

# Financial Reporting for Cap-and-Trade Emissions Reduction Programs

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## 1. Introduction

This paper describes certain financial reporting issues associated with so-called cap-and-trade programs, one of several mechanisms that might be used to reduce certain emissions designated by policy-makers. In general, a cap-and-trade program has two distinctive elements. The first element is an overall limit (a cap) on the amount of emissions of a specified type that are permitted during a compliance period. The government sets the cap to achieve its emissions reduction goals and enforces the cap by requiring entities in the program to surrender emission allowances to cover their emissions during the compliance period. The second element of a cap-and-trade arrangement is a market that arises because the allowances are exchangeable. The idea behind a cap-and-trade arrangement is to create a price for emissions (for example, CO<sub>2</sub>) that will serve as a signal for emitters to make emissions-reducing expenditures. An emitter will purchase allowances (real options that allow the emitter to defer emissions-reducing expenditures) until the price of allowances reaches the point where those expenditures become cost-effective. [US EPA, Cap and Trade: Essentials]

Cap-and-trade programs currently in existence include the US Acid Rain Program (the SO<sub>2</sub> program), which began in 1995, and the European Union's Emission Trading System (EU ETS), which began with a practice round in 2005. [US EPA, Cap and Trade: Acid Rain Program Basics; EC, Emission Trading System (EU ETS)] The American Clean Energy and Security Act of 2009 (H.R. 2454) was passed by the US House of Representatives on June 26, 2009. The bill proposes to introduce a broad cap-and-trade system, the Global Warming Pollution Reduction Program ("the proposed US program"). The goal of the proposed US program is the reduction of US greenhouse gas emissions to 17 percent of their 2005 level by 2050. [Sections 701 and 702 of H.R. 2454] As of the beginning of December 2009, the passage of climate change legislation in the US Senate and the contents of any such legislation are uncertain. Therefore, this paper focuses on the provisions of H.R. 2454.

As described in more detail in section 4 of this paper, there is no authoritative guidance in either US generally accepted accounting principles (US GAAP) or International Financial Reporting Standards (IFRS) on the accounting for cap-and-trade arrangements. The implementation body of the International Accounting Standards Board (IASB), the IFRIC, issued guidance in 2004 and withdrew that guidance in 2005. Both the IASB and the US Financial Accounting Standards Board (FASB) have added projects to their technical agendas to provide authoritative guidance for emissions programs including cap-and-trade programs. In this paper, we apply the ideas of the FASB's Conceptual Framework to the rights and obligations created in a cap-and-trade program and suggest an accounting treatment that we believe is consistent with the Conceptual Framework. We also discuss current accounting practice and some of the ideas currently under consideration by the IASB and FASB.

This paper proceeds as follows. Section 2 describes certain components of a cap-and-trade program from a financial reporting perspective, specifically, the compliance obligations and compliance instruments created by the program.<sup>1</sup> The description focuses on the features of the proposed US program, but the discussion would also be expected to apply to the SO<sub>2</sub> program and the EU ETS, given their similarities to each other and to the proposed US program. Section

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<sup>1</sup> This paper does not address the accounting for derivative instruments whose underlying is emission allowances that might be developed in response to the implementation of an emissions reduction program. The accounting for such derivatives is not part of the IASB and FASB projects on emissions reduction programs. It is expected that existing guidance on the accounting for derivative instruments (FASB Statement No. 133, *Accounting for Derivative Instruments and Hedging Activities*, and IAS 39 *Financial Instruments: Recognition and Measurement*) will apply.

3.1 analyzes the compliance obligations and compliance instruments (emission allowances) in the context of the FASB's Conceptual Framework. Section 3.2 describes the accounting treatment, including income statement effects, that is implied by the analysis in section 3.1. Section 4 describes current practice, including certain alternatives considered by the FASB and/or IASB and section 5 compares our proposed accounting treatment with the treatments described in section 4. Section 6 concludes.

