FINANCIAL ACCOUNTING FOR EMISSIONS TRADING SCHEMES

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ABSTRACT

In order to mitigate the negative effects of climate change, programs have been implemented to reduce the creation of greenhouse gasses. In this paper the accounting problems associated with emission trading schemes and the current standards developments projects have been investigated by means of a literary review. Due to the lack of an accepted accounting standard, divergent practices have developed when accounting for the effects of emissions trading schemes. Progress is evident in the IASB/FASB joint emissions trading project and the accounting decisions that have been made are based on compromise. In an effort to create a standard that will provide industry and financial statement users the information they need while remaining true to the existing accounting framework. However, this completed standard, regardless of its content, will be the source of conflict when gaining international public approval and adoption because of the existing divergent practice and potential materiality to large emitters accounts.
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INTRODUCTION
Overwhelming scientific evidence shows anthropogenic climate change is affecting our global environment. If greenhouse gas emission levels do not change by the year 2050 scientific modeling conservatively estimates that the mean global temperature could increase 2-5°C. This increase would equate to melting of the polar ice caps, rising sea levels, and changes in weather patterns including significant droughts and increased extreme weather. These changes will significantly hinder the advancement of the human race potentially causing upwards of 200 million Climate Change Refugees. Global Climate Change (GCC) is an issue that requires urgent attention.

In an effort to reduce the impact of GCC governments and other supranational bodies have responded in various ways to develop policies based on mitigation and adaptation. These initiatives range from educational programs to increase public awareness of the environmental effects of their choices to economic or fiscal responses to encourage environmental responsibility. One such economic response has been the creation of regulated emissions trading schemes aimed at reducing Greenhouse Gas (GHG) emissions through the use of cap and trade or baseline and credit programs. These regulated markets have created a carbon market, putting a price on the creation of GHGs, creating a financial impact on GHG producing organizations that did not exist a just few years ago (Bebbington & Larrinaga-Gonzalez, 2008). However, there are divergent accounting practices and no definitive guidance from standards setters on how to account for carbon related allowances or obligations.

Some of the questions surrounding accounting practices in relation to the emissions trading schemes are the initial recognition of assets related to emissions allowances (either by...
purchase or allocation), what kind of asset is an emission allowance, and the recognition of any liabilities associated with the production of GHGs.

In the absence of authoritative accounting guidance, a diverse range of accounting treatments has evolved. This can be seen among the financial statements of companies affected by the European Union Emissions Trading Scheme (EU ETS) where 15 different approaches had been used to account for the effect of the assets and liabilities associated with GHG emissions (IETA 2007). This diversity in accounting practices has lead to companies with similar emissions profiles providing different results on their balance sheets. Creating a lack of consistency in financial reporting among GHG creating organizations that could undermine investor’s confidence in a company’s strategy in regards to carbon transactions (KPMG, 2008) as it is very difficult to compare business performance when accounting treatments are unclear (IETA 2007). In addition, dependent on the accounting practices accepted by the GHG producing company significant volatility can exist within its financial statements.

It is clear that a consistent accounting standard is required to present the information related to emissions trading schemes in a way that is transparent, valuable and comparable with others, while still balancing simplicity, as the impact on operations could be significant. (O’Connor 2009, Ngwakwe 2010, Deloitte 2010).

Many layers of analysis is required to understand GCC and emissions trading fully, this paper will concentrate on the financial accounting issues related to emissions trading schemes. A detailed analysis of the existing accounting methods, stakeholder opinions and academic literature will be undertaken in order to answer the following questions:

• What are the accounting issues related to emissions trading schemes?
• What are the benefits of presenting the net or full position in regards to allocated or purchased emissions allowances?

• What was the reaction to the IASB’s Interpretation IFRIC 3 (Emissions Rights), and why?

• What are the prevailing opinions of the stakeholders in how to proceed with accounting standards in relation to emissions trading schemes?

• How is the IASB/FASB work progressing on a new standard?

GLOBAL CLIMATE CHANGE

The earth is warmed and remains inhabitable largely due to heating resulting from the “greenhouse effect” a natural process by which a portion of the infrared radiation received by earth from the sun is trapped within the atmosphere. Specific gases naturally occurring within our atmosphere have the ability to trap this radiation, which would normally be reflected back into space. These gases, the most common of which are carbon dioxide, methane, nitrous oxide and hydrofluorocarbons are called greenhouse gasses (GHG’s).

Atmospheric GHG levels are currently at the highest concentration they have been in the past 600,000 years. Since the pre-industrial era atmospheric levels of CO₂ have increased from 280ppm to 380ppm (Stern, 2006). The balance of scientific evidence suggests this increase is entirely due to human activities such as the burning of fossil fuels, deforestation and changes in land-use (Stern, 2006). This increase in GHG concentrations has been scientifically proven to have the net effect of increasing the average global temperature (Bebbington & Larrinaga-Gonzalez, 2008). Current scientific modeling suggests that a doubling of the concentration of GHGs from pre-industrial times will result in a 2-5°C increase in the mean temperature of the earth. If emissions continue at their current levels
atmospheric GHG concentrations will double their pre-industrial era concentrations by the year 2050 (Stern 2006).

As the world warms the risk of abrupt and large-scale climate change increases (Stern 2006). Our climate system is non-linear there is fear that any significant increase in GHG concentrations could create a “runaway effect” leading to dangerous climate change (Bebbington and Larrinage-Gonzalez 2008). Within the last century the mean temperature of the earth has already recorded an increase of 0.7°C (Stern 2006). This change is occurring at a rate that is unusually rapid by historical standards and will directly affect human welfare (Breidenich, Magraw, Rowley, & Rubin 1998).

The various global impacts of Global Climate Change (GCC) include changes in rainfall patterns and increased extreme weather events. Melting of the polar ice caps will cause rising sea levels flooding islands, coastlines and other low lying areas, as well as ocean acidification. Changes in ocean currents and weather patterns will create significant changes in effected areas even potentially causing significant cooling. As the mean temperature of the earth warms the range to tropical diseases such as malaria, cholera and dengue fever will increase affecting more of the earth’s population (Breidenich et al 1998, Stern 2006).

Climate change will affect the basic elements of life, such as access to water and food production for people around the world. As many as 200 million people could be permanently displaced due to rising sea levels and permanent drought (Stern 2006). In addition with a 2°C increase in global mean temperature 15-40% of the world species face extinction (Stern 2006).

It is estimated that the overall cost of GCC will be at least 5% of the Global GDP but could be as high as 20% whereas the cost of action to avoid climate change is estimated at only 1%
of the global GDP (Stern 2006). Costs of stabilizing the climate are significant but manageable but action must be taken globally.

An overwhelming body of scientific evidence suggests a discernable human impact on the global climate making climate changes a serious and urgent risk, however there is still time to avoid the effects of GCC if action is taken now. Therefore several global organizations have taken steps to reduce the creation of GHG emissions globally. As early as 1990 the International Panel on Climate Change (IPCC) concluded that it was “certain” that “emissions of GHGs resulting from human activities are substantially increasing the atmospheric concentrations of greenhouse gasses carbon dioxide, methane, chloroflorocarbons (CFCs), and nitrous oxide” and that “these increases will enhance the [naturally occurring] greenhouse effect, resulting on average in an additional warming of the earths surface” (Breidenich et al 1998). These actions eventually lead to the creation of the Kyoto Protocol in 1997.

**KYOTO PROTOCOL**

Due to overwhelming scientific evidence of anthropological climate change the international community recognized the need to create legally binding emissions limits for the six most harmful greenhouse gases by the industrialized countries that ratified the treaty (Breidenich et al 1998, KPMG 2008).

The need for the Kyoto protocol’s legally binding limits evolved from the Framework Convention on Climate Change (FCCC) in 1992. This was a treaty signed by all developed nations committing to a reduction of GHG emissions to 1990’s levels by the year 2000. However, it became apparent shortly after its adoption that because it was not legally binding and there were no immediate consequences for those who did not meet their targets, the
treaty was not implemented by many countries who endorsed its creation (Breidenich et al 1998).

