as well as workers' livelihoods". It would make corporations more accountable and make "the just transition fund a reality, including agreement on working with allies in other unions and in the environmental and environmental justice communities".

Mazzocchi's thinking was explicitly taken up during UK union discussions on climate change. In 1991, TUC environment advisor Paul Hackett (TUC 1991f: 1, 6-7) argued that "too little attention is being given to the likely socio-economic consequences of reducing greenhouse gas emissions". The TUC was particular concerned by "the absence of any real discussion or assessment of the employment and income effects of measures to combat global warming". A sharp rise in the cost of energy to reduce emissions from the burning of fossil fuels "would inevitably impact on jobs and income". Hackett said potential employment losses and opportunities need to be identified and "special assistance provided to aid any redeployment and enhance job creation". He warned that "in vulnerable industries such as mining and chemicals special assistance should be provided where appropriate through a national adjustment fund". He argued that additional funding could be made available through "a work environment superfund, supported by government and employers".

Hackett (1991: 25, 22) pointed explicitly to trade unions and environmental groups in the US that had been lobbying "for just such a fund to provide for improved health and safety, education, training, retraining and retraining and research". It would also

offer "income support and assistance for workers who suffered as a result of environmental adjustments". A superfund was "the only viable way to resolve the conflict between the public interest in a clean environment and the workers interest in employment protection". He said the TUC was exploring the idea of a working environment fund based on the Swedish system, where a payroll levy of 0.15% is placed on employers to underpin workplace research and training.

Just transition for climate change was first widely applied in official international trade union circles at the time of the Kyoto conference. The ICFTU international union confederation (1997: 1, 5-6) argued that trade unions were concerned about "the job losses and other costs that will be caused to workplaces and communities by measures designed to meet current and more ambitious post-2000 targets and deadlines". The ICFTU advised that "failure to plan for deep cuts in greenhouse gas emissions will also have grave consequences for working people and their families". In response to measures to tackle greenhouse gas emissions, "workers will demand an equitable distribution of costs through 'just transition' policies that include measures for equitable recovery of the economic and social costs of climate change programmes". Companies, which have profited from unsustainable practices "must assume their share of responsibility, but any mechanism to insure this must be carefully structured to avoid further adverse employment effects". The ICFTU warned that union support for targets that affect the workplace and community "will be contingent on the existence of 'just transition' measures that provide, as a minimum: income protection, redundancy procedures, re-employment, and education and retraining".

The international arena provided continual stimulus for high-level union representative discussions of just transition. Gereluk and Royer (2001: 15) noted that the agreement reached at COP6 at The Hague in 2000, committed "representatives of trade unions and business to work together for more research into the employment and social implications of climate change". Smith (2007) reported that just transition was promoted at the first Trade Union Assembly on Labour and the Environment held in Nairobi, Kenya, on 15-17 January 2006. It was within this international context that the UK trade union representatives began to tease out a more coherent

way to reconcile employment with climate mitigation and adaptation, through the concept of just transition.

5.2.2 Just transition and ecological modernisation

The TUC's just transition project, launched in 2007, was framed largely in ecological modernisation terms. Its Touchstone pamphlet, *A Green and Fair Future: For a Just Transition to a Low Carbon Economy* (TUC 2008c: 14) defined just transition as "a way that workers can support the environmental cleanup without the worry of job loss... Just transition forces employers to take responsibility for workers and keep communities intact". The pamphlet sought to "assess the impact that moving towards a less carbon-intensive economy will have on jobs, skills and employment opportunities, and will explore how the transition itself can be rendered socially just". Just transition should "embody principles of equality, social justice and workforce participation". The aim of the pamphlet (TUC 2008i: 10), was "to make a unique intervention into the debate on the environment based on strong trade union principles".[35]

The Touchstone pamphlet (TUC 2008c: 1-3, 11) argued that a shift to a low-carbon economy was "not just necessary but increasingly inevitable". However previous industrial transformations had often had retrograde consequences for workers. It highlighted the likely "job churn" from the transition to a low-carbon economy. First, newly created jobs may not go to those whose jobs were threatened as the result of environmental measures. Second, there were concerns about the effectiveness of some re-skilling/retraining programmes. Third, newly created jobs may be of a poorer quality – in terms of pay, conditions and/or seniority – than the jobs they replace. Finally, many energy-intensive industries are concentrated in relatively small geographical areas, therefore there was a real danger that "environmental transition will have a disproportionate effect on particular communities".

[35] The pamphlet was not without controversy. Union officials interviewed for the publication expressed a variety of opinions, ranging from support to hostility. Interviewee Alpha said: "We need to be careful. This research could end up justifying the transition as 'just'". They argued that the just transition concept was "out of date for developed countries, if it ever was in date. It's not attached. It's a contradiction in terms". After the draft was produced, one general secretary stated that it "made the mistake of trading jobs for the environment". The TUC Executive Committee (2008i: 10) rejected this objection, arguing that it was "in fact trying to align jobs and environmental concerns".

According to the pamphlet (TUC 2008c: 5, 6), just transition assumed that "ensuring social justice in the transition to a low-carbon economy cannot be based on the vain hope that the market alone will provide". By demanding just transition, unions recognised that support for environmental policies was "conditional on a fair distribution of the costs and benefits of those policies across the economy" and because support for environmental change was required from all sections of society, "so the costs of that change must fall proportionately on all sections". Government intervention was needed to provide flexible support packages, including "consultation requirements; education/training/ re-skilling; compensation to cover relocation costs or living costs for those finding new work or who are facing significant change in the nature of their work". The pamphlet argued that just transition would pay for itself in the long-term, although some measures would require initial or ongoing investment to make them possible. A possible source of funding was "the massive revenue stream" from the auctioning of allowances under the EU ETS. The TUC launched the pamphlet at its climate change conference on 16 June 2008, in front of two hundred delegates and Defra environment minister Hilary Benn.

A 2008 Congress resolution reflected some tensions with the formulation of just transition. The resolution (TUC 2008b: 20) recognised that "trade unions can play a major role in educating everyone about the causes of climate change, the likely impact and the need for a planned and just transition to a low-carbon economy that will see substantial changes from the nature and type of employment that currently exists". Michael Leahy (TUC 2008b: 128) stated that "a just transition must not abandon trade union members. A just transition must not repeat the mistakes of Thatcher's damaging de-industrialisation. A just transition must provide a sustainable future for all: blue collar, white collar and green collar". He said: "We all know what we want – a green and fair economy – but we cannot achieve it by a giant leap. We must take small steps and think carefully about the path that we want to choose." Leahy warned: "We must not give the multinationals the opportunity to become carbon tourists, seeking out countries where carbon emissions are poorly regulated. That would not provide us with a just transition."

Leslie Manasseh, from the Connect telecom union (TUC 2008b: 128-9) said that just transition is "a principle, a process and a practice. The principle is that a healthy economy and a clean environment can, and should, coexist. The process is that changes to employment or activities should be fair and not cost workers or communities their health, wealth or assets. The practice is that those affected by these changes should take a leading role in creating new policies and solutions". Tony Kearns (CWU) added: "A transition must give real protection to workers during a prolonged period of transition because... I do not believe we can leave it to goodness and big business to deliver this for us."

After the publication of the just transition pamphlet, TUC officials endeavoured to make it operational for international and domestic policy. The General Council (TUC 2008a: 74-5) argued that just transition embodied "a set of guiding principles to ensure the development of a green economy brings the maximum benefit to working people: the right consultation mechanisms from the workplace to the highest levels of government; the right skills and training strategy; innovation policies; and the right financial support for new low-carbon technologies". TUC policy officer Philip Pearson (2009c) argued: "For us, just transition includes consultation between stakeholders – governments, unions, industry, communities – at global and national level." It meant "massive investment in green jobs and skills. Change through consent. Environmental rights at work. Social protection for the most vulnerable. And a massive transfer of funds to the South for climate impacts we can't avoid". Hence unions called for a just transition article in the new climate agreement, "because this can no longer be left to governments alone".

Pearson (2009f) reported from the Bonn climate talks that just transition was "a big idea that touches on many aspects of governments' responses to the climate crisis so far". Just transition was about "recognising and planning fairly and sustainably for the huge changes that adaptation to climate change will have for our economies". In the past, "significant periods of economic restructuring have often happened in a chaotic fashion, leaving ordinary people, families and communities to bear the brunt of the transition to new ways of producing wealth". The idea of just transition sought "to avoid this kind of injustice, so that this crucial transformation can progress with the speed and depth we so urgently need it to". In a further post, Pearson (2009g)

argued that the shift to a low-carbon economy could go either way. It could "displace many, bring change without benefits to many". Or through "concerted efforts by trade unions, working people and communities, working with their governments and employers, create the conditions for a just transformation, bringing quality employment and hopefully benefits to the wider informal sectors". Not a change where "working people carry the burden of change, but a just transition with managed change, investment in positive new industries and skills for the future".

The TUC's Executive Committee (2010g: 1) argued that the Forum for a Just Transition, the joint unions-business-government body announced in 2009, brought together the three pillars of just transition: "social dialogue ('a place at the table'); investment in 'green jobs' and low-carbon technologies; and green skills for a low-carbon, resource-efficient economy". TUC officials (2011d: 4) added a further pillar, describing just transition as "consultations between stakeholders on green economy strategies, the promotion of green and decent work, skills programmes, and providing a basis for respect for labour and human rights as an integral part of the response to the challenge of climate change". This was a somewhat bland formulation, boiled down for government consumption and one that largely hollowed out the original, more radical content of just transition.

As union officials advanced just transition on the international and domestic stages, they also began to use it as a euphemism for reconfiguring the whole economy after the 2008 economic downturn. TUC officials (Pearson 2010a; Tudor 2010) promoted the demand for the Robin Hood tax on financial transactions as a suitable instrument for funding just transition measures internationally. Officials argued (TUC 2010j: 2) that "just transition is about recognising and planning fairly and sustainably for the huge changes that climate change policies will have for our whole economy". At the Cancun talks, Pearson (2010d) argued that the climate crisis, "like the financial turmoil, stems from an unsustainable economic model". The union vision of a just transition sought to counterbalance the market "with progressive principles of decent work and union voice". Just transition had become a defining notion within high-level union narratives.

5.2.3 The limits of just transition

How significant was the concept of just transition? Formally it has had some purchase internationally and domestically, from the level of government to civil society. At the Bonn climate talks in May 2007, for the first time, unions secured explicit reference to the importance of employment creation in the conclusions of the Ad Hoc Working Group on future Kyoto commitments (TUSDAC 2007c). In December 2007, an 80-member delegation of union environment officials at the Bali climate talks put forward a detailed statement (TUC 2008k: 6-7), which emphasised the trade union commitment on climate change and called for just transition "to ensure that the urgent measures which must be taken are done in a way which are fair and just".

The TUC Executive Committee (TUC 2009k: 7) argued that a significant breakthrough was made at COP 14 in Poznań, Poland in 2008. An 84-member trade union delegation from 28 countries took part in a range of activities, supporting action to tackle climate change "as a priority for new trade union internationalism". The UNFCCC acceded to the ITUC's request for permanent constituency status in the Convention. This was a key step forward for the ITUC, providing "better access to the UN, its officials and working groups, as well as basic office facilities". The ITUC said the decision placed it on an equal footing with other observer groups representing business, research institutes and NGOs. At Bonn in June 2009, the first draft text ahead of the crucial Copenhagen conference included the trade union call for a just transition to a low-carbon future in its "Shared Vision" document. The text stated:

> An economic transition is needed that shifts global economic growth patterns towards a low emission economy based on more sustainable production and consumption, promoting sustainable lifestyles and climate-resilient development while ensuring a just transition of the workforce. The active participation of all stakeholders in this transition should be sought, be they governmental, private business or civil society, including the youth and addressing the need for gender equity.
> (Pearson 2009e)

The UN kept the call for a "just transition for the workforce" in its Bangkok and Barcelona texts, giving unions hope that any deal struck in Copenhagen would include the recognition of an employment dimension.

Climate minister Ed Miliband, speaking to Congress 2009, thanked the TUC for bringing together trade unions from North and South around the demand for just transition. He said (TUC 2009b: 124): "I can tell you that it will not just be the TUC position that we need a just transition, but it will be this Labour government's position that we argue for at the Copenhagen Summit this December." However as events unfolded in Copenhagen (Fisher 2010; Dimitrov 2010), it became clear that unions, along with other NGOs, civil society and even state actors, were in fact outside the real negotiations. Pearson (2009j) blogged that hopes were briefly aroused, when "perhaps for the first time ever at the UN, governments discussed the relevance, or not, of references to workers' issues in an international agreement". He added: "We have urged governments to put the issues of just transition and decent work on the table. And last night, albeit in closed session, we hear from various reports that governments gave explicit support for a just transition to a low-carbon future!" There was therefore understandable frustration (Pearson 2009l; Pearson 2009m), as trade union representatives and other climate activists were shut out of the talks, just at the moment when the UN's original text was eclipsed by the Accord.

The TUC Executive Committee assessment after the event was more upbeat. Its report (TUC 2010l) stated that international union bodies had "learned how to engage with this UN machine, and came close to securing its key strategic objectives in draft UN text". It pointed out that the UNFCCC had "endorsed the so-called Shared Vision text", which it described as the core of the "treaty that never was". A key objective for unions was to persuade governments to include the notion of just transition in the Shared Vision text and in this "the ITUC was largely successful". Internationally, the EU acceded to the ETUC's demand for a high-level forum for dialogue between the European social partners on climate change and the transition to a low-carbon economy. The forum, composed of ten members on the employers' side, ten on the trade unions' side and ten members representing the European Commission, held its first meeting on 13 May 2011 (Pearson, communication with the author, 5 May 2011). In the UK context, the formation of the Forum for a Just Transition and to an extent, the Coalition government's Green Economy Council

(which included union representatives) indicated that just transition was on the verge of institutionalisation.[36]

However, crucial support, training and funding mechanisms of just transition did not become embedded in government policy or international law during this period. As one government advisor (interviewee Omega) told the just transition project researchers in 2007, "whilst there are jobs to be had in all that, that can't be the crux of the argument". As he candidly put it, "the government actually sees its role as not directly intervening and creating a diversification agency and saying this factory is closing, we'll help them get to new carbon, low-carbon production". Similarly, the failure to agree a successor treaty to Kyoto at Copenhagen (including the just transition clause) suggest that just transition is a long way from becoming government policy, never mind reality.

Even the weaker version of just transition advocated by TUC leaders did not entice the Labour government or most employers to consummate the kind of partnership they had hoped for. This study raises the question of the relationship between the partnership approach and just transition and whether, given the scale of transformation required, it is ever likely. If someone has to pay, then it is simply impossible to ally with every other actor. Senior TUC officials were committed to the partnership approach. Interviewee Delta in the TUC just transition project argued for partnership on pragmatic grounds: "I don't see a problem with it [partnership], but you always have to remember that even the best of partners fall out from time to time". They added: "And then if you take the opposite view that you wouldn't have a partnership, you're always in confrontation, aren't you. So I think there's a lot of merit in partnership, but it has to have clear rules and guidelines." Interviewee Gamma went further, argued that "partnership has a place within a framework that recognises common objectives. And clearly it's been the case that the common objective thus far has been achieving growth, achieving consumer power, and that's obviously been driving emissions". They added that the big issue was "how much our current levels of consumption can be maintained in a low-carbon economy". They stated: "I don't think they can, but that just underlines more and more the need

[36] The ITUC (2013) supported the UNFCCC's decision to establish a just transition work programme in 2012.

for a shared understanding on the part of government and on the part of corporations, on the part of workers, on the part of trade unions, for a new goal." However whether it is possible for business, government and unions to have common goals in a just transition is precisely the point – particularly when the former did not appear to want "partnership" beyond some window-dressing.

Just transition was visible at the highest levels of the trade union movement, even if it was largely ignored by employers. It did not resonate deeply with governments of all political stripes either: the rhetoric was not embraced by the Coalition government at Westminster from 2010, which had a rather different transition in mind for austere times. Perhaps more damningly, just transition did not permeate very far lower down the trade union movement, beyond the officials and the activists to be embraced by ordinary members. Given that just transition was in its infancy during this period, it is perhaps unfair to expect it to have gained a wider resonance. At Copenhagen, the 100,000 strong-demonstration showed that it could become a mobilising slogan, although participants attributed their own meanings to it, without necessarily great coherence. The next section explores the extent to which just transition and related notions had any class content.

5.3 Class, climate and work

Trade unions highlighted the employment impacts of climate change within the context of global capitalism. There was a tangible class element to union discourse in demands for decent work and for compensation for workers who would lose out as a result of climate policy. Even weaker conceptions of just transition had class referents, pushing the boundaries of ecological modernisation discourse in the direction of workers. However within UK unions, some articulations emerged around specifically "climate jobs", socially useful work and just transition that pushed the class-based framing even further.

5.3.1 One million climate jobs

TUC Congress in 2010 passed a resolution that included support for a campaign for one million climate jobs. Tony Kearns, CWU deputy general secretary told Congress (TUC 2010b: 20, 116) that PCS, TSSA, NUT, UCU and CWU unions, together with academics from Brunel and Oxford universities and workers from Vestas had come together, "to put down, if you like, on paper what it is that we want". He differentiated the campaign from wider discussions of green jobs. Kearns said: "Let us be quite clear that we are talking here about government jobs. They can be paid for, as you saw from the video on The Robin Hood Tax, by subsidies and tax". He was adamant that the dominant neoliberal framing had "failed previously to deal with climate change, because they left it to the markets to decide". Climate jobs was a narrower conception than green jobs, but potentially more fertile.

The justification for the campaign was provided by a widely circulated pamphlet, *One Million Climate Jobs*, which appeared in two editions, edited by Jonathan Neale (2009a, 2010). Neale (2010: 6-7) argued that the framing of "climate jobs" differed from what politicians usually meant by green jobs. Firstly he narrowed the focus on the type of work done. He wrote: "We mean climate jobs, not green jobs. Climate jobs are jobs that cut down the amount of greenhouse gases we put in the air and thus slow down climate change". Green jobs could mean work in the water industry, national parks, landscaping, bird sanctuaries, pollution control and many more things. He argued: "All these jobs are necessary. But they do not affect global

warming. We mean jobs that tackle the main sources of emissions". Second, these climate jobs would be directly employed public sector occupations. Neale criticised government policy, which simply used subsidies and tax breaks to encourage private industry to invest in renewable energy. Climate jobs would be direct government jobs. He wrote: "The traditional approach is to encourage the market. That's much too slow and inefficient. We want something more like the way the government used to run the National Health Service. In effect, the government sets up a National Climate Service (NCS) and employs staff to do the work that needs to be done."

Neale (2010: 8, 41) argued that the proposed national climate service would "employ people directly in making the components for wind turbines, putting the components together, installing and maintaining the turbines, and building and working the ships we need for offshore wind". Other indirect jobs would be created for "workers who make the supplies and services the NCS needs – steel for the turbines and ships, the hammers and saws for the building workers, the paint for the buses". He argued that further induced jobs would be created by workers' spending on "shoes, clothes, cinema tickets, meals, cameras, fishing rods, tickets to gigs, and so on". While the framing appears to be compatible with ecological modernisation, the sharper emphasis on workers gaining during the process of transition and on public ownership was more distinctive and class-focused. Neale argued that "anyone who loses their job because of the new economy will be offered work in the NCS, with retraining and their old wages guaranteed". He advocated exploring "alternative, democratic forms of public ownership if the planet's productive resources are to meet social need and halt a slide towards ecological disaster". This was closer to the original, stronger conception of just transition envisaged by Mazzocchi.

The demand for one million climate jobs was also perceived as a key mobilising tool, shaping an alliance between trade unionists, environmentalists and other activists to tackle climate concerns alongside other wider issues arising from the economic crisis. Implicitly, it was not aimed at partnership with employers or indeed with existing governments. Neale (2010: 42, 46) argued that climate jobs allowed campaigners to offer a positive way forward. Instead of simply defending this or that service, or opposing certain cuts, climate jobs "won't just create work and save the planet – the investment has the potential to pull the economy out of crisis". However

he warned that winning a million climate jobs would have to be fought for. But campaigning for climate jobs "will help unite trade unionists, environmentalists, students, pensioners and the unemployed. Such a coalition will be a powerful force". The campaign had some success, reaching out beyond the higher levels of the unions, circulating thousands of copies of the pamphlet through trade union branches and organising events, such as the Climate Caravan to raise the profile of climate jobs during the economic downturn (Field notes, 25 May 2012).

5.3.2 Socially useful work

Implicit in some trade union discussions of climate jobs is a challenge to nature of work under modern capitalism. Some union climate activists questioned what production was for: was it for profit or for social need? Incorporating climate change within this latter, broadly defined conception of social needs meant some trade unionists acquainting themselves with earlier discussions around socially useful production.

The British labour movement, like its counterparts around the world, has witnessed challenges to nature of work, which have raised questions about exploitation, workers' control over the labour process and the types of commodities (whether goods or services) produced at work. Kinnersly and Cooley (1976) described a conference of trade unionists held on these issues in 1975, organised by the Southeast London branches of the Socialist Environment and Resources Association and the Institute for Workers' Control. The conference proposed socially useful production, using models such as the Lucas plan to simultaneously tackle unemployment and environmental concerns. Similarly, Kazis and Grossman (1982) described the Environmentalists for Full Employment campaign, which, sought to tackle the "jobs blackmail" argument juxtaposing employment to environmental protection. These precedents were drawn upon by some sections of UK trade unions when confronted with climate change.

The example of the Lucas Aerospace plan was undoubtedly the most widely cited precedent, particularly because the plan raised the question of socially useful production. Wainwright and Elliott (1982: 107-9) explained that at first, the meaning

of socially useful production tended to be "intuitive and implicit". However the Lucas Combine Committee delegates spelt out an approximate definition of a socially useful product: It must not "waste energy and raw materials, neither in its manufacture nor in its use"; it must be "capable of being produced in a labour intensive manner"; it must "lend itself to organisational forms within production which are non-alienating"; and be organised "to allow for human creativity and enthusiasm". The Lucas stewards were not the first to have challenged the social values behind product decisions. The novelty of their initiative was that they challenged these values "as producers as well as as citizens, users and consumers".

Trade unionists attending the first Campaign against Climate Change (CaCC) trade union conference in 2008 raised the Lucas plan as a model for climate campaigning, while it was explicitly discussed by the Workers' Climate Action network at its gatherings in 2008 and 2009 (Field notes, 11 February 2008; 25 August 2008; 7 March 2009; 10-11 October 2009). The Lucas example was also cited by Frances O'Grady during a TUC seminar for green workplaces day in June 2009 (Field notes 9 June 2009). During the Congress debate on one million climate jobs, PCS delegate Adam Khalif (TUC 2010b: 117) hailed Neale's pamphlet as "a new Lucas Plan".

Räthzel, Uzzell and Elliott (2010: 81-2, 85-6) made the connection between the Lucas experience and climate change. In interviews Räthzel and Uzzell conducted with a wide range of different trade unionists, many interviewees referred to Lucas Aerospace as a model. Like climate change prevention, the defence spending cuts during the 1970s were acknowledged as a necessary and progressive step, although with foreseeable employment consequences for workers. Lucas trade union stewards "decided to try another way. Instead of fighting for the maintenance of the defence-related jobs, they started the struggle for the transformation of production at Lucas from military hardware to socially useful products". Climate change has brought such contradictions even more sharply into focus, and "made projects like the Lucas Plan a necessity". Common themes such as collective action, the progressive potential of technology and the importance of decent employment were emphasised.

