

Chapter One: Introduction

Project Overview

This study is about key stakeholders' perceptions of climate policy reform in Australia. Nations the world over are currently drafting policy with the aim of minimising the risks associated with unmitigated climate change. Regardless of the final design of these schemes, their impact will serve to drastically alter the international and domestic business environments. In the Australian context, this policy reform, if passed into law, will be realised in the aptly named Carbon Pollution Reduction Scheme (CPRS). This piece of legislation embodies the Australian Government's objective of legislating to reduce Australia's carbon emissions. The proposed scheme will create one of the globe's most comprehensive emissions trading schemes (ETS), generating new assets and liabilities and presenting new challenges for Australia's corporate leaders.¹ Research is called for to inform the discourse as to the impacts of the proposed policy as enhanced understandings will underpin success in a carbon-constrained economy. The study aims to investigate the perspectives of a sample of key stakeholders regarding climate change, assess the extent to which non-state actors have demonstrated a capacity to influence climate change policy in Australia and identify a number of strategic business implications that key stakeholders believe will result.

Background to the Study

Managers are often tasked with dealing with a dynamic business environment. History shows it is those organisations that adapt to these new landscapes that survive and ultimately prosper. Every so often, such a monumental challenge confronts business that a shift in the management paradigm must result. Climate change and its mitigation is such a test. A position reiterated by Garnaut who holds that it may be

¹ PricewaterhouseCoopers, *Carbon ready.....or not; a survey of Australian business leaders' preparedness for the carbon-constrained economy and the Carbon Pollution Reduction Scheme*, June 2009, Introduction.

'the biggest challenge and opportunity for business since the industrial revolution'.² Climate Change, and more pointedly the 2011 implementation of a cap-and-trade emissions trading scheme, is therefore an issue of monumental significance. This view is supported by PricewaterhouseCoopers who propose *'[managing] carbon is emerging as one of the measures of corporate success in the 21st century'.³* To meet this challenge organisations require new knowledge, forecasting potential implications and illuminating their capacity to respond.

The establishment of an emissions trading scheme is an area that provides enormous scope for research. The business community is beginning to appreciate that the new scheme will have substantial financial and strategic implications.⁴ Organisations can no longer afford not to plan for a drastically altered business environment as the world moves to reduce carbon emissions. President Obama alludes to the immediacy of the problem and the imminence of the likely response *'Delay is no longer any option. Denial is no longer an acceptable response. The stakes are too high, the consequences too serious'.⁵* Professor Ross Garnaut, has had a tremendous impact in articulating the imperative to act now. He advocates the introduction of an ETS in Australia and stresses:

Without strong and early action by Australia and all major economies we are likely to face severe and costly impacts on Australia's prosperity and enjoyment of life.⁶

In the face of the enormity of the challenge, that climate change and its mitigation presents, it is essential to develop new insights as to how the issue is being perceived within the business community. Action and adaptation will be the key to success in the *'brave new world'* of a carbon-constrained economy.⁷ Adaptation, however, represents a major challenge for individuals, households, the nation's political,

² Ross Garnaut, *Garnaut Climate Change Draft Review*, cited in, Switzer, *The Carbon Crunch*, Woollahra, 2009, p. 95.

³ PricewaterhouseCoopers, *Carbon ready.....or not*, Introduction.

⁴ Peter Switzer, *The Carbon Crunch*, Wollahra, 2009, p. 119.

⁵ Barack Obama, cited in, *Greenhouse Gas & Climate Change Workforce Needs Assessment Survey Report*, California, 2009, p. 5.

⁶ Ross Garnaut, cited in, Switzer, *The Carbon Crunch*, p. 90.

⁷ Switzer, *The Carbon Crunch*, p. 119.

financial and legal institutions as well as private enterprise. As such, research is called for to inform the discourse as to the impacts, opportunities and challenges presented by climate change and its mitigation.

Overview of the Scope of the Study

This study employs a combination of quantitative and qualitative inquiry. A survey questionnaire was employed and the resultant data generated through this instrument is located within, and assessed for coherence, with the broader literature through an historical analysis of relevant materials. The understandings developed throughout this inquiry are used to several ends, including:

- To ascertain the perspectives of stakeholders regarding anthropogenic climate change and the impetus to act to mitigate such change.
- As a basis to examine the efficacy of various mitigation schemes proposed to date.
- To explore if stakeholders believe the Australian government has acted autonomously in pursuing climate policy reform.
- To forecast the potential impact(s) on employment that such reform will present.
- To identify relationships between respondents' perceptions of issues central to the debate and one demographical characteristic: the industry in which the respondent is employed (Industry), and one attitudinal characteristic: their belief that the introduction of such a scheme will be personally beneficial (Belief).

In sum, the project aims to provide the business community with further commentary on the debate accompanying climate policy reform in Australia by providing an exploratory study of the ongoing public discourse.

Statement of Objectives of the Study

This investigation takes as its area of inquiry stakeholder perspectives and the business implications of the introduction of the Carbon Pollution Reduction Scheme (CPRS). The purpose of the study is to provide information to organisations as they attempt to foresee and adapt to the changing business environment. This study investigates stakeholder perspectives and forecasts the business implications of the CPRS through an investigation of the following questions:

1. What is being said in the ongoing public discourse about business preparedness for climate policy reform in Australia?
2. What perspectives of climate change exist?
3. How do commentators assess the efficacy of the various mitigation strategies proposed to date?
4. What are the likely employment ramifications associated with addressing carbon emissions?
5. To what extent has the federal government acted autonomously in designing and implementing its new climate policy?
6. How does a sample of individuals working in the finance and resource sectors view the aforementioned areas?
7. Does the Industry Variable, reflecting the industry in which a respondent is employed (Financial/Resources), demonstrate a relationship with their perception of the central tenets of the debate?
8. Does the Belief Variable, reflecting the respondent's belief that they will personally benefit from the introduction of an ETS (Yes/Unsure/No), affect how they perceive the central tenets of the debate?

By conducting a comprehensive study, addressing each of these aims in full, this study makes use of applied, evaluative research. The importance of applying methodological rigour to these questions is reiterated by Silverman who proposes

'Without research, theory is mere armchair contemplation'.⁸ The study will equip business leaders, concerned members of the public, public servants and politicians with a greater insight into how others within various industry sectors perceive the critical aspects of climate policy reform. Most importantly, this study makes a contribution to both knowledge and practice as it serves to inform the discourse on organisational response to a specific and unfamiliar context, thus guiding future strategy formulation.

Analytical Framework

A requirement of any major research dissertation is to communicate the analytical framework through which data will be examined. The framework adopted by this study is encapsulated in the belief that perceptions of climate change are mitigated by demographic and attitudinal variables. The basis for this principle will now be explored.

This study investigates the relationships between respondents' demographic variables and perceptions of climate change and climate policy reform in Australia. Awareness and concern of the general public relating to global warming is not only a function of scientific information. Both psychological and sociological factors affect the willingness of laypeople to acknowledge the reality of global warming, and to support the climate policies of their home countries.⁹ This is consistent with perspectives emanating from the field of sociology of scientific knowledge arguing that interpretations of science are mediated by contextual factors, such as knowledge,

⁸ Silverman, 2001b, p. 110 cited in Lyn Richards, *Handling Qualitative Data; a practical guide*, Sage Publications LTD, 2005, p. 68.

⁹ Hanno Sandvik, *Public Concern Over Global Warming Correlates Negatively with National Wealth*, Springer Science and Business Media, 2008, Published Online: 19 June 2008, p. 333.

experiences and demographic background.¹⁰ The range of these factors is increasing as more research is undertaken. Several factors that have been shown to impact on the way individuals perceive climate change include; variances in gross domestic product of the respondent's country, national culture, age, education level and gender.¹¹ Furthermore, those with children under 17 years of age and those with higher incomes have been shown to view climate change in systematic ways.¹² Zahran concludes that respondents' beliefs {relevant to the issue of climate change} are shaped by the expected outcome rather than what is necessarily logical.¹³ Existing research shows that climate change risk perceptions, as with other ecological risks like air pollution, ozone depletion and contamination of water supplies are strongly influenced by demographic, ideology and identity variables.¹⁴ Ultimately, risk perceptions are socially constructed, with different groups predisposed to attend to, fear and socially amplify some risks, while ignoring, discounting or attenuating others.¹⁵ In light of this commentary, it is strikingly apparent that many variables are influencing attitudes and beliefs pertaining to climate change and climate policy reform.

¹⁰ Irene Lorenzoni, Sophie Nicholson-Cole & Lorraine Whitmarsh, *Barriers perceived to engaging with climate change among the UK public and their policy implications*, *Global Climate Change* 17, 2007, p. 446

¹¹ Hanno Sandvik, *Public Concern Over Global Warming Correlates Negatively with National Wealth*, Springer Science and Business Media, 2008, Published Online: 19 June 2008, p. 339.

¹² New Scientist, *Global Warming: The buck stops here*, Special report Climate Poll, New Scientist 23 June, 2007, p. 19.

¹³ Sammy Zahran, Eunyi Kim, Xi Chen & Mark Lubell, *Ecological Development and Global Climate Change: A cross-national study of Kyoto Protocol ratification*, *Society and Natural Resources*, 20:37-55, 2007.

¹⁴ Paul M. Kellstedt, Sammy Zahran and Arnold Vedlitz, *Personal Efficacy, the Information Environment, and Attitudes Toward Global Warming and Climate Change in the United States*, *Risk Analysis*, Vol. 28, No. 1, 2008, p. 115.

¹⁵ Anthony Leiserowitz, *Climate Change Risk Perception and Policy Preferences: The role of affect, imagery and values*, Decision Research, Eugene Orlando, 2006, p. 64

Enhanced understandings as to the factors that are informing stakeholder attitudes and beliefs are central to the ongoing prosperity of Australian commerce. Garnaut proposes:

The public interest must rely on the clarity of the analysis of the issues, on the dissemination of sound information, and in the end on the judgement of a public that is interested enough in the issue to make the effort to use effectively the information that is available to it.¹⁶

Research has demonstrated, however, that the diffusion of more information as to the risks and opportunities associated with climate change is not sufficient. Malka et al. propose that disseminating more information about climate change may alter concern among some but not others.¹⁷ This conclusion further accentuates the importance of incorporating demographic variables into present and future research in this field. It must be acknowledged that demographic considerations are central to understanding the discourse accompanying climate policy reform in Australia. Heightened understandings of these relationships will have implications for the development, dissemination and adoption of public policy. Moreover, as a consequence of the position of domestic business entities within this framework, these understandings present implications for all organisations as they respond to the demands of climate change and its mitigation.

From the perspective of Corporate Australia, more detailed analysis of employee perceptions of climate policy reform is required as organisations respond to the changing domestic and international business contexts. Government and organisational response to climate change should be guided by the available scientific and economic literature. In democracies, however, the beliefs of the public, not only

¹⁶ Ross Garnaut, *The Garnaut Climate Change Review*, Cambridge University Press, Port Melbourne, 2008, p. 195.

¹⁷ Ariel Malka, Jon A. Krosnick and Gary Langer, *The Association of Knowledge with Concern about Global Warming: Trusted information sources shape public thinking*, Stanford University, 2007, p. 22.

those of experts, affect government policy and citizen adoption of policies.¹⁸ In a similar way that psychological and sociological factors affect the willingness of laypeople to acknowledge the reality of global warming, and to support the climate policies of their home countries, so too will these factors influence the willingness of employees to adopt the new policies of their organisation. Climate policy reform will necessitate that Australian businesses rethink their processes in a way that is considerate to the new liabilities and opportunities that the establishment of an emissions trading scheme will present. Knowledge of how employee demographic and attitudinal variables impact upon perceptions of climate change, the efficacy of the mitigation strategy and the employment ramifications of this change will equip organisations with the understandings required to draft and disseminate new strategies in a fashion that achieves maximum employee engagement. Knowledge of how these systematic relationships influence employee attitudes are also necessary if the organisation is to identify and respond to employee misapprehensions, fears and anxieties in a manner which maximises employee welfare and organisational efficiency. This knowledge will arm the business administrator with the prerequisite knowledge to embark upon the process of change within their organisation made necessary by this global issue.

Despite the political and commercial significance of the judgements required to address climate change, scholarly research has, until very recently, provided little insight into the factors that shape an individual's attitudes.¹⁹ Krosnick et al. propose that such understandings are required to develop and target persuasion strategies to

¹⁸ John D. Sterman & Linda Booth Sweeny, Understanding Public Complacency about Climate Change: Adults' mental models of climate change violate conservation of matter, forthcoming *Climate Change*, MIT School of Management, Cambridge MA, p. 1.

¹⁹ Jon A. Krosnick, Allyson L. Holbrook, Laura Lowe and Penny S. Visser, *The Origins and Consequences of Democratic Citizens' Policy Agendas: A study of popular concern about global warming*, *Climatic Change* 77, 2006, p. 8.

convince individuals to adopt new practices.²⁰ At a basic level, climate policies will require a degree of ‘buy-in’ or acceptance from those who will be affected by them if they are to be successfully implemented.²¹ Zelezny et al propose: ‘*One of the ways psychologists can promote environmentalism is to understand the relationship between demographic variables and environmental attitudes and behaviours*’.²² In a similar vein to the psychologists, business administrators will enhance their ability to promote environmentally sustainable practices throughout their organisations by understanding these relationships. Moreover, such understandings will allow the business administrator to play a significant role in the global push to address climate change, a role identified by Lorenzoni et al. who proposes: ‘*Developing sustainable solutions to climate change involves all societal stakeholders, including government, commerce and industry, interest groups and the wider public*’.²³ Enhanced understandings of how stakeholders view the discourse are essential. It has been established that contextual forces, in addition to attitudinal factors influence behaviours.²⁴ At present, these complex dimensions are little understood in the context of climate change.²⁵ This study, therefore, presents the opportunity for new and exciting conceptualisations of how demographical characteristics impact upon perceptions of this, most paramount, of issues.

²⁰ Jon A. Krosnick, Allyson L. Holbrook, Laura Lowe and Penny S. Visser, *The Origins and Consequences of Democratic Citizens’ Policy Agendas: A study of popular concern about global warming*, *Climatic Change* 77, 2006, p. 32.

²¹ Irene Lorenzoni & Nick F. Pidgeon, *Public Views on Climate Change: European and USA perspectives*, Centre for Environmental Risk and Tyndall Centre for Climate Change Research, Zuckerman, 2006, p. 74.

²² Lynnette C. Zelezny, Poh-Pheng Chua & Christina Aldrich, *Elaborating on Gender Differences in Environmentalism*, *Journal of Social Issues*, Vol. 56, No. 3, 2000, p. 443.

²³ Irene Lorenzoni, Sophie Nicholson-Cole & Lorraine Whitmarsh, *Barriers perceived to engaging with climate change among the UK public and their policy implications*, *Global Climate Change* 17, 2007, p. 454.

²⁴ Stern cited by Irene Lorenzoni, Sophie Nicholson-Cole & Lorraine Whitmarsh, *Barriers perceived to engaging with climate change among the UK public and their policy implications*, *Global Climate Change* 17, 2007, p. 447

²⁵ Irene Lorenzoni, Sophie Nicholson-Cole & Lorraine Whitmarsh, *Barriers perceived to engaging with climate change among the UK public and their policy implications*, *Global Climate Change* 17, 2007, p. 447

Limitations of the Study

It is always important to clearly establish the limitations of a study. This research is restricted in a number of ways. Firstly, it must be stressed that the study does not set out to provide definitive answers to questions pertaining to the legitimacy of the theory of anthropogenic climate change. Instead, the study aims to assess the perspectives of key stakeholders as they relate to this complex phenomenon. Furthermore, the study does not set out to enquire into its focal areas solely through an exploration of the perspectives of renowned “experts”. Such “experts” include notable earth and atmospheric scientists, chemists, physicists, economists etc. The study seeks to incorporate the perspectives of these individuals with others, including members of the general public, industry leaders, media commentators and government officials. This approach is not to discount the legitimacy and importance of seeking the advice of those ideally qualified to provide comment. This tactic is an attempt to assess, how those who stand to be directly impacted by policy developments in this field, perceive the central tenets of the discourse and identify, where possible, the common areas between the perspectives of these individuals. External limitations, such as the time and funds available to complete the research are discussed in greater detail in Chapter Three.

Key Terms/Concepts

A comprehensive glossary of terms is included in Appendix 1. Four key terms, however, are detailed here so as to facilitate for a shared understanding of critical concepts.

Climate Change: The concentration of many greenhouse gases has been increasing rapidly due to human activity. Once emitted greenhouse gases stay in the atmosphere for varying lengths of time. As a result, the atmospheric concentration of greenhouse gases – and hence its effect on temperature – reflects the stock of accumulated

emissions over decades.²⁶ The term is often used synonymously with ‘global warming’; scientists often use the former to include naturally occurring climate variation whereas the latter denotes human-induced change.

Carbon Pollution Reduction Scheme (CPRS): The Australian Government’s proposed legislation aiming to reducing Australia’s carbon pollution. The scheme is described as a market-based solution to reduce emissions in the most cost-effective way.²⁷ The CPRS is primarily realised in the establishment of an emissions trading scheme originally proposed to commence on 1 July 2011.

Financial Services Sector: The individuals, businesses, institutions, firms and organisations within the finance industry that provide services primarily focused upon the management of money. Examples of entities within this sector include banks, insurance companies, stock brokerages and investment funds.

Resource Sector: The resource sector in Australia covers all those individuals, businesses, institutions, firms and organisations that deal in the exploration, extraction, processing and/or exportation of minerals and petroleum.²⁸ This sector represents Australia’s largest single export earner.²⁹

Structure of the Thesis

The thesis has been structured around seven chapters. Chapter One provides an introduction to the study, detailing both its scope and the difference that it will make. Furthermore, justification of the importance of the research is provided. Chapter Two, presents a literature survey. Specific information that assists in answering the research questions is detailed. This chapter also provides the reader with an insight into the

²⁶ Warwick J. McKibbin & Peter J. Wilcoxon, *The Role of Economics in Climate Change Policy*, Journal of Economic Perspectives, vol. 16, no. 2, Spring 2002, p 109.

²⁷ Australian Government, Department of Climate Change, Carbon Pollution Reduction Scheme Home Page, retrieved on 19 September, 2009, from: <http://www.climatechange.gov.au/emissionstrading/index.html>

²⁸ Department of Foreign Affairs and Trade, *About Australia: Resources Sector*, retrieved on 15 November 2009 from:

http://www.dfat.gov.au/facts/resources_sector.html

²⁹ *Ibid.*

material that was considered when developing the dissertation, thus facilitating for a common understanding. Chapter Three outlines the methods that were used to synthesise the literature into the five themes identified within the literature survey. In addition, this chapter also sets out, and provides a justification of, the method employed to generate, analyse and interpret quantitative data. Chapter Four presents and discusses the results from the survey-questionnaire developed specifically for this study. Chapter Five exhibits and discusses the findings of a statistical analysis of the data generated through the application of the survey questionnaire. In so doing, this section identifies a number of statistically significant relationships between respondents' attitudinal and demographic variables and their responses to particular survey items. Chapter Six presents a summary of the findings of the study. The final chapter, Chapter Seven, provides a conclusion to the study and identifies a number of avenues for future research.

Chapter Two: Literature Survey

The purpose of this chapter is to survey existing literature that assists in answering each of the aforementioned research questions. An ideographic approach to induct meaning from a range of sources is employed within the literature survey. Historical analysis has been conducted of journal and newspaper articles, Government & Non-Government Organisation (NGO) reports and academic papers. Many perspectives from the national press are included in the study. The importance of capturing this discourse, as opposed to focusing solely upon peer reviewed scientific and policy literature, is best realised by recent research that has established that an overwhelming majority (94 percent) of industry leaders receive their information relating to this topic from such sources.³⁰ As this study is concerned with stakeholder perspectives, the inclusion of such sources, often thought of as “grey” literature, is appropriate. This analysis allows for the exploration of a number of specific themes central to the ongoing debate surrounding the implications of the proposed Carbon Pollution Reduction Scheme (CPRS). The use of this technique allows for an in-depth and rich study that brings to light the deep-rooted values, traditions and ethos of the groups being studied.³¹ This approach is consistent with the qualitative paradigm that sees values and meanings as being embedded everywhere and in everything.³²

The central tenets, or themes, explored within this study were identified in the first phase of the project. They were selected as they constitute the foci of the most commonly occurring arguments, be they supportive, opposed or ambivalent of the proposed scheme, within the literature. Each of the themes has been structured so as to constitute a case study. This approach is defined as:

³⁰ Australian Institute of Management, *The introduction of Australia's Emissions Trading Scheme; level of understanding amongst CEOs/senior executives*, Australian Institute of Management (Vic/Tas), 1 July, 2008, p. 9.

³¹ Kay Harman & Ray Cooksey, Harman, *GSB 656 Unit Notes: Methods in Organisational Research*, University of New England, Armidale, 2009, p. 5.7.

³² W.L. Neuman, *The Meaning of Methodology*, in, *Social Research Methods, Qualitative and Quantitative Approaches*, 6th edn, Ch. 4, 2006, p. 93.

A type of qualitative research in which in-depth data are gathered relative to a single individual, program or event, for the purpose of learning more about an unknown or poorly understood situation.³³

These studies take as their foci stakeholder perspectives of the following five topics:

- Business Preparedness for the CPRS.
- Perspectives of Climate Change.
- Perspectives of the Efficacy of Mitigation Strategy.
- Perspectives of the Employment Ramifications of the CPRS.
- Perspectives of State Autonomy.

The importance of these themes to business is paramount. How the CPRS has already, or presents the potential to, influence these areas is detailed in this study. These themes form the foundation upon which the project reports. A detailed justification of this approach is included in Chapter Three. Each theme will now be explored.

Perspectives of Business Preparedness

The extent to which business is prepared for climate policy reform is critical to the ongoing success of Australian commerce. Worryingly, the literature presents a strong argument that such preparedness is yet to be achieved. An AC Nielsen Poll in July 2008, for instance, found:

Six in ten voters (60%) [said] they understood the concept of an emissions trading scheme ‘slightly’ (39%) or ‘not at all’ (21%). Around one in three (31%) said they understood the concept ‘fairly well’, but only 8% thought they understood it ‘very well’.³⁴

An Australian Institute of Management (AIM) report parallels this result finding that 80 percent of surveyed CEOs, senior managers and business owners had only some or little knowledge of the scheme with 44 percent not knowing in what year it would be implemented.³⁵ PricewaterhouseCoopers are of the view that the resources and

³³ Switzer, *The Carbon Crunch*, p. 108.

³⁴ Nielsen Poll, July 2008, retrieved on 29 Aug, 2009 from; <http://au.acnielsen.com/news/200512.shtml>.

³⁵ Australian Institute of Management, *The introduction of Australia's Emissions Trading Scheme*, p. 3.

finance sectors are more *'carbon ready'* than any other sector, yet well over half of the companies within these sectors are not yet fully prepared.³⁶ Pearson, commenting on the apparent lack of understanding proposes that the adage *'if ignorance is bliss, then why aren't there more happy people'* is relevant to the level of community understanding about the proposed Carbon Pollution Reduction Scheme.³⁷ Pearson concludes:

Despite the Garnaut review, green and white papers and several senate hearings, the content of the biggest structural change to the Australian economy remains a mystery to most.³⁸

A study released by the Australian Industry Group and KPMG reinforces this position indicating that businesses are not yet well informed about the proposed scheme.³⁹ Key findings of this study indicate;

- Only 15 percent of businesses surveyed were confident they had knowledge of all key elements of the CPRS.
- Almost one-third of businesses had no knowledge of the main elements of the proposed scheme.
- Over 55 percent of surveyed businesses are currently not taking steps to become better informed.⁴⁰

The absurdity of the situation, in light of the impact that the CPRS will have on all Australians, is perhaps best realised in the results of a small vox-pop. This inquiry found that more than double the number of respondents could name two songs by Lady Gaga (60 percent) and over three times as many knew of Magda Szubanski's weight loss (85 percent) than the number who knew what 'ETS' stands for (25 percent).⁴¹ In light of this commentary the preliminary attitudinal probes of the survey

³⁶ PricewaterhouseCoopers, *Carbon ready.....or not*, p. 13.

³⁷ Brendan Pearson, *E x AP = a tax on energy*, The Australian, July 23, 2009, p. 12.

³⁸ *Ibid.*, p. 12.

³⁹ Australian Industry Group, *Gearing Up; Business Readiness for Climate Change*, North Sydney, July, 2009, p. 7.

⁴⁰ *Ibid.*, p. 10.

⁴¹ Jonno Seidler, *Much ado about nothing*, The Sun Herald, September 20, 2009, p. 22.

questionnaire, introduced and discussed in Chapter Four, demonstrate considerable uniformity.

The lack of apparent personal understanding and organisational awareness is not of small concern. Lomborg, for instance, proposes that '*dealing with global warming will take a century and will need a political will spanning parties, continents and generations.*'⁴² Garnaut expands:

The public interest must rely on the clarity of the analysis of the issues, on the dissemination of sound information, and in the end on the judgement of a public that is interested enough in the issue to make the effort to use effectively the information that is available to it.⁴³

By failing to plan, organisations will not be able to create value through emissions trading and those who do not risk being downgraded by investment analysts and credit rating agencies.⁴⁴ PricewaterhouseCoopers write:

Accounting for emissions, taking action to minimise risk and leveraging new opportunities must become common practice if Australian business is to fulfil its responsibility in the fight against dangerous climate change and prosper in a low carbon economy.⁴⁵

Chomsky provides a potential explanation to account for the lack of knowledge and understanding. He holds that, in the contemporary period, power has been centralised within the international political economy, geared toward ensuring that '*policy is insulated from politics*'.⁴⁶ What is meant by this is that the general population have no role in decision making, and that the level of policy planning is raised to be so remote from people's knowledge and understanding and input that they have absolutely no idea about the various decisions that are being made that will affect their lives, and

⁴² Bjorn Lomborg, *Cool It; The Sceptical Environmentalists guide to global warming*, Marshall Cavendish Editions, London, 2007, p. 220.

⁴³ Ross Garnaut, *The Garnaut Climate Change Review*, Cambridge University Press, Port Melbourne, 2008, p. 195.

⁴⁴ PricewaterhouseCoopers, *Carbon ready.....or not*, Introduction.

⁴⁵ *Ibid.*, Introduction.

⁴⁶ Noam Chomsky, *Understanding Power; The indispensable Chomsky*, Peter R. Mitchell and John Schoeffel (eds), Scribe Publications, 2002, p. 381.

certainly couldn't influence them if they did.⁴⁷ Chomsky rues that these decisions, instead, are made by the '*new international corporate ruling class*'.⁴⁸ In light of the current situation, the Australian Industry Group's suggestion that policy action is required to assist business to become better informed, address a number of false impressions and tackle misapprehensions is sound.⁴⁹

Perspectives of Climate Change

At the crux of the debate surrounding the introduction of an Emissions Trading Scheme (ETS) in Australia is the ongoing deliberation between those who hold heterogeneous views regarding the climate change phenomenon. This is a difficult debate to assess as arguments abound as to the nature, impact, direction, speed, cause and ultimately the reality of climate change. At the heart of the debate, however, is a disagreement as to whether or not climate change is being caused by human activity. Morgan & McCrystal capture the essence of the central issue in this debate:

What is meant by all the loose talk of 'global warming', 'climate change' and 'the greenhouse effect' is what you might call the 'enhanced greenhouse effect', or human changes to the natural greenhouse effect that are alleged to give rise to deleterious effects.⁵⁰

This concept of human induced climate change has become known as anthropogenic climate change.