The Kyoto Protocol is complex reflecting the complicated existing political, economic, scientific and legal issues raised by anthropogenic climate change (Breidenich et al 1998). It has 5 main concepts:

- Commitments to GHG reductions
- Implementation of policies to meet the objectives
- Minimizing the effects on developing countries
- Accounting, Reporting, and Review of emissions
- Compliance

The Kyoto protocol recognizes a common but differentiated responsibility, with the developed countries baring most of the responsibility to reduce GHG emissions. This is because developed countries have historically contributed more to the problem, where as developing countries generally have a low level of emissions per capita, and in order for their continued development their emissions will need to increase.

Overall the Kyoto protocol requires a lowering of global GHG emissions to an average of 5.3% below 1990 levels. However, this is based on a sliding scale, taking into account the vast differences in the national circumstances particularly natural resources, energy production and consumption profiles of the developed nations. For example an 8% decrease is required of the European Community (EC) while a 10% increase is allowed for Iceland and Russia is expected to make no change in their emissions (0% decrease) (Breidenich et al 1998).
The Kyoto protocol defines three mechanisms for decreasing emissions. They are International Emissions Trading (IET), the Clean Development Mechanism (CDM) and Joint Implementation (JI). IET limits emissions through use of cap and trade, baseline and credit, and rate based schemes that create a regulated trading environment (KPMG 2008). CDM and JI are project-based approaches aimed at reducing the generation of emissions. The CDM is based on partnerships with developing countries and generates reductions in GHG emissions. This mechanism generates Certified Emissions Reductions (CER’s) that can be used by developed countries to offset their emissions. Joint implementation, like the CDM, is project based but it is meant to generate emission reductions in developed countries taking effect in 2008.

To date only one developed country of note has refused to ratify the Kyoto protocol. It is the world’s second highest GHG emitter, the United States.

THE CARBON MARKET

Emissions Trading Schemes
In order to meet the reduction of GHG emissions defined by the Kyoto protocol a regulated mechanism is the development of emissions trading schemes. To facilitate the successful implementation of the emissions trading schemes a government or regulatory body must create laws taking the power to emit from the entity and giving it to the government. Therefore no longer allowing emitting to be free activity. An arrangement is then determined in which participating entities may be required to remit to an administrator a quantity of tradable rights that is linked to their direct or indirect effects on the environment (Glowacki Law Firm 2010). These schemes create a cost for emitting where one did not previously exist.
Typically there are two popular approaches when implementing such a scheme, cap and trade and baseline and credit. Both are market-based approaches aimed at the reduction of emissions.

**Cap and Trade**

In general, in a cap and trade program a central authority issues a defined amount of emissions allowances to a participant entity at the beginning of the compliance period. At the end of that compliance period the entity must surrender allowances for any GHG’s they have emitted. If the entity has generated fewer emissions then the allocated allowances the additional allowances can be sold on the open market for a profit. If the entity has generated more emissions then the allocated allowances they must purchase additional emissions allowances. If an entity does not have enough allowances to cover its emissions at the end of the compliance period it not only faces hefty penalty but will also be required to produce allowances to cover the shortage during the next compliance period. Allowances can be bought or sold at any time on the open market, and can also be generated through the other Kyoto mechanisms. Over time the total number of allowances granted by the central authority will decrease therefore creating an economic incentive to generate fewer emissions.

Typically the majority of allowances are gained by means of a free allocation from the regulating body or through an auctioning process. Auctioning allowances is expected to be a more effective way of reducing emissions, as entities would be encouraged to make the easiest reductions first. However it is feared that moving to an auction system too quickly might be counterproductive causing entities to simply pass the additional costs on to consumers rather than implement reduction programs.
Some cap and trade programs consider that once the regulatory agency has allocated the emissions allowances they are the entities to keep regardless of what happens during the compliance period. This would mean that if an entity were to discontinue operations it would not be required to return its emissions allowances, allowing for their sale on the open market to generate cash. Other schemes have implemented clawback clauses where if operations are discontinued during the course of the compliance period the entity is expected to return any unused allocated allowances.

The most notable cap and trade program in use today is the one implemented by the EU as the cornerstone of its climate change policy. The EU ETS has been adopted by all 25 member countries and affects approximately 12000 installations covering about 40% of the European Unions generated GHG’s.

The EU’s cap and trade program is run on a per nation basis and works on allowances allocated for free, however it is expected that a gradually increasing proportion of allowances will be auctioned starting in phase 3 which will run from 2013-2020. Currently regulations on clawbacks vary per country with most European countries selecting not to implement clawback clauses, Germany would be one notable exception.

**Baseline and Credit**

Like cap and trade schemes baseline and credit schemes seek to create a cost for the generation of emissions. They differ in the implementation of the emissions cap. Baseline and credit schemes implement the cap on a per entity basis. Creating a baseline for each entity, allowing that entity to emit up to the level of its baseline. If an entity emits less than the baseline established by the regulatory agency it receives a credit equal to the difference. These credits can be sold or banked for use in future compliance periods. If an entity creates
more emissions than what was defined in its baseline, it is required to surrender credits equal
to the difference shortly after the end of the compliance period. Unlike a cap and trade
scheme where trading of emissions allowances can take place at any time, in a baseline and
credit scheme the time between when the credits are issued and the deadline for surrendering
credits is short therefore the trading window is short.

All other things being equal a participant in a baseline and credit scheme is in a similar
position as a participant in a cap and trade scheme in terms of additional costs due to the
scheme. A weakness of the baseline and credit is that insufficient credits may be traded to
sustain a market therefore a baseline and credit scheme doesn’t have the same market thrust
as a cap and trade scheme. Limiting the participant’s ability to trade allowances for profit.

**Carbon Market Size**

In 2009, the global carbon market grew to $144 billion US up 6% from 2008 despite a
challenging year due to the global economic crisis (World Bank 2010).

The EU emissions trading scheme continues to be the driving force for the carbon market, as
it is the most inclusive and established scheme existing. In recent years trading volumes have
increased substantially and there is evidence to suggest that a large number of participants
actively engage in trading allowances, particularly European utilities (IASB 2009). EU
allowance transactions reached $118.5 billion US in 2009 meaning the rights to over 6.3
billion tones of CO₂ changed hands through spot, futures, and options contracts (World Bank
2010). Substantial growth was noted in the spot markets during the first half of the 2009,
proof that EU companies were using emissions allowances to generate cash during the
economic crisis where additional financing was hard to secure (World Bank 2010).
The resulting credit crunch created by the global economic crisis led to a reduction in the access to capital and caused project development through the JI and CDM mechanisms to sharply decrease due to the inability for many project developers to secure financing (World Bank 2010).

The carbon market is expected to reach into the trillions of dollars in the next decade as more emissions trading schemes are brought online (Platt 2009). In 2007 the US emitted 7.14 billion metric tones of GHG’s. Currently the US market is valued at $100 million US but it is projected to grow to over $4 billion US with the senate approval of federal emissions caps in late 2009 (Elfrink & Ellison 2009, World Bank 2010). New Zealand has created a mandatory cap and trade program as part of its climate change policy and Australia is set to follow in the near future, however currently the bill has been tabled until 2013 due to governmental issues. In addition Japan, Brazil, Mexico and many other countries are seriously considering the development of either mandatory or voluntary emissions trading schemes to be implemented in the near future. However, with the Kyoto protocol set to expire at the end of 2012 and a lack of progress being made by political powers in the creation of a new agreement, these markets need long-term signals from regulators and policy makers to aid in their creation.

**Financial Impact**
The financial impact on participant companies is forecasted to be minor. Economic theory suggests that businesses participating in an emissions trading schemes will pass on opportunity costs to their customers allowing them to make net profits due to the combination of increased product prices and free emissions allocations. Empirical studies have now been completed using the first two phases of the EU emissions trading scheme.
(Smale, Hartley, Hepburn, Ward, & Grubb 2006, de Bruyn, Markowska & Nelissen 2010, Lund 2007, Kara, Syri, Lehitla, Helynen, Kekkonen, Ruska & Forstrom 2006). The results suggest that not only energy producers but also energy intensive industries had passed through the opportunity cost of emissions allowances to their product prices. This pass through of the opportunity costs of emissions trading has been well documented in EU electricity prices (Kara et al 2006, Bonacina & Gulli 2007). Therefore participating entities are facing an increase in cost on two fronts, those directly related to emissions reduction schemes as well as indirect costs of comparable magnitude related to higher electricity costs (Lund 2007).