There was some evidence of similar themes internationally. Sweeney (2012: 29) articulated the case for "energy democracy", which included demands for social

ownership and democratic control over energy corporations. He argued that the trade union movement can work with other social movements to develop a vision for energy to move people into action and show that "another energy system is possible". Some union reps and officials also discussed shorter working hours, homeworking and other forms of potentially climate-friendly working patterns (LRD 2007; Field notes 23 May 2007; Flaxton 2010). Earlier proposals on reduced working hours as a means of gaining more leisure time, improved quality of life and to reduce unemployment were extended to climate change.[37] Radical proposals were discussed to reduce hours with no loss of pay, so that capital bore the costs through reduced profits. These fertile lines of reasoning were not curtailed by the economic recession (see Watt 2012).[38] These radical union conceptions went further than ecological formulations of the job guarantee and basic income guarantee (Lawn 2009), which also challenged conventional conceptions of employment. Indeed the defence of jobs along the lines of a Lucas climate plan arguably begin to challenge the relations of production (the largely private appropriation of nature) and implicitly the relationship between society and climate mediated by labour. The inspiration of Lucas gives trade unionists a radical edge within the emerging climate movement.

5.3.3 The potential of just transition

The just transition concept was developed by trade unionists in an effort to grapple with both threats to existing jobs and the opportunities for new employment. Snell and Fairbrother (2012: 149) asked two pertinent questions about the potential and limitations of just transition: first, what are the conditions for such a transition to be just; and second, "what capacities do unions have to influence economic and political conditions in such a way that 'just transition' can be actualised?" Rossman (2012: 58) argued that just transition has two shortcomings. First, it can "underestimate the extent to which current technologies are embedded in power relations that require more than rational arguments to transform"; and second, just transition "tends to overlook that rights are never granted, but always fought for". The experience of just

[37] Knight, Rosa and Schor (2013) proposed reduced working hours on climate grounds, without ignoring possible rebound effects of more leisure, such as the "lights into flights" Tesco advertisements (see Chitnis et al 2013).

[38] This discussion should not be confused with the agreements some unions made to accept short-time working (Taylor 2008), with the resulting loss of pay traded for promises of job security in some workplaces, which were not related to climate objectives.

transition in the British labour movement in the first decade of the century provides some support to these matters.

In the light of these considerations and in the context of Mazzocchi's original vision, the TUC's version of just transition appears to have been breezy but somewhat impoverished. This was well captured by Nigel Stanley (2009), TUC head of communications, who blogged: "I'm not sure I'm too keen on the phrase [just transition], but the idea that adaptation and the move to a low-carbon economy must be done in a way in way that doesn't make the world even more unfair and unequal is absolutely right. It really is jobs, justice and climate". Three elements are remarkable: first, the lack of clarity on the destination of a low-carbon economy – or rather the goal of climate politics; second, whether the strategy and transitional measures are sufficient to affect such a significant transformation; and third, what just transition implies for the alliances forged by unions with other actors.

Comments from senior union officials for the just transition project illustrate these limits. Just transition is presented as a matter of long term sagacity, rather than challenging existing relations of production. Interviewee Beta said: "I'm not quite sure I like the concept of just transition, but I think it's useful to a certain extent. But I think that what you have to do then is as the government has done for energy, is to think ahead 40 or 50 years actually." They added: "So I think we haven't had that have we, that sort of very long term, part of the government do it, they call it foresight." Another interviewee (Gamma) put it in terms of unions coping with changes beyond their control. They said: "Theoretically, I don't think the no change model is an option. I don't think you can say we're not going to accept any job losses period. I don't think trade unions are able to stick any kind of flag in any kind of sand in this economy or any other kind of economy." They added: "That's not how things have ever worked before and it's not going be the case in the future. You can't help thinking that the changes that do emerge will emerge in the way that they've always done, in an incremental way."

The lack of radical policy proposals for thoroughgoing change at work was recognised by some senior union officials. The *Green and Fair Future* pamphlet (TUC 2008c: 11) quoted a study of environmental transition in Canada, which

concluded that just transition had remained "largely a slogan" rather than "a well-articulated theoretical programme". It had not taken off because "there has been no green job creation worth the name". Even during negotiations to secure a just transition clause in the global climate agreement, this was recognised. Anabella Rosemberg (ITUC) pointed out in the run up to Copenhagen that "even now, few governments really know what 'just transition' means. When the phrase appears on their screens here, probably 90% of them won't fully understand it. Of course, they probably won't be alone in this" (quoted in Pearson 2009f).

There is thus some evidence of an appreciation that ends are important and union campaigning for reforms in response to climate change would have to challenge the destination of the ubiquitous low-carbon economy. For the TUC's just transition project, interviewee Gamma said: "I strongly suspect that it will be capital that shapes the future and shapes the low-carbon economy. And I strongly suspect that we'll be fulfilling our historic role which as you know has been about getting a good deal for the workers in the context of that model. I don't think the low-carbon economy ultimately will be anything other than a capitalist economy, but it clearly has to look very different, just through necessity." However they also made the point that unions would "do well to dust off our William Morris and earlier ideas about communism", because the climate debate has a silver lining: "you can start to think about different ways of organising society. You can think about more wholesome worlds where we're not saddled with debt trying to afford the latest gadget". Trade unionists have to take part in the real politik of bargaining within the system. Yet they cannot ignore the way society is organised and avoid articulating a vision of how it might be done on different lines and following different imperatives. The classic debate between immediate reforms and a more radical transformation is also played out in climate politics.

Nugent (2011: 62-3) somewhat exaggerated the extent to which just transition represented a "counter-hegemonic position" compared with the dominant framings. To some extent, the conception constitutes a distinct, union-initiated and worker-based contribution to climate politics. The conception of a just transition is trade unions' distinctive intervention into the complex world of climate politics. It represents an effort to articulate a specifically worker interest in the process, taking a

long-term strategic view of the trajectory of the world economy and some of the likely restructuring ahead, within which unions will need to represent members' interests. It also suggests the kind of measures needed to ensure that the transition is not at the expense of workers' living standards. The plasticity of the concept allowed for more radical interpretations. For example, the demand for a "worker-led just transition" was discussed by trade unionists and climate activists, including at the Climate Camp, where it became the main slogan of Workers' Climate Action campaign (Field notes, 10 August 2008).

Tersely, the social structures of neoliberal capitalism are the systemic constraint on making a transition to a low-carbon economy. Radical versions of just transition require the wholesale transformation of social relations of production, not simply technological shifts. Rossman (2012) rightly suggested that technology is never socially neutral. The ownership and democratic control of natural resources, (particularly those which produce huge quantities of greenhouse gas emissions), are vital conditions for ensuring that any low-carbon transition is socially just, but also swift and effective. A renewed socialist vision would have to incorporate these concerns, but even low-carbon capitalism would have to overcome resistance from significant sectors of capital. Hence the importance of social agency for just transition. At present, the trade union movement in Britain and internationally alone may not have the political and organisational leverage to enforce such a large-scale transformation. However with clarity of vision, leadership and organisational regeneration, it is a movement with substantial strength and one potentially capable of coalescing climate activists and other campaigns around it to begin that process.

5.4 Conclusion

The employment impacts of climate change cannot be avoided if the future low-carbon economy is to be socially just. With the concept of just transition, some UK trade unionists began to articulate their own distinctive climate policy, based around a separate class interest workers had on climate matters. The framing of just transition by the TUC during this period articulated some class concerns within the sheath of ecological modernisation. Although there is some tension between the embrace of low-carbon transformation and the defence of jobs and living standards, and over the precise means to get to a low-carbon economy, just transition does capture principles of distributive and procedural justice that underpin the trade union endeavour. The concept of just transition could be extended to every level of climate change policy, from the production process to government fiscal policy and to wider democratic governance.

Demands for public sector climate jobs and for socially useful work may best be analysed as articulating a more radical desire by trade unionists to shape the form of the emerging low-carbon economy and discourses around it. Given the essential mediating role of labour in defining relations between human society and the earth's climate (as discussed in Chapter 2), employment questions are unavoidable for climate politics. Some union discussions in the UK during this period indicated the continued relevance of class interests to any progressive and socially just vision of a low-carbon economy. A more radical interpretation of just transition will be necessary to fully capture the extent of the transformation necessary and to galvanise wider social actors around the labour movement axis.

6) Climate representation in the workplace

6.0 Introduction

Trade union environmental representation signifies a further distinctive working class contribution to climate mitigation and adaptation. During the first decade of the twenty-first century, trade union activism on climate change in workplaces increased significantly. The innovations developed by trade union representatives in the UK deserve to be better known, yet they have hardly featured in research. This contrasts with work in Australia by Snell and Fairbrother (2010: 215), which highlighted the role of "climate heroes" or "champions" – union representatives dedicated to promoting climate change at the workplace level.

This chapter utilises union documents and surveys to evaluate a new form of working class representation around climate change in the UK. Section 6.1 examines the growth of trade union climate representation and asks how effective union reps are as actors reducing carbon emissions. It assesses whether this kind of representation is merely an adjunct of neoliberal climate politics. Section 6.2 evaluates the union Green Workplace projects in the context of ecological modernisation discourse and assesses the extent to which climate reps were partners with government and employers. Section 6.3 evaluates the significance of union reps for workers' climate action and whether they are a force for union renewal.

6.1 Trade union climate representation

6.1.1 The growth of trade union climate action in the workplace

Trade union environmental representation signifies a distinctive, working class contribution to climate politics, based on independent organisation and mobilisation of lay trade union activists and officials. The idea emerged as part of the surge of interest in environmental issues in general and concerns about climate change in

particular.[39] The explicit demand for an environmental role for UK trade unions was first made in the late 1980s and it took the form of extending safety representation beyond the work environment. An early reference to this role was made in a TUC memorandum submitted to the Royal Commission on Environmental Pollution (TUC 1988a: 118), which demanded "the need to involve trade union representatives in decision making at the workplace about environmental protection policies". The TUC's *Charter for the Environment* (TUC 1989d: 12) stated that trade unions needed to be more active around environmental pollution in the workplace, while discussion at Congress (TUC 1989b: 377; 1990b: 351) referred to "green shop stewards" and "green strikes". Subsequently, Congress (TUC 1991b: 438) called for union reps to have the statutory rights for inspection, information and training on environmental issues (see Benn 1992 for another articulation).

However it was not until the first decade of the new century that climate-related workplace activity became prominent (see TUC 2002c). Starting in 2005, trade union environmental activity in the UK mushroomed into one of its most high-profile successes. The remarkable progress made by unions on environmental issues in recent years is evident from union sources. The TUC's *Greening the Workplace* report (2005) highlighted only a handful of union examples, yet surveys carried out by the Labour Research Department (LRD) in 2007, 2009 and 2012 indicated much more widespread activity. For example, one survey (TUC 2009d: 1) found "thousands of climate champions making a substantial contribution towards cutting carbon emissions across the UK".[40] Several unions (such as Unison, PCS, UCU and Prospect) established climate and environment networks involving hundreds of reps.

[39] Rikards (TUC 1972: 39) called for "legislation to enable a co-ordination of all trade union and management efforts to combat industrial pollution" at the 1972 TUC environment conference.

[40] The author was employed by Labour Research Department (LRD) during the period and carried out an environmental reps survey in 2007 and the subsequent 2009 TUC survey. The role also meant speaking to key union actors, attending TUSDAC and providing input into TUC and other union publications and events. The 2007 survey (LRD 2007) received 677 responses and found a "real appetite" among union reps for work on environmental and climate issues. The following survey (TUC 2009d) received 1,301 responses. A subsequent LRD survey (TUC 2012c) received 1,200 responses and indicated further progress with advancing climate issues at work. These surveys were self-selecting and not a representative sample of union reps activity. Therefore care has to be taken with quantitative generalisation from the results. However these surveys were indicative of a range of union reps' attitudes, behaviours and activities and recorded some interesting qualitative comments and assessments made by these representatives.

These LRD surveys found examples of union representatives engaged in wide range of climate-related activity in the workplace, including mitigation and adaptation. Some union reps had been involved in discussions around substantial energy efficiency measures with their employers, such as the installation of solar panels and wind turbines, modifications to heating and ventilation systems, changes to IT and lighting use, as well as other energy consumption measures at work. Similarly, union reps reported engagement with workplace green travel plans, cycle to work schemes, public transport subsidies and remote working. A range of recycling and waste reduction measures as well as a green procurement were reported, indicating a variety of measures to bring about climate-related behavioural change in workplaces. Less evidence was found on climate change adaptation, particularly in tackling high temperatures during the summer months (such as changes to dress codes), or for adequate plans to respond to extreme weather events such as flooding and storms in the workplace. However a prime facie case can be made that by 2010, a significant layer of trade union officials, activists and representatives had begun to engage with the implications of climate change at work.

In 2006-07, union workplace climate activity became more visible with the TUC's Green Workplaces project, which aimed to raise awareness and build capacity "within the British trade union movement to address climate change and energy issues in the workplace". The TUC organised a conference through TUSDAC (TUC 2006a: 80) for workplace environmental reps marking World Environment Day on 5 June 2006, with backing from the Carbon Trust. The six demonstration projects participating were at Corus, Friends Provident, Defra, Scottish Power, the British Museum and the TUC itself. The TUC's own evaluation of these initiatives (2008d: 2-3) found that were "union-led, and there was an unusually high level of engagement from both members and potential members". During the year, "around 500 reps were trained in energy saving skills". A General Council report (TUC 2008a: 78) noted two guides had been produced: *Go Green at Work*, incorporating a model agreement and guidance for reps and officers, and the leaflet, *How to Green Your Workplace*. These were used "to update environment education programmes with a particular focus on climate change". The projects provided "considerable organising opportunities" and "widened the bargaining agenda into an area of strong concern for workers of all ages".

The success of the original Green Workplaces pilots helped the TUC secure funding for the Carbon Partnerships Project. The General Council (TUC 2007a: 66) described its work streams as: training 500 workplace reps, energy efficiency partnerships, a carbon calculator and developing green union leaders. The General Council (TUC 2008a: 78) celebrated this new leadership role at a "well-attended breakfast event" involving union general secretaries and climate minister Joan Ruddock in November 2007. Ruddock acknowledged "the unique and valuable role of trade unions in raising awareness and mobilising people to help address the challenge of climate change".

Momentum was further spurred after the TUC secured funding from the government's Union Modernisation Fund (UMF) in 2007 to expand its work on environmental representation. According to the General Council (TUC 2009a: 71), this project aimed at "developing new skills in the workplace and extending the union consultation agenda to include environmental and climate change issues". The TUC's own evaluation (2010f: 4, 31) claimed that it had "trained 97 environmental representatives, resulting in changes to workplace structures and the formation of environmental committees/forums" at British Telecom Adastral Park, Ipswich, Great Ormond Street Hospital for Children, Leicester City Council, the National Library of Scotland in Edinburgh, National Museums Liverpool, the National Union of Teachers (NUT) and United Utilities. Those projects that established formal structures for union involvement were "able to put in place a process that will enable greater staff consultation in the workplace by linking top-down management approaches to union-led bottom-up approaches". Towards the end of the project, the General Council (TUC 2010a: 69) proudly claimed that it had produced a range of support materials and advice for union reps and officers, including the distribution of over 6,000 copies of the new environmental workbook, *Targeting Climate Change*, briefings on key topics and a monthly *GreenWorkplaces* newsletter. Over 9,000 copies of the TUC reps' handbook, *Go Green at Work* had been requested by affiliates, "reflecting the growing interest from union reps in including energy and environmental issues in the collective bargaining agenda". The joint TUC, CBI and Department for Business publication, *Reps in Action: How Workplaces Can Gain from Modern Union Representation* (BERR 2009: 8) lauded "the considerable

reduction in energy consumption attributed to an earlier Green Workplaces project at the British Museum", worth around £700,000.[41]

Five years on from the beginning of the green workplace initiatives, networks of union representatives acting on environmental and climate change issues had been established within a number of unions and between activists in different unions. Progress was registered by the 2009 TUC survey (TUC 2009d: 2). Some 1,301 union representatives and activists responded to the survey. TUSDAC and the TUC officials were delighted with the results, which had found "a remarkable range of union-led initiatives to tackle climate change in the workplace, including over 200 joint management-union committees discussing climate related issues, and 150 working parties covering environment/climate change issues". In June 2009, the TUC held its annual half-day conference to mark World Environment Day. The event launched *Unions and climate change, a guide for union reps*, a booklet containing the results of the TUC survey and *Targeting climate change*, the TUC's new unionlearn education workbook for union representatives.

Apart from the significant number of workplace committees discussing climate-related matters, the survey also found that a small number of union reps in both the private and public sectors had negotiated agreements with their employers on environmental matters. Such agreements institutionalised the role of union reps and union members in reducing emissions. The survey (TUC 2009d: 30-32) reported that Unison, Prospect, Unite and GMB unions within energy firm EDF had "negotiated an international agreement on corporate responsibility, which includes commitments to tackle climate change". Management at Western Power Distribution had agreed to expand the remit of the safety committee, to make it a safety, health and environment committee and to allow additional environment reps to sit on the body. The agreement included "time off for training for the environment reps, as well as for existing safety reps, in recognition of the complexities of climate science and the rapidly developing government policy on the issue". UCU had negotiated an agreement at South Thames College on environment reps. The survey reported that

[41] Overlapping with the national projects, the TUC in the South West of England started its own Green Workplaces project in 2008. When the project finished in 2010, the evaluation report (South West TUC 2011: 8) claimed that it had "briefed over 920 individuals on its work and on why climate change is a trade union issue".

Unison and GMB reps at Bristol City Council were negotiating an agreement on facility time – thought to be the first full formal green reps agreement with any local authority in the UK.

The UMF project *GreenWorks* report (TUC 2010f: 34) noted that unions such as UCU and Unison produced their own environmental newsletters, while PCS, Prospect and Unison provided online resources to aid negotiations on greening the workplace. The TUC registered "a growing number of requests for speakers and information on green issues at union conferences at events", including the Tolpuddle Green Camp. The Connect and NUT young teachers' conferences both had climate change as their main theme. The earlier GreenWorkplaces evaluation (TUC 2008d: 12-13) pointed to a Unison national one-day conference for members and workplace representatives in the public sector on 17 January 2007, attended by over 100 delegates. Cover story articles on climate change appeared "in approximately eight or more different trade union journals over the last year". The General Council (TUC 2010a: 69) launched an online guide *Greener Deals: Negotiating on Environmental Issues at Work*, at the unionlearn conference. The guide included thirteen case studies, highlighting the progress made by union reps on negotiating trade union involvement in workplace environmental management.

The UMF project report (TUC 2010f: 5) stated that after nearly five years of frenzied voluntary activity by union environment reps, the workplace initiatives had reached a "tipping point". The TUC's development model, "based on capacity building in demonstration projects, with training courses, training materials, and other support activities" helped to "set standards and ensure the spontaneous development of many other green workplace projects throughout the UK". TUC officials concluded that it was now possible to coordinate "a network of union green reps" and develop resources to "exploit the true potential of workplace engagement in climate change". On 25 February 2011, union leaders (TUC 2011f: 1) launched the first UK online network for green union reps. Officials claimed that green reps play "a crucial role in encouraging employers and staff to take part in environmental projects at work, cutting UK carbon emissions and boosting company profits". They reiterated the argument that "giving reps basic legal rights to act on climate change issues in the workplace, statutory time off to perform their roles, and access to training, would go

a long way to unleashing the untapped potential that exists among green reps in UK workplaces". It seemed that the time for climate reps had finally arrived.

6.1.2 How effective are union reps?

How effective are union reps as actors reducing carbon emissions? A Eurofoundation report by Vitols et al (2011: 52), while largely supportive of the "remarkably positive development" of union environmental representation across Europe, nevertheless argued that "the actual impact of the projects aiming to green the economy, implemented by social partners, is barely measurable". They described the projects as "still very recent initiatives and lack a final evaluation". This argument cannot be sustained once the UK experience is examined: on the contrary tangible and quantifiable outcomes were recorded in a range of projects. The first Green Workplaces projects (TUC 2008d: 12) indicated quite specific amounts of carbon emissions reduced by their activity – and the evaluation provided the conversion equations to enable reps in other workplaces to calculate their contributions. The project evaluation estimated the carbon savings from Green Workplaces phase 1 of 465 tonnes of CO_2, with a further projected saving of 2,744 tonnes CO_2. Although the UMF project (TUC 2010f: 19) did not attempt to quantify the carbon savings it had overseen, the National Library of Scotland did pledge to a 30% cut in carbon emissions over the next five years through the Carbon Trust's Carbonlite programme and joined the 10:10 campaign.

The TUC's *Greener Deals* publication (TUC 2010i: 18-9, 23, 30) claimed that BECTU reps had saved nearly a £1,000 a year in reduced energy costs at the Princess Theatre in Torquay. At Bristol City Council, training was expected to deliver fuel savings of at least £350 every year for each diesel van covering at least 25,000 miles in a year. At HM Prison Guys Marsh, Shaftesbury, the anaerobic digestion plant reps had campaigned for saved around £1,500 a month. Worcestershire County Council introduced a remote controlled energy system at the suggestion of GMB reps, which helped reduce energy costs by at least 15% every year. The TUC's *GreenWorkplaces News* bulletin (TUC 2011g: 1) reported further successes. The most outstanding was a project called JUPITER (Join us People in Tackling Energy Reduction) at

ABInBev's Magor brewery in South Wales, where "a union-led energy saving project" had cut carbon emissions "by a massive 40% within two years".

The difficulties with quantifying emissions on a workplace level should not be underestimated, particularly when transport is included. Ultimate responsibility for these figures did not rest with union reps – only employers had the necessary data to produce adequate estimates and for the period under consideration, they were not obliged in law to disclose their emissions. Perhaps the Green Workplaces projects and other examples were Potemkin villages, unrepresentative of most workplaces? Undoubtedly unions put forward the best examples they could find. But the wide range of possible activities highlighted by the surveys suggested that, at the very least, union environmental reps were more widespread than had been anticipated, and could demonstrate the potential power and interest to instigate significant emissions reductions. If a handful of climate reps could have a larger ripple effect on scores and even hundreds of employees, particularly in larger workplaces, thousands of reps could make a substantial contribution given the opportunity.

6.1.3 Pensioners or prisoners of neoliberalism?

Union environmental representation developed a great deal during the first decade of the new millennium. But how far was the work of environmental reps independent of the government and employers? To what extent were they captive of other interests? In a wide ranging assessment of the structural and contextual situation trade unions faced under Labour, McIlroy (2009: 195) summed up the accommodation of union leaderships in terse fashion. In practice, "the majority of British trade union leaders have adapted to neoliberalism". They were "prisoners and pensioners of neoliberalism, sometimes reluctant prisoners – over employment legislation – sometimes enthusiastic pensioners – over training and the funds that go with it". Although McIlroy did not examine the newly-emerging environment reps, his tantalising thesis does raise the question of whether environment representation effectively became pensioners and prisoners of neoliberalism. Swaffield and Bell (2012) and Lewis and Juravle (2010) found that non-union "climate champions" constructed the process of social change in neoliberal terms. Was this also the case for union environment reps?

The strong "pensioners" thesis could be expressed as follows: union environmental rep projects were fuelled from government coffers, creating an artificial involvement in climate matters that would not have taken place without such funding. Evidence of government financial support certainly exists. TUSDAC is a joint government-unions body, with Defra contributing staff time for policy and working group meetings, as well as funding for ad-hoc projects such as Climate Solidarity (the latter was closed prematurely by the Coalition government in 2010). The Carbon Trust, established and funded as a result of the Climate Change Levy, also provided finance, including for Caroline Molloy to be seconded from the TGWU to the TUC to take responsibility for the first pilot Green Workplaces projects. The TUC secured further funding from the Carbon Trust for the Carbon Partnership projects. The next phase of Green Workplaces projects were funded by a UMF grant, which paid for the secondment of Sarah Pearce from Unison to the TUC, while the South West project was part-funded by the Regional Development Agency. Government-funded Unionlearn also contributed finance for training and related materials.

