RESEARCH PAPER

EMISSIONS TRADING SCHEMES

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CONTENTS

Introduction

I.1 The introduction of emissions trading schemes on a global scale results from the Kyoto Protocol (1997) that explicitly advocates the use of emissions trading schemes in achieving the emissions targets established by the protocol. The Kyoto Protocol sets binding greenhouse gas (GHG) emissions targets for 37 industrialised countries and the European Union. Emissions targets, on average, amount to a GHG reduction of five per cent against 1990 levels over the five-year period 2008-2012.

I.2 The purpose of this paper is:

(a) to provide information about emissions trading schemes as a means to regulate the production of emissions; and

(b) to provide a brief background on the IASB's Emissions Trading Schemes project.

I.3 Chapter 1 explains the main features of the two main types of emissions trading schemes that exist today:

- cap & trade schemes
- baseline & credit schemes.

In order to illustrate the two different schemes, Appendix A and Appendix B provide examples of different existing cap & trade schemes and baseline & credit schemes.

I.4 Chapter 2 includes a section on other types of regulation that allocate rights of use in order to regulate access to restricted resources (licence and quota systems). Chapter 3 provides a brief background on the IASB's Emissions Trading Schemes project.

I.5 Readers should be cautioned that there may be changes to the emissions trading schemes discussed in this paper. Also, this paper may not provide a discussion of all emissions trading schemes currently in existence, but rather the paper focuses on the main schemes.

Chapter 1: Mechanism of emissions trading schemes

Introduction

1.1 Emissions trading schemes establish a market-based mechanism in order to regulate emissions for a number of different gases. The schemes establish overall caps on emissions that can be released into the atmosphere during a defined period of time (commitment period). These overall caps are denominated in units of emissions of one gas (eg tonnes of CO_2). Other gases can be included, and the quantities of their emissions are converted into units of the gas in which the cap is denominated. For example, a scheme that denominates the overall cap in tonnes of CO_2 emissions will convert the quantity of emissions of any other gas within the scope of the scheme into tonnes of CO_2 emissions.

1.2 There are two main types of emissions trading schemes:

- *cap & trade schemes*
- *baseline & credit schemes*.

1.3 The two types of emissions trading scheme differ in how they implement the market-based mechanism to regulate emissions. Each type of emissions trading scheme further segments into (a) *statutory schemes* and (b) *non-statutory schemes*. Statutory schemes are government-imposed (with mandatory participation), whereas participation in non-statutory schemes provide is voluntary. The following table provides one example for each of the four possible combinations. Appendix A : *Examples of cap & trade schemes*, and Appendix B *: Examples of baseline & credit* schemes, explain in more detail the different schemes in the table.

1.4 Table 1: Emissions Trading schemes

	Cap & trade schemes	**Baseline & credit schemes**
Statutory schemes (mandatory)	European Union Greenhouse Gas Emissions Trading Scheme (EU ETS)	New South Wales Greenhouse Gas Reduction Scheme (GGAS)
Non-statutory schemes (voluntary)	Chicago Climate Exchange (CCX)	Clean Development Mechanism (CDM)

Cap & trade schemes

1.5 Cap & trade schemes are the predominant type of emissions trading schemes. Cap & trade schemes establish an overall cap on emissions that may be released during a commitment period. The schemes implement the overall cap on emissions in several steps. In a statutory (ie mandatory) scheme, a government typically initiates the process of establishing an emissions trading scheme by passing a law that puts restrictions on the ability to emit specified gases in that jurisdiction. This means that the law introduces a transfer of the ability to freely emit from the emitting sources to the government. Following enactment of the law, scheme participants must apply for a permit to emit in order to carry out activities that are within the scope of the scheme. The activities that are regulated by a scheme vary across different schemes. For example, the scope of a scheme could include energy activities, production and processing of ferrous metals and the mineral industry. It is important to note that permits to emit do not act as a mechanism to control the overall cap on emissions. This is because they control only the population of emitting sources, but they do not impose a limit to on the quantity of the permit holder's emissions.

1.6 The overall cap on emissions is implemented by a second instrument that is discrete from the permit to emit. The schemes create a paperless concept commonly referred to as an 'allowance'. Allowances must be returned to the scheme administrator for every unit of emissions ('unit' being defined by the particular scheme) produced by the scheme participants. Allowances therefore 'offset' participants' emissions. In order to keep total emissions from all scheme participants within the overall cap of the scheme, the

$_{2,}$ can issue up to 1,000 allowances. .

1.7 To better facilitate the implementation of the overall cap, the scheme incorporates a trading mechanism. This trading mechanism can be implemented because allowances are transferable instruments that can be bought or sold (ie they are not linked to specific activities or sources of emissions). Further, there are generally no restrictions on participants buying and selling allowances. Allowances are banked in electronic registries, and allowances are bought and sold via organised exchanges or over the counter. A permit holder that emits during the commitment period must have enough allowances in order to offset its emissions. (In some cases, emitters are given a free allocation of allowances together with their permits, while in other cases, emitters must buy all their allowances).. The permit holder surrenders allowances enough to offset its emissions by, or shortly after, the end of the commitment period. For example, a participant that emits 60 units of emissions during a five-year commitment period must surrender 60 allowances to the scheme administrator at the end of the five-year commitment period.

1.8 The schemes include rigid mechanisms should a scheme participant not surrender allowances enough to offset its emissions. In the majority of schemes, large cash penalties apply to participants that do not comply with the requirements of the scheme. This is in order to ensure that emissions do not exceed the overall cap on emissions during the commitment period. In some schemes, participants that do not comply with the requirements of the scheme, in addition to incurring cash penalties, have to make up for a shortfall in allowances in one commitment period by surrendering allowances in the next commitment period. That means the cash penalty does not release a participant from the obligation to surrender the shortfall in allowances.

Some variations of cap & trade schemes

1.9 In recent years, a number of cap & trade schemes in different parts of the world have been established. While all of the schemes rely on the principle of implementing an overall cap on emissions by creating allowances to emit up to the cap on emissions, each scheme varies slightly in how it implements the overall cap on emissions. For administrative reasons, the commitment period of an emissions trading scheme is often split into annual compliance periods. For example, a scheme with a five-year commitment period might split the commitment period into five annual compliance periods. Usually, participants will be required to surrender allowances at the end of each compliance year to offset their emissions in that compliance year.

1.10 One potential variation of a cap & trade scheme is to designate vintage years (or periods) to allowances issued under the scheme. A vintage year designation typically restricts the use of allowances to specified compliance year(s) within a commitment period and hence, limits the banking or borrowing of allowances across compliance years. Vintage year designations are often used in schemes that issue allowances to participants covering several compliance periods at a time. An example is the United States' Acid Rain Program that allocates allowances covering 30 compliance years at a time. This means that a participants' first instalment of allowances covers compliance years one to 30. One year later, the participant receives its second instalment, covering compliance year 31 (and so on). In the Acid Rain Program, each allowance carries a vintage year designation determining the earliest compliance year in which the allowance may be used to offset emissions. The vintage year designation ensures that participants do not make excessive use of allowances in early compliance years at the expense of later compliance years. Excessive use of allowances in early compliance years creates a shortage of allowances in later compliance years which may result in unwanted price increases.