In general, empirical evidence suggests that most participating sectors are expected to have profited from the EU’s emissions trading schemes with the notable exceptions of the cement and steel industries which are most effected (Lund 2007, Smale et al 2006). However it has been noted that some electricity intensive industries not regulated by the EU emissions trading scheme, such as aluminum and chlorine production, face significant negative affects due to increased electricity costs (Lund 2007, Smale et al 2006).

EMISSIONS ACCOUNTING ISSUES

With the relative youth and size of the carbon market there are obvious complexities associated with accounting for the effects of emissions trading schemes. Unfortunately the main features that make these emissions trading schemes attractive to governments are precisely the ones that create difficulties for accountants to capture under existing standards. The challenges result from a previously costless activity has now become costly, however, the government has mitigated the cost by means of marketable allowances (Cook 2009). The
accountant’s problem is rooted in the government’s objective to motivate the producers of emissions by creating an input cost (Cook 2009).

Emissions trading schemes create several accounting issues according to Veith, Werner & Zimmermann (2009) five are of notable interest:

- Emission rights before maturity fulfill the definition of assets and can be purchased or sold at any time on the active market.
- Typically, a certain number of certificates are allocated for free while extra certificates have to be purchased.
- Physical emissions give rise to recognizing expenses and liabilities.
- The liability emerging through annual emission is settled by surrendering the respective amount of emission rights (i.e. the liability cannot be settled in cash). This is done on 30 April of the subsequent year; that is, for most firms the end of their financial year and that of the ETS trading cycle do not coincide.
- Variation in emission rights prices gives rise to holding (or trading) gains or losses.

When considering these accounting issues it is important to consider them relative to how the allowance was acquired, either by allocation, purchase or Kyoto’s CDM. As well as whom it was acquired by, either broker or emitter. (Raiborn & Massoud 2010). This variance in the cost and use of emissions allowances is the core issue when defining one uniform accounting treatment across the entire emissions trading collective.

**Are Emissions Allowances Assets?**

It is clear that emissions allowances meet both the FASB and IASB definitions of an asset. However emissions allowances do not fit neatly under any existing accounting standard because of their so many uses (commodity, currency, or financial instrument), therefore causing problems associated with their classification. Arguments exist to classify emissions allowances as inventory, intangible assets or financial instruments.

Inventory assets are typically defined as assets that are either ready for sale in the course of ordinary business, in the process of production, or consumed in the process of production.
Since emissions allowances have become part of the necessary costs to comply with the environmental regulations and emission reductions schemes it can be argued that they are consumed in the process of production and therefore an inventory asset. Proponents of this theory suggest that emission allowances are a key cost of production and can be viewed the same as any other operational input (Raiborn & Massoud 2010, Delloitte 2010).

Intangible assets are defined as an identifiable asset without physical substance. Since emissions allowances are without physical substance but still maintain value both in the ability to create emissions, but also within the spot carbon market, they more closely meet the definition of an intangible asset than that of an inventoried asset. However some of the traditional accounting practices associated with intangible assets do not fit with emissions allowances due to amortization issues associated with their finite life (Deloitte 2010).

Finally financial instruments are defined as a contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity. An emissions allowance’s lack of substance and ability to be traded on the open market creates another albeit less popular argument for the classification of emissions allowances as financial instruments (Raiborn & Massoud 2010). A compelling argument for the inclusion of emission allowances as financial assets is the fact that carbon brokers participate in the carbon market on the short term buying and selling allowances as the spot market price fluctuates.

Currently in industry emissions allowances are widely classified as both inventory and intangible assets, with industry regulators accepting either definition.
What Is Their Accounting Value?

Emissions allowances can be acquired in a number of different ways varying from the free or low-cost allocation by government agencies to purchase on the open market. Typically only small amounts of emissions allowances are purchased or traded, therefore the valuation of the granted allowances is debatable. When taking into account the volumes of emissions allowances that are allocated over a course of the compliance period differences in valuation treatments across entities has the potential to cause significant impact in the financial statements. In addition, recognition of assets and liabilities with different valuation bases could produce volatility of the financial results of some companies. For these reasons there is significant debate over the accounting value of emission allowance allocations. Should they be recognized at historical cost or fair value?

With many regulated entities using both purchased and allocated allowances throughout the course of normal production often the allowances obtained by governmental allocation are recorded at their historical cost (zero value) and combined with the purchased allowances at market value to produce a weighted average cost of allowance during use. This method significantly underreports the actual value to the emissions allowances, but given that most regulated entities intend to consume the allowances during the course of production within the compliance period, from their perspective this issue is considered minor.

Other stakeholders support a fair value approach to recording the market value of the emissions assets regardless of how they are acquired. Application of this method creates a more accurate picture of the economic effect of emissions allowances but creates further questions in regards to how and when to recognize the value of the allowances that are allocated at a cost significantly below their market value. The recognition of this value could
be completed by use of a government grant, but this in turn creates more questions regarding this timing of the recognition of the grant. Currently under IFRS that government grant would be recognized as income inline with the costs it is meant to subsidize, ie the grant is recognized as income on a matching basis as costs are accrued by the generation of emissions over the compliance period (Elfrink and Ellison 2009). However, an argument could be made for the initial recognition of the entire emissions allowance upon receipt, when the government can no longer take away the subsidy and it belongs entirely to the entity (Cook 2009).

Currently most regulated entities use the historical cost method when valuing their emissions allowances. There would be more industry support for the fair value method if the grant could be treated the same as liability and revalued continuously to current market prices avoiding the generation of some artificial volatility that have caused many critics to voice complaints (Cook 2009).

**Are Emissions Liabilities And If So When Should They Be Recognized?**

In industries effected by emission trading schemes most entities emit GHG’s through the normal course of their business. It is clear that as these regulated entities incur an obligation to produce emissions allowances for any GHG emissions occurring within the compliance period or face severe penalties (Deloitte 2010, Elfrink & Ellison 2009). The questions existing are related to how and when should these liabilities be recognized.

The liability can be recognized based on the amount of physical emissions that have been generated within the compliance period to date, or accrued based on an average of the expected amount of emissions within the entire compliance period. This liability could be
valued based on the weighted average cost of the emissions allowances held by the company or this liability could be valued based upon its current market value (Deloitte 2010).

In addition, one existing argument suggests valuing the obligation from GHG emissions as follows. An obligation for an estimation of any physical emissions above the allocated allowances within the compliance period would be estimated and then an equal portion of that cost would be accrued during each reporting period. This method involves only reporting the net position and holding the allocated allowances either off the balance sheet or at zero value (historical cost).

**When Is The Revaluation Of Assets And Liabilities Appropriate?**

Revaluation of the assets and liabilities related to emissions is another common accounting question in relation to emissions trading schemes. Upon initial receipt should the emissions allowances received by allocation be accounted for at their market value or at their cost (nil value), or at some combination of the two. The same question can be asked regarding the liability that emerges from emitting, should it be valued at the cost of the allowances on hand or at the market value of the allowance, or a combination of the two. If the asset for the emissions allowance is to be valued at fair value initially when is it appropriate to revalue it to the current market value. Typically the liability associated with a market driven commodity is revalued to market value at the statement issuing date. Therefore if the liability associated with emitting is to be held at market value if the allocated assets are not revalued to current market value a significant variation in value of the liability and the value of the asset could be recorded when in reality none exists.

Accounting mismatches with regard to emission rights are typically due to different valuation rules for assets, liabilities, revenues, and expenses and their respective timing (Veith et al
As can be seen above as decisions are made regarding the accounting treatment of emissions trading schemes, more detailed questions arise. In addition some decisions create unintended mismatches or artificial volatility among the financial statements of effected entities. Given the relative youth of emissions trading schemes and their complex effects on the regulated entities financial statements it is difficult for standards setters to define the accounting treatments and boundaries of emissions trading schemes while still maintaining the intent and purity of the existing accounting standards.