## **2. Components of a Cap-and-Trade Program**

### **2.1. Compliance obligations**

The proposed US program would require entities covered by the program (for example, electricity sources and fuel producers) to hold enough emission allowances as of April 1st of each calendar year to cover their previous year's greenhouse gas emissions. As soon as is practicable after that date, the government retires those emission allowances (removes them from the system). [Section 722, H.R. 2454] An entity that does not hold sufficient emission allowances (a quantity greater than or equal to its previous year's emissions) is assessed an excess emissions penalty of twice the auction clearing price for the earliest vintage year emission allowances in the last government auction before the compliance deadline multiplied by its excess emissions and is required to submit emission allowances in the following year to offset those excess emissions (that is, the entity's obligation to surrender emission allowances is not extinguished). [Section 723, H.R. 2454]

### **2.2. Compliance instruments**

The proposed US program creates an emission allowance as the main instrument through which entities demonstrate compliance with the program. Entities must hold one emission allowance for each ton of CO<sub>2</sub> equivalent emitted in the previous calendar year. [Section 722, H.R. 2454] To achieve specified emission reduction goals, the proposed US program establishes a limited, decreasing quantity of emission allowances that will be available in each calendar year, starting with 4,627 million allowances in 2012 and decreasing to 1,035 million allowances in 2050 and each year thereafter. Each emission allowance is assigned a unique identification number that includes the vintage year for that emission allowance. [Section 721, H.R. 2454] An entity may use an emission allowance for compliance purposes in the vintage year for that allowance or in any subsequent year. [Section 725, H.R. 2454]

### **2.3. Obtaining emission allowances**

The proposed US program specifies both allocation without payment and auction of emission allowances. In addition, entities may obtain emission allowances (or instruments that may be used in lieu of emission allowances) by purchasing them from a third party, generating them through activities specified by the proposed program, borrowing from future allowances, or exchanging existing allowances.

During the initial years of the proposed US program, most emission allowances will be allocated to entities free of charge. Some of those allowances must be used for specified purposes. For example, electric and natural gas local distribution companies will receive allowances that must be used to benefit their consumers. Other allowances will be allocated with no restrictions. Both entities with compliance obligations under the proposed program and entities with no such obligations will receive allowances; for example, state and federal agencies will receive allowances for a variety of public purposes, such as building energy efficiency programs. [Section 782, H.R. 2454]

Under the proposed US program, the government also plans to auction a percentage of emission allowances each year and use the proceeds for a variety of purposes. For example, the

government will auction 15 percent of the emission allowances available each year with proceeds being used for an energy refund program to benefit low income consumers. [Sections 431 and 782(d), H.R. 2454] The government auctions will occur four times per year and are open to entities with or without compliance obligations under the program. [Section 791, H.R. 2454]

An entity may also obtain emission allowances from other sources. First, it may purchase them from a third party; an entity that holds an emission allowance may sell, exchange, transfer, hold for compliance, or retire that allowance without restriction. [Section 724, H.R. 2454] Second, it may obtain compensatory allowances in return for the destruction or conversionary use of certain greenhouse gases or the nonemissive use of certain products if allowances were already retired for the production or emission of the related greenhouse gases. A compensatory allowance can be used in lieu of an emission allowance. [Sections 721 and 722, H.R. 2454]

Third, an entity may borrow from future vintage year allowances to satisfy its current compliance obligation. An emission allowance may be used for compliance purposes in the year immediately preceding the vintage year for that allowance with no interest payment. An entity may satisfy up to 15 percent of its compliance obligation using emission allowances with vintage years up to 5 years in the future, but it must make an up-front interest payment to the government of .08 multiplied by the number of years between the calendar year in which the allowance is being used to satisfy a compliance obligation and the vintage year of the allowance. [Section 725, H.R. 2454]

Fourth, an entity may exchange an emission allowance issued previously by a qualifying domestic program [Section 790, H.R. 2454], or hold an international emission allowance from a qualifying program. To qualify, the international program must be at least as stringent as the proposed US program and must impose absolute tonnage limits on greenhouse gas emissions. [Sections 722 and 728, H.R. 2454]

Finally, an entity may undertake specified activities to generate offset credits which may be used in lieu of emission allowances. An entity earns offset credits by completing qualifying offset projects that result in reductions or avoidance of greenhouse gas emissions or sequestration of greenhouse gases either domestically or in developing countries. [Sections 732 and 743, H.R. 2454] Offset credits would be issued only after a rigorous application and verification process. [Sections 735 and 736, H.R. 2454]

An entity may satisfy its compliance obligation by holding one domestic or international offset credit in lieu of an emission allowance. Beginning in 2018, an entity must hold 1.25 international offset credits to substitute for one emission allowance. A collective cap of 2 billion tons of greenhouse gas emissions annually that can be covered with offset credits is split equally between domestic and international offset credits and is divided pro rata among covered entities. [Section 722, H.R. 2454] The proposed US program requires the EPA to establish a mechanism to ensure that the sequestration of greenhouse gases achieved through offset projects is permanent, for example, by imposing an offset reserve in which a portion of the offset credits that an entity earns is set aside based on the risk of reversal. [Section 734, H.R. 2454]

To summarize, there are four components of a cap-and-trade program like the proposed US program: (1) A “cap” establishing a mandatory limit on the amount of permitted emissions, set by the government. (2) A fixed number of allowances, set by the government and distributed in various ways, including allocation and auction. (3) The ability to exchange allowances both with other entities and over time. (4) A requirement that each covered entity must deliver a number of allowances to the government that is determined by the amount of emissions by that entity. The next section of the paper analyzes these components from an accounting perspective.

