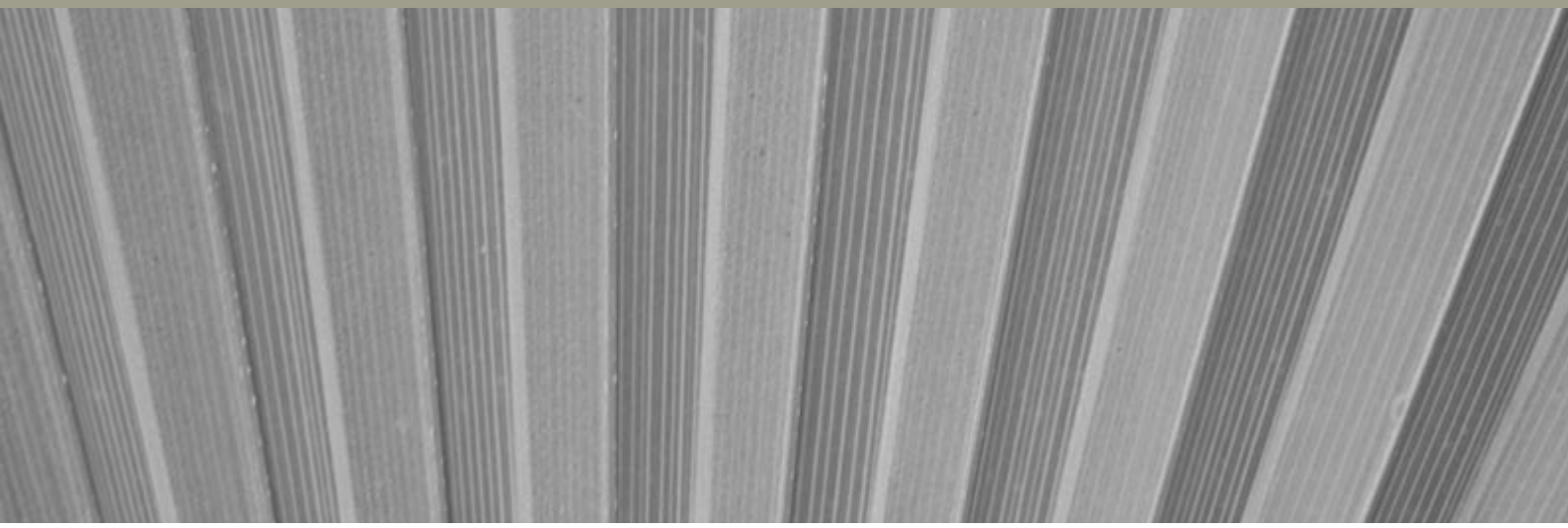
Research report 122

Accounting for Carbon



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IETA
INTERNATIONAL EMISSIONS TRADING ASSOCIATION

Accounting for Carbon

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INTRODUCTION

This report investigates how large emitters in the European Union Emissions Trading System (EU ETS) are accounting for emission allowances. The research involved a detailed survey of the financial statements of the largest greenhouse gas (GHG) emitters in the EU ETS (26 companies). This was followed by telephone interviews with accountants at five of these companies to explore in detail why accounting practices vary. Since the EU ETS commenced in 2005 there have been no firm rules about how to account for emission allowances, and this uncertain situation has allowed a range of accounting models to flourish. The survey corroborates previous research (PwC and IETA 2007), revealing that a diversity of emission allowance accounting practices are being used in Europe.

The research is relevant for commercial reasons. Specifically, the value of emission allowances traded in the EU ETS is large – worth US$92 billion/€63 billion in 2008 – which suggests that carbon accounting should provide information about the impact of climate change policies (especially those concerning carbon reductions) on corporations active in this market. Moreover, in the absence of international accounting guidance there is currently no uniform financial accounting treatment for emission allowances. The findings suggest that comparable information about the relative performance of firms in the EU ETS cannot be discerned from carbon-related disclosures. This situation is unsatisfactory for individual corporations as well as actual and potential users of financial report information.

In 2008, the Emissions Trading Schemes project was relaunched by the International Accounting Standards Board (IASB), in conjunction with the US Financial Accounting Standards Board (FASB). The remit of the IASB/FASB project includes the accounting of all tradable emissions rights and obligations arising under emissions trading schemes, as well as the accounting for activities undertaken in contemplation of receiving tradable rights in future periods. Recommendations on accounting treatment in this area will have the greatest impact on companies in Europe because of the EU ETS, and this is the main reason why our study focuses on current disclosure practices of firms that are subject to the EU ETS. Further, with the globalisation of carbon markets on the horizon, the method of carbon accounting in the EU ETS will have increasing international relevance.

To date, financial accounting has been the rather overlooked bedrock of carbon markets, and deserves more attention in international negotiations and elsewhere. In contrast with other issues in carbon markets, where there has been both government involvement and extensive public debate, decision making in carbon financial accounting appears to be taking place among a much smaller group of well-connected experts. Because the IASB/FASB Emissions Trading Schemes project is due to publish an Exposure Draft in late 2011, the research is timely. Moreover, significant changes to emissions trading in Europe are expected in Phase 3 of the EU ETS (2013–20), most notably a shift towards auctioning of emission allowances, rather than giving them out at no charge. This change will have implications for financial reporting.

THE MAIN RESEARCH AIMS AND OBJECTIVES

The project had five aims.

- To survey the treatment of carbon emission allowances within the financial statements of large EU ETS emitters in order to establish a baseline understanding of current accounting practices.
- To assess awareness and knowledge of the IASB/FASB Emissions Trading Schemes project, and to evaluate its likely effect on current and future choices of financial accounting approach.
- To establish an understanding of opinions on how to resolve the absence of accounting guidance for emission allowances.
- To explore the theoretical implications of the research findings.
- To disseminate the research findings to a range of policy and academic audiences in order to illuminate the political and institutional challenges and opportunities that exist for governing the financial accounting treatment and reporting of emission allowances.

There is a practical, policy need for the research (because of the lack of comprehensive up-to-date information about financial accounting practices in the EU ETS, in what has been a fast-moving area), and it has important conceptual aspects because carbon financial accounting is in its formative stages. Rules and practices are still 'hot' or unsettled, and there is a significant opportunity to investigate how new accounting rules and practices arise.

A key objective of this ACCA research project, conducted in partnership with the International Emissions Trading Association (IETA), is to open up the debate on carbon financial accounting to a wider international audience.

METHOD

We adopted a two-stage approach to surveying the accounting choices of corporate players in the EU ETS: a survey of financial statement disclosures, and a series of telephone interviews. For the financial statement survey, we conducted a desk-based review and analysis of statements of the largest emitters within the EU ETS for the year 2008, in order to establish their accounting treatment of carbon emissions. The choice of the companies surveyed was dictated by a desire to capture disclosure data for at least 25% of all EU ETS carbon emissions. This 25% cut-off point ensured that we included in our survey the emission allowance accounting practices of the main polluters, because emissions are most likely to be material to their accounts. We selected 68 installations

from the European Commission's Community Independent Transaction Log (CITL), which equate to those responsible for approximately 26% of the EU ETS total verified emissions in 2008. The companies owning the installations were then identified via Internet searches, with 26 organisations collectively owning these 68 installations. During stage two of the research, all 26 companies were invited for a short follow-up telephone interview (of 15 to 30 minutes' duration) to explore in more detail why they adopted the accounting practices they did; from where they sought and obtained advice and information in this area; their opinions on possible future changes to EU ETS accounting; and the role of accounting standard setters in this context. Five interviews were conducted, a response rate of 19%.

THE RESEARCH FINDINGS

The main finding from the research is that large emitters in the EU ETS are using a diversity of accounting practices to account for emission allowances: there is no uniformity of treatment (see Table).

Additional key findings are as follows.

- Companies' accounting practices for revealing their overall position on emission allowances (as net assets or liabilities) vary hugely, with no discernible pattern in accounting treatment.
- A large proportion of surveyed companies (42%, or 11 out of 26 companies) treat emission allowances as intangible assets. This means that the allowances are measured in company accounts 'at cost'. If allowances were obtained by the company at no cost they are shown, therefore, as having nil value but if emission allowances were purchased they have a cost associated with them in the accounts.
- Of the companies surveyed, 31% (eight companies) are accounting for granted carbon allowances at nil value (on the basis that allowances are granted at no charge). Only 15% (or four companies) are accounting for emission allowances initially at fair value with the difference between fair value and cost recognised as a governmental grant and presented as deferred income on the balance sheet.
- Most of the companies are measuring their obligation to surrender allowances on a 'cost with the balance at market value' basis (58%, or 15 companies). That is, valuation is based on the carrying value of those allowances already granted or purchased (as this is at cost, a figure usually close to zero), while (if applicable) valuing at the market value the allowances that still need to be purchased to cover actual emissions.
- Most of the companies do not disclose any information on amortisation/depreciation (69%, or 18 companies) or revaluation of emission allowances (50%, or 13 companies).
- Information on Certified Emission Reductions (CERs) was not provided by most companies (77%, or 20 companies).
- Interviews with accountants confirmed that they find it difficult to account for emission allowances and revealed a guidance role for auditors in the absence of an international accounting standard. In addition, interviews provided evidence that accountants would generally welcome the prospect of international accounting guidance in this area (expected, at the time of writing, in late 2011).

Summary of results: survey of EU ETS top emitters' financial reports

Emission allowance accounting	Disclosure summary*
Granted allowances – initial recognition	Intangible assets – 42% No disclosure – 27%
Purchased allowances – initial recognition	Intangible assets – 42% No disclosure – 27%
CERS - initial recognition	No disclosure – 77%
Granted allowances – measurement on initial recognition	Nil value – 31% No disclosure – 23% Fair value – 15%
Amortization/Depreciation of emission allowances	No disclosure – 69%
Re-valuation of emission allowances	No disclosure – 50%
Measurement of liabilities	Cost with balance at market value – 58% No disclosure – 23%

* all percentages shown are percentages of the total survey responses (26 companies) – they are not the % results of only those companies that are disclosing.

As the table above illustrates, there are diverse accounting treatments of emission allowances in the EU ETS. This situation has arisen because of a lack of accounting guidance from standard setters in the period 2005–10. Companies in the EU ETS are currently free to choose their preferred accounting method for emission allowances (as long as it is accepted by their auditor). This flexibility brings both advantages and disadvantages. The advantage is that companies can choose the accounting method that suits their business best and/or that is easiest and simplest for them to apply. The disadvantages are that comparison between companies is not possible, and that companies may need to spend a great deal of time and resources adopting different accounting models for emission allowances in order to satisfy different regulators, parent companies, and auditors.

The diversity in accounting practice means that the company accounts of large EU ETS emitters cannot in most cases be directly compared, despite the possibility that emission allowances will be material to the accounts. With a shift to auctioning of allowances in Phase 3 of the EU ETS there are likely to be accounting implications: not least that companies will no longer be able to account for assets and liabilities at nil value (because allowances will no longer be given out at no charge, but will need to be paid for). Our interviews reveal that companies appear not to be thinking ahead about this issue.

Our interviews also establish that most companies appear ready to welcome firm guidance from the accounting standard setters, to reduce complexity for them and to allow them to be fairly compared with their peers. Even so, rather surprisingly in light of this, few companies have been tracking the progress of the IASB/FASB Emissions Trading Schemes project, and they have had little (if any) direct engagement with IASB or FASB.

There are networks where companies discuss emission allowance accounting issues (eg the International Energy Accounting Forum), but participation among interviewees is variable, with some companies having no such discussions with their peers and instead relying heavily on their auditor for advice. In the continuing absence of international accounting standards, the role of auditors has been important, with most companies interviewed seeking information and reassurance from auditors about their accounting model, and auditors playing a role in establishing best practice through issuing guidance (KPMG 2008).

In terms of the theoretical contribution of the research, this study makes a significant contribution to an emerging body of work on carbon accounting, especially in adding to its empirical depth. It confirms that there is nothing yet habitual about carbon accounting practices (in contrast to much of accounting, which is 'black-boxed' and routine), thereby making it an interesting and informative case study. Emission allowances are hard to classify: they are a type of 'incommensurable' because there are multiple potential uses of carbon credits – as a commodity, a currency, a financial instrument and so on – and accounting practitioners in the EU ETS are trying to deal with this complexity. Through this struggle to define and manage emission allowances, EU ETS accountants are playing a role (albeit currently a rather quiet, hidden one) in influencing how the problem of climate change is understood and governed.