However the argument about "pensioners" can be readily discarded, at least with respect to environmental representation. If creating environmental representatives was a project supported by Labour, then in government it never provided sufficient financial backing and failed to take the opportunity to institutionalise them when it had the power to. The more likely explanation is that Labour ministers were desperate to avoid legislating because of resistance from employers' bodies, and that funding was much more of a sop to union leaders to continue with voluntary initiatives instead. Government money for union environmental representation probably did not exceed a million pounds over the decade, a fraction of the input from unions themselves. The government contribution to unions hardly compares favourably to the financial support provided directly and indirectly to employers and their organisations on the environment and climate change over the same period. At best the funds gave the TUC additional capacity to oversee and coordinate activity promoted by affiliated unions. Individual unions and the TUC self-funded full-time and part-time posts for officials to attend events and produce briefing papers. The costs of conferences, seminars and other collective gatherings were borne by the unions themselves, even where they were attended by government, business and NGOs personnel. The government money went to the top of the trade union

movement, paying for temporary extra staff. Very little went directly to workplace union reps, though some trickled down in the form of publications and free conferences. In the main, the activities of union environmental reps were undertaken free of charge from central government's point of view: it was either during work time (in which case employers were effectively paying) or conducted outside of normal working hours (voluntarily by the reps themselves). The charge that environmental reps were pensioners of the neoliberal state does not stand up to scrutiny.

If environment reps were not pensioners of neoliberalism, then there appears to be more traction with the weaker thesis, namely that they were nevertheless captive of Labour approach and therefore "prisoners" of neoliberal climate politics. Vitols et al (2011: 53) claimed that "in some of the projects researched, the state played a major role". Most union leaders and TUC officials often did support the government's climate politics, although there was still some disagreement over energy and transport policy. Unions were also cognisant of the political context of their demands, supporting government initiatives such as the Carbon Reduction Commitment to widen the scope for involvement of union reps (see Chapter 4).

However union environmental representation was never government policy between 1997 and 2010. The initiative and direction of environmental representation was set by union leaders, TUSDAC, union officials and workplace reps, not by government. The demand for union environment reps came from the unions themselves, as did the specific proposal for a statutory basis for representation in the workplace and outside. Despite making the demand for over twenty years and initiating the surge of activity in the new millennium, legal rights appeared no nearer to being implemented by Labour ministers towards the end of their administration than it had been at the beginning. In many respects environmental representation was rather inconvenient to the government, since it stepped outside of the neoliberal paradigm of actors, which it centred largely on business leaders, managers and individuals only as consumers.[42]

[42] An amusing example took place at a TUSDAC meeting in 2007, when Defra officials presented their plans for "environmental engagement". This showed a triangle, consisting of government, business and individuals/society. When asked by somewhat irritated participants about the omission of unions, Defra officials first suggested it was with employers, before conceding that in fact unions were in all three (Field notes, 26 February 2007).

In fact central government had almost no direct role in any of the Green Workplaces projects.

Certainly the projects required what Sarah Pearce (TUC 2010n: 3) called "senior management buy-in", because as voluntary projects they would simply have been ruled out of order by employers without their consent. In these cases, it was often an existing part of the employment relations apparatus, such as a joint union-management consultative committee or safety committee, where discussions around the environment and climate change were raised and progressed. Employers such as Corus and Leicester City Council had pre-existing environment programmes, which union reps could appeal to as justification for their own involvement. In cases such as The British Museum, the York office of Defra, Great Ormond Street Hospital, the National Library of Scotland, National Museums, Liverpool and United Utilities, the original moves and instigation came from union reps in the workplace and were backed by central or regional union officials.

Even in firms such as BT with established environmental targets and "carbon clubs", pressure for further workplace involvement came from reps, often responding to materials put out by their individual unions. As Andrew Cassy, Prospect (formerly Connect), union environment rep at BT's Adastral Park put it:

> I have found the union support and resources invaluable for my own personal development and awareness on environmental matters, which has directly fed into my employment activities. The full range of union resources has been used, from online information feeds, training events, local, national and even international conferences, green camps and booklets through to local branch representation and support.
> (TUC 2010f: 12)

This was confirmed by the 2007 LRD survey and 2009 TUC survey, where reps that later joined Green Workplaces projects reported their activities, in some cases stretching back a number of years before government money was made available.

Union environment reps were not "prisoners" of Labour climate politics in the sense of carrying out the government's bidding in workplaces. The only real sense in which union environmental representation was "imprisoned" by the Labour government was the way in which ministers dangled the promise to examine statutory rights if sufficient evidence was accumulated. In fact ministers stuck to the

neoliberal approach, to the exclusion of legal changes, in order to placate employers' organisations. David Miliband told Congress in 2006 (TUC 2006b: 78, 80) that he welcomed the TUC's commitment "to create a thousand climate change champions in the workplace". However asked about rights for reps on the environment, he evaded the question by arguing "this is a way to serve the interests of employees and the interests of the company or the organisation at the same time". Miliband was asked the question again at Unison's *Green Your Workplace* conference on 17 January 2007 and at the TUC's *On Target?* climate conference, 4 June 2007. In both cases he said he would wait for the government's consultation on workplace representatives' facilities and facility time to "see the case for it" (Field notes, 17 January 2007; 4 June 2007).

The government's response to this consultation (BERR 2007: 4-5, 13) decided it was "premature" to consider providing distinct time off rights to environmental representatives. The government said it "appreciated" the arguments to put environmental representatives on a statutory footing and that like union learning representatives, this type of representative was "an exciting feature of modern trade unionism". The response concluded that "their development is still in its infancy, and it is not yet certain whether there is a real and sustained demand among union members for them to function at their workplaces". However, it made available UMF funding "to co-finance innovative projects by trade unions to nurture and develop these categories of representatives". The emphasis on voluntary agreements instead of statutory rights for environmental reps was continued by the next Environment Secretary Hilary Benn. Speaking at the TUC's climate change conference on 16 June 2008 (TUC 2009t: 35), he praised the "real commitment and enthusiasm" for their "bottom-up union and employee led action", but did not commit on statutory rights.[43]

[43] This was in sharp contrast to earlier Labour Party promises and Benn's own pronouncements (1992) while working for the MSF union. John Edmonds (TUC 1991b: 438) told TUC Congress in 1991 that, "We want in environmental issues the right to inspect, the right to information and the right to training. I am delighted to say that the Labour Party shares our belief in green rights and argues that these green rights for employees should apply in every European Community state". Labour's policy statement *An Earthly Chance* (Labour Party 1990: 13) stated: "Trade unions should have the right for time off to receive training in environmental matters." Its statement *In Trust for Tomorrow* (Labour Party 1994: 51-52) retreated from the earlier enthusiasm, but pledged that a Labour government would "introduce a statutory obligation for companies to consult their workforce over environmental issues, in just the same way as they currently have to consult on health and safety matters; indeed, the two areas are often hard to distinguish". It would also "introduce protection for 'whistleblowers' who reveal that a company is breaking environmental laws" and give employees

The ground appeared to shift slightly in 2009, in light of growing evidence of the activities of union environment reps and examples of workers making green demands around jobs. Ed Miliband spoke at Congress in September 2009. The pressure was heightened by the presence of workers from the recent Vestas wind turbine plant occupation (see Chapter 7). Miliband (TUC 2009b: 124-5) paid "tribute to the green reps throughout the country who are doing such a fantastic job". He said the "low-carbon revolution" could not be done by government alone, it needs "people to make it happen, and all round this country trade union green reps are showing the way to the low-carbon future that we want". Asked about legal rights for environmental workplace reps, he replied: "I certainly have not said that we are ruling out putting environmental reps on a statutory footing and I have a role in the next manifesto, so I think that is a very live and important issue for the next manifesto and I think it is something that trade unions and I need to discuss." Asked about green reps legal rights at the TUC *Going Green at Work* conference, 15 March 2010, Miliband said he was "sympathetic" and that "there should be more of them" (Field notes, 15 March 2010). However the pledge did not make the manifesto and did not feature in the subsequent Labour leadership contest.

"the right to refuse work that will lead to environmental damage in contravention of regulatory requirements".

6.2 Green reps and ecological modernisation

Although union climate representation at work was an independent, working class approach juxtaposed to neoliberal framing, there is nevertheless evidence of accommodation to ecological modernisation discourses. Labour governments were prepared to grant trade unions some insider access on climate matters, without extending legal collective rights at work. The Labour government view was expressed in jocular fashion at a special TUC conference about the implications of Kyoto on 27 October 1998. Asked by TGWU official Alan Dalton about extending safety reps' rights to the environment, deputy prime minister John Prescott replied (TUC 1998c: 5-6): "So we will certainly have a look at the environmental points, it's an interesting one. I could see all the difficulties and I can see all the cracks that have been made about it, as you and I can, you know – half your day as safety rep, the other half of your day on the environment, do you ever work for anybody?" This section probes the rationale behind green workplace activity.

6.2.1 The Nattrass report

The lack of traction with Blair's Labour government over legal environmental rights for union representatives forced trade unions to adopt a different approach, which was to flower as climate change became a more high-profile issue during the administration's third term. The turning point was cemented by an independent report to TUSDAC in 1999 by former safety inspector Stuart Nattrass, who questioned the earlier emphasis on extending safety reps rights and suggested a way forward more suited to the existing political context and the tastes of ministers. Nattrass (1999: 17, 9) asked the hard question: How strong is the case for statutory rights for time off for environmental training for union representatives? He found that "virtually no one outside union circles accepted the validity of the case, even in organisations with successful voluntary arrangements". Employers and civil servants saw "no need for environmental representatives as regards the workplace environment, because health and safety representatives cover it". They told him the workforce is "one of many stakeholders in the external environment and could not see why they alone should have legal representation". Union attempts in the early

1990s to energise a green works campaign had been misrepresented as "a back-door way of gaining recognition or influence and ran into the sand".

Nattrass (1999: 4) examined potential strategies for the future and outlined two main options. The first was to continue to propagate the case for legal rights to appoint representatives. The report questioned "whether such rights would be effective without a general duty on employers to adopt a systematic approach to environmental management". Since virtually no one outside union circles accepted the case for legal rights, "unions would have to demonstrate their willingness to meet the substantial training costs that would arise". He proposed a second option, without abandoning the eventual goal of legal rights. This strategy would "concentrate on taking advantage of opportunities to become more involved on a voluntary basis". The report suggested "it might be possible to apply to the DTI partnership fund for financial support for projects on a sector basis, or to work up case studies and guidance on environmental partnerships, or for projects between unions and particular employers".

The TUC Executive Committee discussion of the Nattrass report (TUC 2000e) centred on how to win political support for legislation and how to fund the necessary training. There were also differences between unions over whether the safety reps role should be extended, or whether environmental representative should be constituted separately instead. TUC officials (TUC 2000d: 2) adopted the second, "half-way house" option of voluntary activity. They decided that the most compelling argument to advance legal rights would be to point to "successes where employers have conceded such rights voluntarily". It was suggested that "rather than see the exploitation of existing opportunities for voluntary involvement as an alternative to legal rights, the TUC should approach such opportunities as providing good arguments for legal rights". A key element of such a strategy would be "collecting and publicising best practice case studies".

The General Council (TUC 2000a: 93) retained its policy calling for an environment law placing general duties on employers to protect the environment, including the requirement to consult with unions, because it felt that voluntary measures would only have traction with better employers. On the issue of existing or new forms of

representation, "unions were divided and the TUC adopted the view that the duty on employers should be to consult unions, leaving them to decide how best this could be achieved". However it agreed to develop voluntary projects to demonstrate the relevance of union involvement. The Nattrass report was thus a watershed in the union approach to environmental representation, which turned in classic ecological modernisation terms towards voluntary partnership activity to build up the evidence base for separate environmental representation. Increasingly too, the more modestly-endowed union learning reps rather than safety reps became the model.

This approach was consolidated by the Warwick Agreement between affiliated unions and Labour in July 2004. The Labour Party promised to review facilities, rights and time-off for union representatives, if unions helped to secure its election the following year. TUSDAC (2005j: 4) argued that the government should support "the development of new representative roles – which will both add value in the workplace and may be more attractive to potential representatives than traditional steward's roles". Another TUSDAC submission (2006b: 1) proposed "a flexible approach to tackling sustainability at work – shop stewards may take the lead, or health and safety reps or environment reps". And the committee (if not all individual unions) explicitly broke with old approach, stating "we are not convinced that environmental issues should be 'ghettoised' as a safety reps function".

The new strategy was most fully articulated in the TUC's response to the DTI consultation on facility time in 2007. The response (TUC 2007d: 10-11) restated that "there is a strong case for government to support unions to develop the role of environmental and equality representatives, and to place the functions of these new forms of representative on a statutory footing". TUC officials argued that if "union environmental representatives were able to access paid time-off to undertake training and carry out duties related to the role, government would hand a significant boost to 'green' UK workplaces". Environmental representatives (TUC 2007d: 4, 13) should be "entitled to paid time off to attend a minimum 10 days of accredited training in the 12 months immediately following their election/appointment". They should also be entitled to "reasonable paid time off for relevant training and updating on TUC or union courses in relation to their responsibilities; be appointed or elected by recognised independent trade unions; have the right to reasonable paid time off to

carry out their functions; and have a right to information from the employer to assist them in their duties". TUSDAC (2007a: 7) sought the amendment of the ACAS Code of Practice, *Time Off for Trade Union Duties and Activities*, "to recognise the role of union reps in consultations on sustainable production and consumption".

The approach also began to win support in wider circles – in particular from environmental organisations.[44] Tony Juniper, executive director of Friends of the Earth, wrote to Brendan Barber expressing his support for the campaign. He wrote (LRD 2007b): "It concerns Friends of the Earth that trade union and environmental representatives have trouble being released to deal with environmental matters or attend training courses." He added: "That is why I would like to add Friends of the Earth's voice to your call for the government to give stronger rights for workplace environmental representatives by amendments to the ACAS code of practice." Similarly, the Campaign against Climate Change (CaCC) endorsed the demand, agreeing to establish a trade union group, which organised conferences of union environment representatives and climate activists in 2008, 2009 and 2010.[45]

6.2.2 Green Workplaces Projects

Most unions and the TUC employed the language of ecological modernisation to explain the benefits of union environment reps for employers and the government. This was more than a tactical or presentational decision: it reflected a widely held belief within the top echelons of trade unions that environmental and climate matters were more universal than traditional concerns and joint working for co-benefits was a genuine possibility. This approach was clearly articulated early on in a *Memorandum by the TUC to the National Economic Development Council* (TUC 1991e: 9-10), which insisted that "active trade union involvement in environmental protection at the workplace level requires a new approach, based on partnership, cooperation and joint working". The "traditional adversarial approach" to

[44] The Green Party of England and Wales (2008, 2010) supported statutory trade union environmental rights at its conference in September 2008 and included the demand in its election manifesto in 2010.

[45] The author was a workshop speaker in support of statutory rights for trade union environment representatives at the 2008 and 2009 CaCC trade union conferences (Field notes, 9 February 2008; 7 March 2009). CaCC organised further conferences for union reps (Field notes, 13 March 2010; 8 June 2013).

employment relations was "not sufficient and may undermine environmental protection". The submission registered that "a new approach carries extra responsibilities and obligations on trade unions. Such obligations must be balanced by the establishment in law or through collective agreement fundamental rights for workers".

The ecological modernisation discourse of co-benefits for both employers and workers in tackling climate change at work was evident in the Green Workplaces projects. The aims of the first Green Workplaces project (TUC 2008d: 4) included "practical engagement of workers and management in six schemes at workplace level, to secure measurable energy savings in the short term" and "longer-term Framework Agreements". The Carbon Partnerships Project (TUC 2007a: 66) aimed to "enable unions to work with employers in the private, public and voluntary sectors to cut carbon". Frances O'Grady (TUC 2010p: 1-2) argued that "partnership working with unions can deliver spectacular results for employers... Greening our workplaces is all about unions, workers and managers working together towards a common cause".

Co-benefits were an explicit objective of the UMF projects in 2008-2010. A General Council report (TUC 2008a: 77) claimed that green projects "can have a positive, transformational impact on industrial relations" and pledged to "work intensively with affiliates and employers over a two-year period to develop best practice in up to 15 workplace environmental projects in key sectors". The TUC's UMF evaluation report (TUC 2010f: 5) stated that union involvement "can lead to business benefits through improved environmental performance". It claimed the projects showed the potential for "transformational change" through activities such as:

> enhancing union understanding of energy efficiency and cutting carbon emissions as a key business practice, expanding union experience of partnership working with management on a key business goal, increasing the capacity of union officials to extend the consultation agenda to include new and emerging issues relating to the environment, sustained engagement and dialogue between employees and management on environmental issues that will help to transform employees' understanding of the workplace as a focus of action on climate change and help to secure lasting changes to union-management relations.
> (TUC 2010f: 8)

In the UMF evaluation for government, Sarah Pearce (BIS 2010: 10) claimed that each pilot project was established upon "a principle of cooperation between management and unions". She pointed to the "mutual appreciation of the material impact that these projects can have on reducing carbon emissions has fostered improved industrial relations", because the projects expanded union experience of "a key business goal: carbon reduction". The evaluation (TUC 2010f: 30) lauded the way unions had managed to progress projects in the context of a recession, budget cuts and job losses, providing "an insight into the potential for these projects to sustain dialogue within the workplace at times when industrial relations are potentially strained". Discussions on "largely non-adversarial topics", such as energy efficiency, offered "an opportunity to maintain lines of communication on all sides".

Some participants in the Green Workplaces projects from the union and management side also saw relations as non-adversarial and working towards common goals. Workers at Leicester City Council (TUC 2010f: 17) argued that the project meant "we can break away from a traditional union approach – more organic, less autocratic". Similarly, the head of sustainability at United Utilities (ibid 2010f: 25-6) stated that: "Climate change is changing the rules and I think that extends to industrial relations. Green reps need to be enthused and empowered and be willing to convince colleagues to take action whether the formal structure exists or not." The government's review (BERR 2009: 8) endorsed a carefully proscribed role for environmental reps within this paradigm. It said that the role of the environmental rep was "to gather information about their specific department and help managers and fellow work colleagues to 'get the green message', through identifying how each area could make efficiency savings". The environmental rep initiative had "further solidified the relations between management and unions, and employees felt engaged in the decision-making processes relating to the environment". The sounded much more like the ecological modernisation discourse that influenced other areas of Labour policy.

6.2.3 Partnership

Incisive critiques of union environmental representation claim that it was bound politically and ideologically to government and employers by the self-limiting doctrine of partnership. Wicks (2007: 8) argued that trade union activists needed to "wake up" if they wanted to influence whether or how environmental reps are introduced. This was because the TUC's conception of how to tackle the environmental crisis and the role of reps in that context "is rooted in its partnership philosophy and the idea that 'globalisation' can be 'made to work for everybody'". As he put it, "without too great an exaggeration, the TUC approach could be described as 'unions and employers – working together to save the planet'". Wicks criticised TUSDAC for accepting "the framework of government policy, the belief that market mechanisms can resolve the environmental crisis". Tackling environmental issues "will not be done on the basis of 'harmonious' industrial relations. It will require a struggle", he argued. He was also sceptical about whether the introduction of environmental reps would attract many young people.

There is little doubt about the commitment of the TUC and the majority union leaderships to partnership during this period. McIlroy and Daniels (2009: 149) argued that even the rhetorical rejection of the term partnership by "awkward squad" leaders did not negate the practice of their unions collaborating with employers and the Labour government, rather than utilising mobilisation strategies. The TUC took the advice of Stuart Nattrass to apply to the government's partnership fund for financial support for environmental partnerships. Perhaps the most graphic endorsement of this approach was the joint government, TUC and CBI document (BERR 2009), *How workplaces can gain from modern union representation.*

However the extent of partnership over environmental reps should not be exaggerated. Although the veneer of partnership was glossed over the model projects, the actual activity more closely resembled the organising approach. As Vitols et al (2011: 16, 19) commented, unions and employer associations "interact much less in the UK's system of industrial relations than in other EU countries". The UK is characterised by "conflictual relations between unions and employer associations, and a general neoliberal context focusing on voluntarism". Employers'

associations in the UK were "not involved in the projects and do not see a need to be involved". The reason for their lack of participation was that "the project is seen as a trade union matter and the relationship between trade unions and employers in the British system of industrial relations is generally conflictual rather than cooperative". However some employers saw it as "a good idea, since one of the aims of the projects is to help reduce costs". In short, while some employers clearly welcomed the opportunity to work with unions for common environmental objectives, others saw the intervention of unions as at best an unhelpful distraction, or worse as an unwanted encroachment on their own sphere of decision making.

Perhaps union environment reps were just unconsciously doing the employers' bidding on green issues? The limits of partnership in this field were graphically illustrated by events at United Utilities (UU). Sarah Pearce (TUC 2010f: 25) reported that "to promote a partnership approach, a presentation was given by UU's head of sustainability and the TUC project manager to the joint management-union forum in January 2009". After further joint meetings to design training for union reps and stewards, the company "shared lists of its carbon champions with the unions and mapping of union reps began". However, the company soon went through "a period of re-structuring and a number of job losses that directly affected key members of the Green Workplaces project team on the management side". Under the circumstances, "the launch was postponed at the company's request".

In her otherwise strongly pro-partnership evaluation of the project, Pearce (TUC 2010i: 13-4) was moved to warn about the dangers of union environmental reps and managers becoming "green police". She argued that union green reps "can come under pressure to police staff behaviour, to use more of the stick approach and less of the carrot". Individual actions, such as turning off photocopiers at night "are all worthwhile, as a first step forward. But many other changes may be necessary. Employers must be tasked with the duty to reduce the workplace carbon footprint". As well as asking each staff member to turn their computer off, "it makes economic and environmental sense to invest in technology to automate energy saving processes. That's why green issues need to feature on the collective bargaining agenda". The point is well made, but it brings out one of the crucial limitations of the ecological modernisation approach many trade union leaders took during this period.

6.3 Union environmental representatives – a force for climate action?

There are multifaceted class dimensions to workplace environmental representation, in terms of organisation, control and ideology. The very fact of trade union organisation in the workplace, on climate change or any other issue, was an anathema to neoliberal framing, which regards collective organisation by workers as an impediment to the free functioning of markets. At the most basic level, trade union workplace climate activity was independent of other actors, in the following senses: first, often it was instigated by unions and their members of their own volition; second, sometimes it was counterposed to the immediate employer, or the government and indeed to NGOs; and third in some sense it asserted workers' unique interests. This section explores the extent to which union workplace climate action was independent of the dominant actors and hegemonic framings.

6.3.1 Workers' climate action

Climate action in the workplace instigated by union reps was a unique form of climate mobilisation, implicitly independent of other actors. Even less adversarial union reps tended to go beyond the parameters laid down by government and employers. The most far-reaching incursion into what would normally be considered management's territory were agreements over environmental matters (TUC 2009d), such as those at Bristol City Council, Western Power Distribution and South Thames College, which gave union reps partial suzerainty over environmental decisions, with at least the possibility of consultation and implicitly of veto. The most thoroughgoing agreements also allowed for time during working hours to progress environmental issues, for workers in general and union reps in particular. Discussing environmental matters on joint union-management committee has similar effects, extending the union role to partially encroach on aspects of the work process – for example by taking part in audits and inspections of the workplace and then making recommendations for change. At a lower level, the use of meetings, conferences, fairs, DVD showings, "Question Time" panels and other educational events during work time and on work premises also implicitly challenged the frontiers of control.

