Cultures of Coal and Climate Change in Helensburgh, New South Wales

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Cultures of Coal and Climate Change in Helensburgh, New South Wales

Abstract
A Digital Elevation Model (DEM) was constructed using LiDAR and high precision GPS data collected from the site. This was used as the basis for the creation of statistical and spatial models exploring the relationship between surface elevation dynamics, water level changes and mangrove encroachment of saltmarsh. These models projected wetland surface elevation and vegetation distributions in accordance with IPCC projections of sealevel rise. The models indicated that coastal wetlands at Minnamurra are highly vulnerable to future sea-level rise. Using the highest IPCC sea-level rise scenario, the models showed a significant loss of saltmarsh in the next 40 years and loss of mangrove communities by the end of the century. It is recommended that future adaptation policy and management focuses on groundwater regulation in the catchment and the introduction or extension of buffer zones.

Degree Type
Thesis

Degree Name
Bachelor of Science (Honours)

Department
School of Earth & Environmental Sciences

Keywords
burning coal, anthropogenic, sustainable, household

This thesis is available at Research Online: http://ro.uow.edu.au/thsci/5
Faculty of Science
School of Earth and Environmental Science

Cultures of Coal and Climate Change
in Helensburgh, New South Wales

Kiri Yapp

This thesis is presented as part of the requirements for the
award of the Honours Degree of a Bachelor of Science in the
School of Earth and Environmental Science
of the
University of Wollongong

October 2011
ABSTRACT

Burning coal is a major contributor to anthropogenic climate change. This thesis adopts a cultural economy approach to explore the cultures of coal and climate change in one of Australia’s oldest coal mining towns: Helensburgh, New South Wales. More specifically, the project aimed to improve understandings of the relationships between coal and climate change and: (1) place-based identities; (2) sustainable household practices and; (3) engagement with environmental governance. This project employed a mixed-methods approach. Results point to the many different ways in which coal and climate change come to matter in people’s lives. One way coal became important for Helensburgh households is through everyday impacts such as dust, trucks, and coal company sponsorships. Furthermore, coal is evident in prescribed environmental identities between ‘old’ and ‘new’ residents and levels of engagement with sustainable household practices. Yet, when attention turns to overall sustainable household practices and engagement with environmental governance there was little difference between Helensburgh and other populations. Even amongst the most sustainable households, dilemmas emerge when family, convenience and economic considerations take priority over climate change action. Nevertheless, the immediacy of coal seam gas exploration has produced a rally point for engagement in environmental governance. A final way coal came to matter was how Helensburgh residents responded to Climate Camp, an environmental protest held in Helensburgh in October 2009. Climate Camp reproduced social boundaries between an ‘us’ that defined Helensburgh along lines of ongoing ‘coal futures’ and a ‘them’ that demanded ‘climate action’ through burning less coal. This thesis serves as a starting point for further research into the cultures of coal.
ACKNOWLEDGEMENTS

The biggest thank you must go to my supervisor Gordon, whose constant support and guidance has been invaluable in the writing of this thesis and my academic development. Thank you also to my co-supervisor Lesley for her timely words of wisdom, and to the other SEES academics who have taught me over the past few years and would pop their head in and say hello. Furthermore, thank you to the Australian Research Council and the School of Earth & Environmental Sciences for funding this project. Thanks to Elyse, for your technical expertise and the stories of Central America you distracted me with, and to Angela for your great assistance arranging publicity for my survey. For guaranteed laughs and a listening ear, I thank all my lunch buddies, especially Liz, who shared my guilty joy in prolonging lunch with a coffee to avoid that dastardly literature review a little longer. To Craig, you are a mighty big reason I’m glad I stuck around to do honours: thank you for all your support this year. Thanks to my parents, for their love from afar. For being all-round awesome I must thank my housemates Rose and Grins. And finally, thanks to my honours buddies and users of the Human Geography lab, for keeping me company as we went through this together. We did it!
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1. INTRODUCTION

1.1 CLIMATE CHANGE AND QUARRY VISION IN AUSTRALIA

Climate change is increasingly recognised as a pressing global issue that presents a serious threat to the environment and human wellbeing (IPCC 2007). Furthermore, scientific and governance communities have acknowledged that the impacts of climate change will require great social and cultural adaptation in addition to scientific solutions. As Garnaut (2008: 364) notes, ‘climate change will require adjustment of innumerable, locally-specific customs and practices over time.’ As such, there have been calls for urgent research on the social and cultural dimensions of climate change (Garnaut 2008; Hulme 2008; Gibson et al. 2011a), which this thesis aims to address. Though climate change is now considered a major issue by both the Australian Government and public (Beeton et al. 2006; Nielsen Australia 2007; Australian Government 2010), behavioural engagement remains limited beyond easy, cost-effective actions like recycling and switching off lights (Whitmarsh et al. 2011; Waitt et al. in review-a).

Coal is relevant to climate change in different ways. Burning coal is a major source of energy and greenhouse gas emissions. Indeed, burning coal accounts for approximately a third of global carbon dioxide emissions (MIT 2007: xi; Waitt et al. in review-a). Furthermore, Australia is the largest exporter of hard coal (IEA 2011: II.8) and the tenth largest consumer of coal in the world (IEA 2011: II.6). Hence, through coal exports, and everyday household and industrial energy use, Australia is contributing to climate change at both local and global levels. Moreover, coal energy and revenue dependency is integral to understanding market responses to climate change in Australia. Reflecting on Australian coal economy dependency, Pearse (2009a) underlines how ‘quarry vision’ - the idea that the country’s natural mineral resources are its greatest asset – has limited Australia’s, and Australians’, response to climate change. Pearse argues that coal has become part of the national psyche through the perceived prosperity generated by the economic contribution of coal – three-point-five per cent of Australia’s Gross Domestic Product (GDP) (DFAT 2011).
– and the heritage of coal mining in Australia. Furthermore, the coal industry has publicly condemned certain climate change policies on the basis they will hurt the industry and hence Australian jobs, ‘the economy’ and coal regions (Pearse 2009a). Hence, coal and climate change are interconnected through the marketplace, jobs, understanding of places and ‘sustainable’ decisions. Thus, an exploration of the connections between coal and climate change can provide insights into identities, sustainable household practices and environmental governance.

1.2  RESEARCH OBJECTIVE AND AIDS

The overall objective of this project was to examine the cultural interplay of coal and climate change in Helensburgh, a historic coal mining town with a growing population and diversifying economy. Using a cultural economy approach that draws attention to the impossibility of separating ‘the economy’ from the knowledge that informs everyday practices, the aims of this thesis are threefold:

1. To improve understandings of the relationships between coal, climate change and place-based identities.

2. To improve understandings of the relationships between coal, climate change and sustainable household practices.

3. To improve understandings of the relationships between coal, climate change and household engagement with environmental governance.

1.3  POLICY CONTEXT AND RELEVANCE

The policy context and relevance of these three aims build on the recognition that different framings of climate change lend themselves to certain considerations, responsibilities and solutions (Hulme 2009). In Australia, climate change was initially framed as an economic rather than a moral problem. This economic framing was informed by ‘quarry vision’ and established and circulated through an alliance
between the energy resource sector and the Coalition Government in the 1990s (Pearse 2007). Following the election of the conservative Howard government in 1996, Australia argued at the Third Conference of the Parties in Kyoto (COP-3) to be allowed an 18 per cent increase of greenhouse gas emissions on 1990 levels – ultimately securing an eight per cent increase – in effect rejecting the push for legally-binding reduction targets (Christoff 1998; McManus 2000). To justify this differentiated emissions target, the then government used ‘special circumstances’, including the nation’s comparative advantage as a supplier of cheap and plentiful fossil fuels, the dependence of the national economy on fossil fuel-heavy exports, a projected increase in population and energy use, and fossil fuel-dependent transport networks (Bulkeley 2001; Christoff 2005). Following the decision in 1997 to not ratify the Kyoto Protocol, this quarry vision of the Howard government became further entrenched with the release of the 2004 white paper Securing Australia’s Energy Future, which Christoff (2005: 29) notes was ‘brazen in its aggressive affirmation of continuing fossil fuel use.’ Nevertheless, the Australian public was becoming increasingly concerned about global warming, drought, and dissatisfied with the government’s response to climate change (Rootes 2008). In its 2007 election campaign, the Labor Party, led by Kevin Rudd, undermined the Coalition’s framing of climate change mitigation as a threat to the Australian economy, establishing it instead as a moral challenge, in which Australian and global sustainable futures depended upon individuals and businesses becoming responsible for their carbon emissions (Stevenson 2009). Though Kevin Rudd won the election, the energy resource sector remained hugely influential in climate change politics, as evidenced by the failure of the Rudd government to implement a carbon-trading scheme. Despite the Rudd government’s initial act of ratifying the Kyoto Protocol in 2008, the quarry vision that framed political discussion of climate change during the Howard government continued.

The election of Rudd in 2007 and the release of The Garnaut Climate Change Review in 2008 grew expectations that more effective climate action would be taken. Nevertheless, the Rudd Government’s Carbon Pollution Reduction Scheme (CPRS) rejected the strongest recommendations of the Garnaut Report (2008), by offering generous compensation to coal-fired power generating industries (Australian
Government 2008; Pearse 2009a). Furthermore, instead of making deep cuts in energy use within Australia, the CPRS allowed for carbon reduction targets to be met through the purchase of ‘Clean Development Mechanism’ credits elsewhere in the world, especially from developing countries undertaking activities such as reducing deforestation (Australian Government 2008). In effect, Australia was ‘outsourcing’ its greenhouse gas obligations, allowing the energy sector in Australia to continue its activities unabated (Pearse 2009b). The CPRS did not pass through the parliament in 2009, and with quarry vision intact, political discussion continued on a number of key questions: How should carbon emissions be reduced? and; Who should take on the greatest responsibility for tackling climate change – individuals, households, communities, businesses, industries or government and non-government organisations? This project helps to explore these questions through a grounded approach, in the context of an Australian town often imagined through the discourses of coal. Furthermore, this thesis fits into a larger Australian Research Council-funded project entitled Making less space for carbon: Cultural research for climate change mitigation and adaptation1 which aims to assess climate change knowledge, and cultural resources and constraints to sustainable action, in the ‘carbon hot-spot’ Illawarra region.

1. 4 HELENSBURGH: A ‘CARBON HOT-SPOT’

Helensburgh, New South Wales, provides an appropriate case study to explore the cultures of coal and climate change. This is because the town is the location of one of the oldest coal mines in Australia, coal is ‘visible’ in the form of trucks, dust, the mine and coal company sponsorships, and Helensburgh was recently positioned by a Climate Camp protest as a ‘carbon hot-spot’. Helensburgh is the most northern suburb of the Illawarra, adjacent to southern Sydney, and is home to the 123-year-old Metropolitan Colliery (Peabody Energy 2011). Nevertheless, of 5,329 Helensburgh residents, only some 61 are employed in the mining industry, with many livelihoods now part of the wider service sector (ABS 2007). In 2009, an international climate trans-local network, Climate Camp, took place in Helensburgh. Climate Camp

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1 Based in the School of Earth & Environmental Sciences, University of Wollongong
aimed to promote sustainable living and draw attention to the role of coal in causing climate change (Climate Camp 09 2009). The choice of Helensburgh as the location of Climate Camp drew attention to the town and region, and its connections with the global, economic and cultural processes of climate change (Tomaney & Somerville 2010; Waitt et al. in review-c). Counter-demonstrations at Climate Camp revealed the ongoing importance of coal in the lives of some Helensburgh residents. Furthermore, Waitt et al. (in review-b) described how the Illawarra is painted as a coal and steel region through media, union and corporate discussions around a carbon-pricing scheme, which question why regional Australia should bare the lion’s burden of responsibility for pricing carbon. Hence, along with the Illawarra, Helensburgh has been reshaped materially and discursively as climate governance pushes toward a reduction in carbon emissions.

1.5 Structure of the Thesis

This thesis has seven chapters. Chapter 2 is divided into three parts: the first and second examine, respectively, social science literature on coal and climate change, and the third presents the cultural economy framework that underlies this thesis. The chapter argues that coal and climate change are woven into the fabric of everyday life.

Chapter 3 discusses research methods, and outlines how rigour was assured. The chapter examines the importance of positionality and describes the mixed-methods approach employed in this project. A mail-out survey and semi-structured interviews provided both quantitative and qualitative data for analysis.

The three results chapters, each combining survey and interview data, address the aims of the thesis. Chapter 4 addresses the first aim by examining the relationship between coal, climate change and identity- and place-making in Helensburgh. Results suggest there are many different understandings of coal in Helensburgh, with differences in opinion helping to forge categories of ‘newer’ and ‘older’ residents. Furthermore, coal is materialised in many different ways in Helensburgh, perhaps
most controversially through direct involvement of the coal company in Helensburgh Public School.

Chapter 5 addresses the second aim by examining the relationship between coal, climate change and sustainable household practices. Findings from this chapter show Helensburgh households disagree about climate change, though their understanding and knowledge of climate change is consistent with other national and international findings. Common sustainable household practices tend to be those supported by infrastructure, financial incentives, and convenience.

Chapter 6 addresses the third aim by examining the relationship between coal, climate change and environmental governance. It uses Climate Camp as a case study. Results discuss why action against coal seam gas mining appears more prominent than action against climate change. Climate Camp served to challenge, produce and reproduce social boundaries between an ‘us’ that defined Helensburgh along lines of ongoing ‘coal futures’ and a ‘them’ that demanded ‘climate action’ through burning less coal.

Chapter 7 concludes the thesis by returning to the aims and exploring possible future research agendas.
2. Literature Review and Conceptual Framework

This chapter responds to calls for further cultural research on the spatial relationships between climate change and sustainable household practices. The aim of this chapter is to illustrate how a cultural geography approach – specifically, a cultural economy framework – can improve understandings of household sustainability practices in a town where coal has been mined since 1888. The chapter draws together research from social science and humanities disciplines regarding cultures of coal and climate change. In doing so, this chapter will highlight different approaches to these topics and identify gaps in the literature. The combustion of coal is a fundamental source of anthropogenic climate change; however, this literature review suggests that the relationship between coal and climate change goes far beyond this.

The chapter is divided into three sections. The first section is entitled Cultures of Coal and has two parts. Part 2.1.1 explores coal identities, specifically the gendered and classed relationships that have comprised the lives of coal miners and their families. Part 2.1.2 argues that economic restructuring is a cultural process reflected in the different ways coal mining towns respond to a reduction or ending of coal production. The second section is entitled Cultures of Climate Change and has two parts. Part 2.2.1 explores climate governance literature, demonstrating the discursive nature of climate change and arguing that capitalist ideology underlies dominant climate change framings and policies. Part 2.2.2 explores lay knowledges of climate change and identifies the value in employing ‘the household’ as a social unit for further research. The third section draws threads of the literature together by presenting the key concepts of the cultural economy framework utilised in this thesis.

2.1 Cultures of Coal

Coal is an integral part of everyday life in western economies. Boykoff et al. (2009: 2299) espouse the cultural and economic importance of coal stating:
The carbon economy essentially and necessarily props up and connects the workings of our everyday lives to the national and global-level political economic architectures organizing contemporary human societies.

The term ‘carbon economy’ highlights the importance of coal and other resources to the functions of the capitalist economy underpinning contemporary society. Further to this, a political economy approach has explored how coal is wound up in power relationships, benefiting those with decision-making capacity over energy resources. Today, governments and multinational companies tend to have this capacity, rather than the people who live in regions of coal extraction (Adams 2006; O'Faircheallaigh 2006; Bridge 2009). Yet, Bridge (2009: 1229) notes that the mobilisation of physical resources, including of coal for energy, is culturally associated with social progress. This is furthered by numerous social scientists who have explored the processes of coal and coal towns as essential to the fabric of wider industrial society (Dennis et al. 1956; Williamson 1982; Gibson 1991; Warwick & Littlejohn 1992). Power stations and transmission technologies, however, have tended to obscure the origins of coal energy for many in western economies. Nevertheless, increasing awareness about the environmental and social costs of coal combustion has served to ‘rematerialise’ coal and highlight the link between coal energy production, consumption and coal futures (Bridge 2009; Tomaney & Somerville 2010). Bakker and Bridge (2006) call for further research on how resources, including coal, are materialised into everyday life. Hence, in what follows the two dominant themes in the cultural literature on coal are investigated; first discussing how identities are formed around coal across different geographical scales, before exploring how these identities are reproduced and challenged through the social process of economic restructuring.

2.1.1 CLASSED AND GENDERED COAL IDENTITIES

Various geographers, sociologists, historians and anthropologists have described the uneven gendered and classed social relationships that comprised the everyday lives of coal miners in the late and early twentieth century in North America, Australia, Europe and the United Kingdom (Dennis et al. 1956; Williamson 1982; Gibson 1991; 1992; Warwick & Littlejohn 1992; Beckwith 2001; Hall 2001). Coal miners
are popularly described as strong, masculine, independent, brave, breadwinners, united, generally unionised, hard-working, working class, loyal to family and community, and violent (Gibson 1992; Laslett 1996; Beckwith 2001). Women’s identity in coal towns tended to be bound up in the domestic, though some engaged with political and feminist causes (Gibson 1992; Hall 2001). Geographical works which have explored this topic have explored how this romantic coal ‘identity’ hides the struggles faced by women, and how categories of gender and class within coal communities and places are renegotiated in the face of economic restructuring processes and industrial action (Gibson 1992; Lahiri-Dutt 2011b). Other studies have examined the negative implications heteropatriarchal social relationships found in coal towns have on women’s economic, health and relationship wellbeing, with geographical isolation tending to exacerbate these problems (Sharma & Rees 2007; Lockie et al. 2009; Lovell & Critchley 2010; Sharma 2010; Lockie 2011). Lahiri-Dutt (2011a; 2011b) explores how both women and the mining industry would benefit from a more equitable, sustainable and socially-just approach to mining.

Historical geographer Gilbert (1995) highlights the importance of local and political discourse in constituting identities of coal mining communities. In the early twentieth century, miners in England were seen as ‘others’ due to the nature of the work, the perceived isolation of the places they lived, and metaphors of ‘darkness, difference and racial otherness’ (Gilbert 1995: 47-48). Nevertheless, during World War II, community values were emphasised by politicians, and the construction of mining communities as ‘archetypal working-class industrial communities’ began to gain traction (Gilbert 1995: 48-49). This increased during the miners’ strike of 1984-85 in which ‘mining communities were seen as bastions against a Thatcherite capitalism in which the market destroyed not only jobs and industries, but also whole ways of life’ (Gilbert 1995: 49). As there was political capital to be gained in the construction of mining communities as archetypal and working class, this ‘one-dimensional and somewhat uncritical’ view became entrenched, with Gilbert (1995: 49) noting:

What seems to be taking place at the very time that actual mining settlements are disappearing from the actual landscape of Britain is that their place in the political and cultural landscape is becoming fixed.
However, a feminist perspective leads him to argue that this dominant discourse excludes alternative histories of mining communities, such as women’s experiences in these areas, which reflect the diversity they indeed encompassed. Gilbert’s call for further scholarship on these alternative histories has been responded to by, for example, Barron’s (2010) exploration of the different identities that found common ground during the 1926 miners’ lockout in Durham. Furthermore, Brown (2006) explains how masculine identities were constructed in both Nigerian coal miners’ work and village life in the early twentieth century, and Lahiri-Dutt (2011a; 2011b) highlights the agency of women in mining communities. However, as Bell and York (2010) explore, industrial heritage remains a tool utilised by (former) coal mining communities to strengthen discourses that maintain regional identity.

2.1.2 ECONOMIC RESTRUCTURING AND COAL IDENTITIES

Social scientists have also explored how coal identities play out in the process of economic restructuring. Historian Adams (2006) finds there has been political conflict around coal since its emergence as a major energy source. Particularly during periods of economic restructuring, this political conflict often took the form of industrial action, and images of strikes pervaded the public identity of miners: with male miners, and often their wives and wider community, seen as working-class, militant and united in solidarity (Gibson 1992; Beckwith 2001). The vast literature on industrial action in coal mining regions suggests political processes of economic restructuring and coal identities are intertwined through unionism, with unions in Western countries painted as contributing to community unity and identity (for example Hinrichs 1923; Ross 1970; Richardson 1995; Reeves 2011). However, various British studies (Beale 2005; Barron 2010) have shown the diverse causes and identities involved in strikes, with the 1984-85 industrial action preceding national pit closure perhaps the most studied event (see, for example, Beale 2005; Darlington 2005; Shaw & Mundy 2005; Spence & Stephenson 2009). These studies illustrate that collective action ‘cannot be regarded as the unproblematic expression of homogenous class consciousness,’ (Campbell 2000 cited in Phimister 2004: 116) with Phimister (2004) noting the local dynamics of struggle, such as questions of
ethnicity, class and gender are often overlooked or require more nuanced interpretations.