RESEARCH IMPLICATIONS AND POLICY RECOMMENDATIONS

We recommend that accounting standard setters issue clear guidance on emission allowance accounting as soon as is practical (note that the timetable has already slipped from the expectation of an Exposure Draft in 2009 to late 2011). For large emitters in the EU ETS, emission allowances may already be material to their accounts, and their significance will increase with a shift to auctioning of allowances in EU ETS Phase 3 (commencing in 2013). A level playing field is required to allow fair and transparent comparison of EU ETS company accounts.

We recommend that large emitters in the EU ETS work more with each other, and with auditors and other technical accounting experts, to try to harmonise accounting practices in the run up to the issue of draft guidance by IASB/FASB in late 2011. This could, for example, be through the existing Emission Rights project led by the International Energy Accounting Forum, or through the establishment of new working groups, networks and projects by appropriate organisations (such as IETA, ACCA, or others). We also recommend that these groups engage wherever possible with IASB and FASB to keep abreast of new developments in the debate on emissions trading accounting.

Large corporate emitters in the EU ETS and auditors both have the potential to effect positive change in how accounting for emission allowances is done, but timing is crucial. It is the next few years (2010–13) that will be most important because of the expected issuance of IASB/FASB guidance, and the shift to auctioning of emission allowances in the EU ETS.

Accountancy can be a way of making things appear uncontroversial and non-political, but the technical debates about accountancy rules and standards sometimes involve intense power struggles. Increasing awareness of the financial bottom-line significance of emission allowance accounting – and the current level of disparity in corporate reporting – might usefully serve to persuade a wider audience of academics (and policymakers) that financial accounting is a worthwhile and rich area of study.

Recognising that carbon markets have been created by governments and other institutions, and that these creations can be altered, opens up the possibilities for changing how they work, including their financial accounting 'bedrock'.

We recommend that academic research on carbon accounting (financial or otherwise) is continued, as there is much to explore, and now is an excellent time to have valuable policy input.

1. Introduction

This report investigates how large corporate emitters in the European Union Emissions Trading System (hereafter, EU ETS) are accounting for carbon[1] credits. Examining accounting approaches in this area is important because the financial implications arising from the EU ETS may be material in nature and amount. The value of carbon credits traded in this market is large: worth US$92 billion/€63 billion in 2008 (World Bank 2009). In addition, because EU ETS is a major mechanism for carbon reductions, the way in which we account for its impact will provide information from which we may assess the impact of climate change policies (especially those concerning carbon reductions) on corporations in this market. Currently, in the absence of international accounting guidance, there is no uniform financial accounting treatment for emissions allowances, and previous surveys have indicated a diversity of approaches (PwC and IETA 2007). Our findings suggest that comparable information about the relative performance of firms in this market cannot be distinguished from carbon-related disclosures, a situation that is unsatisfactory for individual corporations as well as actual and potential users of financial report information.

The research consisted of a survey of financial accounting disclosures of the largest greenhouse gas (GHG) emitters in the EU ETS (26 companies) as well as follow-up telephone interviews with accountants in these companies (five interviews were conducted) to explore why particular accounting practices have been adopted. The findings of the research are twofold. First, there is a significant diversity in how companies are accounting for emission allowances across the EU ETS (and different approaches result in materially different disclosures in the financial statements). Second, that companies would welcome guidance from standard setters so that fair comparisons can be made between organisations, and in order that their accounting choices are made simpler.[2]

Since the withdrawal of the international accounting guidance – 'Interpretation 3: Emission Rights' (known as 'IFRIC-3') from the International Financial Reporting Interpretations Committee – in 2005, there has been no formal accounting recommendation as to how to account for EU ETS obligations. Companies, therefore, have a degree of choice in how they account for emission allowances, both in defining what kind of asset an emission allowance is (intangible asset or inventory) and in how it is valued (at cost or fair value) (see ACCA 2009; Deloitte 2009; Ernst and Young 2010). Further, it is worth noting that the choice of asset classification is not necessarily linked to valuation or measurement. Two key questions for this research were therefore: 'How are emission allowances classified?' and 'How are emission allowances measured?'

In summary, the research produced the following findings.

- A large proportion of surveyed companies (42%, or 11 of the 26 companies) treat emission allowances as intangible assets. This means that the allowances are measured in company accounts 'at cost'. If allowances were obtained by the company at no charge they are shown, therefore, as having nil value, but if emission allowances are purchased they have a cost associated with them in the accounts (Ernst and Young 2010).

- Of the companies surveyed, 31% (eight companies) are accounting for granted carbon allowances at nil value (on the basis that allowances are granted at no charge). Only 15% (or four companies) are accounting for emission allowances initially at fair value, with the difference between fair value and cost recognised as a governmental grant and presented as deferred income on the balance sheet.

- Most of the companies are measuring their obligation to surrender allowances on a 'cost with the balance at market value' basis. That is, valuation is based on the carrying value of those allowances already granted or purchased (as this is at cost, a figure usually close to zero), while (if applicable) valuing at the market value the allowances that still need to be purchased to cover actual emissions (58%, or 15 of the companies).[3]

- Most of the companies do not disclose any information on amortisation/depreciation (69%, or 18 companies) or revaluation of emission allowances (50%, or 13 companies).

- Information on Certified Emission Reductions (CERs) was not provided by most of the companies (77%, or 20 companies).

- Interviews with accountants confirmed that they find it difficult to account for emission allowances and revealed a guidance role for auditors in the absence of an international accounting standard. In addition, interviews provided evidence that accountants would generally welcome the prospect of international accounting guidance in this area (with draft guidance expected at the time of writing in late 2011).

1. The term 'carbon' is typically used as a shorthand way of referring to greenhouse gases (GHGs), of which carbon dioxide is the main one produced by human activity. The GHGs incorporated within the EU ETS are: carbon dioxide, methane, nitrous oxide, perfluorocarbons, hydrofluorocarbons and sulphur hexafluoride. They are measured in terms of carbon dioxide equivalence, and hence the shorthand of 'carbon' is used.

2. It was expected that the International Accounting Standards Board (hereafter IASB) and the US Financial Accounting Standards Board (hereafter FASB) were going to issue draft guidance in this area late in 2010. Unfortunately, the date for this has been set back by over a year, with late 2011 now being the date for issuance of draft guidance and 2012 being the earliest date that a final standard could now be expected. Regardless of timing, this research will feed into the work of these, and other, standard setters.

3. This is an accounting practice not permitted under the withdrawn IFRIC-3, which recommended that assets (the allowances) should be treated independently to the liabilities arising under the EU ETS.

BACKGROUND

The desire to mitigate the probable manifestations of climate change is partly expressed through the construction of markets in which carbon credits are created and exchanged; carbon credits are defined in standard units of GHGs. Differences in the rules and practices within these markets can alter their environmental and economic impacts and, as a result, assessing the effectiveness of these markets is important in understanding the effectiveness of mitigation measures in general. Moreover, how well markets work depends upon information provided by market participants.

This report does not address the 'physical' monitoring and reporting by the installations and verifying by EU member states of GHG emissions in the context of EU ETS. Rather, it focuses on a crucial area of carbon rules and practices within the EU ETS – and one that is key to the effectiveness of the carbon markets – namely the treatment of European Emission Allowances (EUAs,[4] henceforth referred to as 'emission allowances'[5]) in financial statements. Since the withdrawal of the international accounting guidance (IFRIC 3) in 2005, there has been no formal accounting recommendation as to how to account for EU ETS obligations, and a diversity of practices has emerged as a result (see PwC and IETA 2007).

In 2008, the Emissions Trading Schemes project was re-launched by the IASB, this time in conjunction with its US counterpart, the FASB. The remit of the IASB/FASB project includes providing guidance on accounting for tradable emissions rights and obligations arising under emissions trading schemes, as well as the accounting of activities undertaken in contemplation of receiving tradable rights in future periods. Recommendations likely to emerge from this process will have the greatest impact on companies in Europe because of the existence and size of the EU ETS. For this reason, our study focuses on current disclosure practices of firms that are already subject to the EU ETS. Further, as more carbon markets emerge in the near future (as well as the prospect of globalised carbon markets), the way in which carbon is accounted for in the EU ETS will have increasing international relevance.

It is necessary to provide information about the impact of carbon markets in the financial statements of companies for the effective operation of capital markets. In contrast with other issues in carbon markets where there has been both government involvement and extensive public debate, such as voluntary offsetting (Kollmuss et al. 2008; Lovell et al. 2009), choices that affect financial accounting disclosures appear to be taking place among a much smaller group of experts. As a result, one of the objectives of this project is to open up the debate about how to account for emissions allowances to involve a wider audience. It is why this work has been supported by a partnership between the International Emissions Trading Association (IETA) and ACCA. The IASB/FASB Emissions Trading Schemes project is due to publish its Draft Exposure in late 2011, which means that the research is also timely.

AIMS

The project had five aims.

1. To survey the treatment of carbon emission allowances within the financial statements of large EU ETS emitters in order to establish a baseline understanding of current accounting practices.

2. To assess awareness and knowledge of the IASB/FASB Emissions Trading Schemes project, and to evaluate its probable effect on current and future choices of financial accounting approach.

3. To establish an understanding of opinions on how to resolve the absence of accounting guidance for emission allowances.

4. To explore the theoretical implications of the research findings.

5. To disseminate the research findings to a range of policy and academic audiences in order to illuminate the political and institutional challenges and opportunities that exist for governing the financial accounting treatment and reporting of emission allowances.

Besides a practical and policy need for the research (for example, because of the lack of comprehensive up-to-date information about financial accounting practices of firms in the EU ETS), there are also important conceptual aspects to address. Rules and practices are still 'hot' or unsettled (Lohmann 2009) and, hence, this setting provides an opportunity to explore the process by which new accounting principles and practices come into being. Several theoretical frameworks could be used to understand what is going on, including: theories of accounting and society, theories of measurement and calculation, and economic sociology approaches. Concepts and ideas from these three broad areas of literature are used as lenses to explore the political and institutional challenges of governing the financial reporting of emissions allowances and to assess whether there is anything particularly new or different about the treatment of carbon in financial statements (see Chapter 3). These three literatures have been chosen because they are judged to be most relevant and to provide the best insights

4. A EUA equates to one tonne of CO_2 (either in the form of CO_2 or a CO_2 equivalent measure of GHGs).

5. Note that there is some overlap between the terms 'emission allowance' and 'carbon credit'. Carbon credit is a more general term that covers either a reduction in emissions, or an offset. For simplicity in this report we use the term 'emission allowance', as emission allowances (GHG reductions, not offsets) represent the large majority of transactions in the EU ETS. Nonetheless, where appropriate we also use the more general term 'carbon credit'.

into the issues that are emerging in emission allowance accounting. Chapter 3 has been purposefully designed as a stand-alone chapter, and readers from a non-academic background may wish to skip or skim-read this chapter.

METHOD

A two-stage approach to surveying the accounting choices of corporate players in the EU ETS has been adopted: a survey of financial statement disclosures, and a series of telephone interviews.

Stage one: survey of financial statements
A desk-based review and analysis of the 2008 financial statements of the largest emitters within the EU ETS was conducted in order to establish their accounting treatment of carbon emissions (2008 was the most recent year for which verified emissions data were available). The choice of the companies surveyed was dictated by a desire to capture disclosure data for at least 25% of all EU ETS carbon emissions. This 25% cut-off point ensured that we included in our survey the emission allowance accounting practices of the main polluters, for whom emissions are most likely to be material to their accounts. The European Commission's Community Independent Transaction Log (CITL) was used to identify installations (that is, individual factories/power stations) that emitted the largest amount of carbon. Given that the CITL provides only details of installations, and not company data, a matching of installations to organisations was undertaken. Therefore, 68 installations were selected from the CITL, which equate to those responsible for approximately 26% of the EU ETS total verified emissions in 2008. The companies owning the installations were then identified by Internet searches, revealing that 26 organisations collectively owned these 68 installations (the companies surveyed are listed in Table 1.1).

Analysis of the accounting disclosures made in the financial statements of these 26 companies was guided, with some modifications, by the questions (see Appendix) used for the EU ETS survey undertaken by IETA and PricewaterhouseCoopers (PwC and IETA 2007). In conducting the survey, particular attention was paid to the 'Notes to the financial statements', which detailed the accounting policy followed and in some cases also provided a justification for the accounting choices made.