**POTENTIAL APPROACHES**

To date there has been two generally accepted approaches to account for and present the economic effects of emissions trading schemes. These have been to either report the net position or the full position. In the net approach only purchased credits would affect the balance sheet, allocated credits are reported at a nil value. In the full approach all emissions credits are held at market value on the balance sheet. Any government issued credits would be considered a donated asset. In addition the full liability is also carried at market value (Bebbington & Larrinaga-Gonzalez, 2008). Both approaches are discussed in more detail below.

**Net Approach**

The net approach involves recognition and reporting of the net position in regards to emission allowances. Maintaining the status quo when dealing with the accounting effects of emissions trading schemes by dealing only with the marginal effect on cost. If the entity creates no more physical emissions than the amount of allowances issued to them no new cost emerges. Therefore when dealing with the net approach the only cost would be
acquiring additional allowances in the market and the only credit would be related to the
proceeds of a sale, netting the benefits of the allowances against the cost of emissions.

Proponents of this method argue that as long as an entity emitted no more than the amount
covered by its emissions allowances no new costs arise and to furnish more information
regarding emissions trading schemes would be to confuse the actual economic picture with
too much data. They suggest that taking a net approach would smooth the noise within the
data associated with emissions trading schemes presenting a clearer picture of the economic
effect of carbon emissions (Veith et al 2009). In addition this approach is easier to
implement than the full approach with less questions surrounding the recognition of assets.

The weakness associated with the net approach is that it moves significant obligations off the
balance sheet creating a partial invisibility of the effects of the emissions (Griffin 2010,
Mackenzie 2009). All allowances, purchased or allocated, have value and could be sold in
the carbon spot market for cash, as well, all emissions create a liability not just those
occurring above the entities target level. Therefore, the net approach tends to understate both
the assets and liabilities associated with GHG emissions.

Once government issued allowances have been allocated to an entity, in most cases they will
not be rescinded if the entity was to no longer continue in a business that creates emissions of
GHG’s. In such an event the additional credits could be sold on the carbon spot market for
cash. Therefore regardless of their origin emissions allowances have an effect on the bottom
line of the company (Mackenzie 2009). Additionally this approach will breakdown as
allowance trading begins, when it becomes impossible to determine which allowances were
part of the government grant and which were gained by purchase on the market (Cook 2009).
The net approach effectively disables the market oriented thrust of cap and trade schemes, undermining a major desired effect of the creation of a carbon market. That is, to incentivize even those companies who have additional emissions allowances to cut their emissions in order to generate income by selling allowances (Cook 2009, Mackenzie 2009). To achieve this all emissions allowances must be seen to have a monetary value.

In 2007 approximately 60% of companies used the net approach (IETA 2007) therefore incorporation of the carbon price into the markets calculative mechanism in only partial at best (Mackenzie 2009).

In order to show the effects of the net approach the following simplified example has been included. This example assumes the following:

- This entity is an over emitter (Expected emissions > Allocated allowances)
- 1,000 allowances have been allocated.
- Entity expects to emit 1400 tonnes of carbon evenly through out the year
- Additional allowances are purchased twice with in the year
- Allowance price is constant at 10 €/Tonne of Carbon

Therefore using the net approach the following assets and liabilities would be captured. This represents only the purchased allowances due to their over emitter status.

<table>
<thead>
<tr>
<th></th>
<th>Allocation</th>
<th>First Half</th>
<th>Year End</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emissions</td>
<td>0</td>
<td>2000</td>
<td>4000</td>
</tr>
<tr>
<td>Allowance Assets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>€</td>
<td></td>
<td>-2000</td>
<td>-4000</td>
</tr>
<tr>
<td>Emissions Liability</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>€</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Effects of the Net Approach
Full Approach

This approach accounts for all of the effects of emissions trading schemes by creating an asset for all emissions allowances (allocated and purchased) and a liability for all GHG emissions. The argument for using the full approach suggests that netting is only appropriate when the asset and liability are similar in nature, which is not the case with an inventoried or intangible asset, verses the emissions obligation. In addition, the regulator is not a debtor to the allowance holder. (Deloitte 2010)

However, it is the opinion of some that the full approach is unnecessarily complicated and an accurate economic picture can be painted using the net approach. It is felt gross methods are too complex and furnish a noisier signal about the effects of emission trading schemes, making the net approach the preferred method (Veith et al 2010).

In 2007 only 5% of companies affected by the EU emissions trading scheme used the full approach (IEA 2007).

Regardless of the chosen accounting treatment, the net effect of emissions schemes over two years is the same, however, at the end of year one there is significant difference in the emissions expenses recorded. Dependant on the company or industry and the choice of accounting treatment these differences could prove material to investors. This is especially evident in utilities, energy and materials sectors (Griffin 2010).

Using the same example as above the following entries would be made using the full approach.
EXISTING GUIDANCE

Existing guidance regarding emissions trading schemes is not very common but does exist in the form of the now withdrawn International Financial Reporting Interpretations Committee’s (IFRIC) interpretation IFRIC 3 and a guideline from the American Federal Energy Regulatory Commission’s (FERC) that was created in the 1990’s as part of a cap and trade program implemented in the United States to reduce acid rain.

IFRIC 3

In 2004 the International Accounting Standards Board (IASB) issued IFRIC 3 (Emissions Rights) to provide guidance related to emissions trading schemes. Emissions trading schemes were still in their relative youth and there was a lot of disagreement regarding their accounting treatment. Emissions trading schemes, though useful from an environmental and governmental perspective, created problems from an accounting perspective because they did not fit perfectly within the existing principles outlined in the IASB’s framework. Though it was clear that some of the existing standards may need amendments to ensure the meaningful accounting of the economic effects of emissions trading schemes, in an effort to provide timely guidance to affected entities, the IFRIC committee tried to work within the existing framework to provide the necessary guidance. Concluding that the need for timely guidance

Table 2: Effects of the Full Approach

<table>
<thead>
<tr>
<th>Emissions Allowance Assets (€)</th>
<th>Allocation</th>
<th>First Half</th>
<th>Year End</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10000</td>
<td>12000</td>
<td>14000</td>
</tr>
<tr>
<td>Emissions Liability (€)</td>
<td>0</td>
<td>-7000</td>
<td>-14000</td>
</tr>
</tbody>
</table>
to prevent divergent practices developing outweighed the disadvantage that the interpretation might be amended in the future (IFRIC 3 2004).

IFRIC set out to provide accounting guidance for an operational cap and trade emissions rights trading scheme. According to IFRIC 3 (2004) the issues covered within their scope were as follows.

- *Does a cap and trade scheme give rise to (i) a net asset or liability or (ii) an asset and a liability, deferred income and/or income?*
- *If a separate asset is recognized, What is the nature of the asset recognized if necessary*
- *If a separate liability, deferred income and or income is recognized, What is the nature of that item and how is it measured?*

IFRIC came to the following consensus when considering the above scope. Cap and trade does not give rise to a net asset or liability. In this decision IFRIC opted for the full approach. It was felt that this was the only appropriate action given the actual value of the emissions allowances and obligations. It was felt that netting was only appropriate when the asset and liability were similar in nature and that emissions allowances/obligations did not meet that hurdle, given that the allowances could be used to settle the emissions liability or sold on the carbon spot market for cash. Therefore the emissions regulator was not a direct debtor of the emissions allowance and netting was not appropriate.

Secondly, it was decided that allowances were intangible assets, to be accounted for by IAS 38 (Intangible Assets), and to be measured at fair value even if they are issued for less. Significant consideration was given to whether or not the emissions allowances could be considered a financial instrument, but it was decided that they did not meet the stringent definition of a financial instrument nor did they fall into the limit class of other assets that could be measured like financial assets recording their fair value at each reporting date with the gains/losses showing in profit or loss (Cook 2009). IFRIC acknowledged that emissions
allowances have some features more commonly found in financial assets than intangible assets but concluded that it would be inappropriate to ask the board for an amendment of the scope of IAS 38 and 39 (Financial Instruments). As intangible assets the allowances can be revalued but this change is shown outside of profit/loss.

