

REGULATORY ASPECTS OF CARBON CREDITS AND CARBON MARKETS

by

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DECLARATION

I, **Roelof Cornelis van Huyssteen**, hereby declare that the dissertation for qualification **Magister Legum (LLM)** to be awarded is my own work and that it has not previously been submitted for assessment or completion of any postgraduate qualification to another University or for another qualification.

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SUMMARY

Regulating carbon markets in order to fight the effects of climate change has in recent years become an integral part of many economies around the world. Ensuring that policymakers implement market-based climate change legislation according to international best practice is an essential part to guarantee that a carbon market system operates smoothly within a country's economy. There are many opportunities that exist in South Africa towards developing a lucrative carbon market; however, the information to implement such a system is hard to come by and complex to analyse.

This dissertation will aim to shed some light on this relatively new field of the law as it will provide an overview of international best practice within the carbon market sphere. Furthermore, this dissertation will examine the legal nature of a carbon credit; analyse international instruments regulating carbon markets and discuss existing South African policies and legislation related to climate change and carbon markets. This will lead to the ultimate objective of this dissertation: to propose a possible framework for the regulation of a South African carbon market based upon international best practice.

This dissertation revealed the imperative need for South African policymakers to implement legislation to conform to international best practice within carbon markets. In this regard the dissertation also revealed that the infrastructure to regulate such a market already exists within South Africa. Only subtle changes to these infrastructure systems will be required in order for to accommodate a functioning carbon market.

The study revealed that the only way to convince entities around the world to emit fewer emissions and to contribute towards the fight against climate change is to attach a monetary value to emissions. Associating a price to carbon is the only way to sanction entities that produce emissions and compensate entities that mitigate emissions. A carbon tax coupled with a carbon offset mechanism, as opposed to a emissions trading scheme, would be the best option with regards to establishing a

South African carbon policy. This will ensure a fair playing field, as carbon tax liable entities would be held responsible to pay the same fixed price per ton of carbon that they emit. Coupling the carbon tax with a carbon offset mechanism, trading with carbon credits, will incentivise companies to invest in “greener” technologies and to emit fewer emissions.

This dissertation revealed that international best practice in the carbon market sphere, still poses significant difficulties such as price volatility associated with carbon credits; validation and verification inconsistencies within the different carbon standards; and supply and demand fluctuations. These difficulties were highlighted in this dissertation and solutions relating to these difficulties were discussed. The time has come for South Africa to enter the carbon market sphere, whether it be through the introduction of a carbon tax or otherwise. This dissertation illustrates that the infrastructure and stakeholders associated to a South African carbon market needs to be developed. If, when and how the government will actually implement such a carbon market system, remains a question to be answered.

KEY TERMS

Australia, Carbon credits, Carbon market, Carbon offset mechanism, Carbon tax, Carbon Trading, Emissions reductions, European Union Emissions Trading Scheme (EU ETS), International best practice, Kyoto Protocol, Proposed South African regulatory framework, UNFCCC

CHAPTER ONE

INTRODUCTION

1 1 INTRODUCTION

The world's dependence on fossil fuels and the consequences of such dependence has in recent years become a growing concern amongst the international community.¹ Climate change is probably one of the biggest problems the world and its communities are facing at the moment. There is still a lot of research that needs to be conducted about the exact effects that climate change has on our environment. However, there are certain aspects regarding climate change that have become common concern internationally. These aspects are the following:

- (a) the earth's climate is changing;
- (b) that these changes are the result of human activity;
- (c) that the changes are happening at both a faster rate and with greater impacts than previously projected; and
- (d) that immediate action is needed to reduce greenhouse gas emissions and avoid reaching more harmful levels.²

Under the banner of the United Nations, countries around the world are seeking to reduce the levels of greenhouse gases (hereafter referred to as GHG's in the earth's atmosphere and thereby reduce and reverse the effects of global warming. One of the instruments that have been implemented to mitigate global warming is the introduction of carbon credits and carbon markets.

¹ International Panel on Climate Change (IPCC), 2013: Summary for Policymakers. In: "Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change" [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. – In this report the effects of global warming are examined in precarious detail. The atmospheric concentrations of carbon dioxide, methane, and nitrous oxide have increased to levels unprecedented in at least the last 800,000 years. Carbon dioxide concentrations have increased by 40% since pre-industrial times, primarily from fossil fuel emissions and secondarily from land use emissions. The ocean has absorbed about 30% of the emitted anthropogenic carbon dioxide, causing ocean acidification.

² Hunter, Salzman and Zealke *International Environmental Law and Policy*, 3rd ed (2007) 633.

1 2 THE MEANING OF “CARBON CREDITS”

Carbon credits are intangible tradable instruments that a company acquires for funding projects which assists with the reduction of GHG's in the earth's atmosphere.³ There have been many formulations and interpretations of what a “carbon credit” actually is.⁴ It is clear that a single internationally accepted definition has not yet been formulated. It will be the purpose of this dissertation to attempt to formulate a definition that correctly communicates exactly what a carbon credit is.

The concept of trading carbon credits in the carbon market was introduced by the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol. The Central focus of the Kyoto Protocol was to promote the reduction of GHG's in the earth's atmosphere.⁵ By setting such targets emission reduction took on an economic value and certain mechanisms had to be implemented to regulate the supply and demand associated to a carbon market.⁶ These mechanisms,⁷ which will be discussed in this dissertation, provide the frameworks to generate different carbon units (which will be referred to as carbon credits for purposes of this dissertation). Although there exist different carbon units such as Certified Emission Reductions (CER's), Emission Reduction Units (ERU's), Removal Units (RMU's) and Assigned Amount Units (AAU's), they all share the characteristic of being categorised as commodities for purposes of being traded in the financial market.⁸

³ Gwina “Carbon Credits, the future of infrastructure development finance” (7 April 2010), <http://www.polity.org.za/article/carbon-credits-the-future-of-infrastructure-development-finance> (accessed on 29-01-2014).

⁴ The Oxford Dictionary defines a carbon credit as: “A permit which allows a country or organization to produce a certain amount of carbon emissions and which can be traded if the full allowance is not used.”; The Collins English Dictionary defines a carbon credit as “a certificate showing that a government or company has paid to have a certain amount of carbon dioxide removed from the environment”; The Investopedia Inc investment dictionary defines a carbon credit as a “permit that allows the holder to emit one ton of carbon dioxide which can be traded in the international market at their current market price”.

⁵ Kidd *Environmental Law* 2nd ed (2011) 60.

⁶ UNFCCC website “CDM: About CDM” (Undated) <http://cdm.unfccc.int/about/index.html> (accessed on 05/02/2013).

⁷ The Kyoto Protocol sets out three mechanisms: The Clean Development Mechanism (CDM), the Joint Implementation mechanism (JI) and the Emissions Trading Mechanism (ET).

⁸ Tsukiji, Kajimura, Loewenthal and Yamaguchi “Negotiating the transfer and acquisition of project-based carbon credits under the Kyoto Protocol” 2007 *United Nations Industrial Development Organization* (UNIDO).

1 3 THE MEANING OF CARBON MARKETS

The carbon market is one of the fastest growing markets in the world and can be categorized in two main markets, namely the global regulatory market and the voluntary market. Each of these markets are discussed briefly.

1 3 1 THE MANDATORY MARKET

The global mandatory market (also known as the “compliance” carbon market) for carbon credits is dominated and regulated by two main instruments/treaties, namely the Kyoto Protocol and the United Nations Framework Convention on Climate Change (UNFCCC) as was mentioned earlier. The Kyoto Protocol has sanctioned carbon offsets as a way of providing governments and private companies with the opportunity to earn carbon credits that can be traded in the marketplace. Companies, governments or other entities buy carbon credits in order to comply with caps on the total amount of carbon dioxide (CO₂) and carbon dioxide equivalent (CO_{2e}) gasses⁹ they are allowed to emit. Thus, this market exists to achieve compliance of Annex I parties¹⁰ under the Kyoto Protocol and of other liable entities under the European Union Emission Trading Scheme (EU ETS) that will be discussed briefly later. This is the larger market of the two and in 2006 the regulatory market had already reached purchases of carbon offsets worth more than \$5.5 billion, which represents about 1.6 billion metric tons of CO_{2e} emissions.¹¹ Registering a project in the regulatory market

⁹ Carbon dioxide equivalent gasses include 6 six primary gasses, namely, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), perfluorocarbons (PFC's), hydrofluorocarbons (HFC's) and sulphur hexafluoride (SF₆), Information available at <http://www.ipcc.ch/ipccreports/tar/wgl/020.htm> Working Group 1, “The Scientific Basis” (22-02-2010) (accessed on 01-03-2014).

¹⁰ Annexure I parties are parties that are bound by the emission reduction targets of the Kyoto Protocol to reduce annual greenhouse gas emissions. These countries are considered being “developed” countries and include countries such as Australia, Germany, France, United States of America and many more. If a country does not appear in Annex B in the Kyoto Protocol, the country is not considered to be bound by the emission reduction targets and is considered to be a “developing” country. It is important to note that Annexure I was included in the UNFCCC. Annexure B of the Kyoto protocol is founded upon Annexure I of the UNFCCC. These two annexures contain the same countries and is thus similar. It has however been established as common cause to refer to “Annexure I countries” and not “Annexure B countries”.

¹¹ Anonymous, “State and Trends of the Carbon Market” (2007) http://carbonfinance.org/docs/Carbon_Trends_2007-_FINAL_-_May_2.pdf (accessed on 01-03-2014).

is a longer process than that of the voluntary market described below, but higher prices can be obtained for the carbon credits in this marketplace.¹²

1 3 2 THE VOLUNTARY CARBON MARKET

This market trades with carbon credits that are dealt with under voluntary programs and thus regulated by instruments *not* directly related to the UNFCCC and the Kyoto Protocol. The voluntary market is a much smaller market where individuals, companies and governments purchase carbon offsets in order to manage and mitigate their own GHG emissions.¹³ This means that these companies and other entities purchase carbon offsets in order to compensate for emissions caused by their operational activities such as electricity usage, personal air travel and other sources. The voluntary market allows for companies and individuals to trade carbon offsets on a voluntary basis and is targeted at smaller projects that do not have the capital to register on the mandatory market. Voluntary carbon credits are generated by projects that are accredited to independent international standards such as the Verified Carbon Standard (VCS).¹⁴ Some of the reasons that entities purchase carbon offsets in the voluntary markets include, firstly, mitigating emissions for the goodwill and benefit of the general public and company investors, and secondly, pre-compliance purchasing, with companies expecting future mandatory caps on carbon emissions.

1 4 PROBLEM STATEMENT

As was described earlier, a carbon credit is a type of financial allowance that is produced from reducing emissions outside of a capped emitters' business area. Each carbon credit is equal to a reduction of one ton of carbon dioxide equivalent gasses (CO₂e). Prices are either determined by the market exchanges in which the carbon

¹² Botes "How to register a carbon project to earn carbon credits in South Africa" (10-07-2012) <http://urbanearth.co.za/articles/how-to-register-carbon-project-earn-carbon-credits-south-africa> (accessed on 06-03-2014).

¹³ Taiyab "Exploring the market for voluntary carbon offsets" 2006 *IIED emissions trading* 1 8-9.

¹⁴ Verified carbon standard "What is a VCU?" (undated) <http://www.v-c-s.org/how-it-works/what-vcu> (accessed on 23-02-2014).

credits are traded or by the particular parties (the carbon credit provider and the carbon credit purchaser) involved with a specific transaction.

There are however, serious concerns from an environmental approach whether carbon credits will truly mitigate the impacts of global warming and climate change. Experts say that in order to combat the effects of global warming to a stage where GHG's will be acceptable, reductions of up to 80% below the levels of 1990 will have to be reached by 2050.¹⁵ The biggest criticism in this regard is the fact that there is too little time to reach this goal considering certain factors such as the projected population increase of three billion people in the next 50 years.¹⁶ According to Carter, the 80% reduction target is unrealistic and will only be realized if mandatory emissions reduction targets are set on an international scale. Voluntary markets simply do not have the potential and the capacity to reach this target. One of the main problems with implementing carbon emission caps on an international scale is the compliance thereof from countries all over the world. Non-compliance may lead to volatile carbon prices and disincentive countries and companies to partake in a carbon market.

South Africa was planned to formally enter the carbon market sphere in 2015 with the introduction of the South African carbon tax which was planned to be levied as from 1 January 2015. Hopes were high that the introduction of carbon tax would increase the demand in carbon credits in both the mandatory and voluntary carbon markets. This position was dismissed, as the Minister of Finance, Pravin Gordhan, announced in his 2014 budget speech that the implementation of the carbon tax would be postponed by one year to 2016.¹⁷ He did however place strong emphasis on the fact that the National Treasury and the Department of Environmental Affairs would implement measures to combat the effects of climate change and said: "This will include the proposed carbon tax, environmental regulations, renewable energy projects and other targeted support programs."

¹⁵ Kidd *Environmental Law* 61.

¹⁶ Carter "Why carbon credits and offsets will not work" available at http://www.forestecologynetwork.org/climate_change/credits_%26_offsets.html (accessed on 28-01-2014).

¹⁷ Gordhan 2014 Budget Speech, Minister of Finance, 25 (26-02-2014) available at www.treasury.gov.za.

From the above, it is clear that there are certain obstacles and difficulties that will complicate the research that needs to be done. This dissertation will provide the opportunity to evaluate what is happening in the carbon market sphere internationally and consequently predict possible successes and failures that a proposed South African carbon market framework will face. As such, the goal of this dissertation will be to investigate exactly how a carbon market should be regulated in South Africa.

In this dissertation the following research questions will be addressed:

- How are the current international regulatory legal frameworks that exist with regards to the management of both the mandatory and voluntary carbon markets structured?
- How do these frameworks operate?
- How will these frameworks influence and regulate the South African Carbon markets?
- What are the advantages and shortcomings of the current carbon market frameworks?
- How can these shortcomings be solved in order to ensure functionality in both the national and international carbon markets?

1 5 OBJECTIVES OF THE STUDY

The primary objective with the envisaged dissertation is:

To examine and evaluate the existing international regulatory frameworks that exist pertaining to the regulation of carbon markets and then construct a possible regulatory framework for the regulation of carbon credits in a South African carbon market based on international best practice.

The secondary objectives of this dissertation are to:

- Highlight any legal gaps and issues that might arise in South African carbon markets;
- Inform policymakers, who would be able to take note of such gaps;
- Gain an understanding of the history of the legal framework currently in place to regulate carbon markets from an international environmental perspective.

1 6 SIGNIFICANCE OF THE STUDY

The concentration levels of GHG's in the earth's atmosphere are caused by a variety of problems. The main contributor to the high levels of GHG's is the energy sector and related industries. All sources indicate that if we are to battle the effects of climate change, the time has come to start acting immediately. In view of international developments, the South African carbon market is outdated in comparison with international best practice. It is therefore necessary to evaluate the current situation and provide a new perspective on how South Africa can implement a lucrative carbon market. The approach taken with regards to the research will provide one with an opportunity to analyse both international and South African developments in the carbon market sphere. This dissertation will therefore provide necessary information for South Africa within a complex field of the law.