### **3. Accounting Framework for Rights and Obligations of Emissions Reduction Programs**

The FASB’s Conceptual Framework provides guidance to standard setters for establishing authoritative guidance. We apply the Conceptual Framework to the components of cap-and-trade programs in section 3.1. Section 3.2 describes the resulting accounting treatment, including income statement effects, of cap-and-trade program rights and obligations that is implied by the Conceptual Framework.

#### **3.1. Using the FASB’s conceptual framework to analyze compliance instruments and compliance obligations**

Standard setter decisions about the development of US accounting standards are guided by the FASB’s Conceptual Framework. The objective of financial reporting is to “provide information that is useful to present and potential investors and creditors and other users in making rational investment, credit, and similar decisions” [FASB, SFAC 1, para. 34]. To achieve that objective, “financial reporting should provide information to help investors, creditors, and others assess the amounts, timing, and uncertainty of prospective net cash inflows to the related enterprise” [FASB, SFAC 1, para. 37]. It should also “provide information about the economic resources of an enterprise, the claims to those resources (obligations of the enterprise to transfer resources to other entities and owners’ equity), and the effects of transactions, events, and circumstances that change resources and claims to those resources” [FASB, SFAC 1, para. 40].

In the FASB’s Conceptual Framework, Concepts Statement No. 2, Qualitative Characteristics of Accounting Information, describes the qualitative characteristics that make financial reporting information useful for making investment, credit and similar decisions—relevance, reliability and comparability. Relevant information is capable of affecting a resource allocation decision; reliable information can be counted on to represent faithfully what it purports to represent; comparable information means that similar items are accounted for the same way, and different items are accounted for differently. We apply these qualitative characteristics and the definitions of financial statement elements, described next, to reach conclusions about the accounting for cap-and-trade programs.

FASB Concepts Statement No. 6, Elements of Financial Statements, defines financial statement elements as the broad classes of items that financial statements comprise: assets, liabilities, revenues and expenses. A standard setter such as the FASB analyzes commercial arrangements such as cap-and-trade programs in terms of their rights and obligations. Rights that qualify as assets are recognized as such (subject to recognition criteria, described below) and obligations that qualify as liabilities are recognized as such, again, subject to recognition criteria. FASB Concepts Statement No. 5, Recognition and Measurement in Financial Statements of Business Enterprises, specifies the following criteria for the recognition of items in an entity’s financial statements (para. 63):

*Definitions*—The item meets the definition of an element of financial statements.

*Measurability*—The item has a relevant attribute measurable with sufficient reliability.

*Relevance*—The information is capable of making a difference in user decisions.

*Reliability*—The information is representationally faithful, verifiable, and neutral.

We apply these recognition criteria to cap-and-trade programs by analyzing the rights and obligations that arise as a result of the program.

### *3.1.1. Analysis of rights*

The implementation of a cap-and-trade program regulates access to a resource that previously was not restricted, thus creating rights to use that resource. This type of regulation is similar to fishing rights and import quotas. Emission allowances and credits satisfy the definition of an asset in Concepts Statement No. 6 – that is, they are “probable future economic benefits obtained or controlled by a particular entity as a result of past transactions or events” (para. 25). A participant in a cap-and-trade program can sell the allowance or use the allowance to settle its obligation to deliver allowances to the government for its emissions.

To be recognized in the balance sheet, an asset must also have a relevant attribute that can be measured with sufficient reliability. Both acquisition cost and fair value are candidate measurement attributes for emission allowances. The acquisition cost measurement attribute recognizes (measures) the allowance at the amount the entity paid to acquire it. This attribute can be simple to implement—costs are typically obtainable, and verifiable, from invoices.<sup>2</sup> Because of the various mechanisms for acquiring emission allowances, otherwise indistinguishable allowances will have different acquisition costs. Therefore, if the allowances are recognized at cost, they will have different balance sheet measurements, including zero if the allowances are allocated and an arms-length transaction price if the allowances are acquired in a market transaction. After initial measurement, acquisition cost does not capture economic conditions at the balance sheet date, including changes in those conditions while emission allowances are held.