Table 1.1: EU ETS companies' financial reports surveyed

Company name	EU ETS sector(s)
Acelormittal	Combustion; Iron and Steel
BEH	Other
British Energy	Combustion
CEZ	Combustion
Drax	Combustion
East Energia	Combustion
EDF	Combustion
EDP	Combustion
Edson	Combustion
Endesa	Combustion
Enel	Combustion
EON	Combustion
Essent	Combustion
Grosskraftwerk	Combustion
Iberdrola	Combustion
Nuon	Combustion
PPC	Combustion
PGE	Combustion
Ruukki	Iron and Steel
RWE	Combustion
Saras	Refining
Shell	Refining
Tata Steel	Coke ovens; Iron and Steel
Tauron	Combustion
Thyssenkrupp	Iron and Steel
US Steel Košice sro	Iron and Steel

To support stage one of the survey, a literature review and documentary analysis was undertaken to provide a brief history and overview of accounting standard-setting for emissions trading (see Chapter 2). A review of the relevant academic literature in this area has also been conducted (see Chapter 3).

Some issues arose as stage one of the research progressed, particularly the following.

- A small number of installations initially selected from the CITL list could not be linked to financial statements, either because the annual report could not be found or because it was in a language not spoken by the research team. To resolve this issue, the next installation from the CITL list was selected to ensure that the 25% target of EU ETS emissions for the survey sample was obtained.

- We initially planned to use Carbon Disclosure Project (CDP) reports as a point of comparison with the financial statements. We found, however, that the CDP reports had less detailed information than financial reports and permission to use CDP data could only be obtained if this ACCA–IETA report would not be sold at some future date – a matter that, as researchers, we did not control.

- We experienced some difficulties in categorising the accounting treatment of emission allowances. For example, in our initial analysis a large number of accounting practices were grouped as 'other' (using the PWC–IETA template – see Appendix). This problem was resolved by undertaking more detailed analysis of accounting practices, but in some cases we still struggled to create a categorisation that could cope with the diversity of accounting practices.

- A small number of companies in our sample (four) disclosed no information on emission allowance accounting in their financial statements. This was unexpected, given the anticipated significance of their exposure to the EU ETS. Because these organisations are large multinational companies it may be, however, that emission allowances are not material to their accounts. This is an issue we were unable to clarify because of the absence of any information about the financial ramifications of their EU ETS position. We emailed these four companies directly to request information about their accounting treatment of emission allowances. This approach yielded information from one company.

Stage two: telephone interviews
The second stage of the work built upon the first, and consisted of a series of telephone interviews.

Representatives from all 26 companies surveyed in stage one of the research were invited for a short follow-up telephone interview (of 15 to 30 minutes' duration) to explore in more detail why they had adopted the accounting practices they used; from where they sought and obtained advice and information in this area; their opinions on possible future changes to EU ETS accounting; and the role of accounting standard setters in this context. Initial requests were sent to their investor relations department, or they were contacted via IETA: these preliminary contacts were followed up (as necessary) by a telephone call and/or a further email. The questions were emailed to interviewees in advance of the interview and the same questions were asked in all interviews. It was hoped that a minimum of ten companies would agree to participate in a telephone interview, but only five interviews (19% of companies) were secured. The main reason given (by six companies) for refusing to participate in the survey was because of concerns about commercial confidentiality. This suggests that the accounting treatment of emission allowances and their impact on corporations is significant.

The interviews that were conducted were digitally recorded (with each interviewee's permission) and transcribed. Coding of transcripts was undertaken using the qualitative software package 'Atlas' and an inductive approach to coding.

This introductory chapter has discussed the rationale for the research, its aims and the methods used. In the next chapter we provide some more detailed background to the study, including an overview of the EU ETS and a summary of how international accounting standard setters have thus far sought to deal with emission allowances.

2. Emissions trading and financial accounting

In this chapter the European Union Emissions Trading System (EU ETS) is introduced, and the accounting treatments for emission allowances proposed by standard setters are discussed. The chapter seeks to provide an outline of the policy and political context of the study, covering issues such as the launch and subsequent withdrawal of IFRIC 3 (emission allowance accounting guidance) in 2005, differences in emission allowance accounting between Europe and the United States, and an update on the IASB/FASB Emissions Trading Schemes project. Through this necessarily partial overview of the history of accounting standard setting for emissions trading, it is hoped that a flavour is conveyed of the technical complexity and ambiguity of the treatment of emissions allowances in financial accounting, and of the fact that to date standard setting in this area has been a messy and uncertain process.

THE EUROPEAN UNION EMISSION TRADING SYSTEM (EU ETS)

The EU ETS has been operational since January 2005, and is the largest multi-country, multi-sector GHG emission trading system worldwide. It represents a major plank of the EU's emission reduction target (which is for a 20% reduction from 1990 levels by 2020). The scheme requires each member state to set a cap on emissions, and allowances (termed EUAs) are then allocated (and, if appropriate, subsequently traded) up to the amount of allowances issued. Thus far, the large majority of emission allowances (*c.*95%) have been granted to companies free of charge by governments. Installations are covered by the EU ETS if they are deemed to be 'major emitters' and these include combustion plants, oil refineries, coke ovens, iron and steel plants, and factories making cement, glass, lime, brick, ceramics, pulp and paper. Currently, over 11,500 installations across Europe are governed by the EU ETS and collectively they represent approximately 50% of Europe's emissions of carbon dioxide (and 40% of Europe's total GHG emissions).

The EU ETS has been split into three compliance periods:

- Phase 1 (which ran from 2005–7 and which was purposely designed as a learning phase)
- Phase 2 (which runs from 2008–12 and which is currently in place), and
- Phase 3 (which will run from 2013–20).

Installations must surrender (by 30 April of each year) allowances equal to their emissions during the previous calendar year. In Phase 2 there is a penalty of €100 for every tonne of emissions that does not have matching allowances.

To date, most emission allowances (approximately 95%) have been allocated to installations free of charge. This has had an effect on accounting practices, with allowances typically being shown in accounts at nil value (on the basis of their cost). In Phase 3 of the scheme, however, a shift to more auctioning of allowances is planned (under EC Directive 2009/29/EC) with 70% of allowances being auctioned by 2020 (and at least 50% from 2013). This will have a knock-on effect on accounting practices (a point returned to in Chapter 5).

The auctioning of allowances will be organised and carried out individually by EU member states, and the amount auctioned will vary from sector to sector. For instance, electricity generators will have full auctioning from 2013 (albeit with some scope to opt out). In other all industry sectors auctioning will be phased in more gradually: starting at 20% in 2013 and increasing to 70% by 2020 (Europa 2008; EC Directive 2009/29/EC 2009).

The EU allows credits from the United Nations Kyoto Protocol 'Flexible Mechanisms' (that is, the Clean Development Mechanism (CDM) and Joint Implementation (JI)) to be used by companies to meet EU ETS compliance targets, albeit that an upper limit for the use of these credits has been set. The European Commission has ruled that Kyoto credits can form a maximum of 50% of EU-wide emission reductions in the period 2008–20 (equal to about 1.6 billion credits). For existing installation operators this means that in Phase 2 (the current phase) a maximum of about 11% of allowances surrendered can be covered by Kyoto credits (Europa 2008).

Emission allowances are sold and purchased for different reasons, including the need to have, at the surrendering date, the number of allowances that match the actual emissions of an installation; allowances can also be assets held for trading. The EU ETS, therefore, has generated a market for emission allowances. Prices of EUAs have been volatile in the period between 2008 and 2010. For example, in July 2008 an EUA was priced at €28 euros on the spot market, yet by February 2009 this price had fallen to €8 euros. The current trading band for EUAs (in May 2010) is at about €10–€15.

The fall in EUA prices in early 2009 can be linked to the recession, with a number of emission allowances being sold because of declining industrial output (and therefore reduced GHG emissions). In addition, as could be expected, companies were short of cash at this time and looking for additional funds. Indeed, there is evidence that allowances were sold to provide short-term funds (Capoor and Ambrossi 2009). The ability for EUAs to provide a source of funds was also facilitated by the process by which allowances are allocated each year. Specifically, while installations must surrender their allowances by the

end of April the year after the compliance period, they are issued with allowances in February of the calendar year corresponding to the compliance period. This means that even if a company sold 2008 allowances to raise cash, it could still use its 2009 allowances (issued in February 2009) if it had a shortfall of allowances at April 2009. Clearly EUAs are an asset to an organisation and are used to offset emissions as well as having a financial use (in this example, through the regulation of cash flows).

In addition, the value of emission allowances may be large (and at times material in accounting terms) where the company is a large emitter. For example, in 2008 the Endesa Group (an electricity generation and supply company) had to surrender allowances to cover 30 million tonnes of emissions, which were valued at €518 million (representing 1.37% of total liabilities).[6] Table 2.1 gives further examples of the materiality of emission allowances to EU ETS companies.[7]

Table 2.1: The materiality of emission allowances to EU ETS companies

Company name	Currency/units	Assets emission allowances (I)	Assets total (II)	% (I/II)	Liabilities emission allowances (III)	Liabilities total (IV)	% (III/IV)
BEH	000s BGN (Bulgarian Levs)				38,585	3,488,399	1.11%
CEZ	000,000s CZK (Czech koruna)	1,523	473,175	0.32%	1,033	287,765	0.36%
Drax	000,000s pounds	26	2,107	1.25%	158	1,414	11.20%
East Energia	000s euros				9,074	638,089	1.42%
EDF	000,000s euros	552	200,288	0.28%	397	175,446	0.23%
EDP	000s euros	385,096	35,709,095	1.08%	496,425	27,162,186	1.83%
Edson	000,000s euros	15	15,093	0.10%			
Endesa	000,000s euros	568	58,546	0.97%	518	37,782	1.37%
Enel	000,000s euros				10	106,912	0.01%
EON	000,000s euros	1,094	71,763	1.52%			
Essent	000,000s euros	450	12,991	3.46%	20	7,738	0.26%
Grosskraftwerk	000s euros	19,040	574,496	3.31%	19	460,354	0.004%
IBERDROLA	000s euros	520,821	85,837,029	0.61%	484,042	59,331,301	0.82%
PCC	000s euros				108,073	8,972,857	1.20%
PGE	000s PLN (Polish zloty)	9,931	47,192,261	0.02%	391,271	17,016,683	2.30%
RWE	000,000s euros	1,216	93,430	1.30%	1,396	80,290	1.74%
Saras	000s euros	83,175	3,236,258	2.57%	5,135	1,925,205	0.27%
US Steel Košice, s.r.o.	000 euros	165,794	2,134,112	7.77%	137,633	953,166	14.44%
Average				**1.75%**			**2.41%**

6. See page 43 of Endesa's 2008 Consolidated Financial Statement.

7. Note that Table 2.1 contains information for 18 of the total 26 companies surveyed. This is because 10 companies did not disclose sufficient information on their assets and liabilities to allow comparisons.

At present, the accounting treatment for allowances as assets and liabilities varies significantly between companies, because different types of accounting classification and measurement can be used (see Chapter 4), thus making direct comparison between companies difficult. The aim of Table 2.1 is to illustrate how emission allowances may, in general terms, affect financial statements. The table contains information on emission allowances classified as Assets and Liabilities on 31 December 2008 (with the exception of East Energia, whose year end is 31 March 2008). The materiality percentages shown in Table 2.1 are likely to be an underestimate of actual materiality (typically considered to be in the order to 5–10% of total net assets/liabilities, but with significant variation according to professional judgement on a case-by-case basis). This is because Table 2.1 expresses materiality as a percentage of carbon allowances over total assets. In fact, most assets in these companies have life-cycles of 40 years, and yet carbon has a lifecycle of only one year. An alternative method of calculation (which may bear a closer fit with the true value and materiality of carbon assets to a company, revealing them to be much higher) would be to calculate the value of carbon as a percentage of operating profit. So, although the materiality percentages in Table 2.1 seem small, we have used a conservative methodology, which is likely to have underestimated their significance. Further, if there are some companies in a sector that disclose substantial carbon assets and liabilities, while other similar companies disclose nothing, then this diversity is material, because it is misleading to the users of the reports. This so-called 'issue materiality' is evident from our findings.

ACCOUNTING FOR EMISSION ALLOWANCES

According to IASB rules, in cases where no accounting standards apply, paragraph 10 of IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors* should be followed. This requires that management should use its judgement in developing and applying an accounting policy that results in information that is relevant and reliable, in consultation with the firm's auditors. The result of this would be that the issues involved in accounting for emission allowances would be governed by a number of existing international financial accounting standards, including: International Accounting Standard (IAS) 2 *Inventories*; IAS 20 *Accounting for Government Grants and Disclosure of Government Assistance*; IAS 37 *Provisions, Contingent Liabilities and Contingent Assets*; IAS 38 *Intangible Assets*; and IAS 39 *Financial Instruments: Recognition and Measurement*. The array of potentially relevant standards arises owing to the multiple sources of, and uses for, emission allowances. Allowances may be directly linked to operational concerns (that is, they may be held in order to comply with the EU ETS rules) as well as for trading purposes (that is, they are bought and sold at different prices in order to generate profits).