1 7 LIMITATIONS OF THE STUDY

In order to construct a possible regulatory framework with regards to the South African carbon market, it is necessary to analyse international law in order to establish the background and rationale behind carbon credits and carbon markets. In this regard it must be noted that this dissertation is by no means a dissertation in the field of international law. It merely examines the field in order to achieve the study objectives mentioned above.

Parts of Chapters 5 and 6 will discuss the proposed South African carbon tax. In this regard it is also important to note that this dissertation is not a tax law dissertation. However, in order to construct a possible legal framework for carbon trading within South Africa, it is necessary to discuss the proposed carbon tax, as it will be South Africa's main instrument to help create a lucrative carbon market. This dissertation

will focus on the trading and regulation of carbon credits in carbon markets and as such, the dissertation will fall within the field of mercantile law.

1 8 OUTLINE OF THE STUDY

As was mentioned earlier, this dissertation will examine current structures in place to regulate both the mandatory and voluntary carbon markets on an international and local scale. It is important to note that research will be conducted only with regards to countries that have successfully implemented a carbon market and may have a significant influence on the South African legal framework pertaining to carbon markets.

Chapter One serves as an introduction to the dissertation as it provides an explanation of the terms “carbon credit” and “carbon markets”. It also provides the problem statement, the objectives, the significance of the dissertation, the scope of the proposed chapters and the research methodology.

Chapter Two gives an overview of selected terminology related to carbon markets and carbon credit. The main objective of chapter two will be to examine and establish the legal nature of a carbon credit. Uncertainty exists as to the exact nature of a carbon credit and whether carbon credits can be considered to be financial instruments or not. This will include a discussion on whether or not a carbon credit is a “commodity” and whether the Carbon Credit Note can be considered to be a “commodity based derivative”. Furthermore, this chapter will analyse the rationale and history behind the concept of carbon credits with specific reference to the concept of “sustainable development”.

Chapter Three provides an overview of the international law regulating carbon markets. This chapter will also discuss general principles of international law related to climate change. The main international instruments that will be discussed include the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol and the Doha Amendment to the Kyoto Protocol.

Chapter Four provides an overview of the international best practice within carbon markets. This chapter discusses the Australian carbon market and the European Union Emissions Trading Scheme (EU ETS) and evaluates the processes and stakeholders involved in these systems. The successes and failures associated with these systems will then be analysed in order to construct a South African framework to regulate a carbon market. In this regard it is important to note that the main reason for choosing Australia and the EU ETS for establishing international best practice lies with the EU ETS itself. The EU ETS was the first, and is still by far the biggest international system for trading carbon units. Consequently it would be unwise to use any other system to establish best practice. The reason for choosing Australia as accompanying source is the fact that Australia was the first country outside the EU who was in negotiations to link their carbon trading system with that of the EU ETS.

Chapter Five examines the current South African position with regards to carbon markets and discusses the existing and proposed South African policies that relate to the subject of carbon markets. This chapter will also discuss the proposed carbon tax to be implemented from 2016 onwards as well as the different emission reduction projects within South Africa.

Chapter Six consists of a proposed framework to regulate the South African carbon market. The chapter will commence by discussing when the carbon trading scheme would need to be operational should the carbon tax be implemented in January 2016 and the benefits of a carbon tax as opposed to an emissions trading scheme. The bulk of the chapter will, however, consist of a proposed regulatory framework that will include all processes and stakeholders involved in such a system.

Chapter Seven will conclude the dissertation with a summary, conclusion and recommendations based on the research that was done.

1 9 RESEARCH METHODOLOGY

Given the purpose of this dissertation, the problem statement and objective, a comparative approach is appropriate as this will be the best method to determine international best practice. The main sources consist of international legislation and

regulations, draft legislation and literature such as articles and textbooks. Being a relatively new area of the law, there are very few comprehensive sources pertaining to carbon markets. As such, electronic resources and journal articles will be heavily relied upon to supply sufficient information to address the objectives of this study.

CHAPTER TWO

THE LEGAL NATURE OF A CARBON CREDIT

2 1 INTRODUCTION

When buying or selling goods in the everyday markets, such as televisions, cell phones, food etc., it is easy to define those goods in the contract of sale and thus simplify the purchase of these goods. In the carbon market, defining what is bought and sold is not as simple, because the subject of the transaction is the reduction or removal of greenhouse gasses (hereafter referred to as GHG's) in the earth's atmosphere. This chapter attempts to put into perspective the issue of what is really being bought and sold in a transaction involving carbon credits, in an effort to help the contractual parties define the subject of the contract more clearly. In this regard it is important to note that the underlying principle of carbon credits is not to acquire the carbon credit itself, but rather to acquire the *benefits* associated with the carbon credit, being the *right* to emit GHG's. Before one can analyse the exact nature of a carbon credit, one must first become familiar with certain concepts known within the carbon market. The first part of this chapter will highlight some of these concepts to provide one with a greater understanding and background of carbon markets.

2 2 DEFINITION OF A CARBON CREDIT

A plethora of interpretations and definitions exist pertaining to the concept of a carbon credit. Some of the definitions include the following:

Sandanathi Gwina, director at Deneys Reitz Inc. defines a carbon credit as

“Units that an entity acquires for developing or funding a project that assists with the reduction of Green House Gases (GHG's) in the earth's atmosphere.”¹⁸

¹⁸ Gwina, Deneys Reitz Inc “Carbon Credits, the future of infrastructure development finance” (7 April 2010), <http://www.polity.org.za/article/carbon-credits-the-future-of-infrastructure-development-finance> (accessed on 29-01-2014).

The Oxford Dictionary defines a carbon credit as:

“A permit which allows a country or organization to produce a certain amount of carbon emissions and which can be traded if the full allowance is not used.”¹⁹

Considering the Mandatory market (which will be discussed later in more detail) a definition pertaining to a carbon credit can be drawn from the United Nations Framework Convention on Climate Change (hereafter referred to as the UNFCCC) and one of the mechanisms introduced to regulate emissions reduction projects in developing countries, namely the Clean Development Mechanism.²⁰ This definition is the following:

“The CDM allows emission-reduction projects in developing countries to earn certified emission reduction (CER) credits, each equivalent to one tonne of CO₂. These CERs can be traded and sold, and used by industrialised countries to a meet a part of their emission reduction targets under the Kyoto Protocol.”²¹

All carbon credits have several common features:

- The Vintage: the “vintage” of the offset refers to the year in which the CO_{2e} reduction takes place.
- The Source: The “source” refers to the project or technology²² used to reduce the carbon emissions.
- The Certification regime: The “certification” regime describes the systems and procedures that are used to certify and register the carbon reductions. Different methodologies are used for measuring and verifying emissions

¹⁹ Oxford dictionary, “Carbon credit” available at <http://www.oxforddictionaries.com/definition/english/carbon-credit>. (accessed on 11-03-2014).

²⁰ See Chap 3, paras 3.3 and 3.6 for more information regarding the UNFCCC and the Clean Development Mechanism.

²¹ UNFCCC website, “What is the clean development mechanism?” (undated) <http://cdm.unfccc.int/about/index.html> (accessed on 22-04-2014).

²² These projects include Carbon sequestration through reforestation or agriculture, renewable energy projects, energy efficiency projects, methane recovery projects and fuel switching processes - Botes, Urban earth, “Purchasing Carbon in South Africa” (19-03-2012) <http://urbanearth.co.za/articles/purchasing-carbon-credits-south-africa> (accessed on 12-03-2014).

reductions, depending on factors such as the projects type, projects size and location.²³

After the analysis and consideration of many of these definitions, I have developed my own definition to work with combining the most important factors of definitions I have come across. This definition is the following:

A carbon credit can be described as a tradable intangible financial instrument in the form of a commodity, that represents the right/allowance to emit one tonne of carbon dioxide (or the mass of another greenhouse gas with a carbon dioxide equivalent [CO_{2e}]) into the earth's atmosphere.

2 3 CARBON CREDITS VS CARBON OFFSETS

A distinction must be made between a “carbon credit” and a “carbon offset”. Many resources refer to these two concepts as having identical meanings. It is submitted that these two concepts does not constitute identical meanings. These two concepts are however interlinked as the one concept is a prerequisite for the other's existence. The carbon credit is defined above, however it is submitted that for purposes of this dissertation, these two concepts will be given separate meanings and interpretations.

2 3 1 WHAT IS A “CARBON OFFSET”?

The Oxford dictionary defines “carbon offsetting” as the following:

“The counteracting of carbon dioxide emissions with an equivalent reduction of carbon dioxide in the atmosphere.”²⁴

The World Resources Institute defines a “carbon offset” as:

“A unit of carbon dioxide-equivalent (CO_{2e}) that is reduced, avoided, or sequestered to compensate for emissions occurring elsewhere.”²⁵

²³ UNFCCC website, CDM, CDM Methodologies <http://cdm.unfccc.int/methodologies/index.html>. (accessed on 12-03-2014).

²⁴ Oxford dictionary, “carbon offsetting” available at <http://www.oxforddictionaries.com/definition/english/carbon-offsetting>. (accessed on 23-03-2014).

From the above one can see that the carbon offset represents the actual reduction in emissions. This reduction in emissions compensates for or “offsets” emissions made elsewhere. And as a result of this carbon offset, one can acquire a carbon credit that can either be used as a right to emit CO_{2e}²⁶ or the carbon credit can be sold to another party for the same purpose. It is submitted that the existence of a carbon credit requires a carbon offset and the two are thus interlinked in this manner. The Kyoto Protocol has sanctioned offsets as a way for governments, private companies and industry to earn carbon credits that can be traded on a marketplace.²⁷

2 4 BECOMING “CARBON NEUTRAL”

Carbon credits and carbon markets are a component of national and international attempts to mitigate the growth in concentrations of GHG’s in the earth’s atmosphere. It is clear that the international community is taking the threat of climate change very seriously and companies and industry are seeking to become “carbon neutral”. The Oxford dictionary describes the concept of being “carbon neutral” as the following:

“Making or resulting in no net release of carbon dioxide into the atmosphere, especially as a result of carbon offsetting.”²⁸

What this means is that emissions that are created by industry and companies in their different business operations are neutralised through the purchase of carbon credits. Companies that leave a large carbon footprint (pollution), for example, Sasol in South Africa, are expected to comply with international regulations regarding the emission of greenhouse gases. Should a company fall short of complying with these

²⁵ Goodward, Kelly, World Resources Institute “Bottom Line on Offsets” (August 2010) <http://www.wri.org/publication/bottom-line-offsets> (accessed on 26-03-2014).

²⁶ Carbon dioxide equivalent gasses include 6 six primary gasses, namely, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), perfluorocarbons (PFC’s), hydrofluorocarbons (HFC’s) and sulphur hexafluoride (SF₆), Information available at <http://www.ipcc.ch/ipccreports/tar/wgl/020.htm> Working Group 1, “The Scientific Basis” (22-02-2010) (accessed on 01-03-2014).

²⁷ The protocol established the Clean Development Mechanism (CDM), which validates and measures projects to ensure they produce authentic benefits that are “additional” to mitigation activities that would’ve taken place otherwise. Organisations that are unable to meet their emissions quotas can offset their emissions by buying CDM- approved CER’s. This is dealt with extensively in Chap 3.

²⁸ Oxford dictionary, “carbon neutral” available at <http://www.oxforddictionaries.com/definition/english/carbon-neutral>. (accessed on 23-03-2014).

international standards, they must counter their carbon exposure by either purchasing carbon credits or invest in projects to neutralise their emission levels.

When deciding to become carbon neutral, the first step to do so is to measure your carbon emissions and to determine your carbon footprint.²⁹ Once this is quantified, it enables a company to be issued with carbon credits that allows the company to emit emissions above a certain level.³⁰ These emissions are however justified and “cancelled out”, because the money for purchasing the right to emit GHG’s above a certain level is invested in a emissions reduction project.

It is important to note that before one is able to acquire carbon credits, one has to be able to measure the amount of carbon emissions produced by activities performed. Limitations on the amount of carbon emissions an entity is permitted to produce are currently being implemented in Europe and in many other places across the globe with even stricter measures that will be implemented in times to come.³¹ Thus, companies and industries alike must be able to measure their carbon emissions in order to provide them with insight on how to manage their emissions better, be it to invest in carbon credits or to invest in “greener” technology. Simply said, one cannot manage what one cannot measure. For this reason, identifying one’s carbon footprint is the starting point to identify areas of the business where emissions can be reduced. The concept “carbon footprint” and the measurement thereof will be discussed below.

2 4 1 SOUTH AFRICA’S CARBON NEUTRALITY

In South Africa this situation has not yet reached the level of understanding and implementation as is the case in most European countries. However, South Africa is currently looking at the possibility of countries abroad investing and financing GHG mitigation projects in South Africa. This will minimize the carbon exposure of these countries abroad, whilst benefiting South Africa with new greener technologies.

²⁹ The Carbon report “How do we become carbon neutral?” (undated) <http://www.thecarbonreport.co.za/what-is-a-carbon-footprint/> (accessed on 15-01-2014).

³⁰ *Ibid.*

³¹ See Annexure B of the Kyoto Protocol that stipulates the “Quantified emission limitation or reduction commitment” of each Annex I country.

A GHG project consists of a specific activity or set of activities intended to reduce GHG emissions, increase the storage of carbon, or enhance GHG removals from the atmosphere.³² A GHG project may be a stand-alone project or a component of a larger non-GHG project, and may be comprised of one or more project activities.³³ South Africa, being a developing country in terms of the Kyoto Protocol,³⁴ does not have the financial means to support and facilitate our own large scale emissions reduction projects. With South Africa's immense potential for the development of emission mitigation projects, and the consequent potential of a successful carbon market, offshore countries can invest in these projects and benefit both their own emission targets and South Africa's economy. As is mentioned above, these GHG projects reduce the amount of CO_{2e} gasses in the earth's atmosphere. It is this reduction in the amount of emissions that constitute a carbon offset.

2 5 WHAT IS A "CARBON FOOTPRINT"?

A carbon footprint is most commonly measured over a period of twelve months and represents the total GHG emissions caused directly and indirectly by an organisation or company.³⁵ To set an example of how important it is to calculate the correct carbon footprint, consider the following example: The FIFA World Cup of 2010 held in South Africa caused emissions of over 2.7 million tons of carbon dioxide equivalent gasses (CO_{2e}) produced by numerous activities such as energy consumption by stadiums and accommodation, stadium construction processes and transport in and between South African cities. However, the biggest contributor to this number was international travel to and from the games.³⁶ To ensure that the correct parties are

³² Greenhouse Protocol, Chap 2: Key GHG Project Accounting Concepts, 11 (available at http://www.ghgprotocol.org/files/ghgp/ghg_project_protocol.pdf).

