The Externalisation of ETS-Related Carbon Costs through Political Mechanisms and Carbon Accounting

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Abstract

This study examines how organisations' use political mechanisms and carbon accounting in the ETS policy process to reduce their carbon-related costs. It uses insights from transactional cost economics and capture theory to analyse seventy submissions made by four key industries. Instead of internalising carbon-related costs and being responsible for their emissions, organisations sought to externalise their carbon costs using political means. By participating in ETS policy processes, organisations lobbied Government to reduce their carbon-related costs, or gain opportunities for rent-seeking and income enhancement. Carbon accounting is used extensively by trade-exposed and emissions-intensive organisations to strengthen their case. The ability to do this is governed by an organisations capacity to capture policy processes; that capture depending on whether they support the Government of the day. These results will help practitioners and policy-makers understand the political mechanisms adopted within policy processes and the effectiveness of policy in triggering organisational behavioural change.

Keywords: carbon accounting, emission trading schemes, policy process, carbon costs.

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1. Introduction

The implementation of environmental management policies, such as an emissions trading scheme (ETS), to manage a country's climate change obligations under the Kyoto Protocols (UN, 1998) will impose different levels of costs on different organisations, within and across different industry sectors. To date, in respect of climate change management, the accounting research focus has been on: the emitting organisation in respect of internal control (Larrinaga-Gonzalez and Bebbington, 2001; Hopwood, 2009; Engels, 2009); managing carbon credit costs (Engels, 2009); external reporting for legitimating and/or marketing (Adams, 1998; Bebbington and Larrinaga-Gonzalez, 2008; Hopwood, 2009); and the potential conflicts, tensions, and contradictions in accounting for the impacts of organisations on natural carbon-focused environments (e.g. Hopwood, 2009; Lohmann, 2009). Overall, these prior studies have an internally focused perspective, and suggest that organisations will account for carbon and change their internal controls, systems, and practices under an ETS. Thus, there appears to be a lack of insight into how organisations use carbon accounting in an externally oriented context, such as policy processes, to reduce their carbon-related costs. However, the public policy-based literature suggests organisations take an active role in the development and design of government policies, especially those likely to have a significant impact on their organisational performance (Schuler, 1996; Hillman, 1999; McWilliams, Van Fleet & Cory, 2002). No accounting research examining the role of accounting in influencing policy development and implementation, in respect of ETS carbon-related costs could be identified, nor has the policy-based research examined how political mechanisms enable organisations to reduce carbon-related costs.

This apparent gap in the research literature is considered ironic given the length of time and the meandering path that ETS implementation has taken in countries, such as New Zealand. The New Zealand Government ratified the Kyoto Protocol (UN, 1998) on 19 December 2002, and it was not until 2009, that some stability to the process of adopting a whole of industry ETS occurred (NZG, 2009). There have been many twists and turns in the underlying political process, that resulted in something less than that originally mooted to meet New Zealand's Kyoto obligations (NZG, 2007). Given the apparent gap in the accounting, and the public policy literature, understanding what has driven this outcome is considered important from two levels. At one level, utilization of mechanisms such as the ETS represent a significant change by governments from an historical taxation approach to public policy to a market based approach. At the second level, little is known about process performance of this new policy construct. The process performance is of particular interest given the gestation period of the New Zealand experience, and, the modifications occurring along the way. Transferring the direct onus for carbon costs from the taxpayers in general, to the emitters specifically (and the taxpayers indirectly), shifts the direct carbon cost burden from the taxpayers (and the government) to the emitters. This potentially represents a change in the transactions costs of all emitters and, therefore, provides incentives for emitters to capture the process, particularly where those transaction costs have the potential to be significant. Given that accounting for these costs (carbon accounting) should play an important role in

assessing organisational transaction cost implications, it would be expected that carbon accounting would play a role in informing the political process that gives rise to those costs. For the authors, this raises three questions of immediate interest:

1. How do organisations use political mechanisms to manage their carbon costs?
2. What is the role of carbon accounting in achieving an organisation's political objectives?
3. To what extent do political mechanisms and carbon accounting:

   (a) capture policy making process; and,

   (b) lead to a potential reduction in carbon-related cost?

To answer these questions, a framework employing transaction cost economics (Williamson 1975, 1987, and 1996) and capture theory (Stigler, 1971; Levine & Forrence; 1990; Laffont & Tirole, 1991) is developed. This allows the research to adopt an externally-focused view, in contrast to the internally focused view adopted to date in the prior literature. Transactional cost economics (TCE) and capture theory provide the framework for identifying the key factors determining the carbon-related costs organisations may be exposed to under an ETS. These factors also provide a basis for understanding *how* organisations manage their carbon-related costs by participating in the ETS policy processes, and *how* organisations utilise policy processes to gain additional income at the expense of others. The data used in this study was primarily sourced from submissions made to government and supported by targeted interviews.

Such an understanding enables management, business advisors, and policy-makers to better comprehend the drivers of political mechanisms adopted by organisations participating in ETS policy processes, along with the effectiveness of such a scheme in stimulating organisational behavioural change to achieve positive environmental outcomes. The rest of the paper is structured as follows. In the next section the ETS implications for organisational costs and responses, and the role of carbon accounting are discussed as they relate to this study. In the following section theory, relevance is discussed and the theoretical framework is outlined. The method followed is then outlined, followed by presentation of the results. The concluding discussion completes the paper.

2. The ETS and Organisational Costs, Response and Carbon Accounting in the New Zealand Context

2.1 The ETS and potential organisational costs

Under an ETS, organisations are required to buy and surrender emissions units to cover their emissions. The source of these emissions units can be through carbon credit generating activities undertaken by the organisation, and/or the purchase of valid carbon credits in a market such as the ETS. Price signals are sent to organisations, via the market, which influence their carbon-related behaviour (see Tietenberg, 1985; Hahn, 1989). Substantial practice-based literature focuses on the economic impacts of an ETS at the economy and industrial levels (Burtraw et al., 2001; Reinaud, 2005; Busch and Hoffmann, 2007). These studies suggest an ETS will impose direct costs, like internal abatement costs and carbon credit costs, as well as indirect costs

arising from ETS-related energy prices (Reinaud, 2005). These costs have significant implications for organisational profitability and investment decisions (Busch and Hoffmann, 2007). New Zealand reports, released post-ETS announcement, support these forecasted economic implications (Cataslia, 2007; Greenhouse Policy Coalition & MEUG, 2007; Sinner et al., 2007).

Despite these suggested implications from the above practice-based literature, the economic implications of an ETS remain a relatively new topic in academic research (Hopwood, 2009). This is a significant oversight as environmental regulation is likely to impose major compliance costs on organisations, especially those with high environmental-impacting operations (Ilinitch and Schaltegger, 1995). Furthermore, an ETS requires the internalisation of an externality into the organisations' costing system (Cook, 2009). Such a requirement has implications for organisational profitability and market competitiveness. However, due to this lack of academic research, little empirical evidence is available regarding the potential economic impacts of an ETS, and how organisations respond to such impacts.

2.2 Organisational response to ETS regulation

The ETS's intention is to provide an incentive for organisations to adopt more environment-friendly activities and technologies (James *et al.*, 1999; Doonan, Lanoie and Laplante, 2005). Dutton and Duncan (1987) suggest enhanced visibility and urgency of environmental issues, due to environmental regulation requiring organisations to respond promptly and undertake appropriate internal changes. In two UK-based surveys, James *et al.* (1999) finds that legal requirements are the most significant driver of internal environmental policy formulation across sectors. Similarly, Doonan *et al.* (2005) and Berrone *et al.* (2007) suggest government regulation is a major factor in triggering internal environmental innovation. Overall, these studies argue organisations are likely to change internal practices and processes in an environmental regulatory context.

To mitigate economic impacts of environmental regulation, prior research indicates organisations participate in policy processes. Consistent with Porter's (1980) model, many researchers argue that some organisations participate in policy processes to gain a competitive advantage, while others participate to delay or prevent such consequences (e.g. Schuler, 1996; McWilliams *et al.*, 2002). Others suggest that participation in public policy process reduces the information asymmetry between businesses and the government, and thus helps reduce levels of perceived regulatory uncertainty (Pfeffer and Salancik, 1978). Only a few studies suggest organisations directly negotiate with the government, or resist or manipulate the policy design so there is less organisational impact (Pfeffer and Salancik, 1978; Oliver, 1991). This latter point is particularly relevant as it suggests policy participation can be used to manage and reduce the potential economic influence of an ETS policy, for example, organisational costs and profitability and their implications for organisation wealth and growth generation.

2.3 Role of carbon accounting in an ETS context

In a voluntary context, prior research suggests organisations may have difficulty in accounting for their carbon. Cairns (2006) explains that organisations do not normally account for their impact on the

environments because these impacts do not have a price (Cairns, 2006). Further, Jones (2010) contends that while it is important to measure firms' effects on the environment, conventional accounting techniques are inadequate because they focus on profit measurement.

Gray et al. (1995) examine the process of voluntary environment-focused organisational change. They suggest conventional environmental accounting (costs and benefits) has little, if any, influence on the change process. Instead, an increase in the "environmental account" (physical measurement of environmental impacts) aids the environmental agenda. Llewellyn (1994) discusses accountings role in maintaining organisational boundaries when faced with changing environmental expectations. Environmental issues only enter an organisation's discourse when they resonate with language familiar to businesses, like the term "eco-efficiency". Furthermore, financial accounting's treatment of environmental issues determines whether these issues remain an externality, or are internalised by recognising them as a cost or liability. Similar arguments are presented by Larrinaga-Gonzalez and Bebbington (2001), who find that environmental accounting fails to stimulate organisational change. Organisations limit the range of environmental issues permitted in internal discussion, and focus environmental objectives towards economic performance. Environmental accounting also fails to achieve a legitimate status within accounting departments, and thus there is no integration of environmental issues into financial accounts. In support of Llewellyn (1994), Larrinaga-Gonzalez and Bebbington (2001) further conclude that environmental accounting would have a role in organisational change if allowed to enter organisational discourse. They also contend that a strong external pressure like new environmental regulation may enable environmental accounting to receive greater acceptance within organisations. Policies, such as an ETS, are designed to provide a mechanism for internalising environmental management costs, the pressures that organisation emission levels could place on the competition for carbon credits traded in the ETS market.