Al Gore has had a tremendous impact in bringing the climate debate to the forefront of the public discourse. This contribution saw him awarded a Nobel Peace Prize in 2007. Gore distils his argument, supporting his plea for urgent action:

The problem we now face is that this thin layer of atmosphere is being thickened by huge quantities of human-caused carbon dioxide and other

⁴⁷ *Ibid.*, p. 381

⁴⁸ *Ibid.*, p. 381.

⁴⁹ Australian Industry Group, *Gearing Up*, p. 10.

⁵⁰ Gareth Morgan & John McCrystal, *Poles Apart; beyond the shouting, who's right about climate change?*, Melbourne, 2009, p. 29.

greenhouse gases..... As a result, the temperature of the Earth's atmosphere – and oceans is getting dangerously warmer.⁵¹

Gore's argument is supported by a large number of the scientific community.

Professor Mike Archer, Dean of the Faculty of Science at UNSW is steadfast in his support of this position, likening himself to the '*globally vast numbers of climatologists who are discovering the irrefutable evidence for anthropogenic climate change.*'⁵² Another study, distributed to 10,257 earth scientists across North America (with 3146 responding) indicated that 90 percent of participants believed that mean global temperatures had risen compared with pre-1800s levels and 82 percent were of the view that human activity is a significant contributing factor in this change.⁵³ A 2009 Auspoll survey of 1400 Australian Climate Change believers indicated that 84 percent of respondents believed that warming was caused by human activity.⁵⁴ A telephone survey of Virginia residents found 75 per cent expressed a view that there was '*solid evidence*' that average temperatures on Earth have been increasing over the past forty years.⁵⁵

Gore considers arguments countering the notion of anthropogenic global warming as deliberate illusions fostered by a relatively small but well-funded cadre of special interests.⁵⁶ Climate Data Analyst, McLean, agrees that vested interests now dominate climate science.⁵⁷ In stark contrast to Gore's view, however, Mclean recounts the experience of many climatologists painting a picture that renewal of funding, employment and the reputation of their respective employers are dependent upon them withholding results that contradict what he calls the '*dominant alarmist*

⁵¹ Al Gore, *An Inconvenient Truth; the planetary emergency of Global Warming and What we can do about it*, Rodale, USA, 2006, p. 27.

⁵² Mike Archer, Letter to the editor, cited in, *Such vital wisdom doesn't come from conspiracies*, Opinion, The Australian, May 7, 2009, p.15.

⁵³ Peter T. Doran & Maggie Kendall Zimmerman, *Examining the Scientific Consensus on Climate Change*, EOS, Volume 90, Number 3, January 2009.

⁵⁴ Tim Gartrell, *Time for Turnbull to get fair dinkum*, The Sunday Telegraph, August 9, 2009, p.116.

⁵⁵ Barry Rabe, *Report of the Virginia Climate Change Survey*, Miller Center of Public Affairs, University of Virginia, 2008, p. 3.

⁵⁶ Gore, *An Inconvenient Truth*, p. 262.

⁵⁷ John McLean, *Science a slave to expediency*, The Australian, Opinion, May 6, 2009, p. 16.

paradigm'.⁵⁸ Other commentators, such as Devine postulate the existence of a '*global warming scare campaign*'.⁵⁹ What is clear is that the climate change debate is shrouded in ambiguity, entangled in conspiracy theories and appears to be far from the point of consensus that Gore stipulates has already been achieved.⁶⁰ Alan Moir, a highly respected political commentator provides an interesting appraisal of the current situation. In the cartoon, below, he cuts to the core of the climate debate by clearly communicating to the respondent how difficult it is to reconcile the perspectives of climate change "believers" and "non-believers". In essence what his cartoon captures beautifully is the fact that "sensible" debate on the topic is unlikely given the vastly different paradigms that these two cohorts are operating from:



Diagram 1: Alan Moir Cartoon.⁶¹

Another political commentator who also makes use of the cartoon medium is Glen Le Lievre. His sketch entitled "Climate Sceptics" further reinforces this message:

⁵⁸ *Ibid.*, p.16.

⁵⁹ Miranda Devine, *Planet doomsayers need a cold shower*, The Sydney Morning Herald, 18-19, April, 2009, p. 9.

⁶⁰ Gore, *An Inconvenient Truth*, p. 261.

⁶¹ Alan Moir, *The Climate Debate*, retrieved from ALAN MOIR HOMEPAGE on April 12 2009.



Diagram 2. Climate Sceptics by Glen Le Lievre⁶²

Despite appearing rather crass, the insinuation, after all, is that climate sceptics are “*talking out of their arses with their heads in the sand*” the comment is further indicative of the polarising nature of this debate.

There are plenty of people around – scientists and laypeople of one sort or another – who believe the science of global warming is far from settled.⁶³ Professor Bob Carter, analogises a current situation within the scientific community to this effect:

It is as though five doctors (the geologists) are telling you not to be alarmed, but to take prudent and cost-effective steps to deal with problems that will arise; the other five (the atmospheric scientists) are telling you to treat a hypothetical disease as though it requires urgent intensive care, no matter the cost.⁶⁴

⁶² Glen Le Lievre, *Climate Sceptics*, provided upon request April 12, 2010.

⁶³ Morgan & McCrystal, *Poles Apart*, p. 12.

⁶⁴ Bob Carter, *Ignore scares from all sides and plan with prudence*, The Sydney Morning Herald, 19 Aust, 2009, p. 14.

It must be acknowledged that reputable members of the scientific community, both within and between the relevant scientific disciplines, along with the business and academic community hold divergent views regarding this phenomenon.

Australian geologist, academic and businessman, Professor Ian Plimer is arguably Australia's best-known geologist. This reputation has been facilitated in no small part by his views regarding climate change. The 2009 release of his book, *Heaven and Earth; Global Warming: The missing science*, was received with widespread criticism. The hypothesis tested, and deemed to be invalid by Plimer, was that increased CO₂ creates global warming.⁶⁵ Plimer sets out his position:

To argue that human additions to atmospheric CO₂, a trace gas in the atmosphere, changes climate requires an abandonment of all we know about history, archaeology, geology, solar physics, chemistry and astronomy.⁶⁶

Although being widely condemned, it is important to note that Plimer's position also yielded strong support, from the scientific and business community and political leaders who joined him in dissenting the prevailing orthodoxy.⁶⁷ King, for instance, congratulated Plimer for '*pulling together so many strands of observational data to expose the inconsistencies in the notion that human emissions somehow change the climate.*'⁶⁸ Singer & Avery, whilst acknowledging that the Earth is currently experiencing a warming trend, outline their position:

Are human activities, the primary – or even significant – drivers of this current temperature trend? The scientifically appropriate answer – cautious and conforming to the known facts – is: probably not.⁶⁹

The question raised by this disparity is how do these climate change sceptics reconcile the widespread acceptance of human-induced climate change?

⁶⁵ Ian Plimer, *Hot-air doomsayers*, The Australian, May 5, 2009, p. 10.

⁶⁶ *Ibid.*, p.10.

⁶⁷ Paul Sheehan, *Beware the climate of conformity*, The Sydney Morning Herald, April 13, Opinion, 2009, p. 11.

⁶⁸ David King, *to suggest the need to prove a negative is stupid*, Letters to the Editor, The Australian, May 13, 2009, p. 25.

⁶⁹ S. Fred Singer & Dennis T. Avery, *The Physical Evidence of Earth's Unstoppable 1,500-Year Climate Cycle*, Adapted from; *Unstoppable Global Warming-Every 1,500 years*, 2006, NCPA Policy Report No. 279, September 2005, p. 1.

Anthropogenic climate change nonbelievers, such as those few discussed herein, insist that Global Warming has become '*the secular religion of today*'.⁷⁰ Ackerman perceives the same phenomenon but labels it '*neo-Romantic Green hysteria*'.⁷¹ Lomborg likens the situation to the American McCarthyism of the 1940's and 50's in proposing that a '*burning faith*' in anthropogenic climate change is not allowing people to express heterodox opinions.⁷² When one assesses the public discourse it is not difficult to find examples of what Lomborg alludes to. Gartell, for instance, reports that '*a catchy TV ad and multi-media campaign will keep up the pressure on those remaining climate sceptics*'.⁷³ Such strategies to coerce consensus conflict with the often cited position of the late British scientist, Thomas Huxley who proposed that scepticism was '*the highest of duties*'.⁷⁴ A view supported by Morgan & McCrystal who consider '*consensus thinking*' to be the antithesis of good scientific method.⁷⁵ However, the ongoing '*mud-slinging*' between the two distinct camps cannot, in any way, be regarded as such either.

Irrespective of the role that mankind has played in this phenomenon, many commentators insist that inaction or delayed action to implement solutions is likely to precipitate a global catastrophe.⁷⁶ A 2009 survey of Australian citizens, conducted by Auspoll, reported that 68 percent believed that the Earth's climate will get warmer. 26 percent believed it would stay the same and only six percent said it would get colder,

⁷⁰ Ian Plimer, cited by Jamie Walker, *The climate of consensus is precipitating a disaster for science*, Weekend Australian, April 18-19, 2009, p. 18.

⁷¹ Piers Akerman, *Rudd's hot air will put jobs on the line*, Sunday Telegraph, August 9, 2009, p. 117.

⁷² Bjorn Lomborg, *Al Gore and friends create climate of McCarthyism*, The Australian, 15 July, 2009, p. 12.

⁷³ Tim Gartell, *Time for Turnbull to get fair dinkum*, The Sunday Telegraph, August 9, 2009, p. 116.

⁷⁴ Thomas Huxley 1825-1895, on the Advisableness of Improving Natural Knowledge, Collected Essays, Vol. 1, 1896.

⁷⁵ Morgan & McCrystal, *Poles Apart*, p. 17.

⁷⁶ Harro Drexler, *Global Warming; just the tip of the iceberg*, BookPal Australia, 2008, p. 6.

a result said to have held true across age, gender and income.⁷⁷ Research released by the Yale Project on Climate Change indicates that majorities of Americans believe that within the next 20 years, global warming will cause more droughts and water shortages, severe heat waves, intense hurricanes, the extinctions of plant and animal species, intense rainstorms, famines and food shortages, forest fires and the abandonment of large coastal cities due to rising sea levels, if nothing is done to address it.⁷⁸

The conflicting perspectives in this argument are often diametrically opposed. Because of this, combined with the fact that the arguments are largely beyond the expertise of the general public, confusion ensues. This ambiguity is only heightened by the postulation of members of all ‘camps’ insinuating impartiality, bias and conspiracy. A specific impact of these arguments may be realised by only 7 percent of respondents in a telephone survey indicating that scientific research is the primary factor that has caused them to believe that temperatures on earth are increasing. This result is in stark contrast to the 25 percent of respondents who cite ‘*warmer local temperatures/personal experience*’.⁷⁹ Hulme, explains the ultimate impact of the situation:

How we talk about climate change - our discourse - is increasingly shaping our perception and interpretation of the changing physical realities that science is battling to reveal to us.⁸⁰

Recent Research by the Ipsos-Eureka Social Research Institute may suggest that the ongoing ambiguity may be precipitating a loss of interest by Australians in the topic. In 2008, only 46 percent of respondents selected climate change from a list of various environmental issues, as something they would take action on if they were in charge of making decisions about such issues for Australia, a decline from 55 percent in

⁷⁷ Tim Gartrell, *Time for Turnbull to get fair dinkum*, The Sunday Telegraph, August 9, 2009, p. 116.

⁷⁸ Anthony Leiserowitz, Edward Maibach & Connie Roser-Renouf, *Climate Change in the American Mind; America’s climate change beliefs, attitudes, policy preferences and actions*, Yale Project on Climate Change, 2009, p. 7.

⁷⁹ Barry Rabe, *Report of the Virginia Climate Change Survey*, Miller Center of Public Affairs, University of Virginia, 2008, p. 6.

⁸⁰ Hulme, *Amid the financial storm*, p. 1.

2007.⁸¹ Despite this, opinion about global warming appears to be solidifying with majorities believing it is real, happening, human caused and a serious threat.⁸²

Likewise, majorities want their elected officials, at all levels, to take more action and support policies to reduce national greenhouse gas emissions.⁸³

With contradictory arguments abounding, this paper will assess the impact(s) the discourse has had upon the views of a sample of key respondents through the data generated by a survey questionnaire. Perspectives on the climate debate will be analysed as will the perceived impact and importance of acting to limit carbon emissions. The value of surveying these individuals, given the available scientific research, is best captured by Morgan & McCrystal:

No individual has a sufficient grasp of climate science to claim to be able to pronounce the theory of anthropogenic global warming right or wrong in all of its particulars. That means everyone's in the same boat, even if some have a slightly better view of the horizon.⁸⁴

This exploration, therefore, can assist in establishing how the discourse is being perceived while also providing an assessment of the perspectives of climate change prescribed to within the business community.

Perspectives of the Efficacy of Proposed Policy Developments

The Australian Government is of the view that human-induced climate change is occurring and action is required to reduce future carbon emissions.⁸⁵ This study will now turn to discuss the efficacy of the proposed Carbon Pollution Reduction Scheme in achieving its objectives. The efficacy of the scheme will be assessed across

⁸¹ Ipsos-Eureka Social Research Institute, *Australians found to be 'cooling' on climate change*, 2008, provided upon request by Jasmine Hoye, Director Ipsos-Eureka Social Research Institute & Sustainable Communities Environment Unit.

⁸² Anthony Leiserowitz, Edward Maibach & Connie Roser-Renouf, *Climate Change in the American Mind; Americans' climate change beliefs, attitudes, policy preferences and actions*, Yale Project on Climate Change, 2009, p. 8.

⁸³ *Ibid.*, p. 8.

⁸⁴ Morgan & McCrystal, *Poles Apart*, p. 15.

⁸⁵ Australian Government Department of Climate Change, *Carbon Pollution Reduction Scheme: Australia's Low Carbon Future*, White Paper, Executive Summary, 15 December 2008.

multiple dimensions. These categories include; the merit of a Cap and Trade scheme as opposed to a Carbon Tax; the ability of the scheme to actually reduce carbon emissions; what impact the provision of free permits will have; and finally, the forecast level of growth in the carbon market.

Once a global goal has been agreed upon, the framework for reaching agreement could be structured in a number of ways. The favoured options include price-based emissions controls, including the adoption of national or global carbon taxes, or alternatively the adoption of quantitative-based schemes such as a cap-and-trade model.⁸⁶ Success in reducing emissions, using these two approaches, depends on the stringency of the target or the level of the tax imposed. Betz believes that the decision between the two favoured approaches ultimately boils down to an assessment of which is more likely to be achieved.⁸⁷ It would also be reasonable to assert that the basis on which politicians will decide will be influenced by the palatability of the various options presented to their constituents.

Advocates of both approaches abound. Finkel, suggests that a carbon tax would be simpler, fairer, cheaper, deliver immediate benefits for the environment and could be administered by existing tax agencies.⁸⁸ QANTAS chairman, Leigh Clifford outlines his congruent position:

We should have a carbon tax. (It) can be targeted and you can increase and decrease it, but once you put in an emissions trading system, you unleash something which has to be global. I am just not convinced the developed world will write cheques to buy dirty air out of the underdeveloped world.⁸⁹

⁸⁶ Garnaut, *The Garnaut Climate Change Review*, p. 195.

⁸⁷ Regina Betz, *Climate Policy; Comparing cap and trade and tax schemes*, Presentation given to the Parliamentary Library Vital Issues Seminar, Carbon Tax and Emissions Trading, Canberra, Tuesday 17 March, 2009.

⁸⁸ Alan Finkel, *Why a carbon tax is better*, COSMOS, Issue 27, June/July 2009, p.27.

⁸⁹ Leigh Clifford, cited by John Durie, *Carbon tax better than ETS: Clifford*, The Australian, Business, May 21, 2009, p. 21.

Former BHP Billiton CEO, Paul Anderson reinforces this viewpoint believing that a carbon tax is the most efficient way of achieving the desired carbon reduction.⁹⁰

Support for a Carbon Tax may not be limited to senior business administrators. A recent World Press online poll, for instance, asked respondents ‘*which market-based instrument should be used for targeting Co2 emissions?*’ 71 percent selected a carbon tax.⁹¹

By his own admission, Garnaut agrees that a carbon tax possesses a number of advantages. These include the avoidance of questions pertaining to the distribution of permits between countries and the potentially destabilising effects of large-scale international financial flows as polluters purchase permits on an open global market.⁹²

Abbott, draws an interesting metaphor to add comment to this debate:

Would any government decide that, say, to halve smoking within 10 years, decreasing numbers of permits should be issued to smokers, who could trade those permits among themselves?⁹³

Although providing amusing contemplation of the mushrooming revenues of reformed smokers, Abbott concludes that it is highly unlikely that any government would choose to treat smoking in this way. He advocates instead, the imposition of a heavy tax to combat smoking, or following the analogy to its inferred conclusion, carbon emissions.⁹⁴

Widespread support of the efficacy of Cap-and-Trade models, despite the aforementioned criticisms, remains. Following extensive review of both approaches’ strengths and weaknesses Garnaut concludes that:

⁹⁰ John Durie, *Carbon tax better than ETS: Clifford*, The Australian, Business, May 21, 2009, p. 21.

⁹¹ Climate Change Poll retrieved on 29 August, 2009 from; <http://politicsofclimatechange.worldpress.com/>.

⁹² Ross Garnaut, *The Garnaut Climate Change Review*, p. 196.

⁹³ Tony Abbott, *Turnbull is right, the Coalition can't win this fight*, The Australian, 24 July, 2009, p. 12.

⁹⁴ *Ibid.*, p.12

Only an international agreement that explicitly distributes the abatement burden across countries by allocating internationally tradeable emissions entitlements has any chance of achieving the depth, speed and breadth of action that is now required.⁹⁵

Steketee, while acknowledging the limitations of this approach supports Garnaut's position '*In many ways, an ETS seems like a clunky mechanism. But it has a track record for dealing with greenhouse gases*'.⁹⁶ Switzer, drawing upon a comprehensive historical analysis of emissions trading schemes already in place asserts that Australia's ongoing economic prosperity is intrinsically aligned with the establishment of an ETS.⁹⁷ Furthermore, it would appear that the majority of Australian's favour an emissions trading scheme. A Nielsen poll taken from 13-15 August 2009, of 1400 respondents found that 55 percent wanted the government to '*try again*' [to get its emissions trading scheme through the parliament], while 29 percent want the government to '*wait and see what the rest of the world does*' and only 12 percent want the government to '*abandon the scheme altogether*'.⁹⁸ This response is consistent with a June 2009 poll which found 65 percent of voters supported the ETS and another poll, conducted in July 2008, which established that 67 percent of voters supported an ETS and only 15 percent were opposed.⁹⁹ A PricewaterhouseCoopers survey of Australian business leaders established that 68.2 percent of the sample preferred the proposed CPRS as opposed to a carbon-tax.¹⁰⁰

Although, not the only type of emissions trading scheme, a cap and trade scheme, is the approach favoured by the Rudd Government. It is useful to detail how it works and identify some of its strengths and weaknesses. Switzer defines the model as:

⁹⁵ Garnaut, *The Garnaut Climate Change Review*, p. 196.

⁹⁶ Mike Steketee, *Cool Compromise*, *The Weekend Australian*, May 9-10, 2009, p. 18.

⁹⁷ Switzer, *The Carbon Crunch*, p. 44.

⁹⁸ Neilson Poll, *Majority want Government to try again on ETS*, August 2009, retrieved on the 29 August, 2009, from; <http://au.acnielsen.com/news/200512.shtml>.

⁹⁹ *Ibid.*

¹⁰⁰ PricewaterhouseCoopers, *Carbon ready.....or not*, p. 14.

A market based instrument where parties with emissions trading commitments may trade their emission allowances with other parties, with the aim to improve the overall flexibility and economic efficiency of making emissions cuts.¹⁰¹

Such a model, often referred interchangeably as an emissions trading scheme (ETS) requires that the government legislate to set an aggressive limit on the amount of carbon emissions allowed to be emitted nationally. The government then identifies precisely which business entities are covered by the legislation. The government auctions off permits to these industries. These permits entitle the holder to emit carbon pollution from their business processes. The total amount of carbon allowed to be emitted is equal to the total of the permit pool. This process effectively puts a price on carbon emissions. These entities are enabled to trade permits among themselves on the carbon market. This approach provides an incentive for those entities that can lower their emissions cost-effectively to do so and then trade their surplus permits with other businesses which cannot make such a reduction. Garnaut describes this process as a movement of permits about the economy to their highest, or most economically efficient, use.¹⁰² Over time, the total permit allocation is reduced, i.e. the cap is tightened along a trajectory intended to meet an emissions target. This increases the cost of emissions, which in turn, makes it more cost-effective to reduce emissions than in previous years. As the cap is lowered annually the cost of emissions continues to increase. This is a simple situation where a lower supply of an item, in this case carbon permits, establishes a higher cost to business. Ultimately, this provides a financial incentive to business to continually reduce its carbon emissions so as to limit the number of emissions permits it has to buy.

A weakness of the model is the difficulty by which the correct allocation of permits is determined. This calculation is critical as it is necessary to impose a high enough cost to precipitate a change in business practice, without imposing too high a cost that would lead to a loss of international competitiveness and/or negatively effect consumers. This balancing act is particularly precarious as unless the policy actually effects business and consumers it will not achieve the objective of reducing

¹⁰¹ Switzer, *The Carbon Crunch*, p. 139.

¹⁰² Garnaut, *The Garnaut Climate Change Review*, p. 322.

emissions. Furthermore, such a scheme relies heavily on the accurate and timely reporting of emissions from a multitude of entities. Given the breadth of the entities covered by such a scheme and the likelihood that some entities could attempt to falsify carbon accounts, some kind of regulation and auditing procedure is crucial to ensure compliance and instil confidence. Advantages of the model include the fact that such a scheme could, depending upon scheme design, present the opportunity for the Australian carbon-permit market to integrate with other permit markets over time, thereby, assisting in global carbon emissions mitigation. An example of such an opportunity available to business could be realised in the opportunity to purchase credits from offset projects in other countries. Such a framework would allow for the offsetting of abatement costs in developing countries.¹⁰³ Given the widely held sentiment that developed countries, having reached economic maturity through carbon intensive practices, such a provision may be necessary to impel developing nations to assist in reducing global carbon emissions. Furthermore, Grigg, speaking of the experience of highly indebted electricity utilities in the European Union during 2009's Global Financial Crisis, holds that such a framework can provide a lifeline for permit holders in times of recession as they can sell permits on a much larger market.¹⁰⁴ Another significant advantage relates to the fact that quantitative targets, communicate the extent of commitment to reducing carbon emissions more easily than a carbon tax, thus facilitating for an enhanced possibility of global cooperation. This advantage may become more urgent should the possibility of catastrophic climate change increase as it will compel late-adopters to commit more fully.¹⁰⁵

Although the Carbon Tax and Cap-and-Trade schemes are by far the most common policy choices, a number of commentators offer alternatives. Bjorn Lomborg, for instance, proposes:

¹⁰³ *Ibid.*, p. 197.

¹⁰⁴ Angus Grigg, *The Case for Carbon Trading*, *The Weekend Australian Financial Review*, October 31-November 1, 2009, p. 25.

¹⁰⁵ Garnaut, *The Garnaut Climate Change Review*, p. 197.

One of our generational challenges should be for all nations to commit themselves to spending 0.05% of GDP in R&D of non-carbon emitting energy technologies.¹⁰⁶

Other alternatives that received support in the Virginia Climate Change Survey included; increased fuel efficiency standards for automobiles; increased use of nuclear power; tax reductions for hybrid vehicles; and the creation of renewable energy mandates.¹⁰⁷ In summary, cap-and-trade and carbon taxes are just two of a range of mitigation strategies available.

Another matter central to any examination of the efficacy of the Rudd Government's proposed scheme centres on the amount of assistance that is to be provided to business. In its White Paper the government states its intention to provide substantial transitional assistance to specific industries. This assistance is likely to be in the form of providing 25 percent of the total permit pool to emitting entities at no cost.¹⁰⁸ Establishing the extent of these no-cost allowances and accounting systems for GHG emissions across industries is going to be exceptionally difficult and highly politicized.¹⁰⁹ Hewson, captures the focal claim of this debate:

For a carbon price to work economically, as established by (say) a genuine emissions trading scheme, compensation must be kept to a minimum. It is the price that drives the change in behaviour.¹¹⁰

This view is reiterated by the Low Carbon Future Organisation who assert '*It is important that permits are auctioned and not 'grandfathered'. This will mean that the*

¹⁰⁶ Bjorn Lomborg, *Cool It; The Sceptical Environmentalists guide to global warming*, Marshall Cavendish Editions, London, 2007, p. 212.

¹⁰⁷ Barry Rabe, *Report of the Virginia Climate Change Survey*, Miller Center of Public Affairs, University of Virginia, 2008, p. 12.

¹⁰⁸ Australian Government Department of Climate Change, *Carbon Pollution Reduction Scheme*, Executive Summary.

¹⁰⁹ Kenneth P. Green, Steven F. Hayward, & Kevin A. Hassett, *Climate Change: Caps vs. Taxes*, American Enterprise Institute for Public Policy Research, Environmental Policy Outlook, no. 2, June 2007, p. 2.

¹¹⁰ John Hewson, *Quarry Vision Correspondence*, Quarterly Essay, Issue 34, 2009, p. 118.

pollution is given an economic cost.¹¹¹ Garnaut, an opponent of granting free permits to polluters, argues that *'Anyone who is in favour of an extra \$1bn worth of free emissions permits is in favour of a budget deficit blowing out more.*¹¹² Green, Hayward and Hasset assert that the arbitrary manner in which permits are distributed will surely introduce economic distortions in the marketplace including significant changes in inflation rates, energy prices, and import and export values all the while impacting on business investment and consumption.¹¹³ In light of these statements it must be acknowledged that the *'grandfathering'* of permits may lead to fiscal problems, lead to market volatility all the while failing to achieve the goal of reducing carbon emissions.

According to investment bank ABN Amro a carbon trading scheme, if passed into law, is likely create an annual market in excess of \$4 billion a year in to Australia alone.¹¹⁴ Furthermore, The World Bank's 2007 report into the state and trends of the carbon market indicates that the market grew in value to an estimated US\$30 billion in 2006, three times greater than the previous year and doubled again in 2007 to US\$64 billion.¹¹⁵ The exponential growth in the carbon market led 64.5 percent of respondents in the 2009 Greenhouse Gas & Climate Change Workforce Needs Assessment Survey Report to conclude that carbon will soon be traded at volumes equivalent to or greater than the other major commodities such as coal or steel.¹¹⁶ Analysts support this position suggesting that by 2030 carbon could in fact surpass crude oil as the biggest commodity market in the world.¹¹⁷ Some commentators are of

¹¹¹ Low Carbon Future Organisation, retrieved on 30 May 2009, from; <http://www.lowcarbonfuture.org.au/what-is-emissions-trading>.

¹¹² Ross Garnaut, 2009, cited by Scott Murdoch, *Granting 'free' emission permits will come at a cost: Garnaut*, The Australian, The Nation, August 20, 2009, p. 5.

¹¹³ Kenneth P. Green, Steven F. Hayward, & Kevin A. Hassett, *Climate Change: Caps vs. Taxes*, American Enterprise Institute for Public Policy Research, Environmental Policy Outlook, no. 2, June 2007, p. 3.

¹¹⁴ Switzer, *The Carbon Crunch*, p. 13.