³³ *Ibid.*

³⁴ If a country does not appear in Annex B in the Kyoto Protocol (thus is not an Annex I party), the country is not considered to be bound by the emission reduction targets and is considered to be a "developing" country. All parties included in Annexure B of the Kyoto Protocol (also called Annex I countries as per the UNFCCC) are either categorised as "developed" countries or "countries that are undergoing the process of transition to a market economy". See Annex B of the Kyoto Protocol.

³⁵ Anonymous "What is a carbon footprint?" (undated) <http://www.thecarbonreport.co.za/what-is-a-carbon-footprint/> (accessed on 15-01-2014).

³⁶ Anonymous "Carbon footprinting: Setting your boundaries." (30-01-2014) <http://www.gcxafrica.co.za/carbon-footprinting-setting-boundaries/> (accessed on 12-03-2014).

held liable for such emissions, there is a dependence to implement an accounting process to establish the correct operational boundaries of such an event.

2 5 1 MEASUREMENT OF CARBON FOOTPRINTS

The functional roles, organisational responsibilities and legal structures of business operations differ in terms of ownership and control over activities conducted by a company. In many cases there are complicated factors to consider such as subsidiaries of companies and other third parties being involved. For this reason it is very important to clearly define a company's boundaries within the context of emissions caused by certain activities. Considering the above, the categorisation of GHG emissions in *direct emissions* and *indirect emissions* is mainly for reporting and calculation purposes and to provide a clear understanding of an entity's carbon exposure.

2 5 1 1 DIRECT EMISSIONS

The GHG Protocol defines direct emissions as the following:

“Direct GHG emissions are emissions from sources that are owned or controlled by the reporting entity.”³⁷

These emissions are also known as scope 1 emissions and according to the GHG Protocol include “all direct GHG emissions”.³⁸ Examples of such emissions include emissions such as refrigeration, air conditioning and most of all fuel burnt by company-owned assets, which include all company owned motor vehicles.³⁹

³⁷ Greenhouse Gas Protocol website “Frequently asked questions – What is the difference between direct and indirect emissions?” (undated) <http://www.ghgprotocol.org/calculation-tools/faq#directindirect> (accessed on 23-04-2014).

³⁸ *Ibid.*

³⁹ Anonymous “Frequently asked questions” (undated) <http://www.thecarbonreport.co.za/what-is-acarbon-footprint/>, (accessed on 15-01-2013).

2 5 1 2 INDIRECT EMISSIONS

The GHG Protocol defines indirect emissions as the following:

“Indirect GHG emissions are emissions that are a consequence of the activities of the reporting entity, but occur at sources owned or controlled by another entity.”⁴⁰

Thus, indirect emissions are emissions *related* to the company’s activities, but are emitted from sources that are owned by third parties and not owned by the company. Indirect emissions can be categorised into two categories, namely scope 2 emissions and scope 3 emissions. Scope 2 emissions include emissions caused by purchased electricity, heat or steam. Scope 3 emissions are much broader and include emissions caused by air travel and paper use and many other sources.⁴¹

The carbon footprint is a useful tool to help reach a carbon neutral future, as it provides a baseline from which to measure current carbon emissions and helps to implement strategies to lower these emission levels through carbon and energy reduction initiatives.

2 5 2 EMISSION BASELINES

The baseline provides a reference standard for each emission reduction case. It is a hypothetical description of what would have most likely occurred in the absence of any emissions reduction projects and is used to estimate baseline emissions. When a company considers the implementation of “green” technologies/mitigating processes to emit less GHG’s, it has to compare current emission levels, to the projected future emission levels, should the company decide to go forward with the implementation of the emissions reduction processes. Consider the following diagram to illustrate how the baseline helps to measure emission reductions of a company seeking to implement emission reduction technologies.

⁴⁰ Greenhouse Gas Protocol website “Frequently asked questions – What is the difference between direct and indirect emissions?” (undated) <http://www.ghgprotocol.org/calculation-tools/faq#directindirect> (accessed on 23-04-2014).

⁴¹ *Ibid.*

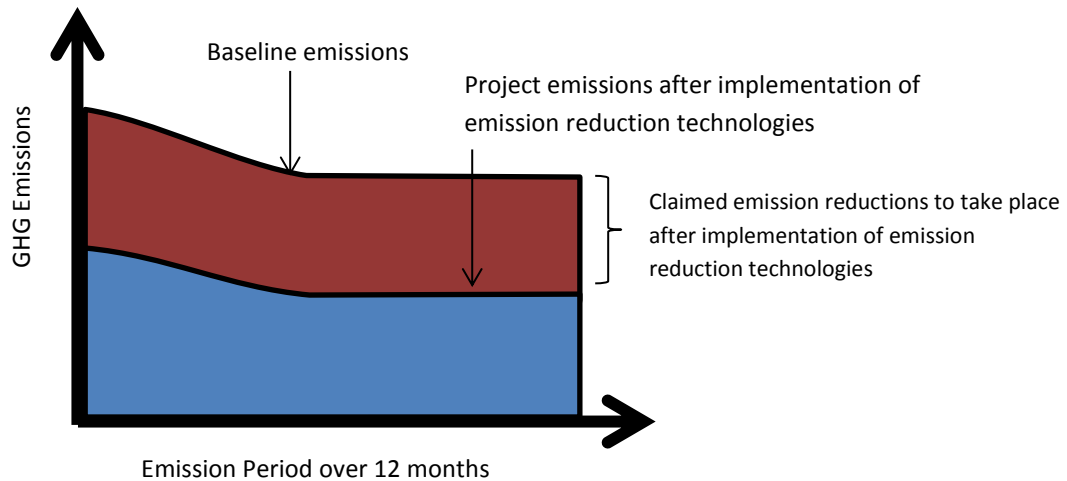


Figure 1: Emissions baseline based in future emissions estimations

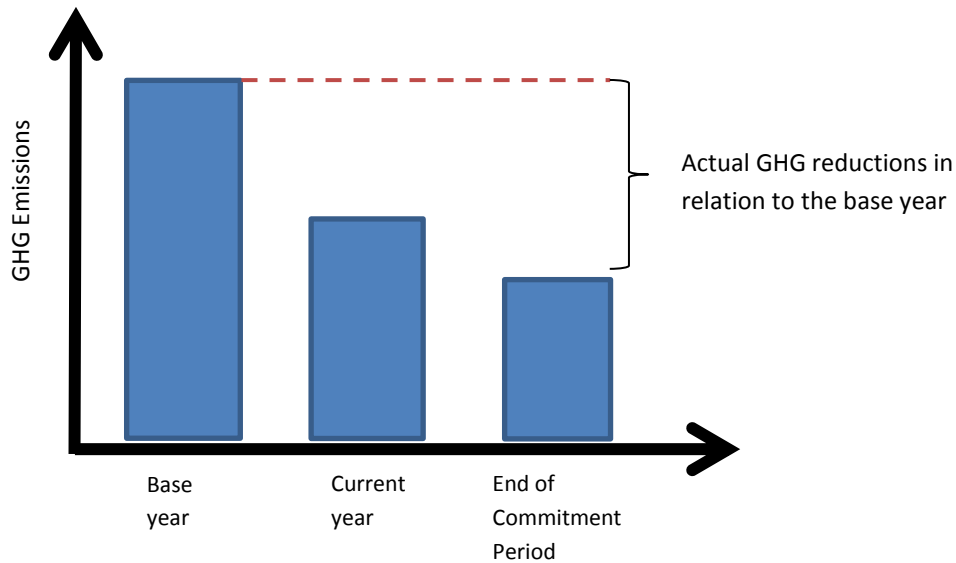
It is important to note that the diagram above does not apply to entities that have an obligation to reduce emissions under instruments such as the Kyoto Protocol.⁴² Parties who have a national or corporate obligation to emit less GHG's, like those committed under the Kyoto Protocol will not consider projected *future* emissions, but rather use a *historical* baseline/base year to measure the emission targets they have to reach under the obligation.⁴³ The Kyoto Protocol operates in such a manner as it obligates countries listed in Annexure B of the Protocol (Annex I countries) to achieve specific targets, defined a percentage reduction or limitation in relation to the base year of 1990 to be met during the first commitment period⁴⁴ that was set from 2008 to 2012.⁴⁵ There are different base years for some countries with economies in transition. The following diagram illustrates how the historical base year emission reduction standard operates.

⁴² Please see Chap 3, par 3.5 for more information regarding the Kyoto Protocol.

⁴³ World Resources Institute - Greenhalgh, Broekhoff, Daviet, Ranganathan, and the World Business Council For Sustainable Development – Acharya, Corbier, Oren, Sundin, "The GHG Protocol for Project Accounting", (2005) 13.

⁴⁴ In Doha, Qatar, on 8 December 2012, the "Doha Amendment to the Kyoto Protocol" was adopted. The amendment includes a new commitment period for Annex I Parties to the Kyoto Protocol who agreed to take on commitments in a second commitment period from 1 January 2013 to 31 December 2020.

⁴⁵ Tsukiji, Kajimura, Loewenthal, and Yamaguchi, United Nations Industrial Development Organization (UNIDO), "Negotiating the transfer and acquisition of project-based carbon credits under the Kyoto Protocol" (2007) 6-7.



The diagram above does not represent a realistic scenario and is only for illustration purposes.

Figure 2: Emissions baseline based on historical emissions

2 5 3 EMISSION SCOPE BOUNDARIES

It can however be difficult to determine and define exactly what the carbon footprint of a certain company is. The scope of carbon emissions that a company can be held liable for must be determined by setting boundaries as was mentioned above. The Greenhouse Gas Protocol (hereafter referred to as the GHG protocol) provides guidelines to help determine these boundaries known as the organisational and operational boundaries. The GHG Protocol Initiative is a multi-stakeholder partnership of businesses, non-governmental organisations (NGO's), governments, and others convened by the World Resources Institute (WRI) and the World Council for Sustainable Development (WBCSD).⁴⁶ Launched in 1998, the initiative's mission is to develop internationally accepted GHG accounting and reporting standards for businesses and to promote their broad adoption worldwide.⁴⁷ The GHG Protocol can thus widely be accepted as the international standard for GHG accounting.

⁴⁶ Anonymous "About the GHG Protocol" (undated) <http://www.ghgprotocol.org/about-ghgp> (accessed on 26-03-2014).

⁴⁷ *Ibid.*

2 5 3 1 THE ORGANISATIONAL BOUNDARY

The organisational boundary is the first boundary that needs to be established. This boundary dictates which related businesses and operations will constitute the company for the purposes of reporting on GHG emissions.⁴⁸ These businesses and operations may include subsidiaries, factories, warehouses, economic interests in the businesses etc. Emissions can be consolidated by using two basic approaches which help determine the organisational boundary. These include:

- The *equity share approach*: which dictates that emissions are accounted for based on a company's share of equity in operations. The equity share reflects the economic interest of the company and is aligned with the risks and rewards associated to a specific operation. Typically the risks and rewards associated with an operation will be in relation with the company's percentage ownership of that operation. The equity share will normally also be the same as the ownership percentage. Where this is not the case, the economic substance of the relationship the company has with the operation always overrides legal ownership to ensure that the equity share reflects the percentage of economic interest in the operation.⁴⁹
- The *operational control approach*, with which a company accounts for all emissions under its control. A company is considered to have operational control over an operation if it or one of its subsidiaries has the full authority to introduce and implement operating policies for the operation of the company to take place. If a company does meet this criterion, it can be held liable for 100% of the emissions from operations over which it or its subsidiary has control.⁵⁰

The selected approach must be applied consistently to define which businesses and operations constitute the company for purposes of calculating the carbon footprint of

⁴⁸ Reay "Carbon footprinting: Setting your boundaries." (30-01-2014) <http://www.gcxafrica.co.za/carbon-footprinting-setting-boundaries/> (accessed on 12-03-2014).

⁴⁹ Anonymous "Frequently asked questions" (undated) <http://www.thecarbonreport.co.za/what-is-acarbon-footprint/>, (accessed on 15-01-2013).

⁵⁰ *Ibid.*

the specific company. Once the organisational boundary has been determined, the operational boundary must be defined.

2 5 3 2 THE OPERATIONAL BOUNDARY

Once the organisational boundary is set, the operational boundary defines which operations and activities (and the consequent emissions) within the organisational boundary will be included in a company's business operations. This is done by acquiring business activity information such as the fuel and electricity usage of a company. These figures are then converted into carbon dioxide equivalents (CO_{2e}) using emission factors⁵¹ that are relevant to that specific company's characteristics. The CO_{2e} represent emissions associated to the company. The allocation of emission sources to scope 1, 2 or 3 emissions, depends on whether emissions are calculated based upon the equity share approach or whether the operational control approach is used.⁵² The recommended method to use when conducting a carbon audit is the operational control method, unless legislation or an emission trading scheme⁵³ dictates otherwise.⁵⁴ This amounts to a wider approach and using the operational control approach can lead to more opportunities for emission reductions and allow for more sustainable decisions going forward regarding activities, products and services.

Consider the following example to illustrate the differences in the application of the available approaches (the equity share approach or the operational control

⁵¹ "Emission factors" are factors which relate to the amounts of greenhouse gases emitted by a business through activity performed by that business. Default values are always provided for the emission factors in case businesses cannot develop custom values. So, in many cases companies need only activity data, such as the amount of distance travelled or fuel combusted, to calculate their emissions. The default emission factors are averages based on the most extensive data sets available and they are largely identical to those used by the Intergovernmental Panel on Climate Change (IPCC), the premier authority on accounting practices at the national level. However, the GHG Protocol recommends that businesses should use custom values whenever possible. This is because the industrial processes or the composition of fuels used by businesses may differ with time and by region. Information available at Greenhouse Gas Protocol, "What emissions factors do the GHG Protocol calculation tools use?" (undated) <http://www.ghgprotocol.org/calculation-tools/faq> (accessed on 23-04-2014).

⁵² Greenhouse Gas Protocol website "Frequently asked questions – What is the difference between direct and indirect emissions?" (undated) <http://www.ghgprotocol.org/calculation-tools/faq#directindirect> (accessed on 23-04-2014).

⁵³ See Chap 5 and Chap 6 for more information regarding emission trading schemes.

⁵⁴ Anonymous "Frequently asked questions" (undated) <http://www.thecarbonreport.co.za/what-is-acarbon-footprint/>, (accessed on 15-01-2013).

approach): a distribution company owns a fleet of vehicles which is leased to a client who is responsible for the operation of the vehicles on a daily basis. If the distribution company wishes to implement the equity share approach to account for emissions, all emissions associated with the vehicles are categorised as scope 1 emissions (direct emissions), because the vehicles are wholly-owned company assets. If the distribution company chooses to implement the operational control approach, the emissions produced by the vehicles are categorised as scope 3 emissions, because the vehicles are under the “operational control” of the client.⁵⁵

Considering the example above, it is important to remember that one company’s scope 3 emissions are other entities scope 1 emissions. Consequently it is important to draw appropriate boundaries to avoid double accounting.

