

The Australian carbon tax: corporate perceptions, responses and motivations

The
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Abstract

Purpose – This study aims to explore how large Australian companies in emission intensive industries perceived the introduction of the Carbon Tax as an approach to carbon emissions regulation and as a tool for accountability. It also investigates the influence of perceptions of the new tax on the internal carbon emissions management practices and the motivations for such actions.

Design/methodology/approach – This study draws on transaction cost theory and legitimacy theory to address corporate perceptions, responses and motivations in relation to the Carbon Tax. Semi-structured interviews were conducted with 18 senior managers directly responsible for the carbon emissions management of their companies.

Findings – The study found that the Carbon Tax, viewed by the high-emitting companies as a heavy financial burden, had a significant influence on moderating organisational legitimacy seeking behaviours. It is evident that the transaction cost issues in the form of the carbon pricing requirement has led to a change of focus to “management” rather than merely reporting to external stakeholders. This influenced companies to change their behaviour with the potential to internalise previous externalities of carbon pollution.

Research limitations/implications – This research highlights that a pricing signal in emissions regulations is essential in conjunction with external pressures to effectively stimulate emissions management actions in companies. It extends our understanding of legitimacy theory by suggesting that a mandatory pricing mechanism as explained by transaction cost economics has the potential to lead to actual changes in corporate behaviour through a focus on management rather than reporting.

Practical implications – The study highlights the important elements of any effective emissions policy designed to encourage strong emissions management actions from companies. Based on the findings of the study, it is evident that the Carbon Tax was a very effective mechanism in driving emission management actions, despite the general perception that any deficiencies associated with such a price mechanism could have a negative effect on the economy.

Social implications – Climate change is a critical issue for the modern society and this study discussed a short-lived policy tool in the Australian context that had the potential to change corporate behaviour in relation to carbon management.

Originality/value – This study is among the very few studies that have examined the influence of the Carbon Tax on internal emissions management practices of companies, and therefore, provides a unique dataset of corporate responses to the Carbon Tax. Given the short time frame that the Carbon Tax was in operation, the study enhances our understanding of the influence the Carbon Tax had on companies responsible for high greenhouse gas emissions.

Keywords Greenhouse gases, Carbon tax, Carbon emissions regulations, Emissions management, High-emitting companies

Paper type Research paper

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1. Introduction

Climate change is a global issue, which requires commitment at both national and international levels of governance to mitigate and adapt to its effects. As a country with high per capita carbon emissions and extensive reliance on coal to generate electricity, the Australian Government faced significant domestic and global pressure for strong action on climate change (Nelson, 2015; Krien, 2017). In response, in 2012, the Labor Party-led government introduced the “Carbon Tax,” a carbon emissions reduction mechanism, with the objective of encouraging carbon-intensive companies to reduce their emissions. However, the introduction of the Carbon Tax generated significant objections from organisations and industry associations (Newman, 2011); and led to disagreement between Australia’s major political parties over emissions reduction policy (Kelly, 2010). As a result of this conflict, the Carbon Tax was repealed by the subsequent government in July 2014 (Freebairn, 2014). Since then, a subsidiary scheme called the “Direct Action Plan” has become the centerpiece of climate change policy in Australia (Freebairn, 2014). In its turn, the “Direct Action Plan” came under scrutiny over its effectiveness in driving strong emissions management actions of companies (Freebairn, 2014; Burke, 2016). Given this, there is little political agreement about the best long-term policy approach in relation to emissions management in Australia (Nelson, 2015; Curtis and Osborne, 2017). This uncertainty in climate change policy and lack of strong long-term emissions policy led to a significant retreat from effective emissions management actions in the country (Burck *et al.*, 2015; Kumarasiri, 2016).

Regardless of the lack of political agreement in relation to emissions management policies, existing literature suggests that pressures exerted through regulation by governments are the main driver for environmental actions of companies (Burnett and Hansen, 2008; Hrasky, 2012; Wahyuni and Ratnatunga, 2015). Therefore, climate change experts have promoted the importance of a strong long-term emissions policy, which could drive urgent and effective emissions management actions within Australian companies (Holman, 2016). There are few studies that have investigated Australia’s short-lived “Carbon Tax” and the consequent influence on emissions management actions in large Australian companies (Lodhia, 2017). Therefore, our understanding of how those companies perceived the Carbon Tax as a policy and its implications for the overall internal emissions management actions of these companies, is limited. Thus, the present study envisages responding to the calls for research that enhance our understanding of the actual dynamics of company’s emissions management practices and factors that drive or inhibit such actions (Hopwood, 2009; Milne and Grubnic, 2011; Ascui, 2014). Given the need for a coherent national emissions reduction policy, such an understanding would enhance our knowledge of features that need to be considered in designing an effective emissions reduction policy and lessons can be learned from the short-lived Carbon Tax policy in designing effective emissions management in emissions intensive companies.

The objectives of this study are to provide evidence of how large carbon-intensive emitters in Australia perceive the Carbon Tax, its influence on discharging accountability for their carbon emissions; any identifiable changes in their internal emissions management practices that were a consequence of the tax, and to establish organisational motivations for their responses to the Carbon Tax. The pursuit of these objectives led to the following research questions:

- RQ1.* How did high-emitting Australian companies perceive the Carbon Tax as a policy instrument?

- RQ2. How did high-emitting Australian companies perceive the Carbon Tax in discharging accountability for their carbon emissions?
- RQ3. How did high-emitting Australian companies respond to the Carbon Tax through changes to their internal emissions management and accounting practices?
- RQ4. What are the factors that influence such responses from high-emitting Australian companies?

In gaining insights into how and why companies responded to the Carbon Tax, semi-structured interviews were conducted with 18 executives directly involved in carbon emissions management in nine large Australian companies in carbon-intensive industries. All 18 interviews were conducted during the time in which the Carbon Tax was in place (from January to June 2013). We, therefore, provide a unique dataset on corporate responses at the only time when carbon pricing has existed in Australia. A theoretical perspective based on transaction cost theory (TCT) and legitimacy theory was used to explore how and why companies responded in the ways that they did. The introduction of the Carbon Tax, directly through the taxation system and indirectly through the increase in fuel and electricity prices, was likely to impose a significant financial imposition on companies, forcing them to act on emissions management. Therefore, it is reasonable to assume that this regulatory pressure may have had a direct influence on the internal emissions management practices of companies responsible for emitting large amounts of carbon in Australia. It was believed that TCT provides a suitable explanatory mechanism for understanding the ways in which companies responded to the changes in the economic environment in which they operated (Williamson, 1991). It was also found that the TCT perspective alone would not adequately account for the influence of external pressures on organisational management practices (Roberts and Greenwood, 1997). More specifically, previous studies have found that corporate environmental actions are driven by the desire to legitimise their corporate actions and ensure their continued existence (Cho and Patten, 2007; Deegan, 2014). Legitimacy theory asserts that corporate actions are considered not only to be aligned purely with efficiency but also with societal values (Deegan, 2002). Therefore, the introduction of the Carbon Tax could affect transaction costs, as well as legitimacy seeking management practices. Consequently, a combination of TCT and legitimacy theory provides the foundations for addressing the research questions.

2. Carbon tax in Australia – an overview

In July 2012, the Australian Labor government introduced a “Carbon Tax” for application to Australia’s biggest carbon emitters called “liable entities” (Talberg *et al.*, 2015). The Carbon Tax was introduced through the Clean Energy Act 2011 legislation. Under the carbon pricing mechanism, liable entities were required to pay a price on their carbon emissions. According to the Australian Government’s Clean Energy regulator, approximately 60 per cent of Australia’s carbon emissions were covered by the Carbon Tax regulations. Australia’s Carbon Tax was a fixed-price emission-permit system at 23(AUD) per tonne of carbon emitted. It was planned to increase the tax by 2.5 per cent in real terms per year for the next two years until it was replaced by an Emission Trading Scheme (Andersson and Karpstam, 2012). Thus, under the Carbon Tax regulation, liable entities were able to purchase carbon units from the Clean Energy Regulator at a price of \$23 per unit in the financial years of 2012 to 2013. The liable entities were also required to surrender one carbon unit for every tonne of carbon dioxide equivalent that they produced. If any liable entity did not surrender enough eligible units to satisfy regulatory requirements, their liability would

incur “unit shortfall charges”. The objective of creating a high charge (at 130 per cent of fix price relevant to that financial year) was to encourage companies to surrender units under the mechanism and to control emissions that they released into the atmosphere.