The difference between the amount paid for the allowances and their fair value was to be considered a government grant in accordance with IAS 20 (Government Grants). The grant was to be initially recognized as deferred income in the balance sheet and then income on a systematic basis over the compliance period regardless of if the allowances are held or sold.

At the time of IFRIC 3’s release a change to IAS 20 was expected that would allow for the recognition of the entire value of the allocated allowances as cash upon receipt.

IFRIC decided that the emissions allowances should not be amortized but tested for impairment as defined in IAS 36 (Impairment of Assets). Again there was some disagreement about this decision amongst the accounting community. Some felt that an allowance represents a right to produce emissions and therefore allowances should be amortized to reflect the consumption of these rights. IFRIC disagreed stating that a participant does not consume the economic benefits of an allowance as a result of its emissions but realizes the benefits of that allowance by surrendering it to settle an obligation.

It was determined, that as emissions are released a liability should be recognized for the obligation to deliver allowances covering the emissions produced. This liability is a provision, under IAS 37 (Provisions, Contingent Liabilities and Contingent Assets) at the best estimate of the expenditure required to cover the present obligation as of the balance sheet date at fair value, with changes in value, shown in profit and loss. There was some argument by the accounting community that the “best estimate” of the liability could the cost
of the allowances to the entity however it was noted by IFRIC that the liability is to be measured independently of how it is to be funded.

Finally if a reduction in cash flows is generated by specific assets due to the emissions scheme the asset may be impaired using IAS 3 (Consolidated Financial Statements). These decisions created no symmetry between the revaluation of the liability in the income statement and the asset in the balance sheet.

IFRIC’s decisions were based upon existing sound accounting practice but had some unintended effects; as such IFRIC 3 was largely disliked amongst the accounting community. Most organizations were already using the net approach and did not like the added complexity or additional assets shown when using the full approach. Many respondents to IFRIC 3’s initial comment period suggested the net approach arguing that an entity should only recognize a liability when it holds insufficient allowances to cover its emissions or an asset when it holds excess allowances. They argued that accounting this way highlighted the entities emitting more than their granted allowances more so than using the full approach.

IFRIC rejected these arguments stating several reasons, the most significant of which were that the allowance and obligation exist independently of each other and that cap and trade does not merely represent a tax on excess emissions, it is based upon creating a market for emissions. Therefore all allowances can be traded, bought or sold, and allowances that are purchased are indistinguishable from those issued to the entity by the government.

Many respondents during IFRIC 3’s comment period were troubled by the mismatch that would occur in profit and loss if the allowances were accounted for using the cost model in IAS 38, given that the liability for the obligation related to emissions was to be measured at current value (IAS 37). These respondents argued that even if allowances were measured at
fair value using the revaluation model in IAS 38 there would still be a mismatch in the recognition of these changes. Due to the fact that the changes in value of the emissions allowances would be recognized in equity where as the changes in value of the emissions liability would be recognized in profit or loss. IFRIC acknowledged this mismatch but suggested that the revaluation method would minimize its effect. This conclusion was very much the undoing of the fledgling standard.

The issuance of IFRIC 3 resulted in a public outcry. Effected companies complained that the application of the interpretation would force them into showing a completely distorted picture of their performance in their annual and interim financial statements. The European Financial Reporting Advisory Group (EFRAG) presented a negative endorsement of IFRIC 3 stating the following reasons:

- The assets and liabilities associated with allowances and emissions had different valuation bases
- Revaluations of the allowances as intangible assets were recognized in equity while the changes in the liability were recognized in the income statement.
- There was a possibility of improper matching if liabilities were settled after they compliance period had ended.

In the face of considerable pressure from the business community and European politicians IFRIC 3 was withdrawn in June of 2005. IFRIC accepted that though they had made an acceptable interpretation using the current framework the end result was confusing.

Many of the reasons for the disquiet of IFRIC 3 were rooted in the definition of emissions trading scheme policy, as stated succinctly by Cook (2009),
"[The] government is giving at the start of the year what it will in all probability take away at the end. Managers resent recognizing a profit early in their reporting period on an asset that will have to be surrendered at the end of the period in settlement of a liability that the asset was designed to meet."

The question remains as to what could have been done to prevent the artificial volatility that caused such and uproar, while working within the existing framework. Revaluing the grant of allowances in the same way as the emerging liability would remove the artificial volatility, satisfying the critics. However, within the existing framework there is no principle to support such a treatment. As the IASB explores this issue further it will be interesting to see which solution they pursue.

**FERC**

The other remaining guidance used by accountants when trying to account for the effects of an emissions trading scheme is that issued by the Federal Energy Regulatory Commission's (FERC) in the United States. The FERC guideline is a legacy accounting standard created by the clean air act amendments of 1990. This guidance was issued in response to a cap and trade program created in the United States to reduce SO₂ and therefore acid rain.

The FERC guidance suggests accounting for allowances other than those that are held for speculative purposes at cost. Therefore any granted allowances are held at nil value and an asset is only recorded for any purchased allowances. Allowances are considered to be a cost of doing business and therefore they are considered to be an inventory asset that is consumed during the production process.

A liability is considered to exist after the entity has emitted and is only recognized if the actual emissions exceed the amount of allowances held by the entity in a period. This liability is recognized at the cost acquiring the additional allowances necessary to offset the excess emissions. If an entity acquires allowances at different times and different costs...
amortization is calculated by weighted average cost. This provision is not re-measured if the market price of the allowance changes, as the difference between actual cost and estimated cost is recognized in the period when allowances are purchased.

The FERC guidance only reports the net effect of an emissions trading scheme therefore allowances that are allocated for free are not reflected in the financial statements. It is considered that there is only an economic impact on the entity if additional credits are bought.

**CURRENT INDUSTRY METHODS**

It is clear from a number of studies (IETA 2007, Lovell, Sales de Aguiar, Bebbington, & Larrinaga-Gonzalez 2011) that there is divergence in accounting standards used in entities effected by emissions trading schemes.

This is characterized in Lovell et al (2011) a study of the emissions accounting practices of the largest emitters within the EU emissions trading scheme. To complete their work the financial statements of those responsible for 26% of the verified 2008 emissions were studied, then follow up interviews were conducted with the accounting personnel. Their findings proved what had been long suspected within the accounting community that the large emitters are using a variety of different accounting practices in relation to emissions allowance and that there is no uniformity of treatment.

According Lovell et al (2011) 42% of companies treat allowances as intangible assets, 31% of companies accounted for allocated allowances at nil value where as 15% accounted for them at fair value. 58% of companies measured their obligation to surrender allowances based on the carrying value of the allowance already granted or purchased and at market value of the allowances that still need to be purchased. Consistently there was no disclosure
on amortization/depreciation, revaluation, or the use of credits from other Kyoto mechanisms.

According to research conducted by IETA (2007) and Starbatty (2010) there is evidence to suggest that despite finding 15 variations of accounting approaches used by entities in the EU emissions trading scheme, among the EU’s largest emitters there are 3 main approaches.

The first approach and the least popular is that suggested in IFRIC 3. The second approach recognizes the allocated allowance at fair value and the difference between the cost of the allowances and their fair value as a government grant but differs from IFRIC3 in the treatment of the emissions liability which is measured based upon the carrying value of the allowances to be used to cover actual emissions at each period end. Approach 3 is by far the most popular and shows only the net position. Allocated allowances are recognized at cost (nil value) and are subsequently measured at cost. The liability is recognized as emissions are produced but often not shown on the statement of financial position until the emissions produced exceed the allocated allowances. The liability is measured based on the carrying value of the allowances on hand at each period end that are to be used to cover actual emissions on a FIFO or weighted average basis, plus the market value of any allowances at each period that would be required to cover any emissions in excess of the already purchased allowances.