1.11 Another potential variation of emissions trading schemes is whether, and to what extent, the schemes allow for alternative mechanisms in settling emissions obligations. Some schemes allow participants to settle their emissions obligations by making specified cash payments in lieu of surrendering allowances. The cash payments that apply if a

1.12 The alternative settlement mechanism that is most prevalent in emissions trading schemes is the option of carrying out project-based activities. Project-based activities are projects that aim at reducing emissions in regions of the world with no proprietary emissions trading schemes in place. Project-based activities are typically carried out in developing countries. Emissions reductions that result from a project-based activity are calculated by assessing actual emissions against a benchmark of emissions that would have occurred without the project. In exchange for the emissions reductions achieved, the project developer receives certificates from an authorised body, following a verification and certification process. Each certificate represents a specified amount of emissions reductions achieved (eg one tonne of CO_2). Certificates can be used by participants with activities in the scope of an emissions trading scheme to offset their emissions obligations if the scheme accepts certificates as settlement mechanism. Hence, project-based activities provide participants with flexibility in where emissions reductions are achieved. Project-based activities are a form of a baseline & credit scheme, and will be discussed in more detail in Appendix B : Examples of baseline & credit schemes.

Allocation of allowances in cap & trade schemes

1.13 In a cap & trade scheme, the administrator issues the allowances created by the scheme using a combination of (a) selling allowances and (b) allocating allowances for no

monetary consideration (ie free) to scheme participants (ie an 'allocation'). Currently, most schemes allocate a significant percentage of allowances to scheme participants for free. Take the example of a permit holder that emits 100 units during the commitment period and receives 60 allowances for free. The permit holder must acquire an additional 40 allowances (instead of 100) at some point during the commitment period in order to offset its emissions by the end of the commitment period.

Allowances

1.14 The feature that is most hotly debated in emissions trading schemes is the mechanism to be applied to determine the amount of allowances for individual participants. Allocations of allowances, in most schemes, make up for a significant percentage of the overall cap. The allocation of allowances is, in many schemes, expected to decrease over time.

1.15 The allocation plans of the schemes that determine the allocations for eligible participants provide for different, interrelated rationales for why the schemes allocate allowable emissions to participants. The predominant reason is to compensate owners of existing installations for the additional costs of carrying out activities subject to the scheme that they will bear as result of the introduction of a scheme. In order to arrive at individual allocations, the scheme administrator typically estimates the elasticity of demand in a sector that is affected by the scheme. This means that the allocation for a specific sector reflects the extent to which that sector is expected to pass on the costs of emitting to customers via increased sales prices. For example, a participant with emissions of 100 units, of which the scheme administrator expects the participant to pass on 40 units to customers via increased sales prices, would receive 60 allowances at most. Hence, the allocation considers the increased costs of a participant and any related increases as a result of the introduction of the scheme in a participant's inflows from selling goods and services.

1.16 Another reason for the allocation of allowable emissions is to mitigate competitive disadvantages that result from the introduction of the scheme. Competitive disadvantage typically arises if a participant in a scheme is in competition with a participant that does not bear the costs of an emissions trading scheme because its operations are located

1.17 In addition to the considerations of elasticity of demand noted above, other mechanisms are used to determine the individual allocations of allowances to eligible participants. Allocations, for example, can be based on (a) a participants'' emissions in the past (known as grandfathering) or (b) a benchmark of emissions per unit of output (known as benchmarking). For practical reasons, schemes often apply grandfathering in the early stages of the schemes before they switch to benchmarks of emissions. This is because the creation of benchmarks is more complex and time-consuming than the application of allocations that are based on past emissions (ie grandfathering).

1.18 As a constraint, allocation decisions must ensure that the allocations of allowances are not in conflict with local competition laws. To achieve this, allocations must not distort, or threaten to distort, competition by favouring individual participants, because this is incompatible with most competition laws. If participants receive allocations on the basis of different benchmarks, and the allocations are compatible with competition laws, this implies the participants operate in different markets that are not in competition. For example, a utility could receive an allocation on the basis of a different benchmark than a manufacturing participant if the participants are not in competition.

New entrants reserve

1.19 An important issue in emissions trading schemes is how the allocation plans address participants that fall into the scope of the scheme subsequent to its introduction, because they start operations after the commencement of the scheme (new entrants). Emissions trading schemes generally make allocations available to new entrants and explain the allocation mechanisms for new entrants in their allocation plans. To satisfy the demands

1.20 The schemes set aside a new entrants reserve mainly for two reasons. First, the new entrants reserve establishes a level playing field that applies both to existing participants already operating within the scope of a scheme and to new entrants. The creation of a level playing field ensures that the scheme is set up to be consistent with local competition laws, because the scheme does not distort competition between existing participants and potential new entrants. Second, the new entrants reserve ensures that the schemes attract new investments into the regulated market by mitigating barriers to entry. If the right to an allocation is conditional upon a past history of emissions, cost disadvantages may constrain new investments, even if the investments are superior in terms of emissions intensity. The schemes, typically, allocate allowances to new entrants by one of the following mechanisms:

- New entrants receive allowances on a first come, first served basis up to the limit of the reserve.

- New entrants receive allowances on a proportionate basis up to the limit of the reserve. In order to ensure that allocations to new entrants do not exceed the limit of allowances held initially in reserve, a proportionate allocation does not allow determining allocations for new entrants before the end of the commitment period.

- New entrants receive allowances irrespective of the level initially held in reserve. This means the scheme administrator has to extend the initial reserve if more new entrants take up more capacity than expected when they enter the regulated market.

1.21 If a scheme allocates allowances to new entrants irrespective of the level initially held in reserve, actual demand for allocations from new entrants may exceed the amount initially held in reserve. A scheme may respond to this by either (a) buying allowances from the market to satisfy the demand or (b) by extending the initial reserve by creating additional allowances. In the latter case, the scheme administrator increases the overall cap on emissions, but obviously the scheme will not then achieve the original target on emissions.

Closure rules

1.22 Besides providing guidance that deals with new entrants, emissions trading schemes also provide guidance in their allocation plans if a participant closes its emitting operations during a commitment period. Participants that close emitting operations during a commitment period must return their permit to emit related to those emitting operations. The vital issue with closure is how the closure affects the status of a participants' allocation of allowances. In particular, will participants retain allowances that they have already received, and will they retain the right to receive allowances yet to be issued in future compliance periods?

1.23 Each scheme separately defines when closure of an emitting activity occurs, and so a variety of closure definitions has evolved. Closure could include temporary or partial closure as well as full closure. A plant could be considered closed when it ceases operation altogether, ie zero production, or when its production or emissions drop below a certain threshold.

1.24 In the majority of schemes, closure results in allocations being revoked, so that a participant no longer receives allowances in compliance periods subsequent to closure. The schemes, however, differ in how closure rules affect those allowances that already have been issued to participants in the past. One mechanism, called a clawback mechanism, is to require participants to return excess allowances upon closure (ie closure affects a participants' allocation retrospectively). Excess allowances are defined differently in the schemes. Excess allowances are basically the allowances that would not have been issued if the scheme administrator had known of the closure of the

1.25 While most schemes, at least prospectively, revoke allocations in one way or the other if closure occurs, there is an alternative view that advocates that participants should keep their allocations subsequent to closure. This means that a participant continues to receive allowances irrespective of closure. This view sees closure as a legitimate emissions abatement option for participants, and consequently participants should be able to keep their allocation as with other changes made to an installation (eg installing new technology). By continuing to issue allowances in compliance periods after closure, the scheme administrator provides incentives for inefficient installations to close which, according to this view, results in a socially desirable outcome. On the other hand, revoking an allocation as result of closure means that participants have incentives to maintain non-efficient operations in order to receive allowances in future compliance periods.