As highlighted before, the introduction of the Carbon Tax generated strong resistance from opposition parties and various interest groups (Kelly, 2010; Newman, 2011). Some of the claims that they made as a result of the enforcement of the Carbon Tax were: possible increases in energy costs; cost of living; unemployment due to the demise of the coal industry; and competitive disadvantages for trade-exposed industries, which are constrained in their ability to pass through carbon costs due to international competition (Lucas, 2012; Brendan, 2014). For example, there was a significant outcry through media that the Carbon Tax could increase electricity cost that could account for about 16 per cent of a typical large industrial user’s energy bill (Pearson, 2014). In contrast, a survey conducted among 145 members of the Economic Society of Australia revealed that the majority of them (60 per cent) believed that the Carbon Tax was a good economic policy adopted by the government (Creagh, 2011). The Climate Change Performance Index published in 2015 by Climate Action Network Europe believed that the repeal of Carbon Tax may have influenced Australia to be ranked as the worst performing industrial country with respect to climate change actions (Burck *et al.*, 2015). Thus, opinions about Carbon Tax were divided. Nevertheless, after a lengthy debate in parliament, the Carbon Tax was repealed by the Liberal Party-led coalition government in 2014 and it was replaced by the voluntary “Emissions Reduction Fund” (ERF) (Talberg *et al.*, 2015).

The current study was conducted between January and June 2013, when companies were under significant financial and societal pressure to respond to the Carbon Tax. The Carbon Tax was the only carbon pricing mechanism ever used in Australia. Consequently, the unique insights gained from this study on how and why Australian companies operating in emissions intensive industries responded to the Carbon Tax may very well inform future carbon pricing policies in Australia.

3. Review of relevant literature and the theoretical background

3.1 Review of relevant literature

Climate change can affect the profitability and value creation of companies in the following two main ways: costs associated with regulatory fines; and loss of business assets and activities due to extreme weather events (Haque and Deegan, 2010). Thus, climate change mitigation actions from companies have become economically important to minimise companies’ carbon-related regulatory costs. Furthermore, it could be considered as an obligation of companies to recognise carbon-related impacts on management of business operations and stakeholder consciousness regarding climate change (Burritt *et al.*, 2011). Carbon-related regulations, stakeholder awareness, firm characteristics, business operations, firm strategy and organisational capabilities have been identified as the important factors that drive climate change actions (Hartmann *et al.*, 2013; Wahyuni and Ratnatunga, 2015; Kumarasiri, 2017).

Carbon accounting is the accounting tool that companies use to respond to climate change issues (Schaltegger and Csutora, 2012). It is a subset of sustainability accounting and reporting with a focus on internal management and external reporting of carbon impacts (Lodhia and Jacobs, 2013). Often, carbon-related policies lead to changes in the internal and or external aspects of carbon accounting as legislation would make companies more accountable on their carbon emissions (Larrinaga, 2014; Linnenluecke *et al.*, 2015). For example, Bui and De Villiers (2017) found that New Zealand electricity generators adapted carbon management accounting as a strategic response to the changes in climate change

regulation in New Zealand. Similarly, [Linnenluecke et al. \(2015\)](#) observed that the introduction of carbon related legislation could not only increase the demand for conventional accounting practices but also nonconventional accounting services such as risk consultancies.

Research has also investigated the internal factors that enhance the environmental performance of companies. For example, [Hoffman \(2007\)](#) found that leadership and support (commitment) from top management for emissions management are crucial in driving the actions of companies towards lowering carbon emissions. Similarly, [Lee and Ball \(2003\)](#) and [D'Amato and Roome \(2009\)](#) stated that top management support was vital for a company to make real progress towards improved environmental performance. In considering investments, [Burritt and Saka \(2006\)](#), [Pagan and Prasad \(2007\)](#) and [Burnett and Hansen \(2008\)](#) emphasised that the introduction of energy-efficient products not only enhance environmental performance but also provide a competitive advantage for companies. As explained by [Hoffman \(2007\)](#), the identification of, and investment in, "low-hanging fruit" is the first step in developing carbon emissions strategies within companies. In considering the organisational culture, [Renwick et al. \(2013\)](#) state that a culture that supports environmental management is one of the motivational factors that encourage employees to make suggestions for, and legitimises involvement in, activities that enhance environmental performance. Similarly, [Linnenluecke and Griffiths \(2010\)](#) proposed that the integration of sustainability measures in employee performance evaluation and employee training could facilitate the introduction and maintenance of an environmentally friendly culture in organisations.

Prior research has addressed the role that carbon accounting plays in effective management of carbon emissions. [Bui and de Villiers \(2017\)](#) asserted that carbon management accounting plays different roles depending on the strategies adopted by the companies in response to changing climate change regulations. They identified regulatory uncertainty as to the main barrier in developing proactive strategies and the effective use of carbon management accounting. [Linnenluecke et al. \(2015\)](#), who synthesised existing research on environmental accounting, claimed that the current use of carbon accounting information mainly focussed on mitigating legislative requirements for their greenhouse gas emissions, despite the significant value that such information could provide in preparing companies for adapting to climate change risk. Furthermore, [Hartmann et al. \(2013\)](#), who reviewed the accounting literature developed around carbon accounting, carbon control and carbon disclosure argued that, in spite of anecdotal evidence that suggested increasing use of carbon accounting and control for traditional decision and reporting purposes, there were a lack of empirical studies that have investigated the effect that external, institutional settings could have on the internal emissions management practices of companies. As such, the importance of accounting research that investigates the roles that accounting and calculative mechanisms can and cannot play in the carbon emissions management area is emphasised ([Hopwood, 2009](#)). Similarly, as emphasised by [Milne and Grubnic \(2011\)](#) and [Ascuí \(2014\)](#), much work remains to be done in understanding the actual dynamics of organisational emissions reduction programs and factors that drive or inhibit such actions. As such, we respond to these calls by providing empirical evidence of how large high emitting companies perceived the Carbon Tax as a policy instrument and an accountability mechanism, how they responded to the Carbon Tax (and its effect on internal emissions management practices of these companies) and the motivations for these responses.

3.2 Theoretical perspectives

TCT has been widely used in marketing, management, political science and economics (Shelanski and Klein, 1995; Getz, 1997; David and Han, 2004; Pannell *et al.*, 2013). The main focus of TCT is on explaining how firms organise their transactions economically. Transaction Cost theorists believe that organisations exist because they are able to economise on the cost of exchange of goods and services in the market (Roberts and Greenwood, 1997). Therefore, TCT posits that an organisation's governance structure, and its choice of management controls are fundamentally driven by the economisation of transaction costs. As explained by Roberts and Greenwood (1997), TCT provides a basis for identifying the forces that shape organisational internal management practices and organisational structures in response to the changing economic conditions to gain the maximum economisation benefit. According to Williamson (1991), there are three critical elements, which determine the magnitude of transaction costs. These three elements are asset specification, transaction frequency and uncertainty.

The asset specificity of a transaction refers to the degree to which an asset can be reassigned to "alternative uses and by alternative users without sacrifice of productive value" (Williamson, 1991, p.281). Asset specification focuses not only on physical assets but also on human assets. It is believed that the greater the asset specificity, the less able it is to be put to alternative uses and more likely that the value of these assets are exposed to opportunistic expropriation by the parties involved in the transactions. This may lead to tighter management control, which could, in turn, lead to higher transaction costs. It is believed that renewable energy projects are costly because of the commercial barriers with mature technologies; lack of financial incentives from regulations; and, failure of the market to value the environmental benefits of renewable investments (Borenstein, 2012). In this context, with the enforcement of the Carbon Tax in 2012, it can be hypothesised that carbon-intensive Australian companies may have been motivated to make investments more specifically in renewable energy or lower carbon production processes or to change their production processes to minimise the political cost (Carbon Tax) and energy cost.