With the lack of international regulations some European counties have issued national regulations, for example Spain has created a national standard that requires Spanish companies effected by the EU emissions trading scheme to follow an accounting practice similar to the second approach described above.
With no generally accepted standards in existence companies are free to choose the accounting method that suits their needs as long as their auditor accepts it. Therefore in general many entities affected by emissions trading schemes are turning to their auditors for advice on appropriate accounting treatments and in response auditors have been creating best practice advice (Lovell et al 2010).

With the multitude of ways that emissions allowances can be used, from production to trading in order to regulate cash flow, auditors have started recommending the use of an activity based model of accounting for the effects of emissions trading schemes. This method suggests that accountants follow different accounting principles based on the dominant activity of their organization (emitter, creator of green energy, trader or investor). However, it is unlikely that standard setters in the IASB would accept this method, given its principles based approach to standards setting. It is likely that the IASB would object to an activity based approach because though emissions allowances can be used in different ways they are still the same object therefore standards setters would likely feel that they should be treated in a single uniform way when accounting for their effects.

As can be seen from the significant variance of even the most popular accounting methods there is a need for the standardization of the accounting methods related to emissions trading schemes. Even though there is increasing pressure from the international community for a single international emissions trading accounting standard, as these standard setting projects continue to strive for uniformity there may be problems gaining support when organizations are already comfortable in the use of their chosen accounting method.
CURRENT STANDARD SETTING PROJECTS IASB/FASB

With interest in emissions trading schemes increasing globally the IASB received requests from several national standards setters, including the FASB to add a project to its agenda for the development of a framework for the financial accounting related to emissions trading schemes.

Though the IASB had limited resources and was overwhelmed its existing projects, they acknowledged that the use of emissions trading schemes was increasing and divergent accounting practices were emerging. Trading volumes of allowances governed by the EU scheme were growing rapidly and there was increasing evidence that a large number of participants were actively engaged in trading allowances, particularly European utility companies (Starbatty 2010). In addition the FASB had initiated their work on emissions trading schemes and there would be a missed opportunity to standardize if the IASB did not initiate a project as well. Therefore a joint IASB/FASB project was initiated, in December 2007, to develop comprehensive guidance on the financial accounting of emissions trading schemes.

In this project the IASB and FASB seek to tackle a broad scope and produce a standard suitable for all tradable emissions rights and obligations under any emissions trading scheme. In the development of this project there are not very many key issues however the ones that do exist are very difficult to resolve. Moreover, these issues cannot be addressed in isolation, as decisions on one issue will have implications on another, therefore it is necessary to investigate thoroughly the financial reporting effects of alternative methods.

The main issues to be tackled within the current project relate to the recognition and measurement of the assets and liabilities in an emission trading scheme and the recognition
of assets and liabilities when allowances are given for no monetary value. As stated on the IASB’s emissions trading scheme project website.

The objective [of the project] is to provide comprehensive guidance on the accounting for emissions trading schemes. In developing this guidance the following issues are to be addressed:

1) Are emissions allowances assets?
   a) Is this conclusion affected by how the allowance is acquired?
   b) What is the nature of the allowance (eg license to emit or form of emission currency)?
   c) If allowances are assets, should they be recognized and, if so, how should they be measured initially?

2) Are baselines or the credits assets?
   a) If so, what is the nature of the asset represented by the baseline and should it be recognized?
   b) Also how should the baseline be measured initially?

3) Does the entity that receives allowances or a baseline from the scheme administrator have a liability?
   a) If so, what is the nature of the liability and how should it be measured both initially and subsequently?

4) How should allowances and baselines (if necessary) be accounted for subsequently?
   a) Is the existing model in IAS 38 Intangible Assets or IAS 39 Financial Instruments: Recognition and Measurement appropriate?
   b) If not, what is the appropriate accounting?

5) When should an entity recognize its obligations in emissions trading schemes and how should they be measured?
   a) How does IAS 37 Provisions, Contingent Liabilities and Contingent Assets apply?

6) What are the overall financial reporting effects of the above decisions?

In the completion of this project it has been mandated that while the framework is still relevant the project team should not to be bound to existing IFRS standards in the contemplation of the previous questions.

As work on the project progresses, several tentative decisions have been made by both the IASB and the FASB. In response to questions 1 and 2 both the IASB and FASB boards have decided that emissions allowances or credits are assets in either a cap and trade scheme or a baseline and credit scheme. These allowances are to be recognized as an asset even if they are acquired for less than market value through a government allocation. Regardless of the
cost to acquire these allowances they should be initially and subsequently measured at fair value. The argument for these decisions is that the tradable offsets can be seen as a non-reciprocal transaction, causing the asset received to be measured at fair value. The IASB staff’s research indicated that financial statement users would prefer this method.

A much more contentious issue was that of accounting for the credit if issued offsets are initially measured at fair value. Three models were presented to the board for discussion, the non-reciprocal transfer modes, the performance obligation model, and the compensation model.

The non-reciprocal transfer model suggests that no obligation is incurred upon receipt of the offsets therefore an obligation is recognized as the emissions occur. This model is built around the premise that the allocated allowances do not create a present obligation before the entity creates emissions.

The performance obligation model suggests the premise that when an entity is allocated allowances it has a performance obligation it must fulfill before it can realize income from the allowances. This would be characterized by suggesting that at the time of the initial allocation of the allowance the entity enters into an agreement with the scheme administrator to reduce its emissions below the level represented by the allocation of allowances. Suggesting that only if the entity reduces its emissions to nil in a compliance period will it retain the number of tradable allowances it has been issued. The performance obligation would be measured at the initial carrying value of the allocated allowances. Income would be recognized only when there is reliable measurement of an increase in future economic benefits related to an increase in an asset or decrease in a liability.
The compensation model suggests that the allocation of tradable allowances is not considered a non-reciprocal transfer from the scheme administrator to an entity. It considers the allocation of tradable offsets in the context of the whole package of requirements imposed by emissions trading schemes. A linkage is assumed to exist between the allocation of tradable allowances and an adverse change in value of the companies’ related assets. This is because it is assumed that future compliance costs will have a negative effect on the entity’s regulated operations and the allowances are issued to mitigate this effect. Therefore in most cases the asset existing from the allocation of allowances would be linked to a liability for the adverse effect on the companies’ assets due to the scheme. This method eliminates the need for an entity to accrue a large asset at the beginning of the year, increasing comparability across affected entities. It can also eliminate the mismatches that exist when the asset is at fair value and the operating liability is accrued at cost.

After much debate amongst the IASB and FASB boards made a tentative decision to use the performance obligation model was made. In the IASB’s words it was decided that:

“[An] Entity incurs an obligation to reduce its emissions below the level represented by those allowances (cap) only if the entity fulfills this obligation it will be entitled to retain some of the allowances.”

This decision was not unanimous; there were board members that felt that the non-reciprocal transfer model was more consistent with the framework. However the performance obligation model does not result in a gain upon the initial recognition of the allocated allowances and the majority of board members and constituents believed that this method provided users with financial information that is represented faithfully. Since emissions trading schemes rarely make affected entities better off, the initial recognition of allocated allowances would not reflect economic reality. The performance obligation model has less effect on accounting for future installments and timing of recognition, as well it does not
affect statement of income therefore increasing comparability with other entities in the same scheme and ones operating in other schemes. It is the feeling of many of the IASB’s and FASB’s constituents, especially users that this is the preferred method.

Currently the boards are discussing the recognition of a liability for emissions in excess of initial allocation of emissions allowances. The boards are undecided between recognizing the excess emissions liability throughout the compliance period as the entity emits and recognizing the excess emissions liability only when the entities emissions have exceeded their initial liability for the allocation. Both the FASB and IASB boards have asked their project teams to seek out stakeholder opinions on these issues in the first half of 2011. The board is also looking for stakeholder opinions on two possible models for measuring the quantity of allowances to be submitted at the end of the compliance period, the expected return model or the de-recognition model. In the expected return model the entity is expected to initially estimate the number of allowances that will need to be returned based upon expectations, whereas, in the de-recognition model the initial estimate of the number of allowances that are to be returned is the total number of allowances allocated and a subsequent de-recognition takes place if the entity exceeds that specified threshold.