Geographers have further explored ideas of how class and place identities are formed, challenged and renegotiated in coal communities through the process of economic restructuring. Like Massey (1984), who is a key author on space and spatial relations, Walker (1985) argues that class formation is a geographic process, given the spatial element of capitalist processes such as the division of labour, production and class manoeuvre. Walker (1985: 187) writes:

Spatial contiguity and the traditions of place-bound groups, both in workplaces and in communities, are very important bases for the kind of experience and knowledge that clarify class relations – which is why one finds that coal-miners are frequently the most class-conscious of workers.

Hence, class relations are reproduced through everyday occupational and community activities. Walker (1985) argues that since these practices are more common amongst coal workers the consciousness of class processes increases, and self-identification of both people and place as ‘working-class’ occurs. Holmes and Hartig (2007) explore this link between class and place identity in the context of Cessnock, a former coal town, and the divergent trajectory it has experienced as opposed to the adjacent Hunter Valley Wine Country. According to Holmes and Hartig (2007), despite the growing use of Cessnock as a satellite town of Sydney, the identity of the town as ‘working-class’ continues to be entrenched through exclusion of the tourist gaze, which is fixed upon the more aesthetically appealing wine country (Holmes & Hartig 2007). However, within Cessnock, the sense of place identity has weakened as the culture of solidarity that stemmed from common work and community practices of coal have disappeared (Holmes & Hartig 2007: 67). Cooke (1985) and Gibson (1991; 1992) use, respectively, the former coal region of South Wales, and the relatively new coal towns of Central Queensland, to build on this idea that both economic and social processes influence spatial economic development and class formation.
Another strand of literature has focussed on what is termed ‘post-coal’ economies. This literature has examined the implications of the ending, or significant reduction, of coal production. The key question that this body of literature explores is: Why are some post-industrial regions ‘winners’ and others ‘losers?’ Focusing on Northeast England, Tomaney (2003) and Hudson (2005) draw on the concept of governmentality and institutional approaches to explore spatial variations between post-coal regions. Likewise, Baeten et al. (1999: 256) argue that the failure of a restructuring program in Belgium was the result of planning and policy that ignored ‘the subtleties of power relations’ and shifting power geometries constituting regional governance. Another example is the work of Tomaney and Somerville (2010) on the Latrobe Valley, home to brown coal mines and power stations producing most of Victoria’s electricity. Their study of local media representations found the dominant storyline of the Latrobe Valley had moved from the region being central to the industrial growth of the state, to being ‘dirty’ and under threat. They argued the media only imagined possible futures of the region in terms of clean coal (Tomaney & Somerville 2010: 41). Hence, Tomaney and Somerville (2010) provide an exploration of how ideas of coal change in the face of environmental and social threats such as climate change.

Within this strand is a focus on heritage, and in particular the marketing of coal heritage as a tourist attraction. This literature examines how coal mining heritage is employed by different organisations for social and economic interest. Various authors (Beynon & Austrin 1994; Stephenson & Wray 2005; Dodds et al. 2006) have explored the importance of coal mining heritage in the former mining community of Durham, England. They detail how coal mining banners were revived and an annual festival established to celebrate the region’s industrial heritage, reinvigorate community wellbeing, and promote a collective identity and culture. The historical geographer Summerby-Murray (2007) discusses the increasing presence of mining themed sculpture and other mining artefacts, in Cumberland County, Nova Scotia. Similarly, the sociologists Bell and York (2010) discuss how the coal industry in West Virginia has appropriated coal heritage to amplify and naturalise the connections between the industry and the region’s economic identity. This work points to the tension of the commodification of industrial heritage, with questions
raised such as: What version of the past is marketable? What version of the past is remembered to naturalise the connection of the past with the present? Dicks (2008) addresses the question of which coal mining heritage to celebrate in her discussion of ex-miners in South Wales, who are now employed as heritage guides. Dicks (2008), using notions of performativity, illustrates the tensions facing these guides when sharing stories of their working lives, which involved both dignity and autonomy, and subjugation and defeat.

Though not discussed here, the detrimental environmental effects of burning coal are increasingly recognised (IPCC 2007; Miller 2011). As explored by Tomaney and Somerville (2010), environmental impacts of coal use and climate change have influenced restructuring processes and identity in coal mining regions. Though the carbon economy remains, the way coal is constituted in, and by, the fabric of these regions is changing, as evidenced by the use in western economies of terms such as ‘carbon footprint’ (Bridge 2009: 1237). This has created a ripe opportunity for further exploring how residents of a coal mining town are engaging with changing meanings of coal and climate change.

2.2 Cultures of Climate Change

For several decades, the natural sciences dominated studies of climate change, exploring the hypothesis that anthropogenic greenhouse gas emissions are changing natural climate variability (see, for example, Carson 1962; Ehrlich 1968; Flannery 2005; IPCC 2007). Increasingly since the late 1990s, the social sciences and humanities have investigated questions raised by climate change science (Brace & Geoghegan 2011: 286), with scholars focussing on perceptions of climate change and risk, adaptation behaviours, and policy construction, amongst other topics (see, for example, Berk & Schulman 1995; Bulkeley 1997; Bord et al. 1998; Dunlap 1998). The importance of cultural research on climate change is underlined by Adger et al. (2009) who argue that biophysical, economic and technological epistemologies tend to neglect that ‘individuals and communities are bound up in local places and that the physical changes will have profound cultural and symbolic impacts’ (Adger et al. 2009: 347). Hulme (2008) furthermore notes this detachment of climate from its
cultural settings in climate science literature, and contends that geographers have a vital role in examining the embedded relationship between climate and society. As such, this section explores the cultural literature of climate change, particularly regarding climate governance and lay knowledges of climate change.

### 2.2.1 Climate Change Governance

Climate change governance is constituted through the power struggles embedded in both the term ‘climate change’ and the policies aiming to address the issue. For Brace and Geoghegan (2011), climate change is an ‘ideologically charged phrase’ surrounded by ambiguities, blame and doubt, and framed in different ways depending on the knowledge, concerns and agenda of the subject. Hulme (2009), a key player in the geographies of climate change, illustrates how different framings of climate change lend themselves to certain considerations, responsibilities and solutions. For example, when climate change is approached as a market failure – as it has been by prominent economists Stern (2006) in the United Kingdom and Garnaut (2008) in Australia – policy responses will aim to correct this failure, often through pricing or trading carbon (Hulme 2009: 335).

Both geographers and communication and media scholars have explored the role media representations and framings of climate science play in environmental governance. For example, Boykoff (2009: 434) argues:

> Media representations are convergences of competing knowledges, framing environmental issues for policy, politics, and the public and drawing attention to how to make sense of, as well as value, the changing world. Emanating out from these processes, public perceptions, attitudes, intentions, and behaviors, in turn, often link back through mass media into ongoing formulations of environmental governance.

Drawing on Foucauldian ideas of governmentality, Boykoff illustrates how media representations, public perceptions and policies serve to continually reconstitute climate change discourses and governance. Carvalho (2005) illustrates this process through her study of three British newspapers and their representations of climate science and policy. Through the way they chose to portray these topics, the media
contributed to ongoing formulations of climate change, first as a strictly scientific problem, then to a political matter and later as an ‘object of regulation’ (Carvalho 2005: 19). Though some newspapers resisted portrayals of climate change that were consistent with governmental discourse, they did not critique continual economic growth and hence ‘remained within the broad ideological parameters of free-market capitalism and neo-liberalism’ (Carvalho 2005: 21). In doing so, they effectively hid certain framings of climate change, including those of climate change as unjust (Carvalho 2005: 21). Koteyko et al. (2009) also confirmed the relationship between media, government and public representations of climate change, through analysing the increasing use of climate change-specific terms such as carbon footprint.

Bulkeley (2001), rather than focusing on media, investigated the framings of climate change science in Commonwealth Government policy. Similar to Carvalho (2005), Bulkeley argues that climate risk and responsibilities are defined within existing economic relations of capitalist production. Discussing Australia’s push for differentiation in international climate negotiations, Bulkeley notes that the country’s responsibilities have been shaped by discourses of economic interest, particularly the concerns of resource industries. She argued that although less dominant discourses such as the polluter-pays principle were present, policy responses in the early 2000s, including the National Greenhouse Strategy and concessions for resource-dependent regions, only served to reinforce links between industry and government (Bulkeley 2001: 439). Social psychologists Kruz et al. (2010), in their study of political rhetoric in the lead up the 2007 Australian election, confirm that alternative discourses based on environmental justice concerns were unsuccessful in reframing climate change obligations away from the economic concerns of ‘national interest’ and ‘lifestyle maintenance’ espoused by both major parties. Liverman (2009) provides another example of how dominant international climate narratives – of ‘dangerous’ climate change, differentiation in regional obligations, and carbon trading as the solution – are supported by concepts of climate determinism, targets and timetables, and ultimately reinforce existing relations of production.

Geographers have also begun to investigate, through examinations of the planning literature, how climate change responsibilities become defined within urban
governance. Betsill and Bulkeley (2007) note that cities are increasingly acknowledged as sites of climate governance. Rice (2010), in her study of Seattle, examines how municipal environmental policy is legitimised through connecting the causes, consequences and responsibilities of climate change to the local community. Furthermore, Rice notes the ‘carbonization’ of urban governance – in which specific activities are linked to the production of emissions through monitoring – has produced ‘carbon territories.’ Like Rice, Jonas et al. (2011) argue that carbon control has become the principle discourse underpinning urban governance, as states seek a regulatory fix to climate change. Waitt et al. (in review-b) extends the notion of carbon territories, finding that local media representation of climate change sustains the Illawarra as a steel-making region, relinquishing it of responsibility for the effects of carbon emissions and hence maintaining the relations of production. This is an example of the politics of scale and networks which Bulkeley (2005) argues is reconfiguring environmental governance along conventional lines, and conditioning which governance structures are able to emerge. Though environmental governance literature has often focused on local, national and international scales (Adger et al. 2003), Bulkeley (2005: 898) notes that climate change has created new, fluid, arenas for governance, and endorses approaches that explore these arenas. Literature on the role of communities (Walker 2011), partnerships (Bulkeley 2001; Forsyth 2010), discourses and knowledge (Hovden & Lindseth 2004; Owens et al. 2006), media (Boykoff 2009; Waitt et al. in review-b), as well as local governance (Granberg & Elander 2007; Zahran et al. 2008; Amundsen et al. 2010), have begun to answer this call.

2.2.2 Lay knowledges of climate change

Further to Bulkeley (2005), Hulme (2008) and other social science scholars (Betsill & Bulkeley 2007; Batterbury 2008; Redclift 2009; Shove 2010; Maller & Horne 2011; Rudiak-Gould 2011) have called for ‘a more grounded and localized understanding of climate change’ (Brace & Geoghegan 2011: 284). This section will hence explore how this call has begun to be answered through research that has focused on lay knowledges of climate change including environmental attitudes, behaviours and barriers to change, households and lived experience.
A wealth of literature exists on understandings of, and attitudinal and behavioural responses to climate change, particularly within the environmental psychology discipline (Lorenzoni & Pidgeon 2006; Semenza et al. 2008; Lorenzoni & Hulme 2009; Whitmarsh 2009; Weber 2010; Whitmarsh & O’Neill 2010). Wolf and Moser (2011) reviewed this literature. Confirming that a key theme of this literature is that an understanding of climate change does not necessarily lead to action. Blake (1999) termed this discrepancy the ‘value-action gap’. Hobson (2003) noted how policies relying on the information deficit model have failed to address how environmental concerns are felt, framed and responded to in everyday life. Likewise, Weber (2010) argued that people’s goals, roles and obligations influence their attitudes and (non-)responses to climate change.

To improve understandings of the discrepancy between knowledge and behavioural change, scholars have examined different types of barriers. Lorenzoni et al. (2007) argued there are both individual and social perceived barriers to engaging with climate change. Individual barriers include: uncertainty and scepticism over knowledge claims and sources; externalising responsibility and blame; climate change as a ‘distant threat;’ other (local) priorities viewed as more pressing; reluctance to change lifestyles; fatalism; and the feeling of individual helplessness (Lorenzoni et al. 2007: 450). Social barriers are discussed in relationship to climate governance by state authorities, businesses and industries. For example, a lack of infrastructure and the belief that governments and businesses do not pull their weight in responding to climate change have proved barriers to effective engagement (Lorenzoni et al. 2007: 451).

Whitmarsh et al. (2011) introduced the concept of carbon capability to encapsulate the situated meanings of carbon and energy in people’s everyday lives, and their ability and motivation to reduce use of these. Furthermore, Whitmarsh (2009) suggests that ‘pro-environmental’ behaviours may be motivated more by tangible benefits such as saving money, convenience and health reasons, than by concern for the environment. Likewise, capability to reduce carbon intensive behaviours was statistically related to demography, car ownership and perceptions of public
transport, and evaluation of carbon reduction activities as ‘easy’ or requiring little to no personal sacrifice – like recycling rather than changing diet (Whitmarsh 2009: 19-20; CSIRO 2010). While these large-scale surveys are helpful in identifying trends and patterns in consumption behaviours, knowledge and attitudes, the responses are removed from the everyday contexts. These surveys offer little insight to how climate change science comes to matter in the context of everyday lives and households.

Consequently, Reid et al. (2010) identify the household as a ‘meso-level’ societal unit through which to better understand environmental behaviours, and overcome the traditional dichotomous individual (micro) level and regional or national (macro) level analysis. Reid et al. (2010) argue that the social interactions within and between households influence environmental behaviours, with households acting as a crucible in which social meanings and norms are collectively constructed. For example, Shove (2003) illustrates how social norms of consumption, convenience, cleanliness and comfort are constructed, and challenged, through everyday practices within households and other spaces. Indeed, although ‘household sustainability’ has long been a focus of environmental policy (Hinchliffe 1996; Scerri 2011); Hobson (2002; 2003; 2011) and Hinchliffe (1996) argue the basis of such policies is to rationalise individual action. Hobson (2011) maintains that household sustainability retains importance as a ‘form of personal and material environmental politics.’

Gibson et al. (2011b) argue that an exploration of the dilemmas of material sustainability is required, given that as ‘being green’ becomes more mainstream, it becomes increasingly intertwined with consumerism (see also Redclift 2009). Likewise, Reid et al.’s call for research on the household corresponds with growing awareness that environmental action is structured around the social and material flows of everyday lifestyles and practices (Barr & Gilg 2006; 2007; Brace & Geoghegan 2011; Gibson et al. 2011a; Maller & Horne 2011).

The acknowledgement that climate knowledge and action are constructed in situ through everyday practices has led to social scientists analysing the ‘lived experience’ of climate change. For example, Anderson (2008) employs an oral history approach to explore how place- and identity-based responses to climate are
constructed through the interplay of lived experience and knowledge of residents in the Mallee region of Victoria. Drought has long been a factor in this agricultural region, leading to a declining population and associated demise in community sports, activities and services. Anderson (2008: 44-45) identifies drought as a site ‘where local and external, community and political, agrarian and scientific forms of knowledge intersect.’ Drought was defined as ‘chiefly in terms of lived experience and the perceived impact upon the fabric of community and family life,’ (Anderson 2008: 76) rather than meteorological or agro-economic framings. Likewise, a lay-expert divide was visible in understandings of climate change, with the value of scientific expertise questioned and often deemed to be ‘out of step with the prevailing cultural practice of learning through localised, lived experience of climate’ (Anderson 2008: 78). Wolf and Moser (2011: 558-559) confirm that different knowledge systems shape the ways people may come to know climate change. Anderson (2008: 78) draws on sociologist McKechnie’s (1996) ideas that both scientist and layperson are active participants in the co-creation of climate knowledge, and how these discourses intersect, or not, helps to shape what futures people deem possible.

Other social scientists have also explored how lived experience is negotiated in the formation of views and responses to climate change. Anthropologists, for instance, have a longstanding expertise in exploring how environmental changes, particularly within rural or indigenous communities, are observed, understood and culturally mediated through situated knowledges, practices and institutions (see, for example, Finan & Nelson 2001; Roncoli et al. 2001; Roncoli 2006; Vedwan 2006; Batterbury 2008; West et al. 2008; Crate & Nuttall 2009). Tapping into the governmentality of climate change and lived experience, sociologist Norgaard (2006) argued that public non-response to climate change in Norway – where economic prosperity stems from oil production – has propagated climate change to maintain the country’s economic interests despite the environmental justice implications of this. Hence, living in an area deriving benefits from resource extraction has served to limit engagement with climate change. Whitmarsh (2008) and Spence et al. (2011), however, differ in their conclusions of whether flood experience increases climate concern and action. Geographer Bickerstaff (2004: 835-836) in her study on the public experience of air
pollution found that perceived risk ‘is multi-dimensional and influenced by complex social, political and cultural processes’ (see also Brody et al. 2008). Hence, literature on the lived experience of climate change highlights that despite the gulf between ‘lay’ and ‘expert’ perceptions of risk and appropriate responses, they both contribute to the creation of climate change knowledge.

2.3 CONCLUSION: JUSTIFICATION FOR RESEARCH

This chapter has reviewed the literature on cultures of coal and climate change. In coal mining towns, meanings and identities associated with coal are bound up in the socio-political processes of class, gender and a capitalist economy (Gibson 1992). Outside coal mining towns, however, many households have become distanced, both metaphorically and geographically, from the sources of the energy and products they consume (Bridge 2009). With household and regional sustainability increasingly a focus of climate change policy, numerous studies, as explored here, have addressed how climate knowledge, concern, and action come to be. The complexity and multiplicity of this process has been highlighted. Through government led campaigns and policy debates, climate change has become woven into the fabric of everyday life and in doing so has rematerialised coal and raised questions about the futures of industrial regions including coal towns (Bridge 2009; Tomaney & Somerville 2010; Brace & Geoghegan 2011). Hence, following the effects of economic restructuring on coal mining regions, coal identities and regions are once again being challenged and reconfigured, this time by various framings of climate change. Hulme (2008) has called for more grounded approaches to examine how climate change plays out in everyday lives. To answer this call, this project utilises a cultural economy framework as a lens to explore the everyday understandings of coal and climate change within Helensburgh, New South Wales: a historic coal mining town some 60 kilometres south of Sydney, with a growing population and diversifying economy.
2.4 CONCEPTUAL FRAMEWORK: CULTURAL ECONOMY

To offer insights to the geographies of climate change, coal and household sustainability in Helensburgh this thesis utilises a post-structuralist framework, drawing particularly on the ideas of Massey (2005), Gibson-Graham (2006), and Amin and Thrift (2007). Key conceptual arguments that inform the framework are outlined in the following discussion.

Doreen Massey challenges the simplistic understanding of households, regions and towns as neat, self-contained bounded units that can be located on a map. Instead, Massey’s (2005: 9-12) relational understanding of space is built upon three components: (1) space as a product of interrelations; (2) space is a sphere in which multiple trajectories coexist; and (3) space is always under construction. Massey demonstrated the importance of thinking about how different social groups are constantly engaged in efforts to territorialise, claim spaces, and include and exclude others. Massey (2005: 10) gives the example that the ‘story of the world’, however often it is told from a colonial perspective, is indeed not the same as the story of the West. Rather than space being a neutral backdrop, Massey points to how identities and space are co-constituted and bound in power relationships between social actors. Her relational view of space argues that identities, including political subjectivities, do not pre-exist, but rather are co-constituted by the relations amongst them. Space as under construction, allows space to be conceptualised as a process, with genuine possibilities and openness on what the future might entail.

In terms of this project, Massey’s writings help to draw attention to the multiplicity of relationships that comprise the spaces of households, Helensburgh and the Illawarra region. Furthermore, the subjectivities of participants are not fixed, but rather are unstable points of identification within the discourses of history of Helensburgh, coal, climate change and the Illawarra. Identities are not an essence but a positioning, dependent on the context of the multiple trajectories that an individual must negotiate in their everyday lives. Hence, each participant negotiates their sense of self in and through the entangled relationships that comprise spaces of the
Gibson-Graham’s *A Postcapitalist Politics* (2006) builds on the idea of entangled political and economic subjectivities by looking at the tensions amongst capitalist and non-capitalist economies and the possibilities that stem from these. Gibson-Graham note that non-capitalist identities do not exist independently of capitalist identities. Rather, people have multiple economic subjectivities. For example, although a person may undertake ‘non-capitalist’ volunteer work, whenever they pay the household bills they are participating in capitalism. Indeed, drawing on Judith Butler’s notions of performativity, the payment of bills by credit card is one example of the embedded practices of global capitalism. In this way, actions sustain our economic subjectivities. However, Gibson-Graham (2006: 24) are particularly interested in how subjects ‘shift and create new identities for themselves despite the seemingly hegemonic power of dominant discourses and governmental practices.’ Importantly, they highlight the possibility for participants to be, simultaneously, part of two or more types of economies. Hence, it is possible to be part of a family that exchanges goods, but that also purchases household items from supermarkets. Equally, it is possible to work for a coal mine and demonstrate a commitment to household sustainability through maintaining a vegetable garden or donating to charity. Economic subjectivities are dynamic and hybrid entities. This notion of economic subjectivities as always in a constant state of negotiation and located in a swirl of interconnections between individuals and others can provide insights to how participants come to know themselves in relationship to coal and climate change.