Transactional frequency is explained as the intensity with which transactions recur (Williamson, 1991). It posits that transaction frequency increases transaction costs associated with monitoring but could also reduce the risk of opportunism (Tate *et al.*, 2011). Therefore, it can also be hypothesised that the introduction of the Carbon Tax could have brought significant pressure to bear on those companies in Australia that are emitting large amounts of carbon to manage their emission levels to reduce the costs associated with carbon emission. Therefore, it is likely that these companies would have implemented some additional management controls in relation to energy cost management.

Finally, uncertainty refers to unforeseen contingencies and risks. Greater uncertainty could create pressure on companies to collect more information and establish monitoring systems (Getz, 1997; Widener, 2007). Stern (2007) identifies uncertainty as a central element in most aspects of climate change issues. Not only is their uncertainty about the nature and effects of carbon emissions (Zehr, 2000) but also there is significant uncertainty regarding regulation in relation to the policy mechanisms on emissions management (Beeson and McDonald, 2013; Nelson, 2015). According to the Australian Institute of Company Directors (AICD), political uncertainty relating to carbon emissions policies is one of the top three challenges that directors face (Australian Institute of Company Directors, 2012). In considering risk management, it is believed that an effective management control system is an essential aspect of the successful management of strategic uncertainty and risk (Simons, 2000; Widener, 2007; Subramaniam *et al.*, 2015). For example, Widener (2007) found strategic uncertainty and risk to be the main drivers for companies to obtain additional management

accounting information. Hence, with the introduction of the Carbon Tax, it can be hypothesised that there will be more use of management accounting information by companies to minimise the risk and uncertainty associated with emissions regulations.

[Covaleski et al. \(2003\)](#) believe that management control systems serve two distinctive roles:

- (1) efficiency seeking; and
- (2) legitimacy seeking.

In their words, “these two facets of management control systems are inexorably inter-twined and cannot be easily separated from one another” (p. 438).

Legitimacy theory posits that there is a “social contract” between a company and the society in which it operates ([Dowling and Pfeffer, 1975](#); [Lindblom, 1994](#); [Deegan, 2002](#)). This social contract represents the myriad of expectations society has concerning how the organisation should conduct its operations ([Cho and Patten, 2007](#); [Islam and Deegan, 2008](#)). The motive behind legitimisation can be explained as the desire by a company to improve the appropriateness of its actions within an established set of regulations, norms, values or beliefs ([Bansal and Roth, 2000](#)).

Legitimacy theory has been widely used in studies to explain companies’ social and environmental reporting, including carbon reporting ([Hrasky, 2012](#)). For example, [Hrasky \(2012\)](#), who studied large Australian companies’ environmental disclosure strategies, found that companies used “substantive” or “symbolic” strategies to protect their legitimacy. [Pellegrino and Lodhia \(2012\)](#) found that both Australian mining companies and their industry associations used voluntary disclosure to oppose impending carbon pricing requirements. [Liesen et al. \(2015\)](#) also claim that companies could use carbon disclosure as a symbolic act to address legitimacy exposures. [Qian and Schaltegger \(2017\)](#), who examined the relationship between the changes in carbon emissions disclosure and the performance of Global Fortune 500 companies, also found that the above relationship was relatively weak among the high carbon-intensive companies in comparison to the rest of the sample companies. Based on their results, [Qian and Schaltegger \(2017\)](#) suggested the possibility of high emitting companies using disclosure as a catalyst to improve their subsequent environmental performance and as a tool to legitimise their actions without engaging in much performance change. Similarly, the research that analysed the link between the legitimising strategies of companies and the characteristics of the political environment in which they were formulated observed that the regulatory environment had a significant influence on legitimacy strategies of companies ([Patten, 1995](#); [Deegan, 2002](#); [Archel et al., 2009](#)). For example, [Archel et al. \(2009\)](#) conducted a discourse analysis on the annual reports and media disclosures of a multinational automotive company in Spain and found that the company used their social and environmental disclosures strategically to legitimate their new production process. However, the company largely underplayed the negative consequences of that process, which deteriorated the working conditions while creating a discontent workforce. [Archel et al. \(2009\)](#) claimed that the lack of pressure from the State to address the workforce concerns allowed the company to legitimate their new production process strategically.

[Bebbington et al. \(2008\)](#) expanded the application of legitimacy theory by arguing that corporate disclosure of environmental information could be viewed as a process of reputational risk management. They believed that reputational risk management is one of the main objectives of corporate sustainability reporting. [Cho et al. \(2012\)](#), [Hogan and Lodhia \(2011\)](#) and [Arora and Lodhia \(2017\)](#) also contend that disclosure was driven by the need to manage reputational risk. Similarly, studies, which investigated the motives for voluntary

reporting within the prism of legitimacy theory, often highlight the fact that reporting dominates with internal management practices only developing in a limited and ad-hoc manner (Lodhia and Jacobs, 2013). Companies seem to have sought more benefit from reporting and less from real changes to management systems. Lodhia and Jacobs (2013), emphasised the importance of understanding the internal organisational practices and motives of “internal stakeholders” in gaining insights into the actual production of environmental reports rather than the notion of external legitimacy. Accordingly, through the use of transaction cost economics, we investigate whether a cost imposition through a mandatory requirement (the Carbon Tax) leads to changes in management systems for addressing carbon impacts, and therefore, changes the dynamics in relation to the motivations for carbon accounting and reporting. Our study contributes to an improved understanding of legitimacy theory by suggesting that TCT considerations moderate the legitimacy considerations of corporations, leading to significant changes in management practices, as opposed to an exclusive focus on legitimisation through voluntary reporting.

4. Research methods

A qualitative research methodology (Hoque *et al.*, 2017) was used in this paper. Qualitative research methodologies rely on a socially constructed ontological position and involve the use of subjective, interpretive epistemologies. They are appropriate for studies where there is a limited understanding of existing practices and where the intention is to undertake an in-depth analysis of corporate behaviours and processes (Lodhia, 2017). The research questions for the present study require an exploration of organisational perceptions, responses and motivations, and are, therefore, suitable for an in-depth qualitative study.

As stressed by Myers (2013), the data collection techniques need to be in line with the methodology of the research. Given the qualitative nature of the current study as a result of the research questions posed, semi-structured interviews were used as the primary method of data collection. In semi-structured interviews, researchers have a list of questions to be answered but will not adhere to them strictly (Saunders *et al.*, 2009). Therefore, the flexibility of semi-structured interviews allows researchers to explore new lines of inquiry.

The research context was restricted to the largest Australian companies in the high carbon-intensive industries. Ten high-emission, carbon-intensive companies were selected purposively and invited to participate in the study. Nine companies agreed to participate, and 18 interviews were conducted with executives who were directly involved in carbon emissions management activities. The nine companies were categorised according to the Global Industry Classification Standard (GICS). They represented materials, industrial, energy, utility and consumer staples sectors, which are considered to be the carbon-intensive sectors that produce high levels of emissions. According to the GICS, the Materials sector represents companies that manufacture chemicals, construction materials, paper and forest products. The examples from the Industrial sector are transportation services companies, including airlines, couriers, marine, road and rail and transportation infrastructure. The utility sector encompasses the enterprises deemed to be electric, gas or water utilities, while the energy sector represents companies engaged in the exploration for or production, marketing, refining and/or transportation of oil and gas products. The consumer staples sector includes the companies that manufacture and distribute food, beverages and tobacco.

Table I provides the demographic information related to the interviewees.