The fair value measurement attribute recognizes (measures) the allowance at its exit value, the price at which it could be sold in an orderly transaction with a market participant at the measurement date. [FASB, SFAS 157, para. 5] The fair value measurement attribute could be applied only at the initial acquisition of the allowance or it could be applied both at the initial acquisition of the allowance and in subsequent reporting periods (that is, the allowance would be remeasured to fair value at each reporting date). Because the allowances in a cap-and-trade program are freely exchangeable, the measurement of fair value can be done by reference to transaction prices. In addition, when applied in subsequent reporting periods, this attribute captures the opportunity cost to the entity of continuing to hold an emission allowance, so it provides a comparable measure for allowances regardless of how or when they were acquired. It also captures economic conditions at the balance sheet date, including changes in those conditions while allowances are held.

One way to approach the determination of the most decision-useful measurement attribute for emission allowances is to apply the qualitative characteristic comparability, which prescribes similar accounting treatment for similar items. Entities may acquire fungible, exchangeable and otherwise indistinguishable emission allowances or instruments that can be substituted for those allowances in a variety of ways—through allocation from the government, through government auction, through purchase from a third party, through generating offset credits. Each of these paths to obtaining an allowance (or a substitutable instrument such as an offset credit) would be expected to be associated with a different cost, including zero in the case of allocated allowances. In addition, emission allowances may be held by covered entities (that is, those with obligations under the program) or non-covered entities; the former could use, sell, or save allowances while the latter could sell or save their allowances. However, at every balance sheet date the fair value of an emission allowance would not be affected by how the entity acquired that allowance or how

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<sup>2</sup> Complications will likely develop if the allowance arises from an offset credit that is the result of a substantial and complex capital expenditure program; however, those complications are not substantively different from the allocation and measurement issues involved in calculating the acquisition cost of a self-constructed long-lived asset.

it expected to use or dispose of that allowance. Comparability, therefore, would specify fair value as the measurement attribute as long as any one emission allowance is economically similar to any other allowance. The question thus arises whether the economic characteristics of an emission allowance change based on how the allowance was acquired, the characteristics of the entity holding the allowance, or the entity's intended use of the allowance. Based on the discussion of the compliance instruments in section 2 of this paper, we conclude that emission allowances are indistinguishable one from another regardless of how they were acquired and how the entity intends to use them.

### *3.1.2. Analysis of obligations*

A cap-and-trade program creates an obligation for a covered entity. That is, a covered entity must deliver emission allowances to cover its emissions when previously it could emit an unlimited amount. Once emissions occur, a covered entity has an obligation that satisfies the definition of a liability in Concepts Statement No. 6, "probable future sacrifices of economic benefits arising from present obligations of a particular entity to transfer assets or provide services to other entities in the future as a result of past transactions or events" (para. 35). As described in paragraph 36 of Concepts Statement No. 6, a liability has three essential characteristics: a present (as opposed to a future) duty or responsibility that entails settlement by probable future transfer of assets; little or no discretion to avoid the future sacrifice; the obligating event has already occurred.

The timing of liability recognition is thus determined by the occurrence of the obligating event; an entity recognizes a liability when the entity has a present obligation that it cannot reasonably avoid. An entity that emits gases covered by a cap-and-trade program can expect to have an obligation to surrender allowances or pay the requisite penalty, based on the amount of emissions. The obligating event is thus the act of emitting.

Holding an emission allowance does not obligate an entity to transfer assets or provide services; in particular, it does not create an obligation to emit covered substances such as greenhouse gases or to surrender the allowance. Rather, the obligation arises if and when the entity emits a substance that is covered by the program—an entity that does not emit has no present obligation with regard to emissions or emission allowances. Plans, intentions or commercial necessity to emit do not create an obligation; only the act of emitting does. This reasoning has a long tradition in accounting and supports the recognition of items such as employee compensation as expenses only when and as the employee provides services, regardless of the employer's intention, plan or perceived commercial necessity to have employees and pay them.

Application of the liabilities definition from the Conceptual Framework to the obligations of an entity covered by cap-and-trade program would result in the entity recognizing (accruing) the obligation as it emits. Application of the qualitative characteristics and the recognition criteria would result in measuring the liability at the amount that would be required to settle the obligation that arises from the cap-and-trade program—generally, this would be the fair value of the required allowances. The obligation is accrued over a compliance period and settled at the date specified in the cap-and-trade program by transferring emission allowances to the government.

## **3.2. Accounting treatment of rights and obligations that arise in a cap-and-trade program**

When an entity acquires an emission allowance, it will recognize an asset. If the exchange is for cash or other assets, the offsetting credit is to cash or other assets. If the exchange is nonreciprocal, as when the entity receives the allowance as an allocation from the government, the offsetting credit could be to gain (because the entity has received a future economic benefit

but has not transferred assets or incurred an obligation to do so) or to deferred gain (to be later amortized into income).