There is an important distinction between the kind of independent activity that was undertaken with apparently common goals in mind (perhaps where employers and managers were not living up to their commitments or perceived interests), and independent activity over different goals and indeed in conflict with employers and managers. For example, research by LRD (2009a: 29) highlighted the Unison green group at Arun District Council, which took green initiatives while working together with local managers. A longstanding Unison member volunteered to become the union branch environment officer and recruited four other enthusiasts, who named themselves Sustainable Working and You (SWAY). SWAY received backing from the council's chief executive for their first campaign on energy saving in offices, using free posters ordered from the Carbon Trust. They also organised an energy saving quiz with prizes donated by the Unison branch and local firms such as Body Shop, and a car sharing questionnaire to promote the existing scheme. In another transport campaign, the union green group persuaded the council to fund, and a local bike shop to discount, cycles for a bike pool. This has enabled some staff to commute between sites by bike. The union received good publicity in the local paper for the scheme. It went on to build a group of green champions, with a recruitment campaign to have a union green rep in every department. They produced a green champions' handbook, published newsletters and used the intranet to inform and cajole. In doing so, the high profile of SWAY strengthened the union.

However independent activity of this kind relied upon willing participants on both sides. In other cases, union environment reps undertook independent activity because of divergent goals from employers. The TUC survey (2009d: 24-5) found that three in five (60%) of union reps said their employer had not distributed the benefits of climate change savings to their workforce or to other energy initiatives, while only 7% had received some financial incentives for engaging in environmental activity. While some union reps were able to point to tangible improvements in their pay and conditions arising from green improvements, others suggested that their employers were simply pocketing the financial gains of carbon emissions reductions. A Prospect rep in one ministry summed this up in pithy fashion: "No bonuses, just a rollicking if you leave kit turned on!" GMB reps at one large engineering firm said the gains accrued to the company only, while Unison reps in a water company reported "nothing to benefit the worker". Within one government department, PCS

reps said: "There are no bonuses or no time off for going green. All pay is subject to work-related performance management pay, but the green issue has not been taken on board. This has been raised a number of times during pay negotiations." Concerns about the distribution of gains and losses between workers and employers suggest deeper conflicts of interest over climate politics.

Disagreements crystallised over car parking. The TUC survey (2009d: 36) found that in central government, local government, the health service and higher education, some employers introduced parking charges, parking restrictions or removed car allowances, often justified as "green measures", while failing to provide alternatives. UCU reps in further education expressed this tersely: "Who can use the limited car parking? This has not helped climate change, but has created problems for staff and students for whom public transport cannot help." They added: "Not everyone who can use public transport, walk or cycle will or can always do so and not everyone can access public transport and live too far away (for good reasons) to walk or cycle."

Further evidence of divergent interests between union environment reps and their employers on the climate issues came from the TUC survey, which illustrated the problems some of these representatives had and how they often had to struggle against the wishes of their managers to gain an environmental voice at work. Raw comments from reps (TUC 2009d: 35) about proposals made to management on environmental issues included: "drew a blank", "rejected", "ignored", "refused to implement", "blocked", "request not acknowledged", "declined", "dismissed", "no action taken", "cancelled due to budget restrictions" and "nothing happened". In some cases there was "no buy-in from senior management. Seen as troublemaking"! Management were "not interested in ideas" and "don't think it's a priority". There was a lack of effective consultation, "lip service – no real commitment". Another stated: "The company says it is interested in climate change, but when proposals are put forward by union reps, they are rejected allegedly on cost grounds every time."

These problems were identified even in workplaces that took part in the Green Workplaces projects – those where there was significant management consent for union green initiatives. Reps at Leicester City Council reported in the TUC survey (2009d: 36, 39) "very limited piecemeal actions, which seem to be more of a token

measure", while at Bristol City Council a rep reported that "very little has been done to adapt my workplace", explaining how workplace temperatures were not regulated, wasting money, burning carbon and making people uncomfortable. At Defra, some reps were unable to get facility time off for an ordinary members training session – although this was agreed later on, after the problem had been passed up the management chain. Some 15% of reps reported that they had other difficulties in taking up climate change in the workplace, while about 4% said they had been refused time off to attend union training on climate change and environment. Almost three-quarters (73%) of the reps said they did not have facility time for environmental work.

The TUC survey (2009d: 26) asked about action taken independently by union reps and members in their workplaces. It found that union reps have sometimes taken unilateral action and helped deliver step changes in workplaces, with almost a quarter (23%) of reps saying they had taken independent action. This figure may appear to be too small, or simply capture activity such as agreements and committees that were over and above simple engagement with employers and managers schemes. Nevertheless, it suggests that union environment reps saw their own activity is something arising from their union and members' interest, rather than just the common interest. Employment relations on climate issues were not uniformly harmonious, but subject to the pressures of consent and coercion. To write environmental reps off as merely a new form of class collaboration would be to miss some important antagonistic aspects of the activity.

6.3.2 Climate representation and union renewal

Vitols et al (2011: 12) argued that trade unions should not be conceived as akin to environmental NGOs. These authors rejected the argument that unions have constructed an environmental role for themselves, one that can help to shape a new sense of union purpose. Rather they believed that "the direct interests of employees are largely restricted to such issues as maintaining jobs and social security. Environmental action is something additional to these interests and, until now, has been less pronounced". By contrast, Snell and Fairbrother (2010) argued that climate change provides possibilities for unions to renew themselves with a new sense of

purpose, through the way they organise and through the forms of solidarity they develop to address climate matters.

The UK evidence offers some support for Snell and Fairbrother's view. Steve Crawshaw, Unison chair of Bristol City Council's green reps committee said (TUC 2010i: 19, 3): "I've had new union members tell me that they only joined the union because they wanted to become a green rep." He added: "There has been a far greater appetite amongst rank and file members to get involved with tackling environmental issues than there is for the other traditional trade union work areas. We have no problem recruiting green reps and even had a waiting list initially." There was further evidence from the TUC survey (2009d: 2, 32), which found that union reps who wanted to do environmental work used whatever convenient forms of representation were available to enable them to be effective. Just over half (55%) of respondents were union reps or stewards, while one-in-five were safety reps. Only 4% defined themselves solely as environment reps. They also made use of existing structures to negotiate collectively with management, with joint management-union health and safety committee being the most popular forum for discussing climate-related issues and around a third of the reps taking part in some sort of organised structure.

Union environmental reps also practised forms of climate solidarity, with other unionised and non-union workers in the UK, and with other workers across the globe affected by climate change. As we saw in Chapter 4, union environmental reps deliberated on a wide range of climate-related politics in relation to energy, transport and other questions far outside of their immediate work experience. This included support for international, national and local action to combat climate change. And as we will show in the next chapter, union environmental reps took up support for the Vestas workers, even where their own industries were remote from wind turbine manufacture. Finally, it should be clear that the range of activities union environmental reps engaged in went beyond their own narrow pay and conditions, although these of course had an environmental dimension. The TUC survey (2009d: 26) asked about their concern for climate change in the context of the economic downturn, which had begun the year before. A very high proportion (44%) said they were more concerned this year compared with a year ago, while another half (50%) said their concern was about the same. It concluded that "the sustained interest of

union reps in tackling climate change is one of the most remarkable findings of the survey".[46]

6.3.3 The limits of climate representation

Vitols et al (2011: 22) argued that there is a problem with a union-led project "when the collective actor representing employees is missing in organisations because they are not unionised". In such organisations, "the prerequisite for interaction is missing and hence projects are unlikely to be implemented". UK unions certainly believed that their role had to be renewed and expanded if they were to contribute significantly to tackling climate change. Barber wrote in his foreword to the TUC's survey (2009d: 2): "Unions are 21st century organisations, relevant to the most vital concerns of our members and the public. Playing our full part in the fight to prevent dangerous climate change is an important part of union renewal, bringing new reps into the movement and engaging with the fundamental questions of our age." This recognised that unions were now starting from a smaller base.

First, with overall union density down from its historic peak of 50% in 1979 to around half that figure by 2010, UK unions had certainly been weakened during the neoliberal period. However the concentration of trade unionists in the public sector and in larger workplaces (including among the large energy and transport firms that were big polluters) also offered the prospect of "low hanging fruit" – making emissions reductions at work when the government centrally or locally was the employer or in strategically important basic industries. Second, the relative size of this potential "carbon army" should not be underestimated. Union representatives still constituted a major resource. Even the government (BERR 2009: 2) recognised that there were still approximately 200,000 workers who acted as lay union representatives. This was a far larger layer of activists than any of the environmental NGOs, with far greater connectivity and reach to other workers. As Haydn Young put it to the South West TUC (2011: 15), union reps are vital "connectors", who are "respected, passionate and are important because of the influence that they have". At

[46] A later union survey (TUC 2012c: 34) found that nearly 38% of respondents were more concerned about the environment and climate change than a year before; and 57% said their concern was about the same.

best the objection adds to the case for loosening the shackles on unions and giving environmental reps statutory powers.

Vitols et al (2011: 22) highlighted another limitation of climate representation, namely that "many workplaces can only be 'greened' to a limited extent". Major changes, such as "fundamental alterations in production processes, or reviewing a company product that might be harmful to the environment, are difficult to change". If this objection means that for now production decisions are in the hands of capital, then it is irrefutable. However it does not follow that action by other actors is futile. Organised labour is a collective actor with an historic tradition of pushing capital into improving production relations, such as the shorter working week and better safety conditions. Workers and their union reps have exercised partial control over production, sometimes through institutionalised structures, but at other times more informally. To rule out this power as a possible workplace climate strategy, would be premature in light of the experience of environmental reps during the period.

6.4 Conclusion

Union climate representation came of age during the first decade of the twenty-first century. Trade union environmental representatives emerged from the more longstanding health and safety representation role, but became defined as a separate function for many different reps as climate politics entered the mainstream. By 2010, a significant breakthrough had been made in the number of union representatives who saw themselves as carrying out an environmental role, whatever formal position they held within union structures. Denied formal, legally-defined responsibilities, trade union environmental reps adapted pragmatically, utilising whatever structures were available, as stewards, safety or learning reps as well as permanent or ad hoc committees, to put climate questions on the workplace bargaining agenda. They proved capable of instigating, directing and supporting significant reductions in workplace carbon emissions (and probably saving millions of pounds) through agreements, committees and events.

Trade union climate representation was initiated by individual unions and supported by the TUC. Although the TUC was a recipient of some government funding, union

environmental reps were not a government-backed enterprise. On the contrary Labour ministers consistently opposed placing union reps' environmental functions on a statutory footing, while supporting their voluntary initiatives. Therefore union environmental reps cannot be characterised as pensioners or prisoners of neoliberalism. The partnership approach propagated by some unions and the TUC meant that union environment reps did often carry out activities in consistent with government and their employers' objectives on climate-related issues. But few were captive of government or employers' interests and in significant cases, they took up climate issues even when obstructed by these other actors.

Union climate representation was a radical new direction for trade unionism, expressing both the specific interests of working people on climate change as well as embracing a general interest beyond the immediate workplace context. These union reps did engage in bargaining about the distribution of losses and gains from environmental issues, but they also proposed and supported the introduction of measures with no immediate, sectional benefit to themselves or their members. Union environmental representation offered a genuinely novel contribution to climate politics during this period, suggesting perhaps a surprising potential avenue for sustained action as climate politics became more prominent.

7) The Vestas occupation and climate politics

7.0 Introduction

In July-August 2009 the contemporary confluence of trade unionism and climate activism reached its zenith, when Vestas wind turbine manufacturing workers occupied their factory on the Isle of Wight. Although the occupation did not ultimately keep the plant open, the protest gave rise to innovative acts of climate solidarity and put the firm and government's climate politics under the spotlight. The Vestas occupation raises a number of interesting research questions beyond the narrative, impact and outcome of the immediate events.[47]

The case is made that the Vestas occupation represents the best contemporary UK example to date of working class climate politics and the potential for climate solidarity, an experience that challenges the dominant paradigms of neoliberalism and ecological modernisation. Section 7.1 examines the reasons given to justify the Vestas occupation and asks why it took place. Section 7.2 assesses the significance of the Vestas occupation for various climate actors, including renewable capital, government ministers, the environmental movement and the trade union movement. Section 7.3 examines whether Vestas was the beginning of a new alliance of social movements or a more profound fusion.

7.1 Vestas: class and climate change

7.1.1 The Vestas occupation reconstructed

The Isle of Wight is for the most part staunchly Conservative, with very little history of class struggle or climate activism. Patrick Rolfe, one of the young socialist climate activists who helped spark the Vestas events, recounted (Rolfe 2009b) that at the time of these events, the island had one Labour councillor, no branch of any left group and an inactive Green Party. Yet on Monday 20 July 2009, a group of around 20 workers occupied the St Cross Vestas factory. In subsequent testimony (SWP

[47] An appendix has been provided setting the background and immediate context of the dispute.

2009e), Ian Terry said: "At one point we had about 50 people ready to occupy. But we were rushed into going in." Another occupier Mike Godley said that they originally planned to go into work with leaflets announcing the occupation on the Tuesday, but were "grassed up".[48]

Workers outside the plant organised swiftly to meet the threats made by the company and the police to end the occupation. Evans (2009) reported that as several hundred workers milled around on 21 July, RMT officials were crucial in helping the outside workers to get organised. Thomas (2009a) recalled that after some thrashing around to find an office, one of the committee members brought his camper van to the site and that became the committee office. The main spokespeople were two workers from the factory, Steve Stotesbury and Sean McDonagh. They also organised a "families and community committee" to support the workers.

The threats took a variety of forms. The Isle of Wight-based VentnorBlog (Perry 2009d) reported that one of the occupying workers, Sebastian Sikora had seen police inside the building dressed in riot gear. The blog (Perry 2009g) explained how Vestas management threatened to send private security personnel to storm the premises to evict them and warned workers that if they did not leave the building they would be arrested, sacked and lose their redundancy payments. According to one account (Perry 2009e) Vestas management offered food to the occupiers – but only on the condition that they left the building and wouldn't go back in again. The blog (Perry 2009f) told how workers occupying the building made a new banner – "Starved to saved green jobs". Sophielle (2009), one of the climate activists supporting the struggle, described how Vestas worker Doug Green waited four hours to deliver food to the occupying workers, but was not permitted to take it in. The blockade was overcome by what became known as the "mass pasty trespass", when 20 people walked past police and private security. Later Vestas management took control of food deliveries, but complained that they were not running a Michelin restaurant. But RMT general secretary Bob Crow (RMT 2009d) criticised the "starvation rations", pointing out that workers "fighting for their livelihoods and for the future of turbine manufacture in England" were being treated "far worse than the

[48] Mark Smith, another of the Vestas occupiers, reported (Morris 2009o; Field notes 25 August 2009) that "we were 17 originally in the occupation, which went down to six at the end".

prisoners just up the road at Parkhurst who are legally entitled to three square meals a day".

A week after the occupation began, Vestas managers escalated the dispute. First, as Walker (2009) described in *The Guardian,* on 28 July they sent the remaining occupiers a nasty surprise with a slice of pizza: letters telling workers they had been sacked with immediate effect and without compensation. On 29 July, the firm went to court to evict them. However the VentnorBlog (Perry 2009h; 2009i) reported that Vestas had failed to serve the notices properly and the judge adjourned the case for a week, handing the workers (much to their delight) and their supporters a further opportunity to spread their message. Mike Godley (Perry 2009k) said that due to the occupation, management had not completed all the one-to-one consultations. Some workers were not happy with the settlements being offered and the majority had refused to sign. This meant all workers (except the 11 still inside) continued to receive full pay until the extended consultation period ended (on 12 August). This benefited some workers particularly significantly, as they qualified for an extra week or two weeks redundancy, when previously they had fallen just a few days shy of the threshold for enhanced payments.

On 4 August (Perry 2009p), Vestas bosses finally won their possession order in court. Of the remaining ten workers (one had already left due to ill-health), four walked out a few hours after the verdict. The remaining six departed on Friday 7 August, some 18 days after they first occupied the building. The most spectacular exits were described in the VentnorBlog (Perry 2009r): Ian Terry and Mark Flower abseiled down the side of the building, while Jaymie Rigby jumped 30ft from the balcony. Although there was a brief trespass on the grounds on 8 August by around 200 people, the occupation was over. According to Foster (2009b), on 14 August Vestas paid the outstanding wages and redundancy money into the bank accounts of the majority of workers. On 22 September (Perry 2009w) police cleared the "camp" at the marine gate of the factory, so the remaining blades could be removed.

7.1.2 The occupation justified

Why did Vestas workers occupy their workplace when they did? How did the workers justify their actions? Was it simply to protest at their redundancy, or the terms of it – or was there something wider involved, including climate change? Hyman (2010: 5) noted that Vestas was the last of a spurt of workplace occupations in Britain and Ireland during 2009, which included sit-ins at the Waterford Crystal factory, Visteon car parts manufacturer and Prisme Packaging.[49] Gall (2011: 613-4) examined the motivation, objectives and outcomes of these occupations comparatively, bringing out some of the special features of the Vestas occupation. In general the foundations for occupation are aspects of consciousness, whereby collective anger leads to the collective hope of resolution through collective action. Gall argued that the general stimuli to occupy were: first, the collectivised experience of compulsory redundancy; second, the immediate and unforeseen nature of redundancy; third, the loss of deferred wages and compensation; fourth, some pre-existing collective organisation and finally, a positive demonstration effect. Each of these reasons can be understood on the terrain of working class politics.

There is little doubt that Vestas workers were motivated to act by the imminent redundancy and concerns about compensation. The "Statement from a Vestas worker" placed on the Save Vestas Blog (SVB) – the semi-official website of the campaign, stated:

> As a wind turbine manufacturer I was confident as the recession took hold that green or renewable energy would be the area where many jobs could be created not lost. So I along with many others was horrified to find out that our jobs were moving to America. 600+ jobs from the Isle of Wight and Southampton were going to be added to the already poor state of island unemployment... I find this hard to stomach as the government are getting away with claiming they are investing heavily in these types of industry.
>
> (SVB 2009a)

Shortly after they occupied Vestas management offices in the building, one of the workers Luke Paxton told the VentnorBlog (Perry 2009c) that redundancy pay arrangements had been held up at the last minute and workers were very worried about their livelihoods.

[49] Vestas was discussed fleetingly in Schlembach (2011) and Wall (2010).

However Gall (2011: 617) recognised a distinctive feature of the Vestas occupation: "a more overtly political dimension existed in the workers' motivation". Many had been attracted to work at the plant because of the desire to produce green technologies for green energy. Walker (2009a) reported on a protest on 11 July, when Mark Smith said, "I've been here seven years. Getting another job will mean moving my family off the island". However he added: "People should join us and stand up for themselves and their jobs – and the environment, the planet. This is about the future for our kids." Mike Godley told the *Guardian* (Weaver and Morris 2009): "It's crazy for [climate minister] Ed Miliband to be making statement after statement about green energy and green jobs and at the same time this factory is being closed." He added: "It would be a tiny step financially to keep this factory open, but it would be a huge statement about the government's commitment to the green economy. Just as they could not afford to let the banks fail, they can't afford to let this fail. It's about the history of humanity."

The synthesis of personal employment interest with wider climate concerns was well summed up in the speaker notes used by the "outside" workers to spread the message at meetings across the UK. The Vestas workers' notes (Morris 2009b) said: "We quickly realised that we were at the centre of a perfect storm: we had a golden opportunity to seize the factory and force the issues of green energy, massive job losses and corporate responsibility into the international spotlight. We knew we had to step up and take action, as this was bigger than all of us put together." They heralded "a movement that is truly global, sweeping across the planet and uniting environmentalists, workers and union movements as one force". The Vestas factory occupation "combines the two wills in one fight – for a cleaner, safer future. A future with jobs for all". The climate element was still evident in statements made after the occupation had finished.

Ian Terry (SWP 2009e) said: "I came down from London to get an environmentally friendly job. There were all sorts of aptitude tests, and when I finally got in, I thought I'd done something special... I was an environmental rep. But there was no emphasis put on the environment there at all!" Similarly, Mike Godley said: "Before the occupation, climate change wasn't big on my agenda. Paying the bills, providing for my family – that was my motivation. But now it's opened my eyes to the bigger

picture." Leanne Godley told VentnorBlog (Perry 2009s): "This campaign has never been about one agenda. It is about saving the local economy with green jobs, fighting capitalism and helping climate change. This is what makes it so important." These comments indicate elements of class consciousness, as set out following Mann (1973) in Chapter 3: identity, opposition, totality and an implicit conception of an alternative society. However these are mixed with ecological modernist reasons for action, centred on green technology.

Vestas was also slightly peculiar, since previous union organisation was virtually non-existent. However the intervention of socialist climate activists as well the Visteon model as a "demonstration effect" helped coalesce the collective will to occupy. Gall (2011: 619) argued that the Vestas case added to previous research, which has highlighted "the supportive and conducive nature of political networks and communities of collectivism in constructing and mobilising actions". There is substantial evidence to support this interpretation: in particular socialist climate activists were pivotal role to galvanising Vestas workers to take action, raising political demands and advising on industrial tactics – in other words in raising specifically working class politics.[50]

Patrick Rolfe described (Rolfe 2009a) how socialist activists from Workers' Climate Action (WCA) and the Alliance for Workers' Liberty (AWL) visited the Isle of Wight on 15-18 June, because they had heard that the Vestas plant faced closure. He reported that "after four days' work, we have a meeting set up, sponsored by Cowes Trades Council, to launch a campaign against the closure". They made contact with trade union officials, Labour councillor Geoff Lumley and local environmental activists. They went to the factory at shift changes, "talked to workers, and made contacts". On 3 July, WCA and Cowes Trades Council held a public meeting, which was attended by around 100 people opposed to the closure of the plant. Rolfe (2009b) reported that "the room was packed with workers from the factory, as well as people from the wider community. By the end of the meeting, there were people

[50] The first attempt to rally Vestas workers to trade union support came from Graham Petersen, the UCU environment officer who visited the island in early May and spoke to local trade unionists (communication with the author 9 January 2012). He also wrote on the VentnorBlog (Perry 2009b) about the example of Visteon and offered to assist workers with unionisation.

seriously discussing the tactic of a factory occupation to save jobs and force much-needed investment in wind energy".

Ed Maltby, another socialist activist involved and one of the speakers at the meeting, recalled (AWL 2009g) that when workers started looking disgruntled and leaving in disgust after a speech by the Unite official, who only offered to help with signing on, "I remembered something Ron Clark [the Visteon speaker] had taught me... about the importance of identifying potential leaders". He went around "taking numbers, making contacts, talking to workers about things that could be done next, like building up a telephone list and sounding out people on the shop floor". Maltby also explained the activists' motivation. He said: "The fact that we 'chose' Vestas was to do with our ecological ideas. While we were engaging with workers there, the work we'd done on seeing workers' control as central to an agency for solving ecological crisis allowed us to deal with issues that we encountered." He added: "Because we were able to draw analogies between capitalist environmental degradation and capitalist-workplace degradation of workers' bodies, we were able to respond intelligently to a lot of the issues raised... We've given the notion of workers' struggle as an agency real grip." (See also Foster 2009a)[51]

Dan Rawnsley (2009), another key activist involved in leafleting the factory and organising the 3 July public meeting, recalled Patrick Rolfe's assessment in early July that there seemed to be only a 20% chance of an occupation taking place. Walker (2009b) and Norman (2009) reported in the socialist press that the campaign against the closure had stepped up with mass leafleting and petitioning on 11 July. The Save Vestas blog (SVB 2009b) said some 50 people turned up in Newport in solidarity with the Vestas workers, with delegations from the RMT, Unison, and from Southampton, Plymouth and Ryde trade councils. According to bloggers (SVB 2009c), activists used a visit by Prince Charles to the island on 17 July to raise the public profile of the campaign, hold up banners and collect more signatures.

Activists reported (AWL 2009a; 2009b; Thomas 2009a) that workers formed a committee and discussed plans for direct action. The demand was formulated for

[51] A brief account of the role of WCA and the socialist climate activists appeared in *The Guardian*, which also published a number of letters by participants (Williams 2009a; Lewis 2009; Maltby 2009a; 2009b; 2009c; Rolfe 2009d).

Vestas "to hand over the plant to the government, and for the government to continue production by nationalising the plant under new management". Vestas was also distinctive in terms of its more radical aims. Gall (2011) noted that whilst Vestas workers did not develop a sophisticated conception of workers' control, their demand for the government to nationalise the plant went further than the other occupations of that period. This challenge to property relations is further evidence that the Vestas occupation should be understood as a class struggle, as defined in Chapters 2 and 3.