The various possible uses of allowances leads to ambiguity about what sort of 'thing' an emission allowance is in accounting terms: is it a commodity or a financial instrument? Should it be recognised as an asset even if it is acquired at zero cost? Such questions pervade technical discussions by standard setters and accounting practitioners (see, for example, IASB 2009). Moreover, because financial accounting guidance for emissions is still in a state of flux, uncertainty has flourished since the start of the EU ETS in 2005.

An especially tricky issue for accounting standard setters is that although individuals and organisations legitimately use carbon credits (including emissions allowances) in different ways (for example, to comply with regulation, to offset their emissions voluntarily and to trade on the market) allowances are not linked to any specific use. So, for example, a company operating under the EU ETS could initially attribute an emission allowance to production (and thus follow one set of accounting practices), but then subsequently change policy and trade it with the aim of regulating cash-flow. This combination of the potential of emission allowances for multiple use and their interchangeability makes it challenging to issue one set of guidance under a single international accounting standard.

The difficulty for management in knowing exactly why allowances are held at any one time helps to explain the emergence of an 'activity-based' model of accounting (which appears to have been adopted by accountants since the withdrawal of IFRIC 3 – see Chapter 4). Indeed, in its comprehensive guidance in this area the accounting firm KPMG suggests a type of activity-based model (KPMG 2008), which recommends that accountants follow different accounting principles depending on the type of organisation they are accounting for, and hence the type of activity that is being undertaken. KPMG's classification (2008) of organisations according to their dominant activity includes: emitters, creators of green energy, traders/aggregators, and investors/consultants.

The IASB, in contrast, is not predisposed to favour an 'activity-based' approach to accounting for emission allowances as it does not sit easily with its own principles-based approach to standard setting (see discussion below). The rationale is that, even though emission allowances are used in different ways, this should not affect the accounting treatment because the allowances are all EUAs/CERs. In other words, the IASB view is that even if emission allowances are assigned temporally by users to a particular purpose, their use can potentially change at any moment and, consequently, they should be treated by accountants consistently in a single, uniform way.

THE IFRIC 3 DEBACLE

Steps are currently being taken, principally by the IASB and the FASB, to attempt to resolve the uncertainty surrounding the accounting of emission allowances. The remainder of this chapter focuses on the history of IASB and FASB guidance on emissions trading and the current status of the IASB/FASB Emissions Trading Schemes project (relaunched in 2008).

In the run up to the advent of the EU ETS, accounting guidance was issued by the IASB via its International Financial Reporting Interpretations Committee (IFRIC): *IFRIC Interpretation 3: Emission Rights* (known as 'IFRIC 3') was published in December 2004. IFRIC 3 recommended that assets (specifically EUAs) should be treated independently from liabilities arising under the EU ETS. Accordingly, the measurement of liabilities on the basis of the carrying value of allowances (assets) in this area was not permitted. More specifically, IFRIC 3 gave guidance to the effect that EUAs should be treated as intangible assets (regardless of whether they have been allocated free of charge or purchased) and therefore fall under the accounting treatment and disclosure remit of IAS 38. Further, allowances that are allocated for less than fair value (recalling that EUAs have historically been allocated free of charge, although this is set to change in Phase 3 of the EU ETS) should be measured initially at their fair value (that is, at market price), and the difference between the amount paid and fair value should be identified as a government grant and therefore accounted for under IAS 20 (*Accounting for Government Grants and Disclosure of Government Assistance*). This 'grant' should initially be classified as deferred income in the balance sheet, and subsequently recognised as income over the compliance period.

In terms of assessing and accounting for liabilities, IFRIC 3 judged that a liability to provide EUAs should be recognised in the accounts as the emissions are made, and that this obligation should be treated as a 'provision' and hence covered by IAS 37 (*Provisions, Contingent Liabilities and Contingent Assets*). The liability should again be measured at fair value (that is, the best estimate of the expenditure required to settle the present obligation at the balance sheet date).

The amount of controversy that IFRIC 3's recommendations generated was striking and led to its eventual withdrawal. There was negative reaction from EU ETS participants, especially by utilities and large industry emitters. The European Financial Reporting Advisory Group (EFRAG) issued a particularly negative endorsement advice, which carried considerable weight (Bebbington and Larrinaga-Gonzalez 2008). The main objections included one against the IFRIC 3 recommendation that gains and losses derived from the valuation of liabilities be reported in the Income Statement, while the gains and losses derived from any revaluation of the emission allowances were recognised under Equity in the balance sheet (this is what is known as a 'mixed presentation model'). Additionally, the nature of different assets, some measured on recognition at cost and others at fair value (known as a 'mixed measurement model') also caused concerns (Bebbington and Larrinaga-Gonzalez 2008; Cook 2009; MacKenzie 2009). These mismatches led EFRAG to consider that the IFRIC 3 recommendations would lead to artificial volatility in company results, considering that only a small amount of the total emissions rights contained within the EU ETS is purchased. Given the negative endorsement advice from EFRAG, as well as the views of the European Commission, the IASB withdrew IFRIC 3 in June 2005.

In the period since then there has been no international guidance on how to account for emission allowances and a diversity of practices has emerged (PwC and IETA 2007; McGready 2008; Cook 2009; MacKenzie 2009). As discussed in detail in Chapter 4, the majority of EU ETS companies have been practising a 'cost with balance at market value' approach (which IFRIC 3 specifically prohibited) where allowances are measured at nil value (because they are acquired for no charge), and the liability to surrender allowances is similarly measured at nil value (again, because the allowances do not cost the company anything), with any shortfall or excess in allowances being valued at market price.

Having noted a lack of international accounting regulation in this area it is relevant to acknowledge that some European countries have issued guidance through national accounting regulations. For instance, in Spain regulation requires a broadly IFRIC 3 approach. The point where IFRIC 3 and the Spanish approach depart from each other is with respect to accounting for provisions: in Spain provisions are not valued at fair value but at the carrying value of the allowances (an approach taken in order to avoid volatility).

DIFFERENCES BETWEEN EUROPE AND THE UNITED STATES

Accounting for emission allowances has followed different trajectories in Europe and the United States (US). Indeed, approaches to emissions trading schemes differ between the two jurisdictions (carbon markets in the US have been much slower to emerge than in Europe, and there is nothing yet comparable in size and scope to the EU ETS). The distinction between Europe and the US is relevant because the accounting standard setters' Emissions Trading Schemes project involves a collaboration between the IASB and the FASB. As a result, views from the US will affect the content of the Emissions Trading Schemes Exposure Draft when it ultimately emerges in the second half of 2011.

In the US, the sulphur dioxide emissions trading scheme (which commenced in 1995) led to the need for US accounting guidance (Johnston et al. 2008; MacKenzie 2009). The Federal Energy Regulatory Commission (FERC) has been the most influential organisation in determining the accounting treatment in this area because utilities have been most directly affected by sulphur dioxide regulation, and FERC is the organisation that directly regulates energy utilities in the US – its remit includes surveillance of their accounting practices (Deloitte 2007). Indeed, FERC is the only US organisation to date that has issued any emission allowance accounting guidance: there is no accounting standard or interpretation on accounting for GHG emissions within US Generally Accepted Accounting Principles (US GAAP) (Ernst and Young 2010). Moreover, there is no distinction between accounting for different types of emission allowances in the US (whether they be sulphur dioxide, nitrous oxides or carbon dioxide): the accounting rules (such as exist) are the same for all types of emissions.

The recommendation in the FERC Uniform System of Accounts is that emission allowances should be classified as inventory, measured on a historical cost basis (that is, they should be valued at their original cost, in most cases zero), with recognition of costs as emissions are made (that is, as the allowances are 'consumed') on a weighted-average cost basis (Deloitte 2007). Although FASB claims that most companies in the US are accounting for emission allowances as inventory, research by Ernst and Young has shown a more mixed approach, with many companies recognising them as intangible assets (Ernst and Young 2010). US companies, such as utilities that require emission allowances for compliance (and hence see them as an essential part of the production process), tend to follow the inventory accounting model, whereas companies that have more varied business activities (for example, producing credits from projects in developing countries, trading credits) tend to follow the intangible asset model (Deloitte 2007). Under both the inventory and intangible assets accounting models, the company does not typically recognise an obligation to deliver emission allowances to the regulator until the actual level of emissions for the year exceeds the number of allowances on the balance sheet (Ernst and Young 2010). This procedure is therefore similar to the EU ETS company approach of valuing at cost, with the balance measured at market price. In practice, this means that only the shortfall in allowances is disclosed in the financial statements.

It was not until late 2003 that the FASB Emerging Issues Task Force (EITF) attempted to address the question of accounting for emission allowances (in Issue No. 03–14, titled 'Participants' Accounting for Emissions Allowances under a 'Cap and Trade' Program') (FASB 2010). The proposal, however, was not taken forward because of concerns that the accounting recommendations might have implications beyond cap and trade schemes (for example, for the accounting of government licences and permits) and because some EITF members did not perceive that there was any diversity in emission allowance accounting practice (Deloitte 2007).

The accounting of emission allowances did not, however, totally disappear from the FASB agenda. In late 2004, FASB Statement No. 153 *Exchanges of Nonmonetary Assets* raised questions about whether 'vintage year' emission allowance swaps should be accounted for at fair value or on the basis of the recorded amount. 'Vintage year' emission allowance swaps are the trades between companies of similar emission allowances. In a typical US cap and trade carbon market, each individual emission allowance has an assigned vintage year, indicating the first year in which that allowance may be used. Allowances with the same vintage year designation can be traded or swapped. Vintage-year swaps among companies are common, because government agencies typically issue allowances for multiple years at a time. So the issue for FASB was whether or not vintage-year swaps should be accounted for at fair value, in keeping with FASB Statement No. 153 *Exchanges of Nonmonetary Assets*, where assets classified as inventory would generally be measured at fair value if exchanged. In 2006, the FASB Technical Application and Implementation Activities Committee approved a recommendation for the FASB Board to add a project to its agenda to address the nature of emission allowances and clarify the accounting method in relation to vintage-year swaps. The external reviewing process conducted by FASB revealed a strong opinion among industry and accounting firms that the issue of vintage-year swaps touched on wider issues about emissions trading accounting, which itself indicated a need for a more holistic and systematic review. This external feedback eventually led to the establishment of the joint IASB/FASB Emissions Trading Schemes project in 2008.

THE 2008 IASB/FASB EMISSIONS TRADING SCHEMES PROJECT

The joint IASB/FASB Emissions Trading Schemes project aims to resolve accounting uncertainty by issuing clear guidance. Originally scheduled to publish an Exposure Draft in late 2009 and then in late 2010, the project has now been further delayed and the Exposure Draft is expected in the second half of 2011, with the aim of publishing an International Financial Reporting Standard (IFRS) by the end of 2012 (IASB 2010).

The IASB/FASB project has a broader remit than the former IASB project. In particular, the project covers not just the EU ETS but seeks to produce a standard that would be suitable for accounting of all tradable emissions rights and obligations arising under any existing or proposed Emissions Trading Schemes worldwide, thereby anticipating that there will be a growth of emissions trading schemes across the globe.

To date, IASB and FASB have made relatively modest progress in reaching decisions on emissions trading. For example, the IASB Board decided in March 2009 that emission allowances are assets (even if received free of charge from government) and that they should therefore be measured initially at fair value (resolving the so-called 'Day One recognition problem'). In contrast, FASB has not yet reached agreement on the issue of initial recognition and asset status, suggesting that it will or does have some difficulty with the IASB position. According to one source, the reason why FASB has yet to reach a decision on the issue of 'Day 1 recognition' appears to be that the FASB Board's preference is to look at accounting for emissions in its entirety (that is, to view emissions trading schemes in a more holistic manner). In this context, it could be argued that emission allowances are not really a 'gain' to income because the company has to return them at the end of the year. In essence, FASB is hesitant to recognise in financial statements that a gain has been made on receipt of an allowance, where that allowance is given out at no charge. Moreover, there are also concerns about the political implications of adopting such an accounting treatment, in light of criticism of corporate profit-making from Emissions Trading Schemes (Lohmann 2006; Harvey and Fidler 2007).