The operational control approach provides the following benefits.⁵⁶

- It provides companies with the most complete and thorough carbon audit for reporting emissions.
- Companies have access to operational information, which in turn ensures their carbon report meet minimum standards as prescribed by the GHG Protocol.
- Managers of companies can be held liable for malpractice and activities conducted under their control and direction.
- A company can take full responsibility of all the GHG emissions emitted by their activities and accordingly influence and reduce those figures.

2 6 THE LEGAL NATURE OF A CARBON CREDIT

Carbon credits create a market for reducing GHG emissions by giving a monetary value to the cost of polluting the air, with carbon emissions becoming a liability and carbon reductions becoming assets. The consequence of this is that carbon

⁵⁵ Reay “Carbon footprinting: Setting your boundaries.” (30-01-2014) <http://www.gcxafrika.co.za/carbon-footprinting-setting-boundaries/> (accessed on 12-03-2014).

⁵⁶ Anonymous “Frequently asked questions” (undated) <http://www.thecarbonreport.co.za/what-is-a-carbon-footprint/>, (accessed on 15-01-2013).

becomes an internal cost of doing business and thus becomes a part of the financial balance sheets of a particular business alongside other costs, incomes, assets and liabilities of that business. Consider the following example: a business owns a factory emitting 120 000 tonnes of GHG's in a year. The business is registered in an Annex I country (according to the Kyoto Protocol) and as such, its government enacted emission cap laws. Consequently, the factory is given a capped quota of only 100 000 tonnes of GHG's per year. The factory has two options to meet this quota: it can either reduce its emissions to 100 000 tonnes by investing in "cleaner" and "greener" machinery or it can purchase carbon credits to offset the 20 000 tonnes of excess GHG's that it emits. After costing up the alternatives, the business decides that it is uneconomical and infeasible to invest in new machinery for that year. It opts to rather buy carbon credits in the market from organisations that have been approved as being able to sell legitimate carbon credits. This example reflects the considerations and financial implications that the price of carbon may have on a business.

There are also two types of carbon credits in both the voluntary and regulatory markets known as primary and secondary carbon credits. Primary carbon credits are purchased from mitigation projects that are not yet in operation.⁵⁷ These credits are often forward sold, based on the expectations of the quantity and quality of carbon credits that will be produced by the specific mitigation project. Secondary credits are those credits that have already been issued from mitigation projects already in operation. These credits are sold repeatedly by different companies until it is eventually bought by the final consumer who will submit and surrender the credit in order to meet its emission reduction target.⁵⁸ The fact that carbon credits and derivatives based on carbon credits mostly get sold as forward contracts, gives us the opportunity to further investigate the exact nature of a carbon credit.

⁵⁷ Point Carbon Advisory Services, "Issues in the international carbon market, 2008-2012 and beyond" (2007) <http://www.mfe.govt.nz/publications/climate/issues-international-carbon-market-oct07/issues-international-carbon-market-07.pdf> (accessed on 06-05-2014).

⁵⁸ Anonymous "Carbon market Frequently asked questions" www.rema.gov.rw/dna/index.php?option=com_docman...15... (accessed on 22-04-2014).

2 6 1 CARBON CREDITS AS COMMODITIES

Over time there have been many debates and discussions about the exact legal nature of carbon credits.⁵⁹ International law as well as our own legal system is not yet fully settled with regards to carbon credits being understood as commodities. Companies and governments prefer to look at carbon credits as tradable commodities, like silver or gold, and would like to manage their exposures in a similar way to how they currently hedge other commodity risks.⁶⁰ As defined above, a carbon credit is an intangible tradable product in the form of a commodity. These products are intangible in the sense that you cannot hold them in your hands like other commodities such as corn, rice or gold. However, like electricity (also intangible) transactions in carbon credits as commodities can be physically settled using an electronic registry system coupled with an electronic clearing and settlement system.⁶¹

2 6 2 INTERNATIONAL PERSPECTIVES ON CARBON CREDITS

There are four reduction units that were introduced by the Kyoto Protocol forming the carbon credits that can be traded in the mandatory market which include Certified Emission Reductions (CER's), Emission Reduction Units (ERU's), Removal Units (RMU's) and Assigned Amount Units (AAU's).⁶² These four units are fungible in the sense that they are interchangeable and can be transferred as equal units, independently of how they were created.⁶³ Neither the Kyoto Protocol, nor the Marrakesh Accords provide any insight to what the exact legal nature of carbon credits are. However, the Marrakesh Accords does determine that the Kyoto Protocol and subsequent carbon credits mentioned above, does not provide the "right, title or

⁵⁹ Gwina, Deneys Reitz Inc <http://www.polity.org.za/article/carbon-credits-the-future-of-infrastructure-development-finance>.

⁶⁰ Lewis "Carbon credit derivatives" (05-05-2012) <http://www.marketoracle.co.uk/Article34505.html> (accessed on 08-05-2014).

⁶¹ See Chap 6, para 6.6.2, 6.6.3 and 6.6.5.1.

⁶² See Chap 3 for more information regarding these four Kyoto units.

⁶³ Tsukiji *et al* "Negotiating the transfer and acquisition of project-based carbon credits under the Kyoto Protocol" (2007).

entitlement to emissions of any kind”.⁶⁴ This is a direct contradiction to the definitions of carbon credits provided above as the definitions stipulate that the holder of a carbon credit accrues the right to emit GHG’s. However, there are certain instruments that have developed outside the Kyoto Protocol and the Marrakesh Accords that support the definitions provided and that emphasizes the nature of a carbon credit as a “right” to emit GHG’s. One of these instruments is the United States Clean Air Act as amended in 1990. Title IV, Section 403 (f) of the Clean Air Act provides that:

“An allowance allocated under this title is a limited *authorisation to emit* sulphur dioxide in accordance with the provisions of this title.”⁶⁵

It is submitted that this position as stipulated in the Clean Air Act can surely be interpreted as providing the holder of a carbon credit with a “right” to emit certain elements into the earth’s atmosphere.

One of the other instruments that support the definition is the EU ETS.⁶⁶ The EU ETS defines an “allowance” as “the allowance to emit one ton of carbon dioxide equivalent during a specified period, which shall be valid only for the purposes of meeting the requirements of this Directive and shall be transferable in accordance with the provisions of this Directive”.⁶⁷

This clearly also indicates a “permission” of sorts to emit GHG’s up to a certain amount. If this amount is reached and emissions continue, the party responsible for the excess emissions may be held liable for penalties.⁶⁸ Seeing as the EU ETS is a multi-national directive, it remains the responsibility of each member State to the EU

⁶⁴ MA Decision 15/CP.7, FCCC/CP/2001/13/Add.2, 3 provides that: “Further recognizing that the Kyoto Protocol has not created or bestowed any right, title or entitlement to emissions of any kind on Parties included in Annex I”.

⁶⁵ The Clean Air Act [As Amended Through P.L. 108–201, February 24, 2004], Q:\COMP\ENVIR1\CLEANAIR.004.

⁶⁶ The EU ETS is based upon Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003. More information regarding this Directive is available at <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32003L0087> (accessed on 23-04-2014).

⁶⁷ Art 3(a) of the EU ETS Directive 2003/87/EC.

⁶⁸ Art 16 of the EU ETS Directive 2003/87/EC.

ETS to determine the exact legal nature of the carbon credit and implement national policies to determine the fiscal treatment of these “allowances”.

Seeing as the European Union would prefer consistency as to how Member States regard carbon credits and the nature thereof, the European Environment Agency (EEA) issued questionnaires to member states as to how they perceive the legal nature of a carbon credit.⁶⁹ Austria supported the EEA’s efforts and recognised the need to harmonise the legal character of carbon credits and the fiscal treatment in all Member States across the EU.⁷⁰ The European Environment Agency consolidated the questionnaire reports from the member states which led to the following conclusions regarding the legal nature of carbon credits:⁷¹

- *Carbon credits for accounting purposes:* Eight Member States (Czech Republic, Denmark, Germany, France, Ireland, Italy, Malta and the United Kingdom) explicitly stated that for the purpose of accounting, carbon credits (allowances) are to be regarded as *intangible assets*. The United Kingdom and Italy, on the other hand, stated that emissions are to be regarded as *liabilities*.
- *Carbon credits for purposes of financial legislation:* In some Member States (Estonia and Sweden) carbon credits are regarded as *financial instruments* which are supervised by the Financial Services Authority (FSA). In other Member States (Germany, France, Austria, Finland and the United Kingdom) carbon credits are considered to be *commodities*. Trading of these commodities does not fall under the responsibility of the FSA and are consequently not considered being financial instruments. *Futures and other derivatives* of these commodities are however considered as financial instruments, with transactions being supervised by the FSA.

⁶⁹ Tsukiji *et al* “Negotiating the transfer and acquisition of project-based carbon credits under the Kyoto Protocol” (2007) 68.

⁷⁰ EEA Technical report No 2/2006, Application of the emissions trading directive by EU Member States, 39, available at http://www.eea.europa.eu/publications/technical_report_2006_2. (accessed on 24-04-2014).

⁷¹ EEA Technical report No 2/2006, 38.

It logically follows that carbon credits bought and sold in the *voluntary* market, known as Verified Emissions Reductions (VER's), share the same characteristics of its regulatory market counterparts as discussed above.

2 6 3 THE SOUTH AFRICAN PERSPECTIVE ON CARBON CREDITS

It has now been established that a carbon credit is considered to be a commodity in many other jurisdictions across the globe. But it is also clear that a carbon credit is unlike any other commodity. The subject of the commodity in the case of a carbon credit is the reduction and removal of GHG's that are of an intangible nature. Consequently it is necessary to define and discuss the concept of commodities to ensure that a carbon credit has its own place in the financial marketplace. Van Wyk *et al* defines a commodity as "a tangible unprocessed good with the intrinsic value which can be processed further and which is traded".⁷² These commodities are traded in the commodities market which Botha defines as "the market where financial instruments with physical commodities as the underlying assets are traded".⁷³

Take note of the fact that the above definition provides that "financial instruments" are traded in this market as it will be an important fact to consider below. The commodities market consists of two almost separate markets as the physical commodities market and the financial commodities market.⁷⁴ The physical commodities market trade with *tangible* commodities such as meat, iron ore and gold.⁷⁵ These commodities trade in physical quantities between producers, consumers, processors and other users. Carbon credits are *intangible* and consequently will not form part of the physical commodity market. Carbon credits will be traded in the *financial* commodities market where commodity-based financial instruments are traded.⁷⁶ Consequently a carbon credit does not comply with the Van Wyk's definition of a commodity, as it is not a "tangible unprocessed good", but rather an intangible commodity.

⁷² Van Wyk *et al* *Understanding South African Financial Markets*, Glossary, xxiv.

⁷³ Van Wyk *et al* *Understanding South African Financial Markets* 451-452.

⁷⁴ Van Wyk *et al* *Understanding South African Financial Markets* 451.

⁷⁵ *Ibid.*

⁷⁶ *Ibid.*

Furthermore, Botha's definition of a "carbon market" also contains an essential flaw with regards to carbon credits if some of the international perspectives pertaining to carbon credits are considered. As was established above, there still remains uncertainty between states pertaining to the classification of a carbon credit as a "financial instrument" as contained in the definition above. In countries such as Estonia and Sweden carbon credits *are* considered to be financial instruments supervised by the Financial Service Authority (FSA).⁷⁷ This position complies with Botha's definition of a carbon market, as the South African commodities market trade with commodities as financial instruments. However, as was mentioned above, certain other countries such as France, Austria and the United Kingdom do not consider carbon credits to be financial instruments. Considering Botha's definition of a commodity market, anything that is not classified as a financial instrument cannot be traded in the commodities market and as such, carbon credits generated in these countries, will not be traded on the South African commodities market, as we do consider carbon credits to be financial instruments.

Currently carbon credits are not exchange traded in South Africa, although it is anticipated that the JSE Limited will introduce a system of trading directly in carbon credits in the near future.⁷⁸ This will also be discussed in the proposed carbon tax trading system that is discussed in Chapter 6. Futures and other derivatives based on carbon credits (thus commodity-based derivatives) are *also* considered to be financial instruments and are currently exchange traded.⁷⁹ In countries such as Austria, these commodity-based derivatives are regulated by the FSA. Therefore, when considering the above and to give carbon credits its place in the South African financial market, both carbon credits and commodity-based derivatives, with carbon credits being the underlying commodity, can be regarded as financial instruments and will be traded in the South African financial market.

⁷⁷ EEA Technical report No 2/2006 38.

⁷⁸ Gwina, Deneys Reitz Inc <http://www.polity.org.za/article/carbon-credits-the-future-of-infrastructure-development-finance>.

⁷⁹ EEA Technical report No 2/2006, 38.

2 6 3 1 COMMODITY TRADING IN SOUTH AFRICA

The financial commodities market and the physical commodities market mentioned above can be regarded as separate trading environments, with the dividing line between these two markets being very fine. For example, when farmers sell goods such as maize directly to agents, processors or final consumers, this transaction constitutes a simple commercial trade in which financial instruments are not necessarily created.⁸⁰ This trade transaction does seem a lot simpler than the complexities associated with trading on a complex trading platform such as the JSE. Why then would carbon credits not be traded in this more simplified manner, seeing as it is also considered to be a commodity? This simple commercial trade transaction does seem a lot simpler to regulate and would be possible, as it only requires that commodities, such as carbon credits be traded. It is submitted that the simple reason why this commercial trade transaction would not work with regards to carbon credits, is the fact carbon credits are intangible and cannot be traded in the same manner that any other hard or soft commodities⁸¹ are traded. The other simple reason why South Africa cannot trade carbon credits in this manner is the fact that South Africa does not yet trade directly with carbon credits as such, but only with *carbon credit derivatives* (commodity-based derivatives) as was mentioned above.⁸²

2 6 4 COMMODITY-BASED DERIVATIVES

When the farmers sell their products on a forward basis to an exchange (or a bank in many instances) a pure financial instrument such as a forward or future is created that can be traded in the South African financial market.⁸³ From the above it is clear that carbon credits also take the form of derivatives. It has also established that carbon credit-based derivatives are an efficient way of buying and selling carbon

⁸⁰ Van Wyk et al *Understanding South African Financial Markets* 452.

⁸¹ Botha in Van Wyk et al *Understanding South African Financial Markets* 453 describe “hard and soft commodities” as the following: “*hard commodities* are those non-perishable, non-renewable products that are extracted from mining, such as iron, copper, coal and oil, while *soft commodities* are renewable (and often perishable) plant or animal resources that can be grown, such as maize, wheat tea, cattle and wool”.