¹¹⁵ Karan Capoor & Philippe Ambrosi, *State and Trends of the Carbon Market 2007*, The World Bank, Washington D.C., 2007, p. 3.

¹¹⁶ GHG Management Institute, *2009 Greenhouse Gas & Climate Change Workforce Needs Assessment Survey Report*, California, 2009, p. 6.

¹¹⁷ Switzer, *The Carbon Crunch*, p. 77.

the view that If our politicians fail to realise the imperative to act now, fail to act decisively and keep ignoring the climate change “elephant in the room” the country stands to lose out on big opportunities for new investment, innovation and growth.¹¹⁸ Le Lievre, providing his assessment of the imperative for the Australian Government to legislate to reduce carbon emissions, thus tying us into the emerging global low-carbon economy, is communicated in the cartoon below:

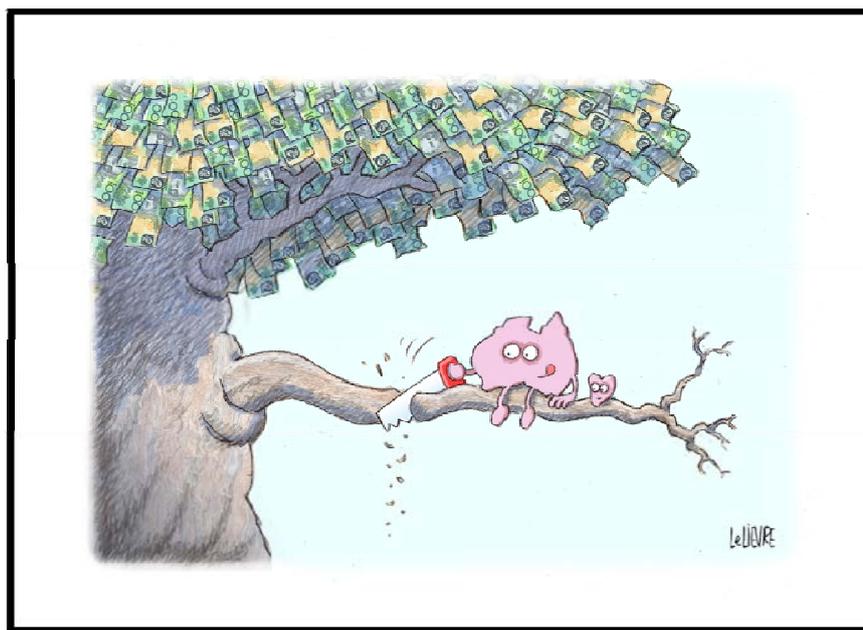


Diagram 3. Money Tree by Glen Le Lievre¹¹⁹

The essential message conveyed in this diagram is that if Australia continues to fail to introduce appropriate climate policies it is effectively cutting itself off from the significant fiscal opportunity. This message is reiterated by Deutsche Bank who are of the view that While global in many senses, local geography will count in terms of opportunity sets and regulation.¹²⁰ The message in the cartoon is taken further when one considers the symbolism of the tree which not only represents the environmental initiative but is confers the advantage of sustainable growth – quite distinct from the

¹¹⁸ Clancy Yeates, *Out on a limb as the world gets serious about climate*, The Sydney Morning Herald, Opinion & Analysis, April 2-4, 2010, p. 5.

¹¹⁹ Glen Le Lievre, *Money Tree*, provided upon request April 12, 2010.

¹²⁰ Deutsche Bank **Investing In Climate Change**
An Asset Management Perspective
October 2007, p. 6.

boom-bust cycles that we have all witnessed as a consequence of the contemporary economic framework.

Problems of volatility in the carbon market are of great concern. The government in its White Paper, reiterates *'like other financial products [carbon permits] could be subject to market misconduct, including market manipulation and insider trading'*.¹²¹ The introduction of an ETS could present major problems, similar to those which lead up to 2008's Global Financial Crisis. This crisis was precipitated through a lack of knowledge and regulation, if a carbon trading market develops that few fully understand, a similar outcome is likely.¹²² Finkel, supports this position:

*In reality markets are not always efficient. As we have seen in the Global financial crisis, markets left to operate without oversight can spin out of control and fail catastrophically.*¹²³

Finkel proposes that the complexity of the proposed emissions trading scheme *'will no doubt be exploited by cunning traders'* in a similar fashion to how they dealt with mortgages and derivatives bringing about the global financial crisis.¹²⁴

Arguments concerning the respective merits of carbon taxes as opposed to cap and trade models, the provisioning of free permits and the growth in the carbon market all intersect with the ability of the proposed scheme to actually reduce carbon emissions. This question, is of course, at the crux of this topic. The White Paper reiterates *'Emissions trading is simply a mechanism to achieve an objective. That objective is to reduce carbon emissions'*.¹²⁵ Alan Moir, cartoonist and political commentator, provides an amusing appraisal of the efficacy of the Rudd Government's Carbon Pollution Reduction Scheme:

¹²¹ Australian Government Department of Climate Change, *Carbon Pollution Reduction Scheme*, Executive Summary.

¹²² Stephen Matchett, *Carbon trading boffins tread warily*, Business Education, The Australian, September 9, 2009, p. 31.

¹²³ Finkel, *Why a carbon tax is better*, p. 27.

¹²⁴ *Ibid.*, p.27.

¹²⁵ Australian Government Department of Climate Change, *Carbon Pollution Reduction Scheme*, Executive Summary.

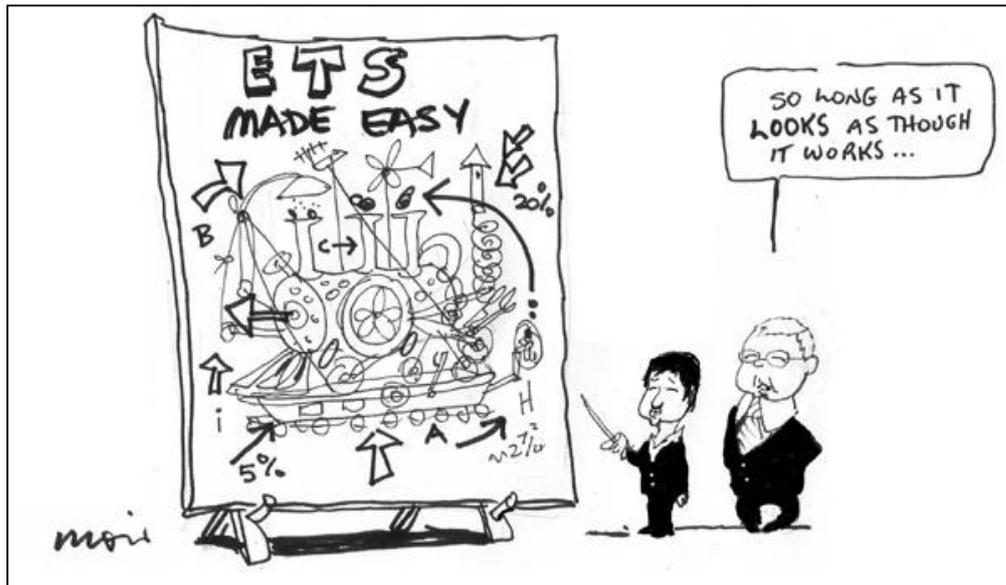


Diagram 4. Alan Moir Cartoon¹²⁶

Depicted within the cartoon is the Minister for Climate Change and Water, Penny Wong and Prime Minister Kevin Rudd. The insinuation is that the proposed scheme, although extremely complex, is not capable of actually reducing carbon emissions. The more troublesome suggestion, however, is that the Prime Minister is fully aware that this is the case yet still intends to proceed with the introduction of the scheme.

Perspectives of Employment Ramifications

One of the major themes, discussed in the media, arising from the process of climate policy reform in Australia centres on the employment impact(s) of an emissions trading scheme. Many positions can be observed in regard to this issue. Akerman designates the ETS as a '*job destroying scheme of wealth redistribution*'.¹²⁷ Carty, using the situation of a Norwegian Company who operate an aluminium smelter in the Hunter region of New South Wales, intimates that the '*looming scheme is scaring*

¹²⁶ Alan Moir, cartoon published in the Sydney Morning Herald, Opinion & Letters, August 21, 2009, p. 10.

¹²⁷ Piers Akerman, *Rudd's hot air will put jobs on the line*, Sunday Telegraph, August 9, 2009, p. 117

investors’ and that such industries will ‘shut up shop in the Hunter and more than likely move operations to China.’¹²⁸ Peter Coates, the Australian chairman of Xstrata, a multi-national mining company, in an industry briefing to members of parliament shared a similar outlook ‘*the ETS would make some mines unprofitable and cut new investment.*’¹²⁹ Senator Boswell, believes that the ETS, even before it has been introduced, has already resulted in many Australian workers losing their jobs.¹³⁰

The literature is replete with positions signifying that the impact of the ETS will be felt by numerous industry sectors. Minerals Council of Australia Climate Change Committee Chairman, Peter Coates states that between 5000 and 10,000 jobs will be lost in the coal industry nationally upon the introduction of an ETS.¹³¹ Fisher & Beare of Concept Economics conclude:

In 2020, it is projected that approximately 23,510 fewer people will be employed in the Australian minerals industry due to the imposition of the proposed ETS, a fall in employment of 11 per cent compared to what otherwise would have occurred. In 2030, this number is projected to reach in excess of 66,400 jobs, a reduction in employment in the minerals sector of 24 per cent compared with the reference case.¹³²

Australia’s electricity generators have warned the Rudd Government that the introduction of an ETS would force many power stations into insolvency.¹³³ National Farmers Federation acting president Charles Burke proposes that an ETS would drastically reduce the income of the average sheep, wheat or dairy farm, claiming the impact will ‘*devastate agriculture.*’¹³⁴ Although agriculture has now been initially excluded from coverage under the CPRS, on-farm expenses will still surely increase.

¹²⁸ Lisa Carty, *Unemployment by the tonne*, The Sun Herald, March 1, 2009.

¹²⁹ Malcolm Farr, *Threat to coal jobs – climate plan hits mines*, Daily Telegraph, 16th April, 2009, p. 15.

¹³⁰ Ron Boswell, *Business can save us from ETS disaster*, The Australian, Opinion, August 25, 2009, p. 10

¹³¹ Malcolm Farr, *Threat to coal jobs*, p. 15.

¹³² Brian Fisher, Stephen Beare & Stephanie Szakiel, *The employment effects in the Australian minerals industry from the proposed carbon pollution reduction scheme in Australia*, Concept Economics, ACT, Australia, 21 May, 2009, p. 1.

¹³³ Lenore Taylor, *ETS ‘may bankrupt power stations’*, The Australian, May 1, 2009, p. 4.

¹³⁴ Charles Burke, cited by Asa Wahlquist, *Proposal expected to butcher farmers*, The Australian, May 5, 2009, p. 6.

The Australian Tourism Industry concludes that the introduction of the CPRS will reduce demand for domestic tourism in Australia and negatively affect tourism exports, the number of international tourists coming to Australia.¹³⁵ Employment projections by Frontier Economics suggests that the CPRS will precipitate a slowing of growth relative to the reference case of 23,000 jobs (2020) and 37,000 (2030) as opposed to an absolute decline (relative to current levels).¹³⁶ Forecasts commissioned by the state and territory governments suggest a loss of 126,000 jobs across the economy by 2020.¹³⁷ Plimer offers an extreme point of view to summarise these positions where he proposes that the workforce in industrial centres '*will be lambs to the slaughter with an ETS.*'¹³⁸

At present, many industries are threatening to move offshore because the proposed scheme will make staying in Australia too expensive.¹³⁹ This response reinforces the belief that an emissions trading scheme will result in large rates of unemployment and drastically reduce capital investment in Australia. Many Australian based, however not necessarily Australian owned, organisations are spruiking that the introduction of an emissions trading scheme in Australia will be analogous to a wrecking ball to both their own organisations, and ultimately, Australia's economy.

On the contrary, other commentators believe that a tough carbon reduction scheme, such as that recently released from the United State's House of Representative's Energy and Commerce Committee, will result in the creation of huge numbers of

¹³⁵ Serajul Hoque, Peter Forsyth, Larry Dwyer, Ray Spurr, Thiep Van Ho & Daniel Pambudi, *Economic Effects of the Carbon Pollution Reduction Scheme on the Australian Tourism Industry: A Dynamic CGE Analysis*, paper presented at the Twelfth Annual Conference on Global Economic Analysis (GTAP) "Trade Integration and Sustainable Development: Looking for an Inclusive World", Santiago, Chile, June 10-12, 2009, p. 2.

¹³⁶ Frontier Economics, *The economic impact of the CPRS and modifications to the CPRS*, report for the coalition and Senator Xenophon, August, 2009, p. 21.

¹³⁷ Brendan Pearson, *Ex AP = a tax on energy*, The Australian, July 23, 2009, p. 12.

¹³⁸ Ian Plimer, *Hot-air doomsayers*, The Australian, May 5, 2009, p.10.

¹³⁹ Lisa Carty, *Unemployment by the Tonne*.

clean energy jobs.¹⁴⁰ Despite the ominous outlook, Pearse proposes that not one credible piece of economic research suggests that making deep cuts in emissions by 2050 would cause even a temporary recession, let alone crash the economy, cut GDP, send energy prices spiralling upwards or cause whole industries to shut down or flee our shores.¹⁴¹ The experience of the establishment of an ETS in the European Union demonstrates that such an outcome has not eventuated. Economic modelling suggests that early and profound action to reduce emissions will delay the trebling of the economy and doubling of real wages by a few years at most, generate 250,000 jobs and save rather than cost money through a reduction in Australia's exposure to international carbon prices being levied on our exports.¹⁴²

The creation of 'green energy jobs' is an alternative viewpoint relating to the impact on employment. US president Barack Obama speaks of creating five million new green jobs whilst Prime Minister Kevin Rudd wants green collar jobs to insulate the economy against recessions.¹⁴³ Australian Workers Union national secretary, Paul Howes, points out quite correctly '*policymakers are yet to define what constitutes a green job.*'¹⁴⁴ This failure has contributed to some ambiguity, nevertheless several commentators hold that the proposed carbon pollution reduction scheme will present plentiful employment opportunities. Pearson observes that '*the first green jobs have already arrived and they are found in the offices of consultants, auditors, law firms (and mathematicians) across the country.*'¹⁴⁵ The 2009 Greenhouse Gas & Climate Change Workforce Needs Assessment Survey Report provides valuable findings. This research reports on a survey administered to 700 key international industry

¹⁴⁰ Marian Wilkinson, *US Greenhouse Bid Puts Pressure n Rudd's Plan*, The Sydney Morning Herald, Thursday April 2, 2009, p. 7.

¹⁴¹ Guy Pearse, *Quarry Vision; Coal, Climate Change and the end of the Resources Boom*, Quarterly Essay, issue 33, 2009, p. 23.

¹⁴² *Ibid.*, p. 23.

¹⁴³ Karalyn Brown, *Six promising green areas offer skilled employment prospects*, Weekend Australian, Weekend Professional, April 25-26, 2009, p. 4.

¹⁴⁴ Paul Howes cited by Keith Orchison, *Focus on carbon fallout*, Weekend Australian, Weekend Professional, April 25-26, 2009, p. 1.

¹⁴⁵ Brendan Pearson, *E x AP = a tax on energy*, p. 12

professionals, scientists and organisational leaders throughout public, private and non-for-profit sectors.¹⁴⁶ Key findings of this report, pertinent to this discussion, include;

- 83.9 percent of respondents believed that there is a shortage of qualified personnel and experts to undertake current needs and planned activities in the face of climate policy reform.
- 86.8 percent believe there will be a shortage of qualified experts in the market place to support new emission trading schemes and other policies.
- 84.7 percent believe that the Greenhouse Gas Industry will experience 25 percent growth. Additionally, over 88.9 percent believe the industry will at least double in the next five years; with 22.8 percent saying that it will triple and 19.6 percent saying that it would more than triple.
- No single respondent surveyed believes the industry will shrink in the next 1-5 years.
- 77.2 percent of respondents expect that Greenhouse Gas accounting and management will become professionalised in a fashion similar to that of the IT industry in the 1980's.¹⁴⁷

When reviewing these positions, in light of the earlier pessimistic positions, it is evident that heterogeneous employment outlooks, between various employment sectors, exist.

An increase in industries' need for appropriately qualified personnel, as forecast by the Workforce Needs Assessment Survey Report, is currently occurring. This is consistent with the findings of the CSIRO report. *Growing the Green Collar Economy*, 'achieving the transition to a low carbon sustainable economy will require a massive mobilisation of skills and training'.¹⁴⁸ David Marriott, director of Constructive Recruitment confirms that employment growth sectors such as renewable energy have grown so rapidly that talent is short on the ground.¹⁴⁹ Matchett believes that the ETS is creating new derivatives markets which require research to

¹⁴⁶ GHG Management Institute, *2009 Greenhouse Gas & Climate Change Workforce Needs Assessment Survey Report*, p. 5.

¹⁴⁷ *Ibid.*, p. 5.

¹⁴⁸ Steve Hatfield-Dodds, Graham Turner, Heinz Schandl & Tanjuna Doss, *Growing the green collar economy: Skills and labor challenges in reducing greenhouse emissions and national environmental footprint*, Report to the Dusseldorp Skills Forum, June 2008, CSIRO Sustainable Ecosystems, Canberra.

¹⁴⁹ David Marriott, cited by Cameron Cooper, *Skills deficit curbs growth*, Weekend Professional, The Weekend Australian, May 2-3, 2009, p. 6.

set up and educated staff to administer.¹⁵⁰ Mussared, director of an environmental employment website reinforces the optimistic employment outlook:

The only thing that will prevent a major boom in the environmental employment sector over the next ten years will be a societal meltdown of some kind.¹⁵¹

Although providing an optimistic assessment, it would be hoped that such a ‘societal meltdown’ is not precipitated by the impact of climate change. A third viewpoint of the employment ramifications the CPRS will present is offered by the authors of the CSIRO report, *Growing the Green Collar Economy: Skills and Labour Challenges*. This study predicts that in the event of the economy “going green”, many new roles will be created even as some old ones disappear. They predict that there will be little or no overall impact on national employment.¹⁵² Brown labels this a zero-sum outcome.¹⁵³ This thesis will assess the resultant employment implications, as perceived by the sample population, in Chapter Four.

Perspectives of State Autonomy

One of the central themes arising from the debate surrounding the introduction of an Emissions Trading Scheme in Australia relates to the extent to which the sovereign state is autonomous in pursuing the climate policy reform which it seeks. Gittins commented, quite accurately, in early 2009 that:

It is now highly likely that a bizarre alliance of environmentalists and business interests will defeat the Rudd Government’s carbon pollution reduction scheme.¹⁵⁴

¹⁵⁰ Stephen Matchett, *Carbon trading boffins tread warily*, business education, *The Australian*, September 9, 2009, p. 31.

¹⁵¹ David Mussared, cited by Karalyn Brown, *Six promising green areas offer skilled employment prospects*, *Weekend Australian*, Weekend Professional, April 25-26, 2009, p. 4.

¹⁵² Hatfield-Dodds et al., *Growing the green collar economy*: Report to the Dusseldorp Skills Forum.

¹⁵³ Brown, *Six promising green areas offer skilled employment prospects*, p. 4.

¹⁵⁴ Ross Gittins, *Emission Impossible: Unholy alliance set to sink carbon reduction plan*, Monday Comment cited in *The Sydney Morning Herald Business Day*, Monday March 2, 2009, p. 19.

The literature is awash with suggestions that the climate policy debate, and ultimately the choice, design and specification of a mitigation strategy is one that has been strongly influenced by non-state actors. Garnaut advises;

These realities (vested interests in the public policy process) need to be kept in mind if we are to retain perspective in the domestic debate about mitigation and the introduction of an emissions trading scheme.¹⁵⁵

The importance of inquiring into the extent to which the government has acted alone is realised in the view that only by acting autonomously, and not pandering to the self-interest of non-state actors, can the scheme be developed in such a way as to provide the best solution to the problem.

The scope and significance of the impacts associated with climate change and its mitigation have undoubtedly led many organisations to attempt to influence domestic and foreign climate policy reform. The question raised, therefore, is who in fact is dictating climate change policy in Australia? These questions have recently been brought to public attention. The uncertainty surrounding the impacts of this reform has served to create schisms between state and non-state entities. At present the Federal Government is trying to introduce a highly controversial reform, while being challenged from all directions.¹⁵⁶ Simultaneously those who view the proposed scheme as either being too weak or too harsh are ridiculing the government.

In mid 2009, the government chose to delay the introduction of the scheme and create further concessions for the nation's heaviest polluters. Commentators perceive this deferral as *'the biggest policy reversal of Rudd's prime ministership, aimed at wooing big-business'*.¹⁵⁷ Blackburn, commenting on the apparent about-face states:

Kevin Rudd's changes to his emissions trading scheme further lock in free permits and a right to pollute for Australia's dirtiest industries, yet Malcolm

¹⁵⁵ Ross Garnaut, *The Garnaut Climate Change Review*, p. 196.

¹⁵⁶ Ross Gittins, *Economists Fiddle While Climate Burns*, cited in The Sydney Morning Herald Weekend Edition, March 14-15, 2009.

¹⁵⁷ Phillip Coorey, *Carbon bill burns as Rudd fiddles*, The Sydney Morning Herald, May 5, p. 1.

Turnbull wants to block it unless there are more handouts for the coal industry. What more proof is needed that Australia's political system has been carbon-captured.¹⁵⁸

This view is reiterated by Jackson who argues that the Australian Labor Party (ALP) cannot go on forever protecting the coal industry.¹⁵⁹ It is interesting to note that traditionally, distributional consequences of previous economic reform in Australia have not generally compensated the owner's of capital for the loss of future profits arising from policy changes.¹⁶⁰ In the current situation, however, transitional assistance and compensation is being provided to the tune of \$2.15 billion dollars over five years, through the Climate Change Action Fund.¹⁶¹ Other commentators, such as Hockenberry insinuate that power companies have successfully shifted the government's focus away from sources of decentralised renewable energy, such as solar panels on individual homes, toward a market based on the same ideology and supply chain of our current system.¹⁶² Taken collectively, these observations have been regarded as proof that the autonomy of the Australian government to introduce climate policy which will prove to be ultimately effective in addressing climate change as negligible.

A second piece of research that has informed this study was conducted by Pearse.¹⁶³ His work provides insight into the politics behind Australia's response to climate change. Pearse argues that the belief that Australia's greatest asset is its mineral and energy resources – coal above all - is a deliberately manufactured and actively propagated misconception. Through a case study approach the coal industry's response to calls to reduce emissions is analysed. Pearse offers that fossil-energy

¹⁵⁸ Naomi Blackburn, *Letters to the Editor*, *The Australian*, May 6, 2009, p. 17.

¹⁵⁹ Neville Jackson, *Letters to the Editor*, *Energy sources must be allowed to compete equally*, *The Australian*, July 23, 2009.

¹⁶⁰ David Richardson & Richard Dennis, *The impact of an Emissions Trading Scheme on State Government Budgets*, *Research Paper No. 54*, *The Australia Institute*, August, 2008, p. 1.

¹⁶¹ Australian Government Department of Climate Change, *Carbon Pollution Reduction Scheme: Australia's Low Carbon Future*, White Paper, Foreword.

¹⁶² Adam Hockenburry, Letter, *New Scientist*, no. 2683, 22nd November, 2008, p. 24.

¹⁶³ Guy Pearse *Quarry Vision*.

producers and their biggest Australian customers exert a disproportionate political influence. These organisations recognised that the best way to attract government support is to confuse the national interest with that of their own.¹⁶⁴ This is achieved by threatening to take operations elsewhere, thereby resulting in domestic unemployment. Such an assertion resonates with the positions of many industry leaders detailed previously in the study and, as will be seen in Chapter Four, with the surveyed population.

Pearse proposes that a multitude of carbon-intensive industries has formed a coordinated coalition that seeks to strategically influence Australia's climate change policy. He proposes that this 'carbon lobby' have been conducting a meticulously planned, decades-long campaign to achieve the following objectives:

- Prevent action by Australia on climate change.
- Delay action if a response to mitigate against climate change becomes inevitable.
- Nurture the seeds of doubt whether climate change is caused by burning fossil fuels.
- Persuade governments that emissions-intensive industries make a much greater economic and employment contribution than is actually the case.
- Advertise that greenhouse mitigation practices will wreck the Australian economy.
- Argue that Australia was a special case, possessing less scope to decarbonise.
- Making Australian action conditional on action by other countries, as there would always be sufficient recalcitrance elsewhere to justify delay.¹⁶⁵

The extent to which these proposed objectives currently appear to resonate within the Rudd Government's White Paper¹⁶⁶, the media and the public discourse lends credence to Pearse's analysis.

¹⁶⁴ *Ibid.*, p. 31.

¹⁶⁵ *Ibid.*, p. 32.

¹⁶⁶ The Australian Government, *Carbon Pollution Reduction Scheme: Australia's Low Pollution Future, White Paper*, Foreword.

Pearse's research seemed to ignite strong sentiments from others in the community who hold that climate policy reform in Australia is being strongly influenced by non-state actors. In the ensuing correspondence to Pearse's research Newell, proposed:

Politicians habitually associate with companies that generate cash flow. As well as filling their shareholders' coffers and government kitties, they are often the source of election donations.¹⁶⁷

Keane, offers that the pervasive influence, that such financial dependence yields, means that genuine debate on the need to address climate change is made impossible.¹⁶⁸ Another issue is raised by Al Gore, himself a former politician:

Politicians often confuse self-interested arguments paid for by lobbyists and planted in the popular press with legitimate, peer-reviewed studies published in reputable scientific journals.¹⁶⁹

Hewson supports these views, believing that *'the most vocal and best-funded vested interests easily hold sway.'*¹⁷⁰ These arguments suggest that the time-scales of democratically elected governments, striving for re-election and dependent upon corporate financial support, compromises the political independence necessary to bring about effective climate change policy reform.

When reviewing sovereign autonomy it is necessary to assess the impact that globalisation and market fundamentalism have had in recasting authority between the state, owner's of capital and labour. Globalization and market fundamentalism were previously extolled as the means of ensuring faster economic growth in all countries, and as such, were readily embraced by developed and developing nations alike.¹⁷¹ Commentators, such as Quiggin, hold that the authority of the nation state has been

¹⁶⁷ Patrice Newell, *Quarry Vision Correspondence*, Quarterly Essay, Issue 34, 2009, p. 102.

¹⁶⁸ Bernard Keane, *Quarry Vision Correspondence*, Quarterly Essay, Issue 34, 2009, p. 108.

¹⁶⁹ Al Gore, *An Inconvenient Truth*, p. 260.

¹⁷⁰ John Hewson, *Quarry Vision Correspondence*, Quarterly Essay, Issue 34, 2009, p. 117.