Baseline & credit schemes

1.26 Baseline & credit schemes represent the second main type of emissions trading schemes, but they are less common than cap & trade schemes. Baseline & credit schemes also introduce a cap on emissions by using a trading mechanism. In a statutory (ie mandatory) baseline & credit scheme, a government typically initiates the process of establishing a baseline & credit scheme by passing a law that puts restrictions in that jurisdiction on the ability to emit specified gases. This means that the law introduces a transfer of the ability to freely emit from emitting sources to the government. Following enactment of the law,

1.27 Where baseline & credit schemes differ from cap & trade schemes is in the implementation of the trading mechanism. Instead of (a) creating transferable allowances up to the overall cap and then (b) allocating allowances to eligible participants, baseline & credit schemes assign baselines of emissions to regulated sources of emissions. Baselines are linked to specific sources of emissions and hence, participants cannot buy or sell baselines separately. Baselines are similar to an allocation of allowances in a cap & trade scheme in that a baseline establishes an amount of allowable emissions up to which a participant may emit without incurring additional costs.

1.28 Baseline & credit schemes differ from cap & trade schemes in the implementation of the trading mechanism in the scheme. In a baseline & credit scheme, the trading mechanism is not introduced before the end of the compliance[1] period. This is because baseline & credit schemes establish the trading mechanism by issuing credits to sources whose emissions remain below their associated baselines in a compliance period. Hence, credits are not created before the end of the compliance period after emissions have been verified. A source that has emitted below its baseline receives credits equal to the difference. Credits are transferable and may be sold or banked for use in future compliance periods (provided the scheme allows for the carry-forward of credits to other compliance periods). On the other hand, a source that has emitted in excess of its baseline is required to surrender credits equal to the difference, shortly after the end of the compliance period. The period of time between the issuance of credits and the deadline for surrendering credits in a baseline & credit scheme is short, usually only a few months. As a result, the trading window in a baseline & credit scheme is shorter than in a cap & trade scheme. The trading window in a baseline & credit scheme, however, expands if (a) a scheme splits the commitment period into shorter compliance periods, and (b) the scheme allows carrying over surplus credits to following compliance periods.

[1] We have noted above that for cap & trade schemes the commitment period is typically a longer period (ie five years) that is split into small compliance periods. A similar structure may occur for a baseline and credit scheme. Thus we have referred to the terms ‘compliance period’ and ‘commitment period’ on the same basis.

1.29 Baseline & credit schemes differ from cap & trade schemes in another aspect. The overall cap on emissions in a baseline & credit scheme can be expressed in (a) fixed units of emissions, or (b) in variable units of emissions to be released during a commitment period. If a scheme establishes a cap expressed in variable units of emissions, the cap on emissions is typically determined in relation to units of output generated during the commitment period. A cap expressed in variable units of emissions is a means to regulate the intensity of emissions intensity (not the overall amount of emissions). For example, a scheme with a variable cap may specify units of allowable emissions to be granted to participants for each unit of power generated. This means that baselines are determined at the end of the commitment period, based on the number of power units generated during the commitment period. In contrast, the overall cap on emissions in a cap & trade scheme establishes a fixed cap on emissions that can be released during a commitment period.

1.30 As in the case of cap & trade schemes, the feature that is most hotly debated in a baseline & credit scheme is the mechanism to determine the amount of allowable emissions that is allocated for free to eligible emitting sources. Whereas cap & trade schemes allocate allowable emissions by freely issuing allowances, baseline & credit schemes allocate allowable emissions by assigning individual baselines to emitting sources. The mechanisms that are applied in order to determine the amount of allowable emissions is similar to the mechanism in cap & trade schemes: baselines are typically based either on (a) emissions of an emitting source in the past (known as grandfathering) or (b) a benchmark of emissions per unit of output (known as benchmarking). For practical reasons, schemes often apply grandfathering in the early stages of the schemes before they switch to benchmarks of emissions.

1.31 Similarly to cap & trade schemes, baseline & credit schemes provide guidance in their allocation plans on how to deal with participants that:

(a) start operating emitting sources subsequent to commencement of the scheme (ie new entrants); or

(b) close their emitting sources during a commitment period.

In essence, baseline & credit schemes treat new entrants and participants that close their emitting sources during the commitment period no differently than do cap & trade schemes (see paragraphs 1.19 - 1.25). This means that baseline & credit schemes generally assign baselines to emitting sources that start operating subsequent to the commencement of the scheme, and revoke baselines from emitting sources that close during a commitment period.

Comparative analysis of the schemes

1.32 Emissions cap & trade schemes and baseline & credit schemes represent two different mechanisms for establishing a cap on emissions. The introduction of a trading mechanism in order to regulate emissions is intended to achieve the cap on emissions more efficiently than other mechanisms that regulate access to restricted resources (eg a tax on emissions). This is because the trading mechanism results in a market-based signal that determines the price of emitting. Under the market-based mechanism, if the costs of avoiding emissions are less than what the participants receive if they sell allowances or credits, participants will avoid emissions and then sell allowances (in a cap & trade scheme) or credits (in a baseline & credit scheme). On the other hand, if the costs of avoiding emissions exceed what participants have to pay to buy the equivalent amount of allowances or credits, participants will emit and will buy allowances or credits to pay for those emissions.

1.33 The main difference between cap & trade schemes and baseline & credit schemes is that the schemes implement the cap on emissions differently. Cap & trade schemes implement the cap on emissions by issuing allowances to emit up to the cap; while baseline & credit schemes implement the cap on emissions by assigning individual baselines to participants up to the cap. In terms of regulating emissions, baseline & credit schemes may be seen as equivalent to cap & trade schemes if the cap implicit in the baseline & credit scheme is fixed and is numerically equal to the fixed cap in a cap & trade scheme. The following table compares the main features of the schemes.

1.34 Table 2: Main features of cap & trade schemes and baseline & credit schemes

type of scheme	cap & trade	baseline & credit
cap on emissions	units of emissions that may be released within commitment period	
implementation of cap	allowances up to cap (a) free allocation to participants and/or (b) sale of allowances	baselines up to cap free allocation to participants
trading mechanism	allowances are tradable	baseline is not tradable credits are tradable
offsetting emissions	allowances covering *total* emissions	credits covering only emissions in *excess* of baseline

1.35 In theory, a cap & trade scheme can be linked to a baseline & credit scheme with a similarly tight cap on emissions. If a cap & trade scheme is linked to a baseline & credit scheme, scheme participants can use allowances (arising from a cap & trade scheme) or credits (arising from a baseline & credit scheme) interchangeably to offset emissions obligations in either of the schemes. Linking of schemes is said to lower the overall costs of compliance with the aggregate cap on emissions, because emissions will be avoided in the scheme that has the lowest costs of abatement.

1.36 The equivalence of the schemes in terms of regulating emissions raises the issue of how this applies to individual participants that are within the scope of the schemes. The extent to which a participant is affected by the scheme primarily depends on the level of allowable emissions that a participant receives via allowances in a cap & trade scheme or baselines in a baseline & credit scheme. All other things being equal, a participant in a cap & trade scheme is in a similar position, in terms of additional costs due to the schemes, to a participant in a baseline & credit scheme if they receive the same level of allowable emissions.

1.37 Take the example of Cap Co, which is a participant in a cap & trade scheme, and Base Co, which is a participant in a baseline & credit scheme. Cap Co receives 100 allowances and Base Co receives a baseline of 100 units of emissions. Cap Co and

1.38 Participants, however, are in different positions in terms of their ability to trade according to whether they operate in a cap & trade scheme or in a baseline & credit scheme. In a cap & trade scheme, the creation of allowances up to the cap on emissions means that participants, typically, are able to start spot trading allowances as of commencement of the scheme. This is because allowances in a cap & trade scheme are typically issued at, or shortly after, the commencement of a compliance period, and there are no restrictions on participants buying or selling allowances. By contrast, baseline & credit schemes create credits as result of a participant having emitted below its baseline in a compliance period. This means that credits are not issued before the end of the compliance period. Hence, trading of credits starts later in a baseline & credit scheme than in a cap & trade scheme. The issue of credits only to participants that have emitted below their baseline also means that the number of credits in a baseline & credit scheme will be significantly smaller than the number of allowances in a cap & trade scheme with the same cap on emissions. In practice, markets for credits in baseline & credit schemes are often said to be of restricted liquidity.