This difference in approach between IASB and FASB also owes much to the more fundamental divide in their organisational cultures and practices. Key to this is the 'principles-based' method of standard-setting favoured by the IASB (a preference for following a set of overarching guidelines in order to evaluate each specific accounting case) compared with the more 'rules-based' approach favoured by the FASB (where new rules might be developed for each specific accounting case depending on its individual characteristics, which may or may not fit with other rules or overarching guidance; a preference for an 'activity-based' accounting model, as discussed above). While this tension is by no means exclusive to the Emissions Trading Schemes project, it does appear to be hampering decision making in this specific context.

SUMMARY

In this chapter, the EU ETS has been introduced, and the issues arising in setting accounting standards for emission allowances in Europe and the US outlined. It is evident that there is a shortage of specific accounting guidance for emission allowances. Efforts have been made to address the situation but, thus far, mostly in a rather haphazard and piecemeal way: at least until we see the final outcome of the joint IASB/FASB Emissions Trading Schemes project in late 2012. In the next chapter, we take a step back from these intricate financial accounting issues to consider relevant academic theories that give insights to the issue of emission allowance accounting.

3. Conceptualising accounting for emission allowances

Conceptualising accounting for emission allowances potentially cuts across a number of different theories and bodies of research. There are a range of relevant literatures to draw upon which offer useful insights into how and why accountants might be accounting for emission allowances. In this chapter concepts and ideas from three broad areas of literature (namely theories of accounting and society, theories of measurement and calculation, and theories about hybrid markets) are used first as lenses to introduce and examine the political and institutional challenges of governing the financial reporting of carbon, and secondly to assess whether there is anything particularly novel or different about the treatment of carbon in financial statements.

The review undertaken here is necessarily brief: it is not the authors' intention to provide a full summary of the literature, but rather to consider how this material might provide insights into accounting for emission allowances in the EU ETS.

THEORIES OF ACCOUNTING AND SOCIETY

Scholars examining the relationship between accounting and society argue that accounting is not only relevant within the boundaries of a particular firm but plays a constitutive role in social processes more generally (Hopwood and Miller 1994). This proposition suggests that we should be interested in how the accounting profession is responding to increasing societal concerns about climate change as well as the role that accounting plays in shaping and influencing how we make sense of, and deal with, climate change. As Miller (1994) suggests, 'accounting could not and should not be studied as an organizational practice in isolation from the wider social and institutional context in which it operates'. In other words, social processes shape, and are shaped by, accounting. As this rationale equally applies to the issue of accounting and climate change (for examples of work on this theme see: Bebbington and Larrinaga-Gonzalez 2008; Cook 2009; Lohmann 2009; MacKenzie 2009), then this current report builds on and further develops this existing research, particularly in relation to strengthening its empirical base.

An approach to understanding the financial accounting of carbon that takes heed of ideas from the accounting and society literature would position accounting as closely connected to wider societal debates about not just the environment, but also (for example) the relationship between markets and governments and the role of science. Further, it would view accounting as having the capacity to shape society itself, as Miller (1994) explains:

> *accounting is, above all, an attempt to intervene, to act upon individuals, entities and processes to transform them and to achieve specific ends. From such a perspective, accounting is no longer to be regarded as a neutral device that merely documents and reports 'the facts' of economic activity. Accounting can now be seen as a set of practices that affects the type of world we live in, the type of social reality we inhabit, the way in which we understand choices.*

In theory, accounting (according to professional codes of conduct) is supposed to reflect 'economic reality' and societal preferences and practices, but can in practice end up influencing them (Miller 1994; Power 1999). The accounting and society literature is valuable, therefore, as a counter to the implicit assumption within the non-accounting academic literature on climate change policy, politics and markets that accounting is rule-based.

Indeed, scholars have drawn attention to the often subtle ways that power is expressed in decisions about detailed, technical accounting rules and principles (Miller 1994; Miller and O'Leary 1994; Thompson 1994). Accounting can be a way of making things appear 'anti-political' (Barry 2005) and seemingly uncontroversial, but the technical debates about accounting principles and standards sometimes involve intense power struggles. With accounting for emission allowances still in its formative stages (and with many critical decisions to be made) close attention to current governance processes and decision making (standard setting in particular) is likely to yield theoretical and policy insights. Further, because accounting rules and principles (once decided) will have a potentially material influence on company financial statements (namely, profit measures, disclosures, assets and liabilities), they are likely to be, increasingly, a site of conflict.

THEORIES OF MEASUREMENT AND CALCULATION

When a more indirect approach to understanding carbon accounting is taken, there are insights to be gained from broader political science and science and technology studies literature about measurement, classification, quantification and commensuration on topics as diverse as medicine and atmospheric science (Alonso and Starr 1984; Espeland and Stevens 1998; Bowker and Leigh Star 2000) as well as accounting (Robson 1992; MacKenzie 2006).

This literature provides an analysis of how diverse phenomena are 'made the same', examining the role that classifications and standards play, who does that work, and what happens to cases that do not fit into standard categories that have been constructed. For instance, in their analysis of health service and race classifications, Bowker and Leigh Star (2000) demonstrate how systems of measurement are typically paid little attention on a day-to-day basis:

> *Good, useable systems disappear almost by definition. The easier they are to use, the harder they are to see. As well, most of the time, the bigger they are, the harder they are to see.* (Bowker and Leigh Star 2000)

With financial accounting being one such pervasive 'big system' (a 'metadevice', to use the language of MacKenzie 2009) it provides an interesting case through which to examine the distinctiveness of climate change as a problem. There is as yet nothing habitual about accounting practices in this area, in contrast to much other accounting, which is relatively ingrained, 'black-boxed' and

routine (MacKenzie 2006). As a result, there is an opportunity to conduct empirical research in this area because of the continuing uncertainty about how to measure and account for carbon, and the visibility of the systems of measurement and classification that are actively under construction.

One topic from this broader literature that is particularly relevant for analysis of accounting for emission allowances is analysis of so-called 'incommensurables'. Bowker and Leigh Star (2000), for instance, suggest concentrating critical analysis on cases that do not fit in (incommensurables) because these phenomena highlight unresolved tensions. Emission allowances do not fit neatly under any existing accounting standard, and hence are hard to classify, thereby making them a type of 'incommensurable'. The difficulties presented in accounting for emission allowances have their origins in the multiple potential uses of allowances: as a commodity, a currency, a financial instrument and so on. This situation, in turn, has arisen from political decisions to adopt a market-based trading mechanism for implementing international climate change policy. As Espeland and Stevens (1998) explain 'claims about incommensurables are likely to arise at the borderlands between institutions, where what counts as an ideal or normal mode of valuing is uncertain'; and, further, that 'commensuration is noticed most when it creates relations among things that seem fundamentally different' (Stevens 1998). MacKenzie (2009) makes precisely this point with regard to accounting for carbon, outlining how markets in rights to emit GHGes can only exist if a variety of different things are somehow 'made the same'. He uses the example of how the Clean Development Mechanism allows the destruction of one tonne of an industrial waste gas, trifluoromethane, or HFC-23, in a facility in China to be converted into rights to emit up to 11,700 tonnes of carbon dioxide in a power or heat generation plant in Europe (MacKenzie 2009). The assumptions used to create this equivalence can be challenged on a number of levels, and we can usefully add to existing scholarship in this area by showing how these tensions play out in practice in the financial accounting of carbon within the EU ETS.

THEORISING HYBRID MARKETS

The third set of ideas that is relevant for our investigation here is about how economic and financial markets are created. An interdisciplinary approach to the study of markets asserts that markets are not just economic or financial entities but comprise a mix of people, technology, objects and things. This conception of a market draws from economic sociology (White 1981; Fligstein 1996; Callon 1998; Barry 2005; Hardie and Mackenzie 2007; Pryke 2007; MacKenzie 2008). Pryke (2007), for example, assesses the emergence of weather-based financial trading instruments since the late 1990s, using what he terms a 'cultural economy' approach to finance. Likewise, Hardie and MacKenzie (2007) examine the workings of hedge funds, showing how the market for such investments is constructed and shaped by a mix of people and technologies.

Work in economic sociology is concerned with how economic markets are separated from everyday relations and made into a recognisable, working mechanism of exchange (Callon 1998; Munro and Smith 2008). In this context, examining the microstructures of markets for carbon focuses attention on the intricate networks of people and 'things' that constitute the carbon economy, thereby explaining why abstract models rarely fit the specifics of particular times and places. Economic sociology approaches recognise the myriad tensions and the hard work that goes into sustaining, for example, global carbon markets every minute of every day. These approaches also recognise that markets have to be made, and that attention as to how particular arrangements of people and 'things' come into being as markets is important (Lovell and Smith 2010).

One of the core arguments in this literature is that it is a mix of people, objects and technologies (what Callon (1998) terms '*agencements*') that determines what a market is and how it evolves. Although this might sound self-evident, such a framing serves as a useful counter to arguments (found in carbon markets and beyond) that 'the market' itself has agency (an ability to act as more than the sum of its parts). In reality, the carbon market, like other markets, is no more or less than the complex network made up of various elements that it comprises. Of particular interest in the context of this report are the technical accounting rules and procedures that are essential to carbon market operation. Moreover, these accounting rules and procedures often lie outside the typical frame of reference of many key actors in the carbon market.

Perhaps the key aid to understanding what is happening in accounting for emission allowances in the EU ETS is Callon and Muniesa's work (2005) on the constitution of markets as 'calculative collective devices'. This work is important because it makes the point that calculation is distributed widely across the various elements of a market: that is, it is not effected through a single price mechanism or even through some form of human agency alone. So it is not surprising that quantities such as liabilities and assets arising from carbon regulatory regimes are hard to pin down: they are things that circulate and transform as they do so (Buenza et al. 2006), they are practices enacted for a range of difference ends (Munro and Smith 2008), and indeed they are stories that, as Velthius (2005) shows, concern rather more than simply money. Such ideas, therefore, draw attention to the importance of interrogating in detail the variety of market devices (such as financial accounting) that make calculation possible (Callon et al. 2007).

Another key insight of the 'hybrid markets' literature concerns the potential for markets to be actively shaped and governed by various actors. For a new market such as carbon (a clear example of something created, in this instance mostly by public institutions and governments) it is important to appreciate the implications of its public sector origin. Callon (quoted in Barry and Slater 2005)

neatly explains the value of seeing markets as both governable and experimental when he suggests: 'what sociology and anthropology could bring to the [markets] debate is precisely a recognition of the experimental character of markets and market organisation and the need to debate the consequences of experimentation. It is a collective learning process'.

The value of these ideas about markets for carbon is in illuminating the experimental nature of a relatively recently constructed environmental market – that for carbon – that rests on the commodification of atmospheric gases, and its consequent reliance on sound, workable systems of measurement and classification, not least financial accounting. Further, these ideas about markets open up the possibility for change in how carbon financial accounting is carried out, not just in terms of new accounting standards (policy and governance) but also in the possibility of changing accounting technologies, developing new accounting working groups and so on.

A concern of Callon's (see Barry and Slater 2005) regarding carbon markets is that the 'framing' of the carbon market is premature. Market actors (including policymakers and politicians) have been trying to establish boundaries and rules before really understanding the issues at stake, or truly appreciating the novelty of carbon as a commodity. As Lohmann (2009) echoes in his insightful analysis of differences between carbon and other types of commodity (in this case, wheat):

> *tensions can be expected to arise whenever a novel commodity is being created that* ***depends fundamentally on the development of new accounting procedures****. However, the framing of an amalgam carbon commodity also faced many entanglements and overflows that were unfamiliar to the bulk of 19th- and 20th-century trading systems, and that arguably were not susceptible to treatment in a straightforward way by any amount or degree of regulation.* (Lohmann 2009, emphasis added)

Lohmann emphasises here the integral (and, to date, rather overlooked) role of accounting as the foundation of carbon markets and wider climate change mitigation activities.

SUMMARY

In this brief review of literature, we have highlighted several ideas drawn from work in the areas of economic sociology, society and accounting, and commensuration that add insights to the case of financial accounting in the EU ETS. In particular, taken together, this literature suggests the following inferences.

- There is nothing yet habitual about accounting for emission allowances, in contrast to much existing accounting practice, which is relatively ingrained, 'black-boxed' and routine. This makes the study of accounting for emission allowances an interesting case study on the nature of accounting.

- Emission allowances do not fit neatly under any existing accounting standard because there are multiple potential uses of the emission allowance (for example, as a commodity, a currency and a financial instrument). Emission allowances are, hence, hard to classify, they are a type of 'incommensurable'.

- Accounting and society are closely linked: accountants are playing a role in influencing how the problem of climate change is comprehended and governed through the construction of accounting rules and principles in this area.