⁸² Gwina, Deneys Reitz Inc <http://www.polity.org.za/article/carbon-credits-the-future-of-infrastructure-development-finance>.

⁸³ Van Wyk et al *Understanding South African Financial Markets* 452.

credits in the financial market with the majority of carbon credit trading in South Africa at the moment, being derivative based.⁸⁴

2 6 4 1 CARBON CREDIT NOTES

Sterling Waterford is one of the first successful issuers of Carbon Credit Notes on the JSE. Carbon Credit Notes are based on the underlying commodity that is carbon credit.⁸⁵ Carbon Credit Notes can then be accepted as commodity-based derivatives of carbon credits. After the successful listing of the first Carbon Credit Note in 2005, they also issued the second Carbon Credit Note in 2008.⁸⁶ The holder of a Carbon Credit Note will not be able to accept delivery of the actual carbon credits that the Note is based upon, because as yet, there is no national registry⁸⁷ for carbon credits in South Africa.⁸⁸ In terms of the Marrakesh Accords, carbon credits generated under the Kyoto Protocol will be issued into a registry sub account (known as the “national registry”) of the Annex I country, but seeing as South Africa is not an Annex I country, we do not have a national registry.⁸⁹

The Carbon Credit Notes constitute “notes” as contemplated in paragraph (a)(iv) of the definition of “securities” in section 1 of the Financial Markets Act 19 of 2012 (hereafter referred to as the FMA).⁹⁰ Accordingly, Carbon Credit Notes can be regarded as “securities”⁹¹ for purposes of categorisation in the South African

⁸⁴ Thring, “Carbon credits as collateral” (2010) This article appeared in the Lang Michener LLP In Brief Fall 2010 and the Environment, Energy & Emissions Trading Brief Summer 2010. Also available at <http://www.mcmillan.ca/Carbon-Credits-as-Collateral> (accessed on 08-05-2014).

⁸⁵ Sterling Waterford CCN SPV 4, Offering Circular (27-08-08) 21, available at <http://swsecurities.co.za/files/carbon/Carbon%20Credit%20Note%20prospectus.pdf> (accessed on 26-04-2014).

⁸⁶ Sterling Waterford Securities is an Investment Management and Corporate Advisory business and specializes in management and advisory services related to listed and unlisted securities.

⁸⁷ Marrakesh Accords, FCCC/CP/2001/13/Add.2, Annex II A par 17 provides that “Each Party included in Annexure I shall establish and maintain a national registry to ensure the accurate accounting of the issuance, holding, transfer, acquisition, cancellation and retirement of ERU’s, CER’s, AAU’s and RMU’s and the carry-over of ERU’s, CER’s and AAU’s”.

⁸⁸ Sterling Waterford CCN SPV 4, Offering Circular, <http://swsecurities.co.za/files/carbon/Carbon%20Credit%20Note%20prospectus.pdf>.

⁸⁹ See Chap 6, par 6.6.3 for a proposed South African national registry system.

⁹⁰ Sterling Waterford CCN SPV 4, Offering Circular, 5 <http://swsecurities.co.za/files/carbon/Carbon%20Credit%20Note%20prospectus.pdf>.

⁹¹ S 1 of the FMA defines a “security” as:
“(a) listed and unlisted—

Financial Markets. The JSE granted permission for the listing of Carbon Credit Notes as asset-backed securities (ABS's) in the Investment Product Sector of the JSE main board that came into effect on October 2014. Van Wyk *et al*⁹² describe asset-backed securities as:

“Debt securities created through securitisation⁹³ that are backed by a pool of financial assets. The interest payments and principal repayments on these securities are made from cash flows generated by the underlying assets.”

The “pool of financial assets” backing the Carbon Credit Notes, are the carbon credits generated through the different carbon standards available.⁹⁴ The categorisation of Carbon Credit Notes as asset-backed securities also make sense, as many asset-backed securities have maturity dates (delivery dates) in excess of

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- (i) shares, depository receipts and other equivalent equities in public companies, other than shares in a share block company as defined in the Share Blocks Control Act, 1980 (Act No. 59 of 1980);
 - (ii) debentures, and bonds issued by public companies, public state-owned enterprises, the South African Reserve Bank and the Government of the Republic of South Africa;
 - (iii) derivative instruments;
 - (iv) notes;
 - (v) participatory interests in a collective investment scheme as defined in the Collective Investment Schemes Control Act, 2002 (Act No. 45 of 2002), and units or any other form of participation in a foreign collective investment scheme approved by the Registrar of Collective Investment Schemes in terms of section 65 of that Act; and
 - (vi) instruments based on an index;
 - (b) units or any other form of participation in a collective investment scheme licensed or registered in a country other than the Republic;
 - (c) the securities contemplated in paragraphs (a)(i) to (vi) and (b) that are listed on an external exchange;
 - (d) an instrument similar to one or more of the securities contemplated in paragraphs (a) to (c) prescribed by the registrar to be a security for the purposes of this Act;
 - (e) rights in the securities referred to in paragraphs (a) to (d), but excludes—
 - (i) money market securities, except for the purposes of Chapter IV; or if prescribed by the registrar as contemplated in paragraph (d);
 - (ii) the share capital of the South African Reserve Bank referred to in section 21 of the South African Reserve Bank Act, 1989 (Act No. 90 of 1989); and
 - (iii) any security contemplated in paragraph (a) prescribed by the registrar;”.

⁹² Van Wyk *et al Understanding South African Financial Markets* 505.

⁹³ Van Wyk *et al Understanding South African Financial Markets*, Glossary, xi, define “securitisation” as: “a process that pools and repackages interests in homogenous illiquid financial assets, such as mortgages and loans, and other income streams, such as trade receivables, into marketable debt securities that are sold to investors”.

⁹⁴ See Chap 5, par 5.9 for more information regarding the different carbon standards available.

one year.⁹⁵ Carbon credits, being the underlying asset that Carbon Credit Notes are based upon, can sometimes take years before they are actually generated by the emissions reduction project and consequently the Carbon Credit Notes will take the same time to reach their maturity date.

Carbon Credit Notes were the first listed derivative in the carbon credit market internationally and were specifically designed to provide the holders of the Carbon Credit Notes with the opportunity to gain exposure to carbon credits generated by Clean Development Mechanism CDM projects, by holding a listed tradable security on the JSE.⁹⁶ Carbon Credit Notes will only be issued to the holders thereof in *dematerialised*⁹⁷ form.⁹⁸ This means that all holders of Carbon Credit Notes must appoint a Central Securities Depository Participant (CSDP)⁹⁹ or a broker to receive and hold the Carbon Credit Notes on behalf of the holder of the security. Seeing as Sterling Waterford describes the Carbon Credit Note as a “derivative” it is important to define this concept. Van Wyk *et al*¹⁰⁰ define “derivatives” as:

“Financial instruments that derive their value from underlying securities and other variables such as indexes or reference rates and have either no or small initial investment and allow firms to speculate or hedge¹⁰¹ risks that arise from factors outside their control, such as foreign currency rates.”

Derivatives instruments include three general instruments. These include: forwards and futures, options, and lastly, swaps as defined below.

⁹⁵ Van Wyk *et al Understanding South African Financial Markets* 292.

⁹⁶ Sterling Waterford Securities is an Investment Management and Corporate Advisory business and specializes in management and advisory services related to *listed and unlisted securities*. <http://www.sterlingwaterford.com?carbon-credits.html> (accessed on 15-01-2013).

⁹⁷ Van Wyk *et al Understanding South African Financial Markets*, Glossary, xxvii, describes “dematerialisation” as: “the final stage in the process of terminating the issuing of securities in paper form. Dematerialised securities imply that their ownership exists only as an electronic accounting record”.

⁹⁸ Sterling Waterford CCN SPV 4, Offering Circular, 18 <http://swsecurities.co.za/files/carbon/Carbon%20Credit%20Note%20prospectus.pdf>.

⁹⁹ See Chap 6, par 6.6.5.1 for more information regarding a CSDP.

¹⁰⁰ Van Wyk *et al Understanding South African Financial Markets* Glossary xxvii.

¹⁰¹ *Ibid*, Van Wyk describes “hedging” as taking action against the risk of an adverse outcome. In the carbon market an “adverse outcome” may include the possible increase in carbon tax rates or the increase in sanctions for carbon emissions.

2 6 4 2 THE FORWARD CONTRACT

A forward contract is a bilateral obligation to buy or sell an underlying asset at a specified price on a known date.¹⁰² The expiration date, forward price of the contract and the amount of the underlying asset are determined when the contract is entered into. Forward contracts are sometimes based on templates such as the Certified Emission Reduction Sale and Purchase Agreement (CERSPA) template.¹⁰³ The CERSPA is a free, open-source contract template for buying and selling CER's generated under the Kyoto Protocol's Clean Development Mechanism.¹⁰⁴ These templates are designed to meet the specific needs of the contracting parties. Furthermore, profits and losses associated with forward contracts occur on the expiration (delivery) date of the carbon credit derivative. Forwards can trade over-the-counter ("OTC") and often through a broker. They are not very liquid.¹⁰⁵

A Carbon Credit Note is a pre-paid forward contract in terms of which the issuer (Sterling Waterford CCN SPV 4) of the note will, on the delivery date:

- if and to the extent that there is project delivery, deliver to an investor of the note a cash amount equivalent¹⁰⁶ to the value of the carbon credit generated by the project;¹⁰⁷ or
- if and to the extent that there is project *non* delivery, pay the holder the subscription refund amount¹⁰⁸ as stipulated in the contract between the parties as a form of compensation.¹⁰⁹

¹⁰² Van Wyk *et al Understanding South African Financial Markets* 391.

¹⁰³ The CERSPA does not prescribe a single model agreement. Rather, it may serve as a reference document or as starting point for negotiations.

¹⁰⁴ Anonymous "CERSPA: A Carbon Contract Template" (undated) <http://www.cerspa.com> (accessed on 28-04-2014).

¹⁰⁵ Van Wyk *et al Understanding South African Financial Markets* Glossary xxxiv, "liquidity" means: "the extent to which an instrument can be readily acquired or disposed of at the prevailing market prices".

¹⁰⁶ This cash amount is also known as the "Carbon Credit Cash Equivalent" and is a cash amount per Carbon Credit Note equivalent to the carbon credit market price, less all trading costs incurred, which amount will be converted into Rand on the Delivery Date, or a date as close to the Delivery date as may be accommodated by the JSE and Strate, at the prevailing Rand-Euro exchange rate as determined by the Authorised dealer – see Sterling Waterford CCN SPV 4, Offering Circular, 7, available at <http://swsecurities.co.za/files/carbon/Carbon%20Credit%20Note%20prospectus.pdf>.

¹⁰⁷ Sterling Waterford CCN SPV 4, Offering Circular, 4, <http://swsecurities.co.za/files/carbon/Carbon%20Credit%20Note%20prospectus.pdf>.

2 6 4 3 THE FUTURES CONTRACT

A futures contract is an agreement to buy or sell a standard quantity and quality of an asset at a future date on an organized exchange, at a price predetermined at the time of trading the contract.¹¹⁰ Thus, a futures contract differs from a forward contract in that a futures contract is exchange traded, whilst a forward contract is traded in the OTC market. In the carbon market, futures carbon contracts would basically entail transactions where the parties to a contract agree to buy or sell carbon credits to be generated and delivered in the future. Delivery and payment risks associated with futures contracts are minimized through the use of a clearing house¹¹¹ and are standardized in order to ensure liquidity.¹¹² This ensures that performance of the futures contracts are guaranteed through futures exchange clearinghouses. A forward contract does not guarantee performance in the manner that the futures contract does. A forward contract has a default risk associated to it that means that the seller may not deliver and the buyer may not accept delivery.¹¹³ In South Africa the JSE's derivatives market have their own central clearing house, namely Safcom – the Safex Clearing Company (Pty) Ltd.¹¹⁴ It seems apparent from the above, that even though a Carbon Credit Note is essentially a forward contract and should be traded on an OTC basis, Carbon Credit Notes are presently traded on the Equities platform of the JSE, since the volume of trades is still to low.

¹⁰⁸ The “Subscription Refund Amount” is the amount of cash to be refunded to the holder of a Carbon Credit Note where there is no delivery of CER's that have taken place from the mitigation project. This amount is refunded in Rand and is the equivalent of €15 (Euro) determined by the prevailing Rand:Euro exchange rate, as determined by the Authorised dealer on the delivery date, or a date as close to the delivery date as may be accommodated by the JSE and Strate.

¹⁰⁹ Sterling Waterford CCN SPV 4, Offering Circular 4, <http://swsecurities.co.za/files/carbon/Carbon%20Credit%20Note%20prospectus.pdf>.

¹¹⁰ Point Carbon Advisory Services, “Issues in the international carbon market, 2008-2012 and beyond” (2007) <http://www.mfe.govt.nz/publications/climate/issues-international-carbon-market-oct07/issues-international-carbon-market-07.pdf> (accessed on 06-05-2014).

¹¹¹ Van Wyk *et al Understanding South African Financial Markets*, Glossary, xxiv defines a “clearinghouse” as: “The clearinghouse acts as counterparty to all transactions entered into in the exchange and assumes the contractual relationship between the buyer and seller, i.e. it becomes the buyer to each seller and the seller to each buyer. It is responsible for determining the profit and loss on all open positions”.

¹¹² Thring “Carbon credits as collateral” <http://www.mcmillan.ca/Carbon-Credits-as-Collateral>.

¹¹³ Van Wyk *et al Understanding South African Financial Markets* 391.

¹¹⁴ Van Wyk *et al Understanding South African Financial Markets* 390.

2 6 4 4 EXCHANGE TRADED NOTES

The second Carbon Credit Note is listed under the Exchange Traded Notes (ETN) section of the JSE Securities exchange.¹¹⁵ As such, it is important to define this concept. Botha's definition for an exchange traded notes is the following:¹¹⁶

“ETN's are unsecured debt securities issued by an underwriting bank. Like any other debt instrument, they have a maturity date and their credit risk is linked to that of the issuer, the funds obtained by the issuing of an ETN are invested directly in a particular benchmark which could be a commodity index or a single commodity derivative. The return on an ETN is therefore directly linked to the performance of the benchmark.”

The “performance of the benchmark” as mentioned in the above definition in the case of a carbon credit, would be the performance associated to the emissions reduction project that reduces the concentration levels of GHG's in the earth's atmosphere.

It is clear from the above that financial commodities, derivatives and ETN's are all applicable when dealing with carbon credits. Being a brand new market, it is not like other commodities such as rice and maize that can be verified easily. Emissions reduction projects often operate in very remote parts of the world and poses difficulties with access and practicality. Considering the above, it is my view that carbon credits can be regarded as a sort of “abstract commodity” unlike any other commodity. Furthermore it can be firmly established through the discussion above that both carbon credits and Carbon Credit Notes can be regarded as “financial instruments” for trading purposes in the South African Financial market.