Both boards have also made tentative decisions regarding the statement of financial position. The IASB preferred a gross position to be stated but has tentatively agreed to a linked presentation. The linked presentation would present all of the assets and liabilities associated with emissions trading schemes in gross amounts but would allow them to be presented together and totaled to reveal the net position in terms of the economic effect of emitting.

Modest progress has been made in the development of this emissions trading standard. However, it is clear that there is tension emanating from a fundamental divide in
organizational cultures existing in the IASB and FASB. Typically the IASB prefers a principles-based approach whereas the FASB tends to default to a rule based approach. This difference appears to be hampering decision-making in the project (Lovell et al. 2011).

Currently an exposure draft is expected in the 4th quarter of 2011 however it appears that few industry accountants are following the progress of this project (Lovell et al. 2011). It is possible that when the exposure draft is issued there may be some problems obtaining support for their proposals or even sufficient feedback and industry response to the draft. Since emissions allowances may already be significant to large European emitters' financial accounts and will only become more significant in the future, industry support to any draft is important.

Expectations of the joint IASB/FASB emissions trading schemes projects are high with institutes, accounting firms, regulators and investors waiting for the completion of an accounting standard that will allow for the comparable reporting of sustainability information (Singh 2010).

STAKEHOLDER OPINIONS

With so many stakeholders affected by emissions trading schemes it is no wonder that there are so many different opinions as to the proper way to proceed in order to accurately capture the financial effects of emissions trading schemes. Diversity in accounting practices has already developed making it a challenge to ensure that everyone is in agreement as to how to standardize given that some entities will have to change their chosen approach. In this section the opinions of some of the major stakeholders of emissions trading schemes accounting are discussed.

Page 36
Environmentalists

Environmentalists were the first group to acknowledge the occurrence of GCC and its potential effects to the human race. This group through scientific research and activism managed to bring GCC and its effects to the attention of policy makers and the general public. Their concern and activism ensures that they will remain a key stakeholder in any issue related to climate change, as they remain committed to ensuring that the implementation of any change required to mitigate the effects of GCC will be completed in such a way that success is ensured.

Practicing the net approach removes significant assets and liabilities related to climate change from the balance sheet. Though it can be argued that the end effect of emissions trading schemes is the same, using the full approach will show all of the effects of climate change on an affected entity's balance sheet. The environmentalists' goal is to ensure that effects of climate change are mitigated and as such they are looking to ensure that implemented emissions trading schemes are structured in such a way that they will succeed.

One of the major benefits of a cap and trade scheme is the creation of an active market that will encourage affected entities to make emissions reductions to reap the financial benefits of trading emissions allowances. Practicing the net approach impairs this market development by removing these potential trading assets from the balance sheet and therefore is not favored by environmentalists.

In addition, the inclusion of emissions allowances as an inventoried asset suggests that polluting is a necessary business cost, suggesting that polluting is as necessary to production as direct material or labor, as statement that does not agree with environmentalists (Raiborn & Massoud 2010).
Standards Setters
Accounting standards setters are largely in disagreement amongst themselves as to the proper way to proceed in the creation of an emissions trading scheme accounting standard. The IASB and FASB is under extreme pressure from politicians, industry, and regulators to develop a standard that will put an end to the divergent practices existing amongst participant entities, while ensuring that the financial statements accurately portray the effects of the emissions trading schemes.

Individuals on the standards setting boards have differing opinions on the proper way to proceed to produce the most relevant and accepted accounting treatment. There are those that feel that the accounting answers that remain true to the existing IFRS framework answers are similar to what published in IFRIC 3. However since those answers are going to be unpopular the IASB board is trying to find a way to “sugar coat” their decisions in such a way that they will gain support from the other stakeholders.

While individuals on boards of both the IASB and FASB have different opinions as to how to proceed there is also a fundamental divide in organizational cultures and practices between the two groups. The IASB tends to prefer principles based methods where as the FASB prefers rules based approaches. This divide leads to some disagreement between the two organizations when trying to create a harmonious standard. The FASB is likely to consider the scheme as a whole, potentially leaning towards the net approach, where as the IASB is unlikely to ever accept the presentation of the net effect as it does not fit with in the principles existing with in the framework. Both boards have put these issues aside in an effort to work together to create a harmonious standard acceptable within the principles existing in both accounting organizations, however progress is slow going.
Regulators
Regulators will currently accept any reasonable treatment of the financial effects of emissions trading schemes, however regulators, especially European ones are pressuring the IASB to develop a standard or they will be forced to develop their own on a per nation basis.

With the long delay from the inception of the EU emissions trading scheme until the present, some countries have already developed their own accounting standards. For example Spain has issued a national standard and other nations may be forced to follow suit in the near future.

Politicians have largely not been involved in the debate regarding potential emissions trading scheme accounting standards. However with the issuance of IFRIC 3 many European politicians voiced their disapproval of the chosen accounting model largely due to the industry unhappiness of the potential volatility in the financial statements. These politicians exerted enough pressure on the IASB board to facilitate the withdrawal of IFRIC 3. Therefore, their presence and opinion cannot be discounted in the future.

Academia
With some notable exceptions those in academic circles, completing research on the accounting effects of emissions trading schemes, tend to lean toward the more pure implementation of cap and trade programs. Therefore they generally point towards the solutions that tend to fit the IASB’s framework more aptly.

Therefore many academics lean toward using the full approach to ensure the entire economic picture of the emissions trading schemes is presented. They feel that the presentation of the net approach in relation to cap and trade schemes hinders many of the market-based
mechanisms that make cap and trade schemes a prevalent choice in the adoption of a program aimed at reducing the GHG emissions.

**Industry**
As has been discussed previously in this paper there is a large diversity of chosen accounting treatments among the entities affected by emissions trading schemes. According to a study completed by IETA (2007) there was up to 15 different methods used by entities affected by the EU Emissions trading scheme, however most chosen treatments used by the largest emitters could be summarized in 3 methods.

Amongst the largest emitting participants of the EU emissions trading scheme use of the net approach is prevalent. Often this approach is chosen because it is the easiest model to implement while having the least impact on the affected entities balance sheet. Accounting for the allocated allowances at their cost (nil value) is considered beneficial as most managers of companies participating in an emission trading schemes do not want to recognize assets on their balance sheet that they will in all likelihood have to forfeit at the end of the compliance period to cover their emissions obligation.

Large European emitters appear uninterested in the development of an IFRS standard to cover the effects of emissions trading schemes as they have in many cases already chosen and implemented an accounting model to record the effects of the EU emissions trading scheme and are uninterested in having to change it. In the majority of cases their approach is to account for the net effects of the emissions trading schemes and the large European emitters believe, probably correctly, that the IASB is unlikely to accept such an approach in their standard development.

The opinions of many of the stakeholders can be summarized in the table below:
Table 3: Stakeholder Preferences

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Net/Full</th>
<th>Kind of Asset?</th>
<th>Liability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmentalist</td>
<td>Full</td>
<td>Intangible</td>
<td>Shown in full as emissions occur</td>
</tr>
<tr>
<td>Standards Setter</td>
<td>Full</td>
<td>Intangible</td>
<td>Shown as emissions occur</td>
</tr>
<tr>
<td>Regulator</td>
<td>Undecided</td>
<td>Undecided</td>
<td>Undecided</td>
</tr>
<tr>
<td>Academia</td>
<td>Full</td>
<td>Intangible</td>
<td>Shown as emissions occur</td>
</tr>
<tr>
<td>Industry</td>
<td>Net</td>
<td>Inventory</td>
<td>Only show estimated emissions over allocated allowance</td>
</tr>
</tbody>
</table>

DISCUSSION OF CURRENT AND FUTURE EMISSIONS PROJECT DECISIONS

The joint FASB/IASB project committee has made modest progress in the development of an emissions trading standard. The joint boards have made tentative decisions that allow their project staff to create a discussion paper in order to seek out stakeholder opinions in the first half of 2011 before work can continue in the second half of 2011 on the completion of an exposure draft (IASB Progress Report Nov 2010).