In an ETS regulatory context, how organisations account for carbon-related costs and carbon-trading (markets), and the role played by carbon accounting in ETS-related organisational change and responses is a question that begs urgent academic attention (MacKenzie, 2009; Engels, 2009; Hopwood, 2009). Hopwood (2009) highlights the importance of accounting as a calculative practice in the emerging carbon markets and the complex decisions and issues surrounding the markets operation. The employment of accounting techniques is critical to evaluating the likely outcomes and for designing and evaluating alternative emissions reduction approaches. Furthermore, consistent with Larrinaga-Gonzalez and Bebbington (2001), Hopwood (2009) suggests firms may utilise multiple definitions of sustainability to achieve a positive image in regards to environmental issues, while in fact only protecting shareholder or customers' interests. Cook (2009) and Lohman (2009) contend the emergence of carbon markets is likely to create new problems for organisations in managing and accounting for carbon-related costs. Engel's (2009) EU ETS-focused study argues that many companies use various sources of expert advice to help them understand carbon markets and account for carbon. However, Engels (2009) also finds that German companies were reluctant to accept new environmental policies and, instead, engaged in lobbying activities to prevent the enforcement of ETS on them. Her study further suggests many companies were ignorant of their carbon abatement costs, while

others did not consult external or internal sources of advice, or assign specific responsibility for carbon trading.

In contrast, accounting-based prior studies focusing outside the environmental regulatory context suggest that accounting plays a significant role in political processes. Burchell *et al.* (1980) argues where there are conflicts between the values and interests of participants in the decision-making process, accounting becomes a mechanism by which different parties seek to promote their own concerns, interests and positions. Consistent with this, Brunsson (1989) argues because budgets are relatively loosely-linked with actions and thus are seen in terms of talks and decisions, they are "a good instrument for conducting politics and producing hypocrisy" (p. 105-106). Hopwood (1990) further suggests as a calculative practice, accounting can be used to enhance the salience and visibility of particular issues, and modify public policies to organisational advantage. However, there is little empirical evidence to suggest that such is the case within an ETS influenced business environment; a fundamental motivation for examining the NZ ETS experience.

2.4 The New Zealand ETS and its implication for carbon-related costs

The Climate Change Bill that outlined the operation of the NZ ETS was tabled in Parliament on 4 December 2007, who then referred it to the Finance and Expenditure Committee (the Committee) for consideration. The Committee called for written submissions to be made by 28 February 2008. After the third reading in Parliament, the Climate Change Bill was enacted in September 2008 (hereafter the Original ETS, NZG, 2008). After a change of Government in October 2008, the ETS was reviewed and subsequently modified (hereafter referred to as the Moderated ETS, NZG, 2009). Refer to Table 1 below for an overview of changes made between the Original ETS Act and the Moderated ETS (NZG, 2008; NZG 2009).

The main obligation for participants under the Original ETS was to calculate their carbon footprint and surrender one emission unit for each tonne of emissions they emitted (MfE, 2008). Thus, emitting carbon was no longer a costless activity; instead, participants became financially liable for emissions above their allowable levels. Different industries were to enter the ETS at different times and have different participants that are obligated to comply – compliance organisations (MfE, 2008). They also received different levels of assistance from Government to mitigate the carbon costs associated with their emissions levels.

This paper examines the perceived effects the Original ETS had on organisations, across the different industries, and their political responses as they sought to reduce potential carbon-related costs. In particular: it considers:

1. How do organisations use political mechanisms to manage their carbon costs?
2. What is the role of carbon accounting in achieving an organisation's political objective?
3. To what extent do political mechanisms and carbon accounting:
   (a) capture policy making process; and,
   (b) lead to a potential reduction in carbon-related cost?

For the purposes of this paper, carbon-related costs are defined as the costs an organisation incur to meet their compliance obligations under an ETS. These costs include the costs associated with emissions measurement, monitoring and reporting, the costs linked to buying carbon credits, along with the potential liabilities/penalties incurred as a result of non-compliance.

Issue	**Original ETS**	**Moderated ETS changes**
Trade exposure and competitiveness at risk (CAR)	Threshold 50,000 tons per year	Two intensity thresholds to accommodate Small-Medium Enterprises
	Phase out at 8% p.a.	Phase out at 1.3 % p.a.
Carbon price volatility	No fixed price option	Fixed price option of $25/tonne until 1 Jan 2013
Policy and regulatory uncertainty	Significant uncertainty	ETS delay Aim to align with AU ETS
Transitional measure	100% obligations for Energy, Industrial Process and LFF* until 1 Jan 2013	50% obligation (1 credit for 2 tones)
Technological constraints	Free allocation based on 2005 absolute levels	Intensity-based industry average allocation
	Agriculture 1 Jan 2013	Agriculture 1 Jan 2015
Point of obligation	Agriculture: processors	Flexibility to move to farm-level obligation in the future
Carbon accounting: Compliance costs	Energy, LFF and Industrial Processes: surrender original units + Penalty ($30/unit)	Penalty waived for the first year
	No payment alternative for unit surrendering	Option to pay $25 per unit for the under-surrendering amount until 1 Jan 2013
Inter-sector equity	Exclusion of LFF from free allocation	No change
	90% allocation to Agriculture	No change
Point of obligation and Opt - in	Energy: coal, gas and geothermal suppliers. Opt in for large users	No change
	LFF: fuel suppliers, opt-in for domestic aviation	No change
Inability to pass on cost	No free allocation to upstream organisations	No change
Lack of incentive for renewable projects	No additional incentive provided	No change
Thermal asset value loss	No compensation	No change

LFF – Liquid Fossil Fuel

Table 1: ETS Act changes from 2008 to 2009

The framework for examining the above question will now be explored.

3. The Framework

Underpinning the framework choices is identifying what might drivers might motivate emitters to capture, or influence the process. A fundamental driver would be any transaction costs that resulted in increases in

existing transaction costs, or give rise to new transaction costs. However, emitting organisations might also be seeking to maintain, or enhance the existing economic rent levels they received prior to the legislation being enacted.

3.1 Capture theory and rent-seeking behaviour

Capture theory investigates the involvement of businesses and interest groups in policy processes whose purpose is to influence policy design for the advancement of their own organisational or group benefits (Stigler, 1971; Levine & Forrence; 1990; Laffont & Tirole, 1991). Capture theory further suggests businesses and interest groups who are significantly exposed to a proposed policy will participate in the policy-making process in order to improve their own economic status (e.g. profitability). Capture effects occur when organisations allocate substantial attention and resources to policy processes and influence, or collude with regulatory/policy-making agencies so policies issued are more economically favourable to these organisations (Shaffer, 1995).

Capture theory is closely linked to the concept of rent-seeking. Rent-seeking occurs when organisations try to earn income, or mitigate potential cost impacts, from influencing their economic and institutional environment rather than through internal production (Kruger, 1974). Thus, rent is sought by lobbying the government to issue a direct subsidy, introduce policies that control new entrants, or fix prices (Stigler, 1971; Schuler, 1996). Extensive rent-seeking consequences result when there is substantial information asymmetry or opportunistic behaviour, and the government relies on firms and industries for knowledge about the market (Laffont and Tirole, 1991). Therefore, industries and firms have an interest to hide information from the government and policymaking agencies, because higher informational asymmetry increases their power and enhances the possibility that policy outcomes favour their own interests (Laffont and Tirole, 1991).

It can therefore be tentatively suggested organisations may limit or refrain totally from using carbon accounting in their interaction with the government in an attempt to increase information asymmetry. Further, the presence or lack of carbon accounting in policy processes could serve other motives including misleading government about impacts of the proposed policy on industries and businesses. This potentially gives environmental accounting a different role from its traditional ones of increasing internal efficiency, improving operational transparency, or enhancing public accountability within a carbon-focused context (Owen *et al.*, 1997; Adams *et al.*, 2004; Hopwood, 2009).

Consequently, capture theory suggests public policy can be influenced by self-interested organisations. Such capture results in positive impacts, in the form of additional income or reduced potential costs, for industries and businesses (rent-seeking). However, to gain understanding about the organisational drivers (and their dimensions), that motivate policy capture activities, additional theoretical support is required. To this end, transaction cost economics (TCE) would appear to provide the necessary framework support.

3.2 Transactional cost economics and cost reducing behaviour

Transactional cost economics is an economic theory that explains the optimisation of commercial transactions based on an assessment of transactions' characteristics and institutional environments

(Williamson, 1987). Accordingly, organisations achieve this optimisation by selecting strategies, practices and governance structures that match the institutional environments and characteristics of intra- and inter-organisational transactions, thereby minimising associated transactional costs. The attributes of transactions that are important for cost-reducing organisational decisions are (1) asset specificity, (2) the frequency with which the transactions occur, and (3) the uncertainty or disturbances which these transactions are subject to (Williamson, 1996). Further, TCE recognises there are two human characteristics that interact with transactional characteristics to drive transactional costs; bounded rationality and opportunism (Williamson, 1996). This study only considers the latter, as bounded rationality is assumed to apply in this study.

Asset specificity

Asset specificity is the degree to which an asset can be redeployed to alternative uses and by alternative users without lossing its productive value (Williamson, 1991). High asset specificity refers to assets whose value will be significantly lost because of re-deployment. These assets tend to be purpose-built or customised to provide a specific range of benefits. Thus, they are likely to have higher associated transaction costs due to requiring a significant investment in terms of their design and construct and a reasonably long lifespan. Additionally, organisations with high specificity assets are more likely to be exposed to opportunistic expropriation by the parties involved in the transactions (Spekle, 2001). Therefore, under an ETS, organisations with high emissions levels and assets with a long life are likely to suffer significant value loss to their production assets due to carbon-related costs. To reduce these costs, organisations will potentially decrease their level of asset specificity and/or seek a subsidy to mitigate the cost associated with those assets in mitigating transaction costs.

Transactional frequency

Transactional frequency refers to the intensity with which transactions recur (Williamson, 1987). The more frequently a transaction recurs in relation to an asset of high specificity, the higher the transactional costs incurred. This cost burden, combined with any need for asset transformation, provides a potential for increased opportunism. For example, most emissions-intensive organisations regularly measure and monitor their emissions levels, as well as frequently buy carbon credits to satisfy ETS-related compliance obligations. From an internal perspective, TCE predicts these organisations will adopt elaborate control systems, or internalise the transactions to curb opportunism (Williamson, 1991). They can do so by, for example upgrading their emissions monitoring system and establishing an in-house carbon trading function. Alternatively, from an external perspective, to reduce transactional costs, organisations could seek to influence policy processes so as to reduce the frequency with which they perform ETS-related transactions, or pursue government subsidies to off-set asset transformation and emission costs.