Nine interviews were conducted via telephone and the remaining nine interviews were conducted face-to-face. The primary reason for conducting some interviews via telephone was that this was the most effective way of getting access to the particular interviewee. As the objective of the research was to gain a clear understanding of managerial perceptions

Table I.
Classification and
interviewee
information

Designation	No. of years in that position (in years)	Professional background	Industrial sector	Interviewee codes
Sustainability business Analyst	2.5	Env. Sustainability	Material	S(M)4
Manager resources and Energy	13	Engineering	Material	E(M)5
General manager sustainability and Carbon	4	Accounting	Material	A(M)6
Corporate sustainability Manager	2	Env. Sustainability	Material	S(M)7
Process Technology Engineer	5	Engineering	Material	E(M)8
Risk Manager	4	Accounting	Material	A(M)9
Sustainability Manager	10	Other	Material	O(M)10
Plant manager	2	Engineering	Material	E(M)11
Sustainability Manager	1.5	Engineering	Material	E(M)12
Manager carbon strategy and operations	3	Engineering	Utility	E(U)1
Financial Accountant	1.5	Accounting	Utility	E(U)2
Environmental manager	2	Accounting	Utility	E(U)3
Environmental Manager for Carbon	2.5	Engineering	Industry	E(I)15
Finance Manager	1.5	Accounting	Industry	E(I)16
Manager Sustainability and climate change	8	Engineering	Industry	E(I) 17
Carbon Advisor	2.5	Env. Sustainability	Energy	S(E)18
Environment Engineer	5	Engineering	Consumer Staples	E(CS)13
Manager Engineering Services	5	Engineering	Consumer Staples	E(CS)14
<i>Total number of companies</i>		9		
<i>Total number of Interviews</i>		18		

regarding the Carbon Tax the mode of the interview (face to face or telephone) may not influence the quality of interview data (Sturges and Hanrahan, 2004). The average length of an interview was 40 min, ranging between 30 and 50 min. In total, 16 interviews were recorded on audio devices and contemporaneous notes were made for the remaining two interviews.

Appendix provides a list of the open-ended questions used in the semi-structured interviews. The interview questions were guided by the research questions. Initially, the emphasis was on the perceptions of the Carbon Tax. This was followed by a series of questions, which focus on companies' responses to the introduction of the Carbon Tax. Each interview concluded with a discussion on the motivations for their company's carbon emissions management. Where necessary, probing questions were used to expand the discussion or to provide a better understanding of the key issues raised by the interviewees.

To identify each of the interviewees, identification codes based on their professional qualifications [engineer (E), sustainability (S) and accounting (A)]; industry sector [materials (M), industrial (I), energy (E), utility (U), consumer staples (C)] and (III) interview number 1 to 18 were designed. For example, if an interviewee was an engineer who represented a utility company, and the interview number was 1, the interviewee's identification code was [E(U)1].

A thematic analysis (Green et al., 2007) was used to analyse the interview data. The research questions informed the interview questions and the analysis of the interview data was guided by a focus on perceptions, actions and motivations, the research constructs for this study. The interview data was manually organised, and the researchers searched for themes that were reflective of the research constructs for this study. There was also scope to

address any alternative explanations that could have emerged from the data. All relevant themes were coded and related to the research questions and theoretical perspectives.

As explained by [Lukka and Modell \(2010\)](#) and [Parker \(2014\)](#), the credibility of qualitative research can be assessed based on the authenticity and plausibility of the research findings. Authenticity refers to the ability of the provision of thick explanations that are sourced in the life world of actors being studied. On the other hand, plausibility can be assessed on the ability of associated explanations that can be enhanced by developing theoretically informed explanations, drawing upon available theories and empirical works ([Lukka and Modell, 2010](#); [Parker, 2012](#)). To assure authenticity for the current research, each transcript was scrutinised carefully against the necessary recordings and amendments were made, if required, to ensure a verbatim record. Transcripts were sent to the interviewees to provide the opportunity to review their interview transcripts. However, none of the interviewees requested changes to the transcripts subsequent to sighting them. In considering the issue of plausibility, the research findings were explained by drawing upon available theories and empirical works. Direct quotes from company representatives were also used to enhance conformability that findings emerged from the data and not the researcher's own predispositions. Furthermore, secondary data sources such as annual reports of the companies and their websites were viewed to gain an understanding of the background of the companies and to verify interview responses.

5. Findings

5.1 *Perceptions of the carbon tax*

From the interview data, it was evident that all the nine large carbon emitters considered the Carbon Tax to be a major financial threat to them:

Our financial year 13 [2013] liability is approximately \$110 million. So that's a big incentive to try and mitigate that cost. That cost goes straight to the bottom line [E (I) 15] So obviously having a carbon price, whenever we burn fuel, the fuel becomes a bit more expensive because of the carbon price [S(E)18].

This finding was not surprising as the entire purpose of imposing the tax on high emitting companies was to impose financial pressure to take substantive actions on emissions management. The enforcement of financial pressure through the Carbon Tax supports the "polluter pays principle". On the other hand, company representatives perceived that the Carbon Tax not only brought financial pressure to their companies but also reputational threats. For them the reputational risk was the public exposure of their carbon emissions due to the Carbon Tax:

[...] We're going to come in as one of the top five, probably, liable under the scheme, so there's big reputational issues for [Company Name] as well. [E(U)1].

Moreover, the significant unpopularity of this carbon policy created greater uncertainty about the policy mechanism and its longevity as a policy. Policy uncertainty was another major concern across all of the companies:

[...] the bigger thing that has more effect is the uncertainty surrounding the carbon price [S(M)7].

More specifically, six out of nine companies claimed that this policy uncertainty and lack of bipartisan support between the major political parties represented the main threat, rather than the regulatory requirements:

I think the lack of bipartisan support for action on climate change, and particularly the current carbon scheme that's in place, the fact that a future potential government has committed to

ousting it, repealing it, creates a lot of short term-ism. If we had bipartisan support, we wouldn't be so cautious in the next few years [...] [E (U)1].

The managers interviewed also expressed their concern over the equity of the policy as they believed that there was inconsistency within the policy between different emitters which they claimed was driven by politics:

[...] the rules for different emitters are not consistent. So the rules are inconsistent between emitters and they're political driven [E(I)15].

Some of the other negatives that interviewees highlighted were the bureaucratic behaviours of the government officials and lack of support for companies, and the administrative demands of the policy:

[...] they [government] do not deal with people on a very customer friendly basis [...] it's like a faceless organisation [...]. It's frustration [E(M) 5].

It's very administratively intensive for us to try and comply a lot of times because they don't know what they're doing, basically. So it makes it difficult for us [S(M)4].

The managers who were interviewed from trade-exposed industries believed that the Carbon Tax placed them at a competitive disadvantage when competing in international markets where there was no tax on carbon:

[...] any kind of unique tax in this country [...] means that we're less competitive than we would be against that competition. If there was an international scheme, then it would make sense. In the absence of an international scheme we're penalising our own company [E(M) 8].

However, irrespective of concerns over the Carbon Tax policy, majority of the companies believe that the Carbon Tax created greater urgency for companies to act on emissions management that would not have been achieved had the tax not been imposed:

There's certainly been some decisions made that wouldn't have been made without the carbon price because in the cases of abating emissions [S(M)7].

In summary, from the interview evidence it was clear that even though there were many drawbacks highlighted by interviewees, there were some positive aspects that were driven by the policy, in regard to bringing companies' attention to the importance of their emissions management. It was not surprising to find that the Carbon Tax was not popular among the interviewees and that it is perceived as a reputational risk. For example, previous studies, which investigated the Carbon Tax as an emissions management policy of other countries also found that it was not a popular political choice (Braun, 2009). Nevertheless, the intention of the Australian Government through the introduction of the Carbon Tax was to motivate high emitting companies to take urgent and significant action to reduce their carbon emissions. Therefore, in line with TCT, it could be argued that by increasing the transaction cost, the Carbon Tax created pressure for high emitting companies to manage their emission levels to reduce the costs associated with carbon emissions. Similarly, the enforcement of a price on carbon could be viewed as an indirect legitimacy pressure for companies to be more accountable for the negative environmental effects of their business activities (Lodhia, 2011).