- Accounting can sometimes make 'things' appear uncontroversial and a-political or even non-political, but the technical debates about accounting rules, principles and standards involve intense power struggles. Given that emission allowances are likely to become more financially material over time, such power struggles are to be expected, especially because the accounting choices will affect the financial statements of large corporations.

- Recognition that carbon markets have been created by governments and other institutions opens up possibilities for changing how they work, including alterations in their financial accounting 'bedrock'.

4. Survey of accounting practices

This chapter presents results from the research project, drawing on the financial statements survey undertaken and interviews conducted to shed more light on the reasons why certain accounting practices have been adopted by EU ETS participants. The chapter is structured around four areas: (i) a summary of key findings (ii) a description of how assets are accounted for (iii) an equivalent review of the accounting treatments adopted for liabilities, and (iv) additional insights that can be drawn from the interviews.

SUMMARY OF KEY FINDINGS

The main finding of this research is that large emitters within the EU ETS are using a diversity of accounting practices to account for emission allowances. In particular, this has the following aspects.

- Most of the companies surveyed are not following 'IFRIC 3', the original international accounting guidance issued in 2004 (and subsequently withdrawn in 2005).
- A large proportion of the companies (42%, or 11 of the 26) recognise emission allowances as intangible assets.
- Of the surveyed companies, 31% (eight companies) initially recognise allowances at nil value on the rationale that they are issued at no charge. Only 15% of the sample (four companies) are following the IFRIC 3 draft guidance to recognise emission allowances initially at fair value, with the difference between fair value and cost of allowances classified as a governmental grant (deferred income) on the balance sheet.
- Most of the companies do not disclose any information on amortisation/depreciation of assets (69%, or 18 companies), or on revaluation, of emission allowances (50%, or 13 companies).
- Likewise, the majority of the companies (77%, or 20 companies) do not disclose any information on Certified Emission Reductions ('CERs' which can be used interchangeably with EUAs).[8]
- Companies' accounting practices for revealing their overall position on emission allowances (as net assets or liabilities) vary hugely, with no discernible pattern in accounting treatment.
- Interviews with accountants confirmed that they find it difficult to account for emission allowances, and revealed that there is a potential guidance role for auditors in the absence of an international accounting standard. Moreover, interviews provided evidence that accountants would generally welcome the prospect of international accounting guidance in this area.

Table 4.1 summarises these findings.

Table 4.1 Summary of survey of EU ETS top emitters' financial reports

Emission allowance accounting	Disclosure summary*
Granted allowances – initial recognition	Intangible assets – 42% No disclosure – 27%
Purchased allowances – initial recognition	Intangible assets – 42% No disclosure – 27%
CERS – initial recognition	No disclosure – 77%
Granted allowances – measurement on initial recognition	Nil value – 31% No disclosure – 23% Fair value – 15%
Amortisation/Depreciation of emission allowances	No disclosure – 69%
Re-valuation of emission allowances	No disclosure – 50%
Measurement of liabilities	Cost with balance at market value – 58% No disclosure – 23%

*All percentages shown in Table 4.1 are percentages of the total survey responses (26 companies) – they are not the percentage results of only those companies that are disclosing.

8. This finding is hard to interpret. It may be that companies have CERs and are not making disclosures about them, or they may not be holding any such certificates. It is not possible to verify which situation pertains here.

TREATMENT OF ASSETS

Figures 4.1 and 4.2 provide data on the initial recognition of emission allowances in the surveyed companies' financial statements. This treatment does not vary significantly whether allowances are granted free of charge or purchased. Figure 4.1 illustrates that just under half the surveyed companies classify granted allowances (that is, those distributed by government, in the main for no charge in Phases 1 and 2 of the EU ETS) as intangible assets. Non-disclosure in this area was high, however, with almost a third (27%) of the surveyed companies not providing any information in this area. Figure 4.2 indicates that for purchased allowances (either EUAs or CERs) accounting practices follow a similar pattern to those for allocated allowances: the most frequent categorisation of these assets is 'intangible'. At the same time, there is also a significant amount of non-disclosure in this area. The 'activity-based' model category in Figure 4.2 refers to three companies in our survey that held allowances for more than one reason. For example, each of these companies had allowances that were intended to fulfil the entity's own emissions obligations as well as allowances that were held for trading purposes. For these companies, the accounting treatment adopted depended on the purpose for which the allowances were held.

Note that there are some categories in the figures that are 'zero', ie no companies followed this type of accounting treatment. These categories were in our original analysis template (see Appendix) and have been included (despite the lack of adoption) because they are nevertheless judged to be valid methods of accounting treatment. If no companies are practising them, then this is still a relevant finding.

If we compare our survey results with the accounting treatment recommended by the withdrawn IFRIC 3 there are points of both difference and similarity. The main similarity is that companies are recognising emission allowances as intangible assets, as recommended by IFRIC 3 (and, therefore, one would expect their treatment to fall under IAS 38: *Intangible Assets*). Nonetheless, as Figures 4.1 and 4.2 clearly show, not all companies are adopting this approach. Rather, there is diversity in treatment, with many companies having no disclosure while others are classifying allowances as inventory, or using an alternative accounting practice.

The follow-up interviews with accountants give good insight into the reasons for this diversity. In particular, it is viewed as arising from the lack of guidance from accounting standard setters since the withdrawal of IFRIC 3 in 2005. Indeed, as one interviewee commented (when asked why they believed we had found the pattern of disclosure we had):

> *I think because of the lack of clarity, well there is no real guidance for how to record this in the balance sheet and P and L* [profit and loss]. *Because IFRIC 3 was withdrawn some time ago...there is the chance to choose your own balance sheet item, either under the intangible or inventory.* (Head of finance, large European energy company)

Figure 4.1: Granted allowances – initial recognition

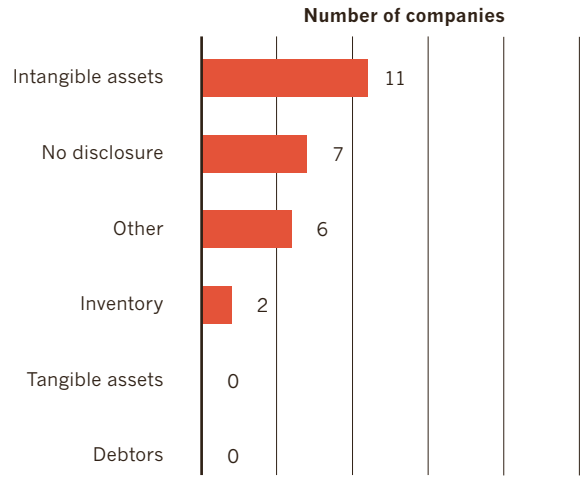
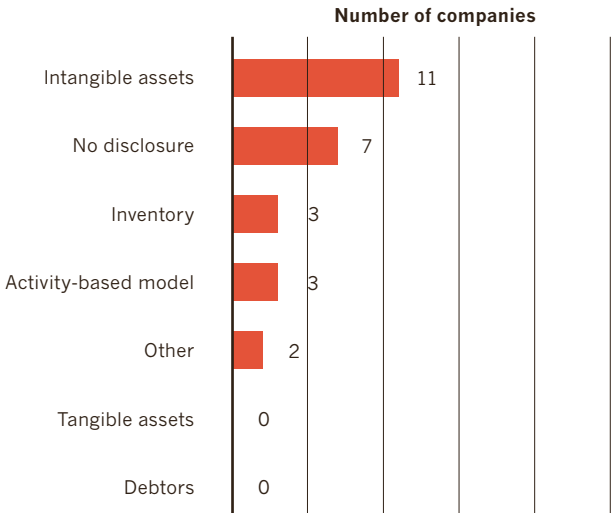


Figure 4.2: Purchased allowances – initial recognition



Another interviewee explained how choice of accounting treatment for assets (again, given the absence of any firm guidance) is based on practicalities: that is, they choose the method that is the simplest and easiest:

> *I think from our perspective, especially the point of granted allowances, and in this case we are focusing on intangible assets…I think it is the easiest way to disclose it because IAS 38* [Intangible Assets] *is nice to apply.* (Accounting policy specialist, large European energy company)

Figure 4.3 gives further detail on the extent of differentiation in financial statements between CERs (credits from the Clean Development Mechanism) and EUAs (emission allowances obtained from the EU ETS itself). The large majority of the companies surveyed (77%) either do not make a distinction between these types of carbon credit, or do not hold both sorts of allowance (identified here as 'No disclosure'). For the few that do provide disclosure on CERs, there is no obvious common treatment choice.

Accounting for CERs was explored further in interviews. For one interviewee (whose business includes the generation of CERs from renewable energy projects in developing countries) there was uncertainty about how to account for CERs and, in particular, whether or not the different uses of CERs in the EU ETS (either for trading or compliance) should be reflected in company financial statements. This individual stated that:

> *From our perspective…the CERs issue is important. Or it gets more important now, but it hasn't been of major importance in the last one, two or three years, because we are just starting the business. So it is rather low in volume…so I think from a materiality perspective it wasn't necessary for us to make a lot of disclosure about accounting for CERs yet. But it gets more important…and we are just discussing with our auditors and with other companies about how to account for CERs. When the CER business expands then I think we will publish more, how we do it and give a sense of volume too…There's an economic difference between the CERs which are used for a business purpose and generated and sold* [traded]*, and the CERs which might be used for compliance reasons…therefore we want to make* [a] *difference in accounting for these two purposes.* (Accounting policy specialist, large European energy company)

At the moment these differences in the use and origins of CERs and EUAs are not being reflected in financial statements, as evidenced in Figure 4.3. This may well change in the future, with growth in the volumes of CERs generated and traded.

Figure 4.4 shows that eight companies (or 31% of the sample) measure granted allowances at nil value. Only four companies follow the treatment suggested in the withdrawn IFRIC 3 recommendations, which is to measure allowances at fair value at date of receipt, with this amount being treated as deferred income on the balance sheet. Again, there is diversity in accounting practices, with a high proportion of companies not disclosing any data (six of 26 companies, or 23% of the sample), and a high proportion following a mix of different accounting practices (identified here as 'Other' and representing eight of the 26 surveyed companies, or 31% of the sample).

Figure 4.3: CERs – initial recognition

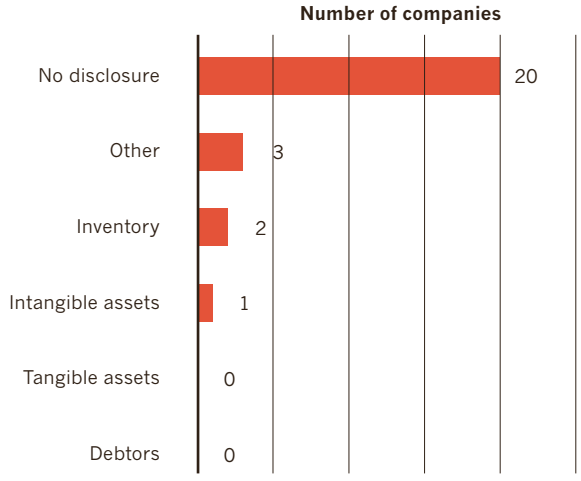


Figure 4.4: Granted allowances – measurement on initial recognition

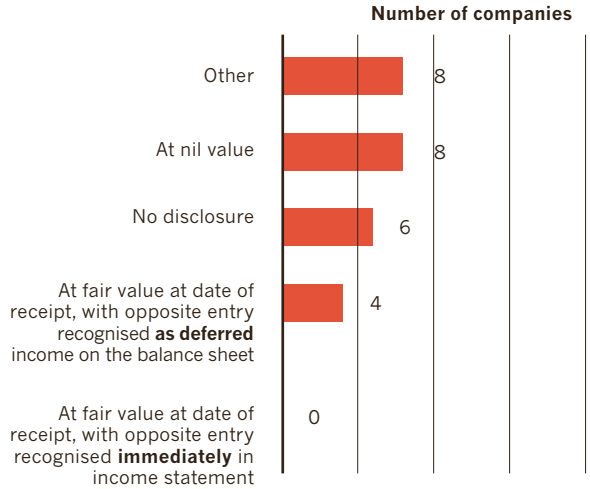


Figure 4.5 illustrates how companies measure emission allowances after initial recognition. Once again there is little disclosure in this area. In the main, the lack of disclosure is due to the choice of initial valuation of emission allowances. If allowances are valued at nil (and they were by a significant proportion of companies: eight of the 26 companies, translating to 31% of the sample) then amortisation/depreciation is not possible. Indeed, one interviewee noted this.