The positive involvement of outsiders in terms of political ideology and organisation raises the question of whether socialist activists substituted for workers' leadership. Although Vestas management and other some local people suggested outside agitators had led the workers on, the participants themselves didn't see it that way. Mike Godley was asked specifically by journalists on the VentnorBlog (Perry 2009u) about it shortly after the occupation had finished. He made it very clear that "the campaign has been no way 'taken over' and continues to be driven by ex-Vestas workers". He said the workers "hugely appreciate the support that they've received from the outside groups and will continue to work with them to keep the fight going for more green jobs to be created on the Island". Another Vestas worker Tracey Yeates (AWL 2009e) summed up the interaction positively: "What's made the difference? I suppose at the start it was because you, the activists from outside, showed us how we could do something. Then we had our own way of doing things. If everyone puts their own unique bit in, it makes a bigger picture, doesn't it?"

7.1.3 Vestas and climate solidarity

One measure of the impact of the Vestas occupation was the wide range of solidarity it generated, on the Isle of Wight itself, in the rest of the UK and to a limited extent internationally too. The Save Vestas blog (2009d) reported that Vestas workers and their supporters had already planned for public demonstrations and meetings before the occupation started. However, once the occupation had begun, a permanent camp was established outside the factory – on the "magic roundabout" – which served as the base for solidarity activity on the island. There were regular meetings of supporters outside the Vestas factory twice a day – at 10.30am and 5pm, under a gazebo (SVB 2009f). Some of the activity was based around sustaining the occupiers

inside the factory. Sophielle (2009) described the "mass pasty trespass" on 22 July, which involved climate activists rushing the factory to deliver food to the occupying workers, helped to break the blockade imposed by Vestas management. On 30 July, the VentnorBlog (Perry 2009l) reported another stunt that involved a group of people wearing costumes and laden with carrier bags disguised to look as though they were carrying food, squeezed through the fence and making a dash for the front door. Meanwhile, two others were hiding in adjacent bushes. They waited for the right moment of distraction, and then delivered the food. Other actions (Perry 2009t) took place at local benefit offices and at the MPs constituency office.

Probably the most spectacular act of solidarity took place on the morning of the second court appearance, when Climate Camp activists and an RMT member occupied the roof of another Vestas site in East Cowes. According to the VentnorBlog (Perry 2009o), they hung a banner saying "Vestas Workers – Solidarity in Occupation. Save Green Jobs", which was on show to international sailors during Cowes Week. The final acts of solidarity took place to try to secure the redundancy payments for the 11 final occupiers. Some workers and supporters (AWL 2009f) set up camp at the marine gate of the St Cross factory, to try to prevent Vestas management from removing the last remaining blades, which could only be moved by barge. This was partially successful (Morris 2009o; Godley and Morris 2009): for over a month after the occupation the blades did not leave the plant.

Solidarity with the Vestas occupation was not confined to the island – it was also evident in other parts of the UK and to a limited extent elsewhere. Vicki Morris, one of the socialists who maintained the Save Vestas blog (2009f), reported that on 25 July and 28 July, activists protested outside Vestas' headquarters in Warrington. Morris (2009c; 2009d; 2009e) reported that messages of support were sent to Vestas workers, notably from other workers involved in workplace occupations and industrial disputes, such as Visteon plants, the Lindsey Strike Committee and Thomas Cook. Dwyer (2009) reported one telling intervention, which took place when Vestas workers challenged Ed Miliband at a public meeting of 600 people at Oxford Town Hall on 27 July. Vestas worker Dave Hughes addressed the meeting and challenged Miliband over failing to nationalise the firm. On 31 July, a Save Vestas protest (SVB 2009e) was held on the fourth plinth in Trafalgar Square, as part

of Antony Gormley's *One and Other* art project, while Billy Bragg (Perry 2009m) dedicated songs to the Vestas workers. The Campaign against Climate Change (CaCC) organised a number of lobbies, pickets and meetings around Vestas (Robinson 2009; Morris 2009g).

Imaginative direct action was a particularly notable feature of the solidarity protests around Vestas and was aimed principally at government bodies. On 3 August, Brooks (2009c) reported that solidarity activists had "donning red, black and green clothing to symbolise their diverse political viewpoints" and glued themselves together outside DECC in London. Molly Grayson said: "Climate change has to be tackled and in a recession green jobs should be the last to go." Members of the Climate Rush campaign group chained themselves to business secretary Peter Mandelson's home on 10 August. Ellie Robson told the Press Association (2009): "If we're going to have a low-carbon Britain then we need our government to support these workers, rather than forcing the closure of their factory and the loss of their jobs." Perry (2009v) described the most dramatic act of solidarity came late in the campaign, when protesters scaled up cranes in Southampton docks that were to be used to lift the last remaining Vestas blades onto the barges.

Activists in 25 towns and cities across Britain organised solidarity on the first Vestas national day of action on 12 August, according to *Socialist Worker* (SWP 2009c; 2009d). Workers' Climate Action members (Morris 2009j), occupied the offices of the South East England Development Agency in Guildford. Morris (2009m; 2009n) reported that twelve support groups had been established, adding that Workers' Climate Action organised four Vestas-related workshops at the Climate Camp, which began in London on 26 August. These were on women and the miners' strike; climate change as a class issue; Visteon, Lindsey, Lucas and workers-led just transition; and the occupation itself. Vestas workers also toured the UK, speaking on a number of platforms. Brooks (2009d) reported that a second national day of action took place on 17 September, with events in at least eight cities. Activists (Terry 2009a) also reported that a teachers' pack had been produced.

Solidarity was not confined to the UK. Soon after the occupation began, the Save Vestas blog (Alex 2009; Morris 2009b; 2009i; 2009k) posted messages of support

received from across the globe, including from Chile, France, Germany, Greece, South Korea and the USA. Potentially the most important act of solidarity came from Scandinavia. On 24 July, it was reported (SWP 2009a) that more than 30 protesters gathered outside Vestas' northern Europe headquarters in Malmo, Sweden. The company decided to send workers home and close its office for the day in response. A week later it was reported (SWP 2009b) that Vestas workers in Copenhagen had sent a message of support to the occupation. It was read out to cheers on the Isle of Wight. The Danish workers said that the factory "should be run under workers' control, as it is only workers who can". Despite the end of the protests on the island, the closure of the factory became an issue at the Copenhagen climate summit (7-18 December 2009). Workers' Climate Action activists invaded a Vestas drinks reception, chanting slogans and handing out leaflets. Rawnsley (2010) said that Ian Terry spoke at the protest and at other meetings on the fringe of the summit.

Altogether, the climate solidarity that developed around the Vestas occupation was transformative, in the sense defined by Johns (1998) and Herod (2002; 2003) and discussed in Chapter 3. Vestas workers and their supporters confronted class relations beyond the confines of their particular locale. They did not seek privileges or special protection, but rather challenged existing relations of ownership and control. The class interests of the workers' continued employment coincided with the wider climate necessity to develop low-carbon renewable energy sources. This helps explain why this particular struggle resonated so widely at the time.

7.2 Trade union responses to the Vestas occupation

The trade union movement in the UK was historically supportive of the development of renewable energy, particularly because it promised thousands of skilled jobs. TUSDAC (2001c) welcomed environment minister Michael Meacher's announcement that some 300 wind farms would be in place by 2010. The TUC's *Greening the Workplace* report (TUSDAC 2005a1: 21) forecast up to 30,000 new jobs in the UK's renewables sector in the following decade, although it recognised that "the number of jobs secured depends on how much manufacturing takes place in the UK". Although a workers' occupation might be expected to produce straightforward solidarity from the trade union movement, in fact responses to the Vestas closure were far from homogenous. Therefore the occupation also provides a useful barometer of the depth and extent of union climate politics.

7.2.1 Unite: between class and the market

Unite, and its predecessor Amicus was the only union organising among Vestas' manufacturing workers before the occupation. In 2004, Amicus members (TUSDAC 2005i: 8) gained recognition at the Vestas plant in Scotland. Following an 11-month campaign, workers at Vestas Celtic Wind Technology, which manufactured wind turbines for Scottish Power and Powergen, voted overwhelmingly in favour of union recognition, which the union claimed was the first vote of its kind in the UK's emerging renewables sector. The union claimed that its pressure on the Scottish Executive secured Vestas a special grant and financial incentives to set up Vestas Wind Technology in Campbeltown. Amicus (2004) said the recognition deal signalled that as traditional industries declined, the union was successful in "gaining a foothold in the new cutting edge manufacturing sector". Dougie Rooney, Amicus national officer promised that the union would be "working with the management team to make the business a success". The union wanted to see "good conditions for our members and job security, and in return we will cooperate by agreement in increasing productivity".

However the recognition agreement did not extend to the Isle of Wight facility. By the time of the occupation, Rolfe (2009a) estimated that Unite had as few as 15

members at the St Cross facility. Management were considered very anti-union. Phil Blair, a member of the stewards' committee (AWL 2009d) said "people who have tried to organise unions here have been penalised, basically — put under pressure, pulled up under other pretexts". As "Matt" explained in the Vestas workers speaker notes:

> [Vestas] is extremely anti-union and some workers who have joined unions in the past have been singled out and fired on various grounds. The nearest thing to a union was a consultation network imposed by European law, where supposedly elected representatives (but in reality hand-picked by management) attended meetings where they had no input whatsoever, and were forced to simply absorb and relay management diktat to the rest of the workers.
> (Morris 2009b)

Unite had made some efforts to unionise the Isle of Wight facility. Ian Terry said (Terry 2009b) he had spoken to a local Unite official to try to unionise the plant and "was pretty much told in no uncertain terms that it wasn't going to be achieved". By 2009 there was very little in the way of solid membership, organisation or representation.

Three weeks after the redundancies were announced, Unite deputy general secretary Jack Dromey joined a TUC delegation to discuss Vestas with Ed Miliband on 19 May. At the meeting, Unite asked the Westminster government to follow the example of the Scottish parliament, which had recently invested £10 million in the Skykon site. Dromey (Unite 2009d) articulated the union's case in ecological modernisation terms. He said: "These closures would be a disaster from the point of view of green jobs, and the long term sustainability of the UK's energy supply." He added: "The government talks about how green jobs will help the country climb out of the recession, so we hope they will take action to save England's only wind turbine manufacturing capacity to survive." The union launched a campaign together with Friends of the Earth to save the factory. Unite's briefing (2009e) asked Vestas to "hold fire" until the government launched its renewables strategy, to give the government "the chance to stimulate the domestic market for wind turbines, particularly in relation to onshore wind". Alternatively, the government should "consider whether the taxpayer would get better value for money and more secure

jobs if the sites were taken into some form of municipal or public ownership". However the campaign did not appear to have much traction.

Unite officials spoke at the trades council meeting on 3 July, but advised Vestas workers simply to join the union, write to "Lord Mandelson" and offered help with getting unemployment benefits. Patrick Rolfe (2009b) dismissed local Unite officials as "business unionists and social partnership bureaucrats". Dan Rawnsley (2009) said that in a meeting with Cowes trades council representatives and a regional Unite bureaucrat, "we raised the idea of holding a public meeting and were told we were 'pissing in the wind'". The lack of engagement locally was brought out by a press release issued on the day the occupation began, which emphasised familiar market and ecological modernisation themes. It stated (Unite 2009g): "It is not too late to save these plants. If the government addresses the blockages in the planning system to counter the 'Not-in-my-back-yard' brigade then there will be massively increased demand for wind turbines." It added: "We urge the government to match its green rhetoric with action to support green jobs, saving Vestas would send out a clear message that it is serious about saving the environment as well as supporting UK manufacturing."

After the occupation began, Unite assistant general secretary Len McCluskey was quoted in *The Guardian* (Milne 2009) saying that "Vestas is the clearest case for government intervention we could wish to see: 700 industrial jobs are being put at risk because of market failure in a sector the government is desperate to see expand. The workers are fighting for our economic and environmental future as well as their jobs". However Unite was silent on the occupation itself and whether it backed the workers' actions. Evans (2009) reported that Unite executive member Tom Cashman visited the protest on 25 July to show his support. He told workers who had quit Unite to join RMT: "The important thing is that you have a union, not an argument about which union it should be." Evans (2009) said that even seasoned socialists were bemused by the union's poor showing: "Unite is a notoriously bureaucratic union, but even for Unite, the union's performance here is exceptionally bad. Exactly why is still unclear." Unite officials attended the meeting with climate minister Joan Ruddock on 6 August. Dromey seconded the Vestas emergency motion at TUC Congress (TUC 2009b: 167). Jerry Hicks, who had been active in support of the

Vestas workers, tried to make it an issue in the Unite general secretary election contest with McCluskey the following year. Hicks' election address (Unite 2010) stated that the union "should have supported the occupation at Vestas on the Isle of Wight".

7.2.2 RMT: class and climate

Darlington (2009: 84-5) argued that the RMT led by Crow had a reputation for industrial militancy and social movement unionism. Its leaders and reps approached the Vestas occupation as a class struggle and reacted accordingly. A day after workers took over the factory, the RMT (2009a) pledged full support to occupation and called on the government to "nationalise the factory, protect the jobs and show that they are walking the talk when it comes to green and renewable energy". Activists from the RMT joined the Vestas workers outside the factory soon after the occupation began. RMT Portsmouth officials Richard Howard and Mick Tosh, who organised the Portsmouth-Ryde ferry workers, played key roles early on. They managed to work their union facility time and holiday leave from work to be outside the factory for long periods. The local RMT reps role was regarded by participants as a model of what good trade unionists should do. Evans (2009) wrote that they "[went] to the aid of other workers and helping them organise, rather than seeing their job as only to look after the sectional interests of the workers already signed up to their union". The RMT activists were crucial in helping Vestas workers outside to elect a committee and get organised. Howard held an impromptu meeting and was able to get a committee of stewards elected, supplying RMT hi-vis vests. Evans (2009) said the difference was that the RMT had "a better level of democracy; branches which are much more likely to have secretaries and other activists ready to look beyond their narrow concerns, and full-time officials more responsive to the rank and file". As Mark Smith (AWL 2009) put it: "I joined Unite before the occupation, purely in order to have legal assistance. But then Unite didn't turn up at all, for a long time, and when they did, they weren't that interested. Unite people had been told not to get involved." By contrast, "RMT did turn up, and have been a lot more militant. It's a question of the relation between what you say, and what you're actually willing to do".

The RMT also put national resources into the struggle. Crow spoke at the 23 July rally and the union began to recruit Vestas workers, reportedly (Perry 2009n) gaining 200 members in the first week. Crow argued that Vestas workers shouldn't be used like pieces of lemon, "squeezing the juice out of them..., then tossing them to the side when they're not wanted any more". He said the criminals were not the workers inside the building, but the company for wanting to shut down the works. He declared (Perry 2009h) that if food wasn't allowed in, the RMT would arrange for a helicopter to fly over and drop food to those taking part in the sit-in. The RMT announced it would provide legal assistance to Vestas workers. Crow (RMT 2009b) argued that the dispute brought together two crucial issues: "the right to protection from companies who abuse the law to hire and fire, and the right to live in a world where the environment and sustainability are absolute priorities." The union demanded that the government intervene urgently. Crow chastised ministers for "sheer hypocrisy" over "public announcements on climate change while our only wind turbine factory faces the axe". He said that "if the government can nationalise the banks at the drop of a hat, there is no reason whatsoever why they can't nationalise Vestas".

The RMT legal counsel helped postpone the eviction of the occupiers for an extra week at the court hearing on 29 July. The union (RMT 2009c) reported another "significant milestone" on 31 July, after Vestas held back the scheduled closure date of the facility and wrote to staff confirming that the consultation had been extended indefinitely. Union officials described the move by Vestas as a "massive victory", allowing "a serious opportunity to draw up a rescue package similar to the one supported by the Scottish parliament earlier this year, which saved the Vestas factory in Kintyre". Crow hailed the growing support for the Vestas campaign, which had "fired the imagination of the labour and environmental movements all around the world".

However the RMT were unable to prevent the eviction order for a second time and to prolong the occupation further. With six remaining workers inside the factory on the eviction day, Crow said (RMT 2009e): "Whatever happens today, the workers involved in the Vestas occupation can hold their heads up high and be proud of the brave fight they have put up for green jobs. They have turned a local fight over a

factory closure on the Isle of Wight into a global battle for the future of manufacturing in the renewable energy sector and that is an extraordinary achievement." The RMT backed the national days of action in support of Vestas and successfully moved an emergency resolution at the TUC Congress on the occupation. The RMT (2010) continued to represent ex-Vestas workers and supported efforts to launch the Sureblades firm to manufacture fully-recyclable micro-turbine blades.

During the Vestas occupation, the RMT acted as a social movement trade union, in the sense explained by Moody (1997) and discussed in Chapter 3. Its organisation was generally democratic, using its resources and officials to mobilise its new members in militant fashion. It understood the power of the workplace occupation to maximise workers' economic leverage. The union was also politically independent of liberal and social democratic parties and set out a class perspective to cement the coalition that formed around the Vestas workers. It understood solidarity in the classic sense of "an injury to one is an injury to all" and reached out to other workers in other unions, neighbourhood-based organisations and other social movements.

7.2.3 TUC: the limits of ecological modernisation

The TUC did not play a prominent role as the Vestas events unfolded. Rather it expressed its concerns in explicitly ecological modernisation terms. When the redundancies were announced, Brendan Barber said (Webb 2009a): "The loss of these jobs on the Isle of Wight would not only be a blow to the emerging green sector, but would also be a personal tragedy for the hundreds of workers affected locally." Vestas was discussed at the TUSDAC working group meeting on 8 May, with a view to raising the matter with Ed Miliband (Field notes, 8 May 2009). The TUC held the meeting with Miliband on 19 May, its first with the new minister. The TUSDAC (2009d) working group meeting on 9 July 2009 also heard a brief report of the meeting with Miliband. However, at the high-level policy group meeting (TUSDAC 2009e) with Defra minister Hilary Benn on 13 July 2009, Vestas was not discussed.

The TUC did not comment publicly on the occupation for ten days. It then called for government help to halt the Vestas factory closure. Barber said (TUC 2009s: 1):

"Business, unions and government must get around the table and make every effort to secure a future for wind turbine manufacturing in the UK." He added that Ed Miliband had "proved himself to be a champion of the green agenda and the drive to create new jobs" and asked him to "go the extra mile for the 600 workers and the production facility". He said "everything must be done to look for positive alternatives", although the TUC did not specify what kind of alternative might be acceptable. Barber (2009) also wrote to Miliband on 3 August. He argued that in the context of growing global urgency to cut carbon emissions, "it would be difficult to find a more damning example of market failure, or of corporate inflexibility, than one such as this which threatens the viability of existing UK based green energy manufacturing, and the livelihoods of a skilled and dedicated workforce". Even at this late stage "we believe that Vestas should be pressed to halt its closure plan to give time for proper dialogue and for every possible alternative to be fully explored". Barber added that "I would also ask government to urgently bring together business, unions and industry experts with a view to securing a future for wind turbine production in the UK, and so that the lessons of Vestas can be learned and never allowed to happen again". The TUC called for partnership when workers expected sharper criticism of employers and the government, coupled with active solidarity.

Congress that year was dominated by Vestas. On 16 September, Ed Miliband (TUC 2009b: 126) addressed the gathering and was repeatedly questioned about the government's stance on Vestas. Mulholland (2009) reported that Miliband was forced to join a standing ovation for the delegation of Vestas workers in the hall. Congress (TUC 2009b: 28) passed an emergency resolution on Vestas and green jobs, which applauded "the Vestas workforce and their families who courageously fought to save their jobs, including occupying the factory. Their principled stand to defend their community and to fight climate change is a tribute to the finest traditions of our movement". Alex Gordon for the RMT (TUC 2009b: 167) described Miliband's speech as "replete with crocodile tears" for the job losses. He said the trade union movement had "the power, the voice and the authority to call for green jobs to be union jobs and for union jobs to be publicly-owned jobs" and said the UK government had "an absolute responsibility to nationalise the Vestas factory on the Isle of Wight". Dromey told workers, "Vestas may have walked away, but we will never abandon you". He said workers "will be remembered long after those who

sacked them end up where they richly deserve to be – in the dustbin of history". Vestas was still a point of reference during the following Congress.

Local trade union coordination across the Isle of Wight was not well organised before the occupation. The island had a county association of trade union councils and three trades councils in Newport, Ryde and Cowes. After the closure was announced but before the occupation, Brooks (2009a) reported that the county trades council, which claimed to represent 8,000 workers across the island, met with the local MP to discuss the matter. Probably the trades councils' most significant act was to support the public meeting on 3 July with Workers' Climate Action. It was this meeting that began to galvanise workers and their supporters to take action themselves to prevent the closure, rather than simply appealing to others to help them. Trades council officials took part in solidarity activity to support the workers' occupation. The occupation (AWL 2009h) also had the effect, at least in the short-term, of revitalising local trade union coordination, including the involvement of Vestas workers' representatives, with joint trades council meetings in October and November following the summer of protest.

The VentnorBlog (Perry 2009f) reported that Vestas workers received strong support from trade union representatives of many TUC-affiliated unions on the island. Local FBU and Unison reps collected funds for food in the first days of the occupation. PCS members (2009c), themselves facing redundancy at a local tax office, supported the Vestas workers. There was also some support from national unions beyond the input from the RMT. Sally Hunt, UCU general secretary wrote to Ed Miliband on 27 July. PCS assistant general secretary Chris Baugh and fifteen other union leaders signed a letter published in the *Guardian* on 1 August, urging Ed Miliband to intervene.

These efforts were important, but the high-level TUC response to Vestas is probably best characterised as "accommodationist solidarity". TUC leaders prioritised partnership at a time when the employer turned hostile and the government refused to step in to save the factory. Far from projecting a class vision and emphasising the class antagonisms involved, TUC leaders did not go beyond a weak ecological modernist expression of concern, which was hopelessly inadequate for the situation.

7.3 The significance of the Vestas occupation for climate politics

The Vestas dispute should be understood as a significant metric for the state of climate politics in the UK in the first decade of the twenty-first century. It indicated how far various climate actors were able to deliver on promises to promote a low-carbon economy. This section examines the activities of key climate actors: capital, government, climate NGOs and trade unions, to evaluate their low-carbon credentials. In light of the events, it also assesses the implications of Vestas for employment relations theories and how far Vestas prefigured a new alliance of actors conducting climate politics.

7.3.1 The neoliberal climate politics of renewable capital

The closure of the Isle of Wight wind turbine manufacturing plant reflected particularly badly on its owners. Ryland (2010) described Vestas as the world's largest producer and exporter of wind turbines with production facilities in 11 countries. The year before the occupation, Vidal (2008) reported that Vestas had a £6bn order book. In early 2009, Macalister (2009a) wrote that Vestas had a better-than-expected 51% rise in its full-year operating profit and maintained its 2009 sales and profit forecasts. On 22 April the British Wind Energy Association (BWEA 2009: 15), the renewables industry lobbying body argued that there were £10bn "shovel-ready" wind projects in the UK, which "could lay foundation for green economy". It estimated that there would be between 23,000 and 57,000 jobs in the UK wind industry by 2020, up from 4,800 employees at the time. By 2014, the BWEA (SQWenergy 2008) expected there would be at least 1,865 wind turbine manufacturing jobs and at best 3,355 jobs.