¹⁷¹ A Singh, *Liberalization and globalisation; An unhealthy euphoria*, in *Employment and Economic Performance: Jobs, Inflation and Growth*, eds Jonathon Michie & John Grieve Smith, Oxford University Press, 1997. p. 1.

eroded by Globalisation and capital market liberalisation asserting that in pursuing a deregulated capital market Australia has relinquished a large-degree of macro-economic autonomy.¹⁷² Meckling proposes that transnational actors play a significant role in transmitting climate policy and thus state power.¹⁷³ Paraskevas outlines the dangers of the current situation:

Transferring authority to a proliferating number of non-state actors can only undermine stability and order in the long run. Although these transnational corporations and financial speculators are not a monolithic entity they do have common interests and policies.¹⁷⁴

The ability of businesses to invest and/or withdraw capital has seen the rise of a global economic framework which has the capacity to operate in favour of speculative and vested interests, as opposed to the interests of productive trade and investment.¹⁷⁵ Chomsky holds that the magnitude of funds free to transfer from one national economy to another, an amount which overwhelms any national government's resources, leaves governments with only an extremely narrow range of choices when it comes to setting policies.¹⁷⁶ The current state of state/speculator/investor interdependence has reached extreme levels, with interdependence by definition entailing a certain loss of state authority.¹⁷⁷ The emissions intensive industries which are often large employers make critical capital investments. The effect that the withdrawal of this capital or the inability to attract future investment would have on the Australian economy is profound. The government may be pressured to appease these entities so as to avoid this outcome. These corporations under the current global

¹⁷² John Quiggin, 2001, *Globalisation and economic sovereignty*, the Journal of Political Philosophy, vol 9, no. 1, 2001. p. 67.

¹⁷³ Jonas Meckling, *Transatlantic Interdependence in US Climate Change Policy; Cross-Border State-Business Relations Challenging State Autonomy*, Global Governance Working Paper, No. 16, 2005.

¹⁷⁴ D. Paraskevas, 1999, *The Global information Imbalance; how the globalizing force affects the concept of sovereignty of nation states*, unpublished essay, retrieved on the 16/10/08 from; website unknown.

¹⁷⁵ Anthony Ramsay, 1999, *The Ramifications of the Bretton Woods Compromise; "Keynes' Proposals in Light of Post-War International Monetary Relations*, Unpublished Thesis, UNE, Armidale.

¹⁷⁶ Noam Chomsky, *Understanding Power*, p. 378.

¹⁷⁷ S.P. Haigh, *Globalisation and the Sovereign State: Authority and Territoriality Reconsidered*, Refereed paper presented to the First Oceanic International Studies Conference, Australian National University, Canberra, 2004, p. 7.

economic framework possess an ability to profoundly influence the state's policies. If the interests of these entities are incompatible with what is required to effectively respond to climate change the government is placed in a difficult position. Ultimately, the efficacy of the proposed scheme is compromised.

Chapter Three: Methodology

The purpose of this chapter is to outline the methods employed within the research. The study utilises a mixed-methods approach in order to arrive at an in-depth understanding of the debate surrounding climate policy reform in Australia. In order to structure the enquiry, the thesis has been organised around several key topics. Each topic represents a central tenet of the debate accompanying this reform. A review of the available literature, as it applies to each tenet, is included in Chapter Two. Chapter Four presents the results, of a multi-theme Web-based survey questionnaire. In addition, this chapter details and discusses the data set making extensive use of descriptive statistics and tables. A statistical model is applied to the data to indicate if the distribution of responses, to each survey item, demonstrates a statistically significant relationship with either the demographic variable (Industry) and/or the attitudinal variable (Belief). The application of this model and a discussion of the findings are provided in Chapter Five.

The findings presented within the broader literature are assessed for coherence with the views expressed by key stakeholders. This is achieved through the use of quantitative inquiry. A survey questionnaire was employed in order to gauge the attitudes of two groups of individuals who stand to be impacted upon by the proposed scheme. This instrument is included in Appendix 2. Creswell assists in defining survey research designs:

Procedures in quantitative research in which investigators administer a survey to a sample or the entire population of people in order to describe the attitudes, opinions, behaviours, or characteristics of the population.¹⁷⁸

The specific design employed is cross-sectional in nature, in that it collects data at one point in time. As evident within the definition provided, this approach is ideally suited to assist in the identification of the perspectives of key stakeholders as they relate to the objectives of this study.

The survey instrument is formatted around a five-point Likert scale. It consists of seventeen questions with respondents being asked to indicate which category, along a continuum ranging from strongly disagree to strongly agree, best represents their attitude toward each question. This approach has been selected as it is consistent with the literature that proposes that Likert-type scales are useful for measuring attitudes, beliefs, opinions, and similar psychological constructs and sentiments.¹⁷⁹ The questions within the survey have been grouped into a number of themes that constitute a specific construct that will be discussed within the section. This division can be summarised as:

- Questions 1-5: Perspectives of the Efficacy of Mitigation Strategy.
- Questions 10-12: Perspectives of State Autonomy.
- Questions 11-13: Perspectives of Climate Change
- Questions 14-16: Perspectives of the Employment Ramifications of the CPRS.

In addition to these questions, the survey instrument includes eight demographic and preliminary probes. The demographic items ascertain the respondent's age, gender, the position they hold within their organisation (early career; experienced employee; management; senior/executive; other), the sector in which they work (Financial services or Resource Sector) and finally, the type of employment they hold (Full-time or Part-time/temporary/casual). The preliminary probes prompt respondents to assess

¹⁷⁸ John W. Creswell, *Educational Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research*, Pearson Education, New Jersey, 2005, p. 354.

¹⁷⁹ Cooksey, *Illustrating Statistical Procedures: For Business, Behavioural & Social Science Research*, Prahran, 2007, p. i. p. 19.

their level of knowledge, the level of organisational awareness, and finally their view as to how the policy reform will impact upon them personally.

Pre-defining these constructs and embedding them into the survey design provided significant advantages. Firstly it allows for a greater coherence between the various survey items. Secondly, it provides the opportunity to review the responses to the various items collectively, rather than in isolation. Finally, it lends enhanced credibility and legitimacy to the report as the questions put to respondents are those that have been consistently brought to the forefront of the debate accompanying climate policy reform. Taken collectively, this allows for the report to situate its findings within the literature, thus contributing to the ongoing discourse.

The respondents to which this instrument is targeted represent two distinct groups of individuals. People working in Financial Services (including banking, insurance and financial markets) constitute the first group. The Second group consists of individuals working in the resource sector (including, mining and energy production). The use of this approach presents a number of advantages. Firstly, the introduction of an emissions trading scheme will serve to directly impact upon these groups. Secondly, these individuals, as a consequence of their proximity to the debate, are uniquely qualified to participate within the study. Thirdly, it will allow the project to identify if these stakeholders support or discount the findings established within the qualitative component of this inquiry. Finally, it will provide ample opportunity to discuss the similarities and/or differences of the responses provided by these groups as many commentators are of the view that the policy reform will impact upon these groups in vastly different ways. Both Akerman¹⁸⁰ and Finkel¹⁸¹, for instance, propose that the ETS will have a positive effect on individuals working in financial services. In contrast, Minerals Council of Australia Climate Change Committee Chairman, Peter

¹⁸⁰ Akerman, *Rudd's hot air will put jobs on the line*, p. 117.

¹⁸¹ Finkel, *Why a carbon tax is better*, p. 27.

Coates is but one of many commentators who forecast a detrimental impact on those working within the resource sector.¹⁸²

An external research agency was employed to assist in data collection. Cooper & Schindler propose that proprietary solutions offered through research firms are a perfectly legitimate option in business research.¹⁸³ Research Now, a large, multi-national and independent research agency offer a range of research services. Their assistance was gained to host the survey questionnaire and invite specifically targeted respondents to complete it. The criteria that Research Now devised to target respondents was:

- 1) Individuals (regardless of gender), located within Australia, aged 20 years or older who work in financial services.
- 2) Individuals (regardless of gender), located within Australia, aged 20 years or older, who work in Mining/energy production.

A simple random sample of individuals who satisfy these membership criteria was then drawn, from Research Now's registered participants. The compiled data set was provided, in raw form, for statistical analysis and discussion.

Justification of Approach

The choice of qualitative investigation, employed within the literature survey, reflects a conscious effort to ensure that the method of inquiry is most appropriate to the problems that the project aims to address. The use of a case study approach, around which the topics of the literature survey reports, was selected as it enables the researcher to give a holistic account of the subject of the research. This approach facilitates for a focus on the interrelationships between all the people, groups, policies, technology and other factors.¹⁸⁴ The implementation of an emissions trading

¹⁸² Farr, *Threat to coal jobs – climate plan hits mines*, p. 15.

¹⁸³ Cooper & Schindler, *Business Research Methods*, p. 345.

¹⁸⁴ C. Fisher et. al., *Choosing a Topic and Designing the Project*, in, *Researching and Writing a Dissertation for Business Students, 2004*, p. 52.

scheme must take into account the associations between politics, policy, economics and the often-conflicting objectives of a myriad of individuals, organisations and nations. As such, case research is ideally qualified to allow for a very detailed account of the phenomena(s) under investigation. This account, therefore, can provide insights into the wider landscape in which the Carbon Pollution Reduction Scheme is to be situated.

The ability of qualitative inquiry to apply a holistic approach and arrive at an in-depth understanding is a significant advantage.¹⁸⁵ It allows for a vast array of appropriate techniques and perspectives to be incorporated into a study of a single phenomenon. This allows for the study to '*stimulate ideas about different ways of viewing organisations, provide food for thought and suggest possible directions for future studies*'.¹⁸⁶ Consequentially, a holistic view of respondents' opinions of the impact of climate change and mitigation practices can be derived. Given that very little action to combat climate change in Australia has taken place to date, the use of qualitative enquiry presents a unique opportunity to establish efficient practices from the outset.¹⁸⁷ Furthermore, as Gummerson articulates:

Case studies can be of particular value in the applied social sciences where research often aims to provide practitioners with tools. Case Research is particularly useful when the audience are managers who must implement findings.¹⁸⁸

This comment is relevant to the study as it is envisioned that the findings may be used to inform organisations as to how they can modify their operations and strategy to prepare for the transition toward a carbon-constrained economy.

The literature provides ample discourse as to the most appropriate scenarios to use a survey questionnaire. Cooper and Schiendler propose two criteria, that when met,

¹⁸⁵ Gummesson, *Case Study Research*, p. 76.

¹⁸⁶ Harman & Cooksey, *Methods in Organisational Research*, p. 5:6.

¹⁸⁷ Warwick J. McKibbin & Peter J. Wilcoxon, *The Role of Economics in Climate Change Policy*, cited in, *Journal of Economic Perspectives*, Vol. 16, no. 2, Spring 2002, p. 107.

¹⁸⁸ Gummesson, *Case Study Research*, p. 76.

serve to maximise the usefulness of the survey approach. Firstly, the most appropriate applications for surveying are those where the participants are uniquely qualified to provide the desired information.¹⁸⁹ Secondly, many studies have shown that better-educated participants and those more interested in the topic answer surveys.¹⁹⁰ In this specific scenario both criteria are met. Individuals working in financial services and the resource sector both possess specialist knowledge in their particular field that is appropriate to this investigation, furthermore, it can be reasonably assumed that these persons, on average, are reasonably well-educated.

This approach has a number of benefits over other methods of collecting numerical data for quantitative analysis. A survey is employed as it has the purpose of collecting, measuring and describing specific characteristics of a group of people, objects or institutions.¹⁹¹ Employing a survey and collecting data specific to this research project allows for control over the structure of the sample and the data obtained from each respondent, giving greater confidence that the data will match the objectives of the study.¹⁹² The greatest strength of surveying is its versatility. It does not require that there be a visual or other objective perception of the information sought by the researcher.¹⁹³ Therefore, subjects intrinsic to the participants, such as attitudes, expectations, beliefs, intentions and opinions, as they relate to the Carbon Pollution Reduction Scheme, can be elucidated.

A final advantage of utilising a survey is that it lends itself to the collection of quantitative data that can then be analysed by statistical procedures. The use of statistical procedures allows the researcher to transform and condense large amounts of information into a form that can be interpreted as telling a particular story or as supporting a particular research question.¹⁹⁴ By summarising and interpreting the responses to the survey, through the use of statistics, complex patterns and trends can

¹⁸⁹ Cooper & Schindler, *Business Research Methods*, p. 319.

¹⁹⁰ *Ibid.*, p. 342.

¹⁹¹ *Ibid.*, p. 8:2.

¹⁹² Easterby-Smith et al, *Management Research*, p. 219.

¹⁹³ Cooper & Schindler, *Business Research Methods*, p. 319.

¹⁹⁴ Cooksey, *Illustrating Statistical Procedures*, p. i.

be illuminated and inferences can be drawn both in relation to this data set and with the findings derived through the qualitative analysis. The use of statistics allows the researcher to increase their awareness of the dynamics and the phenomena that are active within the data, whether those phenomena are important to the purpose of the research or not.¹⁹⁵ Leedy and Ormrod reinforce the importance of this practice where they state that '*the astute researcher overlooks nothing*'. In summary, the use of a survey questionnaire allows for a cost and time effective method of data collection that is versatile, able to explore subjects internal to the participant and yields information that can be analysed by complex statistical procedures.

Defining a population for each of these two groups independently, complete with the required contact details, could have presented significant challenges. Various convenience-sampling methods, such as snowballing, had been considered as alternatives but were discounted due to methodological concerns. Utilising a third party, who possess an exceptionally large number of registered participants presented the opportunity to overcome this problem. This advantage is being realised by the research community as indicated by the growing popularity of outsourcing of survey functions.¹⁹⁶ The ability to set specific parameters in order to define the two populations from which data was to be produced presented the advantage of specifically targeting those individuals whose response was integral to the study.

A decision was made to use a web-based survey rather than a traditional postal survey. Coomber proposes '*the existence of the Internet and the World Wide Web (WWW) clearly provide new horizons for the researcher*'.¹⁹⁷ Cobanoglu & Cobanoglu while detailing the significant developments in survey methodology, made in the twentieth century, propose that technology based surveys are similar if not more significant advances than the introduction of random sampling in the 1940's and

¹⁹⁵ Paul D. Leedy & Jeanne Ellis, *Practical Research: Planning and Design*, 8th edn, New Jersey, 2005, p. 247.

¹⁹⁶ Joel, R. Evans & Anil Mathur, *The Value of Online Surveys*, Internet Research, vol. 15, issue. 2, Emerald Group Publishing, 2005. p. 195.

¹⁹⁷ R. Coomber, *Using the Internet for Survey Research*, Sociological Research Online, vol.2, no.2, <http://www.socresonline.org.uk/socresonline/2/2/2.html>, 1997, p. 2.

telephone interviewing in the 1970's.¹⁹⁸ As the researcher was committed to the incorporation of a contemporary research approach, so as to gain competence and familiarity with their application for future research, the opportunity to apply a web-based technique was embraced. Furthermore, upon deep reflection as to the most appropriate method of data collection to employ toward the objectives of this study, this approach was found to be clearly superior. The advantages of technology based surveys are numerous and, at times, profound. Woong, Yun & Trumbo outline one such advantage:

Electronic surveys provide a faster reaction time than mail surveys. Many studies have reported that most email responses arrive within two to three days following the initial contact.¹⁹⁹

With the widespread adoption of email among corporate, scholastic, and government populations, dissemination of survey materials among such populations has never been so easy.²⁰⁰ Other advantages include the fact that Web surveys are stricter in how they allow answers, they make the survey experience smoother for the respondent and finally, they assist in reducing the number of missing and incomplete data records.²⁰¹

Case research and survey questionnaires reflect numerous presuppositions consistent with the contrasting methodological paradigms. These differences could have benefited or detracted from the study depending on the criteria upon which they were judged. As such, it proved difficult to justify one approach over the other. Fortunately, as Harman & Cooksey propose *'the division represents a false dichotomy.'*²⁰² The modes are not mutually exclusive and the use of one method should not necessarily

¹⁹⁸ Cihan Cobanoglu & Nesrin Cobanoglu, *The effect of incentives in web surveys: application and ethical considerations*, International Journal of Market Research, vol.45, quarter 4, 2003, p.475.

¹⁹⁹ Gi Woong Yun & Craig, W. Trumbo, *Comparative Response to a Survey Executed by Post, E-mail & Web Form*, School of Journalism and Mass Communication, The University of Wisconsin, Madison, 2000, p. 11.

²⁰⁰ Christine B. Smith, *Casting the Net: Surveying an Internet Population*, Naval Postgraduate School, Monterey, California, 1997, p. 2.

²⁰¹ Woong Yun & Trumbo, *Comparative Response to a Survey Executed by Post, E-mail & Web Form*, p. 13.

²⁰² Harman & Cooksey, *Methods in Organisational Research*, p. 3:6.

constrain the researcher from employing the alternative mode of inquiry.²⁰³ Harman & Cooksey advise that there is ‘*no inherently superior mode of inquiry*’.²⁰⁴ Leedy & Ormrod reinforce this notion where they offer that no single approach leads exclusively to a better understanding of the unknown.²⁰⁵ Each style possesses intrinsic features making it more or less suitable in various scenarios. Furthermore, the combination of methods, as has been achieved in this study, serves to provide deeper understandings, thereby enhancing the quality of data interpretation, whilst concurrently augmenting both the reliability and validity of the findings.

Weakness of Approach

The weaknesses with the aforementioned approach mostly relate to the quantitative component of the method. The most significant problem is that faced by all social researchers, namely, bias. Although a random sample was drawn from Research Now’s respondent panel, this is not to infer that the population from which this sample is drawn is representative of the wider population. The individuals, who are registered on Research Now’s panels, are by their very nature, restricted to internet and email users. Mehta expresses concern that email respondents over-represent the middle-to-upper class individual.²⁰⁶ Schmidt proposes that the population of Internet users is biased toward young males of above-average socio-economic and educational status.²⁰⁷ The number of internet users in the world almost doubles every year.²⁰⁸ Ongoing trends in Internet demographics, suggest that the aforementioned biases may not be as profound, as in earlier years. Yun & Trumbo, utilising the work of CommerceNet and Media Metrix suggest there has been a normalization of the gender

²⁰³ *Ibid.*, p. 3:6.

²⁰⁴ *Ibid.*, p. 9:3.

²⁰⁵ Leedy & Ormrod, *Practical Research*, p. 94.

²⁰⁶ R. Mehta & E. Sivadas, *Comparing Response Rates and Response Content in Mail Versus Electronic Mail Surveys*. *Journal of Market Research Society*, 37(4), 429-439.

²⁰⁷ W.C. Schmidt, *World-Wide Web Survey Research: Benefits, potential problems, and solutions*. *Behaviour Research Methods, Instruments and Computers*, 29, 274-279.

²⁰⁸ Cobanoglu & Cobanoglu, *The effect of incentives in web surveys*, p.475.

ratio in addition to normalization in terms of age.²⁰⁹ This position is supported by Comber who suggests:

As use of this technology becomes more general, as is already happening, concerns around sampling bias will come to resemble more closely those which regularly affect conventional surveys.²¹⁰

Although painting a favourable future for web-based survey research, biases in online survey respondents' socio-political and cultural preference are still issues that remain to be fully explored.²¹¹

Another potential bias inherent to this mode of inquiry relates to the social desirability effect. Significant disagreement within the research community in regards to the direction and strength of this effect exists. Woong Yun & Trumbo explicate:

Some researchers report that computerised surveys increase socially desirable answers and reduce respondent's self-disclosure (Davis & Cowles, 1989; Lautenschlager & Flaherty, 1990; Schuldberg, 1988). But other researchers claim that the computerised survey produces less socially desirable responses on closed-ended questionnaires (Kiesler & Sproull, 1986; Sproull, 1986).²¹²

Considering the central position this debate holds within the public discourse and a growing sentiment in some areas to be seen as being environmentally aware, the social desirability effect could present significant challenges to the project. The relationship between this effect in participant's responses and the choice of research methodology is an issue that remains to be explored.

Problems associated with non-response rates impact upon this study as they do in any survey research design. Non-response error occurs when the responses of participants differ in some systematic way from the responses of non-participants²¹³. The efficacy of the method employed within this study, in regards to minimising the impact of non-

²⁰⁹ Woong Yun & Trumbo, *Comparative Response to a Survey Executed by Post, E-mail & Web Form*, p. 8.

²¹⁰ Coomber, *Using the Internet for Survey Research*, online.

²¹¹ Woong Yun & Trumbo, *Comparative Response to a Survey Executed by Post, E-mail & Web Form*, p. 8.

²¹² *Ibid.*, p. 8.

²¹³ Cooper & Schindler, *Business Research Methods*, p. 332.

response error is difficult to determine. Comparative response rates for web-based and traditional surveys vary drastically. Some researcher's speak of '*astronomical results*'²¹⁴, whereas others propose that response rates to e-mail surveys are somewhat lower than paper and pencil surveys.²¹⁵ This bias is allayed quite successfully through the use of a third party's research panels. To be considered an active respondent on Research Now's panels one must have participated in at least one survey in the last twelve months. Research proposes that a high percentage of those who do not respond to surveys are habitual nonparticipants, whereas, a high percentage of those who reply to a given survey have replied to others²¹⁶. Through the targeting of respondents who have demonstrated a willingness to respond to surveys in the past, supplemented by the inherent design of the instrument employed, non-response error was minimised.

Procedures have been put in place to increase the response rate. Respondents were informed that the survey is part of an academic research study; that their input is specifically sought and that responses will be included within an academic thesis as part of the assessment for the award of Master of Business Research with Honours. Respondents were informed that the survey would require a maximum of five minutes of their time, which in itself will have served to increase the response rate as survey length is a powerful factor in the likelihood of response.²¹⁷ Participants were also rewarded for taking part in the survey through the structured reward scheme established by Research NOW. This structure provides each registered panellist with a reward balance. Once this balance reaches \$10 the panellist receives a voucher redeemable at their choice of a range of national retailers. Through participation within this study, the respondent was credited \$1. This approach is consistent with the recommendation of Cobanoglu & Cobanoglu to use incentives when conducting online surveys to achieve higher response rates.²¹⁸

²¹⁴ Smith, *Casting the Net*, p. 4.

²¹⁵ Woong Yun & Trumbo, *Comparative Response to a Survey Executed by Post, E-mail & Web Form*, p. 6.

²¹⁶ Cooper & Schindler, *Business Research Methods*, p. 342.

²¹⁷ Smith, *Casting the Net*, p. 23.

²¹⁸ Cobanoglu & Cobanoglu, *The effect of incentives in web surveys: application and ethical considerations*, p. 485.

The issue of validity is encountered by all social researchers. It presents significant problems. It is often difficult to entirely eliminate these troubles. Although published research may demonstrate that overall population attitudes and demographics are adequately represented in such a sample method, this argument is not sufficient to fully defend against this problem.²¹⁹ Despite this apparent limitation Coomber concludes, that Internet-based approaches can be a valuable source of indicative as opposed to valid and generalizable data.²²⁰ The value of such an approach is not to be discounted, as supported by Dana Ward, Professor of Political Studies at Pitzer College:

If studies based on unrepresentative samples were excluded from social science research, whole sections of library shelves would begin to look like supermarkets in the former Soviet Union.²²¹

Care was taken when drawing conclusions from the study so as not to be unnecessarily presumptuous when generalising the findings across a wider population. Although it has been argued that there are significant problems associated with such restricted sampling, it is worth bearing in mind that such data can also lead research in new and exciting directions.²²²

The final limitation of this, like many studies in the social sciences, is researcher bias. Given the nature of the topic, the researcher was acutely aware that his background might influence the collection and interpretation of data. The researcher's father is an earth scientist and prescribes to the belief that natural climate variability has a far more significant effect on the Earth's climate than human action. At the time of writing he is actively publishing in this area. As a consequence of identifying this potentially biasing force, the researcher planned the study from the outset to be an analysis of stakeholder perspectives and attempted, where possible, to present the relevant arguments, whilst also offering the counter-arguments. By consciously

²¹⁹ Woong Yun & Trumbo, *Comparative Response to a Survey Executed by Post, E-mail & Web Form*, p. 6.

²²⁰ Coomber, *Using the Internet for Survey Research*, online.

²²¹ Dana Ward, cited in Christine B. Smith, *Casting the Net: Surveying an Internet Population*, Naval Postgraduate School, Monterey, California, 1997, p. 21.

²²² Coomber, *Using the Internet for Survey Research*, online.

seeking out these divergent perspectives, the study is well-balanced and subjectivity has been tempered. Furthermore, reiterating the limitations of the study detailed in Chapter One, this study does not propose to offer a definitive answer to the central tenets of this debate but focuses instead on what is being said in the public discourse without assessing the efficacy of these positions. The scope of the study and the researcher's consciousness of the issue, to a great extent, allays concerns of researcher bias.

Analysis of Data

It is sound practice to clearly specify the approach employed to analyse the data generated throughout a study. Thorough analysis is a cornerstone of good research. By spelling out the approach the quality of the study is enhanced. Rigorous analytical rules for the analysis of qualitative data, however, are few and far between.²²³ This reflects the role of the researcher, as an instrument of interpretation within this paradigm, yet does not diminish the importance of putting procedures in place from the outset to ensure data are analysed methodologically. It has already been argued that the qualitative approach is most appropriate to this study, as the complexity of the phenomena under question cannot be captured by a survey or experimental approach alone.²²⁴ There are, however, a number of tools and systems available to the qualitative researcher to make sense out of the data generated. The procedure that was followed in organising, interpreting and analysing the data generated will now be explored as will a specific instrument, namely a contact summary form, which assisted in this process.

Choice of method of analysis that was employed within this followed an approach derived by Qualitative Solutions and Research Pty Ltd²²⁵. This process involves:

²²³ Caudle, *Using Qualitative Approaches*, p. 139.

²²⁴ *Ibid.*, p. 84.

²²⁵ Qualitative Solutions and Research Pty Ltd, *User's Guide for QSRNUD •IST*, Qualitative Solutions and Research Pty Ltd, Melbourne, 1996, Ch. 2, p. 10.

- Collection, cataloguing and storing of relevant journal and newspaper articles, academic essays, books etc.
- Creating categories for thinking about the data, from prior theory and/or ideas emerging from the data.
- Indexing or coding documents or segments of documents into index categories so that all material about a category can be retrieved.
- Recording ideas about existing categories in memos and changing these as understanding grows.
- Sorting and resorting data to locate patterns.

This process aggregates the data so that the project can work with them together, gaining a “new cut” on the data.²²⁶ Application of this process, ensured that all data considered within the study was analysed in a consistent manner within the literature review.

Integrating the data across the case studies proved to be the hardest part of the analysis. Caudle suggests: ‘To make this task easier case study summaries should use exactly the same categories across all cases.’²²⁷ Implementing this recommendation this project employs contact summary forms. Miles & Huberman define this tool: ‘a single sheet that contains a series of focusing or summarising questions about a field contact.’²²⁸ Caudle outlines its utility:

The form identifies people, events or situations; the main themes or issues, central evaluation questions, new hypotheses or speculations; and how data collection should be tailored during the next contact.²²⁹

The form commenced by listing a range of possible areas of inquiry (Climate Debate, Efficacy, Autonomy, Employment, Economics, Global Financial Crisis). As the study progressed main themes arising from the literature and historical analysis were identified and subsequently included as headers into the contact summary form. Some of the possible areas of inquiry (e.g. Global Financial Crisis and Macro-Economic

²²⁶ Lyn Richards, *Handling Qualitative Data; A Practical Guide*, Sage Publications, 2005, p,86.

²²⁷ Caudle, *Using Qualitative Approaches*, p. 84.

²²⁸ Miles and Huberman, 1984 cited in Caudle, p. 81.

²²⁹ Caudle, *Using Qualitative Approaches*, p. 81.

Impact) were discarded as they proved to be covered sufficiently within the other themes. The themes selected (Climate Debate, Efficacy, Autonomy and Employment) were then used when analysing media announcements, strategy documents and the responses of individual organisations. This ensured that the issues central to the study were fully integrated across the historical analysis and case studies. Furthermore, the themes were used as a basis around which the individual survey items were designed.