Uncertainty

Uncertainty can arise from different sources, including market dynamics and complexity, and task unfamiliarity and complexity (Williamson, 1991). An ETS may impose significant uncertainty on organisations due to the complexity and accuracy required when measuring, monitoring and reporting

emissions. Uncertainty also arises when organisations try to measure and account for emissions and carbon credits in their business accounts (Mackenzie, 2009). Organisations may also experience increased uncertainty due to the lack of internal expertise when changing from high to lower emission production technologies under the ETS. Further, emerging carbon credits are highly volatile and carbon trading requires specialised knowledge which organisations may not possess (Hopwood, 2009). To reduce uncertainty, organisations can lobby Government to issue detailed guidance regarding ETS-related transactions, to limit volatility in carbon markets, or seek governmental compensation to recover part of the transactional costs incurred as a result of ETS-related uncertainty.

Consequently, the introduction of legislation like an ETS leads to changes in transactional characteristics and hence has implications for organisational transactional costs (Williamson, 1991). Organisations will seek to economise their carbon-related costs by mitigating asset specificity, transactional frequency and uncertainty through policy participation. Thus, TCE potentially explains why (the objectives) and how (the mechanisms) organisations participate in policy processes and seek to influence policy design by identifying the transactional characteristics organisations seek to influence when managing their carbon-related costs (Spekle, 2001).

Therefore, from a TCE perspective, carbon accounting will highlight the carbon-related costs incurred and legitimate organisational attempts to influence government policy for cost-reducing purposes. This appears to conflict with Laffont and Tirole's (1991) view above, that organisations may seek to hide carbon accounting information from the government. However, carbon accounting may have multiple purposes within the policy process and therefore the two views expressed may not be incompatible, but complimentary.

3.3 Theoretical framework

An ETS changes an organisations' external regulatory environment and leads to a potential increase in carbon-related costs and thus, affects organisations' profitability and competitiveness. To mitigate these costs, organisations have an incentive to participate in ETS policy processes. During such participation, organisations use various political mechanisms and carbon accounting to "capture" the policy makers and advance their own economic interests. In particular, carbon accounting serves to hide, mislead or inform the government and other policy-makers about the economic outcomes of the proposed policy. The use of political mechanisms and carbon accounting can mitigate the transactional characteristics that give rise to carbon-related costs.

This in turn leads to capture effects. Capture effects occur when as a result of organisational political activities, the government make changes and modifications to policy design that predominantly serve private interests. These capture effects, at organisational level, are reflected in two outcomes. The first relates to the ability of organisations to increase their income vis-à-vis their competitors or other industries without modifying their internal production processes and technologies (rent-seeking). The second relates to the

economisation of costs incurred for transactions related to the policy (TCE) to achieve a similar outcome in terms of relative competitiveness. These arguments lead to the following theoretical framework (Figure 1).

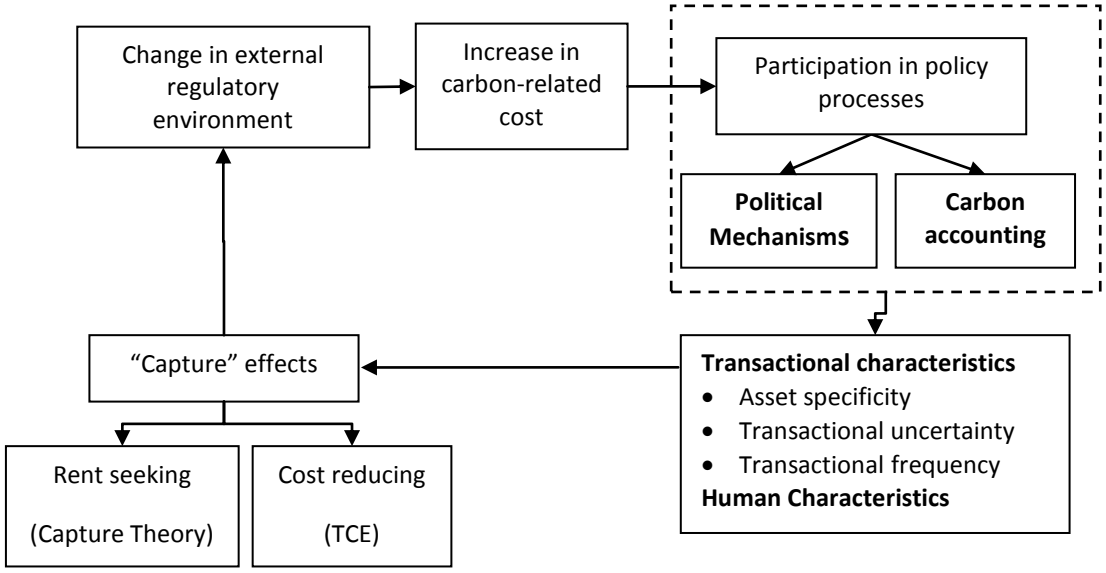

Figure 1: Theoretical framework – Institutional change and carbon cost management

The study will apply this framework to examine organisations' participation in the policy processes related to the ETS proposed in September 2007.

4. Methodology

There were 259 submissions made by businesses, individuals and other groups in response to the Climate Change Bill up until 28 February 2008. These submissions are the primary data analysed to identify organisational response to the ETS, and were retrieved from Parliamentary Select Committee and Finance & Expenditure Committee records. Five key industries have compliance obligations under the ETS: Forestry, Agriculture, Liquid Fossil Fuels (LFF), Energy and Industrial Processes. However, for the purposes of this study, Forestry is excluded because it serves as a carbon sink (carbon credit generator) rather than a carbon emitter (carbon cost generator).

Organisations from the four industries (Agriculture, LFF, Energy and Industrial Processes) in aggregate made 70 submissions to the Committee (representing 27% of total submissions)[1]. All 70 submissions are included in the analysis. Choosing to investigate just these submissions is justifiable for three reasons. First, capture theory suggests that only organisations that have a big-stake in policy are incentivised to influence policy design. Second, the submissions represent potential ETS impacts on organisational performance, and indicate that political mechanisms and carbon accounting techniques may be employed to influence policy

[1] Of the 70 submissions, there are 28 submissions from Agriculture, 17 from Energy, 14 from Liquid Fossil Fuels, and 11 from Industrial Processes.

design and mitigate such impacts. Third, the submissions illustrate how organisations, as carbon emitters, react to legislation that is designed to change their emitting behaviour.

Three methods are used to analyse submissions. First, a word count is calculated on each issue discussed in each submission. The word count is then divided by the total word count of the whole submission report and converted to a percentage. This represents the significance of each issue from each submitter's perspective. Thus, issues receiving a consistently high percentage within an industry or across industries are considered the most significant issues. The issues are then ranked based on this percentage across the four industries enabling key ETS-related issues, as perceived by the submitters, to be identified.

The second method is content analysis, which is used to interpret the issues identified during the word count phase. Content analysis is chosen due to its reliability and ability to systematically and objectively identify properties in the information being analysed. Following Lillis (1999), the submissions data were analysed using structural data displays. Accordingly, submissions were coded in NVivo by two parameters: (a) the submitters and (b) key issues addressed in the submissions. The key issues are further categorised into two groups: (i) perceived organisational ETS impacts, and (ii) proposed measures to mitigate these impacts. Later modifications to the ETS by the Government are also examined and classified. They are then matched against the relevant mitigating measures proposed by the submitters allowing an assessment of the degree to which capture has taken place.

A thematic matrix is then established in Excel with the columns representing the submitters, and the rows the key issues, mitigating measures and the subsequent ETS changes. Relevant quotes from the NVivo coded content are extracted to the matrix to provide a qualitative illustration of each issue, along with its word count. This procedure produces an "auditable trail" from the submission, through the steps of data reduction, summation and categorisation, to interpretation and reporting (Lillis, 1999, p.88). To add further insights and triangulate the above analysis, a third method, interviews was used. Ten interviews were conducted with managers of organisations and representatives from industry groups. These interviews sought to understand the underlying motives behind organisations participating in ETS-related processes (Flick, 2004).

The results are presented in three sections. The first (section 5) highlights the political mechanisms used by submitters in an attempt to reduce carbon-related costs, while the second (section 6) examines the use of and role played by carbon accounting in these submissions. The "capture" impacts of the use of political mechanisms and carbon accounting on the ETS design are analysed in the third section (section 7).

5. Political Mechanisms of Carbon Cost Management

5.1 Inter-industry commonalities

There were three issues considered important by all industries; trade exposure and competitiveness at risk (CAR), carbon price volatility, and policy and regulatory uncertainty. Table 2 outlines the transactional characteristics affected by each issue and the industry's approach to reduce carbon-related costs.

Issue	Transactional characteristic affected	Political mechanism to reduce carbon costs	Mitigation measures suggested
Trade exposure and Competitiveness at risk (CAR)	Asset specificity	Full avoidance	Free allocation of carbon credits
		Partial externalisation	• Flexible threshold • Extend phase-out period
Carbon price volatility	Uncertainty and Asset specificity	Partial externalisation	Safety valve
		Partial externalisation	Government purchase of carbon credits
Policy & regulatory uncertainty	Uncertainty	Full avoidance	• Redesign/delay of the ETS • Alignment with AUS ETS

Table 2: Similarities in external exposure and suggested mitigation measures

Trade exposure and CAR

Submitters recognised the implications of the ETS on firms' competitiveness, especially in the international market. They agreed that such a policy would be a detrimental to firms competing with international counterparts who were not subjected to an ETS. In all four industries, competitiveness would further be at risk, as firms sought to cope and comply with the ETS's financial obligations. All contend their products are highly trade-exposed and the carbon costs associated with the ETS threaten their profitability and even business survival. Hence, trade exposure and CAR explicitly infers high asset specificity level transaction costs for these firms' and their products, which is likely to result in a significant profitability loss.