5.2 The carbon tax in discharging accountability for their carbon emissions

There was a clear absence of direct discussions of ethical or moral responsibility in taking actions on emissions management by any of the sample companies. As suggested by Catusis (2008), often the "absence" of a discussion is just as important as the presence of

one, since “absence may lead to new ideas of what organisations are and how they work” (p. 1005). Even though accountability in relation to environment was not explicitly discussed by the managers, it was evident from their discussions that the managers viewed taking actions on the reduction of energy cost to result in a reduction of emissions. For example, interviewees viewed energy cost management as a “win-win” situation. It was further visible from their explanations that their focus was directed towards how they could support their companies’ energy cost management rather than reducing the harmful effects on their business actions to the environment:

I guess in communicating and addressing [climate change issues] that is we took away a lot of the moral aspects of this. [...] We actually stripped it right back to this is a new obligation, this is the cost, you know it’s around \$650 million dollars per annum to [company name]. We’ve got an obligation here to do the right thing by our shareholders and by the business. [E(U)1]

[...] certainly, from an energy point of view, it is quite a considerable cost, and from a sustainability point of view it’s a big issue, that doesn’t necessarily translate to divisional management thinking that it’s important, because they do have their sales quotas and everything that they’d probably consider more important than anything to do with environment. [CI(S)4]

Moreover, the majority of managers represented by the seven companies claimed that the Carbon Tax opened up new opportunities and a better understanding of their carbon emissions which could facilitate taking effective actions on emissions management in the future:

[...] the opportunity of better understanding and better accounting for our scope three emissions. [S(M)4]

In summary, the interviews with corporate managers clearly indicate that the moral obligation of ecological sustainability is something remotely resembled in corporations where internal management practices were preoccupied with shareholder profit maximisation. However, the analysis of the interview data shows that even though the companies’ actions on emissions management were not directly motivated by discharging ethical or moral responsibility, the initiatives that they have taken to reduce carbon emissions has supported the “accountability” notion. Therefore, it could be argued that by implementing the Carbon Tax, the Australian Government not only enforced financial pressure but also the pressure for companies to be accountable for the environmental damage they cause by taking necessary emission reduction actions.

5.3 Companies’ response through changes to their internal emissions management and accounting practices

The perceptions of the Carbon Tax by interviewees need to be related to the actual actions by the companies in response to the Carbon Tax. This provides an understanding of how company behaviour was affected by the Carbon Tax and explains why such actions were undertaken. Therefore, this study has sought to ascertain the changes to companies’ internal emissions management and accounting practices in response to the Carbon Tax.

5.3.1 Recruitment of specialists in managing emissions costs. Recruitment of employees and managers relating directly to carbon emissions management was reported as one of the main actions taken by many of the sample companies to confront issues that have arisen from the introduction of the Carbon Tax. It was observed that four out of nine companies have created new positions relating directly to emissions management. According to demographic information, 12 managers had held their positions for four years or less. It was

revealed that nine of the managers had two-and-half years' experience or less in their current positions. One of the main reasons for this relatively short period was that their positions had been created only recently. Moreover, as highlighted by the company representatives, the main reasons for these recruitment activities were to expedite improvements in energy efficiency and to support legislative reporting requirements relating to carbon emissions:

[...] about 12 months ago [...] so the carbon price to be introduced I put my old sort of engineering kind of operational sort of hat back on and joined the merchant part of the business to roll out that change [E(U)1].

I joined the company probably about 18 months ago, specifically to help them prepare for carbon [tax][A(U)2].

According to TCT, asset specification focuses on both physical and human assets. With the implementation of the Carbon Tax, high emitting companies were required to act urgently – and strongly – to manage their carbon risk. Therefore, the recruitment of managers specialising in emission areas could be viewed as remedial actions taken by companies to gain a better understanding of risks that they encountered by the implementation of the Carbon Tax and how they could be minimised.

5.3.2 Establish an environmentally friendly culture. All the representatives of sample companies claimed that the introduction of the Carbon tax influenced their companies to focus on a more environmentally friendly culture within their companies. They believe that the increase in top management's attention on emissions management and increasing energy cost motivate their companies to increase awareness of emissions issues among employees to gain their support. It was observed that one of the objectives of the recruitment of new managers was to establish an environmentally friendly culture within each company:

[...] before the introduction to the carbon pricing scheme, I actually ran educational workshops [...] basically educating them [employees] and getting them on side before the scheme started [A(M) 6].

We have done a round of training where we've gone to sites and trained in the carbon price, what it would mean to a site and what it will mean for the electricity bill or their gas bill but it's not to every employee [...] the carbon price that's also making a big impact on our company at the moment and changing the culture around the attitude towards the environment and emissions [S(M)7].

It was also evident from the interviews that some companies were pressured by their parent companies to implement an environmentally-friendly culture to manage emissions and waste, and to build relationships with communities:

Parent company are pushing down a culture of environmental sustainability, not only in emissions but also in waste management. [...] [A(M) 9].

Four companies' representatives also discussed their companies' initiatives with their customers and communities to communicate their commitment to emissions management:

[...] when I think about carbon, the cost of carbon, we are very engaged with our business customers on this and last year in March we held a series of breakfast seminars around the country with our customers. Now no other retailer was prepared to do that before the scheme commenced but we felt, and we knew, that customers wanted more information and more understanding [E(U)1].

Hence, it could also be argued that the motives of companies in establishing an environmentally-friendly culture for their employees were not only to gain the support of their employees to commit to emissions cost reduction actions but also to manage legitimacy concerns.

5.3.3 Investing in emission management projects. In considering the investments in new emissions management projects, all companies claimed that they had initiated new emissions management projects. However, these new projects ranged from short-term low-risk initiatives such as upgrading their factories' lighting to energy efficient lighting systems and buying energy-efficient office equipment to highly capital-intensive energy projects. The detailed analysis of the interview data revealed that most of those investments were reported to be short- to medium-term investments. Only a few company representatives mentioned that they had invested in long-term projects:

For our large manufacturing plants [name of the factory], it's investing in newer technology to become more efficient and produce less carbon emissions directly. They would be the key things that we're doing at the moment [S(M)4].

It was also revealed that the Carbon Tax rendered some energy-efficient projects more financially appealing than they had previously been:

I think it's – carbon tax has accelerated projects, which have a large impact or a large carbon reduction. I think it's certainly accelerated that, because it's brought those in line with a lot of companies' payback periods and financial hurdles [E(M) 12].

While interviewees saw regulation as the driver of new investments in energy management they also saw regulatory uncertainty as a barrier to long-term investment. For example, company representatives claimed that the Carbon Tax accelerated their investment in emissions management activities:

[...] [company name] has done a lot of thinking and investment around this it wasn't until 1 July and the first month end for carbon where various business units see on their bottom line an accruing financial liability for their carbon obligation and they start to think well if we can do anything to reduce that it will be to our benefit very quickly [E(U)1].

The lack of political certainty. So the political risk and that means we can't make investment decisions in the initial term. To the financial risk that obviously it hurts our operations financially. [...] There's uncertainty around investment decisions because of the political risk. There's a little bit of operation risk in that we are starting to think about altering our operation to minimise carbon. [...] once we change the operation it's hard to go back [E (I) 15].

As a consequence of the regulatory uncertainty, it was evident that some companies remained reluctant to make any financial commitments or to change their operational processes, as they feared such changes may prove risky and costly:

[...] obviously people might go and invest in something to reduce emissions and we've done some of those things that only have a payback for the carbon price, so people might make those decisions and then the regulation goes away and they don't look very good. But that punishes people, who did the right thing [S(E) 18].

Thus, consistent with TCT, companies' representatives emphasised that economisation of the transaction cost is the fundamental driver for investing in energy efficiency projects of their companies (Williamson, 1991). Therefore, it is seen that a lack of political certainty hinder companies from making long term investments on emissions reduction (Blyth *et al.*, 2007; Kumarasiri, 2016). On the other hand, as explained in TCT, low carbon investments

could be identified as investments with high asset specifications. It is noted that the Carbon Tax, which created high returns for low carbon projects, lowered the transaction cost by providing a higher demand for low carbon production. Conversely, despite the fact that regulatory pressure was identified as the main factor driving climate change actions by companies, the uncertainty around regulatory requirements was also identified as a major factor that hindered companies from taking actions on emission management.