1.39 Hence, even though Cap Co and Base Co end up with the same number of allowances or credits, the participants are in a different position in terms of trading the instruments that result from the schemes. Base Co cannot trade its baseline; it can trade its credits, but not until it has received them, whereas Cap Co is free from the start to sell the 100 allowances that it has received under its allocation. Some argue that the availability of markets for forward contracts renders baseline & credit schemes theoretically identical to cap & trade schemes. If markets for forward contracts exist, a participant in a baseline & credit scheme can enter into a forward contract to sell credits if it expects to emit

Chapter 2: Other types of regulation

License and quota systems

2.1 Even though emissions trading schemes are a relatively new mechanism and these schemes possess features that are unique to them, other mechanisms to regulate access to restricted resources have existed for a long time. Governments, for example, regulate access to restricted resources via quota systems or licence systems. IAS 38 *Intangible Assets* mentions airport landing rights, licences to operate radio or television stations, and import licences or quotas. This chapter outlines some of these other types of regulation in order to provide additional context for emissions trading schemes

2.2 Quota systems establish a cap on the consumption of a restricted resource, and allocate quota shares that assign a quota (ie a share) in the regulated market to the holder of the quota share. For example, a milk quota system establishes a quantitative cap on the overall production of milk in a given period of time. A milk quota share entitles the holder to produce and sell milk up to a percentage of the overall cap specified by the quota share.

2.3 Licence systems allocate licences that grant access to a regulated market to the holder of the licence. Hence, licence systems regulate the number of market participants in a regulated market. A holder of a licence typically does not face restrictions in terms of output created with a licence, because the licence does not determine a share in the restricted market. For example, a taxi licence that permits the licence holder to transport passengers commercially does not impose a limit on the number of passengers transported. This means that the regulator controls the number of taxis, but it does not control the number of passengers transported. Some licence systems use a combined approach, in that they attach a quantitative limit to the licence. For example, a medical general practitioner's licence allows the licence holder to carry out medical services, but it may establish a cap on the practitioner's budget that applies to a given period of time.

2.4 Quota and licence systems are similar to emissions trading schemes, in that they are mechanisms to regulate access to a resource (or an activity). Quotas or licences may be

transferable, or may be linked to related items. For example, taxi licences can often be transferred separately (although the most common situation may be to sell the licence jointly with the taxi). On the other hand, a licence to operate a nuclear power plant is usually linked to the related power plant. In many licence or quota systems, participants that carry out restricted activities must hold licences or quotas before they access the restricted resources. A baseline & credit scheme is similar, because emitting sources must hold a baseline for emissions before a source starts emitting. Cap & trade scheme differ though in that aspect. Although a cap & trade schemes requires a participant to apply or register with the scheme in order to continue activities covered by the scheme, cap & trade schemes allow participants to carry out emitting activities even if the participants do not hold enough allowances at the time when they emit. In a cap & trade scheme, it is only at the end of the compliance period that an emitting participant is obliged to hold enough allowances to offset its emissions. In addition, many licence and quota systems do not provide for any carry-forward if a licence or quota holder does not make use of its licence or quota in a compliance period. However, there are quota systems that are more akin to emissions trading schemes, specifically, to cap & trade schemes. This is because some quota systems allow participants to bank quota for, or borrow quota from, future compliance periods. The next section, *Fishing quota systems*, illustrates a fishery quota system that is akin to a cap & trade scheme because quotas are transferable, and banking or borrowing of quota, to a limited extent, is permitted.

Fishing quota systems

2.5 Fishing quota systems are implemented by many governments in order to regulate the exploitation of fisheries. The New Zealand *Quota Management System* (QMS) is akin to a cap & trade scheme, in that it establishes a market-based-mechanism to achieve an overall cap on the consumption of a resource. While cap & trade schemes allocate allowances free of charge to eligible participants, QMS allocates transferable quota shares to eligible participants. Quota shares are permanent in that they give entitlement to a proportionate share in the overall cap on commercial catch in each commitment period (ie quota shares do not expire for the duration of the QMS). Quota shares can be transferred, and there are no restrictions on a quota holder selling its quota shares.

2.6 Every year, the Minister of Fisheries determines the cap on commercial catch for a one-year commitment period. A holder of quota shares then receives its catch entitlement in the overall cap on commercial catch, on the basis of the quota shares it holds. Catch entitlements are transferable, and separate from quota shares, so that the holder of a quota share can sell its catch entitlement for a commitment period separately (ie without transferring the quota share; the quota share owner keeps its quota share, but it cannot make any catches because it has sold its catch entitlement). Quota shares and catch entitlements are registered in a central electronic registry.

2.7 Participants that catch fish during a commitment period report their amount of actual catch for the year to date (ie cumulative catch in a commitment period up to the reporting date). Once a month, a participants' amount of catch for the year to date is compared to its catch entitlement for that commitment year. If a participants' catch for the year to date exceeds its catch entitlement in any month, the participant pays a cash penalty. If the participant acquires additional catch entitlement during the commitment period in order to cover overfishing in that commitment period, any cash penalties so far will be refunded. At the end of the commitment period, the participant pays a final cash penalty if it does not hold enough catch entitlement to cover its actual catch in that commitment period. The final cash penalty is calculated by multiplying the total amount overfished for a stock by a rate applicable to that stock. Any interim cash penalties that have already been paid will be deducted from this figure, and the balance will be the final cash penalty that will be charged. The final cash penalty that applies if the participant overfishes effectively sets an upper limit to the price on catch entitlement. This is because participants will only acquire additional catch entitlement in order to avoid the final cash penalty if the final cash penalty exceeds the market price for catch entitlement.

2.8 The New Zealand QMS allows participants that hold unused catch entitlement at the end of a commitment period (eg XO) to carry over a percentage of the unused catch entitlement to the next commitment period (X1). Unused catch entitlement is not cumulative (ie participants must use it in X1 or lose it). Similarly, participants may borrow from their catch entitlement from the next commitment period for use in the current commitment period. Even though quota holders can bank or borrow catch

2.9 There are other fishery quota systems that share more characteristics with baseline & credit schemes than with cap & trade schemes. This is because quota shares are not always separately transferable, and may be linked to an individual vessel to which the quota shares have been assigned. One example is the Icelandic fishery quota system that assigned non-transferable fishery quota to individual vessels before 1991. Hence, participants could not transfer the quota separately, or sell parts of the quota. While the Icelandic fishery quota system is similar to a baseline & credit scheme, because it linked quota shares to a vessel, the Icelandic fishery quota system did not introduce a trading mechanism: it did not issue credits to vessels that underfished in a commitment period.

2.10 Many fishery quota systems differ from emissions cap & trade schemes in one important aspect: fishery quota systems often do not allocate quota shares to participants that start operating subsequent to the commencement of the first commitment period (ie new entrants). Quota shares are often allocated to participants on the basis of past history in catching fish. This means that a participant that starts catching fish subsequent to the commencement of the quota system does not receive quota shares, because it has no catch history. Hence, fishery quota systems contain barriers to entry, because a new entrant must acquire quota shares from other market participants in order to participate in the market. Fishery quota systems also differ from emissions cap & trade schemes in how fishery quota systems evolve over time. Whereas cap & trade schemes typically reduce allocations over time (and increase the number of allowances to be sold on the market), fishery quota systems typically do not reduce quota shares in order to encourage the selling of catch entitlements on the market.