Carbon accounting was used extensively by submitters across all four industries to emphasise the ETS's impact on profitability and economic viability. Submitters argued that carbon costs could lead to business closure, a reduction in investment or relocation of businesses to other countries without such a regime. This could lead to 'carbon leakage,' where reduced production and exports would reduce emissions in New Zealand, but increase them in other countries. Therefore, submitters argued for government protection from ETS carbon costs in order to remain profitable. In some cases, submitters argued for 100% protection (full avoidance).

> *…recommends that 100% free allocation be provided for trade exposed companies to preserve their international competitiveness until other countries place similar carbon pricing on goods against which New Zealand competes. (Coal Association)*

More frequently, submitters sought to externalise partially their carbon costs. Firstly, many submitters were agreeable to the 90% allocation suggested by the Climate Change Bill, but contended the proposed threshold of 50,000 tonnes to make an organisation eligible for free allocation was unreasonable and should be lifted. Secondly, organisations requested an extension of the free-allocation phase-out period, thereby providing a shield from the full cost of carbon until other countries adopt a similar ETS.

> *If a threshold limit is imposed before any firm is eligible for allocation this will exclude most of New Zealand's trade exposed industries. This of course would have the effect that instead of receiving 90% of their 2005 emissions (excluding liquid fossil fuels) a company might receive possibly half or less of that amount. (Solid Energy)*

Recommendation: Retain shielding of all 'CAR' businesses for as long as climate change related policy imbalances exist between NZ and its trading partners. (Carvey Holt Harvey)

All three above respondents represented high emitting industry sectors.

Carbon market volatility

The effectiveness and function of the ETS is dependent on liquidity and certainty in the carbon market. Since this will be the first time New Zealand's organisations engage in carbon trading, almost all submitters were concerned about carbon market uncertainty.

The work to date has been based on either a $15 per tonne CO2–e or $25 per tonne CO2–e cost but now government officials are talking about $30-35 per tonne CO2–e and there are no guarantees the price of carbon will not exceed these levels. Reassurances that the market and price of carbon will sort its self out are not sufficient to allay our concerns. (Fonterra)

Submitters highlighted that exposure to carbon market volatility is a significant risk because most organisations have little knowledge and expertise in carbon trading. This lack of knowledge and expertise deters organisations from acquiring lower-cost carbon credits and managing their carbon costs effectively. Thus, carbon market volatility increases both external uncertainty and potential asset specificity in relation to the specialised knowledge required to trade carbon credits. To manage this uncertainty, all submitters (across the industries) called for some form of government intervention. The most popular mechanism suggested was a 'price safety' valve, where a price cap on carbon units would be placed to curb major increases in carbon unit prices, thereby enabling organisations to lower their carbon-related costs and adjust to the ETS in a smoother manner.

A price 'safety valve' will avoid price volatility and assist the transition for small and medium scale coal users. (Coal Association)

The ETS should have a provision that would allow government intervention in the market to cap the amount of economic adjustment cost being imposed upon the NZ Economic structure. (Air New Zealand)

The second mechanism proposed is for the Government to use its collective power to buy carbon credits on behalf of compliance organisations. This was a strong preference among energy industry submitters, who argued this would minimise the total costs of meeting emission obligations.

New Zealand can reduce the potential economic costs of meeting arbitrary emissions targets under international climate agreements by avoiding complete devolution of liabilities. It needs to be recognised that government purchasing of credits can reduce costs to the economy… (Coal Association)

Adopting these suggested mechanisms lowers exposure to carbon market volatility, and therefore reduces carbon-related costs associated with buying carbon credits. Simultaneously, organisations externalise responsibility for managing carbon market fluctuations and any economic consequences to Government. Arguably, this was a lower level of associated transaction costs than those relating to trade exposure and CAR, yet generating similar emphasis.

Policy and regulatory uncertainty

All four industries were concerned about the sustainability of the ETS policy. The uncertainty relating to the ETS post-2012 was considerably discussed by the agriculture and LFF industries, as these organisations

feared significant profitability impacts if the rest of the world decides not to engage in carbon trading a. As mentioned by a multinational oil distributor, "*if that was the case, this could lead to a decline in investment on carbon-efficient projects and dilute the value of other carbon-efficient projects already committed to"*. Furthermore, the sustainability of the ETS was doubted due to the substantial economic costs it would impose on different industries.

> *Climate change policy that threatens to impose large economic costs will not be politically sustainable. Regrettably we believe the Emissions Trading Policy … is seen by the wider business sectors as being unsustainable in the medium to longer term. This is creating significant uncertainty in the market-place and is damaging the country's economic performance. (Road Transport Forum)*

To strengthen their case, their submissions argued for the loss or reduction in the potential economic contributions made by industries (and organisations) if the ETS was enforced.

> *Jobs will be lost in regional areas that can ill afford it, high-level skills training for trades and engineering will cease, the national economy will be less robust and flexible, macro-economic productivity will decline, and global carbon emissions will have increased. (Holcim New Zealand)*

Due to this policy uncertainty and its potential economic implications, some submitters argued for the total dismissal or delay and redesign of the ETS. One Road Transport submitter suggested, "*a comprehensive rethink of the Bill should be carried out before it proceeds any further*." Others suggested Government delays the ETS and works with the Australian Government to align both countries' schemes to minimise cross-Tasman business relocation.

Further, submitters perceived significant uncertainty in relation to the regulations emerging from the legislation and expressed concerns about the amount of discretion and flexibility given to ETS-related regulatory agencies such as the Ministry of Economic Development, and Ministry for the Environment. To reduce this uncertainty, submitters proposed generally that matters of significance should be included in the primary legislation rather than being in regulations. As an exception, Meridian Energy devoted a large portion of its submission to developing a new governance structure for the various climate change activities enabled by the Climate Change Bill. It argued this structure will enable clear accountabilities and responsibilities in ETS management, and thus enhance transparency and certainty for participants and non-participants alike. Whilst the mechanisms employed are promoted on the basis of transaction costs driven by asset specificity, the delaying or rejection arguments are arguably more about rent seeking, or more aptly, rent maintenance. That is, by delaying or rejecting the ETS, the public (via the government) will be required to meet any Kyoto agreement obligations, thus subsidizing industry sector emissions inefficiencies and, by default, introducing a tax regime instead of a market based incentive scheme for emissions.

5.2 Intra-sector differences

There were also differences in views expressed by submitters on certain issues and the political mechanisms adopted to mitigate carbon-related costs, due to the differential treatment provided for in the ETS. Table 3 below summarises the key differences in treatments and mitigation measures suggested by the four industry sectors.

Issue	Industry and participants	Transactional characteristics affected	Externalising approach	Mitigation measures suggested
Inter-sector/ intra-sector equity	LFF: No allocation proposed	Asset specificity	Partial externalisation	Include LFF in allocation
	Agriculture: 90% allocation proposed	Asset specificity	Partial externalisation	No change to proposed free allocation
Technological constraints	Agriculture	Asset specificity	Almost full avoidance	• Support late entry • 90% free allocation • Long phase-out period
	Energy LFF Industrial processes	Asset specificity	Full avoidance	100% free allocation
			Partial externalisation	Intensity-based allocation (100% of intensity levels)
Point of obligation	Agriculture (processors)	Uncertainty (emissions measurement)	Full avoidance	Farm-level obligation
	Energy (Coal miners and gas wholesalers)	Uncertainty and Frequency	Full avoidance	Point of obligation to be at generators/gas retailers (downstream)
	LFF (oil companies)	Opportunism (human)	Internalisation for rent-seeking	Point of obligation at fuel suppliers (upstream)
Opt-in	Airline companies (LFF) & Electricity generators (Energy)	Opportunism (human)	Internalisation for cost reduction	More flexible threshold for opt-in/out eligibility
(In)ability to pass on costs	LFF and Energy	Asset specificity	Full avoidance	• Legislative override to allow cost pass-on • Free carbon credits
Lack of incentive for renewable investments	Energy	Uncertainty and asset specificity	Internalisation for Rent-seeking (opportunism)	Grant carbon credits to renewable projects
Thermal asset value loss	Energy	Asset specificity	Partial externalisation	Compensation for loss

Table 3: Differences in key issues and mitigation measures suggested

Inter-sector and intra-sector equity

A 'contentious' issue related to inter-sector equity, was raised by Agriculture and LFF submitters in regard to free allocation – a source of rent and/or cost mitigation. Submissions from the LFF industry voiced concern over the 'extra' assistance that Agriculture gets including their late entrance into the scheme, and high levels of carbon unit free-allocation. The LFF industry suggested it was inequitable for agriculture to get 90% free-allocation of carbon units, while they were not given the same protection. Government noted that no allocation would be given to the LFF industry because the costs associated with the purchase of emission

units are likely to be passed through the supply chain to consumers (New Zealand Government, 2007). Poor emissions reduction performance will be noticed by customers and rents received by these organisations reduced through loss of custom to more efficient competitors. However, airline companies (LFF industry) argued they were also trade-exposed (*asset specificity*) and thus free allocation was important to shield them from a loss of international competitiveness. Therefore, to externalise partially their carbon costs, LFF submitters argued for the inclusion of LFF emissions in the free allocation pool.

Agriculture supported its 90% free allocation by arguing it is trade-exposed and faced a highly competitive international market. Due to this international exposure, submitters suggested that 100% free-allocation of units is required, as the European Union is contemplating this in relation to their EU ETS. Fifty percent of the agricultural submitters provided estimates of carbon costs and 21 percent highlighted their sector's economic and social contributions.

> *At an emissions cost of $20 per tonne, the additional costs to the sector has been estimated to be $8.7 million, approximately 20% of the operating surplus before tax of the sector. The Bill will have severe detrimental effects on the sector, resulting in business closures and reduced output.*

In doing so, they emphasised that ETS carbon-related costs put organisational viability at risk (*high asset specificity)* and thus government protection is critical.

Technological constraints

Technological constraints were mentioned by submitters in all four industries. Agriculture submissions repeatedly pointed out there is not yet a technology that mitigates livestock's natural methane and nitrous oxide emissions. Furthermore, they highlighted that New Zealand agricultural products are some of the most emissions-efficient in the world.

> *DairyNZ also notes that NZ pastoral farmers have already achieved lower emissions intensity and therefore face lesser scope and greater cost to achieve further improvements than do less efficient pastoral sectors in other countries. (DairyNZ)*

The technological constraints outlined represent high asset specificity since they result in substantial ETS carbon costs, and became a key justification for Agriculture submitters' support for their late entry to the ETS (from 2013), the 90% free allocation, and the long phase-out period. Such differential treatment equates to almost full avoidance of carbon-related costs and thus the externalisation of such costs to Government.