In terms of classification, emission allowances satisfy the definition of an intangible asset. Specifically, they are “assets (not including financial assets) that lack physical substance” [FASB, Appendix F, Glossary to SFAS 142, Goodwill and Other Intangible Assets]. Although they have some similarities to financial assets, they do not satisfy the definition of a financial asset.<sup>3</sup> Although they are potentially used in an entity’s operations, they are not inventory.<sup>4</sup> An emission allowance has a service life (determined by the policies of the cap-and-trade program) but its service potential does not diminish over time. Therefore, an emission allowance would not be amortized. If it is measured at cost or at fair value only at the time of initial acquisition, it would be subject to impairment testing (like most other assets). If it is measured at fair value (including in subsequent reporting periods), its balance sheet value would change to reflect changes in economic conditions, with those changes included in comprehensive income.<sup>5</sup>

As an entity emits gases that are covered by the cap-and-trade program, it accrues a liability, the obligation to surrender allowances. The offsetting debit is to expense, a reduction of current income. The initial recognition would be at the amount that would be required to settle the obligation (the fair value of the emission allowances needed to settle the obligation accrued this period). If the obligation is remeasured to fair value at each balance sheet date, the balance sheet value of the liability would change to reflect changes in economic conditions, with those changes included in comprehensive income.

The accounting treatment implied by the application of the Conceptual Framework has two distinctive features. First, the treatment does not “match” the income statement effects of asset recognition and liability recognition (there is income volatility that could be avoided by changing the accounting treatment from one in which the asset is recognized when the entity obtains it and the liability is recognized as the entity emits). Second, the accounting treatment is invariant to the entity’s planned use of an emission allowance (for example, selling it versus using it to satisfy its emissions obligations). We discuss the implications of these two features in section 5, in the context of current practice and standard setting proposals.

## **4. Current Accounting Practice and Standard Setting Proposals**

### **4.1. Current accounting practice**

US GAAP does not provide authoritative guidance for accounting for emission trading arrangements such as cap-and-trade programs. It appears that some US SEC registrants are applying guidance found in the Uniform System of Accounts published by the Federal Energy

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<sup>3</sup> *Financial instrument* is defined in Appendix F, Glossary of SFAS 133, Accounting for Derivative Instruments and Hedging Activities, to include cash, ownership interests, and contracts that require delivery or receipt of cash or other financial instruments on terms that are potentially differentially favorable to one of the exchanging parties.

<sup>4</sup> *Inventory* is described in chapter 4, paragraph 2 of ARB 43, Restatement and Revision of Accounting Research Bulletins, as items of tangible personal property that are held for sale in the ordinary course of business or are in the process of being produced for sale (that is, work in process) or are to be currently consumed in producing goods and services to be available for sale.

<sup>5</sup> Both US GAAP and IFRS separate comprehensive income, defined as changes in net assets except from transactions with owners, into net income (or loss) and other comprehensive income. While we do not pursue this distinction in this discussion paper, we note that a decision to include the effects of an emitting entity’s obligations in income suggests that any remeasurement of emission allowances should also be included in income.

Regulatory Commission (FERC) in their financial reports. That guidance, which takes the form of regulations, not financial reporting standards, was developed for the SO<sub>2</sub> program in the early 1990s.

The lack of guidance on this topic is not limited to the US. When the EU was implementing the first phase of its emission trading system, the IASB attempted to provide guidance to prevent diversity in practice from developing. The IASB's International Financial Reporting Interpretations Committee (IFRIC) issued IFRIC 3 Emission Rights in December 2004, but withdrew it in June 2005 amidst controversy, mainly about volatility in income due to "mismatches" in the recognition of changes in the value of emission allowances and an entity's emission liability.

Not surprisingly, given the lack of authoritative financial reporting guidance, there is diversity in practice in the accounting for emissions reduction programs. A survey of 26 companies by PriceWaterhouseCoopers (PwC) and the International Emissions Trading Association (IETA) identified six main approaches, with as many as 15 variations of accounting among entities covered by the EU ETS. [PwC, 2007] We next describe two of these approaches, net accounting and the IFRIC approach, as well as the FERC regulatory approach that has developed in the US.