2.11 Markets for fishery quota shares are generally less developed than markets for allowances or credits that result from emissions trading schemes. Markets for quota may not be active, and prices are not always publicly available because quotas are sold over the counter and not on exchanges. However, exchanges that trade quota shares do exist in

Chapter 3: Emissions Trading Schemes Project

Background and scope

3.1 There are currently no authoritative accounting pronouncements in either IFRS or United States Generally Accepted Accounting Principles (US GAAP) that specifically address the accounting for emissions trading schemes. Both the International Financial Reporting Interpretation Committee (IFRIC) and the Emerging Issues Task Force (EITF) have previously considered the accounting for emissions trading schemes, but neither issued guidance that was implemented in practice. Appendix C *Accounting pronouncements related to emissions trading schemes* summarises the work that was done by the IFRIC and the EITF, and lays out accounting approaches that are being applied in practice.

3.2 In December 2007, the IASB began work on its Emissions Trading Schemes project. The IASB had noticed there had been a void in authoritative guidance in this area since the withdrawal of IFRIC 3, and that considerable diversity in practice had arisen. The IASB also observed that the topic is of international relevance, with many jurisdictions implementing or evaluating the implementation of emissions trading schemes. Early in 2008, the IASB and the Financial Accounting Standards Board (FASB) decided to conduct work on the Emissions Trading Schemes project jointly.

3.3 In May 2008, the IASB reached a tentative decision on the scope of the Emissions Trading Schemes project. The IASB tentatively decided to address the accounting for all tradable emissions rights and obligations arising under emissions trading schemes. In addition, the IASB will address the accounting for project-based activities, ie activities that a participant undertakes in the expectation of receiving certificates of emissions reductions in future periods.

3.4 At the time of writing this paper, the IASB and the FASB are actively working on the Emissions Trading Scheme project. For information on the status of the project and any decisions of the boards, please visit the Emissions Trading Scheme project pages on www.fasb.org and www.iasb.org.

Appendix A : Examples of cap & trade schemes

EU ETS

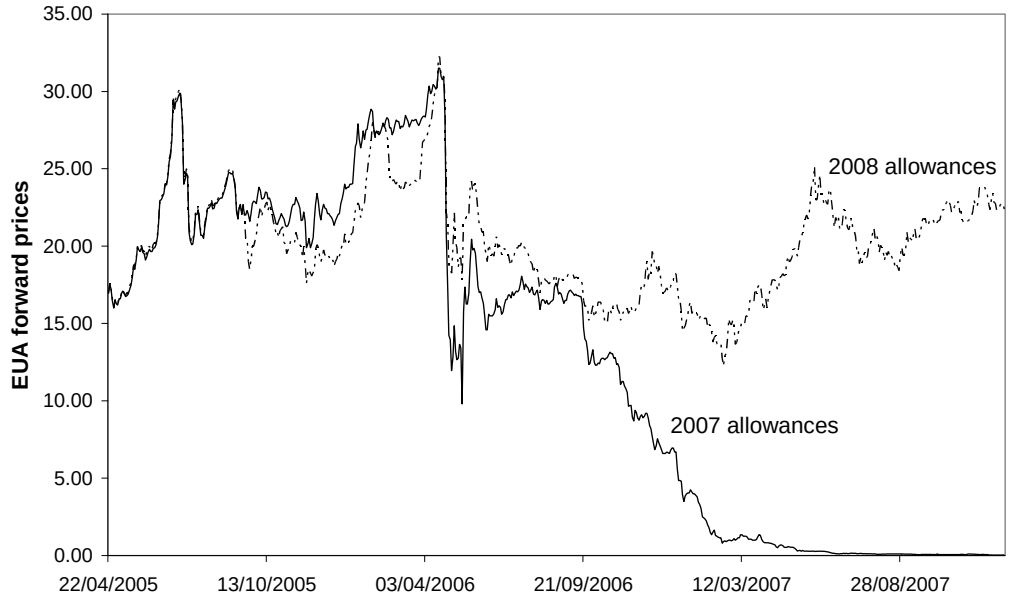
A.1 The European Union Greenhouse Gas Emissions Trading Scheme (EU ETS) is the largest multi-country cap & trade scheme in the world, and it is well documented. EU ETS is a statutory (ie mandatory) scheme that results from the agreement of EU Member States to fulfil their commitment to reduce greenhouse gas emissions jointly through a European market in allowances. The cap on emissions (expressed in equivalents of tonnes of CO_2) that can be released during a commitment period is implemented by allocating quotas of the cap to EU Member States. EU Member States are responsible for administering their individual cap on emissions within their jurisdiction. The national allocation plans of EU Member States determine the amount of allowances to be allocated free of charge to participants, and the amount of allowances to be sold on the market.

A.2 EU ETS commenced on 1 January 2005 with an initial three-year commitment period (Phase 1) that, for administrative reasons, was split into annual compliance periods. Hence, Phase 1 comprised compliance years 2005, 2006 and 2007. In February of each compliance year (ending in December), the administrator issued European allowances (EUAs) free of charge to eligible participants. By April of the following compliance year, participants had to surrender enough allowances to offset their emissions for that compliance year. This meant that participants could borrow allowances from the next year's February allocation when settling their obligation for the preceding year (eg a participant could use allowances from the 2006 allocation when settling obligations for compliance year 2005). If participants did not surrender enough allowances by the end of a compliance year, an excess penalty applied. Participants paid a penalty of EUR 40 in Phase 1 for each unit of emissions (ie per tonne of CO_2) for which the participant did not surrender allowances. It is worth noting that the penalty did not release participants from the obligation to surrender the full amount of allowances equal to their emissions for the compliance year. The scheme required participants to surrender any allowances they were 'short' in the previous year when they were surrendering allowances for the following compliance year. The penalty, therefore, is not a substitute for the requirement

to surrender allowances and thus did not establish an upper cap on the market price of allowances.

A.3 Phase 1 of EU ETS is often referred to as a trial phase because its aim was to get participants accustomed to the concept of emissions trading schemes, not to impose substantive burdens on participating participants. Phase 1 accomplished this by (a) establishing a non-ambitious overall cap on emissions, and (b) freely allocating at least 95 per cent of the allowances created under the scheme. Phase 1 allowed the carry-forward of surplus allowances within the first commitment period (2005 – 2007), but prohibited the carry-over of Phase 1 allowances to the next commitment period (Phase 2), which started in 2008. For example, allowances from the 2005 allocation could be used to offset emissions in the 2006 compliance year (Phase 1) but they could not be carried forward in order to offset emissions in the 2008 compliance year (Phase 2). It is important to consider the restriction on carry-forward allowances in order to understand the market for Phase 1-allowances. Towards the end of 2006, the market for Phase 1-allowances collapsed when it became obvious that too many allowances had been issued. The chart illustrates that the restriction on carrying over Phase 1-allowances to Phase 2 led to the collapse because the collapse did not extend to the forward prices for 2008 allowances (Phase 2).[2]

[2] Source: European Climate Exchange, http://www.ecx.eu/EUA-Futures (accessed: 16.10.2009)



A.4 The second commitment period (Phase 2) of EU ETS commenced on 1 January 2008 with a five-year commitment period (2008 - 2012). The mechanism for implementing the overall cap is similar the one in Phase 1 in that (a) the commitment period is split into five annual compliance years, (b) allowances are freely issued at the end of February in each respective compliance year and (c) scheme participants must surrender enough allowances to offset their emissions in a compliance year by April of the following year. EU Member States shall allocate at least 90 per cent of the allowances free of charge to participants in Phase 2 (95 per cent in Phase 1), with the remaining allowances being sold to market participants (eg via auctions).

A.5 If a participant does not surrender enough allowances by the end of a compliance period, Phase 2 applies an excess penalty of EUR 100 per unit of emissions (EUR 40 in Phase 1). The design of Phase 2 differs from that in Phase 1 in that there is no prohibition on Phase 2 allowances being carried over to subsequent commitment periods of EU ETS (assuming that there will be a Phase 3-commitment period). This mitigates the risk of a collapse of the market for Phase 2 allowances towards the end of Phase 2.