Tentative decisions have been made to define allowances in a cap and trade or baseline credit schemes are assets regardless of how or why they are acquired. It has been tentatively decided that the allocation of allowances creates an obligating event that meets the definition of a liability and should be recorded as such on the financial statements. These assets and liabilities should be recorded initially and subsequently at fair value. These decisions make for a good compromise between what the existing accounting framework requires and what affected entities want. The allocated allowances are shown on the balance sheet at fair value therefore ensuring that the entire economic effect is shown and the market mechanisms of cap and trade are not disabled however an liability for the entire allowance allocation is also recognized upon receipt ensuring that managers do not have to recognize large assets that will in all likelihood have to be surrendered at the end of the compliance period.
It has not yet been decided how the quantity of allowances that is to be returned after compliance period ends will be determined. The existing options for the determination of this number is as follows. If an entity expects to emit more than it’s allocated allowances a liability can be recognized either, as the entity emits throughout the compliance period through use of a pro-rata calculation taking into account the allocated allowances and an entities actual emissions, or when the actual emissions exceed the allocated allowances. The project team is currently seeking stakeholder’s opinions on the proper way to proceed on this issue. Though no decisions has been made by either board regarding this issue it is this authors opinion that a liability should be recognized for the excess emissions throughout the compliance period as the entity emits. It would be misleading to wait until the actual allocations are exceeded to recognize the additional liability. Since the entity operates throughout the compliance period it should recognize the expense of its operations (emissions) through out the period, if it expects to emit over its allocation. Waiting until the emissions allocation is actually exceeded before recording a liability neither faithfully states the actual liability nor does it provide the financial statement users the information they need. Some potential downfalls to this method would be related to changes that may become necessary due to recording liabilities based on an expectation that may change over time. If this view is adopted it would make sense to determine the quantity of allocated allowances to be returned using the expected return approach.

Both the members of the boards and project staff are split on this issue. Arguments can be made for either method using the existing frameworks and literature. The future decisions on this issue made by the boards will depend largely on what is preferred by the stakeholders.
A tentative decision has been made to present the financial data regarding the emissions trading schemes in a linked presentation. This presentation style represents another good compromise between proponents of the net and full approaches. Showing all of the assets and liabilities related to the emissions trading scheme but allowing them to shown together and totaled immediately below to reveal the net position. This should again provide financial statement users the information they need, while not removing the significant assets from the balance sheets or hindering market mechanisms.

One issue that has not been discussed yet is the definition of what kind of assets emissions allowances are. Emissions allowances do not fit neatly under any existing accounting standards due to their many uses (commodity, currency, financial instrument). This has made their classification difficult in the past due to the fact that they did not fit into any one asset definition. Project staff have been given the guidance that though the end result must be consistent with the principles defined in the framework they are not limited to using existing accounting literature. Therefore they are not required to define the emissions allowance in terms of an exiting category of asset and it is this author’s opinion that steps will be taken to recognize an emissions allowance in its own category of asset.

When the remaining decisions are made by the IASB and FASB boards during the second half of 2011 the project team will have enough information to produce an exposure draft in relation to emissions trading schemes and issue it for comments by those interested parities.

**CONCLUSION**

It is clear that anthropogenic climate change has effected our global environment. The policies created to mitigate the effects of this climate change are often market-based emissions trading schemes that are meant to reduce the generation of GHG's. However the
features that make these trading schemes attractive to governments are precisely the features that make it difficult for accountants to capture under existing accounting guidance. This is because climate change legislation has made the previously costless activity of emitting GHGs costly, however the government has mitigated the cost by means of allocating marketable allowances.

The EU emissions trading scheme is in its second phase and for the large emitters emissions allowances may already be material to their accounts. As the EU emissions trading scheme enters its third phase there will be a shift to auctioning emissions increasing the significance of the financial impact on an entity. With the lack of an international standard providing guidance for the accounting treatment of emissions allowances divergent practice has developed amongst those affected by these schemes.

Studies have shown that upwards of 15 different practices exist amongst those entities affected by the EU emissions trading scheme though the largest emitters typically use one of three methods. Standardization of accounting practices is necessary to create a level playing field and allow for the fair and transparent comparison of the financial statements of those entities participating in emissions trading schemes.

Existing accounting problems associated with emissions trading schemes are related to asset classification. Emissions allowances do not fit neatly under any existing accounting standard because of their so many uses (commodity, currency, and financial instrument). Therefore divergent behavior has developed in the classification and recognition of emissions allowances as assets as well as the recognition and valuing of the liability associated with the creation of emissions themselves. Currently participant companies account for emissions allowances at cost, fair value or some combination of the two.
One of the central arguments related to emissions trading schemes is the debate regarding accounting for the effects of the scheme by using the net or the full approach. The net approach is favored by industry due to its simplicity of implementation and the fact that it doesn’t require the holding of significant assets in their accounts that will in all likelihood be returned at the end of the compliance period. Standard setters and academics favor the full approach as it is the most congruent with the accounting frameworks and fully implements the market-based thrust of the cap and trade programs.

Previous guidance in regards to emissions trading exists in the form of the now withdrawn IFRIC 3 interpretation. IFRIC 3 advocated for using the full approach and specified that emissions allowances were intangible assets to be initially recognized at fair value. The difference between what the allowances cost, typically nothing, and market value was to be recognized as a government grant. The liability associated with the emissions of GHG’s was recognized as emissions occurred at market value. Though the IFRIC committee made a reasonable interpretation based on sound accounting theory, it was largely disliked by the accounting community because of volatility that existed due to different valuation bases for the assets and liabilities associated with the emissions trading scheme. Due to intense industry and political pressure IFRIC 3 was withdrawn just 6 months after it was issued.

The other piece of existing accounting guidance is a legacy standard developed by FERC for an acid rain cap and trade program. The FERC guidance reported the net position and defined emissions allowances to be an inventoried asset to be held at cost.

Currently industry stakeholders prefer to present the net position when accounting for the effects of emissions trading schemes, often holding the emissions allowances at cost and the emissions liabilities at the weighted average cost of the allowances. Standards setters,
academics and environmentalists prefer accounting treatments that allow for the full implementation of the market-based mechanisms of cap and trade schemes.

In December 2007 the IASB and FASB initiated a project to develop comprehensive guidance for those participating in emissions trading schemes. Though thus far only tentative decisions have been made it appears that these decisions are based on compromise, in order to find an accounting treatment that will remain consistent with the IASB’s framework but also provide affected entities with the information they need. The IASB must be careful in this process to not look for the quick fix but rely on their principles to solve these difficult problems.

Thus far the joint IASB/FASB emissions trading scheme project has defined emissions allowances as assets to be recognized initially and subsequently at fair value. Tentatively it has been decided that a liability to return the allocated allowance exists upon receipt of the allocation, to be valued initially and subsequently at fair value. Also there has been a tentative decision to present the information on the financial statements using a linked presentation, where the asset and liability is presented in full but then totaled to present the net position.

One of the future decisions to be made is in regard to the kind of asset an emission allowance will be classified as. This author believes that since emissions allowances, because of their many uses, are not easily classified into any existing asset classification, emissions allowances will become their own form of asset under the new standard.

Another significant topic of debate amongst the emissions trading project team is the determination of the number of allowances to be returned at the end of the compliance period. Thought both the project staff and the board members are split on this issue, it is this
The author’s opinion that in the case of excess emissions the liability should be recognized as emissions occur based on a pro-rata calculation. This would provide financial statement user more accurate information regarding the actual position of the entity.

Currently the IASB/FASB project team is soliciting comments from the stakeholders regarding their tentative decisions and the remaining decisions. Once this is complete an exposure draft is expected in the 4th quarter of 2011. There is some evidence to suggest that many emitters in the EU are not focused on the results of these project discussions. It is recommended that these emitters as well as auditors, and accounting experts work together to provide feedback in a clear and consistent manner to the project team in an effort to harmonize accounting practices.

The accounting rules and principles decided as part of the emissions trading schemes project will have a potentially material influence on participant companies financial statements and as such will likely become an increasing source of conflict before the draft is finalized.

Regardless of any decisions made by the IASB one thing is clear. Due to the use of such varying practices in industry, the IASB faces an uphill battle in winning international approval and adoption of the standard they create regardless of its content.
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