The quantitative component of this enquiry is the analysis of responses to the survey questionnaire. These data are frequencies of ordered categories (i.e. 1,2,3,4 or 5) which measure strengths of agreement with statements about climate change and the ramifications of climate policy reform. More specific information on the statistical model is given in Chapter Five, along with a discussion of the results of the data analysis.

Ultimately, the mixed methods data analysis permits the research to fulfil the five purposes of mixed methods evaluations as outlined by Greene, Carcelli, and Graham:

1. Triangulation (seeking convergence and corroboration).
2. Complementation (seeking elaboration, enhancement, illustration and clarification).
3. Development (Using the results from one method to help inform the other method).
4. Initiation (Discovering paradoxes and contradictions that lead to a reframing of the research question).
5. Expansion (seeking to expand the breadth of the inquiry).²³⁰

This approach, therefore, is ideally suited to the specific objectives of the study.

Ethical Implications

²³⁰ Anthony J. Onwuegbuzie & Charles Teddie, *A Framework for Analysing Data in Mixed Methods Research*, Handbook of mixed methods in social & Behavioural Research, Sage Publications, 2003, p.353.

Ethics is a major concern in any research project. This study is concerned with climate policy and key stakeholder's attitudes regarding said policies. As such, contact with and the involvement of human beings as subjects was inevitable. Harman & Cooksey hold that '*it is the ethical and moral responsibility of researchers to protect these people.*'²³¹ With this concern in mind it was deemed essential that practices be put in place, from the outset, to display concern for the participants within the study and those persons external to the study who could be wounded by the dissemination of the findings.

The practices that were established for this study included gaining the knowing consent of individuals, clearly communicating the purpose of the study and to whom the results will be disseminated and allowing for anonymity when requested. To a great extent, many of the ethical considerations were met through the approach to data collection employed within this study and the requirements of the host institution. Ethical considerations are of equal importance, when using web-based surveying methods, as they are in traditional paper and pencil approaches. Yun & Trumbo explicate '*E-mail research raises many ethical concerns because unsolicited e-mail invades a person's private space.*'²³² To minimise the discomfort that the use of an email survey imposes the individuals targeted are those who have actively joined the Valued Opinions panels of Research Now. These individuals have '*opted in*' by accepting the terms and conditions as provided by Research Now and were fully aware that they had the option to unsubscribe at any time including at any point whilst participating in the study.²³³

An additional ethical consideration concerned the use of incentives to encourage participation in the web-survey. Cobanoglu & Cobanoglu provided useful recommendations:

²³¹ Harman & Cooksey, *Methods in Organisational Research*, p. 11:2.

²³² Woong Yun & W. Trumbo, *Comparative Response to a Survey Executed by Post, E-mail & Web Form*, p. 11.

²³³ Research Now, *Panel Quality Our Values*. p. 7.

- Researchers need to distribute the promised incentives promptly as a requirement of honesty.
- The conditions of the incentives need to be communicated to the respondents openly.
- The specification of the incentive is important.
- The incentive should not be so valuable in price that respondents answer the survey merely to stand a chance of winning the prize.²³⁴

These suggestions assisted in identifying both the ethical concerns associated with the use of incentives in web-surveys and measures through which said concerns could be addressed. The third-party, who administered the financial incentives, was provided with strict instructions to adhere to these requirements in full. Upon the completion of the study confirmation of compliance was received.

The final ethical consideration taken into account when planning this study was the impact that it will have upon the wider research community. Parker, for instance, ominously predicts that overuse and/or misuse of this surveying approach will reduce response rates just as mail and telephone rates have been similarly affected.²³⁵ The sheer competition from marketers, journalists and other researchers, using technology-based survey methods, may impact on the willingness of people to respond to requests for participation. In order to address concerns relating to participant willingness, the project was devised from the outset to reflect diligent preparation and planning. Furthermore, all instruments were reviewed and pretested. This approach assisted in alleviating potential inconvenience, ambiguities and/or uncertainties. This thoroughness identified numerous areas that were subsequently improved allowing for a seamless and enjoyable respondent experience. In sum, the researcher is confident that he did all that he could to maintain the ongoing efficacy of this surveying approach for fellow researchers and his own future research.

²³⁴ Cobanoglu & Cobanoglu, *The effect of incentives in web surveys*, p. 485.

²³⁵ L. Parker, *Collecting Data the E-mail Way*, Training and development, 1992, pp. 52-54, cited in, Gi Woong Yun & Craig, W. Trumbo, *Comparative Response to a Survey Executed by Post, E-mail & Web Form*, School of Journalism and Mass Communication, The University of Wisconsin, Madison, 2000, p. 12.

Chapter Four: Results of the Survey Questionnaire

Description of Sample

The purpose of this chapter is to present the results of the survey questionnaire. The survey was launched by the third party on the 23rd of July 2009 and remained opened until the 29th of July 2009. A total of 50 individuals responded to the survey with all responses being complete and valid. This cohort was divided equally into two groups, 25 of whom work in the financial services sector whereas the remaining 25 work in the resource sector. The equal distribution between the two target groups, was of course, facilitated through control processes designed into the survey by the third party.

It is useful to explore the population further. This examination is made possible through the early survey items, which represent the survey's demographical questions. The responding population consisted of 28 males and 22 females. The proportion of genders differed between the two employment sectors. 52 percent of the respondents constituting the financial services cohort were males. Of the Resource cohort 60 percent were males. Overall, a slight majority of males within the sample exists. Table 1 shows the distribution of each gender within the two groups.

Table 1. Respondent Gender (N=50)

Gender	Resource Sector	Financial Services	Overall
Male	60%	52%	56%
Female	40%	48%	44%

Table 2 shows the employment status of the respondents. 82 percent of respondents were working in a full-time capacity, the remaining 18 percent held part-time/temporary/casual positions. Within both sectors, the majority of respondents were in full-time employment. 72 percent of the financial services cohort were in full time employment, whereas, 92 percent of the Resources cohort were in the fulltime employ of their organisation.

Table 2. Employment Status (N=50)

Response	Resource Sector	Financial Services	Overall
Full-time	92%	72%	82%
Part-time/temporary/casual	8%	28%	18%

The age of respondents varied from 23 to 60 with a mean age of 40. The age of respondents within both the financial services and resource cohorts varied across every available age band, 20-24 at the lower end to 55-60 at the higher. The mean age of respondents working within the financial services sector was slightly higher (m=41.48) than for that of the resource sector (m=38.08). Table 3 displays these results.

Table 3. "My age is" (N=50)

Resource Sector	Financial Services	Overall
Mean = 38.08	Mean = 41.48	Mean = 40

The positions that the respondents held with their respective employers varied across all available categories. Of the 50 respondents, 48 selected one of the categories provided. 24 respondents elected to use the available classification to indicate their level of vocational experience and responsibility within each of the two employment sector cohorts. The remaining two respondents who chose not to use the available categories recorded 'owner' and 'professional' respectively in the space provided for such a contingency. It is evident that the resource sector cohort comprises a larger proportion of both early career individuals and managers but a comparatively smaller number of experienced employees and senior/executive individuals. This result is depicted in Table 4.

Table 4. "The position I hold within my organisation can best be described as"

Response	Resource Sector	Financial Services	Overall
Early Career	24%	4%	14%
Experienced Employee	48%	64%	56%
Management	16%	8%	12%
Senior/Executive	8%	20%	14%
Other	4%	4%	4%

Business Preparedness & Attitude toward the CPRS

The first preliminary attitude probe asked respondents to indicate, after considering all of their available knowledge, whether or not they thought the introduction of an Emissions Trading Scheme in Australia would be personally advantageous. 22 percent of respondents indicated that they believed that they would benefit from the introduction of an ETS in Australia. 30 percent thought that the introduction of such an apparatus would be to their detriment and the remaining 48 percent indicated that they were unsure whether or not the introduction would prove to be personally beneficial or detrimental. When respondents are categorised according to the sector they work in it is notable that fewer individuals working within the resource industry believe that they will benefit, whilst concurrently, more of these individuals believe that the introduction of an ETS will be to their detriment. Table 5 shows the distribution of responses.

Table 5. "All things considered I believe I will benefit from the introduction of an ETS in Australia."

Response	Resources	Financial Services	Overall
Yes	20%	24%	22%
No	32%	28%	30%
Unsure	48%	48%	48%

The second preliminary probe set out to gauge levels of organisational awareness. Respondents were impelled to indicate the level of awareness within their organisation regarding the introduction of an Emissions Trading Scheme. The results indicate that 10 percent of respondents believe that there is no awareness, 48 percent believe that there is a low level of awareness, 28 percent perceive a moderate level of awareness and 14 percent a high level of awareness. A mean score of 2.46 points out that, on average, respondents assessed the level of awareness within their own organisations as being 'low'. When separated into industry categories, it is clear that differences exist. Responses to this item by those working in financial services were recorded in all available categories. Fewer of the individuals working within the resource sector indicated that the level of awareness within their organisation is nonexistent, while more of this group indicated that the level of awareness is high. The same number of responses for each industry indicating a low level of awareness was observed. A comparison of the Mean score yielded by each cohort, indicate that the individuals working within the resource sector (M= 2.56), on average, assess the level of awareness within their own organisation regarding the introduction of an ETS to be higher than that of the financial services cohort (M=2.36). Despite this, across both categories it is apparent that organisational awareness is low. Table 6 displays the distribution of responses.

Table 6. "The level of awareness within my organisation regarding the introduction of an Emissions Trading Scheme can best be described as:"

Response	Resources	Financial Services	Overall
None	8%	12%	10%
Low	48%	48%	48%
Moderate	24%	32%	28%
High	20%	8%	14%

The final preliminary probe prompted the respondent to personally assess their own knowledge of the debate surrounding the introduction of an ETS in Australia. The compiled data indicates that 12 percent of respondents believe they have no understanding, 42 percent a low level of understanding, 38 percent a moderate level of understanding and 8 percent a high level of understanding. A mean score of 2.42 indicates that on average, respondents assess their understanding of the debate surrounding the introduction of an ETS as being 'low'. Of the 25 individuals working

within financial services surveyed, 8 percent indicated that they had no understanding as to the debate while 16 percent signalled that they had a high degree of understanding. This result can be contrasted with those provided by the Resources Sector with twice the number indicating that they had no understanding and no one specifying a high level of understanding. This result is again reflected when one calculates the mean scores of the two groups upon this survey item. The result indicates that, on average, a higher level of understanding is held by those working within financial services (M=2.60) than by those working within the resource industry (M=2.24). Table 7 shows the distribution of responses to this survey item.

Table 7. "My understanding of the debate surrounding the introduction of an Emissions Trading Scheme in Australia can best be described as:"

Response	Resources	Financial Services	Overall
None	16%	8%	12%
Low	44%	40%	42%
Moderate	40%	36%	38%
High	0%	16%	8%

The preliminary attitudinal probes demonstrate that the responding cohort possesses a limited understanding as to the intricacies of the proposed climate policy reform in Australia. Respondents assess the level of awareness within their own organisations as being minimal and are generally unsure what impact the CPRS will have on them individually. In the space provided for respondents to provide further comment two individuals wrote about their or others' lack of knowledge and understanding of the issue. Respondent 122 stated '*don't understand carbon trading and the whole subject*'. Respondent 158 asserted '*I don't think that the general public are truly aware of what the carbon emissions trading scheme is*'. Table 8 sets out the key findings of this section of the survey questionnaire.

Table 8. Key findings of business preparedness and attitude toward the CPRS.

no.	Finding
1	The majority of respondents are unsure whether or not the introduction of an ETS will prove to be personally beneficial.
2	A slightly higher proportion of respondents working in Financial

	services believe that the introduction of an ETS will be personally beneficial, relative to respondents working in the Resource sector.
3	The majority of respondents assess the level of awareness, within their own organisation, regarding the introduction of an ETS as low.
4	Respondents working in the resource sector assess the level of awareness within their organisation, regarding the introduction of an ETS slightly higher than respondents working in financial services.
5	The majority of respondents assess their own level of understanding as to the debate surrounding the introduction of an ETS as low or none.
6	Respondents working in financial services assess their own level of understanding as to the debate surrounding the introduction of an ETS slightly higher than respondents working in the resource sector.

Perspectives of Climate Change

Looking more closely at how participants view the issue of global warming we find high levels of agreement. 56 percent of the financial services cohort and 60 percent of the resource sector group were in agreement or strong agreement that human activity is responsible for climate change. 16 percent of both groups discounted anthropogenic climate change, while roughly one quarter of respondents chose a position of neutrality. Despite the widespread agreement within the sample that human activity is responsible for climate change, the only comments made by respondents regarding anthropogenic climate change, three in total, were vehemently opposed to the concept. Respondent 144 called it '*a load of shit*' while respondents 227 and 230 were of the view that natural climate variability is the driving force behind the phenomenon. Table 9 presents the distribution of responses to this survey item.

Table 9. “Human activity is responsible for climate change.” (N=50)

Response	Resources	Financial Services	Overall
Strongly Disagree	12%	4%	8%
Disagree	4%	12%	8%
Neutral	24%	28%	26%
Agree	44%	40%	42%
Strongly Agree	16%	16%	16%

In addition to the widely held belief in anthropogenic climate change, a significant proportion of respondents saw unmitigated climate change as a serious problem. 36 percent of respondents working within the resource sector and 40 percent of those in financial services were in agreement or strong agreement that unmitigated climate change is likely to have dire ramifications for Australia’s continued economic prosperity. This result represents a decline from the number of respondents prescribing to anthropogenic climate change, potentially suggesting that some of these individuals believe that unmitigated climate change is not necessarily detrimental to economic prosperity. It is interesting to note, however, that exactly the same number of respondents, within each cohort, were of the view that unmitigated climate change would not have dire ramifications as there were individuals who discounted human-induced climate change. These results are presented in Table 10.

Table 10. “Unmitigated climate change is likely to have dire ramifications for Australia’s continued economic prosperity.” (N=50)

Response	Resources	Financial Services	Overall
Strongly Disagree	4%	0%	2%
Disagree	12%	16%	14%
Neutral	48%	44%	46%
Agree	24%	32%	28%
Strongly Agree	12%	8%	10%

Support for legislation to reduce carbon emissions is quite strong. Respondent 52 provides a clear example of the sentiment:

“Australia's track record in this area is nothing short of pathetic. It needs to wake up and smell the coffee as Australia could be one of the first countries badly hit by climate change.”

Overall, 52 percent of the resource cohort is in agreement or strong agreement that it is essential that the Australian government legislate to drastically reduce carbon emissions. Interestingly, this figure is higher than, the admittedly still large, proportion of the financial services cohort (36 percent) who are similarly disposed. When taken in light of the earlier survey item, it would appear slightly anomalous that such a high proportion of the resource sector cohort are in favour of legislative action (52 percent) when a smaller proportion of this group believe that unmitigated climate change is likely to damage Australia's ongoing economic prosperity (36 percent). In contrast, results across these two items for the financial services cohort, roughly, mirror one another (36 percent & 40 percent). Table 11 shows the distribution of responses for respondents in the Resources and Financial Sectors.

Table 11. "It is essential that the Australian government legislate to drastically reduce carbon emissions." (N=50)

Response	Resources	Financial Services	Overall
Strongly Disagree	8%	4%	6%
Disagree	12%	16%	14%
Neutral	28%	44%	36%
Agree	40%	24%	32%
Strongly Agree	12%	12%	12%

These findings, along with the observed level of awareness of what the scheme actually involves, are consistent with those published within an Australian Institute of Management (AIM) report.²³⁶ The AIM report reconciles this apparent contradiction by postulating that the positive response to this question, in light of the lack of awareness, is explained by an overall social objective to become more environmentally aware.²³⁷ Although difficult to draw a definitive conclusion this result may be indicative of a social desirability effect.

Support for Australia to be at the forefront of climate change mitigation runs strong. Overall, 56 percent of respondents agreed or strongly agreed that as a developed nation Australia has a responsibility to lead in addressing the phenomenon. Once

²³⁶ Australian Institute of Management, *The introduction of Australia's Emissions Trading Scheme; level of understanding amongst CEOs/senior executives*, Australian Institute of Management (Vic/Tas), 1 July, 2008, p. 9.

²³⁷ *Ibid.*, p.9.

more, the resource sector demonstrated a substantially greater level of support (68 percent) than the financial services group (44 percent). These results are displayed in Table 12.

Table 12. "As a developed nation Australia has a responsibility to lead in addressing climate change." (N=50)

Response	Resources	Financial Services	Overall
Strongly Disagree	8%	4%	6%
Disagree	12%	12%	12%
Neutral	12%	40%	26%
Agree	64%	20%	42%
Strongly Agree	4%	24%	14%

The key findings of this section of the survey are set out in the table below.

Table 13. Key findings of respondent perspectives of the Climate Debate.

no.	Finding
1	The majority of respondents are in agreement or strong agreement that human activity is responsible for climate change.
2	A significant number of respondents believe that climate change is likely to have dire ramifications for Australia's ongoing economic prosperity. However, a decline relative to the number of respondents who prescribe to anthropogenic climate change is witnessed. This may suggest that not all respondents who believe in this concept hold that unmitigated climate change is necessarily detrimental to Australia's economic prosperity.
3	Support for legislative action to reduce carbon emissions is strong.
4	Respondents working in the resource sector are more supportive of legislative action to reduce carbon emissions than respondents working in financial services.
5	A higher proportion of the resource sector favour legislative action to reduce carbon emissions than the proportion of this group who believe that unmitigated climate change is likely to have an adverse effect on Australia's economic prosperity. This apparent contradiction may be

	indicative of a social-desirability effect.
6	Respondents strongly support the position that Australia should lead the world in reducing carbon emissions.

Perspectives of the Efficacy of the Proposed Scheme

Turning to the proposed policy developments, one inevitable question concerns the efficacy of the future scheme. Given the government's adoption of a Cap-and-Trade model as its preferred policy, participants were asked whether they agreed that such an approach is a more appropriate method than the imposition of a carbon tax. Respondents were supportive, with 38% of respondents being in agreement or strong agreement. A slightly higher proportion of the financial services cohort (40 percent) supported this approach than the resources group (36 percent). It is interesting to note that nobody from the former group strongly disagreed that a cap-and trade model was more appropriate than a carbon tax. Furthermore, a large proportion from the Financial Services cohort didn't agree with this item. Given the fact that an ETS would require a large number of financial services workers to administer it, this may be further evidence of a surprising lack of understanding. The majority of respondents (48 percent), however, elected to remain nonaligned. The allocation of responses across the categories is shown in Table 14.

Table 14. "A Cap and Trade Model, where the government sets a maximum limit on emissions and then distributes tradable permits to emitters, is a more appropriate approach than a carbon tax." (N=50)

Response	Resources	Financial Services	Overall
Strongly Disagree	4%	0%	2%
Disagree	16%	8%	12%
Neutral	44%	52%	48%
Agree	32%	36%	34%
Strongly Agree	4%	4%	4%

When prompted to assess the impact that granting free carbon credits would have, 52 percent of respondents, both in overall terms and when separated into industry

cohorts, were either in agreement or strong agreement that such provisioning would significantly undermine the effectiveness of the proposed scheme. Furthermore, only 12 percent of the financial services cohort and 16 percent of the resource group disagreed with the statement. Table 15 exhibits these responses.

Table 15. "Granting free carbon credits will significantly undermine the effectiveness of the proposed Carbon Pollution Reduction Scheme." (N=50)

Response	Resources	Financial Services	Overall
Strongly Disagree	8%	0%	4%
Disagree	8%	12%	10%
Neutral	32%	36%	34%
Agree	40%	52%	46%
Strongly Agree	12%	0%	6%

The next survey items sought to forecast likely developments in the carbon market. The first of these prompted respondents to assess the likely growth in carbon trading. 26 percent of respondents, reflecting 28 percent of Resource Sector and 24 percent of the Financial Services, were of the view that carbon will be traded at volumes equivalent to or greater than that of other major commodities, including coal and oil. 14 percent of respondents disagreed with this assertion. The majority (60 percent) chose to sit on the fence. Results were notable through the absence of any response in either the strongly disagree or strongly agree categories. Given the statement requires a belief that the global economy will be monumentally reshaped, such a large amount of uncertainty could be expected. Despite this, the fact that that more than one quarter of respondents were of the view that carbon trading will become to be traded in such vast quantities is a noteworthy finding. These results are shown in Table 16.

Table 16. "Carbon will be traded at volumes equivalent to or greater than that of other major commodities, e.g. oil, coal." (N=50)

Response	Resources	Financial Services	Overall
Strongly Disagree	0%	0%	0%
Disagree	16%	12%	14%
Neutral	56%	64%	60%
Agree	28%	24%	26%
Strongly Agree	0%	0%	0%

Respondents hold cynical outlooks as to the ongoing stability of a carbon market. 36 percent of individuals working within the resource sector and 40 percent of

individuals working within financial services either agree or strongly agree that problems, similar to those witnessed in financial markets of late, will be witnessed within the carbon market. No respondent strongly disagreed that such volatility would cause said problems in the market. Table 17 displays these results.

Table 17. "The Carbon Market will suffer from problems of volatility similar to those witnessed in recent financial markets". (N=50)

Response	Resources	Financial Services	Overall
Strongly Disagree	0%	0%	0%
Disagree	12%	8%	10%
Neutral	52%	52%	52%
Agree	28%	40%	34%
Strongly Agree	8%	0%	4%

The final survey item is potentially the most important. The statement put to respondents was that total carbon emissions in Australia will be lower in 2030 than today. Table 18 shows the distribution of responses for respondents in the Resources and Financial Services Sectors. Individuals working in financial services appear to endorse this position to a greater extent than those in the resource sector. 48 percent of the former category believe that carbon emissions will be lower in 2030 while 20 percent believe that they will not. In contrast, 40 percent of the resource group agreed or strongly agreed that emissions would in fact decline, while 32 percent dismissed this outlook by disagreeing or strongly disagreeing.

Table 18. "Total carbon emissions in Australia will be lower in 2030 than today." (N=50)

Response	Resources	Financial Services	Overall
Strongly Disagree	4%	4%	4%
Disagree	28%	16%	22%
Neutral	28%	32%	30%
Agree	36%	40%	38%
Strongly Agree	4%	8%	6%

Of the survey respondents who elected to provide further comment on this issue, the majority were unfavourable disposed to the introduction of an emissions trading scheme. Of the 15 respondents who offered commentary, six wrote of issues pertaining to the efficacy of the proposed scheme. Notably, all six were employed within the resource sector. The most favourable view was that of Respondent 34 who

thought *'the ETS will have some impact'*. The remaining five respondents, however, expressed a range of negative sentiments. Examples include Respondent 158 who thinks that the ETS is *'not designed to reduce carbon emissions but as a revenue maker for the government'*. Meanwhile, Respondent 144 warns *'make no mistake this scheme will kill industry in this country'*. The key findings of this section of the survey are set out in the table below.

Table 19. Key findings of respondent perspectives of the efficacy of the proposed Emissions Trading Scheme.

no.	Finding
1	Respondents favour a cap-and-trade model. Believing it a more appropriate response than a carbon tax.
2	The majority of respondents agree or strongly agree that the provisioning of free carbon permits will significantly undermine the effectiveness of the CPRS.
3	More than one quarter of respondents believe that carbon will become to be traded at volumes greater than major commodities, such as oil and coal.
4	A significant proportion of respondents working in the resource sector and financial services agree that the Carbon Market will suffer from severe volatility. No respondents strongly agreed that this will be the case.
5	Nearly half of respondents working in financial services believe that total carbon emissions in Australia will be lower in 2030 than today.

Employment Ramifications

Looking closely at how respondents view the potential employment ramifications of climate policy reform in Australia, a number of interesting findings can be observed. Overall 46 percent of respondents believe that the introduction of an emissions trading scheme will result in industries relocating operations to other countries precipitating an overall decline in employment. Respondent 158, for instance, believes:

The major players in the resource sector, mainly coal, will use it as an excuse to reduce the number of workers regardless of whether or not it has a negative impact on them financially.

Only 8 percent of respondents working in financial services disagree that such a decline will take place and none of these respondents strongly disagree that this will not eventuate. Furthermore, 48 percent of the resource group agree that such a scenario will come to fruition. These results are taken from Table 20.

Table 20. "The introduction of an Emissions Trading Scheme will lead to industries off-shoring operations, resulting in a net decrease in employment in Australia."
(N=50)

Response	Resources	Financial Services	Overall
Strongly Disagree	4%	0%	2%
Disagree	12%	8%	10%
Neutral	36%	48%	42%
Agree	36%	40%	38%
Strongly Agree	12%	4%	8%

When prompted to assess the likely impact of the reform on employment within the industry that the participant was employed, stark differences are witnessed. None of the respondents working in financial services are in agreement or strong agreement that the introduction of an ETS will precipitate a decrease in employment within their industry. 60 percent of respondents working in the resource sector, however, believe that such a decline will eventuate, with no one in the cohort in strong disagreement. On the basis of these findings it would suggest that the individuals working in financial services believe that the overall decline in employment, that the majority of this group predicts, will not consist of reductions in the level of employment within the financial services sector. Furthermore, the overall decline in employment as forecast by almost 50 percent of the resources sector accompanied with the 40 percent who predict a decline in their own sector would suggest that these individuals believe that the overall decline in employment will consist, in great part, of losses in the resource sector. Taken collectively, this result may indicate that both cohorts are of a similar view that the majority of forecast job losses will be felt within the resource sector. Table 21 shows the distribution of responses for respondents in the Resources and Financial Services Sectors.

Table 21. “The introduction of an Emissions Trading Scheme will result in a net decrease in employment in the industry in which I work.” (N=50)

Response	Resources	Financial Services	Overall
Strongly Disagree	0%	8%	4%
Disagree	20%	52%	36%
Neutral	40%	40%	40%
Agree	20%	0%	10%
Strongly Agree	20%	0%	10%

A significant proportion of both responding cohorts were of the view that the introduction of an ETS will create a large number of ‘green energy jobs’. 44 percent of individuals working in the resource sector agreed or strongly agreed with this statement, whilst 40 percent of the financial services group were of the same view. In light of the earlier survey items, however, it could be assumed that the resource sector cohort are not of the opinion that these jobs will be sufficient in number within their own sector to account for the losses in more traditional roles. These results are drawn from Table 22.

Table 22. “The introduction of an Emissions Trading Scheme will create a large number of green energy jobs.” (N=50)

Response	Resources	Financial Services	Overall
Strongly Disagree	8%	4%	6%
Disagree	16%	20%	18%
Neutral	32%	36%	34%
Agree	32%	32%	32%
Strongly Agree	12%	8%	10%

The final survey item relevant to this chapter relates to the availability of appropriately qualified personnel, in sufficient numbers, to meet industry needs upon the introduction of an ETS and the impact of labour shortages on the success of the scheme. Table 23 shows the distribution of responses for respondents in both employment sectors. Notably none of the participants strongly disagreed that such a shortage would hamper the success of an ETS. A third more of participants from the resource sector, as opposed to those in financial services, were in agreement or strong agreement that such a scenario would eventuate. The majority of respondents, however, elected to remain neutral.

Table 23. “The success of an Emissions Trading Scheme will be hampered by a significant shortage of appropriately qualified personnel to meet industry needs, e.g. accountants, engineers.” (N=50)

Response	Resources	Financial Services	Overall
Strongly Disagree	0%	0%	0%
Disagree	24%	28%	26%
Neutral	40%	48%	44%
Agree	24%	20%	22%
Strongly Agree	12%	4%	8%

The key findings of this section of the survey are set out in the table below.