Similarly, submitters from the Energy, LFF and Industrial Processes industries argued that technological constraints made it difficult for their energy-intensive organisations to reduce emissions levels *(high asset specificity)*. They highlighted that the New Zealand manufacturing industries are highly energy efficient and are achieving near "world's best practice". Therefore, they suggested that 90% free allocation was insufficient to protect their competitiveness.

> *The 90% allocation level suggests that ... New Zealand companies, who trade internationally, can either absorb the additional costs on the remaining 10% of their production or that they are able to reduce their emissions by 10% at acceptable cost. .. It is hard to see that they have any realistic economic options to reduce their emissions by 10% (or more). (Solid Energy)*

Further, there was a cross-industry preference for an intensity-based cap for free allocation rather than the proposed absolute cap (90% of 2005 emission levels). The three industries argued an intensity-based cap would recognise the emissions efficiency gains made in the past and provide an incentive for further emissions performance improvement.

> *We advocate that the free allocation of NZUs to trade-exposed industries should be based on the emissions intensity of their production, for the technology utilised. This approach provides the incentive to grow production in an emissions-efficient manner. (Rio Tinto)*

Additionally, submitters from the energy, LFF, and industrial processes industries argued the current proposed method of allocating based on 90% of 2005 emission levels is too restrictive and likely to constrain economic development. They proposed the Government grant carbon credits to cover 100% of the emissions intensity levels calculated at world best practice. The Coal Association justified the adoption of an intensity basis as "*maintaining the environmental integrity of the scheme while representing a good balance with economic integrity by allowing for expanded production*" An intensity-basis would cut carbon liabilities substantially while allowing organisations to continue emitting. If new investments are made and total emissions increase, as long as organisations maintain the same level of emissions intensity (close to the intensity cap), they would only incur minimal carbon costs. Therefore, the transaction costs associated with overcoming technological constraints is a primary argument promoted to preserve existing rent levels. However, a change in governance structure is also included to mitigate downward pressure on rent levels.

Point of obligation

The point of obligation was discussed by submitters from three industries: Agriculture, Energy and LFF. The point of obligation for the Energy industry under the Original ETS is likely to be at the upstream level (coal importers/ miners and gas wholesalers). However, a mid-stream point of obligation was also considered. This is reflected in the Bill's provision to allow large gas retailers and electricity generators to become participants under a threshold of gas distribution or consumption of more than 2 petajoules p.a. However, coal miners and gas wholesalers were not satisfied with this proposal. They believe the point of obligation should be downstream; where the actual emissions from the combustion of coal take place.

> *Emission liability should rest with the point source of emissions, where practical. This creates greater incentive for each liable party to reduce their own emissions as they have direct connection between the implementation of emission reduction programs and permit liability. (Origin Energy – gas wholesaler)*

Placing the point of obligation upstream was argued to add uncertainty and places substantial administrative burden on these organisations, while providing little incentive to adopt emissions-mitigating projects.

> *Our customers will have to rely on our ability to purchase credits at the lowest possible price, and will also have to accept that the price will go up and down during the course of any year. This will add uncertainty to our customers businesses, as well as to our own. (Solid Energy – coal miner/wholesaler)*

In the Agriculture industry, submitters supported the imposition of the point of obligation at farm level. They argued that devolving liability to processors would create difficulties and uncertainty in cost and emissions measurement. Further, placing the point of obligation at farm level gives farmers an incentive to manage and reduce their emissions levels, thus resulting in higher environmental benefits.

While arguing for the point of obligation in their respective industries to be changed, coal miners, gas wholesalers and diary processors sought to *avoid their obligation* under the ETS. In doing so, they avoid the *uncertainty* associated with measuring and monitoring emission levels and the costs involved in carbon credit purchases. Further, in only accounting for the emissions they control, these organisations reduce the *frequency* with which they need to monitor and report emissions and buy carbon credits.

In contrast, upstream participants in the LFF industry sought to *internalise* their ETS obligation by strongly opposing downstream management. Utilising the Government's logic, oil distributors argued that upstream obligation minimises the number of regulated entities and hence reduces governmental administrative costs. Limiting the obligation to upstream organisations therefore increases certainty in emissions and carbon cost management and facilitates investment decisions.

> *Mobil's preference is that there be no provision to opt in under this legislation as we believe that there is potential for this option to be extended to other major users of fuel which would in our view, inappropriately increase administrative costs and increase the complexity of the scheme. However, should the Government choose to retain the opt-in mechanism it should not be extended any wider than jet fuel users. (Mobil Oil)*

Thus, upstream organisations in the Energy, Agriculture, and LFF industries appear to have diverging views on the point of obligation. All three used arguments relating to uncertainty and administrative costs, but these served contrasting views. Submitters from the Energy and Agriculture industries sought to *externalise* the obligation so as to avoid carbon-related costs. In contrast, oil distributors lobbied to "internalise" such obligations; not for cost reduction purposes, but for opportunistic "rent-seeking" reasons, that is to pass on carbon costs to downstream organisations. Oil distributors underplayed any concerns by suggesting, "*Any financial risks that a downstream party would face through carbon costs being passed through from energy suppliers will be manageable through competition in the supply market*". However, questions can be asked as to the effectiveness of this approach, and for this reason, many large fuel and energy users supported the opt-in option (below). By becoming the point of obligation themselves "*obviate the need to pay a trading risk premium"* to the fuel/coal suppliers (Holcim New Zealand); a rent seeking versus rent sustaining approach in managing market driven transaction costs.

Opt-in

The LFF and Energy industries predominantly discussed the provisions that provide opt in and opt out choices for their two sectors. Within the LFF industry, large jet fuel users, such as Air New Zealand are able to opt-in to the scheme and become points of obligation themselves. In the stationary energy industry, opt-in is allowed for gas distributors if they meet the 2 petajoules p.a. threshold. Submitters from the airline sector tend to agree with this provision and suggest more flexibility, as any point of obligation (whether upstream or not) would lead to increased costs. Thus, ETS participation by them provides an opportunity to acquire carbon units and manage emissions at the least cost. Similarly, all electricity generators (energy industry) supported the opt-in option due to the strong incentive to manage emissions and associated carbon costs:

> *Contact supports the ability of large emitters to be able to opt in and become directly liable for their own emissions. Direct liability will give Contact strong incentives to manage this liability so as to minimise the company's costs and emissions. (Contact Energy – a generator)*

Thereby, by taking direct responsibility for their emissions using the opt-in provisions, electricity generators and airlines sought to prevent opportunism in the costs passed-on by fuel and coal suppliers and optimise potential reductions in carbon costs due to more effective emissions management (cost-reducing). This represents the *internalisation* of carbon-related costs within the airline and electricity generation sectors. In doing so, any additional transaction costs due to rent seeking/sustaining activities of upstream organisations are mitigated, or can be transferred to downstream organisations.

Inability to pass on costs

Participants in the Energy and LFF industries are not allocated any free carbon credits under the ETS legislation, because they should be able to pass these costs to customers. However, various submitters in both industries highlighted that this is unlikely to always be the case. They argued the extent to which costs can be passed on depends on a number of factors, including the availability of less emissions-intensive alternative fuels (gas vs. coal) and the specific contract terms between fuel suppliers and customers (*high asset specificity*).

> *If participants at the top of the supply chain are unable to pass costs through under existing contracts, then the ETS costs will be disproportionate and unbalanced through the economy- with the top of the supply chain bearing the full brunt of costs (unsustainably) and some downstream users not paying anything at all. (Todd Energy)*

The submitters suggest an alternative measure to reduce asset specificity involving a legislative override that allows for cost pass-on irrespective of the contract circumstances.

> *The legislation should include statutory override that notwithstanding any contract terms to the contrary, a NZ ETS participant is entitled to pass through any NZ ETS cost to purchasers and consumers (Todd Energy)*

Submitters also argued for free carbon credit allocation as compensation for fuel and energy suppliers not being able to pass on carbon costs. These two measures would externalise the carbon costs from fuel and energy suppliers to either the final consumers (in the case of legislative override) or to the Government and taxpayers (in the case of free allocation) and allow organisations to fully avoid carbon-related costs; a rent sustaining and/or transaction cost transfer/mitigation approach.

Lack of incentive for renewable investments

Within the energy industry, potentially driven by self-interests, renewable generators asked for additional allocation of free carbon credits to incentivise renewable investments despite already being rewarded by a general ETS-related increase in electricity prices due to the way wholesale prices are set. As a result, generators with large renewable portfolios are likely to enjoy a "windfall gain". However, renewable generators argued illiquid hedge markets (*uncertainty*) may make it difficult for independent generators to seek favourable electricity purchase agreements to make their investments viable (*asset specificity).* Therefore, they urged for the granting of additional carbon credits to encourage new investments:

> *NZWEA recommend that renewable generators such as wind farms should receive offsets or 'green credits' in recognition of the reduction in GHG emissions that they provide. […] the offsets would have provided alternative revenue options to wind farm developers. (NZ Wind Energy Association)*

In lobbying for this change, generators underplayed the fact that if this grant is incorporated in ETS legislation, it will apply to all generators who participate in wholesale market operations. This in effect would give the major generators a double gain; enhanced revenue from electricity price increases and potential income from the sale of granted green credits. Therefore, this request combined the internalisation of rent-seeking behaviour or opportunism with a capacity to transfer transaction costs, resulting in a double gain.

Thermal asset value loss

A contrast is observed with thermal generators, who emphasised the potential for an ETS-driven loss in their thermal asset value. Genesis Energy, the most emissions-intensive generator with a high reliance on coal-fired generation *(high asset specificity),* used extensive scenario analysis based on a carbon price and electricity price estimates to highlight the potential ETS-related loss they may suffer. This loss predominantly relates to the reduced output of one of its major coal-fired plant due to high carbon costs. They estimated an operating surplus reduction of $132 million per annum at a carbon price of $15 per tonne and a nil operating surplus, if the carbon price rises to $50. They further highlighted this may lead to a "premature closure" of the plant (*asset specificity*). Based on the importance of this plant to the national security of supply, Genesis Energy argued, "*the Bill must retain the flexibility for compensation for any firms (not just the trade-exposed) that suffer 'disproportionate loss"*. In doing so, it sought to externalise partially its ETS liabilities and carbon costs and this externalises its transaction costs.