A.6 EU administrators set up electronic registries that ensure the accurate accounting for the issue, holding, transfer and cancellation of allowances. Registries are accessible to the public. and contain separate accounts to record the allowances by each participant to

Allocation of allowances

A.7 In EU ETS, EU Member States determine the allocations of allowances for participants that operate in that EU Member State. For this purpose, EU Member States develop national allocation plans that must be endorsed by EU authorities before they become binding. EU allocation plans typically use a combination of grandfathering and benchmarking in order to determine allowances for participants.

A.8 It is worth noting that the allocations are not uniform and differ significantly across industries that are affected by the introduction of the scheme. For example, manufacturing participants receive a significantly higher level of allowances than do utilities. In the majority of EU Member States, manufacturing participants receive allowances that are close to the level at which the participants are expected to emit during the commitment period. On the other hand, utilities generally receive a level of allowances that is significantly below the level at which the participants are expected to emit during the commitment period.

A.9 Differences in the level of allowances imply that (a) manufacturing participants are not in competition with utilities and (b) the two sectors experience a different elasticity of demand. It is expected that utilities are able to pass on costs of emitting to customers to a

A.10 In EU ETS, the amount of allowances that participants receive free in form of allocations is significant. Phase 2 of EU ETS (2008-2012) requires the free allocation to eligible participants of at least 90 per cent of the overall cap. That means individual allocations are of significant value, representing a considerable transfer of wealth within EU Member States. The allocations for utilities that operate within the scope of EU ETS highlight this. The biggest European emitter received an allocation for the compliance year 2008 that was worth more than EUR 1.5 billion, assuming a market price of EUR 15 per allowance. It is expected that the free allocation will fade out over time in EU ETS and there are plans to reduce allocations for utilities to zero in the next phase of EU ETS. For the time being, though, especially for industrial activities, free allocations will continue to play a significant role, certainly up until 2020.

New entrants reserve

A.11 EU ETS requires EU Member States to provide for allocations to new entrants that start emitting operations subsequent to commencement of EU ETS. EU Member States address the calculation of allocations for new entrants in their national allocation plans. It is, therefore, within the discretion of EU Member States how EU Member States determine the allocations for new entrants, and how they determine the amount of allowances that they include into the new entrants reserve. The level of the new entrants reserve reflects expectations of EU Member States about investments into emitting operations subsequent to the introduction of the scheme. New entrants typically receive allowances based on the capacity of the new installations, weighted by an industry-specific benchmark.

A.12 EU allocation plans address differently situations in which the demand for allowances exceeds the level of the new entrants reserve. Some allocation plans do not make specific

Closure rules

A.13 The national allocation plans of each EU Member State individually determine the closure rules. Generally, national allocation plans revoke allocations prospectively so that participants do not receive allowances subsequent to closure. The allocation plans, however, differ as to whether clawbacks apply to excess allowances. Under the majority of EU allocation plans, participants retain excess allowances for the compliance period in which closure occurs. The national allocation plan of the United Kingdom (UK) explains why no clawback applies to excess allowances. The allocation plan aims at limiting the administrative burden on government, regulators and operators. A clawback rule was not deemed cost-beneficial in light of the small number of closures expected during the commitment period. The UK administrator provides detailed information about the number of expected closures in the current commitment period, and the associated number of allowances. While the majority of EU allocation plans do not include clawback features, a small number of EU allocation plans do specify clawback rules. The German allocation plan, for example, requires participants to return excess allowances upon closure. Excess allowances are the allowances from a participants' allocation that are not needed in order to offset emissions up to the point when closure occurs.

Chicago Climate Exchange

A.14 Chicago Climate Exchange (CCX) is another example of an existing cap & trade scheme that aims at reducing greenhouse gas emissions (expressed in tonnes of CO_2). CCX commenced in 2003 with an initial four-year commitment period (2003 - 2006), followed by a second phase commencing in 2007 with another four-year commitment period (2007 - 2010). CCX, like EU ETS, splits the commitment period into annual compliance

A.15 CCX differs from EU ETS in one important aspect: CCX is not a statutory scheme with mandatory participation. Instead, it provides for voluntary participation by participants. CCX, however, no longer includes voluntary features once a participant has become a CCX member. Participants that become CCX member are committed to remain in the scheme until the commitment period expires. In entering CCX, members make a legally-binding commitment intended to reduce emissions compared to the level of their historic emissions. Members are then allocated allowances in accordance with their commitment to reduce emissions. For example, a participant that commits to reduce its emissions to 100 units during a commitment period receives 100 allowances. Members who reduce beyond their commitment have surplus allowances to sell or bank; those who do not meet their commitment must comply with them by purchasing allowances. CCX has established an exchange that facilitates buying and selling allowances.

A.16 It is worth noting that the possibility of benefiting from the schemes by retaining surplus allowances is of minor importance for most participants that become a member of a voluntary scheme. In fact, it is likely that a considerable number of members will end up with excess emissions (ie their level of emissions exceeds their allocation). The idea of reducing emissions by establishing a trading mechanism relies on the assumption that some members will experience a net outflow of allowances. Otherwise, there would be an abundant supply of allowances and the market would collapse.

A.17 Participants enter voluntary schemes for various reasons.[3] Members, for example, may use their membership as a means to prove concrete action on climate change to their stakeholders. One potential benefit could be to attract an environmentally-focused customer base. Beyond that, membership may allow the member to establish early on a

[3] For a more comprehensive list of benefits refer to the website of the Chicago Climate Exchange (http://www.chicagoclimatex.com/content.jsf?id=821 accessed: 22.12.2009)

track record in emissions reductions, and gain experience with emissions trading schemes, in light of pending legislation. The number of members in CCX has increased steadily, and grew to over 300 with the beginning of the second commitment period in 2007. Despite the growing number of members, and the associated increase in trading volumes, the market for CCX allowances is still marginal compared with the market for EU allowances in EU ETS. The following table shows for EU ETS and CCX (a) the volume of allowances traded in million tonnes of CO_2 equivalents ($MtCO_2e$) and (b) the related value in millions of USD (MUSD).

	2007		2008	
	Volume ($MtCO_2e$)	Value (MUSD)	Volume ($MtCO_2e$)	Value (MUSD)
EU ETS	2,060	49,065	3,093	91,910
CCX	23	72	69	309

Appendix B : Examples of baseline & credit schemes

Project-based activities

B.1 Project-based activities are the most prevalent flexibility mechanism in emissions trading schemes. Participants that are within the scope of an emissions trading scheme may carry out, or use the outcome of, a project-based activity in order to meet an emissions obligation. Project-based activities are a type of a baseline & credit scheme that provides for voluntary participation.

B.2 Project-based activities provide participants with flexibility towards meeting their emissions obligations, because they allow participants to apply emissions reductions that have been achieved in eligible projects against their emissions obligations. Projects are typically eligible for project-based activities if they reduce emissions, compared to the status quo, in developing countries with no proprietary emissions trading scheme in place. Carrying out project-based activities is voluntary, and participants that plan to carry out a project-based activity apply for registration with an authorised body. A project is registered if it meets the criterion of reducing emissions in an eligible by more than would have happened without the project. Registration of a project comprises assignment of a benchmark of emissions. This benchmark reflects the amount of emissions that would have occurred without the project. At the end of, or at a discrete point during, the project's actual emissions are compared to the assigned benchmark of emissions for the project-based activity.