Yet less than a week after these optimistic predictions, Vestas Blades UK announced the probable closure of its manufacturing plant on the Isle of Wight, the only one in England.[52] Perry (2009a) reported that workers at the Isle of Wight plant were called to an early morning meeting on 28 April to be told that the firm was opening a 90-

[52] The Isle of Wight facility was not the only manufacturing plant in the UK, despite many reports at the time. Vestas had owned a small manufacturing plant in Scotland, but sold it to Skycon before the occupation (Corrections, The *Guardian* 11 May 2009). (Webb 2011) reported that the Scottish plant later went into administration.

day consultation on redundancy. The reputation of the new green economy – never mind the prospects for the 600 workers at the Vestas plant – lay in tatters. As Andrew Simms (2009) put it a few days later, learning that a wind turbine maker was closing its factory was "a bit like hearing that pharmaceutical companies are closing down the production of flu vaccines just as the alert for swine flu goes from level five to full pandemic". Announcing the closure, the firm appeared evasive and self-serving. In an interview with *The Guardian* (Webb 2009b), chief executive Ditlev Engel blamed nimbys, the planning application process, the government and the pound for the decision. He promised that Vestas would consult its workers. Engel said the firm was in "constant dialogue" with the government and that no assistance had been offered to try to save the plant.

These claims were neither consistent nor coherent. Even Conservative Isle of Wight MP Andrew Turner (2009) told the House of Commons that "Vestas is not cutting jobs because of the recession or because of a need to downsize; it has decided that it will be more profitable to manufacture wind turbines in the United States and China, without a thought for the highly skilled workers that it leaves behind". Speaking about the workers who had occupied the factory the day before, he said: "I understand their frustration and I am sympathetic to their concerns." He argued that Vestas was leaving the workers "high and dry" and with "very poor" redundancy packages. Those who worked at the site for two years or more were entitled to only twice the statutory pay, while those who had been employed for less time would receive even less. Turner added: "As I understand it, there were no negotiations with workers on the redundancy packages. I find that totally unacceptable, and it reflects very poorly on a company as profitable as Vestas."

It also emerged that the government had offered Vestas some support, but to no avail. Ed Miliband (2009b) wrote: "For months, we have worked with the company to understand what would be required to convert the factory to making onshore blades for the UK. The issue for Vestas was not subsidies, but how it could get enough orders." Joan Ruddock was reported (Perry 2009q) to have told workers that after extensive talks with Vestas management "no matter what they offered, Vestas were not interested in keeping the factory open making wind turbine blades" (see

also DECC 2009b). The impression given was that the firm was only interested in developing green production where it could make the highest returns.

There was a tangible sense from the workers affected by the closure that the firm's management had misled them. Workers said Vestas had promised to re-equip the factory for the British market for onshore turbines, only to decide that there were better investment opportunities elsewhere. Then the firm said it would mothball the plant for two or three years until demand picked up – ignoring the fact that it was impossible to mothball skilled workers for such a time. Relations with the workforce were already strained. It was reported (TUC 2009p) that the firm had been guilty of safety breaches, which had damaged some workers' health. Milne (2009) wrote that the firm was perceived as having "an anti-union management and a culture of bullying". This was compounded by the behaviour of Vestas managers during the occupation. They immediately threatened workers with dismissal rather than negotiate, refused to allow food in and then sacked the occupiers with a pizza delivery. Harvey (2009) described how Vestas was backed by the BWEA, which decided only after the occupation was almost over that the market for onshore wind turbines in the UK was "too small to sustain a UK-based factory in the long term".

Even after the occupation was finished, this misinformation and mistreatment continued. Engel told journalists (Lewis and Fouché 2009) that the company could review its decision to strip the 11 workers identified as participating in the sit-in of their redundancy benefits. Despite rumours that the redundancy pay had been secured, in September Mike Godley told VentnorBlog (Perry 2009x) that no payments had been made. The BBC (2009) reported that a month after protests had ended, Vestas announced that its global profits from July to September had been £150m, 70% up on the previous year. Events on the Isle of Wight suggested that renewable capital was just as rapacious, profiteering and insular as the fossil fuel multinationals it had ambitions to replace. It also suggested that the neoliberal approach to climate politics, which relied on the good will of business agents, was not sufficient to ensure even the first tentative steps towards a low-carbon energy regime.

7.3.2 The Labour government and the limits of ecological modernisation

The Vestas factory occupation punctured the neoliberal and ecological modernisation rhetoric of the Labour government. Just before the closure was announced, Peter Mandelson (Ryan 2009; Grice 2009) announced that the UK was "on the edge of a low-carbon industrial revolution" and promised that the government would pursue a more interventionist strategy supporting the growth industries of the future. The contradiction between government rhetoric and the reality of the factory closure continued throughout the summer. Also a week before the occupation, prime minister Gordon Brown (2009) described a vision of green revolution powering economic recovery, with 1.2 million people in the UK employed in the green sector "producing energy-saving products, construction companies erecting renewable energy systems" within a decade. On 15 July, Mandelson and Ed Miliband launched its low-carbon transition plan, which estimated (Vidal 2009) that the 880,000 workers already in the low-carbon sector would be joined by 400,000 more by 2015. But the low-carbon job figures were found (Pagnamenta 2009) to be inflated by a bizarre array of products, from skylights to wooden pallets and noise insulation materials, just as the Vestas factory finished producing its last batch of blades. It was against this political background that some workers at the plant took their decision to occupy it.

The government immediately came under pressure to intervene, most of all because the workers involved in the occupation and their supporters called for nationalisation from the beginning. At Westminster, Labour MP John McDonnell (2009) said that "Vestas workers are occupying their factory, and it behoves this House to send our support to them. They are not only fighting for their jobs but are at the forefront of the campaign against climate change, and they deserve our support". The occupying workers made it clear that if government intervention such as subsidies or direct orders were not sufficient, then the government should nationalise the plant so they could continue manufacturing wind turbines. The underlying policy paradox the Labour government put itself in was well summed up by the following exchange between Vestas supporters and Joan Ruddock at her constituency surgery on 7 August. Asked whether a feasibility study had been carried out to nationalise the factory, Ruddock was quoted (Morris 2009h) stating: "We live in a market economy, all the advanced economies think the same. The only economy that does not have a

market is North Korea... It's not appropriate! The government does not want to be producers of wind turbines, and we did not want to be bankers."[53]

Ed Miliband took the same stance throughout the protests. Asked at Congress about nationalisation, he replied (TUC 2009b: 126): "I do not think government should be in the business of running wind turbine factories. I do not think that is what government is best at." Former director of Friends of the Earth Tony Juniper (2009) pointed out the problem with trying to deliver a low-carbon economic transformation based on neoliberal principles: "The inconvenient truth is that aspirational targets and the market on their own cannot deliver. Serious official intervention is also needed in the form of clear, significant and sustained financial incentives alongside regulatory action across all countries." He added: "Market mechanisms can certainly play their part but need to be backed up. Look at Denmark and Germany, where renewable power has rapidly expanded."

The most ministers did was to make promises and offer smaller amounts of money for other projects. During the occupation, Mathiason (2009) reported that the government awarded £6m to Vestas' offshore research and development division. According to Perry (2009y), at a meeting with Isle of Wight councillors after the protests had ceased, Miliband promised government support for green jobs on the island, including the development of tidal energy in the Solent, and a scheme for 'rotawave' technology, and money to upgrade some of the available wharfage on the Medina River. Vestas worker Sean McDonagh, who had met Joan Ruddock, reported (Perry 2009q) that the minister had said those who took part in the sit-in should not lose their redundancy benefits. However even these promises were not kept. Overall, the Vestas occupation demonstrated the limits of neoliberal and weak ecological modernisation, particularly in the context of infrastructure projects where state intervention is required.

[53] Vestas workers Mike Godley and Sean McDonagh, together with Frances O'Grady, Bob Crow, Jack Dromey and other senior union officials met with Joan Ruddock on 6 August, where the minister reiterated the government's stance that it had "exhausted all options in its power to keep the site open" (DECC 2009a: 1).

7.3.3 Vestas: harbinger of a new red-green alliance?

The Vestas occupation was a critical test for the climate movement in the UK, which had begun to flourish. However it would be a mistake to analyse these climate actors as one homogeneous block: the experience made it clear that very different types of environmentalism were present. Some actors rose to the challenge, while others proved unable to meet it. Environmental NGOs offered little more than nominal support to the Vestas workers during their struggle. After the closure was announced, Brooks (2009b) reported that Friends of the Earth supported the Unite union campaign to keep the plant open. It created an online petition urging the government intervene. Local Friends of the Earth members were active around wind turbine applications and some took part in solidarity activity, but they did not play a leading role.

Greenpeace had an even lower profile. It put out press releases criticising the government's hypocrisy over its green plans when the factory was closing and some local Greenpeace members supported solidarity activity. But the organisation was not a factor in the dispute. One Greenpeace member (LastUuhtii 2010) posting on the *Guardian's* "Comment is Free" website, lamented the lack of activity, pointing out that its UK executive director John Sauven is also the brother of Rob Sauven, managing director of Vestas Technology UK, which wasn't closed down and was given a government grant.

The Green Party was also at most a supportive bystander as the protests unfolded. Caroline Lucas, (Perry 2009j) the Isle of Wight's Green Euro-MP visited the protests and called for a workers' cooperative to be created. Thomas (2009c) spoke for many of the socialists involved who felt the party's response had been poor: "The Green Party Trade Union Group turned up with a stall for a day or so, and a few individuals who happened to be members of the Green Party have come to the roundabout, but that is it."

By contrast the radical environmentalists, particularly Climate Camp and related organisations such as Workers' Climate Action, Climate Rush and other direct action groups played a very positive role. The Save Vestas blog (2009d) reported that the

Camp for Climate Action national gathering formed a Vestas solidarity working group before the occupation and offered practical support. More importantly, climate activists delivered solidarity in the form of sit-ins, trespasses, glue-ins and other forms of protest. Thomas (2009c) expressed the solidarity between socialist and radical climate activists when he wrote: "Climate camp and other non-violent direct action people have organised many other successful actions, most spectacularly the occupation of the roof of the East Cowes Vestas factory from 4 to 14 August." Most of the workers active in the campaign recognised that prejudices about these activists were misplaced. Thomas added that the "courage, imagination, and skills" of these environmentalists made an "irreplaceable contribution, helping to enlarge the workers' (and maybe some socialists') tactical ideas — and doing it with very few arrests". Similarly, the Campaign against Climate Change took an active part in solidarity work.

Was Vestas the harbinger of a new red-green alliance? Certainly some commentators thought so at the time of the occupation. *Guardian* journalist Terry Macalister (2009b) believed that "a unique 'red and green' army of trade union and environmental campaigners was on the march in an attempt to save from closure Britain's only major wind turbine manufacturing plant". He quoted Greenpeace, who said the Vestas dispute promised a "historic change" from a situation where the labour movement and environment activists found themselves on different sides of the fence, with one wanting to shut down polluting industries and the other defending jobs. John Sauven, Greenpeace UK executive director said: "Although we have always tried to highlight the employment opportunities that could flow from a low-carbon economy, historically there has been animosity between the two sides. If we can build this new alliance and break down those perceived barriers then there all sorts of exciting opportunities."

Another *Guardian* journalist Rachel Williams (2009a) argued that the protest was significant "not just for the way in which it has seen environmental campaigners, socialist activists and trade unionists join forces", but also for the way in which "members of a previously non-unionised workforce in the largely conservative island community have been mobilised in a way they never dreamed of". Jonathan Neale was quoted rather overstating matters when he described the coalition gathered at

Vestas. He said: "I grew up in the southern US and I remember when the civil rights movement started. This feels like 1960." Lawson (2009) from the Compass Labour pressure group hailed "the passion of the protesting workers and the obvious synergy of economic and environmental interests", which helped make the campaign against the Vestas plant closure "a cause celebre for both the trade union and environmental movements this summer". He believed "an alliance of red and green politics would transform the landscape of Britain".

Patrick Rolfe believed the *Guardian* view was mistaken. He wrote (Rolfe 2009c) that the action taken at the Vestas wind turbine plant demonstrated the emergence not of a red and green coalition "but a realisation on the part of two social movements that they are inextricably linked". The environmental movement realised that "the only system capable of making the economic changes required to achieve sustainability is one of democratically controlled, social production". In parallel, the socialist movement realised "the imminence of environmental destruction — we cannot wait until the democratisation of production before we build a sustainable economy". He thought the "seeds of a new society — socially and environmentally sustainable — must be germinated in the rotting corpse of the old".

Neale (2009b) also corrected his earlier exuberance. To those who said Vestas had brought socialists, trade unionists and environmentalists together in a new way, he argued in retrospect that "the labels are a bit misleading". Many of those who took part were all three, although they were socialists first and foremost. But "everyone who came to the camp outside the Vestas factory commented on how everyone was cooperating in a new way". Neil Chaffey (2010) argued that Vestas had been a positive coming together of environmental and trade union campaigns. Yet "some in the environmental movement do not see or understand the significance of mass struggle, the role of the working class and the trade unions, or the need for a political alternative to the market". Vestas was characterised by workers taking action for their own jobs but also for climate protection and renewable energy; the forces that coalesced around it were secondary to worker agency and socialist politics.

What was the significance of the Vestas occupation for working class climate politics? For Workers Liberty activist (AWL 2009c), for two months it was "the

centre of three great battles: on jobs, on the environment, and on renovating the labour movement". Climate activist Sophielle (2009) said it seemed at the time that Vestas was "where history is being made in the converging struggles for workers' liberty and environmental sustainability", while Thomas (2009b) wrote that the Vestas workers appeared to have lit a fire "as shall never be extinguished". For climate politics, the issues were well captured by an unpublished letter to *The Guardian* by Vestas workers and their supporters. Reacting to those who said the struggle was over now the occupation had ended, they stated:

> Why? Because the fundamental issues have not changed: the decision to stop making wind turbine blades on the Isle of Wight does undermine the government's promise of a "green revolution" that would usher in significantly more renewable energy production and more green jobs...
>
> One of the questions that we all – campaigners, both environmental and trade union, and all working people – need to examine is whether we can let job creation, and the transition to renewable energy production that we need, rest on the short-term business decisions of private companies whose guiding principle is their bottom line. We argue that we cannot. We need to act as a public collectively, in our collective interest, including, if necessary, taking over plants and industries that cannot or will not deliver the change we need.
>
> (Morris 2009l)

It was the active role played by workers in both formal and ad hoc organisations that distinguished Vestas as an innovative development in climate politics. The verdict was well-captured by Crow, who said (Williams 2009b) of the workers: "They've done more for the future of green energy and green jobs in the UK in two weeks than the government has done in 12 years."

7.4 Conclusion

The Vestas occupation problematised the transition to a low-carbon economy, by bringing not only the impact of climate change on workers into the equation, but also workers as active climate subjects. The occupation suggested that some of the workers had understood the climate significance of the work they did and fought a class struggle in the face of business intransigence and government indecision. Although workers were pulled in different directions, as anticipated by Hyman's (2001) triangular model, the occupation showed that sections of the labour movement, particularly class-conscious socialists and trade unionists, could successfully fuse the defence of jobs with the need for climate protection.

The occupation further showed how the general interest of preventing dangerous climate change could be formed out of the interests of particular actors (especially workers) and particular organisations (notably trade unions). It was this synthesis, rather than merely an alliance of disparate forces, that made Vestas the potential harbinger of a new climate solidarity movement. In short, the Vestas occupation provides further evidence that workers and their trade unions have the potential to develop into swords of climate justice.

8) Discussion

8.0 Introduction

Climate change raises enormous questions about humanity's relationship with the planet. Climate is an important influence moulding human culture, while human society is now an agent affecting climate in ways unimaginable in previous epochs. Climate change is simultaneously interconnected with many other significant global challenges. It is the result of interactions between the planetary ecosystem and international socioeconomic relations, and characterised by large uncertainties. Climate change implies causes, effects and policies from global to local scales and as a result, requires international and interdependent solutions, without excluding unilateral action (Newell 2000).

Newell and Paterson (2010: 7) posed the overarching research question within this field: what will determine whether, as a society, we can avoid the most dangerous aspects of climate change? This chapter addresses the question in light of the literature review and the findings from UK union experience. It also returns to the specific questions posed in the introduction. Section 8.1 discusses whether workers organised in trade unions have the interest and power to tackle dangerous climate change, and whether unionised workers have become strategic climate actors. Section 8.2 appraises the variable geometry of union climate politics in light of the UK trade union experience with climate change, and addresses whether trade unionism in the 21st century has succeeded in re-inventing itself as a climate social movement. Section 8.3 discusses some of the implications of the thesis for climate politics, employment relations and trade unions.

8.1 Climate change and workers

8.1.1 The failure of current climate politics

By the second decade of the twenty-first century, the climate emergency reached a new level. Greenhouse gas emissions from fossil fuel use continue to increase, with

the 400ppm threshold exceeded. New forms of extreme energy from fracking and tar sands have become more significant, with rising demand for coal, oil and gas. Despite, numerous high-level gatherings, the promised transition to a low-carbon economy is not taking place, or at least not at a pace commensurate with the scale of the climate threat. No global agreement to reduce emissions has been signed, while multilateral efforts such as EU ETS functioned poorly (Fisher 2010; Ellerman, Convery and de Perthuis 2010). At the same time, fuel poverty increased. Technological fixes such as CCS were not being deployed on the scale required, nor was renewable energy being rolled out to the extent necessary. Without a drastic change of direction, the catastrophic prognoses of a 4°C rise in average global temperatures by the end of the century look more likely.

The dominant approaches discussed in Chapter 2 have been unable to answer adequately the question of how society could avoid the most dangerous aspects of climate change. Neoliberal and ecological modernisation discourses do not do justice to the magnitude of climate change or the scale of transformation necessary to tackle it. Neoliberal proponents (Helm 2005; Nordhaus 2008; Stern 2007) believe markets are the answer, while ecological modernists (Mol, Spaargaren and Sonnenfeld 2009; Newell and Paterson 2010) look to technology and to the state for solutions. Within the literature, there are some powerful critiques (Spash 2002; Foley 2006; Barker 2008a; Ackerman 2009), which suggest these mainstream framings do not adequately explain the social mechanisms that give rise to emissions. Further, the dominant discourses look to precisely the same social agents (capital and its states), which have caused climate change, to put it right. Their failings are evident from the continued growth in greenhouse gas emissions and the inability of businesses, national states and international bodies to find the means to curb them. A range of scholars (Gough 2008; Bartle 2009; Büchs, Bardsley and Duwe 2011) have pointed out that these framings do not adequately account for the unequal impacts of climate change and climate policy, particularly on workers. These failures suggest the search for an alternative approach, which could explain the social causes and impacts of climate change, while pointing to potential actors who could lead the movement to tackle it.

A different approach is needed, taking the evolving physical science of climate as its basis, but also one that utilises insights from disciplines such as politics, sociology, geography, political economy and international relations (Chen, Boulding and Schneider 1983; Cornell and Parker 2010). Such an approach to climate change would be socially grounded and explicitly political, avoiding the apparent technocratic neutrality of positivistic scientism that characterises neoliberal and ecological modernisation discourses (Demeritt 2001; Bhaskar and Parker 2010). It would question existing power relations at different scales, challenge powerful vested interests and avoid rationalising business-as-usual. It would critically employ conceptions such as structure and agency to make sense of the context for social transformation and the potential forces that might carry this out (Jessop 1990, 2007; Hay 2002). This thesis offers a Marxist approach, with explicit emphasis on workers and their trade unions as crucial to this alternative conception.

8.1.2 An alternative climate politics

The Marxist approach articulated in Chapters 2 and 3 rejects the dualistic framing of climate change in the hegemonic discourses. Instead labour is posited as the crucial nexus of nature and society. Climate change is an expression of what Smith (1984) called the "production of nature" and is the result of modern global capitalism. Climate change indicates deep-seated contradictions within this mode of production all the way down (Castree 1995). An important strand of Marxist literature (Burkett 1999, 2006; Foster 2000), which this thesis draws on, suggests that to alter the way the climate is changed, it is necessary to transform the dominant social relations of production.

The relationship between class and climate is often disputed in the literature, even by writers sympathetic to organised labour. Class is best understood as the product of exploitation (Carchedi 1987; Wright 2005; Callinicos 1987b). Class-as-exploitation provides the most convincing conception of class, and one that is most useful for elaborating on the social-climate nexus. The process of class formation under capitalism begins with the extraction of surplus labour time through lengthening the working day, making it more intensive through the application of technology and through the reorganisation of the labour process (Marx 1976a; Christie 1980). These

processes connect workers' exploitation and ecological degradation (Boyd, Prudham, and Schurman 2001) and are extended here to include climate change. The commodification of labour power and the "free gifts of nature" (including the atmosphere) are the parallel processes through which capital simultaneously exploits labour while imperilling the biosphere.

More concretely, the literature reviewed in Chapter 3 (Obach 2004; Buttel and Flinn 1978) suggests that workers and working class communities are often vulnerable to the impacts of environmental degradation (and climate change in particular), with the fewest individual resources to adapt to it. Similarly, extending this argument to climate change, workers and working class communities have already faced the impacts from floods, storms, droughts and wildfires. They have already experienced water shortages, food price hikes and health impacts, and can expect these to worsen as global and local temperatures increase, sea levels rise and ecosystems are further disrupted (Vlachou 2000, 2005; Brunnengräber 2006). The impact of climate policy on workers as a specific social group has largely been neglected in the climate literature. Workers are often expected to pay for the costs of climate policies, whether through higher prices, increased taxes or the loss of employment. Mostly, workers are represented as the passive victims of changes foisted on them from the outside (such as unemployment) or as backward-facing seekers of special privileges opposing necessary climate action. Often they are simply lumped together with employers as productivists (Yandle 1986; Fredriksson and Gaston 1999). These representations ignore the possibility that climate impacts constitute good reasons for collective workers' climate action.

An adequate conceptualisation of climate change would take the impacts on social inequalities and power into account (Beck 2010). The actual lived experience of workers, the deep seated structures that shape their lives and the expected impacts of future climate change, provide workers with the special interest in climate matters. Their location within the dominant social relations of production also provides workers with the collective capacity to affect the way climate change is tackled.

8.1.3 Workers and climate agency

The foregrounding of workers in actually-existing climate politics challenges the undifferentiated "we" in questions about whether a heterogeneous "society" can avoid the most dangerous aspects of climate change (Swyngedouw 2010). Class divisions mean "we" should not assume the same structures that gave rise to climate change in the first place will continue; more tersely, "we" cannot rely on the same business and state actors who caused the problem to tackle it. Society itself is divided and riven asunder (Marino and Ribot 2012). This is the flaw with efforts to promote climate capitalism. If capital and its states are the progenitors of climate change, then the worker-based approach challenges their role as part of the solution. The interdependence of finance and other forms of capital mean that no section of private business is considered to have sufficient interest in combating climate change. This is likely also proscribe the latitude existing states have to take action on the issues. A fresh approach requires critical distance from business actors and their supporters on climate matters. This thesis also questions the ability of non-state actors such as NGOs, given their ties with capital and lack of autonomous political power, to tackle climate change at a deep structural level. This does not imply a sectarian assault on climate activist campaigns. If climate NGOs want to tackle climate change, then they cannot rely on the philanthropy of capital, nor become satellites of its states. Politically, class criteria introduce a vital metric to clarify who are climate enemies and where climate allies could be found.

The approach promulgated here does privilege one particular social actor, namely waged workers (Draper 1978; Mulhern 1984; Wood 1986). The contention is that organised labour is the most advantageous starting point for developing a climate counter power. Class organisations are collectivities that workers form in order to advance their class interests (Wright 2005). These range from highly self-conscious organisations such as trade unions and political parties to much looser forms of social networks. This thesis suggests that these organisations, if they articulate workers' interests in class terms, are capable of cohering a powerful climate movement. Climate activists could make alliances and join coalitions with organised labour to form a working class-based climate movement. This would be a social movement with workers' self-activity at its core.