In summary, the results presented in section 5 suggest that organisations participating in ETS policy processes sought to avoid their ETS-obligations, either partially or fully. Out of 22 carbon-cost mitigating measures suggested in Tables 2 and 3, the majority were aimed at cost reduction: 50% were for the partial externalisation of carbon-related costs (transaction costs), while 36% indicated an attempt at full cost avoidance (transaction cost avoidance and rent sustaining). Cost-reduction was to be achieved by organisations predominantly mitigating the increased asset specificity and transactional uncertainty imposed by the ETS. Conversely, 14% of the measures suggest an alternative motive; to internalise carbon-related costs in order to gain additional income by influencing policy outcomes (rent-seeking behaviour). Rent-seeking was predominantly realised by maximising opportunities for self-interested behaviour due to the ETS design. The results also provide some indication that organisations use carbon accounting to support their arguments. The next section discusses this carbon accounting use in more detail.

6. Use of Carbon Accounting Across Industries

6.1. Accounting for direct and indirect carbon costs

Analysis indicates there was substantial variation in the degree of carbon accounting used in submissions across the industries. As mentioned above, there was extensive use of carbon accounting in the Agriculture industry to support free allocation and the late entry into the ETS (2013). Fifty percent of agricultural submitters estimated carbon costs and the impacts on profitability at both organisational and sector levels. Most carbon costs came from indirect increases in energy prices as cost increases associated with fuel and electricity consumption potentially threaten their economic viability.

> *The cost of the core ETS to the sheep and beef sub-sector (without free allocation and at a carbon price of $30 per tonne) is estimated to be approximately $660 million per annum. On a pro-rata basis Alliance's share of this potential cost is in the order of $100 to $120 million per annum. (Alliance Group - Agriculture)*

In particular, submitters provided data on agriculture's contribution to the economy (e.g. percentage of GDP, amount of annual tax paid to, export earnings) and society (e.g. number of jobs created), and argued that as the ETS threatened business viability, there would be extreme economic and social consequences. In providing such carbon accounting information, agriculture organisations sought to legitimise the Government's free allocation to the Agriculture industry, and further argue for extending both the scope (from 90% to 100%) and the length (phase-out period) of such protection resulting in transaction cost externalisation and rent seeking actions respectively.

However, among the agriculture submitters, there is limited accounting of emissions levels at the organisational and sector levels. Although a few organisations discussed how emissions reduction might take place, the submitters predominantly emphasised the technological constraints (*high asset specificity level transaction costs*) to reducing agricultural emission. Further, they assumed that organisations will incur carbon costs for the total amount of their emissions and argued for government assistance to mitigate such impacts (*externalisation of transaction costs*). This is contrary to the primary purpose of an ETS, which is to impose additional costs and prices that trigger organisational change and reduce emissions levels. Consequently, the financially-focused carbon accounting information provided serves to legitimise the Agriculture industry's calls for further partial or full externalisation of its carbon-related costs.

Similarly, there was considerable use of carbon accounting in submissions from the Industrial Processes industry (25% of submitters). As these organisations are trade-exposed and emissions-intensive, they will incur substantial carbon-related costs arising from both their direct emission obligations and ETS cost pass-on from energy and fuel suppliers. The carbon accounting information provided related to the magnitude of heir carbon-related costs and the degree to which they would affect their profitability.

> *NZ Steel emits about two million tonnes of CO2 per annum (average since 1996). Of these emissions, 80% is directly related to the steel making process. Electricity accounts for only 13% of the emissions so the scope for energy related reductions in emissions is relatively small. This analysis shows that the cost for NZ Steel of the ETS will be extremely high. […] If the price of carbon is $30/tonne, the NZ Steel's profitability will be reduced by about $60 million per annum (NZ Steel – Industrial Processes)*

While it is probable that the use of carbon accounting was to inform Government about ETS impacts and thus improve policy design, it can also be employed to serve organisational self-interest. Carbon accounting could provide the legitimation needed for submission arguments to include fuel and energy-related emissions in free allocation and to adopt an intensity-based allocation basis to allow for production expansion and growth. This would enable the reduction of carbon-related costs, while protecting business development and viability. In effect, employing the argument of a negative economic impact to externalise and/or mitigate transaction costs to sustain existing rent levels.

Participants from the Energy and LFF sectors only employed carbon accounting to a limited extent. This is surprising given that these organisations provide some of the most extensive submission content of the four industries. This might indicate these organisations do not have sufficient knowledge of their financial exposure to the ETS. However, interviews with managers suggest the contrary. Most of these organisations have analysed their ETS exposure and are fully aware of the financial costs, and risks as well as opportunities associated with the ETS. Nonetheless, since these organisations have the ability to pass ETS-related costs downstream to their customers; their own carbon costs are likely to be less than other participants are. By not disclosing their emissions levels and estimated carbon costs in submissions, Energy and LFF submitters made it harder for the Government and the public to estimate the potential for windfall gains (*rents*) through a cost pass-on mechanism, thereby preventing possible adverse political and public reactions. In doing so, this enables these organisations to pursue an opportunism strategy. The absence of carbon accounting in both industries' submissions increased informational asymmetry and is consistent with a rent-seeking behaviour.

6.2. Accounting for emission reduction initiatives

Many large organisations discussed the various voluntary emissions mitigation projects they had undertaken in the past. Data on the reduction in emission levels and emission intensity were also provided. These organisations arguments were further enhanced by the quotation of the external awards and other recognition they had received for projects.

> *We have been actively managing the CO2 emissions from our operations since 1997. We have reduced these emissions by 20% since 1990, and have set voluntary reduction targets out to 2010. (Shell – LFF)*
>
> *As a company we have taken a leadership role in addressing climate change and worked constructively with Government over the years. We are only one of two companies to have successfully negotiated an NGA (Oceania Gold Corporation – Industrial Processes))*
>
> *In 2005 and 2006, the Holcim Group was recognised "Leader of the Industry" in the Dow Jones Sustainability Index and was again included in the FTSE4Good and Ethibel Indexes. (Holcim New Zealand)*

Due to possessing the financial and human resources necessary to undertake extensive emissions efficiency improvement projects, larger organisations were able to provide such data. Furthermore, the generally higher emissions levels associated with their business activities created a strong incentive for them to avoid ETS obligations. Disclosing emissions data relating to prior reduction projects positions them as already environmentally responsible and lessens the need for a obligatory mechanism such as the ETS to incentivise

emissions reductions. Providing this information allowed them to lobby for their organisation/industry's exclusion from the ETS, and thus avoid fully ETS carbon costs and liabilities.

> *In seeking such an exclusion, NZ Steel would like it noted that we have pursued such alternatives for some years, and are fully committed to working with the Government on agreements to reduce our emissions profile and environmental impacts still further, whilst maintaining the productivity, profitability, and competitiveness of our operations. NZ Steel believes that on the basis of the above, steel should be excluded from the New Zealand ETS ... (New Zealand Steel).*

It could therefore be argued that this approach is implicitly seeking government subsidisation for future emissions in combination with the avoidance of any transaction costs associated with process improvements to reduce future emissions levels.

6.3. Accounting for ETS administrative and compliance costs

Organisations further argued the ETS was likely to result in excessive administrative costs (*lower level transaction costs*) for Government. The arguments presented were generally descriptive and generic, without concrete numbers for support. Most submitters sympathised with the Government's choice to move the obligation point upstream to minimise administrative costs. However, they argued this choice was at odds with the additional uncertainty and administrative and compliance costs borne by compliance organisations. To support this view, submitters highlighted a number of potential problems in emissions /carbon credit measurement, monitoring and verification and the additional uncertainty involved with carbon credit purchases. By the Government seeking to minimise its administrative cost, the planned ETS breaks the link between the emitter and those that carry the compliance obligation.

> *Should meat processes be made Participants, they would need to make emissions returns incorporating on-farm emissions performance data, and under the Bill as drafted would be accountable for that data, but would not own that data or have the capacity to verify it. This situation would likely result in meat processors making overly conservative estimates of emissions performance improvement, to avoid legal risk, and consequently no or insufficient recognition for their mitigation efforts. (Alliance Group)*

Some submitters, especially those from the Energy industry, believed the ETS imposes undue compliance costs on small energy users and hence suggested the Government introduce an exemption provision to reduce their compliance cost. However, exempting small energy users would reduce the total emissions required to be accounted for by upstream organisations (coal miners and gas wholesalers), and thus, reduce upstream organisational carbon costs. This would partially externalisation energy-users carbon costs.

Several submitters in the LFF industry provided estimates of the penalties they would face for non-compliance. BP Oil estimated if it failed to deliver 10% of its required carbon credits in 2009, the penalty would cost $15 million, in addition to the surrendering of the original credits, or approximately 50% of its 2006 profits. Further, LFF submitters argued this penalty is too high because of the high degree of uncertainty associated with: i) the ETS being a new and complex regime; ii) the lack of existing knowledge and expertise on carbon trading; and iii) the small amount of time available for organisational learning and adjustment under the NZ ETS compared to other schemes (e.g. EU ETS). Consequently, these submitters suggested that making a reporting error in the first year of participation should not be classed as an offence

or that a reduction in penalty amount be given, especially when such non-compliance is uncontrollable. As explained:

> *Provision must be made in the legislation to reduce the penalties (even down to zero) where it can be clearly shown the under-surrender is as a result of events or circumstances beyond the control of the participant, or that the participant took all reasonable steps to surrender units but was unable to do so (for example, through lack of supply) (Mobil Oil)*

The use of carbon accounting to argue for non-compliance exemptions serves to legitimise a partial avoidance of carbon-related costs. Furthermore, if the non-compliance penalty is reduced, this helps mitigate the level of uncertainty related to emissions monitoring, reporting and carbon trading.