The available evidence suggests that the predominant method of accounting is a net approach. Under this approach, the entity recognizes allowances as an intangible asset, measured at cost. Allowances allocated to an entity in a nonreciprocal arrangement will not appear in the balance sheet because they have zero cost, while allowances that an entity purchases through a government auction or from a third party will be recognized at the cost of the purchase transaction. Entities subsequently account for emission allowances at cost, less impairment losses. Entities recognize a liability for their obligations to deliver allowances to the government as emissions are produced, measured as the carrying value of the allowances on hand at the reporting date (up to the level of allowances that the entity is required to surrender) plus the market value of allowances for emissions, if any, in excess of the allowances on hand. In practice, application of the net approach means that a liability will be reflected on the balance sheet (and an expense recognized in the income statement) only if actual emissions exceed the number of allowances allocated to an entity free of charge by the government.

The FERC regulatory approach is applicable to utilities and other companies within the jurisdiction of the FERC, because they must follow FERC's Uniform System of Accounts in preparing their books. FERC's regulations specify the accounting for emission allowances issued under the Clean Air Act Amendments of 1990 as follows. Allowances are classified as inventory and accounted for at cost, unless they are acquired for speculative (trading) purposes, in which case they are accounted for as other investments. Allowances owned by an entity, but withheld by the Environmental Protection Agency, are separately identified. On a monthly basis, an entity recognizes an expense for that month's emissions on the basis of the cost of the allowances to be remitted for the emissions. That cost is calculated based on the weighted average of the cost of the allowances held with a particular vintage year. If an entity determines that its actual emissions exceed the allowances it owns, it estimates the cost to acquire the additional allowances needed and charges that amount to expense, while crediting its inventory of allowances. In practice, the FERC regulatory approach specifies different accounting treatments depending on management intent with regard to emission allowances (trading/speculation versus surrender to the government). In addition, the FERC regulatory approach has balance sheet effects that are similar to the effects of the net approach, in that an entity would not recognize a liability unless its emissions exceed allowances it was allocated free of charge by the government.

IFRIC 3 has been withdrawn (so it is not authoritative guidance). However, several IASB members noted at that time that its guidance is an appropriate interpretation of existing standards. Therefore, some entities continue to use the IFRIC 3 approach to account for emission reduction programs. An entity applying this approach will recognize a liability for the obligation to deliver allowances to the government that arises as the entity produces emissions. The liability is accounted for in accordance with IAS 37 Provisions, Contingent Liabilities and Contingent Assets, and is measured at the “best estimate of the expenditure required to settle the present obligation at the end of the reporting period” [para. 36, IAS 37]. That is, the liability is measured at the fair value of the emission allowances required to offset the entity’s accrued liability at the reporting date. Under the IFRIC 3 approach, an entity will recognize emission allowances as intangible assets accounted for in accordance with IAS 38 Intangible Assets. The initial measurement is at fair value (including allowances received for less than fair value). After initial recognition, an entity may choose to apply the cost model (measure allowances at cost less impairment losses) or the revaluation model (measure at fair value) in IAS 38 in subsequent reporting periods.<sup>6</sup> When an entity receives emission allowances for less than fair value, the difference between the amount paid and fair value is recognized as a government grant that is initially classified as deferred income and then amortized into income on a systematic basis over the compliance period for which the allowances were issued.

A variation that has emerged in practice is to combine the IFRIC 3 model with the net reporting model. Under this variation, emission allowances are accounted for using the IFRIC 3 model (initially measured at fair value), but the obligation to deliver allowances is measured as the carrying value of the allowances on hand at the reporting date (up to the level of allowances that the entity is required to surrender) plus the market value of allowances for emissions, if any, in excess of the allowances on hand.

Application of the net approach, the FERC regulatory approach and the IFRIC 3 approach leads to different financial statement outcomes. In the balance sheet, the net approach and the FERC regulatory approach reflect only the cost of purchased allowances, whereas under the IFRIC 3 model the balance sheet reflects the fair values of both allocated and purchased allowances (at initial recognition of the allowances for entities using the cost model and also in subsequent reporting period for entities using the revaluation model). There are two types of income statement effects. The first effect arises from the use of different measurement attributes for the right (an intangible asset accounted for using either cost or revaluation under IAS 38) and the obligation (a liability accounted for under IAS 37). Using the cost model of IAS 38 to account for the allowances results in a mismatch between the measurement of the liability (remeasured to market value with changes in profit or loss) and the measurement of the asset (cost). Alternatively, an entity that applies the revaluation method of IAS 38 would display changes in the fair value of the allowances in Other Comprehensive Income and the change in the fair value of the liability in profit or loss. The second income statement effect arises from patterns of expense recognition and income recognition. In terms of expense recognition, the IFRIC 3 model would result in the recognition of an expense for the fair value of the emissions produced during the period and income for the amortization of the government grant. In contrast, both the FERC regulatory approach and the net approach result in the recognition of expense only when emissions exceed the allowances received free of charge from the government.