Table 24. Key findings of respondent perspectives of the employment ramifications of the proposed Emissions Trading Scheme.

no.	Finding
1	The majority of respondents believe that the introduction of an ETS will lead to industries relocating operations overseas, precipitating a net decrease in employment in Australia.
2	None of the respondents working in financial services agree or strongly agree that a decline in employment in their industry will eventuate.
3	The majority of respondents working in the resource sector agree or strongly agree that a decline in employment in their industry will eventuate.
4	Results may suggest that the majority of respondents, irrespective of the industry in which they work, are of the view that the brunt of predicted job losses will be felt by the resource sector.
5	A significant proportion of respondents believe that the introduction of an ETS will lead to the creation of a large number of “Green Energy Jobs”.
6	Results indicate that respondents working in the resource sector do not believe that these “green energy jobs” will be sufficient in number, within their own industry, to account for the decline in more traditional roles.

Perspectives of State Autonomy

Perceptions of non-state influence in dictating Australian Climate Policy is varied, however, it would appear that respondents are inclined to think that there has indeed been involvement. Differences among participants in terms of the industry sector in which they work are also observed. 48 percent of the financial services cohort, for instance, supported or strongly supported the claim that the resource industry has a disproportionate influence in dictating Australian climate policy. Of this cohort, only 4 percent disagreed and nobody strongly disagreed with the assertion. Conversely, only 20 percent of the resource cohort agreed that the industry in which they are employed holds unbalanced sway in climate policy formation. Table 25 shows the distribution of responses.

Table 25. “The resource industry has a disproportionate influence in dictating Australian Climate Policy.” (N=50)

Response	Resources	Financial Services	Overall
Strongly Disagree	20%	0%	10%
Disagree	16%	4%	10%
Neutral	44%	48%	46%
Agree	16%	28%	22%
Strongly Agree	4%	20%	12%

The next survey item sought to establish the authority of energy producers to impose their agenda on climate policy in Australia. Results indicate that respondents perceive this influence to be stronger, or more ‘disproportionate’, than that alleged to be held by the resource industry. Overall, 46 percent of respondents assessed energy producers as having a disproportionate influence. This view was particularly strong within the financial services cohort with 52 percent of respondents agreeing or strongly agreeing with the conviction. No one in this group was in strong disagreement and only 4 percent were in disagreement. 40 percent of the Resource group agreed or strongly agreed with the assertion. Table 26 displays the distribution of responses to this survey item.

Table 26. "Energy producers have a disproportionate influence in dictating Australian Climate Policy." (N=50)

	Resources	Financial Services	Overall
Strongly Disagree	8%	0%	4%
Disagree	16%	4%	10%
Neutral	36%	44%	40%
Agree	36%	36%	36%
Strongly Agree	4%	16%	10%

The final survey item pertaining to the influence of non-state actors focused upon the political weight of environmentalists. The statement put to respondents was that environmentalists have had a disproportionate influence in dictating Australian Climate Policy. Overall, participants were in agreement. A slighter larger proportion of respondents agreed or strongly agreed that environmentalists have had a disproportionate influence than that of the resource industry but less than that of energy producers. 40 percent of the resource cohort and 36 percent of the financial services group agreed or strongly agreed that environmentalists have a disproportionate influence in dictating Australian climate policy. Table 27 lays out these results.

Table 27. "Environmentalists have a disproportionate influence in dictating Australian Climate Policy." (N=50)

	Resources	Financial Services	Overall
Strongly Disagree	0%	4%	2%
Disagree	24%	28%	26%
Neutral	36%	32%	34%
Agree	16%	28%	22%
Strongly Agree	24%	8%	16%

The last survey item sought to assess participant's views as to the appropriateness of democratically elected government's time-scales in combating climate change. Overall 46 percent of respondents disagreed or strongly disagreed that the time-scales of said governments to appropriately respond to climate change are appropriate to

meet the demands of climate change. In contrast, only 12 percent of the resource sector and 16 percent of the financial services cohort agreed or strongly agreed that the time-scales were appropriate. These results are taken from Table 28.

Table 28. “The time-scales of democratically elected governments are appropriate to meet the demands of climate change.” (N=50)

	Resources	Financial Services	Overall
Strongly Disagree	16%	12%	14%
Disagree	28%	36%	32%
Neutral	44%	36%	40%
Agree	8%	16%	12%
Strongly Agree	4%	0%	2%

Taken collectively, these results indicate that a sizeable number of the surveyed population perceive that environmentalists, the resource sector and energy producers have had a disproportionate influence on the Rudd Government in its attempts to design, develop and implement its climate policy. Respondents also appear to be cynical as to the ability of democratically elected governments, to respond to climate change, given the time-scales upon which they operate. These findings are of course, consistent with those voiced within the broader literature and included within Chapter Two. The key findings of this section of the survey are set out in the table below.

Table 29. Key findings of respondent perspectives as to the extent that the Australian government has displayed autonomy in designing its climate policy.

no.	Finding
1	The majority of respondents working in financial services believe that the resource industry has had a disproportionate influence in dictating Australian Climate Policy.
2	The majority of respondents assess the influence of energy producers in dictating Australian Climate Policy as being disproportionate.
3	The majority of respondents assess the influence of environmentalists in dictating Australian Climate Policy as being disproportionate.
5	The majority of respondents disagree or strongly disagree that the time-scales of democratically elected governments are sufficient to meet the

	demands of climate change.
4	Taken collectively, results indicate that non-state actors have had a disproportionate influence in influencing the development of the Australian government's climate policy.

Chapter Five: Statistical Analysis

Data Analysis

The purpose of this chapter is to present the results of the statistical analysis of the data generated through the survey questionnaire. The data consist of ratings, 1 to 5, to 20 questions regarding the perspectives of key stakeholders as to the effects of the introduction of an Emissions Trading Scheme in Australia. The 20 questions comprise of three to six questions from each of the following four topics; Employment, Autonomy, Climate debate and Efficacy. The ratings are discrete in nature as they represent the five points of a likert-type survey. The same scale was used consistently for all of these questions. The following table sets out the descriptors for each of these five ratings.

Table A. Survey rating descriptors.

Score	Description
1	Strongly Disagree
2	Disagree
3	Neutral
4	Agree
5	Strongly Agree

The respondents are classified by Industry (Resources or Financial) and their Belief (yes, unsure or no). These two classifications are established by the participant's response to survey items D4 and Q2. The following table sets out the question put to respondents in each of these survey items.

Table B. Question D4 and Question Q2

Survey Item	Question	Possible Response
D4	Which industry do you work for?	Financial/Resources
Q2	All things considered, I believe I will benefit from the introduction of an Emissions Trading Scheme in Australia.	Yes/Unsure/No

Exploratory Data Analysis.

A. Testing for similarity of responses to questions in each group.

The questions are intended to seek responses to different aspects of emissions trading. As the scores from the set of questions are repeated measurements from each respondent, they are correlated due to the subject effect. The way to assess association between pairs of frequencies from the different scores is by confusion tables. The similarity of the distributions of scores from a pair of questions is measured by the percentage agreement. This is the sum of frequencies from the diagonal of the confusion table as a percentage of the total of the confusion table.

Confusion tables for each pair of questions e.g. (5B17, 5B18), (5B17,5B19), ..., show the frequencies where respondents have scored i on the first question and j on the second, i and j being choices from the ratings 1 to 5. If there is close agreement between the questions, the diagonal elements of the table will contain most of the frequencies. Table C.1 is a confusion table between questions 5B17 and 5B18 which has an agreement of 50 percent and Table C.2 compares responses from questions 5A9 and 5A10 where the agreement is 80 percent.

Tables C.1 & C.2. Examples of confusion tables that indicate whether responses to different questions are similar.

(C.1) 50% agreement

	5B18			
5B17	2	3	4	5
1	0	1	0	0
2	3	1	0	1
3	5	15	1	0
4	5	4	7	3
5	0	1	3	0

(C.2) 80% agreement

	5A10				
5A9	1	2	3	4	5
1	2	2	1	0	0
2	0	3	0	2	0
3	0	0	19	4	0
4	0	0	0	11	0
5	0	0	0	1	5

Fifty percent of the sample responded to questions 5B17 (The introduction of an Emissions Trading Scheme will lead to industries off-shoring operations, resulting in a net decrease in employment in Australia) and 5B18 (The success of an Emissions Trading Scheme will be hampered by a significant shortage of appropriately qualified personnel to meet industry needs, e.g. accountants, engineers) with the same score to each question. Questions 5A9 (The resource industry has a disproportionate influence in dictating Australian Climate Policy) and 5A10 (Energy producers have a disproportionate influence in dictating Australian Climate Policy) had 80 percent agreement which indicates that the distribution of scores from respondents is essentially the same for those two questions. Whatever the reason for this concordance, the two questions are essentially capturing the same information that the respondents believe that the resource and energy sectors have a disproportionate influence in Australian Climate Policy Reform.

The case in Table C.1 was the only pair of questions which had an agreement high enough to suggest that those questions were close to being duplicates. All other questions in the survey were considered to be supplying separate information from the other questions.

B. Inspecting the sample probabilities.

For each of the Industry (Resource/Financial) and Belief (All things considered I believe I will benefit from the introduction of an emissions trading scheme in Australia) factors, the distribution of probabilities across categories was tabled. The proportions of responses to question 5B17 illustrate the comparison of Industry and Belief groups.

Table D. Proportions of responses for each level of Industry and Belief for question 5B17.

	Industry		belief		
	Financial	Resources	yes	unsure	no
1	0.00	0.04	0.00	0.00	0.07
2	0.08	0.12	0.27	0.08	0.00
3	0.48	0.36	0.36	0.63	0.13
4	0.40	0.36	0.36	0.29	0.53
5	0.04	0.12	0.00	0.00	0.27

These comparisons are interpreted through a plot of the cumulative probabilities across the ratings, as depicted in Figure 1.

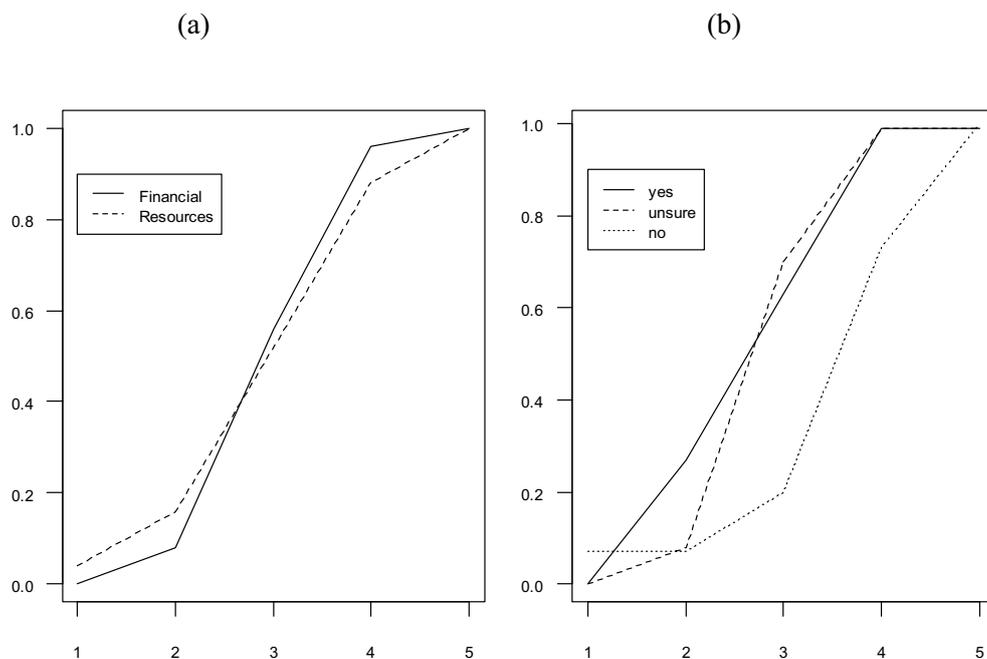


Figure 1. Cumulative sample probabilities across ratings for each level of the factors (a) Industry and (b) Belief.

In Figure 1 (a), the distribution of scores is similar whereas in Figure 1 (b), those respondents whose belief is 'no' are scoring differently from the respondents whose beliefs are 'yes' and 'unsure'.

The data are presented in the form of Figure 1 to motivate the statistical model which explains differences between the distributions of the score frequencies from the survey groups.

Cumulative probabilities are used to ameliorate effects due to misclassification of the category. Suppose a respondent equivocates between scoring a 2 or a 3. The use of cumulative probabilities minimises effects due to misclassification.

The statistical model to interpret data of these types is a proportional-odds logistic regression developed by McCullagh²³⁸ and fully explained in McCullagh and Nelder²³⁹. It is a form of generalised linear model where the responses are the cumulative probabilities and the explanatory factors are Category and Tree. The model assumes that there is an underlying latent variable (i.e. attitude to the question) and the observed categories are segments of this latent variable. The latent variable is assumed to have a logistic distribution and under this assumption, the model estimates the 'cut-points' which divide the latent variable into segments such that the model reliably represents the distribution of proportions across categories.

For each question, the data may be envisaged as a two-way table where the scores of the table correspond to factor levels, e.g. different types of Industry and the columns correspond to the ordered categories of responses, i.e. 1,2,3,4 or 5. The cells of the table are the frequencies of responses for each ordered category from each factor level.

²³⁸ Peter McCullagh, Regression Models for Ordinal Data, *Journal of the Royal Statistical Society. Series B (Methodological)*, Vol. 42, No. 2 (1980), pp. 109-142 (article consists of 34 pages) Published by: [Blackwell Publishing](#) for the [Royal Statistical Society](#)

Stable URL: <http://www.jstor.org/stable/2984952>

²³⁹ P. McCullagh & J.A. Nelder, *Generalized Linear Models*, 2nd ed, Monographs on Statistics and Applied Probability 37, Chapman & Hall/CRC, Washington D.C., 1999.

The frequencies for each row can be converted into observed probabilities of scores from each factor level (frequencies divided by row sums) and then to cumulative probabilities across the ordered categories of the response. These cumulative probabilities constitute the empirical distribution functions as depicted in Figure 1, page 103.

The degree of separation of the distribution functions for factor levels (e.g. Resources/Financial) is the statistic by which the responses are compared.

The statistical model for these data is a proportional odds logistic regression. This will now be explained.

The model assumes that there is an underlying, latent continuous variable which is the respondent's belief about the question being asked. The score (i.e. 1-5) is a point somewhere along this latent variable and so the collection of scores can be separated by intervals along this latent variable. The intervals are estimated by cut points $\theta_1, \theta_2, \dots, \theta_4$.

The probability that a response from factor level i is in category k is denoted by τ_{ik} . cumulative probabilities are $\gamma_{i1} = \pi_{i1}, \gamma_{i2} = \pi_{i1} + \pi_{i2}, \gamma_{i3} = \pi_{i1} + \pi_{i2} + \pi_{i3}, \gamma_{i4} = \pi_{i1} + \pi_{i2} + \pi_{i3} + \pi_{i4}, \gamma_{i5} = 1 - \gamma_{i4}$.

For group i , or factor level i , the odds for the cumulative probability is γ_{ik} is $\gamma_{ik}/(1-\gamma_{ik})$.

For each question, denote the response as y and it can take the values 1,2, ...5. The probability that the response will be K each category is denoted by π_K . The cumulative probabilities are $\gamma_{i1} = \pi_{i1}, \gamma_{i2} = \pi_{i1} + \pi_{i2}, \gamma_{i3} = \pi_{i1} + \pi_{i2} + \pi_{i3}, \gamma_{i4} = \pi_{i1} + \pi_{i2} + \pi_{i3} + \pi_{i4}, \gamma_{i5} = 1 - \gamma_{i4}$.

For group i , or factor level i , the odds for the cumulative probability is γ_{ik} is $\gamma_{ik}/(1-\gamma_{ik})$. the model assumes that the odds ratio for two groups (say group i and group j) is only dependent on the group difference, β .

The proportion odds logistic regression model is written algebraically as

$$\text{Log} (\gamma_{ik}/1-\gamma_{ik}) = \theta_k - \beta_i$$

θ_{k-1} , θ_k are the cut points that demark the interval on the latent variable that corresponds to score k .

The observed values are the sample probabilities and the model estimates the cut points and the group effects β_i . Interest is in the difference between groups, $\Delta = \beta_i - \beta_j$. Statistical inference is done on the logistic scale.

In this case, rather than treating combinations of Industry and Belief as separate groups, the model is fitted as a factorial,

$$\text{Logit} (y_{ijk}) = x_j + \beta_j + T_{ij} + \theta_k.$$

Where θ_i estimates the cut-point to demark the end of the segment of the latent variable for score i , α_j is the effect of Belief j relative to Belief= 'yes', β_k is the effect of Industry k relative to Industry= 'Financial', and τ_{jk} is the interaction between Belief and Industry. Thus $\alpha_j=0$ for Belief= 'yes', $\beta_k=0$ for Industry= 'Financial'.

The interest is in the coefficients (α_j , β_k) because these measure the differences amongst cohorts in their distributions of responses to the questions. Statistical inference is done on the logit scale.

After fitting the initial model as described above, backwards elimination is used to remove non-significant effects, always retaining the estimates of the cut points.

Negative coefficients correspond to a 'left shift' of the profile of cumulative probabilities relative to the reference category (Financial for Industry and 'yes' for Belief) as depicted in Figure 1. This would infer that a negative effect is due to a higher proportion of lower scores than the reference. Conversely, a positive coefficient is a right shift of the profile of cumulative probabilities and infers that the distribution of scores has a larger representation of higher scores.

Comprehensive Analysis

The application of the statistical model provides deeper insights into the data set. In many of the survey items, there were no significant differences in the distributions of responses across the Belief (Q2 - All things considered, I believe I will benefit from the introduction of an ETS in Australia) categories (yes, unsure, no) or across the Industry (D4 – The industry in which I work is) categories (Resource, Financial). These questions, separated into the themes to which they belong, are set out in Table 30.

Table 30. Survey items with no statistically significant differences across the Belief and Industry categories.

Topic	Question no.	Question
Employment	Q5B_18	The success of an Emissions Trading Scheme will be hampered by a significant shortage of appropriately qualified personnel to meet industry needs, e.g. accountants, engineers.
Autonomy	Q5B_12	The time-scales of democratically elected governments are appropriate to meet the demands of climate change.
Efficacy	Q5A_1	Carbon will be traded at volumes equivalent to or greater than that of other major commodities, e.g. oil, coal.
Efficacy	Q5A_2	A Cap and Trade Model, where the government sets a maximum limit on emissions and then distributes tradable permits to emitters, is a more appropriate approach than a carbon tax.
Efficacy	Q5A_3	Granting free carbon credits will significantly undermine the effectiveness of the proposed Carbon Pollution Reduction Scheme.
Efficacy	Q5A_5	The Carbon Market will suffer from problems of volatility similar to those witnessed in recent

		financial markets.
Climate Debate	Q5B_14	Unmitigated climate change is likely to have dire ramifications for Australia's continued economic prosperity.

In addition to the aforementioned findings, the statistical model identified a number of statistically significant differences in the distributions of responses, to the individual survey items, across the Belief category (yes, unsure, no). Many of these relationships exist due to interactions between belief 'unsure' and positions of neutrality (score 3's) upon the various survey items. This finding is logical as one would not anticipate, nor necessarily desire, those who were 'unsure' what impact the introduction of an Emissions Trading Scheme would have on them personally to respond to the survey items at their extremities. This result is a strong indication that participants have responded rationally. These relationships are identified in the table below and dealt with as a group. Much more attention is given to discussing the significant relationships between those of the remaining Belief categories (yes, no) and the various survey items.

Table 31. Significant effects across the Belief categories for the Climate Debate theme.

Question no.	Belief Yes-No	Belief Yes - Unsure
Q5B_13	= -1.47 ± 0.72 (p = 0.04)	p > 0.05
Q5B_15	= -3.3 ± 0.88 (p = 0.005)	= -1.4 ± 0.7 (p = 0.04)
Q5B_16	= 2.80 ± 0.86 (p = 0.01)	= -1.86 ± 0.76 (p = 0.02)

Question Q5B_13 was "Human activity is responsible for climate change". This question belongs within the Climate Debate theme. The distribution of responses to this survey item exhibits a statistically significant relationship. Respondents who believed that the introduction of an ETS in Australia would be to their personal detriment viewed the concept of anthropogenic climate change in a consistent manner. Respondents whose belief was 'no' had a lower proportion of score 5's than the respondents whose beliefs are 'yes' or 'unsure' (p < 0.05). Correspondingly, the

'no' group had a higher proportion of 1's and 2's. The regression coefficients (on the logit scale) for these differences are: (i) - 'yes' - 'unsure' = -0.77 ± 0.63 and (ii) 'yes' - 'no' = -1.47 ± 0.72 . The negative effect for question Q5B_13 infers that the profile of cumulative probabilities for belief 'no' has shifted to the left because of the higher incidence of score 1's and 2's than for belief 'yes'. This result indicates that respondents who believe that the introduction of an ETS in Australia will prove to have an adverse impact upon themselves hold that human activity is less, or not at all, responsible for climate change.

Question Q5B_15 was "It is essential that the Australian government legislate to drastically reduce carbon emissions." This question belongs within the Climate Debate theme. The distribution of responses to this survey item exhibits two statistically significant relationships. Specifically, those whose belief was 'unsure' and those whose belief was 'no' both responded to this item in a consistent fashion. Respondents whose belief was 'unsure' had a higher proportion of score 3's than the respondents whose belief was either 'yes' or 'no' ($p < 0.05$). This result indicates that respondents who are unsure whether or not the introduction of an ETS would be personally advantageous elect not to agree nor disagree with this statement. Respondents whose belief was 'no' had a higher proportion of score 1's and 2's and a lower proportion of 4's and 5's than respondents whose beliefs were 'yes' or 'unsure' ($p < 0.05$). The regression coefficients (on the logit scale) for these differences are: - (i) 'yes' - 'unsure' = -1.4 ± 0.7 and (ii) 'yes' - 'no' = -3.3 ± 0.88 . The negative effect for (ii) within question Q5B_15 infers that the profile of cumulative probabilities for belief 'no' has shifted to the left because of the higher proportion of score 1's and 2's relative to the responses of belief 'yes'. This result indicates that respondents who believe that the scheme will be personally detrimental disagree or strongly disagree that legislative action, to address climate change, is required. This result is entirely logical, as self-interest would undoubtedly impact upon respondent's attitude toward this item.

Question Q5B_16 was "As a developed nation Australia has a responsibility to lead in addressing climate change." This question belongs to the Climate Debate theme. The

distribution of responses to this survey item exhibits two significant relationships. Specifically, those whose belief was ‘unsure’ and those whose belief was ‘no’ both responded to this item in a consistent fashion. Respondents whose belief was ‘unsure’ had a higher proportion of score 3’s than the respondents whose belief was either ‘yes’ or ‘no’ ($p < 0.05$). This result indicates that respondents who are unsure whether or not the introduction of an ETS would be personally advantageous elect not to agree nor disagree with this statement. Respondents whose belief was ‘no’ had a higher proportion of score 1’s and 2’s and a lower proportion of score 4’s and 5’s ($p < 0.05$) than those from the other Belief categories (yes, unsure, no). The regression coefficients (on the logit scale) for these differences are: (i) ‘yes’ – ‘unsure’ = -1.86 ± 0.76 and (ii) -2.80 ± 0.86 . The negative effect for question Q5B_16 infers that the profile of cumulative probabilities for belief ‘no’ has shifted to the left because there is a higher incidence of score 1’s and 2’s than for the ‘yes’ belief. This result indicates that those who believe that the introduction of an ETS will be personally beneficial feel that Australia has a responsibility to lead in addressing climate change. Conversely, those who forecast personal detrimental impacts discount this sentiment. The following table exhibits the significant effects across the Belief Categories (Yes/Unsure/No) for the Employment Theme.

Table 32. Significant effects across the Belief categories for the Employment theme.

Question no.	Belief Yes-No	Belief Yes - Unsure
Q5B_17	$= 2.26 \pm 0.85$ ($p = 0.02$)	$p > 0.05$
Q5B_20	$= -1.72 \pm 0.75$ ($p = 0.03$)	$= -1.21 \pm 0.67$ ($p = 0.06$)

Question Q5B_17 was “The introduction of an Emissions Trading Scheme will lead to industries off-shoring operations, resulting in a net decrease in employment in Australia.” This question belongs to the Employment theme. The distribution of responses to this survey item exhibits a statistically significant relationship. Respondents whose belief was ‘no’ had a higher proportion of score 4’s and 5’s ($p < 0.05$) than the other Belief categories (yes, unsure, no). Conversely, these individuals had a lower proportion of score 2’s and 3’s. The regression coefficients (on the logit

scale) for these differences are: (i) - 'yes' - 'unsure' = 0.11 +/- 0.65 and (ii) 'yes' - 'no' = 2.26 +/- 0.85. The positive effect for question Q5B_17 infers that the profile of cumulative probabilities for 'no' has shifted to the right because of a higher incidence of score 4's and 5's than for the 'yes' belief. This result indicates that those who either disagree or strongly disagree that the introduction of an ETS will be personally beneficial predict, to a greater extent, that the resultant impact of the introduction of an ETS will be a net-decrease in employment in Australia as a consequence of organizations moving operations elsewhere.

Question Q5B_20 was "The introduction of an Emissions Trading Scheme will create a large number of "green energy jobs". This question belongs within the Employment theme. The distribution of responses to this survey item exhibits statistically significant relationships. Respondents whose belief was 'unsure' had a higher proportion of score 3's and a lower proportion of score 4's (p 0.0595) than the other Belief categories (yes, unsure, no). This result indicates that respondents who are unsure whether or not the introduction of an ETS would be personally advantageous elect not to agree nor disagree with this statement. Respondents whose belief was 'no' had a higher proportion of score 1's and 2's and a lower proportion of score 5's (p <0.05). The regression coefficients (on the logit scale) for these differences are: (i) 'yes' - 'unsure' = - 1.21 +/- 0.67 and (ii) 'yes' - 'no' = -1.72 +/- 0.75. The negative effect for (ii) within question Q5A_10 infers that the profile of cumulative probabilities for belief 'no' has shifted to the left due to the higher incidence of score 1's and 2's and lower incidence of score 5's relative to that of belief 'yes'. This result indicates that respondents who believe that the introduction of an ETS will be personally detrimental disagree or strongly disagree that a large number of "green energy jobs" will be created. The following table exhibits the significant effects across the belief categories (Yes/Unsure/No) for the Autonomy Theme.

Table 33. Significant effects across the Belief categories for the Autonomy theme.

Question no.	Belief Yes-No	Belief Yes - Unsure
Q5A_10	= -3.69 ± 1.06 (p = 0.001)	= -2.79 ± 0.94 (p = 0.01)
Q5B_11	= 3.7 ± 0.93 (p = 0.004)	= 1.8 ± 0.75 (p = 0.03)

Question Q5A_10 was “Energy producers have a disproportionate influence in dictating Australian Climate Policy.” This question belongs to the Autonomy theme. The distribution of responses to this survey item exhibits two statistically significant relationships. Respondents whose belief was ‘unsure’ had a higher proportion of score 2’s and a much higher proportion of score 3’s ($p < 0.05$) than the other belief categories (yes, unsure, no). This result indicates that respondents who are unsure whether or not the introduction of an ETS would be personally advantageous elect not to agree nor disagree with this statement. Respondents whose belief was ‘no’ had a higher proportion of score 1’s and 2’s ($p < 0.05$). The regression coefficients (on the logit scale) for these differences are: (i) ‘yes’ – ‘unsure’ = -2.79 ± 0.94 and (ii) ‘yes’ – ‘no’ = -3.69 ± 1.06 . The negative effect for (ii) within question Q5A_10 infers that the profile of cumulative probabilities for belief ‘no’ has shifted to the left due to the higher incidence of score 1’s and 2’s. This result indicates that those who believe that the introduction of an ETS will not provide a personal benefit discount, to a greater extent, the statement that energy producers have had a disproportionate influence in dictating Australian Climate Policy. Conversely, those who believe that the introduction of an ETS will be personally advantageous believe that energy producers have had a disproportionate influence in policy formulation. Interestingly, given the Resource cohort’s proximity to and seeming interdependence with energy producers, no statistically significant relationship was observed between the Industry categories (Resources and Financial) and this survey item, indicating that the industry category did not influence the response.