2 7 FACTORS AFFECTING CARBON CREDITS

The emission reduction project that generates the carbon credits would be the underlying variable that a carbon credit derivative is linked to. The amount and quality of carbon credits produced are dependent on a number of factors, as carbon credits rely upon the reduction of CO_{2e} emissions. A number of factors may influence

¹¹⁵ Sterling Waterford CCN SPV 4, Offering Circular, 11, <http://swsecurities.co.za/files/carbon/Carbon%20Credit%20Note%20prospectus.pdf>.

¹¹⁶ Van Wyk *et al Understanding South African Financial Markets* 482-483.

the reduction of CO_{2e} gasses such as weather, rising fuel prices and technological advancements. Consider the following example to illustrate the possible effects that a simple thing such as weather may have on CO_{2e} emissions reductions: Cold weather increases energy consumption which in turn increases CO_{2e} emissions in order to supply more energy for heat generation. This in turn creates a greater demand for carbon credits, as the increased energy consumption means that energy suppliers reach their allowed emission caps faster or become liable to pay a larger sum of carbon tax. They consequently require more carbon credits to offset the increased emissions or reduce their carbon tax liability. The price of the carbon credit would increase to take advantage of the increased demand. Fluctuations in rainfall and wind speed will also affect the amount of power generated by non-emitting sources such as hydropower and wind turbines. If natural resources, such as wind and rainfall, powering these sustainable energy sources are not sufficient, fossil-fuelled power generation will increase and consequently emission levels will rise. This will once again have the effect that energy companies emit more CO_{2e} emissions. The effect will also be the same as was described above: there will be an increase in the demand for carbon credits in order to offset the increase in emissions or reduce a steeper carbon tax liability.

Other factors affecting the price of carbon credits include:¹¹⁷

- A collapse in the price of natural gas and the rise in the price of coal may make fuel switching between these commodities for power generation a better economic alternative than to buy carbon credits.
- A downturn in world economic activity that will result in less production and consequently fewer emissions. This will lead to a downturn in carbon credit demand, and carbon prices will drop significantly.
- Delays in the implementation and completion of market infrastructure to support the trade of carbon credits.¹¹⁸

¹¹⁷ Sterling Waterford CCN SPV 4, Offering Circular, 24, <http://swsecurities.co.za/files/carbon/Carbon%20Credit%20Note%20prospectus.pdf>.

¹¹⁸ This is the case in South Africa, as the carbon tax has been delayed to by one year to January 2016. There is also the need for infrastructure to accommodate a South African carbon market. See Chap 6 in this regard.

A fall in the price of carbon credits may have a substantial effect on the value of Carbon Credit Notes, as it has already been established that carbon credits are the underlying asset supporting Carbon Credit Notes. If the demand for carbon credits decrease, the liquidity of Carbon Credit Notes will be directly impacted as it is expected that Carbon Credit Notes will be used by holders to hedge against other emission obligations *not* related to the Kyoto Protocol.

2 8 HISTORY AND RATIONALE BEHIND CARBON CREDITS

Global warming is an international problem and the impact of GHG emissions on the atmosphere is the same irrespective of where the GHG's are emitted or reduced.¹¹⁹ In May 1992, following the International Panel on Climate Change's (IPCC) First Assessment Report in 1990 calling for a global treaty to address the global warming problem, the UNFCCC was adopted.¹²⁰ The Convention is the legal framework which encourages countries that are parties to the Convention to start the process of stabilizing GHG's in the earth's atmosphere. The Convention only "establishes a framework and a process for agreeing specific actions later"¹²¹ and leaves it to the parties to either weaken or strengthen the treaty by adopting amendments or protocols based on more recent scientific research.

The Conference of the Parties (COP) is the body tasked with ensuring that the Convention is implemented correctly and efficiently. The COP meets annually to discuss all relevant matters pertaining to the Convention and strategies to further the battle against global warming. At the third annual meeting (COP 3) the COP recognised the fact that the Convention imposes no obligatory targets on the parties to the Convention, and subsequently adopted the Kyoto Protocol on 11 December 1997 to address this problem.¹²²

¹¹⁹ Tsukiji *et al* "Negotiating the transfer and acquisition of project-based carbon credits under the Kyoto Protocol" Preface, iii.

¹²⁰ Tsukiji *et al* "Negotiating the transfer and acquisition of project-based carbon credits under the Kyoto Protocol" 5.

¹²¹ UNFCCC, "Understanding Climate Change: A Beginner's Guide to the UN Framework Convention" (1994) Published by the UNEP/WMO – available at http://unfccc.int/essential_background/background_publications_htmlpdf/items/1661.php. (accessed on 13-04-2014).

¹²² Tsukiji *et al* "Negotiating the transfer and acquisition of project-based carbon credits under the Kyoto Protocol" 6.

It was the Kyoto Protocol that created specific goals for the reduction or limitation of GHG's that each participating country has to achieve within a certain time period, called the "commitment period".¹²³ The Kyoto Protocol commits its parties by setting internationally binding emission reduction targets and is the framework that introduced the concept of carbon credits. In Doha, Qatar, on 8 December 2012, the "Doha Amendment to the Kyoto Protocol" was adopted which replaces and furthers the principles set by the Kyoto Protocol.¹²⁴ The above mentioned international instruments are discussed later in much greater detail.¹²⁵ However, it is important to take note of these instruments at an early stage, as it is these instruments that aim to create a successful carbon market on a global scale. These instruments all aim to achieve emission reductions and to ultimately protect the planet for the generations to come as will be discussed below.

The fact that global warming is an atmospheric problem means that it impacts the entire earth.¹²⁶ Consequently it does not matter where in the world the GHG reductions take place or how it is achieved. The effects of such a reduction will benefit the entire planet and not just the region where the reduction was achieved. Considering this, it only makes economic sense to carry out GHG reduction activities in the least costly places in the world, which are normally Non-Annex I countries¹²⁷ (developing countries). It also then makes sense that the country or entity achieving the reduction be able to transfer the credit of the offset to a country or entity requiring the credit to meet certain emission caps/limitations. This is the basic concept behind the Kyoto mechanisms and the idea supporting the carbon market. From the perspective a Non-Annex I country (such as South Africa), the opportunity to host

¹²³ UNFCCC, Kyoto Protocol information, available at http://unfccc.int/kyoto_protocol/items/2830.php (accessed on 12-04-2014).

¹²⁴ *Ibid.*

¹²⁵ See Chap 3 for a full discussion of the international legislative instruments relating to carbon markets.

¹²⁶ Tsukiji *et al* "Negotiating the transfer and acquisition of project-based carbon credits under the Kyoto Protocol" 8.

¹²⁷ If a country does not appear in Annex B in the Kyoto Protocol (thus is not a Annex I party), the country is not considered to be bound by the emission reduction targets and is considered to be a "developing" country. All parties included in Annexure B (Also called Annex I countries as per the UNFCCC) of the Kyoto Protocol are either categorised as "developed" countries or "countries that are undergoing the process of transition to a market economy". See Annex B of the Kyoto Protocol.

emissions reduction projects provide the country with foreign investment and the technology promoting the sustainable development in the country.

2 8 1 SUSTAINABLE DEVELOPMENT

The concept of sustainable development was the key focus at the 1992 United Nations Conference on Environment and Development and also at the 2002 World Summit on Sustainable Development.¹²⁸ As such, the concept can be considered to be the underpinning foundation of all international environmental law. An understanding of the concept of sustainable development is therefore vital to appreciate the intricate role that environmental law has on modern society. Sustainable development is the use of natural resources in such a way as to meet the needs of the present generation, without compromising the right to natural resources of future generations to enable them to meet their own needs.¹²⁹ On a national level, South Africa has also implemented the concept of sustainable development in our own environmental legislation, namely the National Environmental Management Act 107 of 1998, which has become known by its acronym, NEMA.

Since the enactment of NEMA, the act has been amended eight times.¹³⁰ . The concept of sustainable development can be considered to be based upon a three pillar approach and is applicable to all organs of state within the Republic.¹³¹ The three pillars include economic, social and environmental development and are equally important and must simultaneously be pursued with equal effort. The concept of sustainable development and the three pillar approach was the main focus of the landmark Constitutional Court decision in the case of *Fuel Retailers Association of*

¹²⁸ Kidd *Environmental Law* 18.

¹²⁹ *Ibid.*

¹³⁰ By (in chronological order) the Mineral and Petroleum Resources Development Act 28 of 2002; the National Environmental Management Amendment Act 56 of 2002; the National Environmental Management Amendment Act 46 of 2003, the National Environmental Management Amendment Act of 2004, the National Environment Laws Amendment Act 44 of 2008, , the National Environmental Management Amendment Act 62 of 2008; the National Environment Laws Amendment Act 4 of 2009 and the National Environmental Management Laws Second Amendment Act 30 of 2013.

¹³¹ S 2(1) of NEMA provides that:

“The principles set out in this section apply throughout the Republic to the actions of all organs of state that may significantly affect the environment and...”

*South Africa v Director-General: Environmental Management, Department of Agriculture, Conservation and Environment, Mpumalanga Province.*¹³²

Furthermore the concept of sustainable development has also been imbedded in section 2(3) of NEMA,¹³³ that contains the three pillars as mentioned above , as well as in section 2(4)(a),¹³⁴ which contain certain factors that must be considered when sustainable development is of importance.

The purpose and nature of carbon credits also aim to achieve the same goals and factors relating to all of the factors as set out in sections 2(3) and 2(4)(a) of NEMA. Carbon credits also seek to minimize disturbance in ecosystems, prevent pollution, prevent disturbances of landscapes, avoid unwanted waste, prohibit over exploitation of non-renewable resources, and the protection of the environment and people's environmental rights.¹³⁵ From the above it is clear that the mitigating instrument that

¹³² 2007 (6) SA 4 (CC).

¹³³ S 2(3) of NEMA provides that:

“Development must be socially, environmentally and economically sustainable.”

¹³⁴ S 2(4)(a) provides that:

“Sustainable development requires the consideration of all relevant factors including the following:

- (i) That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;
- (ii) that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;
- (iii) that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;
- (iv) that waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner;
- (v) that the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource;
- (vi) that the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised;
- (vii) that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and
- (viii) that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.”

¹³⁵ The environmental right of each South African citizen is founded in s 24 of the Constitution of the Republic of South African, 1996 and provides that:

“Everyone has the right-

- a) To an environment that is not harmful to their health or well-being; and

is carbon credits can be implemented alongside the vision that has been set with the concept of sustainable development. It can consequently be submitted that the concept of carbon credits and principles of sustainable development work in a coherent manner. Seeing as a carbon credit is a tradable intangible financial instrument, the approach that carbon credits will take to help maintain environmental management will take on a more financial/commercial nature as a monetary value is attached to emissions.

2 9 CONCLUSION

This chapter provided an overview of selected terminology relating to carbon markets and established the nature of both the carbon credit and the Carbon Credit Note. Lastly, this chapter concluded with a discussion of the history and rationale behind carbon credits.

The chapter started off by discussing the different definitions that have been constructed to describe a carbon credit. After careful analysis of these definitions, a new definition was proposed to culminate the most important principles set in the previous definitions. This was followed by setting a distinction between a “carbon credit” and a “carbon offset” and discussing the concepts of becoming “carbon neutral” and measuring one’s carbon footprint.

After certain terminology relating to the carbon market was discussed, the legal nature of carbon credits and Carbon Credit Notes was considered. This included both international perspectives pertaining to the nature of a carbon credit, as well as South African perspectives on the matter. The carbon credit as a “commodity” and the Carbon Credit Note as “commodity based derivative” was discussed with the conclusion that both these concepts can be regarded as “financial instruments” for

-
- b) To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that –
 - i. prevent pollution and ecological degradation;
 - ii. promote conservation; andsecure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.”

purposes of the South African financial market. Forward contracts; futures contracts and Exchange Traded Notes (ETN's) were also discussed.

Following the discussion on the nature of a carbon credit, factors that influence the prices and production of carbon credits were discussed. The chapter concluded with a discussion on the history and rationale behind the concept of carbon markets, with a focussed discussion on the concept of sustainable development.

This chapter provided clarity with regards to what is traded in the carbon market and the reasons for trading with these financial instruments. It is now important to establish how these financial instruments are traded and to analyse the international legislation that implements and regulates the trading of carbon credits.

CHAPTER THREE

INTERNATIONAL INSTRUMENTS REGULATING CARBON CREDITS

3 1 INTRODUCTION

In the previous chapter, it was established that carbon credits operate as commodities in the international carbon market. It is now necessary to determine how the carbon market is regulated. Climate change is a complex problem, which, although environmental in nature, has consequences for all spheres of existence on our planet. Global issues such as poverty, increasing population figures, economic development and sustainable development¹³⁶ all influence climate change. It is however even more worrying that climate change also influences these global issues in return. It then comes as no surprise that at the very heart of climate change sits a growing international concern that has wide negative impacts. Consequently, there is an urgent need to start reducing emissions in all spheres of the economy.

The international community responded to this concern by implementing and adopting international instruments to help fight climate change. Under the banner of the United Nations there are various instruments that have given rise to international efforts that seek to reduce the levels of GHG's in the atmosphere and thereby reduce and reverse global warming. Firstly though, it is important to understand how international law operates and how certain rules and principles of international law will influence the fight against climate change. This chapter deals with the international law regulating climate change and discusses the different international instruments that have been implemented to regulate carbon markets.

3 2 INTERNATIONAL LAW THROUGH A CLIMATE CHANGE PERSPECTIVE

Dugard defines international law as “a body of rules and principles which are binding upon states in their relations with one another”.¹³⁷

¹³⁶ See Chap 2, par 2 8 1 for more information regarding sustainable development.

¹³⁷ Dugard *International Law – A South African Perspective* 4th ed (2012) 1.

It is important to note that there is no legislative body in international law with the power to enact rules that are binding upon states. The United Nations including any of its affiliate departments therefore cannot be described as an international legislature. The United Nations is, however, the entity that comes closest to being such an enforcing authority and can recommend certain policies and rules to member states to comply with. The rules of international law are found in agreements made between consenting states, known as treaties, conventions and international customs.¹³⁸ Although no specific provision is made for hierarchy or superiority of these sources, in most instances treaties and conventions, such as the Kyoto Protocol and the UNFCCC, which take the place of legislation in the domestic sphere, are viewed as the primary source. International custom and general practice are considered secondary sources.¹³⁹

3 2 1 CLIMATE CHANGE CONVENTIONS

Dugard defines a treaty/convention as “a written agreement between states or between states and international organisations, operating within the field of international law”.¹⁴⁰

All rules relating to the capacity to enter into conventions, the procedure to be followed for entering into conventions, the interpretation of conventions and the termination of conventions are governed by the Vienna Convention on the Law of

¹³⁸ Art 38(1) of the Statute International Court of Justice describes the sources of international law and provides that:

- “1. The Court, whose function is to decide in accordance with international law such disputes as are submitted to it, shall apply:
 - a. international conventions, whether general or particular, establishing rules expressly recognized by the contesting states;
 - b. international custom, as evidence of a general practice accepted as law;
 - c. the general principles of law recognized by civilized nations;
 - d. subject to the provisions of Article 59, judicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law.”