Based on the understanding that the cultural and the economic are inseparably intertwined, Amin and Thrift (2007) illustrate how the urban economy can be understood as a ‘hybrid entanglement.’ Echoing the work of Massey (2005) and Gibson-Graham (2006), Amin and Thrift (2007: 145) conceive the economy as ‘influenced simultaneously by abstract rules, historical legacies, material practices, symbolic and discursive narratives, social and cultural habits, material arrangements, emotions and aspirations.’ Amin and Thrift (2007) take the concept of entanglement further by describing different cultural-economy registers: a term they use to describe
the themes found within the extensive body of research on economic drive, orientation and order. Together, these registers illustrate that cultural economy is ‘more robust in terms of breadth, reach, and analytical power than its critics concede’ (Amin & Thrift 2007: 147). The registers most relevant to this thesis involve the intersection between moral values and power. Moral values serve to ‘naturalize particular forms of economic conduct’ (Amin & Thrift 2007: 148), or embed these practices, whether individualism or collective responsibility, into everyday life. Power, in the Foucauldian sense, draws on particular sets of ideas to protect, advance and authenticate certain economic interests as ‘good’ (Amin & Thrift 2007: 149). For example, in Australia, ‘quarry vision’ is a set of ideas – that natural mineral resources are the country’s greatest asset – that has framed mining as a ‘moral good’ for the nation, regardless of the wider implications of carbon emissions. How participants make particular household decisions, hence, cannot be separated from belief systems that they understand to be stable, solid and truthful interpretations of the world around them. These belief systems, and the economic interests which they represent, are then stabilised and advanced through particular household behaviours.

Hence, this cultural economy framework conceptualises space as multiple, contingent and temporal, with individuals and households engaging in overlapping and often conflicting economies. Subjectivities are never static or pre-given, but constantly in a process of becoming, though stabilised through repetitive practices. The cultural economy of Helensburgh may be conceived as made up of multiple entangled trajectories. Participants are conceptualised as in an ongoing process of negotiation through how they are entangled into the relationships that comprise households, Helensburgh, the Illawarra, and beyond. Participants are conceptualised as constantly making sense of themselves in and through the relationships that comprise different spaces. Hence, participants take the sets of ideas available to them and use them to create distinctive knowledge and sensibilities about both coal and climate. The stories that people tell about coal and climate change then provide insight to how participants are making sense of themselves in relationship to these topics, and how they understand coal and climate change in the context of their everyday lives. The cultural economy of Helensburgh is not fixed, and indeed is
always under construction: the possibilities for the future of Helensburgh and coal are open and unfolding.
3. METHODS

The aim of this chapter is to discuss the research methods utilised in this project. To achieve this aim the chapter is divided into seven sections. The first section outlines the benefits of a mixed-method approach and how rigour was assured. The second section details the ethical considerations of this project. The third section discusses how critical reflexivity was employed. The fourth section recounts the survey development and distribution process. The fifth section examines the semi-structured interview stage. The sixth section explores the methods of quantitative and qualitative analysis. The seventh section brings all the material together and underlines how the methods are appropriate.

3.1 MIXED-METHODS APPROACH

This project applied a mixed-methods approach, using both a survey and interviews to reap quantitative and qualitative data. McGuirk and O’Neill (2005) outlined the benefit of mixed-methods research, arguing it allows for a ‘deeper’ understanding of the issues being explored. In this project, for example, the survey enabled the identification of trends and statistical relationships. The interviews allowed an exploration of the contextual understandings that informed participants’ everyday household practices and views on climate change and coal.

3.1.1 RIGOUR IN MIXED-METHOD RESEARCH

Rigour is essential to all research (Bradshaw & Stratford 2005). Quantitative and qualitative research has different sets of criteria for ensuring rigour. For the survey stage of this project, rigour was ensured by creating a well-designed survey, inputting the data soon after surveys were returned, employing a consistent approach when entering and analysing data, and running checks to identify errors. For qualitative research, Baxter and Eyles (1997) discuss the four elements – credibility, transferability, dependability, and confirmability – that jointly ensure rigour. These elements were ensured through interviews, offering interviewees a copy of the
transcript, regular meetings with supervisors, triangulation, and critical reflexivity. Appendix A lists a definition of each element and explores further how they were met.

3.2 ETHICS

Ethics is a central methodological consideration. Ethics addresses a series of questions that explore who benefits from research, and if the benefits outweigh the potential risks of conducting research. In this project, ethics was implemented through both a formal and informal process. The formal processes followed the guidelines of the University of Wollongong’s Human Research Ethics Committee (HREC). An ethics application identified the key ethical implications of the project. A discussion of how informed consent and privacy and confidentiality were assured, and how harm was avoided is attached as Appendix B. Approval by the HREC was granted on 20 April 2011 (Appendix C).

3.3 CRITICAL REFLEXIVITY

The personal attributes of research necessitate a high level of critical reflexivity. England (2004) described reflexivity as the ongoing, self-conscious examination by the researcher of the self and the research process. Writing the ethics application proved a beginning step in reflecting how the researcher was positioned within the social context of Helensburgh (Dowling 2005: 20). Dowling (2005) discussed the importance of reflecting upon uneven social power relationships when conducting research, and underscored how power operates to make a person and research topic visible within each research context. The gleaning and interpretation of participants’ stories and the knowledge created with the research are constituted in and through social power. As power is part of all social relations, it cannot be eliminated. Dowling (2005) argued that the best way to approach uneven social power relationships is to remain aware of and responsive to them through critical reflexivity. However, Rose (1997) provided a reminder that power relationships, identities, subjectivities and research are fluid and constantly influencing each other.
A research diary is one way to remain vigilant of this. Hence, in this project, a positionality statement (Appendix D) and research diary were utilised to encourage reflexivity and explore the researcher’s changing positionality.

3.4 Survey

3.4.1 Why a survey?

McGuirk and O’Neill (2005: 147) stated that: ‘Questionnaires are useful for gathering original data about people, their behaviour and social interactions, attitudes, and opinions, and awareness of events.’ As such, a household mail survey enabled the identification of understandings of coal and climate change within Helensburgh households, and how these may influence everyday household behaviours. Survey data provided an indication of overall trends, patterns and statistical relationships. A mail survey has limitations and benefits. On the one hand, the limitations of mail surveys include low response rates, little control over who will fill out mail surveys once they are in the post, and the lack of opportunity to clarify questions (McGuirk & O'Neill 2005: 157). On the other hand – in comparison to, for instance, a telephone survey – the mail-out survey appeared an efficient way of generating a random sample of Helensburgh residents to identify general trends in attitudes and practices. The survey furthermore facilitated recruitment for the semi-structured interview stage. In this project, the mail survey was positioned as the starting point, rather than end point.

3.4.2 Survey design

The survey design involved assessing previous surveys and research, piloting and tailoring, crafting good questions and formatting. The survey is attached as Appendix E. The survey aim was to explore understandings of coal and climate change in Helensburgh, and how these influence household practices and engagement with carbon governance. When designing the survey, care was taken to investigate previous research that had employed questionnaires examining the
meaning of climate change to households, as similarly worded questions would help facilitate international and national comparison. Moreover, questions could be adapted learning from the experience of previous studies. For example, the modifications suggested by Whitmarsh et al. (2011) were implemented to explore which activities participants attribute most to causing climate change. Ultimately, questions from three previous studies were used and adapted for the Helensburgh Futures survey: the University of East Anglia (2008), CSIRO (2009), and Gibson et al. (2009). The results of these and other surveys – and their relevance to this project – are discussed in the literature review.

The survey design was an ongoing process of iteration: trying different questions, trialling different wording for clarification of meaning, reflecting on the aims of the survey, grouping questions into suitable sections to ensure flow, adjusting the layout of each page and so on. As suggested by Fanning (2005) and Dillman et al. (2009), priority during this process was given to: (1) tailoring the survey to its audience and aims, (2) crafting good questions, and (3) bringing it all together through formatting. According to Dillman et al. (2009) tailoring a survey to its audience reduces survey errors, and encourages a higher response rate. Methods used to tailor the survey to Helensburgh residents included: the choice of title ‘Helensburgh Futures’, placing photos of Helensburgh monuments on the front and back covers, and including questions specific to Helensburgh, such as those considering coal mining and Climate Camp.

The survey was comprised of six sections: ‘Living in Helensburgh’, ‘Changing Climates’, ‘Household Practices’, ‘Coal’, ‘Climate Camp 2009’ and ‘Details about the survey respondent’. A mixture of open and closed questions was developed, recognising that different types of questions and the corresponding data have strengths and weaknesses depending on the type of information sought from the respondent (Dillman et al. 2009). For example, questions asking for attitudes, or opinions, often employed a Likert scale. The Likert scale allowed respondents to indicate how strongly they agreed, or disagreed, with a statement. Behavioural questions were placed in matrices to save space, avoid repetition, and simplify the task asked of respondents. Examples of these questions include those asking about
the frequency of undertaking different household practices. As Fanning (2005: 12) noted, ‘people prefer putting X’s in boxes.’

In line with Dillman et al.’s (2009) suggestion, conscious effort was made to ensure questions were crafted to be unambiguous, simple, concise, and not ‘leading’ respondents to give a particular answer. Some questions were framed through a lead-in phrase, such as: ‘When you hear statements such as “carbon emissions are increasing” or “this event is carbon-neutral”, what do you understand by the word “carbon”?’. Lead-in-phrases helped ‘position’ the meaning of particular terms within specific social contexts. For example, ‘What do you understand by “carbon”?’ may have proved too open and more ‘expensive,’ in the sense it would require more effort to make sense of the question and think of an answer. Dillman et al. (2009) identified the ‘expense’ normally associated with open-ended questions as reducing the response rate.

The survey format developed in tandem with the crafting of questions. As suggested by Fanning (2005), a booklet format was chosen, of A5 size and saddle stitched. Benefits arising from this A5 format included keeping the questions in order, a professional appearance and a higher response rate. The covers were inspired by the examples given in Dillman et al. (2009: 194-195). Various techniques suggested by Fanning (2005) were incorporated into the cover design. For example, the front-cover employed a short title, a brief explanation of the purpose of the survey, instructions on who was to complete the survey, a return address and university logo, with a photo of a local mining statue as background. The back-cover thanked respondents again for their time, provided instructions for the return of the survey, and gave space for any further thoughts. To give the survey a professional appearance, the covers were printed on good quality paper. Colour, however, was beyond the research budget (Appendix F).

Questions were organised into six sections based on topic. General questions were placed at the start of the survey. Personal and potentially controversial questions, such as those relating to coal and Climate Camp were placed toward the end. Each section was clearly titled in large bold text. There was at least a line’s space between
each question, and each question was numbered in sequence. Instructions on how to answer the different questions formats were provided in the Survey Information Sheet (Appendix G), the inside-cover and written into each question.

The Survey Information Sheet was required for ethics approval and provided more detail about the project and survey, assured confidentiality, provided instructions on how to fill out the survey, showed appreciation in advance for responding and also gave contact details of the researcher and Ethics Officer in case of further questions or concerns. The outcome of including an Survey Information Sheet is understood in terms of both social exchange benefits and response rate (Dillman et al. 2009).

Pretesting is an essential part of survey design. Dillman et al. (2009) argued that a variety of people are needed to identify potential issues. Piloting was conducted in three ways. First, research supervisors provided advice from their experience of what survey questions and formats may or may not work. Second, piloting occurred in April 2011 in Helensburgh. Nine people were approached, with four agreeing to complete a pilot survey, and five declining because they were not Helensburgh residents. Valuable feedback on different questions was provided by this process. For example, all struggled to think of the postcode where they worked; this question was changed to ask for the workplace locality, rather than the postcode. Third, in April, pretesting occurred through the network of Helensburgh residents built up through attending Helensburgh resident committee meetings, contacting various social groups and the print media. Feedback from these various social groups suggested further Helensburgh-specific questions that could be asked. The project received much positive interest through this piloting process, including from people living outside Helensburgh, and from a representative of the Wollongong City Council.
3.4.3 Survey distribution and respondents

Both the budget and sampling questions underlined the survey distribution. According to Australia Post (Appendix H), there are 1,819 private letterboxes in Helensburgh. The survey was randomly distributed by Australia Post’s unaddressed mail service to 1,595 Helensburgh households, or 88 per cent of private letterboxes. This method generated a random sample from the targeted population of Helensburgh households. The survey was advertised in the local newsletter the Helensburgh & District Herald (Appendix I), and through a poster at the Helensburgh Community Centre (Appendix J).

There were 296 returned surveys, giving a response rate of 18.6 per cent (higher than the expected response rate of 10 per cent). Slightly more women (57.3%, n = 168), than men (42.7%, n = 125) completed the survey. The respondent age profile is older than the 2006 Australian Census data for Helensburgh, with the average age of respondents approximately 50 years of age, in comparison to the census average of 32 years (ABS 2007). This older sample distribution can be attributed to the survey being completed by household decision-makers. The survey captured the social diversity of residents of Helensburgh across the categories of employment, education and household structures. Eight percent of respondents (n = 24) currently have a household member employed in the mining industry, and 29 per cent (n = 86) have a connection to the mining industry, whether past or present, in Helensburgh or elsewhere. This latter figure is important as it was used to test certain variables for statistically significant differences between respondents with and without a mining connection. The great majority of respondents were owner-occupiers, at 93 per cent (n = 274). The period of residence in Helensburgh ranged from as short as four months, to as long as 91 years, with a median of 17 years. To maintain engagement with the Helensburgh community, a selection of survey results were published in the August and September issues of the Helensburgh & District Herald (Appendix K).
3.5 **INTERVIEWS**

3.5.1 **WHY SEMI-STRUCTURED INTERVIEWS?**

According to Dunn (2005), the strengths of interviewing lie in the ability to fill gaps in knowledge, investigate complex behaviours and motivations, explore diverse meanings, opinions and experiences, and empower participants. The interviews let the participants discuss their own experiences and ask questions about the research project. All these strengths lend themselves to this project: employing interviews allowed for exploration of complex motivations behind environmental attitudes, meanings, knowledge and household behaviours, in particular developing a deeper understanding of issues important to households. Furthermore, interviews allowed insight into the various opinions of Helensburgh residents, as well as identifying where there was consensus and disagreement.

3.5.2 **INTERVIEW RECRUITMENT, MANAGEMENT AND PARTICIPANTS**

Of the 296 surveys returned, 108 indicated a willingness to participate in the project further by leaving their contact details. Of these, nine either did not leave a phone number or expressed a preference for email follow-ups, rather than a face-to-face interview. To ensure an illustrative range of interviewees, as suggested by Valentine (2005: 112), the detached back-cover of each survey was coded – with single letters ensuring confidentiality of respondents was maintained – according to if the respondent had a connection to the mining industry, was particularly opinionated about climate change science, or whether they had annotated their survey with unusual or interesting points. Potential interviewees were then contacted across this diversity of categories.

In total, 24 survey respondents were contacted, and another eight did not answer when called by the researcher. Three declined to participate in an interview due to time constraints. Two interviews were scheduled via email. A record was kept of all calls and emails made to participants.
Participants were asked to nominate a time and place convenient to them for the interview to take place: two nominated cafes, whilst the remaining 19 suggested their home. Participants received a reminder call the day before their interview. Interviews were carried out between 23 May and 6 June. The interviews lasted between 10 minutes and 64 minutes, with an average duration of 27 minutes and 34 seconds. All participants were asked to read the Participant Information Sheet attached as Appendix L, and sign the Consent Form at Appendix M before the interviews commenced, as per the ethical requirements of the project.

Of the 21 interviewees, 11 were female and 10 male. Approximately 13 were under 50 years of age. Families with children living at home accounted for 12 interviewees, with both single and two-parent families represented. Six interviewees were retired, and one interviewee lived alone. Four had an immediate family connection to the mining industry through employment, including three at the Helensburgh coal mine. Views on climate change crossed a broad spectrum. The interview process stopped when sufficient data had been collected, ‘new’ stories became increasingly rare, and the honours timeframe led to analysis becoming a priority.

The interviews were semi-structured to ensure flexibility and a more ‘natural’ flow of a conversation. A list of potential open-worded questions was designed for each of the four sections – ‘Background to living in Helensburgh,’ ‘Juggling household responsibilities,’ ‘Surprises surrounding changing climates,’ and ‘Coal and Helensburgh’ – to encourage reflection, storytelling and sustained input by the participants (Dunn 2005: 84) (Appendix N). These themes, and the order they were in, corresponded with the different sections of the survey. As with the survey (Dillman et al. 2009), this ‘funnelling’ allowed for rapport to be developed between the researcher and participant, before potentially sensitive topics were raised (Dunn 2005: 85). Secondary questions or ‘prompts’ for each question were developed, to encourage participants to reflect further on a topic (Dunn 2005: 83). After each interview, a research diary entry was made to reflect upon the social power dynamics of the researcher-researched relationship, as well as the important themes raised by
the participant. A critical reflection that occurred after the interview process is attached as Appendix O.

3.6 ANALYSIS

3.6.1 DESCRIPTIVE AND INFERENTIAL STATISTICS

All survey responses were entered into a Statistical Package for Social Sciences (SPSS) database. SPSS enabled both descriptive and inferential statistical analyses. Mindful of the conditions of various significance tests, - and the limited statistical experience of the researcher – the Pearson Chi-square test was identified as appropriate to examine the statistical relationships between demographic variables and knowledge, attitudes and practices regarding climate change (Pallant 2007).

3.6.2 QUALITATIVE DATA ANALYSIS

Open survey responses and interview transcripts were analysed using content and discourse analysis. The first step, as suggested by Crang (2005: 220), was to organise results into a readable form. Survey responses were organised by question into Microsoft Excel tables. Interview data was transcribed into Microsoft Word. Conceptual content analysis can be used to determine the frequency of certain terms or concepts (Crang 2005). For example, for some open survey questions, word frequency diagrams were generated through internet program Wordle to illustrate the comparative use of particular terms. Prior to being entered into Wordle, this data was ‘cleaned’: homonyms were changed to the same term; plurals were made into singles and so on. Conceptual content groups emerged through a process of familiarisation and categorisation (Crang 2005). To address the thesis aims, categories of the most common framings, or ideas being drawn upon were identified. Coding concepts is a subjective process (Krippendorff 2004), and hence to address this, responses were able to be coded into more than one category, and responses were coded consistently. This allowed for an understanding of which ideas were most or least present. The coding process was developed with the aid of computer
software NVivo. An example of the mind maps created during the coding process is attached as Appendix P.

Discourse analysis was the primary analytical technique for the interview data. Discourse analysis is an appropriate technique for this project because it allowed an ‘unwrapping’ of interviews to reveal the sets of ideas participants draw upon to make sense of coal and climate change. Table 3.2, adapted from Waitt (2005: 180), outlines the strategies deployed for discourse analysis.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suspend pre-existing</td>
<td>Critical reflexivity, research diary, positionality statement.</td>
</tr>
<tr>
<td>categories</td>
<td></td>
</tr>
<tr>
<td>Familiarisation</td>
<td>Several readings of survey and interview data.</td>
</tr>
<tr>
<td>Coding</td>
<td>Coding categories developed around framings of different issues.</td>
</tr>
<tr>
<td>Persuasion</td>
<td>Identification of sources on which participants base their beliefs.</td>
</tr>
<tr>
<td>Incoherence</td>
<td>Exploration of inconsistencies, tensions and contradictions within the texts.</td>
</tr>
<tr>
<td>Active presence of the</td>
<td>Acknowledgement and exploration of things unsaid or silenced.</td>
</tr>
<tr>
<td>invisible</td>
<td></td>
</tr>
<tr>
<td>Focus on details</td>
<td>Thorough reading of the texts to analyse understandings which shape people’s thoughts and behaviours.</td>
</tr>
</tbody>
</table>

Table 3.1 Discourse analysis methods (adapted from Waitt 2005)

Like content analysis, familiarising and coding is an integral part of discourse analysis. Discourse analysis goes beyond counting the number of times a part word or theme is used. Discourse analysis is concerned with addressing how particular knowledge is maintained, while other understandings are silenced. While engaging with discourse analysis to explore the process of persuasion, incoherence and the active presence of the invisible, the research diary was utilised as a way to remain critically reflexive, and keep track of ideas and shifts in analysis. Crang (2005: 223) mentions the importance of these ‘theoretical memos’ in justifying any conclusions made. In particular, tensions, conflicts and contradictions were thought through, to illustrate the complexities faced in negotiating climate change in everyday life.

3.7 CONCLUSION

This chapter discussed the project methods. A mixed-method approach, using a mail out survey and semi-structured interviews, yielded quantitative and qualitative data. Throughout the research process, ethical considerations and critical reflexivity were
maintained. In responding to the thesis aims, this mixed-methods approach allowed for a comprehensive exploration of the relationships between coal, climate change, place-based identities, sustainable household practices and engagement with environmental governance.
4. Situated and Contested Meanings of Coal in Helensburgh

Massey’s (2005) description of ‘power geometries’ serves as a reminder that there is a politics of coal, in which uneven sets of relationships shape the interplay between coal, identity and space. This chapter discusses the politics of coal and place-making. Coal is conceptualised as entangled into lives in many different and conflicting ways drawing upon the historical weight of coal mining and fossil-fuel dependence. The way in which participants variously position coal contributes to identity- and place-making. The chapter is structured in two parts. The first part draws on survey responses and interview data to explore understandings of coal and what part these play in identity- and place-making. The aims of this section are to explore the following questions. How is coal understood by Helensburgh households? What variables may account for why residents disagree over the meaning of coal? How does a connection to the mining industry impact on understandings of coal? The second part draws further on interview data to investigate how coal becomes materialised through processes of environmental governance. This section addresses the question: How do contested meanings of coal play out in Helensburgh? A rift between ‘older’ and ‘newer’ residents, and controversy about coal company involvement in the local school, provide the context in which this question is examined.