#### **4.2. Current IASB and FASB proposals**

Both the IASB and FASB have added projects to their technical agendas to provide authoritative guidance for emissions programs including cap-and-trade programs. Neither has issued a due

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<sup>6</sup> In contrast to IAS/IFRS, US GAAP does not permit an entity to apply a revaluation model to intangible assets.

process document for public comment. The Boards discussed the project at their joint meeting in October 2008 and have discussed the project separately since.

The scopes of the FASB's project and the IASB's project are similar. They encompass asset and liability recognition and measurement (including asset impairment); timing of profit/loss recognition, accounting for vintage year swaps, presentation (that is, classification and display in the financial statements) and disclosure. The intent is to provide guidance for all emissions reduction programs (of which cap-and-trade programs are one example) and related tradable rights, to be applicable to entities covered by the program and other, non-covered entities that acquire rights. The FASB has not reached any tentative decisions; the IASB reached tentative decisions in March 2009. The first tentative decision reached by the IASB in March is that an entity should recognize emission allowances received free of charge from a government (that is, allocated emission allowances) as assets, measured initially at fair value. The second tentative decision is that an entity that receives allocated emission allowances incurs an obligation to reduce its emissions below the cap represented by those allowances, and that the entity should recognize a liability for this obligation at the fair value of the allowances received. [IASB Update, March 2009]

At its most recent meeting on this topic (April 8, 2009) the FASB Board directed the staff to conduct additional research on the issues to be addressed, in the context of both the ongoing joint (with the IASB) Conceptual Framework project, which is reconsidering, among other things, the definitions of assets and liabilities and the IASB project to amend IAS 37. The minutes of that FASB board meeting (dated April 13, 2009 and available on the FASB's website) suggest the following thinking among FASB Board members and staff members.

With regard to asset recognition, the staff recommendation to the FASB Board is to recognize tradable credits (emission allowances) as assets, measured initially at fair value; the Board did not vote on this issue. With regard to liability recognition, the Board and staff discussed whether the accounting should be based on the substance of the program as a whole, including government intent. The substance and intent of the program was described as imposing a penalty (a cost) on an entity that emits above a specified level, that can be remedied by surrendering offsets; that is, the substance of the program focuses on costs (obligations) and links those obligations to the receipt of allocated emission allowances. A covered entity that is allocated allowances by the government receives potential rights (emission allowances) and incurs potential obligations; there is no need to recognize an obligation unless and until the entity emits beyond its allocated allowances. The alternative view is that an entity that holds allowances has an asset that should be recognized upon acquisition and an obligation that arises as the entity emits (the view that is described in section 3.1 of this paper); the government intent for the program is not relevant in this accounting treatment. The outcome under the first view would be similar to the net accounting described in section 4.1 of this paper.

The IASB and FASB Boards discussed voluntary emission trading programs at their joint meeting in November 2009. No formal votes were taken. Both Boards indicated a preference for an accounting treatment that views the voluntary entry into a voluntary emissions trading program as the event that creates a liability (the obligating event). Signing the voluntary program agreement makes the obligation to deliver emission allowances an unconditional obligation that meets the definition of a liability. [IASB Update, November 2009]

## **5. Discussion of Alternative Accounting Treatments**

As noted in section 3.2, the accounting treatment implied by our application of the Conceptual Framework has two features that distinguish it from both current practice and some of the

proposals discussed by the IASB and FASB. First, the treatment does not “match” the income statement effects of asset recognition and liability recognition and measurement. As a result there is income volatility that could be avoided by changing the accounting treatment from one in which the asset is recognized when the entity obtains it and the liability is recognized as the entity emits. Second, the treatment is invariant with regard to both the government’s intent in creating a cap-and-trade program and the entity’s intent with regard to emission allowances it holds (for example, selling allowances versus using them to satisfy its emissions obligations).

### **5.1. Matching**

Our application of the Conceptual Framework results in asset recognition, at fair value, when the entity acquires an emission allowance and liability recognition as and when it emits. The offsetting credit for the asset recognition would be cash or other assets (for allowances acquired in a reciprocal transaction) or income (for allowances allocated by the government in a nonreciprocal transaction). For some, the recognition of income (even deferred income) upon receipt of an allocated emission allowance free of charge is troublesome. They would recommend that purchased allowances be recognized at fair value while allocated allowances be measured at cost, which would be zero; the result would be noncomparable accounting. An alternative, which seems to underlie some of the discussions of the IASB and FASB, is to recognize a liability and an asset at the same amount and the same time when an entity receives allocated allowances. The argument that supports this alternative is based on the idea that the purpose (that is, the government intent) of an emission trading program is to impose obligations (costs) on emitters; the argument links the accounting for the asset with the accounting for the obligation.