Question Q5B_11 was “Environmentalists have a disproportionate influence in dictating Australian Climate Policy.” This question belongs within the Autonomy theme. The distribution of responses to this survey item exhibits two statistically significant relationships. Respondents whose belief was ‘unsure’ had a higher proportion of score 3’s ($p < 0.05$). This result indicates that respondents who are unsure whether or not the introduction of an ETS would be personally advantageous elect not to agree nor disagree with this statement. Respondents whose belief was ‘no’ had a higher proportion of score 4’s and 5’s ($p < 0.05$) than those from the other

Belief categories (yes, unsure, no). The regression coefficients (on the logit scale) for these differences are: (i) ‘yes’ – ‘unsure’ = 1.8 +/- 0.75 and (ii) ‘yes’ – ‘no’ = 3.7 +/- 0.93. The positive effect for (ii) within question Q5B_11 infers that the profile of cumulative probabilities for belief ‘no’ has shifted to the right due to the higher incidence of score 4’s and 5’s. This result indicates that respondents who believe that the introduction of an ETS will not be personally beneficial hold that environmentalists have had a disproportionate influence in prescribing Australian Climate Policy. The following table exhibits the significant effects across the belief categories (Yes/Unsure/No) for the Efficacy Theme.

Table 34. Significant effects across the Belief categories for the Efficacy theme.

Question no.	Belief Yes-No	Belief Yes - Unsure
Q5A_4	= -1.86 ± 0.78 (P = 0.03)	p >0.05

Question Q5A_4 was “Total carbon emissions in Australia will be lower in 2030 than today.” This question belongs to the Efficacy theme. The distribution of responses to this survey item exhibits a statistically significant relationship. Respondents whose belief was ‘no’ had a higher proportion of score 1’s and 2’s ($p < 0.05$). The regression coefficients (on the logit scale) for these differences are: (i) ‘yes’ – ‘unsure’ = -0.79 +/- 0.64 and (ii) ‘yes’ – ‘no’ -1.86 +/- 0.78. The negative effect for question 5A_4 infers that the profile of cumulative probabilities for belief ‘no’ is shifted to the left because there is a higher incidence of scores 1 and 2 than for belief ‘yes’. This result indicates that those who do not believe that the scheme will be personally beneficially disagree or strongly disagree that total carbon emissions in Australia will be lower in 2030 than today (2009).

Very few, albeit some, of the survey items demonstrate relationships across the Industry category (Resources and Financial). The questions that display significant differences in the distributions of responses across this category, separated into the theme to which the survey item belongs are identified in the following table and will now be discussed.

Table 35. Significant effects across the Belief and Industry categories for the Employment theme.

Question no.	Industry Financial-Resource	Belief Yes-No	Belief Yes - Unsure
Q5B_19	= 2.20 ± 0.62 (p = 0.005)	-	-

Question Q5B_19 was “The introduction of an Emissions Trading Scheme will result in a net decrease in employment in the industry in which I work.” The question belongs within the Employment theme. The question was notable as it is one of just two of the survey items that exhibits a significant difference in the distributions of responses across the Industry categories (Resource and Financial). Respondents whose industry was ‘Resources’ had a higher proportion of score 1’s and 2’s and a lower proportion of score 4’s and 5’s ($p < 0.05$) than those from the Financial Categories. The regression coefficients (on the logit scale) for this difference was (i) Financial – Resources = 2.20 +/- 0.62. The positive effect for question 5B_19 infers that the profile of cumulative probabilities for Resource is shifted to the right because there is a higher incidence of scores 4 and 5 than for the Financial industry. This result indicates that respondents from the Resources cohort agreed or strongly agreed, to a greater degree relative to the Financial cohort, that the introduction of an ETS will result in a net decrease in employment in the sector in which they work. On the basis of this result, the future employment prospects in the resource sector appear grim. The following table exhibits the significant effects across the Belief and Industry Categories for the Autonomy Theme.

Table 36. Significant effect across the Belief and Industry categories for the Autonomy theme.

Question no.	Industry Financial-Resource	Belief Yes-No	Belief Yes - Unsure
Q5A_9	= -2.26 ± 0.67 (p = 0.006)	= -4.26 ± 1.05 (p=0.002)	= -3.50 ± 0.93 (p=0.004)

Question Q5A_9 was “The resource industry has a disproportionate influence in dictating Australian Climate Policy.” The Question belongs within the Autonomy theme. This question provides a noteworthy finding as not only is it one of only two items that exhibits a significant difference in the distributions of responses across the Industry categories (Resource and Financial) but it also displays two significant differences across the Belief categories (yes, unsure, no). This is the only survey item to demonstrate simultaneous relationships with both categories. However, there is no interaction between Industry and Belief effects. Respondents whose industry was ‘Resources’ had a higher proportion of score 1’s and 2’s and a lower proportion of score 4’s and 5’s than those whose industry was ‘Financial’ (p = 0.0576). Turning to the Belief categories, respondent’s whose belief was ‘unsure’ had a higher proportion of score 3’s and a lower proportion of score 4’s than those whose belief was either ‘yes’ or ‘no’ (p < 0.05). Furthermore, respondent’s whose belief was ‘no’ had a higher proportion of score 1’s, 2’s (p < 0.05). The regression coefficients (on the logit scale) for these differences were: (i) – 2.26 +/- 0.67, (ii) – 3.5 +/- 0.93 and (iii) – 4.26 +/- 1.05. The negative effects for question 5A_9 assumes that the profile of cumulative probabilities of (i), (ii) and (iii) are all shifted to the left because there is a lower incidence of score 1’s and 2’s than for (i) the Financial industry or for (ii & iii) the ‘yes’ category. This result indicates that members of the Resource category view the influence the resource sector has had in dictating Australian Climate Policy to be less than that perceived by members of the Financial category. In addition, those respondents who believe that the introduction of an ETS will be personally detrimental also disregard the statement that the resource sector has held sway in dictating Australian Climate Policy.

On the basis of the results provided by the application of the statistical model a number of conclusions will be drawn. Most notably, no effect between survey items Q2 Belief (All things considered, I believe I will benefit from the introduction of an Emissions Trading Scheme in Australia) and D4 Industry (Which industry do you work for?) was observed. This is a notable finding as it suggests that the industry in which a respondent works has no statistically significant impact upon their belief that the introduction of an ETS in Australia will be personally beneficial, or for that matter, detrimental.

A second finding is that the industry in which a respondent works has an effect on a very limited number of issues pertaining to the introduction of an ETS in Australia. This study suggests that such a relationship exists between (i) forecast employment ramifications within the respondents own industry (Q5B_19) and (ii) perceptions that the resource industry has had a disproportionate influence in dictating Australian Climate Policy (Q5A_9).

Belief has been shown to have a much wide-ranging impact on the way respondents answer the individual survey items. In contrast to the two survey items (Q5A_9 AND Q5B_19) that possess a statistically significant relationship with the Industry category (resource, financial), a total of eleven items (Q5A_4, Q5A_9, Q5A_10, Q5B_11, Q5B_13, Q5B_15, Q5B_16, Q5B_17 and Q5B_20) exhibit such a relationship with the Belief categories (yes, unsure, no). On the basis of these results it would appear that a respondent's self-interest (personal benefit) overrides the nature of their employment in informing their response. This finding leads to contemplation of the type of benefits/detriments that respondents base their response to survey item Q2 (All things considered, I believe I will benefit from the introduction of an Emissions Trading Scheme in Australia) on. Given the intrinsic and extrinsic value placed upon the environment, the climate and the uncertainty inherent in mitigating against future climate change, determining these factors is a complex task. This is, however, not within the scope of this study. A summary of key findings of the application of the statistical model to the data set is found below in Table 37.

Table 37. Summary of key findings through the application of the statistical model.

No.	Finding
28	There is no effect between the industry a respondent works in and their belief that the introduction of an ETS in Australia will be personally beneficial.
29	Respondents assess the influence that the resource sector and energy producers have had in dictating Australian Climate Policy as being the same.
30	Many of the issues pertaining to the introduction of an ETS in Australia demonstrate no statistically significant relationship with either the industry the respondent works within or with the respondent's belief that the introduction of the scheme will be personally beneficial.
31	A respondent's belief (yes, unsure, no) that the introduction of an ETS in Australia will be personally effects the majority of the survey items.
32	Those who are 'unsure' whether or not the introduction of an ETS will prove to be personally beneficial elect not to express an opinion on many of the central tenants of the debate.
33	Respondents who believe that the introduction of an ETS in Australia will prove to have an adverse impact upon themselves hold that human activity is less, or not at all, responsible for climate change.
34	Respondents who believe that the scheme will be personally detrimental disagree or strongly disagree that legislative action, to address climate change, is required.
35	Those who believe that the introduction of an ETS will be personally beneficial feel that Australia has a responsibility to lead in addressing climate change.
36	Those who either disagree or strongly disagree that the introduction of an ETS will be personally beneficial predict, to a greater extent, that the resultant impact of the introduction of an ETS will be a net-decrease in employment in Australia as a consequence of organizations moving operations elsewhere.
37	Those who believe that the introduction of an ETS will be personally detrimental disagree or strongly disagree that a large number of "green energy jobs" will be created.

38	Those who believe that the introduction of an ETS will not provide a personal benefit discount, to a greater extent, the statement that energy producers have had a disproportionate influence in dictating Australian Climate Policy. Conversely, those who believe that the introduction of an ETS will be personally advantageous believe that energy producers have held sway in policy formulation.
39	Those who believe that the introduction of an ETS will not be personally beneficial hold that environmentalists have had a persuasive influence in prescribing Australian Climate Policy
40	Those who do not believe that the introduction of an ETS will be personally beneficially disagree or strongly disagree that total carbon emissions in Australia will be lower in 2030 than today (2009).
41	Members of the Resources sector express greater concern, relative to those working in financial services, that the introduction of an ETS will result in a net decrease in employment in the sector in which they work.
42	Members of the Resource sector view the influence the resource sector has had in dictating Australian Climate Policy to be less than that perceived by financial services employees.
43	The industry in which a respondent works has no statistically significant impact upon their belief that the introduction of an ETS in Australia will be personally beneficial, or for that matter, detrimental.
44	The industry in which a respondent works has an effect on a very limited number of issues pertaining to the introduction of an ETS in Australia.
45	The belief that the introduction of an ETS will be personally beneficial has a much wide-ranging impact on the way respondents answer view the central tenants of the debate. On the basis of these results it would appear that a respondent's self-interest (personal benefit) overrides the nature of their employment in informing their attitudes toward the introduction of an ETS in Australia.

Chapter Six: Summary of Findings

The purpose of this chapter is briefly summarise the findings of the study. This study has identified a number of central themes being voiced within the public discourse accompanying climate policy reform in Australia. These areas are namely, business preparedness for emissions trading, significance and causes of climate change, efficacy of proposed policy developments, employment ramifications and non-state actors' influence on public policy. It has presented a detailed survey of the literature as it relates to the aforementioned areas. Above all else, this survey has demonstrated that, differing opinions, assessments and forecasts on the focal areas of the discourse, exist. Commentators' assessments of the current level of business preparedness for this reform is the exception to this trend. On this issue, there appears to be almost universal agreement that both personal understandings of the proposed policy developments as well as organisational awareness is profoundly lacking. This issue must be addressed if Australia is to continue to prosper as the world moves to minimise the risks associated with unmitigated climate change. At the very least organisations would do well to implement PriceWaterhouseCoopers' recommendation to identify and quantify the impacts of climate change and the CPRS on their own business processes.²⁴⁰ Only then will organisations appreciate the imperative of preparing themselves for this policy reform.

Analysis of the responses to a questionnaire survey has been provided. The population from which this data is drawn consists of those employed in the financial services and resource sectors. It has been established that individuals within both of these industries stand to be directly impacted upon by the proposed CPRS. This survey has found that support for legislative action to reduce carbon emissions is strong, as is support for Australia to lead the way in reducing carbon emissions. Despite this, close to a majority of respondents (46 percent) believe that the CPRS will precipitate a net decrease in employment in Australia. Respondents are of the view that non-state actors, such as environmentalists, energy producers and the resource sector have had a disproportionate influence in Australian Climate Policy reform. Respondents believe

²⁴⁰ PricewaterhouseCoopers, *Carbon ready.....or not*, p. 16.

that the ‘grandfathering’ of permits will significantly undermine the effectiveness of the scheme and predict that the carbon market will suffer from problems of volatility. This leads to concerns as to the efficacy of the proposed scheme to actually reduce emissions. Despite these criticisms 42 percent of respondents believe that Australia’s carbon emissions will be lower in 2030 than today. Given that this is the overriding objective of the Carbon Pollution Reduction Scheme this finding adds legitimacy to the Government’s efforts.

A statistical model has been applied to this data set. This analysis has identified a number of statistically significant relationships. Respondents’ belief that the introduction of the CPRS will be personally beneficial has a wide-ranging impact on the way respondents view the central tenets of the debate. The industry in which a respondent works has an effect on only a very limited number of issues pertaining to the introduction of an ETS in Australia. No relationships exist between respondents’ belief that the introduction of an ETS will be personally beneficial/detrimental and the industry in which they are employed. Taken collectively, these findings lead to a critical understanding. This finding is namely; that a respondent’s belief that the introduction of an ETS in Australia will prove to be personally beneficial, overrides the nature of their employment in informing their perceptions of key issues in this debate. This finding is entirely consistent with that of Bord et al. who found that perceptions of undesirable personal consequences predict people’s intentions and attitudes toward global warming and its mitigation.²⁴¹ This result differs greatly from the expected research outcome. The expectation had been that the industry in which the respondent worked would influence their responses to the various survey items and their belief that the introduction of an ETS would be personally beneficial. This, however, was not the case. A number of tables setting out the entire findings of the study can be found in the appendices.

In the aftermath of the failed Copenhagen Climate summit Bloomberg reported that the inability of government leaders to agree on stricter pollution controls is being

²⁴¹ Bord et al. Cited by Ariel Malka, Jon A. Krosnick and Gary Langer, *The Association of Knowledge with Concern about Global Warming: Trusted information sources shape public thinking*, Stanford University, 2007, p. 21.

reflected in commodity markets, essentially meaning that it is getting cheaper to emit greenhouse gases.²⁴² Some commentators were of the view that the failure to reach a binding consensus effectively meant that organisations and their administrators were no longer required develop strategies to manage the transition to a carbon-constrained economy. An example of this sentiment is realised by the former chairman of the Australian Financial Markets Association's Carbon Committee, Craig McBurnie, who stated that carbon traders are stuck in neutral, if not reverse, and that's a reflection of the political situation.²⁴³ Environmental derivatives manager at brokerage Newedge Australia, Gary Cox supports this sentiment, stating that: 'The jury is out as to whether we're going to have an ETS in the shape it's in, if at all'.²⁴⁴ The Prime Minister of Australia, Kevin Rudd's sudden decision to "shelve" the emissions trading scheme in April, 2010 sought to solidify these arguments. All of these positions, however, are quickly proving to be dangerously erroneous.

Didn't attempts to tackle climate change hit a brick wall after 2009's failure to strike a binding global deal at Copenhagen? With the local debate on cutting emissions fading further from public discussion each day, this might seem a fair assumption. However, it would be plain wrong.²⁴⁵ Kevin Parker, Global Head of Asset Management for Deutsche Bank is of the view that; "*The net effect has been to crystallize a rush of new policy announcements that has dramatically increased the outlook for limiting emissions*". When one looks at the evidence, it appears that the context has not stagnated but the likelihood and speed of the transition to a carbon-constrained economy may in fact be speeding up. Yates, for instance, heralds that in a nationalistic contest echoing the 1960's space race the superpowers are already

²⁴² Paddy Manning, *We might be better off without a trading scheme*, G-Biz, The Sydney Morning Herald Weekend Edition, January 30-31, 2010, p.7.

²⁴³ Craig McBurnie, cited by Paddy Manning, *We might be better off without a trading scheme*, G-Biz, The Sydney Morning Herald Weekend Edition, January 30-31, 2010, p.7.

²⁴⁴ Gary Cox, cited by Paddy Manning, *We might be better off without a trading scheme*, G-Biz, The Sydney Morning Herald Weekend Edition, January 30-31, 2010, p.7.

²⁴⁵ Clancy Yeates, *Out on a limb as the world gets serious about climate*, The Sydney Morning Herald, Opinion & Analysis, April 2-4, 2010, p. 5.

slugging it out to dominate what they see as the new Green Industrial Complex.²⁴⁶

Yeates assesses Australia's progress in this contest unfavourably;

“In what is set to be the great economic contest of this era – the race against climate change – we {Australia} look more and more like out-of-shape laggards”.²⁴⁷

Yeates' views are mirrored by the criticism levelled on Kevin Rudd following his postponement of the ETS by environmentalists, seeing the about-face as a betrayal, and by corporate Australia believing it to be a threat to \$50bn of investment.²⁴⁸

Fortunately, assessments of the likelihood and momentum toward limiting carbon emissions are not limited to subjective appraisals. Deutsche Bank, for instance have quantified global developments in this area. Deutsche identify 154 new policies on climate change since Copenhagen.²⁴⁹ This represents a big increase on comparative periods, indicating that “*policy momentum*” on climate change is gathering pace.²⁵⁰

The results of this analysis are presented in the following two graphs:

²⁴⁶ Clancy Yeates, *Out on a limb as the world gets serious about climate*, The Sydney Morning Herald, Opinion & Analysis, April 2-4, 2010, p. 5.

²⁴⁷ Clancy Yeates, *Out on a limb as the world gets serious about climate*, The Sydney Morning Herald, Opinion & Analysis, April 2-4, 2010, p. 5.

²⁴⁸ Dennis Shanahan & Sid Maher, *MPs fear Rudd losing control; massive electricity prices scrapped following PM's backflip on climate action*, The Australian, Wednesday April 28, 2010, p. 1.

²⁴⁹ Deutsche Bank, *The Green Economy; The race is on*, cited by Clancy Yeates, *Out on a limb as the world gets serious about climate*, The Sydney Morning Herald, Opinion & Analysis, April 2-4, 2010, p. 5.

²⁵⁰ Deutsche Bank, *The Green Economy; The race is on*, cited by Clancy Yeates, *Out on a limb as the world gets serious about climate*, The Sydney Morning Herald, Opinion & Analysis, April 2-4, 2010, p. 5.

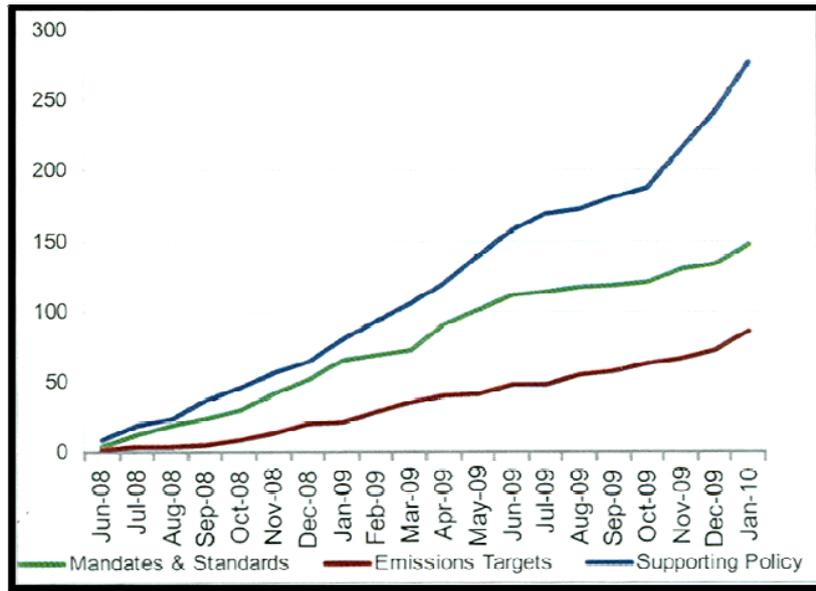


Figure 2. Cumulative number of global policy/policy announcements by type.²⁵¹

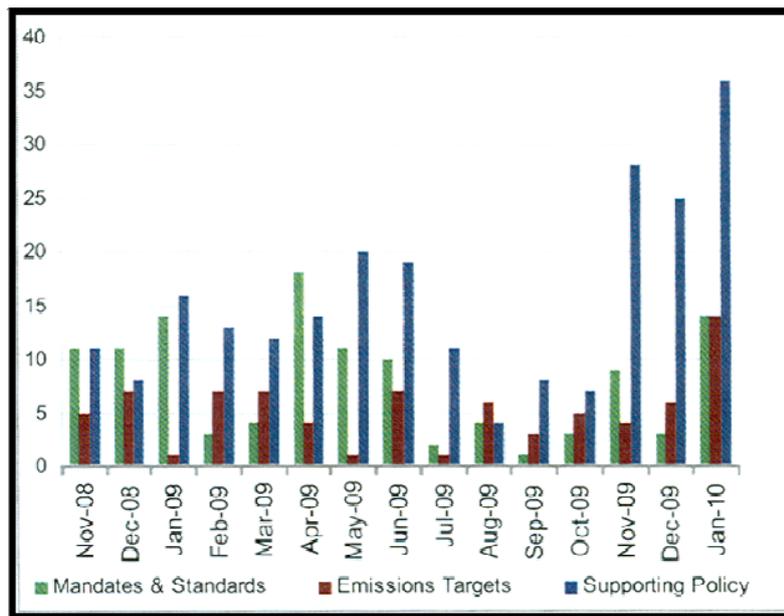


Figure 3. Monthly number of global policy/policy announcements by type.²⁵²

²⁵¹ Deutsche Bank Climate Change Advisors, *Global Climate Change Policy Tracker, The Green Economy; The race is on*, Deutsche Bank, March 2010, p.8.

²⁵² Deutsche Bank Climate Change Advisors, *Global Climate Change Policy Tracker, The Green Economy; The race is on*, Deutsche Bank, March 2010, p.8.

It is clear from all of this proposed legislative action that governments are at last understanding that they are in a race to secure a leading position in the emerging global low-carbon economy.²⁵³ It is immediately apparent that there is an upward trend in this area thus further illuminating the imperative for the professional business administrator to draft, develop and implement a strategic response to the changing political context. Failure and/or tardiness to do so will invariably place the organisations and stakeholders depending upon their stewardship at great risk. The upside of this increase in momentum is the fact that across the global economy the business opportunities are widespread.²⁵⁴ Ultimately, the ongoing competitiveness of countless organisations will be decided, to a great extent, by the capacity of the professional administrator to respond to the changing landscape.

In order for the professional business administrator to respond to this changing landscape they require a great deal of information. In the face of climate change forces, organisations will act out of the following motives;

- Reputational Issues
- Potential for Litigation
- Competitive Advantage.²⁵⁵

Deutsche Bank argue that the degree to which an organisation is exposed to climate change will depend on a variety of externalities.²⁵⁶ This study provides further insight

²⁵³ Keven Parker, cited in; Deutsche Bank Climate Change Advisors, *Global Climate Change Policy Tracker, The Green Economy; The race is on*, Deutsche Bank, March 2010.

²⁵⁴ Kevin Parker (Global Head of Asset Management Deutsche Bank) Investing In Climate Change
An Asset Management Perspective
October 2007, p. 2

²⁵⁵ Kevin Parker (Global Head of Asset Management Deutsche Bank) Investing In Climate Change
An Asset Management Perspective
October 2007, p. 2

²⁵⁶ Kevin Parker (Global Head of Asset Management Deutsche Bank) Investing In Climate Change
An Asset Management Perspective

into stakeholder perceptions of climate change and climate change policy reform in Australia. The extensive literature on this topic has been categorised to highlight the most commonly occurring issues and concerns. The central themes within this discourse, namely; Perspectives of Climate Change; Efficacy of Proposed Policy Developments and Perspectives of Employment Ramifications have been identified and discussed at length. This discourse analysis has detailed a situation where contradicting arguments abound and where consensus on any issue is far from universal. The exception to this rule is the commentary on awareness, preparedness and understanding. Across the literature there is almost universal agreement that such knowledge and appreciation of the significant impact that climate change and its mitigation presents are dismally low. This discourse analysis provides a somewhat comprehensive overview of a number of “externalities” the business administrator will need to understand if they are to successfully guide their organisation through this change. It has introduced a number of common perspectives of climate change. It has explored perspectives of the efficacy of the proposed response to climate change. Finally, the study has delved into perspectives of the employment ramification of climate policy reform. The business administrator would do well to digest this analysis as it presents a significant spring board from which they can commence to consolidate their own and their organisation’s standpoint on these most paramount of issues.

Although Deutsche, quite accurately state that organisational exposure to climate change is moderated by a number of externalities the central purpose of this research, parallels the view that the degree to which an organisation can respond to climate change will depend on a variety of internalities. It is essential that the business administrator be fully equipped to respond to this change. In order for this to be achieved some understanding as to whether systematic relationships exist between demographical and attitudinal variables and how the central tenets of the debate are being perceived by organisational members must be provided. The survey deployed and analysed within this enquiry impart these insights. The results of the survey questionnaire were detailed and discussed. The respondents comprised a sample of

individuals working in either the resource or financial services sectors. Contrary to what was expected, a respondent's membership of a particular industry did not exert a statistically significant influence. A belief that the scheme would prove to be personally beneficial, however, was shown to possess such a relationship. The implication that one can take away from this finding is clear. If an entity, wishes to moderate stakeholder perceptions, relative to this topic, they should look to disseminate information detailing the impact that the proposed scheme will have on them as individuals, irrespective of the nature of their employment. Given that climate change and its mitigation calls for a paradigm shift in thinking, organisational strategy & political priorities, any assistance in outlining methods of changing stakeholder perceptions, such as that detailed herein, is valuable.

To conclude this chapter it is fitting to summarise the findings of the research. This abridgment will be structured around the seven questions posed in the introductory chapters of the study. The first series of questions concerned perspectives emanating from the public discourse. These questions are namely;

1. *What is being said in the ongoing public discourse about climate change and climate policy reform in Australia?*
2. *What perspectives of climate change exist?*
3. *What are the likely employment ramifications associated with addressing carbon emissions?*
4. *To what extent has the federal government acted autonomously in designing and implementing its new climate policy?*

This research has identified three central themes within the public discourse which are commonly occurring. These themes are namely;

- Perspectives of business preparedness for emissions trading
- Perspectives of Climate Change; significance and cause.
- Perspectives of the efficacy of proposed policy developments
- Perspective of the employment ramifications of Climate Policy Reform.