4.1 Understandings of Coal in Forging Helensburgh Identities

4.1.1 Coal and Community

Survey results suggest that the role of coal is considered less important than in the past in creating a sense of community in Helensburgh. Figure 4.1 illustrates this trend.
Figure 4.1 illustrates the almost unanimous agreement amongst survey respondents of the role of coal in forging a sense of community in the past. Indeed, coal heritage is sustained by public artworks and ongoing sponsorship of sports clubs and public-school school events (see Bell & York 2010). Most participants recognise the reciprocal historical relationships between coal and Helensburgh. Hence, two respondents noted:

[Coal] is and will always be a part of Helensburgh's history - just like opals from Cooper Pedy. (P1145)

The mine has been good to the town and the town has been good to the mine. (P1208)
Far fewer positioned coal as central to forging a present sense of community and identity in Helensburgh. Some exceptions were present, for example five participants wrote:

[Coal is] Contributing to a strong and growing community. (P1212)

Coal provides our power at present, coal is everywhere in Helensburgh, It is the history of Helensburgh. (P1154)

This is a coal mining town, it has history. Mining should remain. (P1099)

An industry that’s been here for over 100 years I hope to see it go another 100 years. (P1019)

the community would not survive [without coal]. (P1156)

These respondents continue to envisage coal as a uniting force, sustaining a shared past and common future through mining. Indeed, survey respondents with a connection to the mining industry were statistically more likely to view the importance of coal in terms of forging a shared present\(^2\) and future\(^3\) (see Figure 4.1). As a connection to the mining industry was defined by personal or family employment in the industry, past or present, those with this connection would have benefited both economically and socially from coal, given the class- and occupation-based solidarity that is often a feature of mining towns (Gibson 1992; Parry 2003). This can explain why they value the role coal may play forging a sense of community into the future.

The wider survey population, however, does not see an important role for coal in forging a sense of community in the future (see Figure 4.1). Whereas once coal may have had a shared understanding amongst Helensburgh residents as a collective good through mining – sustaining employment and a way-of-life - the meaning of coal is becoming increasingly contested. Opposition to coal futures is frequently linked to wider sets of ideas that frame the ‘economy’ and ‘the environment’. The following sections unpack these ideas.

\(^2\) \(\chi^2 = 24.389, \text{df} = 4, p = 0.000\)

\(^3\) \(\chi^2 = 23.345, \text{df} = 4, p = 0.000\)
4.1.2 ECONOMIC FUTURES

The perceived employment and economic benefits of coal highlighted tension between participants. Survey respondents who defended coal futures, drew upon the economic benefits of coal, describing the job numbers created by the coal mine as, for example: ‘enormous’ (P1094), ‘over 300’ (P1002), ‘a large number’ (P1017), or ‘lots’ (P1003). In comparison, ABS (2007) data suggests that 61 Helensburgh residents worked in the mining industry in 2006. This figure corresponds to information from a Peabody representative (Pascoe 2011) that the Metropolitan Colliery employs around 200 people, a third of whom live in Helensburgh. Hence, (mis)perceptions of the coal mine in providing employment in Helensburgh have sustained discourses of a coal-forged community spirit.

The decreasing proportion of Helensburgh residents employed in the mining industry was drawn upon by respondents who did not envisage coal futures for Helensburgh. Interestingly, survey respondents who envisaged futures without coal mining had perhaps more realistic understandings of the actual numbers of people now employed in the Metropolitan Colliery and living in Helensburgh. These respondents described the number of people employed in the mine as, for example: ‘Not as many…as in the past’ (P1026), ‘[a] small percentage’ (P1081), ‘less than 1%’ (P1092) and ‘overstated’ (P1248). As Gibson (1992) and Parry (2003) note, occupation proved a primary means of social cohesion in traditional coal mining towns. Hence, the changing employment structure of Helensburgh has diminished the role of coal in forging a sense of belonging and community.

The diversifying workforce of Helensburgh has created discourses that position Helensburgh futures in relationship to the metropolitan centres of Sydney and Wollongong. These survey respondents position Helensburgh as a dormitory suburb rather than a coal town. For example:

... The town will continue without the mine as the majority of people are employed in other industries. Helensburgh is more a dormitory for Sydney, Wollongong, Liverpool and Campbelltown. (P1161)
... At one time the mine was the major employer for the residents of Helensburgh. Today it is only a minor employer as most residents work outside the region i.e. Sydney, Wollongong and other outside areas. However the mine does inject a considerable amount of cash flow into the Helensburgh and Wollongong districts. (P1291)

Although it was often acknowledged that the mine continued to contribute financially to the town, these respondents’ comments reflect an understanding of Helensburgh forged in relationship to other places. Instead of coal, these residents shared an understanding of the amenities unavailable in Helensburgh in comparison to the nearby larger metropolitan centres and suburbs. Four women who had moved from elsewhere discussed the relational geography of Helensburgh:

Sandy: Our plans were to move back to the Sutherland Shire but once we were here we just loved it. … It’s definitely more friendly [than surrounding suburbs].

Diane: I really like the environment around me, I don’t feel like I’m in suburbia, I feel like I’m kind of living in the bush. So that’s what I like about it. I think the people are friendlier, and there’s a better sense of community, people know each other and they look after each other, and um, there’s a sense of belonging here, which I think if I actually then went and moved back to Engadine, I probably wouldn’t feel that.

Terri: …when I first came, it was a little bit different, … it was quiet, and I sort of felt like if you weren’t born here, or from here, like, it was hard to get to know people and be accepted. …[But] there’s a lot of young families and a lot of people moved into the area since then, so yeah it’s quite hustling and bustling, yeah, so I like it now.

Whitney: It’s a beautiful community. You know I’m a mum with two little boys, and there’s loads and loads of mums in exactly the same situation, that have also just moved here and um, we’ve all just met each other and support each other and keep each other company! So it’s a really great place.

Far from simply a place to sleep, these mothers talk about Helensburgh as ‘hustling and bustling’, sustaining a sense of belonging through child-care practices, the bush, and general friendliness of people they meet on the street. There is an openness because of the recent population growth. As well as the family community feel and less built up environment, another amenity often drawn upon was cheaper real estate in Helensburgh. Whatever the reasons for moving to Helensburgh, the growing and diversifying population has allowed residents to meet people with similar interests.
and hence forge a sense of community through those friendships. Therefore, as residents’ trajectories are less caught up in the coal mine, so is the sense of community within Helensburgh.

In contrast, interview participants who grew-up in Helensburgh lament the loss of community. The following quotations from interview participants, who have lived in Helensburgh for between 25 and 40 years, illustrate this point:

Danielle: Lately, there’s a lot more people moved [to Helensburgh] that would have thrown stones at me in high school for living here. Now, it’s their best place in the world... The people that are moving here are trying to make it a bit more similar [to surrounding suburbs]. It used to be more friendly, you could talk, you know, say hello to everyone down the street, smile at anyone, they would smile back. Now, it’s not quite the same.

Doris: [The growth of Helensburgh has] changed it a lot. You can go around the shops now and you say hello to somebody, and they look at you to say, “Well who do you think you are?” Where, when we first moved down here, people knew you were new, but they’d always say “Hello, how are you?”

Tim: It was a quaint little village, if you walked past people they said hello, everybody said hello. Now if you’re walking in the early morning people will say hello, but at about nine o’clock they turn into city people, and they look at you weird if you say hello, they’re like “what’s your point?” ... It was never like that. Everybody knew, “oh you’re young Tommo,” you know. If you were up to something it was “does your old man know where you are?” And we very quickly realised he was going to find out where I was, so I better be where I’m supposed to be pretty soon.

According to these participants, Helensburgh no longer has the same sense of community forged through the working relation of coal. There is nostalgia for a town they remember as being smaller, quaintier, and friendlier. Social change brought by people moving to Helensburgh is spoken about as undoing a friendlier way of life, and transforming Helensburgh into a suburb of both Wollongong and Sydney. The economic importance of coal has also been challenged by the growing prominence of the environment as an everyday concern.
4.1.3 **ENVIRONMENTAL FUTURES**

Local and global environmental concerns are influencing how respondents understand coal futures in Helensburgh. Participants frequently mentioned the day-to-day implications of living with a colliery, such as coal dust and heavy vehicle traffic. Some respondents acknowledged the important of coal heritage, but gave priority to a range of environmental discourses, like ‘sustainability’. The following survey responses illustrate how environmental sustainability discourses operate to challenge coal mining practices:

[Coal mining] supports employment in the local area and coal comes out of the mine which was established last century (or the one before?). We are not opposed to coal mining as a (current) option but I do think economically and environmentally it would be prudent to look elsewhere for our energy needs in the future. (P1197)

I understand that the mine creates jobs in Helensburgh and has been around a lot longer than I have however, I don't believe that coal mining is a sustainable practice in the long term. (P1245)

Helensburgh will change over time due to imperative to shift from coal. Helensburgh will be a "non coal" town eventually. Coal mining will die out as will its culture. (P1204)

If coal mining stopped today in Helensburgh, I don't think it would have any effect on me except for cleaner air and streets, coal dust is everywhere. (P1277)

[Coal] is a strong part of the history of Helensburgh - it was responsible for the creation of the town! But now it is not a good thing due to environmental risks... (P1043)

As a long term resident of Helensburgh I'm aware the town has a long history as a coal town (over 100 years) and it employs a large number of locals. As long as the mine exists financially it will continue to co-exist with the community. Growing awareness of climate change will eventually turn the community's attitude towards our future and its awareness of alternate energy sources. (P1182)

These quotes, while often acknowledging the importance of coal in establishing the town, illustrate that coal is increasingly understood to be morally tainted by its positioning within wider environmental debates. Hence, in the sets of competing
ideas that produce, reproduce and challenge understandings of Helensburgh, discourses that sustain understandings of the environment, whether local or global, are given more weight than those that frame coal as an economic resource.

4.2 THE POLITICS OF HELENSBURGH COAL

4.2.1 THE OLD AND THE NEW

The role coal played in forging a sense of community in the past, the geographical isolation of Helensburgh, and the recent influx of young families employed in the service sector have created the notion of ‘old’ and ‘new’ residents. Some participants spoke of a social division between these groups, illustrating one way in which the politics of coal in Helensburgh plays out. As Fiona, who has lived in Helensburgh for five years, comments:

It’s a very insular community, or it certainly has been in the past. Um, it’s evolving very quickly, and there’s a real division between the old and the new. The local locals resent the, you know, the batch of young new families coming in. Um, so it is quite a strange undercurrent of the old and the new. [The division plays out over environmental issues]. Because a lot of the old are associated with or have connections to the mine, whereas the new tend not to. So, again, the ones that see themselves as ‘local locals’, um, tend to be very pro-mine and the newcomers tend to be more anti-mine.

Fiona raises the identity of the ‘local’. She understands the ‘old’ and ‘locals’ as having a close affinity to coal mining. In contrast, she understands the ‘new’ to be ‘more anti-mine’. Katherine, who moved to Helensburgh four months ago, also highlights the controversial nature of coal in Helensburgh:

I think [coal plays] a big role, like with the employment... I mean originally it was a coal miner’s settlement, and I’d say a lot of people that work at the mine live here and that’s their livelihood, and I think it’s quite a sensitive issue. And I’m only new to the area... if something happened and the coal mine wasn’t up to full production, there wasn’t so much employment there, you know, ... you see people that are like me, obviously from the city ... we’ve just come in and then you see people that are obviously working at the mine, I mean it’s being a bit judgemental but you think well they were here first. You just think they probably get a bit peed off.
Katherine is aware of how coal sustains a sense of community and identity in Helensburgh amongst mining families. As someone from the city, she is sensitive to arguments that call for radical change. Helen, however, has lived in Helensburgh for 13 years and sees the division between ‘old’ and ‘new’ as a barrier to environmental progress:

There’s a lot of people I think that just kind of think, ‘right, you’ve got that element in Helensburgh, we’re kind of new, let’s not rock the boat.’ ... [Those with a connection to coal mining] feel under attack, I think generally from this whole climate change, as if it’s something specifically engineered just to attack them and their way of life and their coal mining. ... I’ve considered actually moving out of Helensburgh, because of, not because of the coal mine, because of, well I would have considered it anyway, but it makes me feel less attached to Helensburgh because of the issues in the community.

Helen points to ‘new’ residents, like Katherine, who do not want to ‘rock the boat’ as feeling they do not have the authority to challenge the ongoing connections with coal in Helensburgh. Although Helen herself has tried to change these connections through environmental activism (as will be explored in the next section), the negative response illustrates the old and new division playing out. If Helen moved from Helensburgh, it could effectively silence her voice and further embed the views of the ‘old.’

Hence, there is a sense amongst participants who have lived in Helensburgh for less fifteen years that a social division exists between what they term ‘old’ and ‘new’ residents. The ‘old’ are understood as families with close affiliations to coal mining and resistance to change. The ‘new’ are understood as families that have moved to Helensburgh because of the amenity values including real estate prices, the bush environment and a friendly population. Future ‘trajectories’ of Helensburgh are entangled in the cultural economy of coal and sustainability. However, future trajectories are also contained because of how residents talk about social divisions in Helensburgh along the lines of ‘old’ and ‘new’ residents.
4.2.2 CORPORATE COAL INVOLVEMENT IN PUBLIC SCHOOLING

The Helensburgh Public School provides a spatial context to explore how the cultures of coal play out in a state-funded educational institution. Two examples are drawn on to illustrate the uneven geometries of coal power: (1) an environmental program facilitated by an independent environmental scientist but funded by Peabody, the American company which operates the Metropolitan Colliery; (2) Peabody representatives handing out branded company merchandise at school awards presentations.

The environmental program raised the ire of Helen, a postgraduate student and mother of three. Learning of the environmental program, she undertook internet-based research on the multinational mining company Peabody. Helen was alarmed by the company’s environmental track record, presenting her findings to the Parents and Citizens Association (P&C):

I just sort of wanted to present some information about Peabody, about them having the worst environmental record, about all their lobbying they do against environmental action, and about the misinformation they put out and statements they put out... I sort of thought, if I tell people about how bad they are, if I give them the information... But most people saw it completely differently at the P&C, they saw that, they really didn’t understand what I was on about, basically, because they just see it as getting money for the school, and this is just trying to deprive the school of money for the kids, and just to make some sort of point.

Helen draws upon discourses of coal as unsustainable, and the practices of Peabody as unethical and irresponsible. Nevertheless, other members of the P&C placed more weight on the children’s education than the ethics of Peabody. In the words of Wendy, a mother of two who has lived in Helensburgh for seven years:

I understand as a resident of Helensburgh [the coal mine’s] been here for a long time, yes there are issues, we need to improve things, yes, no question about it, but I don’t want the environmental program [removed] from the school, I don’t really care who funds it, but it has to be there. And if Peabody are prepared to put the 10k or 20k in each month, then I’ll take it. That’s my view. And if the local chemist wants to do it, then that’s great as well. If McDonalds want to do it, then that’s great as well.
Here, Wendy values an environmental education for her children more highly than question the business or environmental ethics of Peabody, or indeed McDonalds or the ‘local chemist’. In Wendy’s words:

certainly, you hope for your own when you’ve got young children as we do, the environment studies is just going to be so important to them... because we’re certainly going to depend upon them and their children to act on, you know, the things that we’re just starting to talk about.

Wendy makes the point that environmental studies are an integral part of education. Yet, she does not question if a multinational mining company is an appropriate source of funding for environmental education in a primary school. Such questions are not new to the NSW Department of Education and Training (2009) which has policies against companies deemed ‘inappropriate’ to provide financial assistance to schools, such as alcohol and tobacco companies. The debate at the P&C challenged the embedded power geometries of Helensburgh and coal. However, the Peabody-sponsored environmental program was ultimately allowed to continue – after being suspended while investigations ensued – illustrating one way in which discourses about mining companies as responsible corporate citizens are produced and reproduced.

The second controversial moment occurred when branded coal company products were handed out at an awards presentation. Several interviewees spoke of their disapproval. For Helen, her son coming home with Peabody merchandise was the motivation to undertake the research she later presented to the P&C. The following quotes by mothers with children at the school further illustrate the disapproval of the actions of the coal company:

Wendy: Where I do draw the line is at your um, assembly days, presentation days, do I want to see: “Congratulations, here’s your Peabody hat,” no I don’t. Because it’s taking it away, it’s the achievement that we need to be praising...

Fiona: I think the way that Peabody sponsors things is quite insidious. You know, they really are buying public opinion. I’m disgusted that they sponsor the school’s environmental award. I’m disgusted and appalled. I don’t think
they should have *any* involvement in public schooling whatsoever, financial… It’s just a disgrace. Um, I’m also angry that my kids have come home from school with stuff from Peabody... caps and pencils with Peabody written on it, and little books. Um, I think that’s really bad, really poor form.

The debate over a multinational coal company’s involvement in the public school also ties into the broader debate surrounding the sponsorship Peabody provides to other community groups and infrastructure projects. For Fiona and others, Peabody is buying public opinion. Bell and York (2010) concur that ideology construction is a tool used by the coal industry to maintain their position within community identity and local power geometries. However, like in the example of the environmental program, both survey and interview data suggest that many residents appreciate the financial contributions Peabody makes to Helensburgh, without questioning the ethics of these contributions.

### 4.3 Conclusion

This chapter has shown how the politics of coal plays out in Helensburgh. Although coal is widely seen as forging a sense of community in the past, a growing population and changing occupational demography have begun to challenge the understanding of coal within the community, and its place in the power geometries of Helensburgh. This challenge can be observed in the alleged social division that has emerged along the lines of ‘new’ and ‘old’ residents. Some ‘new’ residents spoke of not wishing to ‘upset the boat’. The debate over the environmental program, and other Peabody sponsorship in Helensburgh Public School provided a spatial context illustrating how coal mining, and environmental and ethical concerns have come to play a role in the politics of education. Although the coal company aims to maintain its power through the sponsorships, increasing opposition may mean it will have to find new ways to do so. As was illustrated in this chapter, the environmental concerns and engagement of Helensburgh residents will influence the possible futures for coal.
5. **HOUSEHOLD SUSTAINABILITY IN HELENSBURGH: NEGOTIATING CLIMATE CHANGE SCIENCE**

This chapter explores the relationship between households, climate change knowledge, awareness, concern and action. The chapter is mindful of Gibson *et al.*’s (2011a) argument that household consumption decisions are a mix of economic, social and cultural variables that are informed by personal histories and spatial contexts. Furthermore, the chapter remains alert to Gibson-Graham’s (2006) argument that subjectivities, including economic subjectivities, are multiple and performative. Drawing on survey results and interviews, the first section provides insight into climate change awareness, concern and knowledge. This section explores the question: Do Helensburgh households agree over the meaning of climate change? The second section also draws on survey results and interviews, exploring the why and which of ‘sustainable’ household practices. Exploring these two questions allows for an exploration of ‘sustainable’ household practices and various household sustainability dilemmas.

### 5.1 **CLIMATE CHANGE KNOWLEDGE, CONCERN AND AWARENESS**

Helensburgh households do not agree over the meaning of climate change, with findings mirroring national and international survey results. Overall, the survey results suggest respondents are familiar with conventional environmental science arguments that position humans as integral to the process of climate change (IPCC 2007). Figure 5.1 illustrates that 80 per cent (n = 232) of respondents understand climate change as an outcome of ‘both natural processes and human activity’. Only a minority either believe ‘there’s no such thing as climate change’ (3%, n = 9), or believe it is entirely a ‘natural process’ (7%, n = 22).
The results shown in Figure 5.1 are similar to those reported from a survey conducted in the United Kingdom, in which 86 per cent of respondents agreed that climate change is caused by ‘both natural processes and human activity’ (Whitmarsh et al. 2011: 60). In Helensburgh, the presence of a coal mine, mining heritage and being dubbed a ‘carbon hotspot’ by Climate Camp has seemingly neither increased, nor decreased, acceptance of scientific arguments about anthropogenic climate change in comparison to sampled populations elsewhere.

Respondents also expressed a high level of concern about climate change, with the majority (75%, n = 214) of respondents either ‘quite concerned’ or ‘very concerned.’ However, respondents disagreed about the reasons for their concern. Sixty-five per cent (n = 192) of respondents noted that a changing climate is affecting, or will affect them personally. Of this 65 per cent, the most commonly listed personal impacts (66%, n = 126) referred to changes in the weather (one respondent listed, for example, ‘Temperature extremes – particularly long hot periods’ (P1017)) or adverse weather events (‘More frequent and intense bushfires’ (P1265)). Whitmarsh et al. (2011) likewise found a strong association of climate change with the weather. One explanation for this is the immediacy of weather to all people: it is something
everyone can easily monitor (Whitmarsh et al. 2011). Figure 5.2 shows the frequency and diversity of the personal impacts of climate change reported in the survey.