5.3.4 Increase in support from top management. The increasing attention provided by top management and boards of directors to environmental sustainability and carbon emissions management were important aspects stressed by interviewees in influencing emissions management actions. The financial risk associated with carbon emissions (Carbon Tax and increase in energy cost) was the main reason identified by interviewees for increased attention by their top management to emissions management:

[. . .] when we know [Carbon Tax] is going to cost us around \$600 million dollars this financial year, you get a lot of support with those numbers [. . .] purely because it's a financial obligation [E(U)1].

They [top management] all want to know about the Carbon Tax, because it has a big impact on [Company Name]. \$30 million gross per year is quite a big number [S(M)4].

In line with TCT, it was observed that sustainability issues were analysed by the top management mainly in economic terms rather than in environmental sustainability terms:

But what happened [after introduction of the Carbon Tax] was the executive – the appetite from the executive or their understanding for the company to do more in terms of sustainability and to be more resource efficient came to the fore and we signed on to create resource efficiency targets across the globe starting with Australia. So that was that kind of a focus which, again, it is about costs because we run sustainability on the profit planet people mode [A(M)6].

Therefore, as is evident from the data, the financial pressure exerted by the Carbon Tax seems to make a direct influence on getting more support from top-level managers for emissions management. Thus, it is reasonable to conclude that the support from top management for action on emissions management was motivated primarily by the desire to protect the economic interests of their companies (Al-Tuwaijri *et al.*, 2004; Milne *et al.*, 2009; Gray, 2010).

5.3.5 Use of accounting information for emission management. The increased use of management accounting techniques, such as measurement, target setting and reporting on carbon emissions, were visible in all of the companies. The main reasons for using such techniques were reported variously as legislative requirements, cost management or reputational risk management. However, almost all of the representatives of the companies viewed the Carbon Tax as an opportunity to evaluate energy data closely to reduce carbon-related costs:

The opportunity is to identify those things you can put in place, that improve the operations. So there's innovation [that] is being driven by the increased cost, through carbon price and Carbon Tax [A(M)9].

For example, in considering the target setting, all nine sample companies claimed that they have set climate change related targets. However, only four companies had specific targets for emissions reductions, with the other five mentioned that they have targets, which indirectly influence emissions reductions. For example, one manager explained that how their fuel reduction targets influence the reductions of their emissions:

We don't have a target for emissions - a specific target [...] well, we set fuel reduction or fuel efficiency targets, which translate into carbon reduction targets. So, our fuel efficiency target is 1.5 per cent efficiency per annum. [E(I)15]

They also claimed that emphasis on measurement of emissions had significantly increased after the introduction of the Carbon Tax. For example, one interviewee acknowledged that even though they focused on energy consumption from the first day of business operations, they never paid attention to emissions data before the implementation of the Carbon Tax:

I guess, for those things [accounting for emissions] weren't fully captured before only since Carbon Tax comes in. [E(M)8]

In considering the use of accounting information for internal emissions management, interviewees also admitted that the introduction of the Carbon Tax had had a direct influence on it. For example, as explained by the interviewees, even though the NGER Act influenced them to implement management accounting techniques, and to report their emissions performance, companies only used this information for internal decision making after the introduction of the Carbon Tax:

Obviously we've been thinking about emissions for a long time and we've been reporting emissions for a long time, but it's never had any financial implications. The scheme [Carbon Tax] is now obviously having a cost associated with those emissions, it was a case of trying to understand where the costs were and essentially how we capture that information and how we track it [E(U)1].

In the light of the benefits of accounting information, interviewees revealed that measurements and recording of emissions provide them with greater transparency and understanding of the sources of emissions and how these could be addressed:

The use of accounting practices has been instrumental in helping us to define, set, implement, and track our energy reduction plans/initiatives, and ultimately achieve the significant success that we have had in managing our carbon emissions in recent years. [CS(E)14]

However, some interviewees perceived that this transparency arising from management accounting techniques could also bring the risk for their companies. They believed that once they start reporting emissions data, it could make them more visible and put them under the spotlight.

In summary, it is evident that the Carbon Tax has had a direct influence on emissions management actions of sample companies. Therefore, in line with TCT, it is seen that the financial pressure exerted through Carbon Tax brought a real urgency for companies to act on emissions management to minimise their transactions cost. The inaction to these pressures could lead to an increase in their political cost while damaging their reputation. Therefore, TCE and legitimacy could be identified as good theoretical foundations in understanding companies' responses to climate change issues.

5.4 The factors that influenced companies to act on emissions management

It was clear from corporate perceptions that the Carbon Tax had created a financial burden on companies producing high emissions of carbon. This forced them to act urgently to manage the consequent financial pressures. In addition to the Carbon Tax directly, the consequent increases in electricity and gas prices with the imposition of the Carbon Tax were also perceived as a significant financial burden by these companies:

[...] the cost impetus of the cost of energy has certainly pushed us to try and reduce that energy/carbon footprint, because, well, energy prices have been going up. [S(M)4]

Consistent with TCT, it was noted that companies emitting large amounts of carbon attempted to minimise the costs associated with those emissions by altering their investments or production decisions. The following explanations from the interviewees indicated how the Carbon Tax influenced them to act urgently to minimise their operational cost:

The carbon price is a good driver for our company to look to focus resources on reductions in emissions because while there is the ability to do it, the company hasn't focussed on it to the extent that it has since there's been a dollar value attached to it. There's more engineers being given clear instruction and there's more resources put towards finding ways to increase efficiencies now that the carbon price is costing (this company) millions of dollars. [S(M)7]

[...] So it's about having that sweet spot between reducing costs as well as having great environmental outcomes as well [A(M)6].

Moreover, it was observed that in line with the corporate perceptions of the Carbon Tax, this tax created a threat, not only to the finances of large companies emitting large amounts of carbon but also to their reputation. Managers believed that the Carbon Tax created reputational risks for their firms. As explained by one of the managers of the companies:

There's a real risk around compliance [...]. There's significant penalties associated, as well as reputational risk, around compliance, with both NGER and the Carbon Tax. [E(M)12]

According to legitimacy theory, the actions taken by companies are not aligned solely with efficiency, but also with societal values. When managers perceive the legitimacy of their company to be threatened, they are particularly inclined to take action urgently to ensure long-term survival. It was evident that the greater awareness about climate change in the community, and the more intense the media coverage of carbon emissions, the more firmly high emitters were placed prominently in the public eye. Therefore, companies were concerned about their public image and saw that as another motivational factor driving their emissions management actions:

[...] those public disclosures of emissions across industry, and heavy polluting industry or carbon intensive industry – has raised the public and investment communities' awareness [...] put into the spotlight the risk and exposure of certain companies, and also how effectively those companies are managing that risk. [E(M)12]

The Carbon Tax was not the first legislation introduced by the Australian Government to control carbon emissions. The Energy Efficiency Opportunities Act (EEO) introduced in 2006 and the NGER Act in 2007 were two pieces of legislation that directly focused on the enhancement of emissions management actions by companies. However, evidence provided by the interviewees indicated that the influence of the above two pieces of legislation on emissions management actions were limited:

Like the NGER Act helped when it came in. If you are getting people to focus – if it's - if someone can see this is costing me money, it's easier to get your business case up to have emission reductions – those sorts of things [A(U)3].

[...] we've been thinking about emissions for a long time and we've been reporting emissions [Under NGER Act] for a long time but it's never had any financial implications. The scheme [Carbon Tax] now obviously having a cost associated with those emissions, it was a case of trying to understand where the costs were and essentially how we capture that information and how we track it [E(U)1].

Thus, these types of responses from the interviewees showed that if urgent and significant actions were required from companies producing high levels of emissions, imposing a price on carbon would be an effective mechanism for achieving that objective:

There's a cost to carbon emissions. There's obviously an incentive there to reduce as much as possible, as well, and it saves us money. Because if you take action on carbon [...] you're saving fuel and, therefore, costs [E(I)17].