> *When the granted allowances are recorded at a nil value, there is nothing to depreciate...when it is not necessary to disclose parties don't want to give an insight in their positions.*[9] (Head of finance, large European energy company)

Another interviewee questioned more fundamentally whether it made sense to view emission allowances as being depreciated. This individual implied that emission allowances should be recognised as inventory and charged as a production cost, rather than recognising them as intangibles:

> *But is it really a depreciation? It all depends what these allowances are used for...the biggest portion is granted by the government, your shortfall you can buy on the market.... So when you produce electricity you are also producing carbon dioxide. And at the end of the year you have to deliver the allowances to the government again. So I don't know if it is really a depreciation. It is not a depreciation in the P & L* [profit and loss]*, it is part of your cost price.* (Accounting policy specialist, large European energy company)

Again, this quote highlights the degree of uncertainty about accounting for emission allowances, including what type of 'thing' an EUA actually is (a point returned to in the discussion below). It seems that the question of amortisation/depreciation has not been settled in practice, because more fundamental definitional problems are still unresolved. Although IFRIC 3 was based on the assumption that emission allowances represent a right to emit and thus are intangible assets, this may or may not be the final conclusion of the IASB and FASB Emissions Trading Schemes project.

Revaluation of emission allowances in financial statements is required when the market values of these assets change. The survey findings in this area again reveal low levels of disclosure, with half the companies having no disclosure in this area (see Figure 4.6). For those that do disclose, most companies (11, or 42%) revalue and recognise this change in the income statement.

In summary, emission allowance assets are accounted for in the companies of the EU ETS in a variety of different ways, and non-disclosure is common. EUAs are typically classified as intangible assets, and are usually measured at nil value. CERs are generally not distinguished from EUAs in company accounts, if there is disclosure of them at all. Practices of depreciation and revaluation of emission allowances are also difficult to discern as non-disclosure is high.

Figure 4.5: Amortisation/depreciation

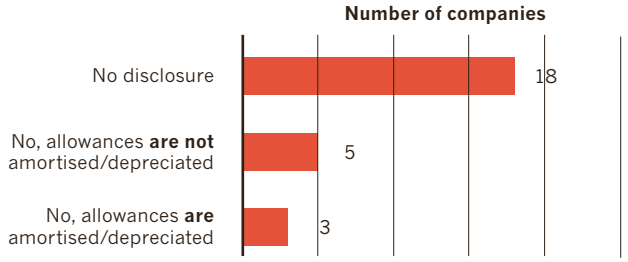


Figure 4.6: Revaluation of emission allowances

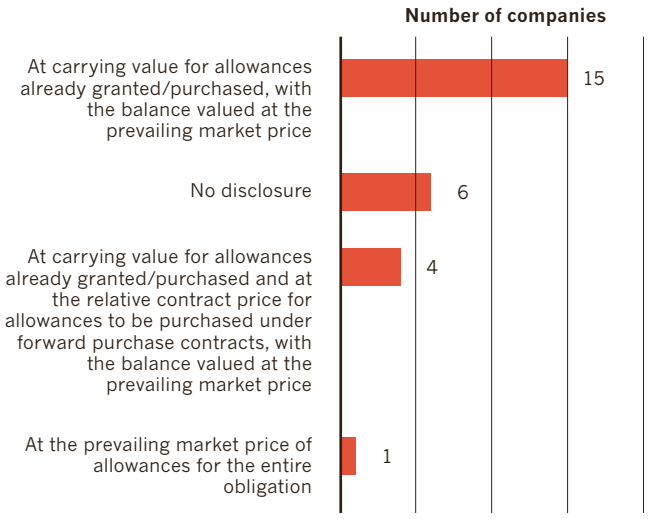
9. This quote also suggests that there is a tendency to avoid disclosure if at all possible.

TREATMENT OF LIABILITIES

Figure 4.7 describes how companies are accounting for emission allowance liabilities. Once again, a significant number of companies make no disclosure in this area (six of the 26 companies, or 23% of the sample). Most companies (15 companies, or 58% of the sample) value the obligation based on the carrying value (cost) of allowances already granted/purchased (which, in practice, tends to be zero), with the balance valued at the prevailing market price. Four companies follow a slightly amended version of this accounting practice, with emission allowances purchased under forward contract prices shown at the contract price. These accounting practices were not permitted under IFRIC 3. IFRIC 3 recommended that assets (the allowances) should be treated independently of liabilities, as follows.

- A liability should be recognised as emissions are made, and the liability should be categorised as a 'provision' and, hence, should be treated in accordance with IAS 37 (Provisions, Contingent Liabilities and Contingent Assets).
- The liability should be measured at fair value (that is, the best estimate of the expenditure required to settle the present obligation at the balance sheet date), independently of the cost of the allowances already owned by the company.

Figure 4.7: Measurement of liabilities



The interviews gave further insights into why most companies have followed the 'cost with balance at market value' approach. As in the case of assets, the absence of firm rules appears to have resulted in the adoption of the easiest accounting policy. Moreover, this accounting approach was favoured as it does not require full disclosure of assets and liabilities. The choice reflected here is, however, tied into the practice whereby governments have granted allowances at no charge in the early Phases (1 & 2) of the EU ETS. Effectively, measuring allowances 'at cost' means assigning them a nil value because they are not paid for. It follows that liabilities can therefore also be measured at cost (that is, at nil value). As one interviewee explains, accounting for emission allowances in this way helps companies to keep assets and liabilities to a minimum.

> *With* [emission] *allowances we focus on an approach to keep the balance sheet on both sides rather low. And if we focus on intangible assets we can value the allowances at cost and the corresponding provision also at cost. So this is rather low. And we are only accounting for the shortfall at fair value, or at the best estimate…I think this is the easiest way in the end.* (Accounting policy specialist, large European energy company)

With a shift in Phase 3 of the EU ETS towards auctioning of allowances (see Chapter 2) there may be an impetus for a change in accounting practices in this area. In particular, it is likely that this will lead to fuller recognition of both assets and liabilities. Rather surprisingly, however, none of the companies interviewed was clear about the implications of auctioning for emission allowance accounting, as one interviewee demonstrated.

> *So after* [the year] *2012, yes, then there will be an auction by the government…so that can change the* [accounting] *approach,* [but] *nobody knows…Is there an auction for each year, or for a period of five years? Again, is there banking and borrowing in that period? These are more the practical outcomes that you have to transfer in, accounting-wise.* (Head of finance, large European energy company)

A second rationale given for the lack of disclosure of liabilities relates to companies' desire for secrecy. This preference for keeping information undisclosed arises because emission allowances are viewed as being politically high profile and because full disclosure might reveal something about the company strategy towards holding allowances. Another interviewee explained their perception as to why there was a lack of disclosure.

> *Actually, I think, one of the reasons is also that companies do not want others to know whether they have an excess of credits, or have a lack of credits.*

When asked if this was a strategic concern, the same interviewee replied:

> *Yes. And also now because these allocations are made by the government of the country for each* [sector/company] *and this is additional information that is not provided... that is not publicly available...The* [company] *calculation of the liability actually depends on the actual emissions and they may differ from the initially reported data. So maybe that is another reason.* (General manager of accounting and consolidation, European iron and steel company)

In summary, as with emission allowance assets, there is diversity in the accounting treatment of liabilities, and a considerable level of non-disclosure. Most of the sample companies (58%) value the obligation on the basis of the cost of allowances already granted/purchased, which is usually close to zero, with the shortfall of allowances for the year measured at the market value. In practice, this means that the only liability recognition in the financial statements is for shortfalls in allowances.

INTERVIEW ANALYSIS: ADDITIONAL FINDINGS

Several issues arise from the research interviews, above and beyond findings from the financial report survey, and these are discussed briefly here. They include:

- the accounting implications of having an unclear definition of an emission allowance
- the role of auditors in this area
- future expectations of companies with respect to accounting standards.

Defining an emission allowance

Several interviewees comment on the difficulties in defining and classifying emission allowances (see Chapter 3). Crucially, links were made between these more conceptual issues (for example, questioning if an EUA is a financial instrument or a property right) and accounting practices. As one interviewee commented:

> *It is not clear for us, but...also for tax lawyers, what is the nature, the essence of the emission granted? The question is: are we dealing with a right, or a security, or an inventory?...We are not sure...It is* [therefore] *not possible to clearly define which is the proper presentation in the financial statement...*

The individual continued:

> *Given the fact that it is not clear...we continue to apply our approach in terms of nil, no recognition for the allowances.* (Head of accounting principles and standards, large European energy company)

For this interviewee, part of the explanation for the low level of disclosure of EUAs in financial statements is the absence of a clear definition of the nature of emission allowances. Interestingly, the solution to this problem is seen as coming from the European Commission. Specifically, the interviewee suggested that:

> *We believe that the European Community* [SIC] *has to define, to clearly define, the nature of the emission* [allowance]. *Because, in my opinion, the standard setter* [does not have a]*...duty...to identify what is a legal point of view or a tax point of view. They are not legal setters... But the accounting approach cannot arise before the identification of the legal nature.* (Head of accounting principles and standards, large European energy company).

Discussions about the definition and classification of emission allowances are indeed progressing in the European Commission (see Bank of England 2009), and are under review by the IASB and FASB as part of their Emissions Trading Schemes project. The resolution of this matter is likely to influence the accounting treatments adopted.

The role of auditors

Most interviewees indicated that they sought guidance from their auditors on approaches to accounting for emission allowances and suggested that auditors play a key role in facilitating the convergence of accounting practices in the absence of an international standard. In this respect, auditors appear to be acting as a type of intermediary, collating information from different companies and recommending best practices. For example, an interviewee stated:

> *One of the sources that we use when deciding the accounting treatment is our auditor's interpretation, because we have access to their databases – their interpretations of the accounting standards and also preferred accounting treatments...their interpretations include several options, and we choose one of them...The reason is that they have access to different companies, different entities that may have such kind of transactions, and we do not have any relationship to any other companies other than trading relations. So this is one source of how we can get information* [on] *how other companies are doing this* [accounting for emission allowances]. (General manager of accounting and consolidation, European iron and steel company)

Another interviewee confirmed this reliance on advice from auditors, but indicated also that they engage in direct discussions with other companies, noting that:

> *We are in constant discussion with our auditors and they are also focusing on what all the industry practices are. We are also sharing information, well, on an informal level, with other companies in this sector, on how they account for* [emission allowances]. (Accounting policy specialist, large European energy company)

The International Energy Accounting Forum (IEAF) was mentioned by two interviewees as an example of the kind of network where information on emission allowances accounting practices is shared. Indeed, there is an active discussion on emission allowances accounting by IEAF (see IEAF 2010). It is evident that more informal discussion also takes place at a company-to-company level.

The expectations of companies with respect to accounting standards

Most companies interviewed would welcome new joint guidance on emission allowances from the IASB and FASB. The opinion was expressed that it was preferable to have clarity on how to account for emission allowances as this would make it easier for companies because they would not have to follow a range of different guidance (for example, guidance at national and international levels) and because it would enable fair comparison between companies. Two interviewees provided contrasting comments on this issue.

> *Every year we end up in a different situation and it is different from what we had before and cannot find any guidance. So really, we would appreciate something that is complex and covers all kind of transactions that may arise.* (General manager of accounting and consolidation, European iron and steel company)

In contrast, another interviewee was less focused on receiving guidance from IASB and FASB, stating:

> *Well, to be honest, I am very sceptical about these organisations...We started in 2005* [with the EU ETS], *so there is a five-year gap. Honestly, I don't care now...So the question* [is], *will* [it] *be helpful? Well, maybe we have to change something, but it will be for external reporting, it will not help in our management reporting whatsoever.*
>
> *They are late, the whole process from the first draft until a final approved standard, that takes years and years. They are not acting very fast.* (Head of finance, large European energy company)

Very few of those interviewed were actively tracking the decision making of the IASB/FASB Emissions Trading Schemes project, mostly owing to a lack of time and resources to do so, but for some it was related to the perceived irrelevance of standards. This finding indicates there may be some problems for the IASB and FASB in gaining support for their proposals, and possibly in gaining sufficient feedback and industry response to the Emissions Trading Schemes Exposure Draft when it is ultimately issued.