![Categorised impacts of climate change](image)

Figure 5.2 Personal impacts of climate change as listed by 192 Helensburgh residents. (Respondents could list multiple impacts).

Though most survey respondents shared a concern for climate change, multiple framings of the issue led to disagreement over the implications of climate change. Like Waitt et al. (Waitt et al. in review-a) found in their Illawarra-based study, most respondents (79%, n = 232) drew on scientific discourses – whether meteorological, ecological or atmospheric – when explaining what they understood of climate change. For example:

changes in the weather, sea levels and atmosphere. (P1068)
Higher levels of CO2 (equivalent) gases in the atmosphere leading to higher temperatures (air and sea) and more variation in climate-related factors (storms, fires, droughts etc.). (P1285)

Similarly, Figure 5.2 suggests that Helensburgh residents understand the personal impacts of climate change in terms of ‘meteorology’ and the cost of living (‘Increasing energy and food costs’ (P1132)). Fewer understood the personal impacts of climate change on the immediate environment, or on future generations (‘Loss of wildlife and habitat is bad for future generations’ (P1231)). Given people are more likely to support climate change policies that address their concerns, these different understandings of the personal impacts of climate change may go some way toward explaining disagreements surrounding climate change policy.

Table 5.1 illustrates how participants draw on different sets of ideas to inform their understanding of climate change. Disagreements arise from how personal experiences and observations mix with ideas circulating in scientific, religious, political and media forums. Despite the dominance of scientific frames, Table 5.1 shows that disagreements are evident over the existence, scale, temporality and cause of climate change.

<table>
<thead>
<tr>
<th>Existence</th>
<th>Scale</th>
<th>Temporality</th>
<th>Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Term invented to create unnecessary employment.’ (P1054)</td>
<td>‘Gradual change outside normal range expected’ (P1153)</td>
<td>‘The change over time of temperature and weather conditions ... measured in tens of years.’ (P1184)</td>
<td>‘The natural cycle of moving into and out of ice ages...’ (P1207)</td>
</tr>
<tr>
<td>‘the weather conditions and daily living are changing’ (P1016)</td>
<td>‘Considerable change in weather pattern’ (P1168)</td>
<td>‘a natural change made over thousands of years...’ (P1291)</td>
<td>‘the climate of the world is changing by BOTH natural and man-made reasons.’ (P1034)</td>
</tr>
<tr>
<td></td>
<td>‘Dramatic changes in weather and seasonal patterns’ (P1212)</td>
<td>‘Ever changing cycles of the earth over millions of years.’ (P1130)</td>
<td>‘changes in the environment due to man-made causes e.g industry.’ (P1245)</td>
</tr>
</tbody>
</table>

Table 5.1 Disagreements about climate change amongst Helensburgh survey respondents. (Italics researcher’s emphasis).

A number of statistical relationships were explored to determine if particular social groups were more or less likely to hold a particular understanding of climate change.
Table 5.2 reports the results of these tests (see footnotes for Pearson Chi-square results data).^{4}

<table>
<thead>
<tr>
<th>Age</th>
<th>Gender</th>
<th>Years in Helensburgh</th>
<th>Education</th>
<th>Connection to mining industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Those aged 55+ are more likely to not believe in climate change or believe it is entirely natural.</td>
<td>Men are more likely to be unsure about the causes of climate change or believe it is entirely natural.</td>
<td>N/A</td>
<td>N/A</td>
<td>Not significant</td>
</tr>
</tbody>
</table>

| Personal importance of climate change | Not significant | Not significant | Longer residents are more likely to view climate change as not very or not at all important. | Respondents with post-school qualifications are more likely to view climate change as very or quite important. | Respondents with a connection to the mining industry are more likely to view climate change as not very or not at all important. |
|-----|--------|----------------------|-----------|-----------------------------|
| Those aged 55+ are less likely to believe climate change will affect them personally. | Not significant | Longer residents are less likely to believe climate change will affect them personally. | Respondents with post-school qualifications are more likely to believe climate change will affect them personally. | Respondents with a connection to the mining industry are less likely to believe climate change will affect them personally. |

Table 5.2 Significance of social variables on survey respondents’ views of climate change. (N/A = Data did not meet criteria for Pearson Chi-square test)

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^{4} Pearson Chi-square test results: Social variables and survey respondents’ views of climate change. (N/A = data did not meet criteria for Pearson Chi-square test).
Table 5.2 suggests education, age, length of residence in Helensburgh, and a connection to the mining industry are important variables in accounting for statistical differences in awareness of the personal impacts of climate change. A scientific education – or indeed, any post year-12 education as suggested by the survey results – is likely to lead to greater trust and agreement with anthropogenic climate change science (Weber 2010: 336), and consequently an understanding of climate change as personally important. Age and a connection to the mining industry were factors explored in semi-structured interviews.

As shown in Table 5.2, respondents aged over 55 were more likely to be sceptical of anthropogenically caused climate change, and less likely to believe it would impact them personally. Martin, a retired engineer who has lived in Helensburgh for 30 years, talked at length of his rejection of climate change science:

I’m getting quite passionate about this so-called global warming and that, because I’ve got a different point of view to what the government’s trying to shove down our necks... my view is that climate is always changing... it’s just a cycle. [Mentions examples from books Kings in Grass Castles, The Life of Sidney Kidman, and Heaven and Earth]. Yeah, so we have cold periods, we have warm periods, and I’m old enough to sort of experience them all, and I talk to the older people, and they’re all older than me, a lot of them are in their eighties or nineties, and they say the same thing, “Ah we’ve had warm weather, we had this.” I look at the weather and we have weather forecasters that despite all the modern electronic equipment have difficulty predicting the weather for next week, next month... And they’ve got all this modern equipment, and yet they have the hide to predict, “Oh in a hundred years we’re gonna be flooded.” Where’s the logic? ... in the kitchen you can prove the polar ice cap melting is not going to flood the world. Just take an ice cube and drop it into a jar, a bowl of water, fill the bowl right to the top, drop some ice cubes in, as many as you like, and just watch the water, make sure it stays level with the top of the bowl, if you let the ice cubes melt, the bowl doesn’t overflow.

Martin is passionate in his stance. He draws on his age and that of older people older as justification for his sceptical views. The older people mentioned by Martin rely on their lived experience, rather than scientific analyses, to form their views on climate change. This is evidence of a lay-expert divide, as discussed by Anderson (2008). Moreover, Martin engages with sceptical discourses of climate change through reading books that critique anthropogenic climate change science, such as
geologist Professor Ian Plimer’s *Heaven and Earth*. Unlike the older people he refers to, Martin is actively aware of the science on which anthropogenic climate change understandings are based, yet still rejects ‘so-called global warming,’ questioning the logic of climate change scientists and the technologies they employ. Rather, he bases his understandings of climate change on the lived experience his age has allowed him and observation of changing climates and weather patterns.

Similarly, while Oscar and Doris were less passionate they still rejected that the greenhouse gas emissions from human activities are connected to changing climates. Both Oscar and Doris have a connection to the mining industry, which was another variable found to affect understandings of climate change importance and impact (see Table 5.2). Oscar, a coal worker with two young children, said:

“My view on climate change... Definitely there is a change, but I think people need to look back a lot further and look at other cycles that there has been in the past, so back in the hundreds and thousands of years, where they look at data from trees and soils and rocks and all that sort of stuff, rather than just looking at the past, like just the industrial era, as you’d say, the last 100 years. I think people sort of look and say industry’s causing this, and this kind of gas and what not, but look at the volcano they had in Iceland, it released more gas in those couple of weeks than what industry has in the past 100 years, and you look back into sort of history, how many volcanoes did we have in the past as compared to how many we have now that are erupting... So yeah, I think there’s a lot more data, that people can be narrow minded, sort of have tunnel vision in some ways towards issues.

Likewise, Doris, a retiree and wife of a former coal worker, explained:

“I don’t believe in climate change. I think it’s the earth just being the earth. It’ll keep changing, day by day, and as time goes on, it either goes colder or hotter, that’s just the way things are. The way it’s always been.

Common to each of these discourses is a binary thinking that separates humans from nature. Hence, although a connection to the mining industry was not statistically significant in relation to beliefs on the cause of climate change (see Table 5.2), this binary thinking allows Oscar and Doris to understand the personal importance and impact of climate change as minimal or none. Oscar insists scientists have not looked sufficiently at data gleaned from natural sources before the intensification of energy
use by humans in the industrial age. Doris’s explanation of climate change as, ‘The earth just being the earth,’ shows how this binary thinking positions climate change as entirely natural. Such thinking prevents people from connecting human activities to changing climates, and works against the mobilisation of action to lower carbon futures. The next section investigates the level and types of engagement with sustainable household activities in Helensburgh.

5.2 SUSTAINABLE HOUSEHOLD PRACTICES

In the survey, households were asked to indicate the frequency with which they undertake certain ‘sustainable’ behaviours. The aim of this question was to explore the level of engagement with sustainable household practices. Survey results indicate that Helensburgh households tend to undertake sustainable practices that are inexpensive, convenient, and supported by policy and infrastructure. As shown in Figure 5.3, the most common sustainable household practices in Helensburgh were recycling (84% of respondents always doing this, n = 241), turning off the tap when brushing one’s teeth (69%, n = 201), and switching off lights not in use (60%, n = 174).

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5 It is beyond the scope of this thesis to assess the actual ‘sustainability’ of these practices. However, as discussed in the methods chapter, the practices included in the survey were drawn from previous Australian and British surveys (Gibson et al. 2009; University of East Anglia 2008). These surveys based their selections on actions encouraged by sustainability policies.
Figure 5.3 Frequency of regular household practices in Helensburgh. From 276-294 valid survey responses depending on the practice.

The results are similar to previous research that suggests the uptake of household sustainability behaviours is driven, in part, by a mix of provision of infrastructure, convenience and (in)expense (CSIRO 2010; Whitmarsh et al. 2011; Waitt et al. in review-a). As illustrated in Figure 5.3, the least common sustainable practices undertaken in Helensburgh households were avoiding eating meat (3%, n = 7), using an alternative to travelling such as shopping online (4%, n = 12), and sharing a car
journey with someone else (5%, n = 13). These results underscore the point that sustainability practices are aligned with motivations other than ‘the environment’ or ‘climate change.’ Furthermore, consideration of a range of other variables including convenience, affordability, and viability, is required. For example, the importance of convenience is underscored by composting patterns. Households for the most part either always (36%, n = 101) or never (37%, n = 104) compost. Access to composting facilities is a likely explanation for this result, such as a compost bin, chickens or worm farm.

Although affordability may be an influencing factor, it is not possible to collapse household consumption preferences into an economic frame. This is illustrated through the results regarding meat consumption, shopping online and sharing journeys. Each of these practices would lower household expenditure, however were reported to be infrequently practiced by households. Waitt *et al.* (Waitt *et al.* in review-a) confirm that household decisions do not concur with rational decision-making models. Instead, it is necessary to consider how sustainability practices are negotiated in and through the social relations that comprise households.

### 5.2.1 Household Sustainability Dilemmas

Household sustainability dilemmas were an emergent theme from the narrative analysis. For example, Fiona, a working mother, explains how sustainable practices become part of the household fabric and sustain a sense of self:

We’ve done all the basic things. All the lights are, you know, energy saving, within reason. … Um, we do certainly recycle most PETs and glass and I’m very conscious of that, the kids are quite conscious of that too. … Particularly with the recycling, we have the bins separated, and the kids will ask me which bin does this go in, if they don’t know. … it’s just part of normal life.

Here, Fiona talks about recycling practices and energy savings as conscious ‘green’ activities that are normalised within patterns of her household, such as how she has taught her children about recycling. However, sustainability choices are never black and white as when listed on a survey in terms of recycling and switching off lights. Instead, sustainability practices are negotiated through intersecting subjectivities that
are enabled to fluoresce in a household space. This became apparent in the interviews when participants began to discuss their household sustainability dilemmas.

Fiona, for example, presented a number of household dilemmas in weighing up the costs and benefits of different sustainable behaviours. The first involves washing a peanut butter jar:

Sometimes you feel guilty, you know, if you’ve got a glass jar - this is a household dilemma, right? You’ve got a glass jar, or a plastic jar that could be a recyclable material, and maybe it’s full of peanut butter leftovers. Do you waste the water rinsing it? Or do you put it in landfill? ... Which is worse? So working out which is the better of the evils is sometimes a difficult choice.

For Fiona, rinsing out a peanut butter glass jar presents her with two sustainable behaviours – saving water and recycling – that are understood to conflict. Since Fiona is unable to calculate which behaviour is ‘more’ sustainable, her decision may depend on a wide range of factors from her mood or available time, to whether the jar could be re-used or water restrictions were in place. Hence, other subjectivities come into play when negotiating sustainable behaviour. Another dilemma presented by Fiona involves ideas of cleanliness and sustainability:

you want to clean the toilet, but how much bleach do you stick down it? ... there’s trade-offs, constantly trade-offs in, you know, being greener.

Tapping into understandings of cleanliness and being a good mother, Fiona must have a clean toilet, disinfected by bleach. As Shove (2003) argued, ingrained norms of cleanliness and comfort are continually being reconfigured, often leading to greater consumption (for example, of the latest cleaning products and technologies). Hence, Fiona’s subjectivities as a mother and desirer of a clean house intersect with her environmental awareness of the effects of bleach.

Similarly, married parents Kevin and Wendy present their sustainability dilemma of leaving a light on at all times:
Wendy: We’re very conscious of [reducing emissions]. We certainly do not leave things blaring. We do the, you do your showerheads, your light bulbs, you recycle, your Earth Hour...

Kevin: We find, that light in the next room there in the corner, that stays on 24/7... It’s just a reading lamp, but it’s just our central light, you know if people are up in the middle of the night, that sort of thing, and we find that those bulbs, they’re good value then, but when you turn them on and off on and off on and off they cark it, they’re quite expensive, so we’ve sort of found a use for those compact fluoros, and if they’re only drawing seven watts, hmmm, it could be something you could leave on all the time. Because there’s a cost benefit, cost to make them, cost to run them.

The economic and family subjectivities of Kevin and Wendy intersect, resulting in the decision to leave a light on at all times for reasons of cost and convenience. However, given that they normally ‘do not leave things blaring,’ Kevin resolves their dilemma through drawing on the (economic and environmental) cost to make and replace the energy efficient light bulbs.

5.2.2 Making sense of climate change in everyday life

How participants make sense of climate change in their everyday life may influence sustainable household behaviours. As reported earlier in this chapter, many respondents reported climate change affecting them in terms of meteorological changes. Tim, a working father of two, explains how regular rainfall has made saving water less of a priority:

I feel guilty every time I fill a bathtub for the kids. You go, yeah that’s just wasting water. So I, when there was less rain around, I poked a hole in the flyscreen, dodgy dad, and gets a garden hose and I’d siphon it out the window, and I’d just water the grass along the side of the house with the bath water. That’s my homemade grey water system. And you somehow feel better about it, but in reality, the next thing you know we’re back into this weather pattern where it’s just like man, if we get any more rain, I’m not going to be able to cope.

Tim’s environmental and parenting concerns are revealed as guilt in the tension between his responsibilities as a father to provide a bath to clean his children, and responsibilities to undertake sustainable practices such as reducing water usage. For Tim, who understands climate change through observing weather patterns, climate
change becomes more ‘immediate’ during dry weather. Tim’s environmental subjectivity resonates or is fore-grounded during dry periods and he implements his ‘homemade grey water system.’

Likewise, participants drawing heavily on anthropogenic climate change science undertook many sustainable behaviours. Yet, many of these practices were habituated long before households were encouraged by the government to ‘Think Climate’. For example, Keith, a retiree who worked in the coal industry, explained his views and action on climate change:

My view is that climate change is an absolutely indisputable fact. The weather is becoming much more unpredictable, which is a sign of changing climate. Over decades it’s been shown that the world on average is heating up, so I don’t have any doubt at all that the climate is changing, and heating. ... What surprises me is that we’re probably ahead of [policies encouraging households to undertake sustainable behaviours]. We put solar on the roof, and we built at least a reasonably efficient house, energy wise. We replaced the light globes ages ago and we had the double-flush toilets, we put the eaves around the house and all that sort of thing, so they talk about you know, lowering your energy bills in the future, but we’ve already done all that sort of thing. Certainly within the constraints of this house design, we’ve done as much I think as they’re promoting at the moment. It could be a more energy efficient house, there’s no doubt about that, but it’d be a completely different design.

Similarly, Harry, a retiree who worked in the aluminium industry, stated:

Climate change? Well, I believe that it’s a positive, there’s positive proof of that, and I’ve sort of been aware of that since 1974, 75... I’ve been sort of a bit more energy conservative than the average person probably, and it’s cost me a lot, for instance, you know with our previous house ... we had solar hot water for instance since 1976, and we’d had it all insulated to the much higher level that what the current BASIX says. Things like that, we’ve done without any government help.

Both Keith’s and Harry’s household made sustainable decisions before government policy put the onus on households to take action against climate change. This is due to their strong scientific knowledge of anthropogenic climate change and their moral subjectivities, which outweigh any economic costs of the decisions. Hence, a strong knowledge of and concern for climate change is evident in the fabric of these
households and the sustainable actions they have undertaken. This supports Gibson et al.’s (2011a) view that households need to be considered as social assemblages with various subjectivities, as opposed to the traditional policy approach of seeing households as consumers. The next section explores how particular subjectivities and social relationships lead to certain groups doing more of the work of sustainability.

5.2.3 GENDER AND HOUSEHOLD SUSTAINABILITY

Survey results suggest women are more likely to undertake certain sustainable practices than men are. This supports Waitt et al.’s (in review-a) conclusions that women in the Illawarra tend to do more of the work of sustainability. Statistically, women were significantly more likely to recycle\(^6\), take shorter showers,\(^7\) and car pool.\(^8\) Women were also more likely to buy products branded ‘environmentally friendly’\(^9\) or with less packaging,\(^10\) and use an alternative to travelling, such as shopping online.\(^11\)

One explanation for why women are more likely to do the work of sustainability is the gendered division of household labour. Social reproduction may remain the responsibility of women in Helensburgh. This was certainly the case for some participants interviewed during stage two of the project. For example, Oscar, a father of two and employee of the Helensburgh mine, comments:

Researcher: So in terms of household responsibilities, what are you responsible for?
Oscar: [Glances at wife who is nearby in kitchen. Laughs].
Oscar’s wife: It won’t take much time.
Oscar: No, it won’t take much time. All the outside work. ... that’s about it, that’s about all I can say.

\(^6\) \(\chi^2 = 11.276, \text{df} = 2, p = 0.004\)  
\(^7\) \(\chi^2 = 9.441, \text{df} = 3, p = 0.024\)  
\(^8\) \(\chi^2 = 17.833, \text{df} = 3, p = 0.000\)  
\(^9\) \(\chi^2 = 9.809, \text{df} = 3, p = 0.020\)  
\(^10\) \(\chi^2 = 14.179, \text{df} = 3, p = 0.007\)  
\(^11\) \(\chi^2 = 9.017, \text{df} = 3, p = 0.029\)
Similar to Oscar’s wife, when asked what household responsibilities they took care of, Fiona answered, ‘All of them,’ and Danielle replied, ‘Everything.’ Many women through their unpaid labour are responsible for the social reproduction of the household through shopping, cleaning and cooking. Hence, many women were in a position to make decisions in regards to ‘sustainable choices.’

Sustainability practices must be considered in relation to the role of women as homemakers, unpaid work and part-time employment. For instance, Terri, a mother of three adult children, notes that more time at home leads to a greater share of household responsibilities:

I do most of the housework and that, I like to be in the garden, and I sort of feel while I’m not working full time that I take more of doing the work at home. That’s just how I look at it.

Working mother Diane concurs:

I do a fair bit of the housework, but we’re fairly equal actually, with household responsibilities. I do all the running around though for our son, we’ve just got one boy, and I take him to all the appointments and do all the, because I have more time at home than my husband, so yeah.

Hence, in the context of Helensburgh households it is primarily women who talk about ‘being sustainable’ and do the work of sustainability. For women, household sustainability is part of a balancing act, where priorities including family, comfort and cleanliness, and constraints, including time and money, have to be juggled. The survey did not ask about housing type (house, unit etc.) or household income, and as such, these variables could not be explored. Waitt et al. (in review-a) however, in their study of environmental practices in the Illawarra region, found that as well as women, suburban-detached households and lower-income households did more of the work of sustainability.
5.2.4 MINING CONNECTION AND SUSTAINABILITY

Statistically, a connection to the mining industry made no significant difference in the uptake of sustainable household behaviours.\textsuperscript{12} However, a mining industry connection provides an example of how multiple subjectivities influence household practices. The words of Patrick, a retired coal miner and grandfather who has lived in Helensburgh for sixty years, reflect the tensions and contradictions between subjectivities. Patrick is sceptical of climate change:

I don’t believe in climate change. I think it’s just part of the world, natural thing that’s going around, and done the same thing before, we’ve been through it before, it’s just a circle that’s going around, and we’ll go into a different section probably next year.