It is possible to identify some important climate stirrings among trade unions internationally (Nugent 2011; Snell and Fairbrother 2011; Räthzel and Uzzell 2012), which suggest workers have both the interest and the power to challenge the dominant climate politics, as well as the motivation and capacity to establish an alternative climate politics. Chapters 4 and 5 discussed the ways in which workers' interests in the UK have been articulated in trade union climate politics, although class considerations were subordinate to ecological modernisation framings in official TUC discourse. Starting from a core interest in the employment implications of climate change, some UK trade unionists (TUC 2008c) have gone further with the concept of "just transition", questioning the distributional consequences of existing climate policy and perceived workers as likely to lose out further in any market-led transition to a low-carbon economy. More radical challenges (Sweeney 2012) have identified existing property relations as responsible for these outcomes and advanced democratic public ownership (or "energy democracy") as part of the solution to tackling climate change. Similarly, challenges to the nature of work, the contemporary labour process and the purpose of current production raise, albeit embryonically, questions about the dominant social relations of production (Räthzel, Uzzell and Elliott 2010). These class framings indicate distinctive workers' interests on climate change, and provide good reasons to expect workers' collective action in climate politics.

Social agency concerns not only actors' reasons for action but also their capacity to respond. Chapters 6 and 7 examined distinctive forms of workers' action on climate change. Workplace union climate representation embraces a wide range of activities, from fairly low-level assistance with energy saving and recycling, to more ambitious elements of strategic planning and control. The involvement of trade union reps in workplace decision-making on climate matters, from the energy systems used in workplaces to transport arrangements for staff, suggest novel avenues for climate mitigation and adaptation. Given the importance of work relations in generating greenhouse gas emissions, workers have a vital role to play in embedding low-carbon practices in workplaces. Union reps have already provided a glimpse of the enormous potential in this area of climate politics (LRD 2007; TUC 2009d; TUC 2012c).

More radical mobilisation, including forms of industrial action and solidarity with workers taking collective action, was discussed in Chapter 7. The Vestas workers who occupied their workplace and their colleagues outside who supported them indicated a strong commitment to climate-related employment. Their response was more than simply disappointment with redundancy; rather workers had taken seriously the low-carbon transition promised by the firm and the government (Gall 2011). Similarly, the climate solidarity offered by other trade unionists, workplace reps and climate activists around Vestas was sufficiently powerful to rock both the employer and the government for many weeks and put climate politics at the centre of public discussion. The Vestas struggle was defeated, but it is unlikely to have been the last occasion in which workers take militant forms of collective action on climate matters. The occupation exhibited the unique if often latent power of organised labour to struggle for climate justice.

This thesis has argued that trade unions, as organisations of waged workers, have a general ecological interest in preventing climate change, due to the interdependence of exploitation and climate degradation (Silverman 2004, 2006), and because of the impacts of climate change and climate policy on workers (including but not restricted to employment). More significantly, trade unions retain the capacity to affect substantial as well as smaller changes at various scales throughout the production process, through their own activities (including forms of industrial action), together with implementing measures agreed with employers. Recent UK union experience provides some evidence for these propositions. Organised workers are potentially strategic climate actors, whose capacities and interests to tackle climate change are generated by the social structures that shape other aspects of their lives.

It is pertinent to ask whether the trade union climate activity discussed in this research was limited to the temporal and spatial context of early 21st century UK politics. Was it the strategically selective context of a globalising political economy experiencing uneven and combined development, the prospect of a successor to Kyoto and the Labour governments between 1997 and 2010 that explain why these forms of climate action flourished? Whilst some UK trade unionists took advantage of the opportunities available during this period, they were neither tied to the Labour government's climate policies nor greatly assisted by them. UK trade union

representatives articulated their own versions of climate politics almost a decade before the Labour government came to office. Discourses such as just transition, originating in the North American labour movement (Leopold 2007) and propagated through high-level international union channels (Gereluk and Royer 2001), predated Labour in power. Although significant development took place between 1997 and 2010, union climate politics continued to flourish despite the economic downturn and change of administration.

Similarly, forms of union climate action are not confined to the UK, but have been developed in Europe, as well as in the United States, Australia and elsewhere across the globe (Vitols et al 2011, Snell and Fairbrother 2011; Räthzel and Uzzell 2012). Climate politics began to be integrated into trade union internationalism during this period, weaving threads of climate solidarity that are likely to endure. Such internationalism does not rest simply on identical conditions or the superficial commonality of experience; rather it presupposes a collective economic interest based on the universal interdependent exploitation of waged labour by capital (O'Brien 2005). The changing structures of capitalism, particularly in its recent incarnation as neoliberal globalisation, drive trade unionists to consider international solidarity. Similarly, the unevenness of the workers' movement globally makes such solidarity necessary. Working class internationalism also requires a common political vision and has to be actively organised, with union leaders and members open to learning lessons from distant struggles as well as those closer to home.

8.2 Trade unions and climate politics

Recent research discussed in Chapter 3 (Räthzel and Uzzell 2012; Snell and Fairbrother 2011) has begun to grapple with trade union intervention into the climate realm. This thesis suggests that Hyman's (2001) attempt to capture the variable geometry of trade union ideology is fruitful for the assessing the strengths and limitations of unions as climate actors. He argued that trade unions inevitably face in three directions: towards the market, society and class. Unions as climate actors are buffeted by competing pressures of the structures that define them and by other agents within these contexts. In this thesis, the trichotomy parallels three distinguishable conceptions of climate politics: neoliberalism, ecological modernisation and Marxism.

Other insights into the potential role of unions as climate actors could be gained from social movement unionism (Waterman 2001; Moody 1997). This conception requires unions to lead not only their own members in climate action, but draw in their wake other workers, their communities and other dissenting actors. Labour geographers (Johns 1998; Herod 2002) offer some important insights into the challenges faced by unions as climate actors. Whilst there is a positive emphasis on the need to "bring workers back in", these critics warn that the uneven spatial terrain provides constraints for workers' action. Labour geography cautions against local boosterism and accommodation with capital and states masquerading as new labour internationalism and highlights the dangers of economistic "militant particularism" – taking action for conservative goals – of working class environmentalism. Instead, a more transformative solidarity is necessary for climate change to become integral to the core mission of organised labour.

Hyman (2004) asked whether trade unionism in the 21st century can succeed by re-inventing itself as a virtual social movement. By the end of the first decade of the twenty-first century, many UK union representatives had begun to engage with climate politics for the first time. Climate change became a more strategic policy priority for the TUC and for some union leaderships. Some union representatives took the science of climate change and translated it into the politics of employment relations. They recast earlier concerns about government industrial strategy, fiscal

policy and poverty-reduction in climate terms, giving added relevance to union political intervention. These union representatives emphasised the work dimension, both in terms of the causes of climate change and the consequences rising temperatures will bring, as a direct result of a changing climate and indirectly from government and employers' policies to mitigate and adapt to climate change. Climate politics became a trade union issue, while many UK unions and their representatives became actors in the embryonic climate movement.

The promise of climate solidarity is tempered by the extent to which UK trade unions have accommodated to the dominant ecological modernisation and neoliberal climate discourses. Although a minority of UK trade unionists, activists and some leaders, have grasped the significance of climate change and begun to act on it, trade unions have not transformed themselves, their policies, structures and orientation sufficiently, either to direct a comprehensive range of climate struggles or to hegemonise the nascent climate movement. The evidence suggests that most UK unions still have some distance to travel before becoming fully social movements dedicated to climate goals.

There is a danger of conflating workers' objective interests with their subjective motivations, and the risk of assuming that trade unions per se (in fact their current leading representatives) articulate consistently the interests of their own particular members, never mind the general interests of workers. There is no mechanical relationship between workers, unions and class consciousness in the climate realm as indeed elsewhere. Beneath generalisations about workers and their organisations lies what Gramsci (1971) regarded as "contradictory consciousness", a mixture of different ideological and material pressures, with framings ranging from more superficial common sense to quite profound appreciations.

Similarly, whilst there may be some advantages to examining the formal positions expressed by trade unions, it is understood that these are generally the views of the union leaders at the time. These views are themselves subject to change in different conditions and indeed to challenge, not simply from other union bodies but also crucially within trade unions themselves, from other factions vying for leadership and indeed from other lower-level officials and ordinary members. To speak of

"workers" and of "unions" as if they were a single entity is to oversimplify. Trade unionism, like other social movements, involves collective action as well as individual choices, various networks and ultimately rich, often contradictory and varied debates. The top-down view will need to be supplemented with bottom-up approaches that capture the tensions and contradictions between and within collective organisations such as trade unions.

8.2.1 Class-based union climate action

This investigation of UK unions between 1997 and 2010 found a number of significant examples of a class-based and worker-focused climate politics. At least three prominent areas stand out. First, radical conceptions of just transition and climate jobs indicated the development of a class-based ideology, in which the interests of workers were articulated and climate change framed in class terms. Similar embryonic considerations applied to some union stances on the public ownership of vital climate infrastructure such as the railways; the emphasis on socially useful production; and on distributional issues of winners and losers from climate policies. Second, forms of climate representation at work have exhibited elements of subjective working class formation and organisation. Third, union involvement in the Vestas occupation and other public demonstrations indicated distinctive forms of working class mobilisation.

In Chapter 5, it was suggested that just transition is probably the most fertile union climate conception developed so far, synthesising the climate perspectives of organised labour and making a distinctive theoretical intervention into the complex world of climate politics. Just transition problematises the idea of a low-carbon economy, by asserting the irreplaceable role of the workers who will bring it about. On this level, it draws into question the structure and content of the low-carbon terminus. Minimally, just transition poses unavoidable questions of who pays collectively and individually for this evolution and asks how society will equitably divide up the costs and benefits. In the stronger, more radical form originally envisaged by Mazzocchi, just transition could represent an effort to articulate specifically workers' interests in the process, taking a long-term strategic view of the

trajectory of the world economy and the likely restructuring ahead, within which unions will need to represent members' interests.

However TUC officials' version of just transition largely relies on some sort of government intervention to counteract the market. Despite some formal recognition of weaker versions of just transition at international and national levels, it is a long way from being implemented by any existing states. Critics have rightly argued that unions need to make just transition more concrete, with a sharper focus on what exactly the low-carbon destination will look like. Just transition, even its more top-down, bureaucratic and partnership incarnations, is still a breach with neoliberal climate assumptions. However it is also susceptible to co-option by the ecological modernisation discourse, as recognised by Labour politicians and encouraged by some trade union leaders.

Chapter 5 also discussed trade union conceptions of "green jobs" – and more radically of "climate jobs" – to capture the kind of decent work that workers expect in a low-carbon economy. For some trade unionists, green jobs extend beyond work that directly concerns climate protection, to embrace an amorphous variety of jobs. Whilst the broadening of green jobs to include most existing work makes tactical sense in terms of universalising the necessary transformation of all employment relations, the lack of precise definition and blurriness at the edges weakens its utility. It also requires additional clarity about socially useful and climatically-sensitive work.

Climate jobs are more narrowly defined (Neale 2010), in terms of work that contributes to emissions reduction and adaptation, although this still encompasses a wide range of employment across energy and transport. However the class element was brought out as we have shown in two distinctive ways. First, these jobs would be direct, public sector jobs and explicitly subject to democratic oversight, not exposed to market pressures nor contracted out to the private sector. Second, workers in sectors affected by emissions reductions could seek alternative employment in this "National Climate Service", thereby tackling the vexed issue of unemployment. In this conception of climate jobs, workers would gain from the transition to a low-carbon economy.

Similar emphasis with class connotations is the demand for public ownership of vital climate infrastructure. Most visible is the appeal to renationalise the privatised railway system (and to a lesser extent the buses), as part of an integrated publicly-owned transport plan. The demand has a distinctive climate edge, given lower emissions from rail and bus transport compared with cars, lorries and aeroplanes. It is also considered a remedy for higher fares and for new investment, instead of profits drained off to shareholders and exorbitant management salaries. Although the NUM and TUC leaders continue to demand the nationalisation of the remaining coal industry, union officials elsewhere in the energy sector and the TUC do not currently demand renationalisation of electricity generation, nuclear or gas industries, despite comparable climate and other benefits from doing so. This reflects the political calculations of senior trade union officials, seeking to preserve their insider status, a stance not necessarily shared by activists and members, some of whom were more sympathetic to demands for public ownership.

There is some limited evidence of a revival of "socially useful production" by some trade union activists, and what has been called "energy democracy" within climate change discourse. This reflects earlier discussions, particularly the Lucas Aerospace and other workers' plans, which understood socially useful work in terms of energy conservation, reducing waste and non-alienating work. Although not well developed during this period and a long way from earlier related discussions of workers' control of production, these embryonic ideas put workers at the centre of climate transitions and more profoundly challenge the assumptions made by the dominant discourses.

As we saw in Chapter 4, there is a significant emphasis in UK trade union publications on wider distributional issues of winners and losers from climate policies. On a national level, TUC officials were prepared to challenge the windfall profits from the EU ETS and to demand that this revenue be spent tackling fuel poverty or on new climate infrastructure projects. Similarly, some workplace climate reps engaged with their employers over the distribution of gains from emissions reductions, in the form of bonuses for workers or to use revenue to improve job security. "Cut carbon, not jobs" became more than merely a slogan during the economic downturn: where employers made financial gains from energy efficiency

measures implemented by their employees, some union reps campaigned for this revenue to be used to benefit workers through maintaining employment levels.

Chapter 6 indicated further articulations of worker interest in climate matters, with trade union climate representation at work exhibiting important elements of class organisation. Some union reps became active climate subjects. This form of climate representation is unique, novel and dynamic. For climate politics, it provides a unique focus on worker representation and employee voice. This thesis provides significant evidence that union reps could act as drivers in workplaces and communities to tackle climate change.

The Green Workplaces projects provided substantial evidence that union reps could become climate actors in the workplace and their wider communities. By 2010, there was evidence, captured by the union surveys discussed in Chapter 6 (TUC 2009d; TUC 2012c), of several thousand union climate activists in public and private sector workplaces. This layer of union reps reported a plethora of activities where carbon reduction at work took place at their instigation or at least (when the initiative came from management) with their support. Significant reductions in workplace carbon emissions were accompanied by widespread worker participation, including specially-organised committees, conferences, forums and film shows. A handful of formal workplace agreements were signed between unions and employers. In other cases, workers and their representatives received training in climate awareness. More widely, these union carbon activists were organised in networks, sometimes by their individual unions but also by other lay and unofficial campaigns. Although the role attracted some new faces, including younger, women and black and minority ethnic workers, these representatives were still mainly drawn from the pool of existing, if somewhat reinvigorated union activists.

Chapter 7 evidenced a third form of class-based activity, namely climate mobilisation. During this period, the Vestas occupation was the most high profile, and went furthest in challenging the dominant climate framings. Vestas workers' motivation had a more overtly climate dimension because some had been attracted to the plant out of the desire to produce green technologies for green energy, while others believed government rhetoric about the shift to a low-carbon economy. The

direct action taken by workers in the face of redundancy, coupled with the show of solidarity they received from other workers and climate activists, pointed to a distinctive worker-based approach to progressing climate politics. The Vestas occupation was remarkable because it took place in a sector with little previous collective trade union organisation. Whilst resistance may have appeared less likely when closure was announced, after encouragement from external activists and trade unionists, some workers at the plant were less constrained by union officialdom once they had decided on a more radical course of action. Support from the RMT, acting more like a social movement union, provided more organisation after the occupation had begun.

Vestas workers did not receive a level of international or domestic solidarity sufficient to keep the plant open. However the imaginative direct action that featured in the solidarity protests around the occupation was significant. Activists organised solidarity in dozens of places across Britain to support the Vestas workers. Although the campaign was unable to keep the plant open, it prevented closure for additional weeks and thereby secured better redundancy terms for most of those affected. The protests were significant beyond the plant and the locality, extending to the wider national climate debate. The protests also revealed deep-seated climate solidarity that transcended the particular local context of the dispute.

Finally, some union leaders have also been prepared to mobilise members to take action on climate change, both at work and with wider national campaigning organisations, such as The Wave and G20 demonstrations in 2009. Taking action on climate change went beyond largely passive financial support or signing postcards. Taking initiatives at work or in communities, whether it was organising a film show and discussion, putting on an exhibition, or more confrontational forms of direct action indicated that organised workers could chart a new climate path of their own volition. However a working class-based climate approach was never the dominant framing within UK unions during this period, with the exception of the Vestas occupation.

8.2.2 Between class and ecological modernisation

Ecological modernisation framings were highly prominent with global climate politics during this period (Bäckstrand and Lövbrand 2006) and trade union bodies internationally used this discourse in their own articulations of climate politics (Uzzell and Räthzel 2011; Nugent 2011). This research found similar themes in the UK context, where most trade union leaders and TUC representatives subscribed to ecological modernisation, rather than class-struggle climate politics. Ecological modernisation framing was evident in union submissions to UN climate negotiations. UK unions supported the Kyoto Protocol and backed demands for emissions targets. They had some success in getting a minimal notion of just transition acknowledged within UN texts and eventually gaining a formal role within the UN climate process, although the failure at Copenhagen cauterised this recognition.

A strong orientation towards ecological modernisation was also evident within UK domestic politics (Barry and Paterson 2004). Union support for government climate policy was explicitly sought from the beginning of the Labour government, when Tony Blair invited union leaders to contribute to climate policy after Kyoto. With the establishment of the joint union-government body TUSDAC to oversee this collaboration, union leaders became significant players supporting the Labour government's climate policy. TUC officials supported the Stern Review and the Climate Change Act in ecological modernist terms, taking up both government mitigation targets and adaptation proposals. When the Labour government turned towards an active green industrial strategy after the onset of recession, TUC officials were among its most high-profile backers.

Union leaders' support for government climate policy was consistent, but it was not uncritical. For example, Unison backed the Friends of the Earth campaign for an 80% emissions reduction target for 2050, going beyond the government's more cautious opening proposal of 60%. TUC leaders asked the government to go further with fiscal proposals such as taxing energy companies. TUC officials' emphasis on adaptation showed that they understood the need to make climate politics as much about immediate issues affecting workers in the present, rather than simply a matter

of targets and restructuring for the future. This approach reflected certain criticisms of the dominant, top-down climate regime.

The partnership approach articulated by TUC officials fitted with the ecological modernisation discourse. This research also found evidence of support for technological fixes and for stakeholding. Many individual union and TUC leaders saw climate change as a vehicle for promoting their conception of partnership with government and employers, emphasising the "non-adversarial" potential for collaboration around emissions reduction. Some participants in the Green Workplaces projects also saw relations as non-confrontational. While some employers clearly welcomed the opportunity to work with union reps for common environmental objectives, other managers saw the intervention of unions as at best an unhelpful distraction or worse as an unwanted encroachment on their own sphere of decision making. But union reps were not generally doing the bosses' or the government's work on climate matters. Indeed they often had to struggle against the wishes of their employers and managers to gain a voice on climate questions at work.

The ecological modernisation approach was also evident with CCS, where TUC and energy union leaders promoted an explicitly technological fix with important potential for emissions abatement. The principal union framing of CCS should not be reduced simply to a sectional defence of existing jobs, although the potential for future jobs cannot be discounted. Rather support for CCS was a pragmatic response to conditions in British industry and globally, with wider applicability to steel, ceramics and other energy intensive industries affected by climate policy. Given the scale of coal reserves and the extent of global demand, the idea of "leaving it in the ground" seemed to have little grip. Support for a technology that could limit emissions from fossil fuel energy and heavy industry was consistent with workers' climate interests and living standards at various scales. However more concrete questions about new coal fired power stations remained problematic, as long as the technology had not been scaled up.

8.2.3 Between class and market

Whilst much of UK union framing of climate issues resided between class and ecological modernisation, there was also some evidence of accommodation to market approaches, reflecting some of the structural and ideological pressures on unions. This was consistent with findings in the literature, both internationally (Hrynyshyn and Ross 2011) and in the UK context (Swaffield and Bell 2012). Most union leaders and TUC officials were critical supporters of the EU ETS, or at least did not actively oppose it. Although some union leaders were sceptical about emissions trading when it was first mooted in the early 1990s, they pragmatically came to support EU ETS once it took shape. In the context of climate change, some warned about carbon leakage, often in protectionist and sectionalist terms identical to those of employers.

However even accommodation to mainstream neoliberal climate policy was accompanied by some distinctive demands. TUC officials called for using revenues raised by the sale of permits for fuel poverty reduction, for a windfall tax on profits made from permit trading and for putting ETS on the bargaining agenda of workplace reps. As the scheme took shape, unions took a more critical stance, mainly because of the consequences for energy-intensive industries, where UK unions had a higher density of members. Union officials succeeded in getting recognition of the role of employee representation in the Carbon Reduction Commitment (CRC), even though it was originally a measure aimed solely at employers.

More controversially as we saw in Chapter 4, the dominant union approach on aviation was outright support for a third runway at Heathrow. Although this was justified by the thin veneer of EU ETS, it was inconsistent with a thoroughgoing commitment to climate politics. UK union officials had emphasised occupational and employment considerations on climate change since the late 1980s. This was reflected in the least climate-conscious positions taken on energy intensive industries and on aviation. However some other unions, including those with members in the aviation industry, recognised the contradiction and joined the opposition to airport expansion. Even within more market-orientated policy, union officials made efforts to incorporate workers' concerns, to widen worker representation and to open new fields of collective bargaining, such as with EU ETS and the CRC.

8.3 Implications of the study

This thesis makes an original contribution to knowledge in three significant respects. First, starting from Marxist conceptions of the production of nature (Smith 1984; Castree 1995) and global political economy (Burkett 1999, 2006; Foster 2000), it highlights the relationship between the exploitation of waged labour by capital and the parallel processes of climate degradation by capital. The mechanism identified is the form taken by the transformation of the labour process under capitalism, whereby the real subsumption of labour to capital (the production of relative surplus value through work intensification, reorganisation and mechanisation) simultaneously involves the utilisation of huge quantities of energy, the vast consumption of natural resources and immense waste. The process now involves the commodification of the climate itself – what is dubbed the real subsumption of climate to capital – and under capitalism leads to an irreparable rift in the metabolism between climate and society.

Second, the thesis emphasises the class dimension, developing a conception of workers and their organisations under certain conditions as strategic climate actors, agents whose exploitation and resistance to it is in symmetry with their struggles for climate protection. Thus workers possess a deep-rooted interest in climate mitigation and adaptation and through collective bodies such as trade unions (as well as other mass democratic associations) the capacity to tackle the perpetrators. The very structures that generate and reproduce waged labour also enable self-conscious workers to collectively tackle both the root of their exploitation and related ecological matters. This goes beyond the plausible conception (Obach 2004; Buttel and Flinn 1978) of workers as hardest hit by both ecological events and environmental regulation.

Third, the thesis extends the geometry of trade unionism articulated by Hyman (2001) to ecological and climate matters, highlighting how individual trade unions are subjected to the simultaneous material and ideological pressures of the market, the state and class. This conception contributes to an explanation of the actual behaviour of trade union leaders, elected and appointed representatives as well as rank and file members when faced with climate questions. The thesis applies these insights, along with those of social movement unionism (Moody 1997) and labour

geography (Johns 1998; Herod 2002) to suggest a conception of climate-conscious and class-conscious trade unionism. The thesis seeks to evidence these claims with reference to fresh and previous neglected data on recent UK trade union efforts to engage with climate change, especially between 1997 and 2010.

The methodology employed in this research was chiefly the critical analysis of published and unpublished texts, speeches, briefing papers and submissions produced by elected trade union leaders and their full-time officials. The advantage of this method was to represent the arguments articulated by these key individuals and other representatives, often in their own words, and to express their interpretation of their organisation's interest in climate matters. Given the neglect of this data – especially in the UK context – such an approach adds considerably to our knowledge, although it also had limitations: the research largely captured the evolution of official union discourses, rather than attempting to engage with the processes of the generation of such discourses.

These sources were supplemented by the critical interpretation of some trade union survey data, alongside a small sample of interviews with trade union and government officials on just transition and the use of blog posts as additional written sources. The need for additional materials arose from the recognition of the limitations of documentary sources, written deliberately for certain political audiences and which would not necessarily articulate clearly all the key issues under consideration (Hammersley and Atkinson 2007).