As posited by TCT, corporations have the primary motive of economisation of their business transactions. The acknowledgement of this fact by the following interviewee is a good example:

Number one is they want to save; they want to reduce fuel costs [...] and we know if fuel efficiency improves, our emissions' efficiency improves as well [E(I)17].

Moreover, these types of explanations are in line with the findings of existing studies, which emphasise that corporate responses to environmental issues are driven mainly by the desire to protect economic interests (Gray, 2010; Hrasky, 2012).

In summary, the analysis of the interview data reveals that the prime motivator for companies' actions on carbon emissions management was economic self-interest. It was evident that financial pressure imposed by the Carbon Tax was the key motivating force for high carbon-intensive companies to take action on emissions management. Even though the interviewees discussed their companies' concerns over the reputation, it was also noted that the ultimate concern of "reputation" was nothing but the potential threat to their economic interest. These observations resonated with TCT predictions and the studies in the sustainability reporting area that suggest that companies' actions on climate change were driven mainly by the protection of economic interest with little concern for environmental sustainability (Milne *et al.*, 2009; Gray, 2010).

6. Discussion

Figure 1 depicts the relationship between the perceptions about the Carbon Tax and actions taken by the companies in response to the Carbon Tax, and the associated motivations, as discussed throughout the paper.

The use of TCT and legitimacy theory explain the perceptions of the Carbon Tax and corporate responses to the Carbon Tax. Managers perceived the cost imposition and reputational threats resulting from the Carbon Tax as creating a legitimacy gap, which could be addressed by better understanding and reducing carbon emissions. Thus, corporate perceptions were driven by economic and legitimacy concerns, which were then mirrored by the subsequent actions of companies. Even though the interviewees perceived the Carbon Tax as a financial and reputational threat, they have also expressed concerns over the regulatory uncertainty and contended that this tax prompted an urgency to act on emissions management. While the perceptions of accountability in relation to carbon emissions were not driven by ethical or moral responsibilities, the tax was perceived positively in understanding the impact of climate change on business operations and providing opportunities for reducing carbon emissions. The perceptions were matched by the responses by the companies. Emphasis was on recruitment of specialists, an environmentally friendly culture, investment in emissions management projects, support from top management and use of accounting information to assist in emissions management. As emphasised in the existing carbon accounting literature, all of the changes undertaken by the companies in response to the Carbon Tax are essential factors, which facilitate efficient emissions management actions.

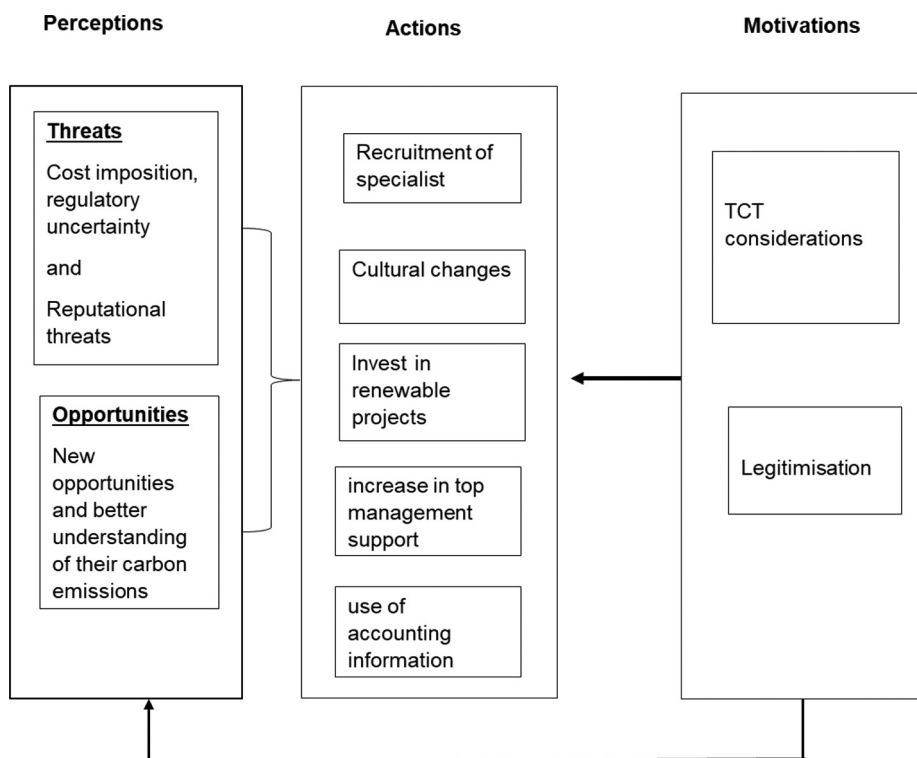


Figure 1.
The connections between corporate perceptions, actions and motivations

The recruitment of managers directly responsible for emissions management seems to have been a very positive step in driving companies toward emissions management, as the employees with expertise in energy management could expedite emissions management actions of these companies. Even though the motive of the companies was to optimise their energy costs, the optimisation of energy usage could also facilitate the reduction in emissions. In considering building an environmentally friendly culture, a considerable number of researchers who have examined organisational culture, and its influence on organisational performance, report that organisational culture and values could have a direct influence on company performance (Ogbonna and Harris, 2000; Adams, 2002; Abdul Rashid *et al.*, 2003). It has also been found that organisational culture could enhance the commitment of employees to organisational goals, which could lead to greater success for organisations (Abdul Rashid *et al.*, 2003). Therefore, the plan for cultural transformation could have a direct influence on enhancing the commitment of employees to organisational goals regarding management of carbon emissions (Ogbonna and Harris, 2000; Abdul Rashid *et al.*, 2003).

In spite of the fact that most of the investments made by the companies, ranging from short to medium-term, were low-risk and easily identifiable solutions to improve their emissions profile, these actions seem to have been driven by minimisation of their operational cost. Moreover, interviewees also expressed the view that the government could support companies in managing their emissions in better ways than the initiatives already taken. For example, one interviewee from a materials sector company believed that the

provision of support for the replacement of old, energy-inefficient machinery would be a more effective way of reducing energy consumption than the existing support for the installation of solar panels. Therefore, regulatory policies and initiatives seemed to have a direct influence on climate change actions of companies. As emphasised by Hoffman (2007) a broader move toward a low-carbon economy cannot be achieved without a long-term strategic focus by companies on reducing emissions. Therefore, clear emissions management policies, combined with positive financial rewards for renewable energy investments are seen to be essential in motivating long-term investments from companies (Froome, 2014; Venmans, 2016).

Prior studies have found that the support for, and commitment of the Board of Directors to, environmental performance has a direct influence on the environmental outcomes of their companies (Hoffman, 2007; D'Amato and Roome, 2009; Walls *et al.*, 2012). For example, Hoffman (2007) found that top management leadership and support (commitment) for emissions management crucial factors in driving the actions of companies in an effort to reduce carbon emissions. Through the interview data it was evident that with the introduction of the Carbon Tax top management started to pay more attention to emissions management. Irrespective of whether it was to protect their economic interest, this support and commitment of top management could be viewed as a very positive move towards enhancing the actions of companies in their emissions management.

In considering the use of management accounting techniques, it was observed that the financial pressure from the Carbon Tax also influenced companies to use their emissions data increasingly for their internal decision-making purposes. It was evident that companies used accounting information to gain a sense of control. The companies' representatives revealed that accounting information provided them with greater transparency and understanding of the sources of emissions and how these could be addressed. This was an interesting finding as a large number of prior studies on sustainability reporting perceived external reporting as a mere outcome of emissions management activities, rather than the driver of internal emissions management (Hogan and Lodhia, 2011; Cho *et al.*, 2012). The views of the interviewees are aligned with Burritt *et al.* (2011), Schaltegger and Csutora (2012) and Linnenluecke *et al.* (2015), who stressed the importance of using accounting information for emissions management.