¹³⁹ Dugard *International Law – A South African Perspective* 24.

¹⁴⁰ The words “treaty” and “convention” have the same meaning as set out above. For purposes of this dissertation, the word “convention” will be used to describe an international agreement. Other commonly used names include international agreements, declarations, charters, pacts, protocols, acts, statutes and memorandums of agreement.

Treaties of 1969¹⁴¹ and the Vienna Convention of the Law of Treaties between States and International Organisations and between International Organisations of 1986.¹⁴²

Article 2(1)(a) of the Vienna Convention on the Law of Treaties of 1969 (hereafter referred to as the Vienna Convention) defines a “treaty” (convention) as “an international agreement concluded between States in written form and governed by international law, whether embodied in a single instrument or in two or more related instruments and whatever its particular designation”.

It will be noted that the definition provided in the Vienna Convention only relates to agreements made between states. That is why a separate treaty, namely the Vienna Convention of the Law of Treaties between States and International Organisations and between International Organisations of 1986 was adopted to govern agreements between states and international organisations.

There are two main forms of conventions namely multilateral conventions and bilateral conventions. Multilateral conventions are agreements that bind many states, whilst bilateral conventions are agreements that bind two states only.¹⁴³ The UNFCCC, the Kyoto Protocol and the Doha Amendment to the Kyoto Protocol are all examples of multilateral agreements that apply to all the countries who adopted these international agreements. Both multilateral and bilateral conventions are divided into three broad categories namely contractual conventions, legislative conventions and constitutional conventions.¹⁴⁴

3 2 1 1 CONTRACTUAL CONVENTIONS

Contractual conventions are agreements or “contracts” between two or more states that establishes a certain legal relationship between the states. These may include arrangements such as trade relations, extradition policies, air and landing rights and defence strategies.

¹⁴¹ (1969) 8 ILM 679.

¹⁴² (1986) 25 ILM 543.

¹⁴³ Dugard *International Law – A South African Perspective* 414.

¹⁴⁴ Dugard *International Law – A South African Perspective* 25.

3 2 1 2 LEGISLATIVE CONVENTIONS

Legislative or “law-making” treaties are codifications of international customary rules which create a legal obligation upon non-signatory countries to follow such an international custom.¹⁴⁵ The Kyoto Protocol and the Doha Amendment to the Kyoto Protocol set certain emissions reduction goals for signatory countries and provides a legislative backbone for the fight against climate change. As will be discussed below, these legal instruments are not binding upon states, but only set obligatory goals to be reached by both signatory and non-signatory countries.

3 2 1 3 CONSTITUTIONAL CONVENTIONS

International organisations such as the United Nations and the UNFCCC are created by multilateral conventions. These conventions serve as the Constitution to that specific organisation.¹⁴⁶ The UNFCCC is an organisation that was established through a convention that shares the organisations’ name: The United Nations Framework Convention on Climate Change. This convention serves as the Constitution of the UNFCCC.

The conventions and instruments that will be discussed below all form a part of the international attempts to reduce the negative effects of climate change and attempts to justify the fact that each state as a responsibility towards protecting the environment. Article 2 of the Draft Articles on State Responsibility of 2001 provides that a state commits an internationally wrongful act when:

¹⁴⁵ This principle was accepted by *Conradie J in S v Petane* at 61E-F which reads:

“E: Mr Donen contended that the provisions of multilateral treaties can become customary international law under certain circumstances. I accept that this is so. There seems in principle to be no reason why treaty rules cannot acquire wider application than among the parties to the treaty;

F: Brownlie *Principles of International Law* 3rd ed at 13 agrees that non-parties to a treaty may by their conduct accept the provisions of a multilateral convention as representing general international law...”

¹⁴⁶ The Charter of the United Nations is a convention that serves as the constitution of the United Nations. The UNFCCC is also a organisation that was established through a convention that shares the organisations’ name: The United Nations Framework Convention on Climate Change. This convention serves as the Constitution of the UNFCCC.

“conduct consisting of an action or omission:
(a) is attributable to the State under international law; and
(b) constitutes a breach of an international obligation of the State.”

Should a state commit such a wrongful act, the injured state is entitled to obtain reparation¹⁴⁷ in the form of restitution, compensation, satisfaction¹⁴⁸ and assurances and guarantees of non-repetition.¹⁴⁹

Furthermore, the *Trail smelter case (United States, Canada)*¹⁵⁰ provides that:

“The Tribunal, therefore, finds that the above decisions, taken as a whole, constitute an adequate basis for its conclusions, namely, that, under the principles of international law, as well as of the law of the United States, no State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence.”¹⁵¹

The principle set out above, namely that a state commits an internationally wrongful act when it uses, or allows its territory to be used in a way as to cause harm or injury to the territory or people of another state is reaffirmed in both the 1972 Stockholm Declaration¹⁵² and the 1992 Rio Declaration.¹⁵³ These declarations recognise the responsibility of states to “ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction”.

From the above, it is clear that there is an obligation imposed on states not to engage in activities within its territory that may cause harm to other states. It also establishes the principle that a state is required to ensure that private entities within its territory act in accordance with the above mentioned obligation. This obligation to not engage

¹⁴⁷ See Art 31 of the Draft Articles on State Responsibility.

¹⁴⁸ See Art 34 of the Draft Articles on State Responsibility.

¹⁴⁹ See Art 30 of the Draft Articles on State Responsibility.

¹⁵⁰ (1938-1941) 3 RIAA 1905.

¹⁵¹ (1938-1942) 3 RIAA at 1965, par 6.

¹⁵² See Principle 21 of the 1972 Stockholm United Nations Conference on the Human Environment Declaration.

¹⁵³ See Principle 2 of the 1992 Rio Declaration on Environment and Development.

in activities that may cause harm to other states seems to be undermined by states across the world when looking at it through a climate change perspective.

This becomes clear when it is considered that emissions causing global warming are an international problem, and that the source and location of the emissions does not matter as it has the same global effect on climate change and the natural environment. Emissions from any country cause environmental harm to the emitting country, as well as every other country on earth. As it has been established above, any activity taking place in one country that causes harm to another country can be seen as an international wrongful act. This means that every country in the world commits countless wrongful acts on a daily basis and as such undermines the principle of environmental state responsibility. As a result of this international obligation being undermined, it is up to agreements between states to try and solve this problem. These international instruments and their operation will now be discussed below.

3 3 THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)

In 1992, following the International Panel on Climate Change's (IPCC'S) First Assessment Report¹⁵⁴ conducted in 1990, the international community called for a treaty to be instated to respond to the findings on climate change in the First Assessment Report. The United Nations Framework Convention on Climate Change was consequently adopted in May 1992 and was opened for signature in June 1992 at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro. The carbon market became possible when major nations from around the world adopted the UNFCCC. There are now 195 Parties to the Convention¹⁵⁵ with the

¹⁵⁴ IPCC Working Group 1, First Assessment Report – Policymakers Summary, (1990), - this report found the following based on model results in 1990: it was predicted that the IPCC Business-as-Usual approach, emissions of greenhouse gases would increase and global temperatures would rise at rate of 0.3°C per decade (with an uncertainty range of 0.2°C to 0.5°C per decade), being greater than that seen over the past 10,000 years. This would result in a likely increase in global temperature of about 1°C above the 1990 value by the year 2025 and 3°C before the end of the next century. The rise would not be steady because of the influence of other factors. – available at http://ipcc.ch/ipccreports/far/wg_1/ipcc_far_wg_1_spm.pdf.

¹⁵⁵ UNFCCC “Background on the UNFCCC: The international response to climate change” (Undated), http://unfccc.int/essential_background/items/6031.php (accessed on 03-06-2014).

UNFCCC secretariat¹⁵⁶ supporting all institutions involved in international climate change negotiations.

The UNFCCC is the legal framework which encourages countries that are parties to the Convention to start the process of reducing their emissions of GHG's into the earth's atmosphere. Prior to the adoption of the Kyoto Protocol (see discussion below), the parties to the Convention met annually to discuss and define the Convention further, despite the fact that the Convention set no obligations on parties to actually limit their emissions in any way. There is a loosely defined target in article 4, paragraph 2, which obliges Annex I countries (mostly developed countries and countries with economies in transition) to reduce or limit GHG emissions so as to return to "earlier levels".¹⁵⁷ But as the target was not clearly expressed in the Convention, it was not considered to be binding. Although the Convention does not provide legally binding obligations, it does provide a framework for parties to the Convention to initialise emission reduction activities and also provides a process for agreeing on specific actions to be taken at a later stage.

The ultimate objective of the Convention is stipulated in Article 2 of the UNFCCC and provides that:

"The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner."

¹⁵⁶ The UNFCCC Executive Secretary, Christiana Figueres was quoted when stating that: "Addressing climate change in a timely and cost-effective manner is undoubtedly a remarkable challenge, but it is also the greatest opportunity we have ever had to design a safer, healthier and more sustainable world for all."

¹⁵⁷ United Nations Framework Convention on Climate Change of 1992, Art 4, par (2)(a) provides that: "recognizing that the return by the end of the present decade to earlier levels of anthropogenic emissions of carbon dioxide and other greenhouse gasses..."; Art 4, par (2)(b) further provides that "...with the aim of returning individually or jointly to their 1990 levels these anthropogenic emissions of carbon dioxide and other greenhouse gases...".

It was very ambitious to have set such a goal in 1992, and to have expected the rest of the world to adhere to this goal with far less evidence of what the actual state of climate change was. This goal was especially challenging, seeing as the Convention aimed for developed countries to lead the realisation of its objective. The rationale behind focussing on developed countries was that these countries are the sources of most past and current GHG emissions and consequently, they are expected to do the most to cut emissions on home ground.¹⁵⁸ The UNFCCC keeps tabs on the problem and what is being done about it by implementing the following measures based upon the provisions in the Convention:¹⁵⁹

- Annex I countries have to report regularly on their climate change policies and measures, including issues governed by the Kyoto Protocol (if the relevant country ratified the Protocol).¹⁶⁰
- They must also submit an annual inventory of their GHG's, including data for their base year (1990) and all the years since.¹⁶¹
- Developing countries (Non-Annex I Parties) report in more general terms on their actions both to address climate change and to adapt to its impacts. It does so less regularly than Annex I Parties do, and their reporting is contingent on their getting funding for the preparation of the reports, particularly in the case of the Least Developed Countries.¹⁶²

¹⁵⁸ UNFCCC, Art 3, par 1 provides that: "The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof."

¹⁵⁹ The "Commitments" of the parties are stipulated in Art 4 of the UNFCCC.

¹⁶⁰ UNFCCC, Art 4, par 2(a) provides that: "Each of these Parties (Annex I parties) shall adopt national policies and take corresponding measures on the mitigation of climate change..." Furthermore Art 4 par (2)(b) provides that: "In order to promote progress to this end, each of these Parties shall communicate, within six months of the entry into force of the Convention for it and periodically thereafter, and in accordance with Article 12, detailed information on its policies and measures referred to in subparagraph (a) above..."

¹⁶¹ UNFCCC, Art 4, par 2(b) provides that: "...with the aim of returning individually or jointly to their 1990 levels these anthropogenic emissions of carbon dioxide and other greenhouse gases not controlled by the Montreal Protocol".

¹⁶² UNFCCC, Art 4, par 3 provides that: "...They shall also provide such financial resources, including for the transfer of technology, needed by the developing country Parties to meet the agreed full incremental costs of implementing measures that are covered by paragraph 1 of this Article and that are agreed between a developing country Party and the international entity or entities referred to in Article 11, in accordance with that Article. The implementation of these commitments shall take into account the need for adequacy and predictability in the flow of funds and the importance of appropriate burden sharing among the developed country Parties".

3 4 CONFERENCE OF THE PARTIES (COP)

To achieve and implement the above set measures, the parties to the Convention meet annually in order to discuss and develop the Convention even further. This annual meeting is called the Conference of the Parties (hereafter referred to as COP). The COP can be regarded as the supreme body of the Convention responsible for the decision-making necessary for the successful functioning of the Convention.¹⁶³ At the First Conference of the Parties (COP 1), which took place in 1995 in Berlin, recognition of the fact that the Convention did not oblige the parties to reduce or limit GHG emissions led to the decision to work towards adopting such reduction obligations.¹⁶⁴ The discussions that took place at the COP 1 set the foundation upon which the parties to the Convention decided to adopt a “protocol or legal instrument” which would eventually lead to the adoption of the Kyoto Protocol.¹⁶⁵

3 5 THE KYOTO PROTOCOL

The Kyoto Protocol was adopted at the Conference of the Parties’ third session (COP 3) held in Kyoto, Japan, on 11 December 1997 and entered into force on 16 February 2005.¹⁶⁶ The full title of the Kyoto Protocol is actually the “Kyoto Protocol to the United Nations Framework Convention on the Climate Change”. From the title it follows that the two instruments are interlinked and work together in a coherent manner.¹⁶⁷ The UNFCCC is responsible for monitoring the implementation of the

¹⁶³ Tsukiji, Kajimura, Loewenthal, Yamaguchi, United Nations Industrial Development Organization (UNIDO), “Negotiating the transfer and acquisition of project-based carbon credits under the Kyoto Protocol” (2007) 6.

¹⁶⁴ UNFCCC website, “Background on the UNFCCC: The international response to climate change”, (Undated) http://unfccc.int/essential_background/items/6031.php. (accessed on 05-06-2014).

¹⁶⁵ Conference of the Parties First Session, Berlin, 28 March - 7 April 1995, FCCC/CP/1995/7/Add.1 Decision 1/CP.1 provides that: “...Agrees to begin a process to enable it to take appropriate action for the period beyond 2000, including the strengthening of the commitments of the Parties included in Annex I to the Convention (Annex I Parties) in Article 4, paragraph 2(a) and (b), through the adoption of a protocol or another legal instrument...”.

¹⁶⁶ UNFCCC, “Kyoto Protocol”, (Undated) http://unfccc.int/kyoto_protocol/items/2830.php (accessed on 05-06-2014).

¹⁶⁷ The Preamble to the Kyoto Protocol emphasizes the linking of the two instruments by stipulating: “The Parties to this Protocol, Being Parties to the United Nations Framework Convention on Climate Change, hereinafter referred to as ‘the Convention’, In pursuit of the ultimate objective of the Convention as stated in its Article 2, Recalling the provisions of the

principles of the Kyoto Protocol and it does so at an international level through different bodies within the UNFCCC.