The view that supports the accounting treatment described in section 3.2 is based on the idea that there is no necessary connection between a governmental decision to impose a cost on certain emitters and a governmental decision to provide subsidies (allocated allowances) to offset some or all of these costs. That is, a government could require that a covered entity make a cash payment at the end of every year based on the amount of the entity’s emissions; a noncontroversial accounting treatment would accrue the cost over the year, as emissions occurred (that is debit expense and credit obligation); the obligation would be settled by paying cash. If, instead, the government allocates tradable allowances that can be used to settle the obligations that arise as emissions occur, an entity that receives an allocation can hold them to settle the obligation or sell them, with the understanding that if it sells its allocated allowances it must meet its obligation in another way (for example, by entering the market later in the year to buy allowances).<sup>7</sup>

Although the recognition of income upon receiving allocated allowances in a nonreciprocal transaction is troublesome for some, existing accounting guidance (for example, APB Opinion No. 29, Accounting for Nonmonetary Transactions, para. 6) specifies fair value measurement for an asset received by an entity in a nonreciprocal transaction. The gain from such a transaction arises from the receipt of the assets, and not from the passage of time or from emitting or not emitting. The alternative of recognizing both an asset and a liability at the time an entity receives

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<sup>7</sup> For example, power firms might sell forward power contracts during the first half of a year and buy allowances to cover the projected emissions. The sellers in the first half of the year include industrial emitters such as steel and cement firms who buy allowances in the second half of the year based on more information about their annual emissions. These buy-and-sell patterns are affected by economic conditions which affect the output (and therefore the emissions) of industrial emitters. For a discussion, see “No run-up in EUA prices this year—Nomura,” Carbon Finance Online, <http://www.carbon-financeonline.com/index.cfm?section=lead&action=view&id=12200>.

an allocated allowance implies that the entity has incurred an obligation because of government intent with regard to the emissions trading program.

Matching of measurement bases for assets and liabilities is viewed as the solution to “artificial” income volatility (that is, income volatility induced by accounting measurement and not by changes in economic conditions) for entities holding allowances for compliance purposes. The net approach described earlier provides for relatively low income volatility. However, this approach is not consistent with the existing guidance, in IAS 37, that requires a liability that arises in an emissions trading program to be measured at settlement amount (that is, fair value of the required allowances). Matching in this case would imply measuring the allowances at fair value, as well. During the development and subsequent withdrawal of IFRIC 3, constituents requested that entities be permitted to remeasure emission allowances at fair value with changes reflected in profit or loss, to match the measurement of the entity’s liability for emissions that would be measured at current value.

## **5.2. Intent**

As previously discussed, accounting based on government intent could be used to support recognizing an obligation when an entity receives allocated emission allowances. Accounting based on management intent raises questions about whether entities should apply different accounting to allowances held for compliance and allowances held for trading (speculative) purposes. That is, should the accounting for emission allowances be based on management’s intended use of those allowances, which in turn derives from the entity’s business model?

A recent example of intent-based accounting is IFRS 9, Financial Instruments, issued by the IASB in November 2009. That guidance applies an intent-based test as one factor to distinguish financial assets that are permitted to be measured at amortized cost, subject to impairments. Specifically, the test is whether the objective of holding the asset is to collect the contractual cash flows (as opposed to selling it before maturity to realize the change in fair value). Intent-based accounting rests on the view that an entity’s business model (that is, how management intends to use an asset) changes its characteristics so that a different accounting treatment is warranted. The alternative view is that intent-based accounting introduces avoidable noncomparability because economically similar emission allowances receive different accounting treatments.

## **6. Conclusions**

We have described the components of cap-and-trade emission reduction programs from a financial accounting perspective, that is, in terms of the rights and obligations that arise from those arrangements. Applying the precepts of the FASB’s Conceptual Framework yields the conclusions that an entity covered by a cap-and-trade program would recognize emission allowances as intangible assets, measured initially at fair value and the related obligation as emissions occur. This accounting treatment would not distinguish between purchased allowances and allocated allowances (received free of charge in nonreciprocal transactions) and between allowances held for use and allowances held for speculation/trading. We recognize that the accounting treatment suggested by the Conceptual Framework can yield more volatile income than other possible treatments.

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