It has presented a detailed survey of the literature as it relates to the aforementioned areas. Above all else, this survey has demonstrated that, differing opinions,

assessments and forecasts on the focal areas of the discourse, exist. Commentators' assessments of the current level of business preparedness for this reform is the exception to this trend. On this issue, there appears to be almost universal agreement that both personal understandings of the proposed policy developments as well as organisational awareness is profoundly lacking. This issue must be addressed if Australia is to continue to prosper as the world moves to minimise the risks associated with unmitigated climate change. At the very least organisations would do well to implement PriceWaterhouseCoopers' recommendation to identify and quantify the impacts of climate change and the CPRS on their own business processes.²⁵⁷ Only then will organisations appreciate the imperative of preparing themselves for this policy reform.

The three remaining questions concerned the relationship between the industry in which a respondent was employed and the manner in which they were engaging with central tenants of this debate. These questions were namely;

1. *How does a sample of individuals working in the finance and resource sectors view the aforementioned areas?*
2. *Does the Industry Variable, reflecting the industry in which a respondent is employed (Financial/Resources), demonstrate a relationship with their perception of the central tenets of the debate?*
3. Does the Belief Variable, reflecting the respondent's belief that they will personally benefit from the introduction of an ETS (Yes/Unsure/No), affect how they perceive the central tenets of the debate?

Despite the initial assumption that those in the Financial Services Sector would view the debate more favourably, reflecting both the analytical framework to this study, and the view that these individuals stand to benefit from the introduction of an emissions trading scheme whilst those in the resource sector stand to lose out, no

²⁵⁷ PricewaterhouseCoopers, *Carbon ready.....or not*, p. 16.

statistically significant relationship was identified between these two variables. The single relationship which proved to exert a moderating influence was the respondent's belief that the introduction of the scheme would prove to be personally beneficial irrespective of their membership of a particular employment sector.

Chapter Seven: Conclusion

This study provides further insight into stakeholder perceptions of climate change and climate change policy reform in Australia. The extensive literature on this topic has been categorised to highlight the most commonly occurring issues and concerns. The survey questionnaire and the statistical analysis of the data generated through the application of this instrument has allowed this study to parallel and add to the existing literature. The observed interaction between a respondent's belief that the introduction of the Carbon Pollution Reduction Scheme will be personally beneficial and the various survey items was a noteworthy finding. The lack of a statistically significant relationship between the industry in which a respondent is employed and how the various survey items were answered was an important finding and one that differed from the expected outcome. The fact that there was no observed interaction between these variables (Belief and Industry) indicates that respondent's perceptions are being informed solely by a belief that the scheme will prove to have a positive/negative personal impact regardless of the industry in which they are employed.

Reflecting the lack of empirical investigation into the relationship between a respondent's belief that the introduction of the ETS will be personally beneficial/detrimental and their attitudes toward climate change and climate policy reform, it is difficult to triangulate this finding with those of other researchers relevant to this association. The Lowy Institute, however, released a brief media release on the 27 April 2010, prior to the upcoming publication of a detailed analysis, indicating that this relationship may be pervasive. The poll of 1,001 Australians found that almost 75 percent of Australians support early action to reduce Australia's carbon emissions but 38 percent are not prepared to pay anything extra on their electricity bill to help solve

climate change.²⁵⁸ Furthermore, only 25 percent of polling participants were prepared to pay \$10 or less extra per month.²⁵⁹ Lowy Institute Executive Director, Dr Michael Wesley, summarising the findings of the report believes; “*most Australians want the government to act on climate change but are not personally prepared to pay much toward it*”²⁶⁰. These findings correlate well with those of this study, clearly suggesting that attitudes and beliefs, as they relate to this issue are moderated by perceptions of future personal benefits and/or losses. Clearly there is merit in the analytical framework employed within this study, enforcing the view that perceptions of this issue are moderated by attitudinal and demographical variables.

This finding provides strong motivation to conduct further research in the area. This will allow the core factors that influence a respondent’s belief that the introduction of an ETS will prove to be personally beneficial or detrimental to be identified. A possible orientation for a future study would be to apply a modified model developed for research in outcome expectancies, otherwise known as utility expectancies. These models are commonly applied in the field of nicotine addiction where research seeks to understand why individuals choose to commence smoking when aware of likely outcomes. These models seek to identify the factors that lead to the respondents’ judgements. The models achieve this by having respondents identify an outcome, and then combine this outcome with a value indicating the importance they place on that factor occurring/not occurring and the likelihood that this factor will occur.²⁶¹ Later models also incorporate the time until such an eventuality is likely to occur.²⁶² By following this approach the researcher is enabled to identify which possible outcomes, of the imposition of the CPRS, are being considered by respondents. Furthermore, the process will develop a rudimentary hierarchy of the strength that these factors have in

²⁵⁸ Lowy Institute, Media Alert, received upon request, May 4, 2010, p.1.

²⁵⁹ *Ibid.*

²⁶⁰ *Ibid.*

²⁶¹ Donald W. Hine, Craig Summers, Kate Tilleczek & John Lewko, *Expectancies and Mental Models as Determinants of Adolescents’ Smoking Decisions*, Journal of Social Issues, Vol. 53, No. 1, 1997, pp. 35-52.

²⁶² Donald W. Hine, Kate Tilleczek, John Lewko, Antionette McKenzie-Richer, Lynn Perrault, *Measuring Adolescent Smoking Expectancies Incorporating Judgements about the Expected Time of Occurrence of Smoking Outcomes*, Psychology of Addictive Behaviours, 2005, Vol. 19, No. 3, 284-290.

informing a respondent's disposition toward climate policy reform. The researcher is currently unaware of such a methodology in common practice in political science. This avenue for future research, therefore, may create a new tool in the future analysis of the likely acceptance of government policy.

Shortly before finalising this study more than 140 world leaders met in Copenhagen to discuss multilateral agreements to reduce global carbon emissions. This highly anticipated congregation, however, failed to establish a legally binding consensus among the world's nations to respond to the dangers of unmitigated climate change. In essence, only a weak political statement of intent emerged.²⁶³ In the domestic arena, the government has failed to pass the Carbon Pollution Reduction Scheme through the Senate. The issue has precipitated a change in the leadership of the opposition party, with the current incumbent, Tony Abbott, describing the theory of anthropogenic climate change as "crap" and he has withdrawn his party's support for the establishment of an emissions trading scheme in Australia.²⁶⁴ Quite shrewdly, Abbott has detected that the politics on this issue are changing.²⁶⁵ Pearson, drawing upon the results of an American CNN-Opinion Research Corporation poll conducted on December 2-3 and Britain's Sunday Telegraph poll, lends credence to Abbott's position concluding that the public's belief in anthropogenic climate change is in decline and resentment at "*having been taken for a ride*" will become profound.²⁶⁶ Taken collectively these developments indicate the benefit to conduct this study again, in the future, to assess how these developments have impacted upon the perceptions of key stakeholders in the Australian context.

²⁶³ Lenore Taylor, *Climate talks set for failure*, The Australian, December 18, 2009, p. 1.

²⁶⁴ Tony Abbott, *Why I had to make a stand on the ETS tax*, The Weekend Australian, December 12-13, 2009, p. 3.

²⁶⁵ *Ibid.*, p. 3.

²⁶⁶ Christopher Pearson, *A change in the way we think*, The Weekend Australian, December 12-13, 2009, p. 44.

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Appendix 1- Glossary of Terms

Adaptation: Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.²⁶⁷

Anthropogenic: Resulting from or produced by human beings.²⁶⁸

Auctioning: A method of allocating emissions permits in which the government releases the permits into the market through an auction process.²⁶⁹

Business as usual: A scenario of future greenhouse gas emissions that assumes that there would be no major changes in policies or mitigation.²⁷⁰

Cap-and-Trade: A market-based instrument designed to bring about a reduction in emissions. The scheme allows for the trading of emissions allowances, with a strict limit on the total allowance of emissions²⁷¹. The program sets an aggressive maximum limit on emissions. Sources covered by the program then receive authorisation to emit in the form of emissions allowances. Each source can design its own compliance strategy including the provision to trade its allocation, or part thereof, with other parties.

Carbon Dioxide (CO₂): a naturally occurring gas; it is also a by-product of burning fossil fuels and biomass, other industrial processes and land-use changes. Regarded by the Australian Government as the principal anthropogenic greenhouse gas that affects the earth's temperature.²⁷²

²⁶⁷ Ross Garnaut, *The Garnaut Climate Change Review; final report*, Cambridge University Press, Port Melbourne, 2008, p. 608.

²⁶⁸ *Ibid.*, p. 608.

²⁶⁹ Commonwealth of Australia, Department of Climate Change, *Carbon Pollution Reduction Scheme; Green Paper*, Glossary, July, 2008, p. 3.

²⁷⁰ Ross Garnaut, *The Garnaut Climate Change Review; final report*, Cambridge University Press, Port Melbourne, 2008, p. 609.

²⁷¹ Peter Switzer, *The Carbon Crunch: What you must know about emissions trading*, Wollahra, 2008, p. 138.

²⁷² Commonwealth of Australia, Department of Climate Change, *Carbon Pollution Reduction Scheme; Green Paper*, Glossary, July, 2008, p. 5.

Carbon dioxide equivalent (CO₂-e): A measure that allows for the comparison of different greenhouse gases in terms of their global warming potential.²⁷³

Carbon Market: A generic term for a trading system in which countries, organisations and individuals buy or sell units of greenhouse gas emissions in an effort to meet limits on emissions.²⁷⁴ Non-emitters, such as speculators, may also choose to purchase such permits.

Carbon Price: The price at which emissions permits can be traded, nationally or internationally.²⁷⁵

Carbon tax: A market-based instrument designed to bring about a reduction in emissions. The government of the day sets a price per tonne on carbon and then translates it into a tax²⁷⁶. This tax rate applies to the consumption of carbon, including the use of electricity, gas or oil. Sources who can reduce the carbon intensity of their good or service will therefore be able to bring this good or service to market at a lower price comparable to that of their competitors. This presents a significant source of competitive advantage, as such, an incentive to reduce emissions.

Carbon: refers to the six major greenhouse gases.²⁷⁷

Climate change: The concentration of many greenhouse gases has been increasing rapidly due to human activity. Once emitted greenhouse gases stay in the atmosphere for varying lengths of time. As a result, the atmospheric concentration of greenhouse gases – and hence its effect on temperature – reflects the stock of accumulated emissions over decades²⁷⁸. The term is often used synonymously with ‘global

²⁷³ Ross Garnaut, *The Garnaut Climate Change Review; final report*, Cambridge University Press, Port Melbourne, 2008, p. 609.

²⁷⁴ Commonwealth of Australia, Department of Climate Change, *Carbon Pollution Reduction Scheme; Green Paper*, Glossary, July, 2008, p. 6.

²⁷⁵ Ross Garnaut, *The Garnaut Climate Change Review; final report*, Cambridge University Press, Port Melbourne, 2008, p. 608.

²⁷⁶ Peter Switzer, *The Carbon Crunch: What you must know about emissions trading*, Wollahra, 2008 63.

²⁷⁷ Commonwealth of Australia, Department of Climate Change, *Carbon Pollution Reduction Scheme; Green Paper*, Glossary, July, 2008, p. 5.

²⁷⁸ Warwick J. McKibbin & Peter J. Wilcoxon, *The Role of Economics in Climate Change Policy*, *Journal of Economic Perspectives*, vol. 16, no. 2, Spring 2002, p 109.

warming'; scientists often use the former to include naturally occurring climate variation whereas the latter denotes human-induced change.

Climate: Refers to the temperatures, rainfall, humidity and behaviour of other meteorological factors over a period of time, usually 30 years. Climate is different from 'weather', which refers to transient, short-term meteorological phenomena such as storms, wind, rain and so on.²⁷⁹

Direct emissions: Emissions from sources within the boundary or control of an organisation's facility's (or individual's) processes or actions.²⁸⁰

Emissions limit or emissions cap: A limit on the number of tonnes of greenhouse gases that can be emitted under an emissions trading scheme. The limit could apply to the whole economy, or to the sectors covered under the scheme.²⁸¹

Emissions trading scheme (ETS): A market based instrument where parties with emissions trading commitments may trade their emission allowances with other parties, with the aim to improve the overall flexibility and economic efficiency of making emissions cuts.²⁸²

Emissions: Literally, things that are sent out or 'given off'. In the context of climate science, this is often used to refer to the introduction of air pollutants into our atmosphere from the burning of fossil fuels.²⁸³

Free allocation: A method of allocating emissions permits where the government releases units directly to entities at no cost.²⁸⁴

²⁷⁹ Gareth Morgan & John McCrystal, *Poles Apart; beyond the shouting, who's right about climate change?*, Melbourne, 2009, p. 254.

²⁸⁰ Ross Garnaut, *The Garnaut Climate Change Review; final report*, Cambridge University Press, Port Melbourne, 2008, p. 609.

²⁸¹ *Ibid.*, p. 611.

²⁸² Peter Switzer, *The Carbon Crunch: What you must know about emissions trading*, Woollahra, 2008, p. 139.

²⁸³ Gareth Morgan & John McCrystal, *Poles Apart; beyond the shouting, who's right about climate change?*, Melbourne, 2009, p. 255.

²⁸⁴ Commonwealth of Australia, Department of Climate Change, *Carbon Pollution Reduction Scheme; Green Paper*, Glossary, July, 2008, p. 9.

Global warming: The increase of the average temperature of the oceans and the air close surrounding the Earth. Sometimes used as a term for the specific period of human-induced global warming since industrialisation.²⁸⁵

Grandfathering: Grandfathering provides a free allocation of permits to existing emitters based on their historical emissions profile (either for a single year or a multi-year average).²⁸⁶

Greenhouse effect: Energy from the sun, in the form of ultraviolet light, passes into earth's atmosphere unimpeded and is absorbed by objects on the surface. As these objects warm they release the energy as infrared radiation. The carbon dioxide, and other greenhouse gasses, in the earth's atmosphere, however, absorb and reradiate this energy back toward the surface, thus raising global temperatures.²⁸⁷

Greenhouse gases: Certain gases that are transparent to ultraviolet light but absorb infrared radiation. The most famous of these gases is carbon dioxide, but water vapour, methane, nitrous oxide, chlorofluorocarbons and various other gases have the same property.²⁸⁸

Hollow logs strategy: The abatement of carbon emissions through the purchase of large areas of forest, or subsidies to landholders to cease clearing areas of land, which are then used as carbon offsets.²⁸⁹ The strategy is most commonly used by wealthier nations to purchase land in developing nations.

Hypothesis: Literally, a 'sub theory': a proposed, or suggested, explanation for an observed phenomenon that requires validation by experimental observations before it can be accorded the status of theory.²⁹⁰

²⁸⁵ Gareth Morgan & John McCrystal, *Poles Apart; beyond the shouting, who's right about climate change?*, Melbourne, 2009, p. 257-258.

²⁸⁶ Commonwealth of Australia, Department of Climate Change, *Carbon Pollution Reduction Scheme; Green Paper*, Glossary, July, 2008, p. 10.

²⁸⁷ Peter Switzer, *The Carbon Crunch: What you must know about emissions trading*, Wollahra, 2008, p. 108.

²⁸⁸ *Ibid.*, p. 107.

²⁸⁹ Guy Pearse, *Quarry Vision: Coal, Climate Change and the End of the Resources Boom*, Quarterly Essay, no. 33, 2009, p. 66.

²⁹⁰ Gareth Morgan & John McCrystal, *Poles Apart; beyond the shouting, who's right about climate change?*, Melbourne, 2009, p. 259.

Market Failure: A situation where the market is not able to provide an efficient level of production and consumption.²⁹¹

Mitigation: A reduction in the source of, or enhancement of the sinks for, greenhouse gases.²⁹²

Permit or Emissions Permit: A certificate created under an emissions trading scheme that enables the holder to emit a specified amount of greenhouse gases, generally one tonne of carbon dioxide equivalent.²⁹³

Pollution: The introduction of contaminants into an environment which can cause instability or harm to living organisms and physical systems. Pollution is not just human-generated: it can refer to naturally occurring substances (or energy) if they occur in excess.²⁹⁴

Sceptic: ‘a person who habitually doubts generally accepted beliefs’. It is used in this context to refer to anyone who doubts the theory of human-induced global warming or its generally agreed implications. That is, sceptics range from those who doubt that human activity is causing climate change to those who accept that human activity is causing climate change, but believe that the magnitude or the nature of that change is other than it is generally held to be.²⁹⁵

Volatility: The degree of random variability in some quantity (for example price per tonne of carbon).

²⁹¹ Commonwealth of Australia, Department of Climate Change, *Carbon Pollution Reduction Scheme; Green Paper*, Glossary, July, 2008, p. 13.

²⁹² Ross Garnaut, *The Garnaut Climate Change Review; final report*, Cambridge University Press, Port Melbourne, 2008, p. 612.

²⁹³ *Ibid.*, p. 613.

²⁹⁴ Gareth Morgan & John McCrystal, *Poles Apart; beyond the shouting, who's right about climate change?*, Melbourne, 2009, p. 263.

²⁹⁵ *Ibid.*, p. 264.

Appendix 2- Research Instrument

Academic Research Survey

Respondent Number: (NA)

1) Instructions: read each of the following biographical questions carefully and place a X in the appropriate column.

Gender	Male	Female

Statement	Early Career	Experienced Employee	Management	Senior/ Executive	Other (please specify)
<i>The position I hold within my organisation is best described as:</i>					

Statement	Yes	No
<i>All things considered, I believe I will benefit from the introduction of an Emissions Trading Scheme in Australia.</i>		

2) Instructions: Read each of the 17 statements carefully. Place a in the column that most accurately aligns with your views. Mark only one box for each statement.

No.	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		SD	D	N	A	SA
1	<i>Carbon will be traded at volumes equivalent to or greater than that of other major commodities, e.g. oil, coal.</i>					
2	<i>A Cap and Trade Model is a more appropriate approach than a carbon tax to reduce carbon emissions.</i>					
3	<i>Granting free carbon credits will significantly undermine the efficacy of the proposed Carbon Pollution Reduction Scheme.</i>					
4	<i>Australian carbon emissions will be lower in 2030 than today.</i>					
5	<i>The Carbon Market will suffer from problems similar to those symbolized by the Enron, WorldCom and Tyco accounting scandals of the past.</i>					
6	<i>The global financial crisis requires a retreat from the introduction of an Emissions Trading Scheme for the foreseeable future.</i>					
7	<i>The impact of the global financial crisis has reinforced a need for further enquiry into the human drivers of climate change, including patterns of personal consumption.</i>					
8	<i>The global financial crisis has served to increase the authority of the sovereign state to impose the climate policy reform it seeks.</i>					
9	<i>The resource industry has a disproportionate influence in dictating Australian Climate Policy.</i>					
10	<i>Energy producers have a disproportionate influence in dictating Australian Climate Policy.</i>					
11	<i>Environmentalists have a disproportionate influence in dictating Australian Climate Policy.</i>					
12	<i>The time-scales of democratically elected governments are appropriate to meet the demands of climate change.</i>					

No.	Statement	SD	D	N	A	SA
13	<i>Human activity is responsible for climate change.</i>					
14	<i>Unmitigated climate change is likely to have dire ramifications for Australia's continued economic prosperity. Therefore, it is essential that the Australian government legislate to drastically reduce carbon emissions.</i>					
15	<i>The introduction of an Emissions Trading Scheme will lead to industries off-shoring operations, resulting in a net decrease in employment in Australia.</i>					
16	<i>There will be a significant shortage of appropriately qualified personnel to meet industry needs as a result of the introduction of an Emissions Trading Scheme, e.g. accountants, engineers.</i>					
17	<i>The introduction of an Emissions Trading Scheme will result in a net decrease in employment in the industry in which I work.</i>					

Appendix 3 – Ethics Approval



Research Development & Integrity
 Research Services
 Armidale, NSW 2351, Australia
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<http://www.une.edu.au/research-services/ethics>
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HUMAN RESEARCH ETHICS COMMITTEE

MEMORANDUM TO: Dr T Lynch & Mr N Flood
 School of Humanities

This is to advise you that the Human Research Ethics Committee has approved the following:

PROJECT TITLE: Rudderless? The Business, Political & State Authority Implications of the Rudd Government's Carbon Pollution Reduction Scheme.

COMMENCEMENT DATE: 30/07/2009

COMMITTEE APPROVAL No.: HE09/122

APPROVAL VALID TO: 30/07/2010

COMMENTS: Nil. Conditions met in full.

The Human Research Ethics Committee may grant approval for up to a maximum of three years. For approval periods greater than 12 months, researchers are required to submit an application for renewal at each twelve-month period. All researchers are required to submit a Final Report at the completion of their project. The Progress/Final Report Form is available at the following web address: <http://www.une.edu.au/research-services/ethics/human-ethics/hrecforms.php>

The NHMRC *National Statement on Ethical Conduct in Research Involving Humans* requires that researchers must report immediately to the Human Research Ethics Committee anything that might affect ethical acceptance of the protocol. This includes adverse reactions of participants, proposed changes in the protocol, and any other unforeseen events that might affect the continued ethical acceptability of the project.

In issuing this approval number, it is required that all data and consent forms are stored in a secure location for a minimum period of five years. These documents may be required for compliance audit processes during that time. If the location at which data and documentation are retained is changed within that five year period, the Research Ethics Officer should be advised of the new location.

Belinda Snell
 Acting Secretary

14/07/2009

Appendix 4 – Complete Findings of the Study

Table A38. Summary of key findings of business preparedness for, attitudes toward and relationships between these variables and the introduction of an Emissions Trading Scheme in Australia.

no.	Finding
1	The majority of respondents are unsure whether or not the introduction of an ETS will prove to be personally beneficial.
2	A slightly higher proportion of respondents working in Financial services believe that the introduction of an ETS will be personally beneficial, relative to respondents working in the Resource sector.
3	The majority of respondents assess the level of awareness, within their own organisation, regarding the introduction of an ETS as low.
4	Respondents working in the resource sector assess the level of awareness within their organisation, regarding the introduction of an ETS slightly higher than respondents working in financial services.
5	The majority of respondents assess their own level of understanding as to the debate surrounding the introduction of an ETS as low or none.
6	Respondents working in financial services assess their own level of understanding as to the debate surrounding the introduction of an ETS slightly higher than respondents working in the resource sector.
28	There is no effect between the industry a respondent works in and their belief that the introduction of an ETS in Australia will be personally beneficial.
30	Many of the issues pertaining to the introduction of an ETS in Australia demonstrate no statistically significant relationship with either the industry the respondent works within or with the respondent's belief that the introduction of the scheme will be personally beneficial.
31	A respondent's belief (yes, unsure, no) that the introduction of an ETS in Australia will be personally effects the majority of the survey items.
32	Those who are 'unsure' whether or not the introduction of an ETS will prove to be personally beneficial elect not to express an opinion on many

	of the central tenants of the debate.
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Table A39. Summary of key findings of Climate Debate and relationships between these variables and the introduction of an Emissions Trading Scheme in Australia.

no.	Finding
44	The industry in which a respondent works has an effect on a very limited number of issues pertaining to the introduction of an ETS in Australia.
45	The belief that the introduction of an ETS will be personally beneficial has a much wide-ranging impact on the way respondents answer view the central tenants of the debate. On the basis of these results it would appear that a respondent's self-interest (personal benefit) overrides the nature of their employment in informing their attitudes toward the introduction of an ETS in Australia.
9	Support for legislative action to reduce carbon emissions is strong.
10	Respondents working in the resource sector are more supportive of legislative action to reduce carbon emissions than respondents working in financial services.
11	A higher proportion of the resource sector favour legislative action to reduce carbon emissions than the proportion of this group who believe that unmitigated climate change is likely to have an adverse effect on Australia's economic prosperity. This apparent contradiction may be indicative of a social-desirability effect.
12	Respondents strongly support the position that Australia should lead the world in reducing carbon emissions.
33	Respondents who believe that the introduction of an ETS in Australia will prove to have an adverse impact upon themselves hold that human activity is less, or not at all, responsible for climate change.
34	Respondents who believe that the scheme will be personally detrimental disagree or strongly disagree that legislative action, to address climate change, is required.
35	Those who believe that the introduction of an ETS will be personally beneficial feel that Australia has a responsibility to lead in addressing

	climate change.
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Table A40. Summary of key findings of Efficacy and relationships between these variables and the introduction of an Emissions Trading Scheme in Australia.

no.	Finding
13	The majority of respondents agree or strongly agree that the provisioning of free carbon permits will significantly undermine the effectiveness of the CPRS.
14	More than one quarter of respondents believe that carbon will become to be traded at volumes greater than major commodities, such as oil and coal.
15	A significant proportion of respondents working in the resource sector and financial services agree that the Carbon Market will suffer from severe volatility. No respondents strongly agreed that this will be the case.
16	The majority of respondents working in financial services believe that total carbon emissions in Australia will be lower in 2030 than today.
40	Those who do not believe that the introduction of an ETS will be personally beneficially disagree or strongly disagree that total carbon emissions in Australia will be lower in 2030 than today (2009).

Table A41. Summary of key findings of Employment and relationships between these variables and the introduction of an Emissions Trading Scheme in Australia.

no.	Finding
17	The majority of respondents believe that the introduction of an ETS will lead to industries relocating operations overseas, precipitating a net decrease in employment in Australia.
18	None of the respondents working in financial services agree or strongly agree that a decline in employment in their industry will eventuate.
19	The majority of respondents working in the resource sector agree or

	strongly agree that a decline in employment in their industry will eventuate.
20	Results indicate that the majority of respondents, irrespective of the industry in which they work, are of the view that the brunt of predicted job losses will be felt by the resource sector.
21	A significant proportion of respondents believe that the introduction of an ETS will lead to the creation of a large number of “Green Energy Jobs”.
22	Results indicate that respondents working in the resource sector do not believe that these “green energy jobs” will be sufficient in number, within their own industry, to account for the decline in more traditional roles.
36	Those who either disagree or strongly disagree that the introduction of an ETS will be personally beneficial predict, to a greater extent, that the resultant impact of the introduction of an ETS will be a net-decrease in employment in Australia as a consequence of organizations moving operations elsewhere.
37	Those who believe that the introduction of an ETS will be personally detrimental disagree or strongly disagree that a large number of “green energy jobs” will be created.
41	Members of the Resources sector express greater concern, relative to those working in financial services, that the introduction of an ETS will result in a net decrease in employment in the sector in which they work.

Table A42. Summary of key findings of Autonomy and relationships between these variables and the introduction of an Emissions Trading Scheme in Australia.

no.	Finding
23	The majority of respondents working in financial services believe that the resource industry has had a disproportionate influence in dictating Australian Climate Policy.
24	The majority of respondents assess the influence of energy producers in

	dictating Australian Climate Policy as being disproportionate.
25	The majority of respondents assess the influence of environmentalists in dictating Australian Climate Policy as being disproportionate.
26	The majority of respondents disagree or strongly disagree that the time-scales of democratically elected governments are sufficient to meet the demands of climate change.
27	Respondents are of the view that the Australian government has been significantly influenced by non-state actors in developing its climate policy.
29	Respondents assess the influence that the resource sector and energy producers have had in dictating Australian Climate Policy as being the same.
38	Those who believe that the introduction of an ETS will not provide a personal benefit discount, to a greater extent, the statement that energy producers have had a disproportionate influence in dictating Australian Climate Policy. Conversely, those who believe that the introduction of an ETS will be personally advantageous believe that energy producers have had a disproportionate influence in policy formulation.
39	Those who believe that the introduction of an ETS will not be personally beneficial hold that environmentalists have had a persuasive influence in prescribing Australian Climate Policy
42	Members of the Resource sector view the influence the resource sector has had in dictating Australian Climate Policy to be less than that perceived by financial services employees.