The survey data available (LRD 2007; TUC 2009d; TUC 2012c) consisted of detailed returns from a self-selected group of trade union reps, who were not necessarily representative of the whole population. However qualitative data retrieved from open questions in these surveys provided important indications of trade union representatives' attitudes towards climate mitigation and adaptation, and the possibilities for affecting such change at work. In addition, some of the contradictions and tensions – for example over car parking and the benefits of energy saving – between workers and their employers, and between different groups of employees, came to light through these surveys.

Further insight into the deeper meaning and understanding of climate change for these union representatives and wider layers of workers, whether members of unions or not, could have been garnered from conducting more semi-structured interviews. This method has been utilised internationally (Uzzell and Räthzel 2011) to understand and reconstruct high-level union framings, and in Britain for non-union climate champions (Lewis and Juravle 2010; Swaffield and Bell 2012). Although some high-level officials in the UK context could have been interviewed, it was felt that their views were already well represented in the documents they had authored or contributed to. As for interviewing wider layers, this would have required a further research project, and considerably more dedicated time than was available in a part-time doctoral thesis. It is hoped such possibilities will become available in post-doctoral research.

8.3.1 Implications for the field of climate politics

If the central question is how to avoid the most dangerous aspects of climate change, then mobilising workers, who have the collective capacity, interest and organisation to tackle climate change is a positive conclusion that follows from this study. What does a focus on organised labour bring to the climate politics field of study? This thesis has provided insight into the structures and mechanisms that generate climate change in the first place and into the impacts of climate change on actual social formations on the other. Labour stands at the nexus of these concerns. The focus on labour also provides an exceptional metric for climate politics, if it is to tackle the question in an equitable and socially just fashion. As such, class structures provide a crucial lens for understanding the limits of the dominant framings of climate change and the possible alternatives to them. But class also proscribes agency. Organised labour, based on waged work and integral to every major society within global capitalism, is a social actor with significant reasons to tackle climate change and the potential power to address the forces, processes and structures that cause it.

The Vestas dispute discussed in Chapter 7 was a significant indicator of the state of climate politics in the UK in the first decade of the twenty-first century. It showed how far various climate actors were able to deliver on promises to promote a low-carbon economy. The closure of the wind turbine manufacturing plant reflected

particularly badly on its owners. The firm gave the impression it was only interested in developing green production where it could make the highest returns. The BWEA industry body (now RenewableUK) was a weak advocate for the emerging industry. The factory occupation was equally calamitous for the Labour government, which had prioritised the low-carbon restructuring of the British economy. Just before the plant closure was announced, ministers declared that the UK was on the edge of a low-carbon industrial revolution. The Vestas occupation was a critical test for climate campaigns in the UK, which had become more prominent as climate politics rose up the political agenda. The established environmental NGOs offered little more than nominal support to the Vestas workers during their struggle. By contrast, some radical activists played a very positive role with climate solidarity.

The main original contribution of this study for climate politics field of study is to bring organised labour back in as an essential climate agent. This research makes the case for trade unions as strategic climate actors, worthy of further research within the field of climate politics. It outlines a conception of workers' climate action. The strength of the design in this research was that it depicted new insights and new relationships. But these are early steps in the field, where there is only limited recognition in the literature of these emergent developments.

One weakness of this study was the tentative investigation of wider social relations of climate. Some systematic mechanisms by which capitalism generates carbon emissions are mapped, but require further explanation. A related point is that the likely forms taken by the climate rift for workers need to be elaborated, beyond general risks from floods, famine and other impacts. If a neoliberal climate transition is effectively underway, it is important to chart its direction and effects. Enunciating the contours of a socially just, low-carbon society and the scope of climate jobs also remain work in progress.

8.3.2 Implications for the employment relations discipline

A central finding of this thesis is that the British trade union movement has taken some significant steps towards making climate change an integral part of its basic mission. Within the discipline of employment relations, the study of climate change

has become a legitimate line of enquiry. Many union leaders, reps and members are cognisant of the importance of climate change and its impacts on workers. Sections of organised labour have begun to articulate a vision of a just, low-carbon society – in other words to formulate their own independent, class-focused conception of climate change. Workers and trade unions have also started to wage climate struggles for such objectives. Union climate activists have begun to build their own official and unofficial networks to prioritise climate matters within and beyond their unions.

The economic downturn did not stymie union concerns with climate change; on the contrary some linked recovery with the green restructuring of the economy. Some union-backed projects were able to demonstrate how their workplace interventions were reflected in quantifiable emissions reductions. Of course these were generally in better organised workplaces and in organisations where union activity was already well-established. With union density down to only a quarter of workers, a strategy of union-driven carbon abatement would also require a significant revival in union organising in workplaces that currently have little or no union presence.

The Vestas occupation provided a useful barometer of the variable contours of union climate politics. Unite, which had a handful of members at the plant before the occupation, made token efforts to keep it open, before retrenching to welfare advice. By contrast, the RMT put national and local resources into the struggle, demonstrating the possibilities of social movement unionism and the virtues of climate solidarity. The TUC did not play a prominent role in the Vestas occupation, although Vestas certainly made an impact on its proceedings. Vestas was not the harbinger of a new red-green alliance. Most of those who led the solidarity were already part of organised labour and active in the climate movement. It was the integration of climate concerns with workers' action that defined the new synthesis. Vestas came to illustrate the vitality of worker-led direct action in pursuit of climate jobs and the potential for workers' climate action, mobilisation and power. As probably the most significant example of class struggle over climate matters yet seen in the UK, Vestas may herald the future shape of climate politics.

Most union leaders and the TUC have been ambivalent about their enemies and allies in the climate process and to an extent accommodated to the dominant climate

politics. They have not articulated a consistently anti-capitalist discourse, whose political conclusions follow from the assessment of capitalist production as the root of climate change. They remained within the parameters of market and society suggested by Hyman (2001). At the other end of the spectrum, few trade unionists currently frame climate change in terms of the metabolic rift or production of nature. Political representation also remains vexed. The Labour Party is the only mass, union-backed electoral vehicle in British politics, yet it is not (despite some occasional promises) currently committed to empowering trade union climate action.

This study has demonstrated the continued relevance of the employment relations discipline and the significance of work to the field of climate studies. The vitality of the discipline will be confirmed by the ability of researchers to engage with emerging fields of study such as climate change. The interest taken by unions in climate change provides further proof that employment relations should not simply be reduced to jobs and pay, though of course both matter for climate politics and for their own sake. The employment relations discipline confronts questions of who bears the costs of the transition and who may lose. The challenge for the discipline is to theorise the involvement of workers and unions in climate politics. This study has highlighted the possibilities for extending theories such as Hyman's geometry and social movement unionism into the realm of climate politics. More significantly, this thesis contributes to an emerging field, what Uzzell and Räthzel (2012a) called environmental labour studies.

There are further research possibilities within the field of employment relations. There is scope to examine the perspectives of individual trade unions in the UK as well as comparative studies of unions in other countries, to obtain a more detailed picture of different union stances towards climate change. The profile and activities of workplace climate representatives also deserves thorough investigation. More widely, research is needed on workers' perceptions of climate change and what they are prepared to do about it.

8.3.3 Implications for trade unions

If the findings of this thesis are accepted, then a rather different strategy for some trade union leaders and union activists ought to follow. Trade unionists in the UK have much to learn from international union engagement with environmental matters (Räthzel and Uzzell 2012). Trade union reps will need to understand climate change mitigation, securing agreements at different scales of the state and in workplaces. This means assessing the impacts for workers of climate change itself and on government climate policy. Minimally, it involves an active low-carbon industrial policy with climate jobs at its heart, and the vigorous pursuit of adaptation strategies (such as indoor workplace temperature), where tangible improvements could be won on immediate issues that animate workers. However trade unionists would have to challenge the dominant neoliberal and ecological modernisation orthodoxies, which foreground employer and state action with little regard to workers. A more independent, class-focused approach would involve substantial rethinking on issues such as EU ETS and aviation. It includes a sharper opposition to escalating fossil fuel extraction and utilisation. Minimally, it means contesting the private ownership and control of energy and transport infrastructure – especially the lack of democratic oversight of these vital climate levers.

A class-based approach would take a more critical stance towards relations with other actors. It would abandon the wishful thinking of partnership with unwilling employers and governments. Of course trade unionists at all levels would continue to engage with these actors in bargaining and policy formulation, but no longer on the basis of the polite fiction of notional common interests. Instead, union representatives would articulate workers' collective interests, making alliances with climate activists on shared goals such as eliminating fuel poverty and opposing extreme energy (such as fracking). Finally, trade unions should redouble their efforts to put union reps' climate activities on a statutory footing, with the right to time off for activities, facilities and training. There is evidence that union reps could be catalysts for climate action in workplaces and communities. The demand to unshackle the unions now has an added green dimension to it. Such rights will not be conceded without serious campaigning. But for the sake of the climate and for workers interests, they are rights well worth fighting for.

8.4 Concluding remarks

The approach set out in this thesis goes to the heart of the social, political and economic processes that cause climate change; or to put it differently, it identifies key mechanisms that drive greenhouse gas emissions. The drive to create surplus value (mainly in the form of profits) is vital for explaining the uncontrolled and unrestricted use of fossil fuels. The real subsumption of labour to capital is paralleled by the real subsumption of climate to capital, intersecting at the point where energy intensive technologies are substituted for living labour in the competitive drive for increased profits. The continued and expanding exploitation of waged labour coincides with the degradation of the climate. The common root is the self-expansion of capital, which provides workers with the structural interest for tackling climate change simultaneously with their own exploitation.

The causes of climate change are intrinsic to the basic contradictions driving capitalism. Capital will seek to commodify the "free gifts of nature", including the atmosphere. But these efforts are likely to fail, since prices generally do not reflect an optimal ecological "value" under conditions of capitalist production. The flaws of market mechanisms result from the process of commodification itself. Technological change under these conditions will not take place for social need or climate restoration, but only for profit. Class struggles take place around technologies, concerning who benefits and who pays for innovations.

Can capitalism effectively respond to climate change? If capitalism is ultimately the systemic cause of climate change, it is unlikely to be able to resolve it. As long as fossil fuel capitalism remains profitable, capital will find markets for these energy sources and further greenhouse gas emissions will result. But the approach does not dismiss all efforts at reforming capitalism. Capitalist structures can be moulded and shaped, as movements for change at work, for the vote, feminism, anti-racism and the environment movement have shown historically. Structural changes will have to take place on a massive scale, involving a rapid retooling of production and distribution systems, particularly agriculture, energy, transport and urban structure. These will only come about as a result of massive, democratic public intervention and widespread global and national regulation of the market-based regime.

Transitional reforms could limit the power of capital and tend towards more social, planned and democratic forms of climate governance. Previous social movements have shown that capital and its states invariably have to be forced, often against their immediate interests, to tackle issues of great magnitude such as climate change.

Ultimately, a Marxist approach suggests that a society based on collective, democratic control over publicly-owned resources, as well as significant changes to the labour process (including working time and workers' control) would provide more rational social relations of production for avoiding climate change. It suggests that a socialist system of "sustainable communism" is the most appropriate structure for restoring the social-climate metabolism. Such a system could only result from working class self-emancipation. It has nothing in common with previous Stalinist states. Whilst this "utopian" goal remains valid, no existing state currently fulfils these criteria, for socialism or for sustainability.

Class matters to climate change. The focus here on working class politics provides insight into the mechanisms behind the emissions that bring about climate change, the impacts it will have (along with the phalanx of climate policies) and a sharper focus on the agents to tackle it. Above all, the forces of organised labour, principally the trade unions, are becoming climate actors in the UK and elsewhere. This is the promise of climate solidarity.

A working class-based climate movement, centred on the revived power and organisation of the trade unions, could represent a glimmer of hope after recent disappointments. Workers are likely to be confronted by the effects of climate change and to struggle against them regardless of what their employers, the state or environmental NGOs do about it. Trade unions could play an irreplaceable role in bringing workers into climate politics and shaping the goals and strategies employed to tackle climate change. The challenges of climate change should not be underestimated. But it was precisely for epoch-making struggles that the labour movement came into being. The confluence of class and climate is now a burning necessity.

Appendix: Background on the Vestas occupation

The idea that workers employed at Vestas Blades UK would lose their jobs and then take part in a workplace occupation seemed far-fetched at the beginning of 2009. Yet on 28 April 2009 the firm announced it was consulting the workers it employed about redundancy, as it planned to close its wind turbine manufacturing plant on the Isle of Wight in the summer. The economic, geographical, political and employment relations contexts help to explain what drove some workers to take militant action in July-August 2009 and to galvanise others to make solidarity with them.

Vestas was then the largest wind turbine manufacturer in the world. Wüstenhagen (2003) described how the firm evolved from producing household appliances towards alternative energy technologies, selling its first wind turbines in Denmark in 1979. Through a process of mergers and acquisitions, joint ventures and even bankruptcy, the firm emerged to command 40% of global market share by the end of the noughties (Ryland 2010). Its balance sheet certainly appeared healthy. The Vestas Annual Report (2009: 6-7) states that in 2008, revenue reached €6bn (£5.6bn) and operating profits for the year were €668m (£620m), 51% higher than the previous year. Globally, Vestas employed over 20,000 workers, almost double the numbers contracted just three years previously.

At the beginning of 2009, Vestas employed over 600 workers on three sites in England. Around 500 were employed at the St Cross factory in Newport on the Isle of Wight manufacturing wind turbines, while 50 were employed at a separate research and development facility on the island and another 100 employed at a distribution site in Southampton. According to Marsh (2001: 19), the St Cross facility was "purpose-built" by Aerolaminates, a subsidiary of Danish firm NEC Micon in 2001. The location was deliberate. Workers skilled at making strong and light yachts, famously sailed during Cowes week on the Isle of Wight, had adapted those skills to produce distinctive onshore wood composite wind turbines, which Vestas believed it could sell in Europe and North America. The firm also developed prototype blades from reinforced plastic and carbon fibre. Marsh (2006: 52) reported

that after Vestas merged with NEC Micon in 2004, the St Cross facility became part of Vestas Blades UK, "forging ahead" with the development of its new 49m blade.

The economic climate also appeared conducive to the firm's continued growth. Despite the global economic downturn in 2007, the firm made plans to expand towards what it called the triple 15 – which meant 15% operating profits and €15bn revenue by 2015. It was confident that a global climate agreement expected in Copenhagen in 2009 would produce profitable opportunities for wind turbine manufacturers. The European Union had set ambitious targets for 20% emissions reductions and 20% of energy from renewables by 2020. Vestas management was also encouraged by Labour government announcements of an imminent "low-carbon industrial revolution" and a more interventionist strategy of support for green industries, a change of emphasis welcomed by TUC leaders.

Data on employment relations at the St Cross factory before the occupation is difficult to obtain. However some testimony underlines the problems. Patrick Rolfe, one of the socialist activists who helped organise the occupation, observed poor industrial relations and low levels of union organisation. Workers told him in June 2009 that there was an unofficial but widely used 'three-strikes and out' policy: three small contraventions of the rules meant the sack. Workers reported management bullying if they called in sick and that they were only allowed to take the second half of a day off, never the first. Unite, the union that had members on the site, did not publish any membership figures. After discussions with workers and union officials, Rolfe estimated that only 15 people at the St Cross plant were Unite members. The regional Unite official said his predecessor had approached management, who said they didn't want a union and so little effort was put into organising the plant.[54]

This interpretation was corroborated by other sources. Just before the occupation, it was reported (TUC 2009p) that the Health and Safety Executive had successfully prosecuted Vestas after 13 employees suffered dermatitis caused by exposure to epoxy resin. Workers involved in the occupation said the firm was regarded as "anti-union" and this was also reported by journalists such as Milne (2009) in *The Guardian*. Although some had joined Unite as individual members, there was no

[54] Patrick Rolfe, communication with the author, 22 January 2010

representative structure other than an ineffective works council. Certainly Unite did not have sufficient confidence to instigate statutory union recognition procedures. In a subsequent investigation, Gall (2011: 611) found that "there was a very small degree of existing unionisation with the Unite union" at the St Cross plant, although he also noted "a greater but still relatively small degree of unionisation" by the RMT as the occupation developed.

The wider employment relations context was also characterised by a handful of workplace occupations, including by workers at two Visteon car components plants in early 2009. This encouraged some at Vestas to believe that industrial action could lead to improved terms. Visteon workers also indicated a degree of climate consciousness, issuing a statement (quoted in Neale 2010: 45): "Our skills – we can make anything in plastic – should be used to make increasingly needed parts for green products: bike and trailer parts, solar panels, turbines, recycling bins, etc." Visteon union reps also provided advice and guidance prior to the occupation, which acted as a catalyst for action, which began on 20 July.

Bibliography

Union acronyms

AEEU = Amalgamated Engineering and Electrical Union - merged with MSF to form Amicus in 2001
AFL-CIO = American Federation of Labor and Congress of Industrial Organizations
Amicus = formed in 2001 through the merger of AEEU and MSF - merged with TGWU to form Unite in 2007
ASLEF = Associated Society of Locomotive Engineers and Firemen
ASTMS = Association of Scientific, Technical and Managerial Staffs - merged with TASS to form MSF in 1988
AUT = Association of University Teachers – merged with NATFHE to form UCU in 2006
BACM-TEAM = British Association of Colliery Management – Technical, Energy and Administrative Management
BALPA = British Airline Pilots Association
BECTU = Broadcasting, Entertainment, Cinematograph and Theatre Union
CPSA = Civil and Public Services Association – merged with PTC to form PCS in 1998
Community = formed in 2004 through the merger of the ISTC and KFAT
Connect = merged with Prospect in 2010
CWU = Communication Workers Union – formed in 1995
EMA = Engineers and Managers Association – merged with IPMS to form Prospect in 2001
ETUC = European Trade Union Confederation
FBU = Fire Brigades Union
GMB = General, Municipal, Boilermakers and Allied Trade Union
ICFTU = International Confederation of Free Trade Unions – merged with WCL to form ITUC in 2006
IPMS = Institution of Professionals Managers and Specialists – merged with EMA to form Prospect in 2001
ISTC = Iron and Steel Trades Confederation - merged with KFAT to form Community in 2004
ITUC = International Trade Union Confederation – formed in 2006 through the merger of ICFTU and WCL
KFAT = National Union of Knitwear, Footwear and Apparel Trades - merged with ISTC to form Community in 2004
MSF = Manufacturing, Science and Finance union - merged with AEEU to form Amicus in 2001
MU = Musicians Union
NATFHE = National Association of Teachers in Further and Higher Education – merged with AUT to form UCU in 2006
NUM = National Union of Mineworkers
NUR = National Union of Railwaymen – merged with NUS to form RMT in 1990
NUS = National Union of Seamen – merged with NUR to form RMT in 1990
NUT = National Union of Teachers
PCS = Public and Commercial Services union – formed in 1998 through the merger of CPSA and PTC
Prospect = formed in 2001 through the merger of IPMS and EMA
PTC = Public Services, Tax and Commerce union – merged with CPSA to form PCS in 1998
RMT = National Union of Rail, Maritime and Transport Workers – formed in 1990 through the merger of NUR and NUS
TGWU = Transport and General Workers' Union - merged with Amicus to form Unite in 2007
TASS = Technical, Administrative and Supervisory Section - merged with TASS to form MSF in 1988
TSSA = Transport Salaried Staffs' Association
TUC = Trades Union Congress
UCATT = Union of Construction, Allied Trades and Technicians
UCU = University and College Union – formed in 2006 through the merger of AUT and NATFHE
Unison = public services union formed in 1993
Unite = formed in 2007 through the merger of Amicus and TGWU
USDAW = Union of Shop, Distributive and Allied Workers
WCL = World Confederation of Labour – merged with ICFTU to form ITUC in 2006

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Page, T. (2010) Budget boost for green industry, 24 March 2010
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Pearson, P. (2008b) Making good use of windfall profits, 5 September 2008
Pearson, P. (2008c) 'Green and decent jobs' goes global, 30 September 2008
Pearson, P. (2009a) US labour launches Centre for Green Jobs, 9 February 2009
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For the TUC's Just Transition pamphlet, a small selection of senior trade union officials and government advisors were interviewed by researchers at London Metropolitan University. I carried out some of those interviews. Anonymity was assured and hence the interviewee s are identified here only by the following designations:

Interviewee Alpha
Interviewee Beta
Interviewee Gamma

Interviewee Delta
Interviewee Omega
Interviewee Epsilon
Interviewee Theta
Interviewee Kappa
Interviewee Lambda
Interviewee Sigma

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RMT (2009c) Occupation holds back Vestas factory closure date as company extends consultation period, press release, 31 July 2009
RMT (2009d) RMT keeps up pressure on Vestas in advance of court hearing, press release, 3 August 2009
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During the latter part of the period under review (2005-2010), I made a series of field notes at many of the meetings, conferences and events referred to in the text. These were helpful in piecing together both the arguments made by various trade unionists as well immediately recording views, insights and my own interpretations. Some of these notes are referred to in the text, along with selected communications with some key labour movement actors.

Vestas Blogs

Approximately 350 blog posts were reviewed, around two-thirds from the local VentnorBlog (now called On the Wight) and the rest from the Save Vestas Blog set up by solidarity campaigners. Only those quoted in the text are referenced here.
Blog and website posts, as well as press releases are given in the text by name and year. Where multiple posts occur on the same date, they are indicated in order they first appeared, e.g. 2009a, 2009b...

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Brooks, R. (2009b) Friends of the Earth Call to Save Vestas, VentnorBlog, 1:53 pm Wednesday, 8 July, 2009
Brooks, R. (2009c) Vestas Sit-In: Activists Blockade Ed Miliband's Office, VentnorBlog, 2:37 pm Monday, 3 August 2009
Brooks, R. (2009d) Vestas Protest: Day of Action Events around the UK, VentnorBlog, 12:16 pm Thursday, 17 September 2009

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Morris, V. (2009b) A Vestas worker speaks about the struggle, Save Vestas Blog, 30 July 2009
Morris, V. (2009c) Message from Visteon occupation Belfast spokesperson, Save Vestas Blog, 30 July 2009
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Morris, V. (2009e) Occupationitis: now Thomas Cook, Dublin have come down with it, Save Vestas Blog, 31 July 2009
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Morris, V. (2009g) Picket of DECC, 3 Whitehall Place tonight, Save Vestas Blog, 6 August 2009
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Morris, V. (2009j) Protest at the South East England Development Agency, 12/8/09, Save Vestas Blog, 13 August 2009
Morris, V. (2009k) Brazilian trade union to Vestas workers, Save Vestas Blog, 14 August 2009
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Morris, V. (2009n) Workers' Climate Action at Climate Camp, Save Vestas Blog, 25 August 2009
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Perry, Simon. (2009e) Vestas Sit-in Told To Leave or Be Removed: Update, VentnorBlog, 5:01 pm Tuesday, 21 July 2009
Perry, Simon. (2009f) Vestas Sit-in Day 2: Overnight update, VentnorBlog, 9:11 am Wednesday, 22 July 2009
Perry, Simon. (2009g) Vestas sit-in: Wednesday Supporter Rally Photos, VentnorBlog, 2:14 pm Thursday, 23 July 2009
Perry, Simon. (2009h) Vestas sit-in: Bob Crow (RMT) Delivers a Rousing Speech (video), VentnorBlog, 8:28 am Friday, 24 July 2009

Perry, Sally. (2009i) Vestas Sit-In: Day 9 Report From Inside, VentnorBlog, 11:49 am Thursday, 30 July 2009
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SVB (2009a) A Statement from a Vestas Worker, Save Vestas Blog, 12 July 2009
SVB (2009b) Success at Newport Mass Leafleting to Save Vestas, Save Vestas Blog, 18 July 2009
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