7. Capture Effects

While an ETS's purpose is to internalise an externality into organisations' cost structure to provide an incentive for change, organisations sought to re-externalise it by influencing policy processes and capturing policy-makers perceptions and thinking. By doing so, they can make the government and taxpayers responsible for the management of their carbon costs. Despite the submissions and lobbying efforts outlined above (in sections 5 and 6), the Climate Change Bill was passed without any changes in September 2008, due to the support of the Labour Government and Green Party. This is not surprising, as the Labour and Green Parties do not have a strong electorate base among businesses or the rural community[2]. Instead, their policies are committed to reducing emissions and achieving carbon neutrality. Implementing the suggestions made by the four industries would threaten the achievability of emissions reduction targets set by the Government and their ability to meet Kyoto obligations; outcomes that would impair their international reputation. Furthermore, it appears from interviews with emissions-intensive organisations that the Labour Government chose to consult with businesses on a very limited basis. One organisation expressed serious doubts about the ETS policy consultation process,

> *We are disappointed at the level of debate and interaction with industry by central government on this issue. Dismissing virtually any industry comment out of hand, as has been occurring in recent months, is hardly a constructive approach (Petroleum exploration and production association)*

Interviews also suggested that Government relied predominantly on advice from the Climate Change Leadership Forum. This Forum represents a number of low-emissions businesses or those with substantial experience in emissions reduction. Concern was expressed by some, that due to their political power the businesses on the Forum had captured the ETS process and gained a significant competitive advantage.

> *We are also concerned at the competitive advantage that certain businesses are potentially gaining through being on the Forum. Those companies have had the opportunity to be well briefed on, and to influence, NZ ETS design issues. (Todd Energy)*

Due to this perceived capture of ETS policy, the majority of suggestions put forward by emissions-intensive businesses as analysed in sections 5 and 6 above, were not acceptable to the Labour Government. Therefore, these businesses were unable to mitigate their carbon-related costs though the Original ETS policy process.

[2] Information provided from interviews with politicians from Labour and Green parties.

> *Concerns raised by ourselves and other submitters and interested groups have not been addressed in the Climate Change Bill and hence our concerns remain. This Bill does not reflect the views expressed by industry such as ourselves, in both agricultural and industrial sectors, and other participants. (Westland Milk Products)*

However, not long after the ETS Bill was enacted, the National Party won the October 2008 General Election. The National Party has traditionally a strong electoral base among businesses and farming interests (Robinson, 1966). Immediately upon taking office, the National Government submitted the ETS to a lengthy review taking eight months. Based on this review, the Moderated Emissions Trading Amendment Bill was introduced in September 2009 and passed in November 2009 (NZG, 2009). This Bill proposed major changes to the ETS, with many of these changes echoing the suggestions and arguments presented by the LFF, energy, industrial processes and agriculture industries during the Original ETS consultation period.

Table 4 below, outlines the key changes to the ETS and matches them to the submission arguments analysed above. In doing this, a clear indication is gained as to the extent that ETS policy processes and policy makers were *captured* by industry interests. For the purpose of this study, a capture effect is deemed to have occurred when a change to the ETS legislation (the Moderated ETS – NZG, 2009) is similar or identical to the mitigation measures suggested by organisations in their submissions (as presented in Tables 2 and 3). If the submissions suggested a change, but it was not incorporated in the Moderated ETS, no capture effect was perceived. However, it is possible changes made were not the result of submissions by the four industries, but capture by other submitters. These *possible* capture effects are shaded in Table 4.

As indicated by Table 4, the majority of concerns in the four industries have been addressed in the Moderated ETS Bill. Firstly, two changes are proposed to accommodate concerns relating to trade exposure and CAR. The absolute threshold of 50,000 tonnes for free allocation eligibility has been changed to intensity-based thresholds, meaning more organisations can receive free allocation. Additionally, the phase-out period of free allocation reduces from 8% to 1.3% allowing businesses to be protected from full carbon prices for a longer period. The effect of both these ETS changes is to externalise further organisational carbon-related costs to the Government and taxpayers.

Further, to accommodate concerns over carbon price volatility, the Government introduced a fixed price option of $25 per tonne for the transitional period until 1 January 2013. This mitigates organisational exposure to carbon market fluctuations and reduces costs of carbon credit purchases. To address policy and regulatory uncertainty, the Moderated ETS reduces the scope of the discretion and flexibility given to regulatory agencies. Moreover, one of the major aims of the ETS review was to align the NZ ETS with the Australian (AU) ETS. For example, the carbon price cap was changed following a similar move in the AU ETS. Further, entering the ETS was delayed for three industries. Instead of 1 January 2010, Energy, Industrial Processes and LFF industries were to enter the ETS from 1 July 2010 allowing the carbon liabilities of these industries to be halved in the first year of compliance.

Issue	Original ETS	Submission mitigation measures (tables 2 & 3)	Moderated ETS changes
Evidence of capture effects			
Trade exposure and CAR	Threshold 50,000 tons per year	Flexible threshold	Two intensity thresholds to accommodate SME
	Phase out at 8% p.a.	Extend phase out period	Phase out at 1.3 % p.a.
Carbon price volatility	No fixed price option	Price safety valve	Fixed price option of $25/ton until 1 Jan 2013
Policy and regulatory uncertainty	Significant uncertainty	Redesign/delay of ETS Alignment with AU ETS	ETS delay Aim to align with AU ETS
Transitional measure	100% obligations for Energy, Industrial Process and LFF until 1 Jan 2013	Not suggested by industry submitters	50% obligation (1 credit for 2 tones)
Technological constraints	Free allocation based on 2005 absolute levels	Intensity approach to allocation, and not based on 2005 levels	Intensity-based industry average allocation
	Agriculture 1 Jan 2013	Support 2013 ETS entry	Agriculture 1 Jan 2015
Point of obligation	Agriculture: processors	Farm level obligation	Flexibility to move to farm-level obligation in the future
Carbon accounting: Compliance costs	Energy, LFF and IP: surrender original units + Penalty ($30/unit)	Penalty waived for the first year	Penalty waived for the first year
	No payment alternative for unit surrendering	Direct payment option for surrendering	Option to pay $25 per unit for the under-surrendering amount until 1 Jan 2013
No capture effects			
Inter-sector equity	Exclusion of LFF from free allocation	Include LFF in free allocation	No change
	90% allocation to Agriculture	No change to proposed allocation	No change
Point of obligation and Opt -in	Energy: coal, gas and geothermal suppliers. Opt in for large users	Coal and gas suppliers: want downstream obligation	No change
	LFF: fuel suppliers, opt-in for domestic aviation	Fuel suppliers want upstream obligation	No change
Inability to pass on cost	No free allocation to upstream organisations	Legislative override to allow cost pass-on	No change
Lack of incentive for renewable projects	No additional incentive provided	Grant carbon credits to renewable projects	No change
Thermal asset value loss	No compensation	Compensation for loss	No change

Table 4: Capture effect by a comparison between Original ETS and Moderated ETS changes

To ease the impact of electricity and fuel price increases on industries and consumers, the Moderated ETS proposes a 50% obligation for Energy, Industrial Processes and LFF participants during the transitional period. The effect of such obligation is that instead of being fully responsible for their emissions, organisations in these industries need to pay only for half, with the other half being paid by taxpayers. Considering the electricity generating sector alone, this reduction in carbon costs equates to almost NZ$ 207 million p.a. at a carbon price of $25 per tonne.[3] Despite this change not being proposed by any of the submitters within these four industries, its impact on industry carbon-related costs suggest potential capture effects by these industries and other submitters.

Concerns regarding technological constraints were also addressed. The Moderated ETS adopts an intensity-based allocation for emissions-intensive and trade-exposed organisations. Further, such allocation is not based on 2005 emission levels, but uses an industry average level. These provisions allow businesses to expand production and increase their emission levels (as there is no cap on total emissions), while incurring a similar level of carbon costs. In recognition of the technological constraints in the Agriculture industry and the need to protect its international competitiveness, the Moderated ETS delays by two-years (2015), Agriculture's entry into the ETS. Although the submissions only argued for maintaining the 2013 entry into the ETS, this delay may represent some form of capture effect by other submitters, possibly on a political basis related to the strong support of farming interests by the National party.

In their submissions, Agricultural processors argued for a farm-level point of obligation. The Moderated ETS although leaving processors as the point of obligation in the initial phase of the ETS, provides flexibility to move to a farm-level obligation point in the future. This represents a capture effect, since it enables the Government to minimise administrative costs in the short term (due to the small number of processors under the scheme), but accommodates processors' interests by allowing then to remove their obligations in the longer term.

Additionally, carbon-related compliance costs are reduced. The Moderated ETS reduces the penalty level for organisations' who fail to surrender enough credits to meet their compliance obligations. For the first year, participants only have to deliver the amount of under-surrendered credits, while not incurring any penalty (set at $30 under the Original ETS). Participants also have the option of paying $25 per unit to the Government in lieu of delivering the actual carbon credits. These provisions reduce organisational exposure to carbon market volatility and minimises compliance costs associated with meeting ETS obligations in the short term.

Due to the Moderated ETS legislative changes, organisational carbon costs under the ETS will be reduced. However, it is questionable as to what extent these changes are consistent with the "emitters-pay" principle in an ETS so as to stimulate emission reductions. ETS changes such as the increase in free allocation, longer phase-out period, delayed entry into the ETS, halved obligations for the transitional period, or reduced penalties, serve to reduce carbon costs while not providing any additional incentives to pursue emission

[3] Data for this calculation were compiled from individual electricity generators' annual reports.

reduction projects. Therefore, it can be argued that these ETS changes represent "capture" effects by organisations during the ETS policy processes.

In other cases, this determination is more straightforward as a no change indicates an absence of capture effects. The proposals for the: inclusion of LFF consumption in free allocation (similar to the allocation for agriculture); downstream point of obligation in energy industry or upstream obligation for LFF suppliers; legislative override to allow cost pass-on; granting of additional carbon credits to renewable electricity generators; or compensation for loss of thermal generators, were not agreed to by the National Government. Thus, they were not accommodated in the Moderated ETS Bill.

The above changes further indicate the National Government is more open and receptive to businesses' ideas and concerns. This enhances businesses' ability to influence and capture policy makers to achieve their own economic advantages. Interview data suggest that businesses were pleased with the level of Government consultation on the Moderated ETS Bill and the nature of the proposed changes:

> *We have a number of concerns with the previous one [Original ETS] in terms of its costs and ambition of the policy and we are much more comfortable with what is being outlined currently [Moderated ETS]. The current government is very interested in consulting with the business community and getting the business community to help with the design of the policy. (Chamber of Commerce)*

Therefore, it can also be tentatively argued that due to the electoral relationship between the National party and the business and farming community (as represented by the four industries), organisations were able to "capture" to a considerable extent the Moderated ETS processes. Most of the changes in the Moderated ETS are consistent with the carbon-cost reducing measures proposed by the four industries during their submissions on the Original ETS. As a result, carbon-related costs arising from ETS compliance obligations for businesses have been reduced. Therefore, instead of ensuring the full internalisation of emissions and carbon costs into businesses' cost structure, further externalisation of these costs to the Governmental and the taxpayers has occurred.