SUMMARY

In summary, in this chapter we have presented and analysed results from our financial statements survey and telephone interviews. A third of the companies surveyed (eight of 26) are initially accounting for carbon assets at nil value on the rationale that allowances are issued at no charge. This may change in the future because in Phase 3 of the EU ETS there is a shift towards EUAs being paid for by companies. A large proportion of companies (58%) are valuing the obligation on the basis of the cost of allowances already granted/purchased, and measuring the balance at the market value, a practice that implies accounting only for their shortfall in allowances. Interviews with accountants revealed a role for auditors in guiding accounting treatment in the absence of international accounting standards, and provided evidence that these interviewees would welcome timely international accounting guidance from IASB and FASB.

A key finding is that large emitters within the EU ETS are using a diversity of accounting practices to account for emission allowances: there is no uniformity of treatment, and the incidence of non-disclosure is high. The fact that some companies have not disclosed their emission allowances may be explained by their relatively low materiality (see Table 2.1). Nonetheless, it is important to highlight that our survey has shown that some companies presented incomplete information on emissions allowances: for example, recognising allowances on the balance sheet as intangible assets, but with no detail about whether allowances are (or are not) amortised. Our results indicate there is a lack of standardisation in practice on emission allowance disclosure, not only with regard to how to account for allowances, but also regarding what should be considered the minimum of information provided in order for users to understand the treatment of allowances in different parts of financial statements.

5. Summary and conclusions

SUMMARY

It is clear from our empirical analysis that there is considerable diversity in accounting practices for EU ETS emission allowances. Most companies are not following IFRIC 3 (the original international accounting guidance issued in late 2004). This is perhaps not surprising given the opposition that this standard attracted, and that led to its subsequent withdrawal. Having said that, some elements of IFRIC 3 appear to have influenced accounting practices adopted in the sample companies. For example, 42% of the sample companies (11 of the 26 companies) treated emission allowances as intangible assets. In contrast to IFRIC 3 draft guidance, these assets are mostly assigned a nil value in company accounts (by 31%, or eight of the 26 companies reviewed), reflecting the fact that in Phase 1 and 2 of the EU ETS allowances have predominantly been allocated at no charge. Only 15% (or four of the 26 companies) are in line with the withdrawn IFRIC 3 guidance by accounting for emission allowances initially at fair value (that is, at market price), with the difference between fair value and cost recognised as governmental grant (deferred income) on the balance sheet.

Following on from the common practice of classifying emission allowances as intangible assets and measuring them at nil value, most companies do not disclose any information on amortisation/depreciation (69%, or 18 of the 26 companies) and half the surveyed companies fail to disclose data on the revaluation of emission allowances (50%, or 13 of the 26 companies). Information on Certified Emission Reductions (CERs), which can be used interchangeably with EUAs, similarly has very low levels of disclosure (with an incidence of 77%, or 20 of the 26 surveyed companies failing to disclose such information). It is unclear if these companies are holding CERs or not so this level of non-disclosure is difficult to interpret.

Companies' accounting treatment for reporting on their net position with respect to emission allowances varies considerably, with most of the surveyed companies accounting for their obligations by following a 'cost with balance at market value' approach (15 of the 26 companies; 58%). This results in a lack of information on the full extent of emission allowances assets and liabilities and is in contrast to the treatment originally recommended by IFRIC 3.

The interviews with accountants based in a subset of the surveyed companies gave further insight into the reasons for accounting diversity. In short, it appears that the main reason for the diversity of approach is the ability to choose accounting practices because of the absence of international accounting guidance. The accountants also raised an issue of more fundamental uncertainty about what type of 'thing' an emission allowance is: a financial instrument, a property right, part of the production process, a compliance instrument, etc. In the face of this uncertainty the role of auditors in providing advice and guidance on possible accounting treatment is important. Most companies interviewed said they would welcome firm guidance from standard setters.

In this short, concluding chapter we now turn to consider the implications of our findings across three areas: for accounting standard setters, for companies within the EU ETS, and for accounting theory.

ACCOUNTING STANDARD SETTERS

There is a diversity of accounting treatment of emission allowances in the EU ETS and this situation has arisen because of a lack of accounting guidance from standard setters in the period 2005–10.

This diversity in accounting practice means that company accounts of large EU ETS emitters cannot, in most cases, be directly compared, even though emission allowances are likely to be material to at least some of the companies.

Companies interviewed appeared ready to welcome guidance from the accounting standard setters because they believed that it will reduce complexity for them and allow them to be fairly compared against their peers.

Even so, few companies have been tracking the progress of the IASB/FASB Emissions Trading Schemes project, and they have had little (if any) direct engagement with IASB or FASB.

In the continuing absence of international guidance the role of auditors has been important, with most companies interviewed seeking information and reassurance from auditors about their choices. Auditors have been playing a role in establishing best practice through issuing guidance and briefing papers (see, for example, KPMG 2008; Deloitte 2009; Ernst and Young 2010).

We recommend that accounting standard setters issue clear guidance on emission allowance accounting as soon as is practical (noting that the timetable has already slipped further from an Exposure Draft that was due in 2009 to one now due in late 2011). As time goes on, the importance of resolving this area will grow as EU ETS emission allowances will be auctioned in EU ETS Phase 3 (which commences in 2013). A level playing field for accounting treatment and disclosure is required to allow fair and transparent comparison of EU ETS financial statements.

EU ETS EMITTERS

Companies in the EU ETS are currently free to choose their preferred accounting method for emission allowances (as long as it is accepted by their auditor). This flexibility brings both advantages and disadvantages. The advantages are that companies can choose the accounting method that suits their business best and that is easiest and simplest for them to apply. The disadvantages are that comparability between companies is not possible, and that companies may need to invest time and resources in seeking information about, and adopting different accounting models for, emission allowances in order to satisfy different regulators/parent companies/new auditors, and yet still face uncertainty as to the appropriateness of the method adopted.

With most companies in the EU ETS following a 'cost with balance at market value' approach that amounts to just accounting for their net position (15 of the 26 companies, or 58% of the sample) it is not currently possible to ascertain from company accounts the full extent of companies' emission allowance assets and liabilities. As a result, users of financial statements are unable to assess how much of companies' risk is derived from carbon emissions and carbon markets.

With a shift to auctioning allowances in Phase 3 of the EU ETS there are likely to be knock-on accounting implications, not least that companies will no longer be able to account for assets and liabilities at nil value (because allowances will no longer be allocated at no charge). Companies appear not to be thinking ahead about this issue. Although auctioning will alleviate the accounting problem of the initial valuation of allowances, there is likely to be scope for differences between the price at auctioning and fair value, because of market volatility in the price of EUAs.

There are some industry networks in which companies discuss emission allowance accounting issues but participation is variable, with some companies having no such discussions with their peers, and relying heavily on their auditor for advice.

We recommend the launching of information networks, to include large emitters in the EU ETS, technical accountants, and industry experts, which could serve to exchange information to try to harmonise accounting practices in the run up to the issuance of guidance by IASB/FASB, and to engage with any standard-setting process they follow.

ACCOUNTING THEORY

Our empirical research adds to an emerging body of work on accounting for carbon (Bebbington and Larrinaga-Gonzalez 2008; Lohmann 2009; MacKenzie 2009) and confirms that, as yet, there is nothing habitual about accounting practices in this area. This creates possibilities for an interesting case study for the understanding of accounting rules and practices in the making.

Emission allowances are hard to classify. They are a type of 'incommensurable' because there are multiple potential uses of allowances (as a commodity, a currency and a financial instrument) and accounting practitioners in the EU ETS are trying to deal with this complexity.

Through their struggle to define and manage emission allowances, EU ETS accountants are playing a role in influencing how the problem of climate change is comprehended and governed, albeit at the moment in a rather narrowly defined technical arena.

With a scheduled shift to auctioning of emission allowances in the EU ETS, and forthcoming guidance from standard setters, financial accounting in this area is likely to be increasingly controversial, and may attract attention from beyond accounting networks and thereby widen the range of parties who will be involved in creating carbon markets. The inclusion of a wider range of stakeholders into accounting debates is to be broadly welcomed, as it will raise the profile of these issues, and will facilitate greater feedback from users of financial reports.

Recognising that carbon markets have been created by governments and other institutions opens up the possibilities for changing how they work, including their financial accounting 'bedrock'. Large corporate emitters in the EU ETS and auditors both have the possibility of effecting change in how accounting for emission allowances is done, but timing is crucial. It is the next few years (2010–13) that will be most important because of the shift to auctioning of allowances, and the expected issuance of IASB/FASB guidance in this area.

Academic research on accounting for emission allowances raises questions that are not only technical but also conceptual in nature. The study of the particular issues that emerge in accounting for emission allowances demonstrates uncertainty about its outcome and as such can help us to understand accounting principles and practices in the making.

POLICY RECOMMENDATIONS

In summary, our policy recommendations are as follows.

We recommend that accounting standard setters issue clear guidance on emission allowance accounting as soon as is practical (noting that the timetable has already slipped from an Exposure Draft that was due in 2009 to one now due in late 2011). As time goes on, the importance of resolving this area will grow as EU ETS emission allowances will be auctioned in EU ETS Phase 3 (which commences in 2013). A level playing field for accounting treatment and disclosure is required to allow fair and transparent comparison of EU ETS financial statements.

We recommend the launching of information networks, to include large emitters in the EU ETS, technical accountants, and industry experts, which could serve to exchange information to try to harmonise accounting practices in the run up to the issuance of guidance by IASB/FASB, and to engage with any standard-setting process they follow.

We recommend that academic research on carbon accounting (financial or otherwise) is continued, as there is much to explore, and now is an excellent time to have valuable policy input.

ISSUES FOR FURTHER RESEARCH

The research could be furthered in the following ways.

- Financial accounting treatments adopted in other Emissions Trading Schemes (for example, in the US state trading schemes) could be investigated as they develop so as to have a comparison to the EU ETS.
- A wider EU ETS survey could be carried out, incorporating more companies active in the EU ETS, including smaller emitters, and a greater range of industry sectors.
- The existence and desirability of national variations emerging among member states of the EU could be investigated, with regard to rules and practices of accounting for emission allowances (and in the absence of an international standard).
- The relationship between the legal definition of an emission allowance and accounting standard setting could be investigated. Specifically, will the legal definition being developed by the European Community affect accounting regulations for emission allowances? And, if so, how?
- An in-depth examination could be made of the accounting implications of a shift to auctioning of allowances proposed in Phase 3, with an evaluation of whether or not companies and auditors are preparing for this change.
- A more detailed empirical investigation of how companies, auditors and standard setters share best practice on emission allowance accounting could be carried out. For example, are emission allowance accounting standards emerging from what was best practice in the period 2005–10, or are they being developed by IASB and FASB largely in isolation from current practice?

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Appendix: Questions and categories for analysis

1	**Where are granted allowances initially recognised on the balance sheet?**
1.a	Debtors
1.b	Inventory
1.c	Tangible fixed assets
1.d	Intangible fixed assets
1.e	Other
2	**Where are purchased allowances recorded on the balance sheet?**
2.a	Debtors
2.b	Inventory
2.c	Tangible fixed assets
2.d	Intangible fixed assets
2.e	Activity-based model
2.f	Other
3	**How are purchased CERs initially recognised on the balance sheet?**
3.a	Debtors
3.b	Inventory
3.c	Tangible fixed assets
3.d	Intangible fixed assets
3.e	Other
4	**At what value are granted allowances initially recognised on the balance sheet?**
4.a	At fair value at the date of receipt, with opposite entry recognised as deferred income on the balance sheet
4.b	At fair value at date of receipt, with opposite entry recognised immediately in income statement
4.c	At nil value
4.d	Other
5	**Are granted/purchased allowances subsequently amortised/depreciated?**
5.a	Yes, allowances are amortised / depreciated
5.b	No, allowances are not amortised / depreciated
5.c	No disclosure
6	**Are granted/purchased allowances revalued subsequent to initial receipt/purchase?**
6.a	No
6.b	Yes, with revaluation taken to the income statement
6.c	Yes, with revaluation taken to reserves
6.d	Other
7	**How is the obligation for emissions valued?**
7.a	At the prevailing market price of allowances for the entire obligation
7.b	At carrying value for allowances already granted / purchased, with the balance valued at the prevailing market price
7.c	At carrying value for allowances already granted / purchased and at the relative contract price for allowances to be purchased under forward purchase contracts, with the balance valued at the prevailing market price
7.d	No obligation is recognised unless there is a shortfall, with the balance valued at the prevailing market price
7.e	No obligation is recognised unless there is a shortfall, at the relative contract price for allowances to be purchased under forward purchase contracts, with the balance valued at the prevailing market price
7.f	Other

Source: Taken (with slight modifications) from the PricewaterhouseCoopers and International Emissions Trading Association survey, as described in PWC and IETA (2007).

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