B.3 Project developers, then, receive certificates based on those emissions reductions that have been verified and certified by an authorised body. Each certificate reflects a specified amount of emissions reductions (eg one tonne of CO_2). If no reductions result from the project, no certificates are exchanged. In other words, project developers incur no obligation to surrender certificates if project-related emissions exceed the assigned benchmark of emissions. This means that project developers hold an option that they exercise if emissions remain below the assigned benchmark of emissions. If a scheme allows the use of project-based activities as a settlement mechanism, certificates that result from a project-based activity can be used to offset emissions obligations. In a cap

B.4 Each emissions trading scheme individually determines the criteria for project-based activities to be eligible as flexibility mechanism. As a result, a variety of different project-based activities and hence, a variety of different certificates has evolved. The most prevalent type of project-based activity is the Clean Development Mechanism (CDM), introduced by the Kyoto Protocol. CDM issues Certified Emission Reductions (CERs) in exchange for verified emissions reductions from eligible projects. CERs are accepted as a settlement mechanism by a number of schemes. EU ETS, for example, allows the use of CERs as a supplement to EU allowances. The EU Commission, for Phase 2 (2008 - 2012), considers it appropriate for a participant to use CERs to supplement up to 10 per cent of that participants' allocation of EU allowances. CERs and derivatives on CERs are traded on several exchanges in Europe. Although one CER has the ability to set off the same amount of emissions as one EU allowance (ie one tonne of CO_2), CERs trade at a discount to EU allowances. Some market observers attribute the discount to the fact that the use of CERs is generally limited to supplementing a participants' allocation by only up to 10 per cent.

Greenhouse Gas Reduction Scheme

B.5 The Greenhouse Gas Reduction Scheme (GGAS) scheme establishes an overall cap on greenhouse gas emissions to be released within the territory of New South Wales (Australia). GGAS is a statutory (ie mandatory) baseline & credit scheme that commenced in 2005 with successive one-year commitment periods. GGAS implements the overall cap on emissions by assigning individual baselines to participants that are within the scope of the scheme. The level of a baseline is based on a participants share in the regulated market.

B.6 By comparison to many other baseline & credit schemes, GGAS differs in how it implements the trading mechanism in the scheme. This is because GGAS does not

B.7 Although GGAS does not issue credits to participants that have emitted below their baseline, GGAS does, in restricted circumstances, provide an incentive for participants to emit below their baseline. This is because GGAS allows participants that have emitted in excess of their baseline to carry over excess emissions next commitment period, in an amount of up to 10 per cent of the participants' baseline. Participants set off their excess emissions from one commitment period in the following commitment period to the extent that a participant's emissions remain below its baseline in the following commitment period. This means that the scheme does not provide incentives to emit below the baseline except to cover for excess emissions in previous periods. Hence, GGAS provides no incentive for participants to continuously emit below their baseline, because they then do not receive credits that they can sell.

Appendix C : Accounting pronouncements related to emissions trading schemes

Introduction

C.1 There currently no authoritative accounting pronouncements in either IFRS or United States Generally Accepted Accounting Principles (US GAAP) that specifically address the accounting for emissions trading schemes. Both the International Financial Reporting Interpretation Committee (IFRIC) and the Emerging Issues Task Force (EITF) have previously considered the accounting for emissions trading schemes, but neither issued guidance that was implemented in practice.

C.2 This Appendix summarises the work that was done by the IFRIC and the EITF and discusses the guidelines issued by the US Federal Energy Regulatory Commission (FERC). This is because there is evidence that US GAAP preparers that are regulated by the FERC refer to this guidance in order to prepare their general purpose financial statements. In addition, this Appendix provides accounting approaches that are currently applied by IFRS preparers.

Work of the IFRIC

C.3 In 2004 the IFRIC issued an interpretation, IFRIC 3 *Emission Rights*, addressing the accounting for the rights and obligations arising from participation in EU ETS. ETS is a cap & trade scheme; the IFRIC did not address baseline and credit schemes.

C.4 The IFRIC concluded that, on the basis of existing IFRS pronouncements, allowances issued under EU ETS are intangible assets that should be accounted for in accordance with IAS 38 *Intangible Assets*. Allowances that are allocated for less than fair value should be measured initially at fair value. Any resulting balance is accounted for as government grant in accordance with IAS 20. Initially, the grant is recognised as deferred income in the balance sheet, and is subsequently recognised as income on a systematic basis over the compliance period for which the offsets were issued, regardless of whether the offsets are held or sold.

C.5 The IFRIC acknowledged that IAS 20 *Accounting for Government Grants and Disclosure of Government Assistance* would permit allowances issued for less than fair value to be recognised at the amount paid for them. However, the IFRIC observed that if this treatment were adopted, participants would not recognise allowances issued free of charge on their balance sheet, but they would recognise purchased allowances. The IFRIC concluded that this treatment would not be a faithful representation of the resources controlled by the participant, because purchased allowances are indistinguishable from those issued free of charge.

C.6 In accordance with IAS 38, an intangible asset shall be carried after initial recognition either:

(a) at its cost less any accumulated amortisation and any accumulated impairment losses; or

(b) at a revalued amount, being its fair value at the date of the revaluation less any subsequent accumulated amortisation and any subsequent accumulated impairment losses.

If allowances are subsequently measured according to the revaluation model, an increase in the carrying amount that results from a revaluation is recognised in other comprehensive income.

C.7 As emissions occur during the commitment period, a liability is recognised for the obligation to deliver allowances covering the emissions that have been made. The IFRIC concluded that this liability is a provision within the scope of IAS 37 *Provisions, Contingent Liabilities and Contingent Assets*. IAS 37 requires that a provision must be measured at the best estimate of the expenditure required to settle the present obligation. This is the amount that a participant would rationally pay to settle the obligation at the end of the reporting period, or to transfer it to a third party at that time. IFRIC 3 indicated that this would usually be the present market price of the number of allowances required to cover emissions that had been made up to the balance sheet date.

C.8 The IFRIC stated that the existence or requirement of an emissions trading scheme could cause a reduction in the cash flows expected to be generated by certain assets. The

C.9 IFRIC 3 was criticised by constituents because of its effect on the statement of income. In particular, constituents were concerned about the mismatch in the statement of income. If allowances are measured at cost after initial recognition, a mismatch arises in the statement of income and the statement of financial position, because the liability is remeasured based on the current market price at each balance sheet date. Alternatively, if an intangible asset is accounted for using the revaluation model, the mismatch is limited to the statement of income.

C.10 In response to IRIC 3, many constituents cited a scenario in which a participant receives allowances at the start of the year equal to anticipated emissions for the year, and in which the participant does not trade its offsets, because the offsets will be held to settle the forecast year-end emission obligation. They contended that the accounting in this scenario should have no effect on profit or loss, because the participant was emitting within its allowed limit. From their view a net loss (net gain) should be reported in profit or loss only if the participant produced more (fewer) emissions than the offsets it was given free of charge (or if the participant traded its offsets).

C.11 Accordingly, in December 2003, the IFRIC sought the IASB's permission to develop a possible amendment of IAS 38. The objective of the amendment was to create a new subset of intangible assets in IAS 38, including allowances, which could be measured at fair value through profit or loss. The IFRIC's view was that this would alleviate some (but not all) of the effects in profit or loss from the mixed measurement and reporting requirements of IAS 38 and IAS 37. This is because the asset (offset) and liability (emission obligation) would be measured on a consistent basis with all changes in value reported in the same place, ie profit or loss.