8. Discussion and Conclusions

The aim of this study is to examine organisations' use of political mechanisms and carbon accounting within the ETS policy processes in order to reduce their carbon-related costs. To achieve this aim, the study answers three research questions. The first question relates to how organisations use political mechanisms to manage their carbon costs. Results above suggest organisations seek to reduce their carbon-related costs through either full or partial avoidance of ETS-related compliance obligations and associated costs (table 2 and 3). They do so by highlighting transactional factors affected by the ETS using political mechanisms to emphasise the substantial carbon-related costs they would incur under an ETS, thereby justifying suggestions for cost-reducing measures.

The ETS is likely to increase the asset specificity of organisations as it imposes additional carbon costs, thereby leading to potential loss in competitiveness and profitability. This increase in asset specificity is especially significant for emission-intensive and trade-exposed organisations. High asset specificity is also observed where organisations perceive there to be technological constraints in emissions reduction, they

have an inability to pass carbon costs downstream, or they perceive intra-sector and inter-sector inequity regarding ETS treatment. In cases of high asset specificity, organisations propose ETS changes, such as intensity-based allocation, increased level of free allocation, and legislative override, to reduce asset specificity level transaction costs and minimise the carbon costs required to be internalise.

Additionally, due to a lack knowledge and expertise in carbon trading, organisations are exposed to carbon market volatility. This uncertainty increases ETS-related compliance costs. Consequently, organisations sought to manage this cost increase by arguing for a carbon price cap. Further, organisations perceived that policy and regulatory uncertainty associated with the ETS could lead to investment relocation and delays (*asset specificity driven transaction costs*). Based on this argument, they suggested a redesign or delay of the ETS. Some organisations also perceived uncertainty with emissions measurement and monitoring due to a disconnection between sources of emissions and point of obligation. Uncertainty, it was argued, could be mitigated by a change in the point of obligation, thereby allowing organisations to fully avoid ETS obligations and externalise carbon costs to other organisations. Transactional frequency was only a concern for the Energy industry (Coal miners and gas wholesalers) when discussing their point of obligation

A few organisations were concerned with the potential for opportunism associated with cost pass-on from upstream organisations within the LFF, Energy and Industrial Processes industries. Upstream organisations may use ETS design flaws to charge organisations downstream premium prices that exceed the actual carbon costs they incur. In this case, downstream organisations supported an opt-in option so that they can internalise and manage the carbon costs themselves and minimise opportunistic behaviour by others, especially energy suppliers.

Therefore, it can be argued, in relation the research question one, that the introduction of the ETS increases asset specificity level transaction costs, uncertainty and opportunism for ETS participants, which in turn provides an incentive to lobby policy makers in an attempt to influence these transactional characteristics in order to reduce their carbon-related costs. Therefore, TCE provides a valuable theoretical tool to investigate how organisations employ political mechanisms such as submissions to the ETS policy processes, to manage their carbon costs.

Results also suggest that organisations use political mechanisms for rent-seeking purposes (as suggested by capture theory). Organisations sought to internalise their carbon-costs by arguing to maintain the point of obligation as is, or to restrict/remove the opt-in option for large energy users. These arguments do not reduce carbon costs, but serve to enhance the potential income these organisations can gain from passing-on carbon costs. Driven by a similar rent-seeking motive, some renewable generators asked for free allocation of carbon credits, despite the fact they already make windfall gains.

In relation to the second research question regarding the role of carbon accounting, this study suggests carbon accounting was used by many organisations to support the arguments made in their submissions. The most significant use of carbon accounting was observed in Agriculture and Industrial Processes submissions, which provided estimates of carbon costs and their influence on organisational profitability. This extensive

use of carbon accounting was potentially driven by the trade exposure and emissions intensity of both sectors, where the imposition of carbon costs was perceived to threaten their competitiveness and economic viability. Therefore, carbon accounting in these industries was used to legitimate calls for increased Government protection, through such means as delayed ETS entry, free allocation and a longer phase-out period.

In contrast, there is a lack of carbon accounting use among submissions from the Energy and LFF industries, potentially driven by the ability of organisations within these industries to pass carbon costs downstream. Consequently, they are in effect immune from most carbon costs and thus, the impact of the ETS on profitability is likely to be minimal. Sector customers would thus face a uniform price increase for goods and services, particularly where carbon costs are used to mask rent-seeking activities. Carbon accounting is therefore not required to strengthen their arguments for Government assistance suggesting that the use (or absence) of carbon accounting, depends on the ability to pass costs downstream. This suggestion is supported by the fact that when their ability to pass-on costs was restricted by ETS legislation, these organisations provided estimates of their carbon costs and potential loss, and used this information to argue strongly for legislative intervention. Another possible interpretation is these organisations sought to hide carbon-accounting related information from Government. Since organisations within the LFF and energy industries can behave opportunistically in passing carbon costs downstream, they may want to restrict the Government's ability to calculate the amount of windfall gains accrued to them by such behaviour. Therefore, a lack of carbon accounting information potentially increases informational asymmetry and protects these organisations' rent-seeking behaviour from Government and public scrutiny.

Accounts of emissions levels and emission reduction projects were also part of larger organisations' submissions. By providing accounts of historical emissions and the performance of voluntary emissions reduction projects, these organisations demonstrated their environmentally responsibility and thus argued they did not need a regulatory mechanism, such as the ETS to incentivise behavioural change. Submissions also argued the ETS was likely to result in excessive administrative and compliance costs with submitters highlighting concerns with emissions/carbon credit measurement and monitoring and carbon credit uncertainty. The energy industry focused on small users and an increase in their compliance costs, while the LFF industry focused on non-compliance penalties. Both suggested solutions that partially externalised compliance costs.

The third research question relates to the impacts of organisations' political mechanisms and associated use of carbon accounting on capturing the policymaking processes and the potential reduction of carbon-related costs. Results suggest there was little capture effect on the Labour government-lead policy process by organisations within the four industries. Although there is some indication of a capture effects by businesses and other organisations participating in the Climate Change Forum, with a change to a National Government, capture effects became more evident. Most of the changes made in the Moderated ETS were identical or similar to the key suggestions and arguments made by those within the four industries during the Original ETS submission processes. The difference in capture effects can tentatively be attributed to the differing

electorate base of the two major parties that formed the Government during ETS policy design processes. Since the National government has broad support among the businesses and farming communities, they have an incentive to maintain such support by accommodating the economic interests of organisations within these communities by introducing ETS changes. This suggests that to some extent, organisations can capture policy processes, and that capture depends on whether they support the Government of the day. Further, the Moderated ETS changes will result in carbon-related cost reduction for organisations within some industries by decreasing their direct carbon costs and mitigating some of their indirect costs, as discussed above and in section 7.

This study contributes to our knowledge about carbon costs and accounting by providing empirical evidence of how organisations seek to reduce their carbon-related costs through externalisation rather than changing their internal processes and technologies to reduce emissions levels. This differs from the traditional view that environmental regulation is the driver of organisations' internal changes to improve environmental performance by reducing emissions (Dutton and Duncan, 1987; Garrod and Chadwick, 1996; Doonan et al., 2005; Engels, 2009). Organisations appear to place their economic interests first. Instead of accepting the purpose of government-imposed carbon pricing is to change their emission levels, organisations use political mechanisms to deflect this purpose and emphasise their inability to reduce emissions and the threat of carbon costs on organisational profitability and viability. Further, Cairns (2006) argues that organisations only change their environment-related behaviour once they account for their organisational impacts on the environment. Organisations in this study appear to do the opposite as they account for their emissions and carbon-related costs, but only to avoid the need to change their internal processes and technologies.

Organisations in this study use carbon accounting to legitimise the exclusion of emissions from the organisational boundary (Llewellyn, 1994) by arguing the inclusion of carbon costs threatens organisational viability. Therefore, this study agrees with Larrinaga-Gonzalez and Bebbington (2001) that carbon accounting fails to stimulate organisational change. Carbon accounting instead was employed to support and reinforce organisational inertia, despite Government and public demands for increased environmental responsibility. Additionally, consistent with capture theory (Laffont and Tirole, 1991), organisations use carbon accounting to serve rent-seeking behaviour that is, gaining income by influencing policy processes and outcomes.

The study's key limitation is that it does not examine the use of carbon accounting within the organisation and in their ETS submissions. Therefore, it is premature to conclude definitely that organisations do not change their behaviour internally in response to the ETS or that carbon accounting does not play a role in ETS-related organisational change. However, the evidence presented is sufficient to argue that attempting to reduce carbon-related costs through political mechanisms and carbon accounting use is one of the main responses organisations undertake. Whether organisations modify their internal processes and adopt new technologies to reduce emissions internally at the same time as lobbying the Government for ETS change to avoid carbon-related costs is an interesting avenue for future research. Furthermore, future studies could investigate whether similar avoidance behaviour is demonstrated among organisations in other countries that

are exposed to similar schemes. Such studies would provide valuable insights into how organisations response to environmental regulation and whether different ETS designs lead to different political and internal responses. Ultimately, these insights will help researchers, practitioners and policy-makers to understand the various motives and political mechanisms adopted by organisations participating in ETS policy processes and the potential effectiveness of such a scheme in stimulating behavioural change to achieve positive environmental outcomes.

Overall, this study has provided evidence that instead of internalising carbon-related costs and being responsible for their emissions, organisations seek to re-externalise these costs using political mechanisms. By participating in ETS policy processes, organisations lobby the Government in an attempt to reduce their carbon-related costs, or gain opportunities for rent-seeking and income enhancement. Cost reduction is achieved by mitigating the increase in asset specificity and uncertainty due to the ETS. Rent is sought by furthering the opportunism prospects created by flaws in the ETS design. Carbon accounting is used extensively by trade-exposed and emissions-intensive organisations to strengthen their case for Government protection from carbon costs impacts. When organisations can pass-on carbon costs, carbon accounting is not employed. The ability to do this is, to some degree governed by an organisations capacity to capture policy processes, and that capture depends on whether they support the Government of the day.

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