Climate change is not salient in the life of Patrick. However, he still undertakes many sustainable household activities, mainly to reduce waste and save money:

We’ve always recycled and just little things, like we catch the water from the shower before we hop in there, because it’s cold water and my wife puts it in the washing machine to use it for washing. I’ve got a worm farm, ... we don’t throw food scraps out, they get composted for the worm farm, the worm juices you then use for your garden... it’s just the best thing to do, you know, it’s a waste of money if you’re gonna go out buy all this stuff, when you’ve already got it there.

Indeed, when asked what he would do if he was running the government, Patrick replied:

I would try to do more to help that way of recycling, using the sun, the wind and all that sort of thing for electricity. I’m not against coal mining, I’ve worked in a coal mine all my time, my son’s been in the coal mine, he’s doing, he’s a deputy in there at the moment, in the local coal mine, so he’s a fourth generation coal miner, but uh, no I believe we do have to do something, but mainly with the waste, as in, the sun’s there for a reason, not only to keep us warm, we can use it for producing electricity, and the wind the same thing. It’s there, so why not use it?

\textsuperscript{12} For example: Take shorter showers: ($\chi^2 = 2.105$, df = 3, $p = 0.551$); Compost kitchen waste: ($\chi^2 = 2.003$, df = 3, $p = 0.572$)
Patrick’s identity as a former coal miner and climate change sceptic do not preclude him from acting sustainably in his attempts to reduce waste, nor from having the desire for this to occur at a larger level through renewable energy development. Throughout his life, Patrick has participated in capitalist economies to sustain his household, for example through his work as a miner of a non-renewable resource, home ownership, grocery shopping and so on. However, he is also participates in non-capitalist economies through composting and recycling. This supports Gibson-Graham’s (2006) view that people participate in multiple economies, and Gibson et al.’s (2011a) argument that households need to be seen as more than sites of consumption. Although Patrick and environmental scientists may disagree about climate change, both agree that ‘wastes’ need to be carefully managed. For Patrick, sustainable household practices make sense through frugality and self-sufficiency rather than climate science.

5.3 CONCLUSION

The aim of this chapter was to explore the relationship between households, climate change knowledge, awareness, concern and action. The first section underlines the importance of scientific discourses and the immediacy of the weather in informing climate change knowledge and concern in Helensburgh. The second section confirmed that the most common sustainable practices are those are easy, convenient and provide financial rewards. Yet, it also pointed to the complexity of factors influencing household climate change action. Sustainable household action cannot be reduced to economic terms alone. Instead, sustainable household action in Helensburgh suggests the importance of economic, gendered, and environmental subjectivities. Negotiating these subjectivities may sometimes serve to create dilemmas as households negotiate climate change science and pro-sustainable behaviour policies. The next chapter explores household engagement with environmental governance.
6. CLIMATE CAMP: ENVIRONMENTAL GOVERNANCE AMONGST HELENSBURGH HOUSEHOLDS

This chapter draws on Massey’s (2005) ideas of boundaries, place-making and belonging to explore how Climate Camp challenged and reproduced the social, cultural and spatial boundaries that help to configure Helensburgh. Climate Camp is an example of a trans-local network that draws attention to the need for further government action to reduce the ongoing dependency on fossil fuels and reduce greenhouse gas emissions. It utilises a range of strategies, including organising parades and direct non-violent action (Climate Camp 09 2009; Waitt et al. in review-c). Hence, as the location of Climate Camp 2009, Helensburgh became the site of a heightened moment of environmental governance.

The aim of this chapter is to explore household engagement with environmental governance and the understanding of Climate Camp amongst Helensburgh residents. The chapter is divided into two sections. The first section presents survey data regarding Helensburgh households’ engagement with environmental governance, and discusses how coal seam gas exploration has spurred some households into political action. The second section draws on the survey data to explore understandings of Climate Camp. Using the semi-structured interviews, this section then illustrates how social boundaries were reproduced and materialised spatially during Climate Camp.

6.1 ENGAGEMENT OF HELENSBURGH HOUSEHOLDS WITH ENVIRONMENTAL GOVERNANCE

Figure 6.1 illustrates that Helensburgh households seldom participate in environmental governance.
Figure 6.1: Survey respondents’ engagement with environmental governance in the past year, from 296 valid survey responses.

As shown in Figure 6.1, only 26 per cent (n = 77) of respondents had participated in one or more environmental protests, with no significant difference between those with a mining connection and those without.\(^{13}\) This suggests that Climate Camp 09 was an event beyond the lived experiences of most households. Yet, this apparently low level was higher than amongst the United Kingdom public, of which more than 90 per cent tend to never participate in environmental protests (Whitmarsh et al. 2011: 62). This disparity with Whitmarsh et al.’s (2011) results may be accounted for by the concerns surrounding coal seam gas mining in Helensburgh.

### 6.1.1 Coal Seam Gas Governance

Survey results suggest that concerns about coal seam gas (CSG) mining, rather than greenhouse gas emissions or climate change, have prompted engagement with environmental governance. The NSW Government (2009) has approved fifteen sites for exploration drilling to monitor for CSG mining potential. One of these sites is in

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\(^{13}\) \(\chi^2 = 1.011, \text{df} = 1, p = 0.315\)
Darkes Forest, 10 kilometres from Helensburgh. At the time of the survey, May 2011, the potential dangers of coal seam gas were being debated in the Australian media, as well as in many community discussions and protests in Helensburgh and the Illawarra (Stop CSG Illawarra 2011).

Fourteen survey respondents mentioned CSG mining when asked for the implications of coal mining in Helensburgh. This reflects the immediacy of their concerns, similarly to how many households understood climate change in terms of the weather around them (see Chapter 4). These respondents drew upon similar sets of ideas that constitute CSG mining as a danger, labelling it as: ‘definitely bad’ (P1023), ‘[possible] ruin’ (P1295), ‘devastation’ (P1154), ‘a whole new set of problems’ (P1187), ‘terrifying’ (P1242) and ‘dangerous’ (P1257) for Helensburgh.

For Whitney, a teacher and mother of young boys, coal seam mining spurred her to participate in a protest for the first time:

it’s just quite surprising that there has been no research about the issues with mining coal seam gas. I’m not really up to date with all of the details about it, but it’s this thing that you can’t just go get all this gas out and not understand how that might affect the water supplies and all of this, so, it does seem it’s money first, and then think about what might happen later... [I went to the protest because] it’s something that will affect us in this area, so it’s a very relevant issue for the residents of this area.

In part, Whitney’s concerns arise from the unknown consequences of CSG mining. They also stem from her understanding that profits are taking priority over the community’s access to water. Whitney was not alone in her concerns about contaminated water. Married couple Kevin and Wendy comment:

Wendy: ...there was a rally on yesterday that some friends went to, Kevin was working, but I think as a local area, or whether it’s Helensburgh, Stanwell Tops, I think there’s going to have to be a lot more discussion, and we have to be aware of what’s, because it’s very new, like, I mean you can talk about coal because it’s such an old industry, but then you’re talking about this new gas, and we really haven’t looked into it at all. We know very little about it, but we need to.

Kevin: It just seems to have that, the emotive impact on water. Water is pure as pure as pure, and anything that taints water, or has potential to damage our
water supply, water quality, water storage, or even just the way the rivers run, it’s a subject of some controversy.

Whitney, Kevin and Wendy all illustrate how CSG is a rally point for participation in environmental governance. Wendy points to an acceptance of coal mining because of heritage and that the environmental implication of mining and burning coal are well understood (if not acted upon). She taps into understandings that there cannot be a Helensburgh without coal. In contrast, CSG mining is positioned as a threat because it is ‘new’, unknown and not yet part of Helensburgh. Kevin emphasises how, in some societal discourses, water is a signifier of ‘purity’. By extension, CSG mining becomes positioned as a contaminant, instilling anxiety in some. These understandings have mobilised some Helensburgh households to deepen their engagement with environmental governance.

6.2 UNDERSTANDINGS OF CLIMATE CAMP ACTIONS

Survey results suggest that only a minority of residents participated in Climate Camp. While 84 per cent (n = 246) were aware of Climate Camp, only three per cent (n = 8) of survey respondents walked in the rally, held as the key event of protest. This suggests that most residents had little interest in actively participating in a protest positioning Helensburgh as a ‘carbon hot-spot,’ highlighting the dependence of the economy on fossil fuels and the lack of government action on climate change. Nevertheless, 36 per cent of respondents (n = 104) watched the Climate Camp rally. The following sections examine how the process of othering produced, reproduced and challenged the spatial, cultural and social boundaries present in Helensburgh.

6.2.1 UNDERSTANDINGS AND ‘OTHERINGS’ OF CLIMATE CAMP PARTICIPANTS

Survey respondents understood Climate Camp in very different ways. Figure 6.2 illustrates that ‘peaceful’ was the most popular term used to describe Climate Camp and its participants (n = 19). While ‘peaceful’ was numerically the most important term, this draws attention away from the predominance of terms that ‘othered’ participants in the rally (see Figure 6. 2). The word cluster suggests that the majority
of terms are more closely aligned to the second most popular word: ‘disruptive’ (n = 12). A disruption implies a moment when everyday rhythms are unsettled.

Along with ‘disruptive,’ other terms used to describe Climate Camp activists challenged ideas of who belongs in Helensburgh and illustrate the process of ‘othering.’ Othering is a process by which Climate Camp activists became constructed discursively as not only ‘different’ but also understood to be lacking in some way. For example, one respondent described the activists’ actions as, ‘Divisive, ignorant, ill-informed scaremongering with a theist, socialist hidden agenda’ (P1087). The process of othering relies upon unequal power relationships that exclude and marginalise. Further to the above quote, terms given to the Climate Camp participants by survey respondents – some of which appear in Figure 6.2 – include: ‘outsiders’, ‘blow-ins’, ‘fringe people’, ‘greenies’, ‘hippies’, ‘bludgers’, ‘ratbags’, ‘trouble-makers’, ‘rabblerousers’, ‘scaremongers’, ‘professional protestors’, ‘idiots’, ‘dickheads’, and ‘cockheads’. The presence of Climate Camp participants in Helensburgh clearly contravened many survey respondents’ ideas of who belongs in Helensburgh.

Furthermore, some interviewees also questioned the choice of Helensburgh as the site of a Climate Camp protest. Danielle, a mother of three who has lived in

Figure 6.2: Word cloud of the 42 most common terms used to describe Climate Camp and activists by survey respondents. (Smallest font n = 2; largest font n = 19).
Helensburgh her whole life, though aware of the issues surrounding climate change, said:

[ Holding Climate Camp in Helensburgh] possibly wasn’t the best idea. I mean I, I’m all for if you have an opinion on something speaking up about it, but yeah, it’s quite possibly best to take over someone else’s little town. ... There’s too many people here that have worked in the coal mines for years and years and years, they just possibly could have picked a better spot.

In her opposition to Climate Camp, Danielle draws on discourses of ‘not-in-my-backyard’. According to Danielle, protestors lacked sensitivity to how coal forged the heritage and identities of Helensburgh. Furthermore, Danielle sees climate action as not belonging in Helensburgh because she understands that burning less coal would challenge ongoing employment futures in coal. Similarly, Diane, who attended some talks at Climate Camp, doubted whether the trans-local network could achieve anything in Helensburgh:

the issue I had with Climate Camp is they were protesting against the longwall mining, but that had already been signed off by the government, so I felt like, well, why are you doing this now? Why didn’t you have Climate Camp the year before? And then I would have taken it more seriously. But I felt like now is the time to have Climate Camp in Canberra, you know, go to parliament or whatever, don’t bring it to our town, because the decision’s been made.

Diane understood Climate Camp as opposed to longwall mining rather than lack of sustained government commitment to climate action. From her perspective Climate Camp can thus be easily dismissed as futile, and the protest as not belonging in Helensburgh. A the next section explores, how participants talked about Climate Camp was closely aligned with the construction of a temporary fence around the Metropolitan Colliery and the heightened police presence. Both these activities conveyed the understanding that Helensburgh was ‘under attack’ from a threatening other.
6.2.2 POLICING AND FENCING

Heavy police presence at Climate Camp served to mark protestors as potential trouble-makers, and deepened some residents’ view that activists did not ‘belong’ in Helensburgh. Baker (2010) noted the ambiguous nature of policing a democratic protest, given both security and civil rights need to be maintained. Gary, a police officer that did not work at Climate Camp, described policing strategies during the Climate Camp:

there was big overkill with police resource here. We had like big transport trucks here from Sydney, and had like mounties, had, had Rescue, had Paws, heaps of people here, like I couldn’t tell you how many police were here. ... I thought [Climate Camp] would have been a bit bigger than what it was, but it turned out to be quite friendly really.

Gary explained how the policing experience of Climate Camp 08 in Newcastle, NSW, informed the numbers and types of police present in Helensburgh. His expectation of Climate Camp was for violent interaction between large numbers of police and protestors. Other interviewees also noted the overwhelming police presence. For Danielle, there was a certain irony to the police presence:

There was over 650 police here, it was just crazy, absolutely crazy. We’ve got a police station that never works when you want it to, and it was open 24 hours a day that weekend.

The heightened police presence was a break from the ‘everyday’ norm in Helensburgh. The whole town came under increased surveillance, with attention turning to the cause of this surveillance: the Climate Camp protestors. For Sandy, who lives close to the mine and had a prior engagement the day of the rally, the presence of activists and police instilled anxiety:

we found it a bit frightening, the people that were around, how do I say it, just, undesirable, and a policeman did point out to some kids, this is just what I’ve heard, ‘Stay away from him, he’s a paedophile, just keep walking’... we could not believe how many police were in the ‘Burgh. We felt, we did feel safe, and then we locked our house up, and we went... But we were a little bit worried that someone might have broken in... yeah, it was a bit frightening.
Although she was not in Helensburgh the day of the rally, through the process of othering Sandy excluded Climate Camp participants from Helensburgh, labelling them ‘undesirable.’ Her anxiety was heightened by the excessive police presence and fear sustained by a rumour that othered participants as paedophiles. Sandy’s anxiety reflects the way she positioned protesters as problematic, and not belonging in Helensburgh.

The fence erected around the mine provided a physical boundary that came to represent discursive boundaries between ‘us’ and ‘them, and ‘order’ and ‘disorder’. For example, one survey respondent illustrates how the fence acted as a border between acceptable and unacceptable behaviour:

Many people associated with Climate Camp behaved sensibly as consistent with a peaceful protest. A few were disruptive by trespassing onto mine property. (P1088)

Those protestors who climbed the fence and entered the mine challenged the social order; consequently their acts were understood by this respondent as irresponsible. One new resident who aligned herself with the Wollongong Climate Action Network (WCAN) spoke of the fence as confronting:

Mining company’s fortified fences, put up threatening signs, and police presence was strictly on side of the mining company. It was an intimidating vision. I had just moved to the area and have since joined WCAN. (P1204)

The intimidating nature of the fence served to strengthen its presence as a physical boundary between ‘order’ and ‘disorder,’ though making this environmentalist respondent feel uncomfortable. In showing how the fence also represented a border between ‘coal futures’ and “climate action,” retired coal miner Patrick claimed the activists’ refused the opportunity to pass through the fence legitimately:

this coal mine is one of the cleanest coal mines going, and they even were invited, invited if they’d like to talk to the management ... and have a look round the place and all that, but they didn’t want to do that, they just wanted to protest, and I believe they were hired to do that kind of thing.
When the activists refused the invitation to explore the mine, they were ‘othered’ by Patrick, who understood them to be professional protestors. Hence, the mining company’s fence and large police presence served to manifest physically the social border between the ‘us’ and ‘them’, the ‘good citizen’ and the ‘bad citizen’, ‘coal futures’ and ‘climate action’. These ideas became further entrenched through understandings of the rally and counter-protest.

6.2.3 THE RALLY AND COUNTER-PROTEST

The Climate Camp rally became a moment when understandings of ‘us’ and ‘them’ were produced, reproduced and challenged. For example, the experience of Helen, an active environmentalist and mother of three, illustrates how the process of othering played out spatially during the rally:

Before the march started, I was just sort of standing along with quite a lot, there was probably, I don’t know, 300 people, two, three hundred people standing along the roads when they came down, and that, when they started coming down, and then you started getting the abuse [of the counter-protest] being hurled from the side of the road…. that’s when I watched it and decided well, I couldn’t actually stand with that group anymore, because it looks like, just in numbers the bigger group, so, and then, I wasn’t quite brave enough to join the protestors themselves for the walk down the road, so I ended up standing in the middle of the road, in between, with someone else as well. But that was sort of a little bit of an eye opener … I mean the protestors, when they stood up, they were very reasonable, they tried to explain, but it was completely wasted on a lot of the people there.

Helen points out how residents opposed to climate action tended to territorialise the side of the road, while protestors were walking down the middle of the road. Helen was unsure where to position herself. She dissociated from those hurling verbal abuse, yet she did not feel brave enough to join the rally and become a protestor. Consequently, she found herself standing in the middle of the road. Keith, a retired coal industry worker who has lived in Helensburgh for 20 years, provided an example of how the process of othering resulted in vandalising of the camp. Keith mused:
Well all coal towns have a camaraderie, which in a funny sort of way was expressed by the idiots who vandalised the camp. They were kids, I understand, and they probably thought they were supporting their parents, their fathers, presumably, getting rid of these nasty tree huggers.

The vandals aimed to make the activists feel unwelcome, and in doing so protect the social boundaries of who they understood to belong in Helensburgh. The vandalising acts can hence be understood as reproducing ‘coal town camaraderie,’ and maintain ideas of who belongs (not ‘nasty tree huggers’).

Challenges to conventional ideas of who belongs in Helensburgh were also evident in the counter-protest, which occurred during the rally. Figure 6.3 shows the terms some survey respondents used to express their disappointment, anger and shame at the counter-protestors’ actions.

![Figure 6.3: Word cloud of terms used by the twelve survey respondents that described counter-protestors. (Words in smaller font used once, words in larger font used twice).](image)

The reaction 12 survey respondents had to the counter-protestors challenge the counter-protestors’ ideas on who belongs in Helensburgh. The actions of the counter protestors – including chanting insults, throwing eggs and disrupting the rally with banners - were understood as ‘wrong’, ‘silly’, ‘embarrassing’ and ‘uneducated’. Residents sympathetic to climate action became aware of their difference from the residents involved in the counter-protest. Helen explains how social difference and othering continued after the event:

in the community I suppose it had an effect on me, because I just sort of looked at people in play group and thought ‘right, were you there [in the counter-protest]?’ At which, it made me look a little bit sideways at some of
the people for a while in Helensburgh, which is a bit unfortunate, ‘cause you just think… I just really don’t have, don’t want to associate with people who are going to have such extreme and ignorant views on things.

For Helen, the people who were part of the counter-protest do not belong in her Helensburgh. She labelled these people as ‘extreme’ and ‘ignorant’. Long after the event, the rally operated to heighten awareness of how different knowledge of and connections with coal pasts, presents and futures positioned people in their engagement with Climate Camp.

**6.3 CONCLUSION**

Climate Camp provides an example of heightened environmental governance. Helensburgh residents are seldom involved in traditional methods of environmental governance such as participating in protests and writing to parliamentary representatives. Unlike climate change, the immediacy of coal seam gas exploration has encouraged more people to engage with climate governance. Indeed, most survey respondents declined the opportunity to participate in direct climate action through participating in Climate Camp. Survey responses to the question of how participants understood Climate Camp suggest the importance of the theme of belonging. Climate change protestors did not belong in Helensburgh. Semi-structured interviews suggested these ideas were forged in part by drawing on discourses of a coal town and in part due to the heavy police presence and fencing of the coal mine. Coal became materialised by Climate Camp, as residents questioned whether Helensburgh, a town ‘built on coal,’ was the right place to hold a protest drawing attention to climate change issues. Climate Camp shows how ideas of coal, climate change and environmental governance were drawn upon to ‘place-make’. In the process of making and remaking boundaries to sustain understandings of Helensburgh as a coal town, Climate Camp challenged and reproduced social boundaries of who and what belongs in Helensburgh.
7. **CONCLUSION**

This chapter has two sections. The first returns to the aims of the thesis. The second explores potential future research agendas.

**7.1 RETURNING TO THE AIMS**

Examining the cultures of coal and climate change has illustrated the different ways in which both of these come to matter in people’s lives. Chapter 4 explored the relationships between coal, climate change and place-based identities. In Helensburgh, coal becomes important through how it is felt and made visible in particular ways, such as the presence of coal dust, trucks on the main road, public artworks celebrating the industrial heritage of the town, and the economic, educational, and infrastructural benefits of coal company sponsorship. Coal, while understood as once central to forging community, is seen by the majority of residents to hold less importance in the present and future. The demise of coal in forging a sense of community is attributed to changing demography, environmental identities and a geographical imagination that fashions Helensburgh as a dormitory suburb for Wollongong and Sydney. However, for some, the identity of Helensburgh remains bound up in the geographical imagination of a ‘coal town.’ How sustainability debates are presently playing out through the politics of coal and climate change is integral to the shaping and reshaping of the spaces and subjectivities of people living in Helensburgh.