C.12 The IASB agreed that the IFRIC could pursue considering such an amendment of IAS 38. However, the IASB also noted that in 2002 it had decided to amend IAS 20 (which in the IFRIC's view determined the accounting treatment of offsets issued for less than fair

C.13 Because of agenda and staff constraints, little progress was made on IAS 20 in 2004. Meanwhile, the IFRIC was coming under pressure from constituents over the lack of guidance on accounting for the EU ETS. Consequently, in September 2004, the IFRIC decided to issue IFRIC 3.[4]

Withdrawal of IFRIC 3

C.14 During 2005, the IFRIC developed its proposed amendment to IAS 38. The staff of the European Financial Reporting Advisory Group (EFRAG) also developed a model for accounting for the EU ETS. Not only did they propose measuring the offsets at fair value as the IFRIC had done, they also proposed that gains and losses on allowances held to meet highly probable emission obligations should be deferred in equity, and recognised when those emissions occurred (ie a cash flow hedging model). In this way, the EFRAG proposal addressed the concerns of constituents about the timing of income and expense recognition.

C.15 In June 2005, the IASB also considered a request from the European Commission (EC) to defer the effective date of IFRIC 3 (although it had already become effective from 1 March 2005). The EC observed that markets for EU offsets, which are necessary for the proper functioning of the EU ETS, although developing rapidly, were thin. As a result, the IASB observed that there was not as urgent a need for an Interpretation as originally concluded by the IFRIC in 2004.

[4] IFRIC 3 was eventually issued in December 2004.

C.16 Accordingly, in the light of the reduced urgency for an interpretation and the requests from the IFRIC to amend IFRSs, the IASB decided to withdraw IFRIC 3 so that, free of the IFRIC's constraint of only *interpreting* existing IFRSs, it could address the underlying accounting in a more comprehensive way than originally envisaged by the IFRIC.

Work of the EITF

C.17 In 2003, the EITF discussed the accounting for participants in an emissions cap & trade scheme, but did not reach a consensus (EITF Issue No. 03-14 *Participants' Accounting for Emissions Allowances under a "Cap and Trade" Program).*

C.18 After one meeting, the Task Force decided to remove the issue from its agenda. Some Task Force members observed that the issue has implications beyond cap & trade schemes, and that any consensus might impact the accounting for other forms of regulation, such as licences and permits that are granted by governmental authorities. Other Task Force members raised concerns about the prospect of an accounting model that might permit immediate recognition of income upon receipt of the allowance, with the costs of complying with the related regulations being recognised subsequently as an expense. Still other Task Force members observed that they did not perceive a practice issue or diversity in the accounting for emissions trading schemes.

FERC guidance

C.19 The FERC issues accounting guidelines to follow in their regulatory financial statements for participants that are subject to its oversight. The guidelines include specific guidance for the accounting of allowances and emissions obligations arising under a cap & trade scheme, specifically under the Clean Air Act Amendments of 1990.

C.20 The FERC guidance requires accounting for allowances, other than those acquired for speculative purposes, at cost. Granted allowances have a cost basis of nil. The FERC guidance treats allowances as inventories that are consumed in the production process. Hence, the carrying amount of allowances is amortised when the participant actually emits, reflecting the cost of allowances to be remitted for the compliance period. If a

C.21 On dispositions of allowances, a difference between the carrying amount and the sale price will be accounted for as follows: If the sale of allowances results in a gain in the statement of income, and a regulatory programme requires refunding the gain to customers through future rates, a regulatory liability is recognised. If there is uncertainty regarding the existence of a regulatory liability, a gain should be deferred until the uncertainty is resolved. On the other hand, if the sale of allowances results in a loss, and a regulatory programme allows recovering for that loss through future rates, a regulatory asset is recognised. All other gains and losses are recognised immediately in profit or loss. Allowances that are acquired for the sole purpose of generating profits from fluctuations in the price of allowances are marked to market through profit or loss.

Accounting approaches applied in practice by IFRS preparers

C.22 In the absence of authoritative guidance by the IASB, several approaches have developed that IFRS preparers apply to account for the effects of emissions trading schemes. A survey by PwC and the International Emissions Trading Association (IETA) identified as many as fifteen variations to account for the effects of EU ETS.[5] The following table highlights the three main approaches. There is evidence that the largest European emitters primarily rely on Approach 3.

[5] See 'Trouble-entry accounting - Revisited: Uncertainty in accounting for the EU Emissions Trading Scheme and Certified Emission Reductions.' (http://www.pwc.co.uk/pdf/trouble_entry_accounting.pdf accessed: 22.12.2009)

C.23 Table 3: Approaches applied in practice to account for cap & trade schemes

	Approach 1	Approach 2	Approach 3
Initial recognition – *Allocated* allowances	Recognise and measure at **market value** at date of issue; corresponding entry to government grant.		Recognise and measure at cost, which for granted offsets is **nil**.
Initial recognition – *Purchased* allowances	Recognise and measure at **cost**.		
Subsequent treatment of allowances	Allowances are subsequently measured at **cost or market value**, subject to review for impairment.		Allowances are subsequently measured at **cost**, subject to review for impairment.
Subsequent treatment of government grant	Government grant **amortised** on a systematic and rational basis **over compliance period**.		Not applicable.
Recognition of liability	Recognise liability when incurred (ie as emissions are produced).		Recognise liability when incurred (ie as emissions are produced). However, the way in which the liability is measured (see below) means that often no liability is shown in the statement of financial position until emissions produced exceed the offsets allocated to the participant.
Measurement of liability	Liability is measured based on the **market value** of allowances at each period end that would be required to cover actual emissions, regardless of whether the offsets are on hand or would be purchased from the market.	Liability is measured based on: the **carrying amount** of **offsets on hand** at each period end to be used to cover actual emissions (ie market value at date of recognition if cost model is used; market value at date of revaluation if revaluation model is used) on either a FIFO or weighted average basis; *plus* the **market value** of offsets at each period end that would be required to cover any **excess emissions** (ie actual emissions in excess of offsets on hand).	Liability is measured based on: the **carrying amount** of **offsets on hand** at each period end to be used to cover actual emissions (nil or cost) on a FIFO or weighted average basis; *plus* the **market value** of offsets at each period end that would be required to cover any **excess emissions** (ie actual emissions in excess of offsets on hand).

C.24 Depending on the approach that a participant applies to account for participation in an emissions trading scheme, the effect on its financial statements can vary significantly. According to Approach 1 (which is the approach developed in IFRIC 3), allowances are initially recognised at fair value and subsequently measured at cost, or (if the revaluation model in IAS 38 applies) at a revalued amount. Initially, a grant is recognised as a liability at the initial carrying amount of the allowances granted. The grant is recognised in income over the compliance period, and an expense for emissions is recognised in profit or loss. The resulting emissions liability is remeasured at each reporting date to reflect changes in the market value of allowances, with changes recognised in profit or loss. On the other hand, allowances are not remeasured if the cost model in IAS 38 applies. If allowances are remeasured in accordance with the revaluation model in IAS 38, remeasurements are principally recognised in other comprehensive income. Because of the different measurement attributes that apply to the liability for emissions and the allowances that a participant holds, Approach 1 results in a timing mismatch in the statement of income. It was that timing mismatch that constituents criticised in their reaction to IFRIC 3 and hence, only a minority of preparers apply Approach 1.

C.25 Approach 2 and Approach 3 do not result in a timing mismatch in the statement of income. Approach 2 measures the allowances initially at fair value and Approach 3 initially measures the allowances at the amount that a participant surrenders in exchange (eg nil). The timing mismatch does not arise because the measurement of a liability for emissions is linked to the carrying amount of allowances to the extent that emissions are covered by allowances that a participant holds. Both approaches subsequently measure allowances at cost. This means that the (net) effect on profit or loss from participation in the scheme is the amount required to settle any emissions that a participant emits in excess of the allowances it holds. If a participant's emissions are equivalent to the amount of free allowances that the participant has received, no effect on profit or loss arises.

C.26 While the net effect on profit or loss under Approach 2 and Approach 3 is the same, the effects on the statement of financial position differ. Approach 2 portrays the allowances and the liability for emissions in the statement of financial position. This applies to all