Existing literature has highlighted that companies are under increasing external pressure to conform to societal expectations in relation to sustainability concerns and often disclose social and environmental information to appease their stakeholders. However, as highlighted by the review of literature in this paper (Deegan, 2002; Liesen *et al.*, 2015; Schaltegger and Qian, 2017), often this is not matched by effective management of sustainability impacts and improved sustainability performance. Emphasis is primarily on reputation management through disclosure (Bebbington *et al.*, 2008). We argue in this paper through the use of TCT that the Carbon Tax provides a financial incentive for emissions management and moderates the legitimacy of seeking behaviours of organisations. The findings of this study support this assertion. Companies are economic entities, which primarily organise to minimise their transaction costs. In conformity with TCT, the financial pressure exerted by the Carbon Tax had produced a direct influence on the emissions management actions of companies. Unlike other environmental regulations, the Carbon Tax, which imposed direct and indirect financial pressure seemed to have brought urgency for companies to act on emissions management.

Consequently, the emphasis shifted to emissions management and creating an environmentally friendly business culture as opposed to the prior practice of merely disclosing information to stakeholders to gain legitimacy. In effect, disclosure was

secondary to carbon emissions management and was not perceived as a critical aspect of the actions undertaken as a response to the Carbon Tax. This was verified through an analysis of disclosure media of the various companies, showing that a separate carbon report was not prepared, and all carbon disclosures were subsumed within the sustainability reports. The interviews also highlighted that unlike carbon emissions management, carbon reporting did not develop as a separate strategic practice as a result of the Carbon Tax.

More broadly, the findings of this study have the potential to change the general perception that legitimacy seeking behaviours are associated with increased disclosures with no concrete actions to reduce sustainability impacts. Motivations for sustainability reporting have addressed voluntary reporting within the prism of legitimacy theory, often claiming that reporting dominates with internal management practices developing in a limited and ad-hoc manner. Thus, companies benefit more from reporting and little from real changes to management systems. Through the use of TCT, we show that a cost imposition through a mandatory requirement leads to changes in management systems for addressing carbon impacts, and therefore, moderates the dynamics in relation to the (legitimacy) motivations for carbon accounting and reporting. In essence, legitimacy was sought through internal changes to organisational activities through carbon accounting, rather than through disclosure. Our study is, therefore, in line with [Covaleski et al. \(2003\)](#), suggesting that both efficiency and legitimacy seeking reasons influence corporate behaviour.

Our study has implications for the accounting literature, specifically in relation to carbon accounting. [Hopwood \(2009\)](#) lamented the failure of environmental accounting literature with a primary focus on disclosure but contended that carbon accounting provided scope for business relevance and improvement through providing calculative mechanisms, which can be used to support organisation activities and decision making in relation to carbon emissions. Our study highlights that this is indeed the case as illustrated by the corporate responses to the Carbon Tax. Therefore, a mandatory pricing regime impacts the perceptions of managers, leading to the use of carbon accounting as a tool for internal emissions management. The need for legitimacy is directed towards substantive action on climate change rather than the use of carbon disclosure to merely manage reputational risk without any concrete actions being undertaken. In that context, our findings contribute to accounting literature by extending our understanding of legitimacy theory by suggesting that a mandatory pricing mechanism (as explained by TCT) has the potential to lead to actual changes in corporate emissions management practices through a focus on “management” rather than reporting. This, in turn, impacts policy, suggesting the need for mandatory pricing rules and regulations to facilitate corporate action on climate change.

7. Conclusion

The objective of this study was to investigate the effectiveness of the pricing mechanism called the “Carbon Tax” in driving climate change actions of companies in Australia, which emit high levels of carbon. The study was designed to provide insights into how companies producing large-scale emissions perceived the Carbon Tax as driving an emissions management policy and an accountability tool, any visible changes in their internal emissions management practices due to the tax and the motivations for such actions. The study was conducted when the short-lived Carbon Tax was in place. A total of 18 in-depth interviews were conducted with executives responsible for carbon emissions management of nine large Australian companies emitting high levels of carbon. The study used TCT and legitimacy theory as theoretical foundations for understanding the responses of the companies to the Carbon Tax.

The findings of the study make a contribution to the theory and have practice and policy implications. From a theoretical point of view, this paper contributes to the carbon accounting literature by providing insights into how regulatory pressure with respect to pricing signals could influence the internal emissions management practices of carbon emitting companies.

This study has contributed to the theorisation for motivations of corporate responses to sustainability issues by suggesting that TCT considerations moderate the legitimacy considerations of corporations. Companies face reputational risk as a result of their social and environmental impacts, especially in relation to carbon emissions. They, therefore, need to legitimise their existence to society, but focus seems more to be on reporting rather than on taking concrete actions to reduce impacts. This study suggests that the situation is moderated by a financial imposition (TCT) such as a carbon tax, therefore leading to significant changes in management practices, as opposed to an exclusive focus on reporting. A financial incentive to reduce carbon emissions, coupled with the usual reputational threats, therefore has the potential to lead to actual actions on management of emissions and improve the sustainability performance of companies. There is a need for further studies on mandatory pricing requirements in other jurisdictions to support this assertion and to extend the theorisation for carbon accounting within the context of mandatory regimes.

In considering practical implications, this research provides a unique data set of corporate responses at the (limited) time when the Carbon Tax was operational. The study suggests features that need to be included in an effective emissions policy to bring about strong emissions management action from companies. As indicated by the data obtained through the interviews, the financial pressure exerted by the Carbon Tax was a strong motivational factor for all companies. It was noticed that managers perceived emissions from the point of view of cost. Therefore, if the objective of an emissions policy is to induce urgent and strong emissions management actions from companies, having a pricing signal is identified as a potentially essential feature that needs to be incorporated into an emissions management policy.

Furthermore, it was noted from the interviews with company representatives that regulatory uncertainty was the main factor that hampered companies in making decisions to invest in long-term emissions actions. As emphasised in TCT, corporations as economic entities are unlikely to invest in sustainable energy projects if they are uncertain about the future of their investments. Therefore, it is essential to minimise the uncertainties surrounding emission regulations and establish a long-term emissions management policy. Undoubtedly, Australia as a country with a high per-capita level of carbon emissions has a huge challenge ahead in decarbonising its economy. The longer Australian companies continue with no clear long-term emissions management policies, the more difficult it becomes for them to adapt to climate change. At the Paris climate change summit in December 2015, Australia pledged to act strongly and urgently to cut carbon emissions levels significantly. As emphasised by the [IPCC \(2018\)](#) report stringent policies are essential in driving significant urgent actions from companies. Hence, it is time to eliminate political uncertainty and develop strong long-term climate change policies, which are capable of producing strong emissions management actions from companies.

In closing, the limitations of this study also require acknowledgement. The study is limited to nine large Australian companies emitting high levels of carbon, represented through 18 semi-structured interviews. Therefore, the findings may not be able to be generalised to other national settings. The study also prompts some further research opportunities. The current study was conducted when the Carbon Tax was in effect in Australia and provides a unique data set on corporate responses at the only time of a

mandatory carbon pricing regime in Australia. Examining how companies emitting large amounts of carbon responded to its withdrawal in terms of emissions management actions and changes in internal management practices would add to our knowledge of the regulatory impacts on companies' emissions management. It would also be of academic and practitioner interest to explore in jurisdictions with an Emissions Trading Scheme whether this type of carbon pricing has a similar effect on emission management as observed in the current study on the Carbon Tax. More particularly, with the increasing interest in carbon emissions policies, which enforce price on Carbon a detailed understanding of responses to similar types of emissions regulations with a price on carbon in other countries would provide a comprehensive understanding of how effective emissions management policies could be crafted.

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Appendix. List of semi-structured interview questions

- What is the influence of the Carbon Tax on your company?
- How does your company manage its carbon emissions? Please provide an overview (broad goals and timeframes) of the type of action plan (s) your company has in place.
- Does your company measure the carbon emissions performance of its business activities?
- Does your company provide any incentives to your employees/customers/suppliers to reduce their carbon emitting activities? If so, what form do these incentives take?
- What has your company been learning from the use of accounting (doing planning, forecasting, setting targets, measuring performance) to manage carbon emissions over time?
- How do you see the top management support for emissions management actions by your company?
- How does your company communicate its carbon emissions actions internally and externally?
- What motivates your company to manage its carbon emissions?

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