Chapter 5 explored the relationships between coal, climate change and sustainable household practices. The majority of households reported a high level of knowledge, concern and awareness of climate change science. However, this did not necessarily lead to the implementation of sustainable household practices, with the most common being easy, inexpensive and convenient. Many dilemmas were faced as households negotiated their knowledge and concern of climate change with their day-to-day lives. Although climate change is spatially ambiguous, – both proximate and distant – many participants’ talk of climate change externalised the dangers and
responsibilities of climate change. This is evident in their seeing climate change impacts in terms of the weather, with many of these households expressing reluctance to engage in sustainable household practices. Other Helensburgh households talked about the dilemmas of sustainable practices. This reaffirmed how sustainability is always negotiated through the complexities of everyday life. Furthermore, a connection to the mining industry does not preclude people from active involvement in sustainable practices. ‘The environment’ is not salient in the everyday decisions most people take. Other variables often more important include frugality, family and convenience.

Chapter 6 explored the relationships between coal, climate change and household engagement with environmental governance. The politics of coal seam gas illustrated a recent way in which coal is being made meaningful in Helensburgh, motivating some residents to engage with environmental governance. In contrast to the dangers of climate change, which as discussed above are externalised, coal seam gas mining in Helensburgh allows residents to internalise the dangers, for instance through contaminated water entering the body. Coal seam gas mining is therefore talked about as a more immediate problem than climate change. Climate Camp provided an event in which different social identities forged by coal became materialised on the streets of Helensburgh. Climate action challenged and reproduced ideas of who belongs in Helensburgh. For example, during the parade those residents who lined the parade route and who organised a counter-protest held understandings of coal as essential to the past, present and future of Helensburgh. In contrast, those walking along the street emphasised climate action and burning less coal. Likewise, the heavy police presence and fence around the mine served as physical representations of the boundary between ‘us’, Helensburgh community forged by coal, and ‘them’, those seeking climate action.

7.2 Future research agendas

In light of Hulme’s (2008) call for more grounded and ethnographic work on climate change, this thesis has shown the value of foregrounding coal in everyday decision making practices. Alongside Tomaney and Somerville’s (2010) study of regional
identity in making sense of climate change in the Latrobe Valley, this thesis serves as a starting point to further explore cultures of coal and climate change. This project has demonstrated the diversity of ways in which coal comes to matter in understanding climate change in Helensburgh. In Helensburgh, this is specifically through coal dust, trucks, heritage, sponsorship, employment and everyday rhythms.

One future research agenda is to apply the conceptual and methodological tools offered in this thesis to other coal regions. Other regions will have different cultures of coal. For example, coal would come to matter in different ways through, for example, the presence of an open cut mine, as a key source of employment, or as central to council and state government ‘development plans.’ Hence, further studies could build upon the research focusing on the mining towns of the Hunter Valley, New South Wales (Bulkeley 1997) and Central Queensland (Gibson 1991; 1992; Lockie et al. 2009; Sharma 2010). Another future research agenda could start to trace, or follow coal, as it is changed into energy. Hence, a study of metropolitan locations in which coal is depended upon, yet invisible through its transformation into energy, would provide insights into the ways in which coal becomes invisible in the everyday. Yet another future research agenda is opened up by coal seam gas exploration. In Helensburgh, for many residents coal seam gas mining, in contrast to climate change, motivated environmental action. Moreover, coal seam gas has mobilised what may appear unlikely political alliances between farmers, townspeople and environmental activists (Cubby 2011). Hence, coal seam gas is a topic to which cultural geographers can provide important insights.
REFERENCES

ABS. See: Australian Bureau of Statistics.


CSIRO. See: Commonwealth Scientific and Industrial Research Organisation.


IPCC. See: Intergovernmental Panel on Climate Change.


MIT. See: Massachusetts Institute of Technology.


### APPENDIX A: ELEMENTS OF ENSURING RIGOUR IN QUALITATIVE RESEARCH

<table>
<thead>
<tr>
<th>Definition</th>
<th>Research strategies employed to ensure rigour</th>
</tr>
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<tbody>
<tr>
<td><strong>Credibility</strong></td>
<td></td>
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<tr>
<td>Authentic representations of experience</td>
<td>Purposeful sampling: Survey targeted to large majority of Helensburgh households; interviewees all live in Helensburgh.</td>
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<tr>
<td></td>
<td>Critical reflexivity: awareness of own subjectivities and power researcher-researched relationships; positionality statement.</td>
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<td></td>
<td>Prolonged engagement: visits to Helensburgh throughout research; networking; publicity; regular contact with interviewees.</td>
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<td></td>
<td>Persistent observations: follow-up interviews with survey respondents.</td>
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<td></td>
<td>Triangulation: literature review; using previous survey and research results for comparison; mixed-mode methodology.</td>
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<tr>
<td></td>
<td>Peer debriefing: Regular meetings with supervisors.</td>
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<td></td>
<td>Member checking: Interviewees offered copy of transcript.</td>
</tr>
<tr>
<td><strong>Transferability</strong></td>
<td></td>
</tr>
<tr>
<td>Fit within contexts outside the study situation</td>
<td>Purposeful sampling: Helensburgh provides an example of Illawarra and Australian communities, particularly those with a background of coal; adaptation of previous survey questions allows for national and international comparison.</td>
</tr>
<tr>
<td></td>
<td>Thick description: Literature review; detailed analysis and discussion of survey and interview data.</td>
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<tr>
<td><strong>Dependability</strong></td>
<td></td>
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<tr>
<td>Minimisation of idiosyncrasies in interpretation</td>
<td>Low inference descriptors, mechanically recorded data: Mail out surveys stored securely for five years, data entered accurately. Interviewees offered copy of transcript.</td>
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<tr>
<td>Variability tracked to identifiable resources</td>
<td>Interviews recorded with audiotape, transcribed shortly after.</td>
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<td></td>
<td>Peer examination: Work examined by supervisors.</td>
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<tr>
<td></td>
<td>Triangulation: literature review, mixed-mode methodology – survey and interviews.</td>
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<tr>
<td><strong>Confirmability</strong></td>
<td></td>
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<tr>
<td>Extent to which biases, motivations, interests or perspectives of the inquirer influence interpretations</td>
<td>Positionality statement provided.</td>
</tr>
<tr>
<td></td>
<td>Critical reflexivity employed.</td>
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<tr>
<td></td>
<td>Research diary maintained throughout research process, including reflective entries.</td>
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How rigour was assured during quantitative stage of research project. Adapted from Baxter and Eyles (1997).
APPENDIX B: ETHICAL CONSIDERATIONS

Informed Consent: To ensure informed consent, participants needed to agree voluntarily to participate while understanding the attributes of the research and their role within the project (Israel & Hay 2006: 61). Information sheets provided this function for both the survey and interview stages. These information sheets detailed the purpose, methods, demands, risks, inconveniences and potential outcomes of the research. For the survey stage, informed consent was tacit, given by the completion and return of a survey. For the interview stage, participants provided informed consent by signing a consent form, after having read the participant information sheet and being given the opportunity to ask any questions of the researcher.

Privacy and Confidentiality: Participants’ confidentiality during the survey stage was assured by the removal upon the receipt of the final page of the survey, where participants may have provided contact details. This information was for recruitment for the interview stage, and was not needed for the analysis. The consent form signed by interview participants asked whether they would like a pseudonym to be used should they be quoted in the thesis or other publications. Participants were also able to request a copy of their transcript. To meet national requirements, survey data and interview transcripts will be stored securely for five years in the School of Earth and Environmental Sciences (SEES). Electronic files, including the interview transcripts, will be kept in a password-protected folder on the SEES R: Drive.

Avoiding Harm: This study addressed environmental behaviours and attitudes, and understandings of climate change and coal. Hence, the project did not involve risks of emotional distress, physical harm, or the use of invasive procedures.
APPENDIX C: ETHICS APPROVAL

University of Wollongong

APPROVAL
In reply please quote: HE11/114
Further Enquiries Phone: 4221 4457

20 April 2011

Ms Kiri Yapp
43 Crawford Avenue
GWYNNEVILLE NSW 2500

Dear Ms Yapp,

Thank you for your letter dated 18 April 2011 responding to the HREC review letter. I am pleased to advise that the Human Research Ethics application referred to below has been approved.

Ethics Number: HE11/114
Project Title: Is Helensburgh carbon capable? Exploring cultures of coal and climate change in a historical coal town
Name of Researchers: Ms Kiri Yapp, A/Professor Gordon Waitt, Prof Lesley Head
Approval Date: 18 April 2011
Expiry Date: 17 April 2012

This certificate relates to the research protocol submitted in your original application. As a condition of approval, the Human Research Ethics Committee requires that researchers immediately report:

- proposed changes to the protocol including changes to investigators involved
- serious or unexpected adverse effects on participants
- unforeseen events that might affect continued ethical acceptability of the project.

You are also required to complete monitoring reports annually and at the end of your project. These reports are sent out approximately 6 weeks prior to the date your ethics approval expires. The reports must be completed, signed by the appropriate Head of School, and returned to the Research Services Office prior to the expiry date.

The University of Wollongong/SE Sydney and Illawarra Area Health Service Health and Medical HREC is constituted and functions in accordance with the NHMRC National Statement on Ethical Conduct in Human Research. This application has been reviewed for consistency with the requirements of the NS, and approval is conditional on continuing compliance with it.

Yours Sincerely,

[Signature]
Professor Jim Greenstein
Chair, Human Research Ethics Committee

cc: A/Professor Gordon Waitt, School of Earth & Environmental Sciences, Building 41.G29
APPENDIX D: POSITIONALITY STATEMENT

On one hand, I was attracted to this project because it came nicely presented to me by my supervisor-to-be as the application deadline approached: a project with focus! After weeks of whimsical thinking of what my honours year could entail – looking at rock art in the Kimberley… studying cooperatives in Chavez’s Venezuela… – this one seemed to combine my interest in current political issues, the environment, and my desire to better know the Illawarra. On the other hand, I did wonder whether these interests would sustain me for a year of research. I had attended an Environment Collective meeting earlier in the year, and while I shared the concerns of everyone else there, I realised I didn’t have the same driving passion for activism.

This made me think about all the tensions and contradictions that do occur in my everyday life. I care for ‘the environment’… am concerned about ‘climate change’… applauded Australia’s signing of the Kyoto Protocol… worry about the world’s dependence on non-renewable sources of energy… but what could I do about it? As it is, walking is my main form of transport, I turn off lights not being used, compost food scraps, switch my computer off, have tried to reduce my meat consumption etc. etc. Yet I still own a car, eat meat, use my computer everyday… And because of these contradictions I didn’t feel it was my place to tell people or the government what they should or shouldn’t do for the environment. In any case, I felt I didn’t know enough.

Hence, learning more about environmental issues and policy was another factor that attracted me to this project, so that one day I might feel I have the answer. Yet the more I learn, the more questions there seem to be, and the more I am reassured that there is no perfect solution, no set of behaviours which would remove the contradictions between my concerns and actions, and that’s ok because everyone’s in the same boat. The world is messy, people and discourses will always be competing to be heard, and reading the letters to the editor (a favourite pastime of mine) will never get boring.

Since starting this project I have been asked a number of times, “What’s your angle?” I understand coal and climate change are topical and sometimes divisive subjects, and occasionally it feels like we should ‘pick a side’. Indeed, sometimes it feels like that would be the easier thing to do. Ultimately, whilst I can’t say I have a definitive ‘angle’, I can draw a parallel between my attraction to this project and why I like reading the letters to the editor: I get to hear a diversity of views on topics I am interested in (coal and climate change), expressed in ways which reflect a person’s background, experiences and own contradictions (for example, living in a coal town). I will learn more and more, part of me hoping to be convinced one way or another – since that would be easier – but my own subjectivities, including my embracing of the messiness of life, not allowing this. Instead, I remain curious and interested in people and what they have to say, wondering if I ever will feel like I know enough.
HELENSBURGH FUTURES

SURVEY

An effort to understand the environmental issues of concern to Helensburgh households

To be completed by an adult who is in charge of household decisions

School of Earth & Environmental Sciences
University of Wollongong, NSW 2522
Why should you participate?

Helensburgh households are currently facing a number of challenges posed by environmental concerns and advice about more sustainable living choices. This survey is designed to give voice to Helensburgh households about how you are facing up to these changes, challenges, pressures and uncertainties.

With Helensburgh having an important history of coal, and today an ever-diversifying economy, your opinion as a resident will provide significant insight into Helensburgh futures.

How can you help?

I would greatly appreciate if an adult familiar with the daily running of your household could please answer the following questions. Place a tick in the appropriate box, or where applicable, please write in your answer. Feel free to add extra comments on questions.

The survey should take 10-15 minutes to complete. Please return completed surveys in the reply-paid envelope provided.

Who can you contact about this project?

This survey forms part of honours student Kiri Yapp’s project. If you have any questions or concerns about completing this survey, please contact Kiri on kay944@uowmail.edu.au.

If you have any questions about how this research is being conducted please contact the Ethics Officer at the University of Wollongong. Email: esteinke@uow.edu.au; Telephone: (02) 4221 4165.

This survey is printed on recycled paper.
Living in Helensburgh

1. In years, how long have you lived in Helensburgh? _______ years

2. Is anyone in your household employed in the mining industry?
   □ Yes   □ No

3. In past generations, has anybody in your family been employed in the mining industry?
   □ Yes, in Helensburgh   □ Yes, elsewhere   □ No

4. Which of the following best describes your household?  
   (Please tick one)
   □ Couple with at least one dependent child
   □ Couple with non-dependent child(ren) only
   □ Couple with no children
   □ Single parent with at least one dependent child
   □ Single parent with non-dependent child(ren) only
   □ Share house
   □ Extended family
   □ Single person household

Changing climates

5. Do you think … (please tick only one box)
   □ Climate change is caused only by natural processes
   □ Climate change is caused only by human activity
   □ Climate change is caused by both natural processes and human activity
   □ There's no such thing as climate change
   □ I don't know what is causing climate change

6. How important is the issue of climate change to you personally?  
   (Please tick one box)
   □ Very important
   □ Quite important
   □ Not very important
   □ Not at all important
7. Do you think climate change is something that is affecting, or is going to affect you, personally?

☐ Yes        ☐ No

If yes, please list below up to three ways in which climate change is affecting or will affect you.

1. ......................................................................................................................
2. ......................................................................................................................
3. ......................................................................................................................

8. From the following list, please rank from 1 to 3 the three factors that you think most contribute to causing climate change (where 1 = contributes most, 2 = contributes second most, 3 = contributes third most).

☐ Emissions from vehicles
☐ Eating meat / Meat production
☐ Emissions from industry
☐ Destruction of forests
☐ CFCs or aerosol cans
☐ Emissions from aeroplanes
☐ Using fossil fuels
☐ The sun / Changes in solar radiation
☐ Using electricity generated from wind and solar power
☐ Eating food which has been flown in from other countries
☐ Nuclear power

9. When you hear statements such as “carbon emissions are increasing” or “this event is carbon-neutral”, what do you understand by the word ‘carbon’?

......................................................................................................................

10. What do you understand by the term ‘climate change’?

......................................................................................................................
## Household Practices

11. The following is a list of **regular individual household practices** which you may have taken. Please indicate how often you take each individual household practice (if at all) by **ticking one box on each row**:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Always</th>
<th>Often</th>
<th>Occasionally</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turn off lights you’re not using</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drive economically (e.g., braking or accelerating gently)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walk, cycle or take public transport for short journeys (i.e., trips of less than 5 kilometres)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use an alternative to travelling (e.g., shopping online)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share a car journey with someone else</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cut down on the amount you fly</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buy environmentally-friendly products</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eat food which is organic, locally-grown or in season</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoid eating meat</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buy products with less packaging</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recycle</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reuse or repair items instead of throwing them away</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compost your kitchen waste</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Save water by taking shorter showers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turn off the tap while you brush your teeth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In summer, increase the air-conditioning temperature by a degree or more</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
12. The following is a list of **household practices** which you may have taken at some point in the last few years. Please indicate the last time you took this action (if at all) by **ticking one box on each row**:

<table>
<thead>
<tr>
<th></th>
<th>In the past year</th>
<th>1-3 years ago</th>
<th>3 or more years ago</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installed insulation products in your home</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bought or built an energy-efficient home</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Installed a more efficient heating system</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Installed a renewable energy system (e.g., solar panels, wind turbine) in your home</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changed to a ‘green’ energy tariff for your home</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bought a low-emission vehicle (e.g., hybrid, electric, biofuel, less than 1.4L engine)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bought a product to save water (e.g., low flow shower head, installed a water tank, water ‘hippo’, low-flush toilet)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
13. The following is a list of **civic actions** that you may have taken in the past year. Please indicate how frequently you have taken each action in the past year (if at all) by **ticking one box on each row**:

<table>
<thead>
<tr>
<th>Action</th>
<th>At least monthly</th>
<th>At least quarterly</th>
<th>At least biannually</th>
<th>At least once</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written to your MP about an environmental issue</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taken part in a protest about an environmental issue</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participated in an environmental community group e.g. Landcare</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Coal

14. Please respond to each of the following statements by placing a tick in the box that most closely matches your opinion.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the past, coal was very important in forging a sense of community in Helensburgh.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Today, coal is very important in forging a sense of community in Helensburgh.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In the future, coal will be very important in forging a sense of community in Helensburgh.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15. Please describe the meaning for you of coal.

........................................................................................................................................................................................................................................................................................................

16. When you hear statements that “coal is mined in Helensburgh”, what do you understand are the implications of coal mining for Helensburgh?

........................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................
Climate Camp 2009

17. Were you aware that Helensburgh was the site of a Climate Camp in 2009?

☐ Yes  ☐ No

18. Did you watch the Climate Camp rally?

☐ Yes  ☐ No

19. Did you walk in the Climate Camp rally?

☐ Yes  ☐ No

20. How would you describe the actions of the Climate Camp at Helensburgh, October 2009?

........................................................................................................................................................................
........................................................................................................................................................................
........................................................................................................................................................................
Details about the survey respondent

21. Which age group do you belong to? *(Please tick one)*
- □ 18-24
- □ 35-44
- □ 55-64
- □ 25-34
- □ 45-54
- □ 65 and over

22. Gender
- □ Female
- □ Male

23. What is your highest level of education received? *(Please tick one)*
- □ Primary school
- □ Year 12
- □ Undergraduate degree
- □ Year 10 or below
- □ Diploma or certificate
- □ Postgraduate degree
- □ Year 11
- □ Trade/apprenticeship
- □ No formal education

24. Which of the following categories best describes your current employment status? *(Please tick one)*
- □ Employed full time
- □ Unemployed
- □ Full time student
- □ Employed part time
- □ Home duties
- □ Part time student
- □ Self employed
- □ Retired/pensioner

25. Which term best describes your living conditions?
- □ Owner occupier
- □ Tenant
- □ Tenant: public housing
- □ Tenant: private landlord
- □ Living with relatives

26. Where do you mostly work or study? *(for example, Helensburgh, Hurstville, Sutherland)*

........................................................................................................................................

27. If you are in paid employment, what is your occupation?

........................................................................................................................................
Invitation to Follow-up Conversation

Kiri is interested in learning more about how your household is responding to different environmental concerns. As part of her honours research, Kiri hopes to visit households in Helensburgh to record their thoughts about contemporary challenges and document their actions (through single 30 minute follow-up conversations). If you would like to be involved further please complete the following section.

Thank you

Name: ____________________________________________
Telephone: ______________________________________
Email: __________________________________________
Signed: _________________________________________
Date: ______/_____/______


The author would like to acknowledge the following departments or organisations whose survey questions have been used or adapted for this survey:

- School of Earth and Environmental Sciences, University of Wollongong
- University of East Anglia
- CSIRO, Australia
- Social and Economic Sciences Research Center, Washington State University

This research is supported by the Australian Research Council’s Discovery Projects Scheme.
Thank you again for completing this survey!

If you have any additional thoughts about any of the above topics or the survey itself, please share them here.

Completed surveys can be returned in the reply-paid envelope included, or sent to:

School of Earth and Environmental Sciences
University of Wollongong NSW 2522
## APPENDIX F: PROJECT EXPENSES

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Cost</th>
<th>Funding Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 page A5 booklet, B&amp;W</td>
<td>1600</td>
<td>$705.00</td>
<td>ARC Discovery Project</td>
</tr>
<tr>
<td>A4 survey info sheet</td>
<td>1600</td>
<td>$96.00</td>
<td>EESC Honours Fund</td>
</tr>
<tr>
<td>B5 'To the householder' envelope</td>
<td>1250</td>
<td>$188.00</td>
<td>ARC Discovery Project</td>
</tr>
<tr>
<td>B5 'Reply paid' envelope</td>
<td>1250</td>
<td>$188.00</td>
<td>ARC Discovery Project</td>
</tr>
<tr>
<td>Postage costs</td>
<td>1595</td>
<td>$422.68</td>
<td>$354.71 ARC Discovery Project, $67.97 EESC Honours Fund</td>
</tr>
<tr>
<td>Rubber bands</td>
<td>3 packs</td>
<td>$19.44</td>
<td>EESC Honours Fund</td>
</tr>
<tr>
<td>Petrol (to/from Helensburgh)</td>
<td></td>
<td>$55.35</td>
<td>EESC Honours Fund</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$1,674.47</strong></td>
<td></td>
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</table>

### Total per Funding Source

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>EESC Honours</td>
<td>$238.76</td>
</tr>
<tr>
<td>ARC Discovery Project</td>
<td>$1,435.71</td>
</tr>
</tbody>
</table>
SURVEY INFORMATION SHEET

Helensburgh Futures: An effort to understand the environmental issues of concern to Helensburgh households

Dear Helensburgh Resident,

You are invited to participate in a study conducted by Kiri Yapp, an honours student at the University of Wollongong. This study is designed to explore how Helensburgh households are facing up to the challenges and uncertainties posed by environmental concerns and advice about more sustainable living choices. With Helensburgh having an important history of coal, and today an ever-diversifying economy, your opinion as a resident will provide significant insights into the futures seen for Helensburgh.

If you choose to participate, I would greatly appreciate if an adult familiar with the daily running of your household could answer the questions in the survey booklet. Place a tick in the appropriate box, or where applicable, please write in your answer. Feel free to add extra comments. The survey should take 10-15 minutes to complete. Please return completed surveys in the reply-paid envelope provided.

I greatly appreciate your participation. As this survey forms part of my honours research, the results will be used in an honours thesis, and may be used in academic journal articles. I can be contacted at kuy944@uowmail.edu.au to answer any questions you may have about the project or how to complete the survey.

All information you provide will remain confidential. The final page of the survey, where you can list your contact details, will be detached from the rest of the survey upon receipt. Since your details will be removed from the survey, your survey responses will become anonymous. Your involvement in the study is voluntary and you may withdraw your participation at any time and withdraw any data that you have provided. This includes your contact details and survey responses, prior to them becoming anonymous.

This study has been reviewed by the Human Research Ethics Committee of the University of Wollongong. If you have any concerns or complaints regarding the way this research has been conducted, you can contact the UOW Ethics Officer on (02) 4221 4457.

Thank you for your interest in this study.

Yours sincerely,

Kiri Yapp
Honours Student
University of Wollongong
**UM Customer Advice for University of Wollongong**

University of Wollongong  
School Of earth & environmental Science  
Wollongong NSW 2522

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**Booking Advice Code:** UNIV-569973  
**Delivery Start Date:** 09/05/2011  
**Delivery End Date:** 13/05/2011  
**Publication:** Envelope  
**Lodgement Date:** 02/05/2011  
**Container:** Tray  
**Article Type:** L/L up to 50g Regular  
**UM Co-ordinator:** Nancy Glasson  
**Phone Number:** 1300 223 571

<table>
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<th>Charge Category</th>
<th>No of Articles</th>
<th>Rate per Article</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>IntraState</td>
<td>1819</td>
<td>$0.1950</td>
<td>$354.71</td>
</tr>
</tbody>
</table>

**Totals:** 1819  
$354.71

**Lodgement Office(s):** WOLLONGONG UNIVERSITY LPO

<table>
<thead>
<tr>
<th></th>
<th>Private</th>
<th>Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deliver</td>
<td>Street</td>
<td>Boxes</td>
</tr>
<tr>
<td>2508 - HELENSBURGH DC (1760)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2508 - Heleensburgh</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2508 - HELENSBURGH LPO (53)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2508 - Heleensburgh (PO)</td>
<td></td>
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</tbody>
</table>

**Generated On:** 12/04/2011  
**Page 1 Of 1**
APPENDIX I: NEWSLETTER ADVERTISEMENT OF SURVEY

Helensburgh Futures Survey

Helensburgh households are currently facing a number of challenges posed by environmental issues, including debates in regards to climate change.

Kiri Yapp, an Honours student at the University of Wollongong, has designed a survey to explore these challenges. Her survey will be sent to Helensburgh households in May, and is designed to gauge how you are facing up to these challenges and uncertainties.

What futures do Helensburgh citizens envisage for their town? This question is particularly interesting in the mix of recent Federal Government discussion of a ‘carbon tax’, and poll results that suggest increased national public concern for the impacts attributed to climate change.

Furthermore, coal is an integral part of the heritage of Helensburgh and has continuing impacts on the town’s economy, community and environment. As such, Helensburgh proves an exciting and important place to conduct this research.

The survey results form part of Kiri Yapp’s honours project. Kiri would greatly appreciate if an adult familiar with the daily running of the household could answer the survey. She encourages all households to complete and return the survey. The survey should take 10-15 minutes to complete, and a reply-paid envelope is provided.

The survey also acts as an invitation to households to participate in follow-up conversations about Helensburgh futures.

If you are willing to participate in a follow-up conversation, please note this on the survey form, or contact Kiri Yapp on kay944@uowmail.edu.au.

Published in May Edition of the Helensburgh & District Herald, p. 3.
HELENSBURGH FUTURES
SURVEY

In Helensburgh letterboxes in May

Helensburgh households are facing various challenges posed by environmental concerns and advice about more sustainable living choices.

This survey is designed to gauge how you are facing up to these challenges and uncertainties.

Within the mix of recent discussion around a ‘carbon tax’ and public concern for the impacts attributed to climate change, what futures do Helensburgh citizens envisage for their town?

It would be greatly appreciated if you take 10-15 minutes to complete and the survey and return it in the reply-paid envelope provided. Thank you!

This survey forms part of University of Wollongong student Kiri Yapp’s honours research. Contact Kiri on kay944@uowmail.edu.au with any queries.

Displayed at the Helensburgh Community Centre in May.
APPENDIX K: PUBLISHED SURVEY RESULTS

HELENSBURGH & DISTRICT HERALD

Helensburgh Futures

Survey Results: Part 1

The Helensburgh Futures survey distributed in May 2011 received an excellent response rate of 18 per cent. The survey was distributed to Helensburgh households by Kiri Yapp, an honours student in the School of Earth & Environmental Sciences, University of Wollongong.

The aim of the survey was to explore environmental concerns of Helensburgh households, and their understandings of climate change, carbon and coal. Kiri thanks all 288 households that returned a completed survey. After an introduction to who completed the survey, this article is structured into two parts. Part 1 explores if Helensburgh residents disagree about climate change. Part 2 examines if respondents disagree about the future of coal.

Who completed the survey?

Slightly more women (57.2%) than men (42.8%) completed the survey. The respondent age profile is older than the 2006 Australian Census data, with the average age of respondents approximately 50 years of age. This older sample distribution can be attributed to the survey being completed by household decision makers.

The survey captured the social diversity of Helensburgh across the categories of employment, education and household structures. Nearly eight percent of respondents currently have a household member employed in the mining industry and 26.5% of respondents have had family members in the mining industry in the past, in Helensburgh or elsewhere. The great majority of respondents were owner-occupiers, at 92.4%. The period of residence in Helensburgh ranged from as short as four months, to as long as 51 years. However, reflecting the stability of the Helensburgh population, most households (70.1%) reported living in Helensburgh for more than 10 years.

Part 1: Do Helensburgh residents disagree about climate change?

Overall, the survey results suggest respondents are familiar with arguments that position humans as integral to the process of climate change. Following conventional environmental science,
79.6% of respondents understand climate change as an outcome of both natural processes and human activity. There is a high level of concern amongst respondents about climate change, with the majority (74.9%) of respondents either ‘quite concerned’ or ‘very concerned’ about climate change. Only a minority either do not believe in climate change (3.2%), or believe it is entirely a natural phenomenon (7%). These results are in line with similar surveys in Australia and the United Kingdom.

Though the survey results suggest that the majority of Helensburgh respondents agree with conventional climate change science, respondents disagreed how a changing climate would impact them. Just under 70% of respondents noted that a changing climate is impacting, or will impact them personally.

Of these, the most commonly listed personal impacts (66.7%) referred to changes in the weather (one respondent listed, for example, “Temperature extremes – particularly long hot periods”) or adverse weather events (“more frequent and intense bushfires”).

The results shown in Figure 1 suggest Helensburgh residents disagree on the personal impacts of climate change, with some understanding the implications in terms of global weather patterns, others thinking about changes to employment (“farming and primary industries not doing as well”) and the cost of living (“increasing energy and food costs”) and yet others concerned about the physical environment around them (“loss of wildlife and habitat is bad for future generations”).

These different understandings of the personal impacts of climate change may go some way toward explaining disagreements surrounding climate change policy, given people are more likely to support climate change policies which address their concerns.

Part 2: Do Helensburgh residents disagree about coal futures? will be covered in the September 2011 edition of the HDH.
Helensburgh Futures Survey
Results: Part Two

Do Helensburgh residents disagree about coal futures?

Figure 2 shows responses to the question asking about the importance of coal in forging a sense of community. These survey results suggest Helensburgh residents disagree over the future role of coal in Helensburgh.

Figure 2 shows that the great majority of respondents either ‘agreed’ or ‘strongly agreed’ that coal is integral to understanding the past in Helensburgh. In one respondent’s words: “It is a strong part of the history of Helensburgh – it was responsible for the creation of the town!” Yet, the survey results suggest disagreement between respondents on the importance of coal in forging a sense of community in Helensburgh today, and in the future, with over 46 percent “disagreeing” or “strongly disagreeing” that coal would be important in forging a sense of community in Helensburgh in the future.

Statistically significant differences in the understanding of coal emerged for those with a connection to the mining industry. Respondents with a connection to the mining industry were more likely to report a continuing importance for coal. These respondents point to the jobs created “for locals and other local businesses” by coal mining.

For example, one respondent wrote that coal was integral to sustaining the local economy as it “injects money and jobs back into our community.” Others pointed to the importance of investments in community infrastructure and facilities made by the mining company.

Another respondent wrote that “...the mine does a lot of good for the town providing donations to a lot of events and sports clubs”.

In contrast, those respondents with no connection to the mining industry were less likely to see coal playing an important role in the future. These respondents were more likely to speak about coal as a non-renewable source (“Major source of energy for the world but bad for the environment and unsustainable”), harmful (“Dirty, pollution, traffic noise”), and outdated (“A fuel of the past”). The changing demographics of Helensburgh were also noted: “...many people moved here for lifestyle not mining.”

Disagreements about the role of coal today and into the future can in part be explained by some Helensburgh residents having a personal connection to the mining industry. However, the changing demographics of Helensburgh mean that fewer Helensburgh residents have this connection, and are less likely to understand coal as playing an integral part in forging a sense of community in the future.

A big thank you to Kiri Yap for Providing the survey results.

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<table>
<thead>
<tr>
<th>Importance of Coal in Forging a Sense of Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>■ Strongly Agree ■ Agree ■ Neutral ■ Disagree ■ Strongly Disagree</td>
</tr>
</tbody>
</table>

- **Coal was/is/will be very important in forging a sense of community in Helensburgh:**
  - **...in the past:** 1.1%
  - **...today:** 24.5%, 10.2%
  - **...in the future:** 26.5%, 13.5%

*Figure 2: Survey respondents’ views on the importance of coal in forging a sense of community in Helensburgh in the past, present and future.*

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APPENDIX L: PARTICIPANT INFORMATION SHEET

PARTICIPATION INFORMATION SHEET

*Helensburgh Futures: A study of how Helensburgh residents are responding to environmental concerns.*

**PURPOSE OF THE RESEARCH**
This is an invitation to participate further in the study conducted by Kiri Yapp an honours student at the University of Wollongong. This study is designed to explore how Helensburgh households are facing up to the challenges and uncertainties posed by environmental concerns and advice about more sustainable living choices. The collected data from the survey you have already completed will be very useful in providing descriptive statistics. The purpose of the follow-up conversations is to allow further insight into the topic and provide qualitative data for analysis.

**INVESTIGATOR**
Kiri Yapp
Honours Student
School of Earth and Environmental Sciences
kay944@uowmail.edu.au

**METHOD AND DEMANDS ON PARTICIPANTS**
Thank you for accepting the invitation to participate in a follow-up conversation. The conversation should last for approximately 30 minutes and will be audio taped. The conversation will be structured around four themes:

1. Background to living in Helensburgh
2. Juggling household responsibilities
3. Surprises surrounding changing climates
4. Coal and Helensburgh.

You may request a copy of the interview transcript from the investigator.

**POSSIBLE RISKS, INCONVENIENCES AND DISCOMFORTS**
Apart from the 30 minutes of your time for the interview, we can foresee no risks for you. Your involvement in the study is voluntary and you may withdraw your participation from the study at any time and withdraw any data that you have provided to that point, subject to the timeline of the project. Withdrawal from the study will not affect you in any way.

**BENEFITS OF THE RESEARCH**
Your participation will be used to communicate your opinions to local and state decision makers on how Helensburgh residents are engaging with pressures, challenges and changes brought by climate change.

**ETHICS REVIEW AND COMPLAINTS**
This study has been reviewed by the Human Research Ethics Committee (Social Science, Humanities and Behavioural Science) of the University of Wollongong. If you have any concerns or complaints regarding the way this research has been conducted, you can contact the UOW Ethics Officer on (02) 4221 4457.

Thank you for your interest in this study.
CONSENT FORM FOR HELENSBURGH RESIDENTS

Helensburgh Futures: A study of how Helensburgh residents are responding to environmental concerns.

A project by Kiri Yapp (BSc Honours Student)

I have been given information about Helensburgh Futures: A study of how Helensburgh residents are responding to environmental concerns, and discussed the research project with Kiri Yapp who is conducting this research as part of a Bachelor of Science (Honours) supervised by Associate Professor Gordon Waitt and Professor Lesley Head in the School of Earth & Environmental Sciences at the University of Wollongong.

I understand that there are no potential risks or burdens associated with this study. I have had an opportunity to ask Kiri Yapp any questions I may have about the research and my participation. I understand that my contribution will be confidential.

I understand that my participation is voluntary; I am free to withdraw from the research at any time. I may also withdraw any data that I have provided to that point, subject to the timeline of the project. My refusal to participate or withdrawal of consent will not affect me in any way.

If I have any enquiries about the research, I can contact Kiri Yapp on 0423 627 230 or Gordon Waitt on (02) 4221 3684 or if I have any concerns or complaints regarding the way the research is or has been conducted, I can contact the Ethics Officer, Human Research Ethics Committee, Office of Research, University of Wollongong on (02) 4221 4457.

By signing below I am indicating my consent to

- participate in a follow-up conversation which will be recorded. I understand that I can request a transcript of the conversation from Kiri Yapp.

Please indicate whether you wish for a pseudonym to be used for the data you provide (please circle one)

Yes, please use a pseudonym. No, it is ok to use my real name.

I understand that the data collected from my participation will be used for an honours thesis, and may also be published in scholarly articles and presented at academic and policy conferences, and I consent for it to be used in that manner.

Signed ___________________________ Date __________/________/______

Name (please print) ____________________________________________________________

__________________________________________________________
APPENDIX N: EXAMPLE INTERVIEW QUESTIONS

1. Background to living in Helensburgh

2. Juggling household responsibilities

3. Surprises surrounding changing climates

4. Coal Futures

<table>
<thead>
<tr>
<th>Theme and questions</th>
<th>Aim of Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Background to living in Helensburgh</td>
<td>To provide insights to how the participant is positioned in Helensburgh</td>
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<tr>
<td>How long have you lived in Helensburgh? What brought you</td>
<td></td>
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<tr>
<td>here?</td>
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<tr>
<td>How would you describe Helensburgh to someone visiting</td>
<td></td>
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<tr>
<td>from overseas?</td>
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<tr>
<td>Tell me how Helensburgh is different from surrounding</td>
<td></td>
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<tr>
<td>suburbs/other northern suburbs in the Illawarra? Tell</td>
<td></td>
</tr>
<tr>
<td>me how it is similar ...</td>
<td></td>
</tr>
<tr>
<td>Tell me how Helensburgh is different from other places</td>
<td></td>
</tr>
<tr>
<td>you have lived?</td>
<td></td>
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<tr>
<td>Tell me how it is similar ...</td>
<td></td>
</tr>
<tr>
<td>For you, what are the implications of living in the site</td>
<td>Insights into the social dynamics of Helensburgh – social diversity, acceptance,</td>
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<tr>
<td>of one of Australia’s oldest coal towns?</td>
<td>division, fractions, unity ...</td>
</tr>
<tr>
<td>2. Juggling household responsibilities</td>
<td></td>
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<tr>
<td>What is your occupation?</td>
<td>To provide insights to how the participant in positioned within the household</td>
</tr>
<tr>
<td>Tell me about your household responsibilities? Do you</td>
<td>and their responsibilities.</td>
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<tr>
<td>find yourself juggling these? In what ways?</td>
<td></td>
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<tr>
<td>What takes priority in juggling these responsibilities?</td>
<td></td>
</tr>
<tr>
<td>– saving money, saving time, family, individual</td>
<td></td>
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<tr>
<td>comfort, safety, speed, making, keeping community/</td>
<td></td>
</tr>
<tr>
<td>friendships, environmental concerns.</td>
<td></td>
</tr>
</tbody>
</table>
3. Surprises surrounding changing climates

Obviously there's a lot of debate around changing climates e.g. federally, survey results...

How would you describe your view on changing climates?

Is there anything that surprises you about debates about changing climates?

Are you surprised at all about government policies that encourage households to become more responsible for their greenhouse gas emissions? Why/why not?

In your household – have you made conscious decisions to reduce greenhouse gas emissions – How have you found it? What has surprised you about trying to implement these decisions?

4. Coal Futures

What surprised you about the actions of Climate Camp drawing attention to the Metropolitan Coal Mine?

What role do you think coal plays in Helensburgh today? And what role will it play into the future?

Insights into changing climates and challenges stemming from different communications/representations/expectations of climate change and debates on this.

Insights into responses to climate change policies.

Insights into if and how changing climates have been anchored to a household level, and reflected in these decisions.

Provide insight into temporal framings of coal in Helensburgh.
APPENDIX O: REFLECTION ON INTERVIEWS AND POSITIONALITY

Entering survey responses into SPSS had made me well aware of the contested meanings of coal and climate change in Helensburgh. I arranged interviews with a wide range of participants, knowing their views may well be controversial and differ to my own. Having not lived in Helensburgh, nor having any family connections with coal, I wondered how people would respond to me, a young woman and a university student from the University of Wollongong.

Thankfully, I developed a rapport quickly with my first couple of interviewees, through engaging in enjoyable small talk before the interview, and expressing my interest in what they had to say. Upon realising I was not from Helensburgh they gladly filled me in on a number of issues I had never thought about, such as the curfew that trucks coming to the coal mine must abide by, and the controversial sponsorship of an environmental program by Peabody at the Helensburgh school. It provided material to draw upon in future interviews, and built my confidence as I became more familiar with the unique rhythms of Helensburgh.

Nevertheless, at first, I felt a sense of unease when interviewing participants with a family mining connection. In part, my concern arose over the possibilities of conflict. I was worried these participants would position me as a “greenie” university student out to highlight the negative implications of coal use and corporate behaviour. One interviewee, for instance, who worked for Peabody, was very reluctant to share information about his job with me. I overcame situations like these by explicitly addressing the fact that I was interested in what they had to say, outlining the importance of gauging the range of views in Helensburgh on coal and climate change, and most importantly, actively listening to what they had to say. Participants appreciated this and the project became an opportunity for the various participants to air their understanding of coal and climate change and the future of Helensburgh. Ultimately, I feel my concerns were misplaced, and I became more confident with each interview.

The dynamics of the interview were changed by the presence of household members. Sometimes the presence of other household members offered opportunities for deeper discussion. For example, in one interview the participant’s wife would add to the discussion by exploring her views and experiences and why they differed to her husband. As evidence of how this ‘deepened’ discussion, since she had more involvement with their children’s school, she was in a greater position to opine on Peabody’s controversial involvement. However, in other cases, particularly with the household responsibilities questions, the answers given would become restricted when partners were present.

Not all interviews were as enjoyable as most. One or two participants would simply answer each question and wait for the next. Despite my best attempts at making it more like a conversation these interviews became more interrogative in style. The interviews I enjoyed most threw up something different, such as the very well read climate sceptic, or the lady who, fearing she did not know enough, prepared for the interview by listening to a radio program about climate change.
I reflected on why people volunteered to participate. Most interviewees were more than happy to answer my questions. Some I expect simply liked having someone to listen or felt it was important that their view was heard, whether as a miner, climate sceptic, mother or activist. Others wanted to explain further what they had written in the survey.

Hence, the interview relationship worked both ways. On the one hand, through the interview process I developed a greater understanding of the social dynamics of Helensburgh, the diversity of opinions circulating around climate change and my sense of self as an interviewer. As an interviewer I learnt through the project how to relate to the participants, when to probe further and when to bring in Helensburgh-specific information. On the other hand respondents appreciated the chance to discuss their views, and their participation contributing greatly to my research. Although a couple of participants expressed surprise upon discovering I was not from Helensburgh, I found I was able to relate to all participants, despite social differences along the lines of age, gender, employment, life experiences and financial situation.
APPENDIX P: EXAMPLE OF NVIVO CODING MIND MAP