The Kyoto Protocol recognised the fact that developed countries was, and still are the main contributors to the high level of GHG's in the earth's atmosphere. Consequently the Kyoto Protocol has two annexures. Annex A sets out the six GHG's¹⁶⁸ and the various sectors/source categories¹⁶⁹ to be addressed in order to reduce these GHG's. Annex B¹⁷⁰ lists the countries with the commitments under the Kyoto Protocol and also stipulates the commitments¹⁷¹ that need to be achieved by each country. The parties contained in Annex B are based upon and are virtually the same as those listed in Annex I of the UNFCCC. The distinction between Annex I countries (bound parties) and Non-Annex I parties are significant, because it explains the different Kyoto carbon trading mechanisms applicable to the relevant countries, as will be discussed below. As explained in Chapter 2 of this dissertation, two different markets exist for the registration of mitigation projects that generate carbon credits, namely the mandatory market and the voluntary market. The Kyoto Protocol is the main legal backbone regulating carbon projects and carbon credits in the mandatory market.

Convention, Being guided by Article 3 of the Convention, Pursuant to the Berlin Mandate adopted by decision 1/CP.1 of the Conference of the Parties to the Convention at its first session, have agreed as follows..."

¹⁶⁸ The six GHG's to be reduced according to Annexure A of the Kyoto Protocol are: Greenhouse gases Carbon dioxide (CO₂); Methane (CH₄); Nitrous oxide (N₂O); Hydrofluorocarbons (HFCs); Perfluorocarbons (PFCs); Sulphur hexafluoride (SF₆).

¹⁶⁹ Annexure A provide that the "Sectors/source categories" included are: 1. Energy (including Fuel combustion from: Energy industries, Manufacturing industries and construction, Transport, Other sectors, Other and Fugitive emissions from fuels, Solid fuels, Oil and natural gas, Other); 2. Industrial processes (including Mineral products, Chemical industry, Metal production, Other production, Production of halocarbons and sulphur hexafluoride, Consumption of halocarbons and sulphur hexafluoride, Other); 3. Solvent and other product use; 4. Agriculture (including Enteric fermentation, Manure management, Rice cultivation, Agricultural soils, Prescribed burning of savannahs, Field burning of agricultural residues, Other); 5. Waste (including Solid waste disposal on land, Wastewater handling, Waste incineration, Other).

¹⁷⁰ For purposes of this dissertation, the countries listed in Annexure B of the Kyoto Protocol will be referred to as "Annex I countries" as was stipulated in the UNFCCC. This is common practice as Annexure B of the Kyoto Protocol is based upon Annex I of the UNFCCC.

¹⁷¹ A commitment listed in Annexure B is defined as the percentage reduction or limitation in GHG emissions to be reached by a specific developed country in relation to the base year of 1990. This target must be met by the specific country during the first commitment period of 2008 to 2012.

To achieve the commitments set out in the Kyoto Protocol, the Protocol introduced measures to reduce emissions caused by Annex I countries. Under the Protocol, countries must meet their targets primarily through national measures. However, the Protocol also offers them additional methods to meet their targets by way of three market-based mechanisms. In order to understand the mechanisms imposed by the Kyoto Protocol, it is important to understand how marginal abatement costs¹⁷² associated to emission reductions differ from country to country.

Consider the following to illustrate the principle of marginal abatement costs: Developed countries (Annex I countries) use energy efficient technologies and methods to supply electricity. Because they use energy more efficiently already, the marginal abatement costs tend to be high, as it is difficult and expensive to implement even more efficient technologies than those already in use. Increasing the energy efficiency of an industry in a developing country (non-Annex I country) may well cost less than it would in a developed country. Therefore, Annex I countries may wish to partly¹⁷³ fulfil their reduction obligations in those countries where the marginal abatement cost is lower than it would be locally. From the perspective of non-Annex I countries, this is likely to result in new investment as well as the transfer of technology for the sustainable development of the country, while at the same time helping Annex I countries to comply with their Kyoto obligations. The three Kyoto mechanisms are discussed below.

3 6 CLEAN DEVELOPMENT MECHANISM (CDM)

Developing economies are expected to be the hardest hit by climate change, as many do not have adequate capacity to manage the effects of global warming. The Clean Development Mechanism (hereafter referred to as the CDM) supports

¹⁷² “Abatement” is the total reduction in emissions. Marginal Abatement Cost (MAC) reflects the cost of one additional unit or ton of pollution that is abated, or not emitted. The MAC of each additional unit is always increasing, with a steep jump as the firm gets closer to the total elimination of pollution. Most firms have a certain cut off point after which abatement is no longer feasible as it increases to infinity. Thus, substantial abatement at minimal cost occurs during the initial abatement phase.

¹⁷³ COP 7 Decision 15/CP.7 Addendum, Volume II, Preamble, provides that “Affirming that the use of the mechanisms shall be supplemental to domestic action and that domestic action shall thus constitute a significant element of the effort made by each Party included in Annex I to meet its quantified emission limitation and reduction commitments under Article 3, paragraph 1...”

sustainable development in developing countries by funding emission reduction projects in these countries and consequently producing tradable units known as Certified Emission Reductions (hereafter referred to as CER's) that can be imported to countries with Kyoto emission caps (Annex I countries). A CER is defined as:¹⁷⁴

“A certified emission reduction or ‘CER’ is a unit issued pursuant to Article 12 and requirements thereunder, as well as the relevant provisions in the annex to decision 3/CMP.1, and is equal to one metric tonne of carbon dioxide equivalent, calculated using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5.”

The CDM is based upon Article 12¹⁷⁵ of the Kyoto Protocol and comes down to the concept of carbon credits produced by projects funded by Annex I countries in Non-

¹⁷⁴ Decision 13/CMP.1, Annex, paragraph 2 of UNFCCC Conference of the Parties - Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005, FCCC/KP/CMP/2005/8/Add.2.

¹⁷⁵ Art 12 of the Kyoto Protocol provides that:

- “1. A clean development mechanism is hereby defined.
2. The purpose of the clean development mechanism shall be to assist Parties not included in Annex I in achieving sustainable development and in contributing to the ultimate objective of the Convention, and to assist Parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments under Article 3.
3. Under the clean development mechanism:
 - (a) Parties not included in Annex I will benefit from project activities resulting in certified emission reductions; and
 - (b) Parties included in Annex I may use the certified emission reductions accruing from such project activities to contribute to compliance with part of their quantified emission limitation and reduction commitments under Article 3, as determined by the Conference of the Parties serving as the meeting of the Parties to this Protocol.
4. The clean development mechanism shall be subject to the authority and guidance of the Conference of the Parties serving as the meeting of the Parties to this Protocol and be supervised by an executive board of the clean development mechanism.
5. Emission reductions resulting from each project activity shall be certified by operational entities to be designated by the Conference of the Parties serving as the meeting of the Parties to this Protocol, on the basis of:
 - (a) Voluntary participation approved by each Party involved;
 - (b) Real, measurable, and long-term benefits related to the mitigation of climate change; and
 - (c) Reductions in emissions that are additional to any that would occur in the absence of the certified project activity.
6. The clean development mechanism shall assist in arranging funding of certified project activities as necessary.
7. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall, at its first session, elaborate modalities and procedures with the objective of ensuring transparency, efficiency and accountability through independent auditing and verification of project activities.

Annex I countries to be transferred to Annex I countries. The CDM is regarded as a trailblazer for the carbon market, as it is the first environmental investment and credit scheme of its kind to be implemented on a global scale.¹⁷⁶ The CDM has been operational since the beginning of 2006 and there are currently 7523 registered CDM projects with 1,462,321,714 CER's having been produced by project activities thus far.¹⁷⁷

South Africa ratified the Kyoto Protocol on 31 July 2002.¹⁷⁸ However, South Africa is not listed as an Annex I country in the Kyoto Protocol and for that reason South Africa is not bound to the targets set in the Kyoto Protocol. The effect of this is that South Africa is a Non-Annex I country and will only be able to take part in the targets set in the Kyoto Protocol through the CDM.

3 6 1 GOVERNANCE AND PARTIES TO THE CDM

The following parties are involved in the registration process of a CDM project in South Africa as required by the UNFCCC.

-
8. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall ensure that a share of the proceeds from certified project activities is used to cover administrative expenses as well as to assist developing country Parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation.
 9. Participation under the clean development mechanism, including in activities mentioned in paragraph 3 (a) above and in the acquisition of certified emission reductions, may involve private and/or public entities, and is to be subject to whatever guidance may be provided by the executive board of the clean development mechanism.
 10. Certified emission reductions obtained during the period from the year 2000 up to the beginning of the first commitment period can be used to assist in achieving compliance in the first commitment period."

¹⁷⁶ UNFCCC "Clean Development Mechanism" (Undated) http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718txt.php (accessed on 05-02-2014).

¹⁷⁷ UNFCCC "CDM Projects", (as updated on 06-06-2014) <http://cdm.unfccc.int/> (accessed on 06-06-2014).

¹⁷⁸ UNFCCC "Parties and Observer States", (Undated) <http://maindb.unfccc.int/public/country.pl?country=ZA> (accessed on 06-06-2014).

3 6 1 1 THE CDM EXECUTIVE BOARD

The CDM Executive Board (hereafter referred to as the CDM EB)¹⁷⁹ is the supervising authority of the Clean Development Mechanism and functions under the guidance of the Conference of the Parties.¹⁸⁰ The CDM EB has, *inter alia*, the following responsibilities:¹⁸¹

- Approval and registration of CDM projects;
- Development and implementation of CDM processes;
- Issuance of carbon credits (in the form of CER's) in the mandatory market;
- Approval of new baseline methodologies not included in the CDM methodology booklet;
- Making information on proposed CDM projects in need of funding and investors seeking opportunities publicly available;
- Maintaining a CDM project registry;
- Maintain a public database of CDM project activities containing information on registered project design documents, comments received, verification reports, CDM Executive Board decisions and information on all CER's issued.

The CDM EB may establish committees and boards to assist it in the proper fulfilment of its functions. The CDM EB is currently supported by six bodies which

¹⁷⁹ The CDM EB comprises of 10 members and 10 alternate members from Parties to the Kyoto Protocol as follows: one member from each of the five United Nations regional groups, two other members from the Parties included in Annexure I, two other members from the Parties not included in Annex I, and one representative of the small island developing States.

¹⁸⁰ Conference of the Parties - Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005 FCCC/KP/CMP/2005/8/Add.1, Decision 3/CMP.1, Annex, paragraph 2 provides that: "The Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (COP/MOP) shall have authority over and provide guidance to the clean development mechanism (CDM)."

¹⁸¹ The responsibilities listed above include the most important responsibilities of the CDM EB. For a more comprehensive list see Conference of the Parties - Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005 FCCC/KP/CMP/2005/8/Add.1, Decision 3/CMP.1, Annex C, par 3.

include: the Methodologies Panel,¹⁸² the Accreditation Panel,¹⁸³ the Registration and Issuance Team,¹⁸⁴ the Small-Scale Working Group,¹⁸⁵ the Afforestation and Reforestation Working Group¹⁸⁶ and lastly the Carbon Dioxide Capture and Storage Working group.¹⁸⁷

3 6 1 2 DESIGNATED OPERATIONAL ENTITY (DOE)

A Designated Operational Entity (DOE) is an independent auditor accredited by the CDM EB to validate project proposals or verify whether implemented projects have achieved the proposed GHG emission reductions.¹⁸⁸ The DOE has two main functions which include validation and verification (see discussion below). The DOE must be accredited by the UNFCCC and the CDM EB, in accordance with paragraph 20 of the CDM modalities and procedures¹⁸⁹ which also requires that a publicly available list¹⁹⁰ of Designated Operational Entities shall be maintained at all times.¹⁹¹

¹⁸² The Methodologies Panel was established to develop recommendations to the CDM EB on guidelines for methodologies for baselines and monitoring plans and prepare recommendations on submitted proposals for new baseline and monitoring methodologies.

¹⁸³ The Accreditation Panel was established to develop recommendations and facilitate the decision making of the CDM EB in accordance with the standards and procedure for accrediting operational entities.

¹⁸⁴ The CDM Registration and Issuance Team is a group of external experts that assist the CDM EB by assessing requests for registration of project activities or programmes of activities as well as requests for issuance for which review has been requested.

¹⁸⁵ The Small-Scale Working Group was established to develop recommendations to the CDM EB on guidelines for small scale methodologies for baselines.

¹⁸⁶ The Afforestation and Reforestation Working Group was established to prepare recommendations on submitted proposals for new baseline and monitoring methodologies. The Working Group is expected to work in cooperation with the Meth Panel.

¹⁸⁷ The Carbon Dioxide Capture and Storage Working group will work with the Methodologies Panel to establish new baseline methodologies for carbon capture/storage projects.

¹⁸⁸ UNFCCC “CDM Designated Operational Entities” (Undated) <http://cdm.unfccc.int/DOE/index.html> (accessed on 08-10-2014).

¹⁸⁹ Conference of the Parties - Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005 FCCC/KP/CMP/2005/8/Add.1, Decision 3/CMP.1, Annex, paragraph 20 provides that: “The Executive Board shall:

(a) Accredite operational entities which meet the accreditation standards contained in appendix A below;

(b) Recommend the designation of operational entities to the COP/MOP...”

¹⁹⁰ Conference of the Parties - Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005 FCCC/KP/CMP/2005/8/Add.1, Decision 3/CMP.1, Annex, paragraph 20 provides that “The Executive Board shall: (c) Maintain a publicly available list of all designated operational entities.”

3 6 1 3 DESIGNATED NATIONAL AUTHORITY (DNA)

A DNA is the national organisation granted responsibility by a party to the Kyoto Protocol to authorise and approve participation in CDM projects. Establishment of a DNA is one of the requirements for participation by a party in the CDM.¹⁹² In South Africa the DNA is vested within the Department of Energy. The main task of the DNA is to assess potential CDM projects to determine whether they will assist the host country in achieving its sustainable development goals, and to provide a letter of approval to project participants in CDM projects. This letter of approval must confirm that the project activity contributes to sustainable development in the country; that the country has ratified the Kyoto Protocol; and that participation in CDM is voluntary. It is then submitted to CDM EB as supporting documentation for the registration of the project.

3 6 1 4 THE PROJECT DEVELOPER

The Project Developer is the initiator of the project and the party responsible for the proper functioning of the project. To understand how all of these entities are interlinked, please see the diagram below that illustrates the CDM process from the project design phase up to the registration phase.

¹⁹¹ A list of accredited South African DOE's can be found here: <http://www.energy.gov.za/files/esources/kyoto/List%20of%20DOEs.14%20October%202011.pdf>.

¹⁹² Botes "How to register a carbon project to earn carbon credits in South Africa" (10-07-2012) <http://urbanearth.co.za/articles/how-to-register-carbon-project-earn-carbon-credits-south-africa> (accessed on 15-04-2014).

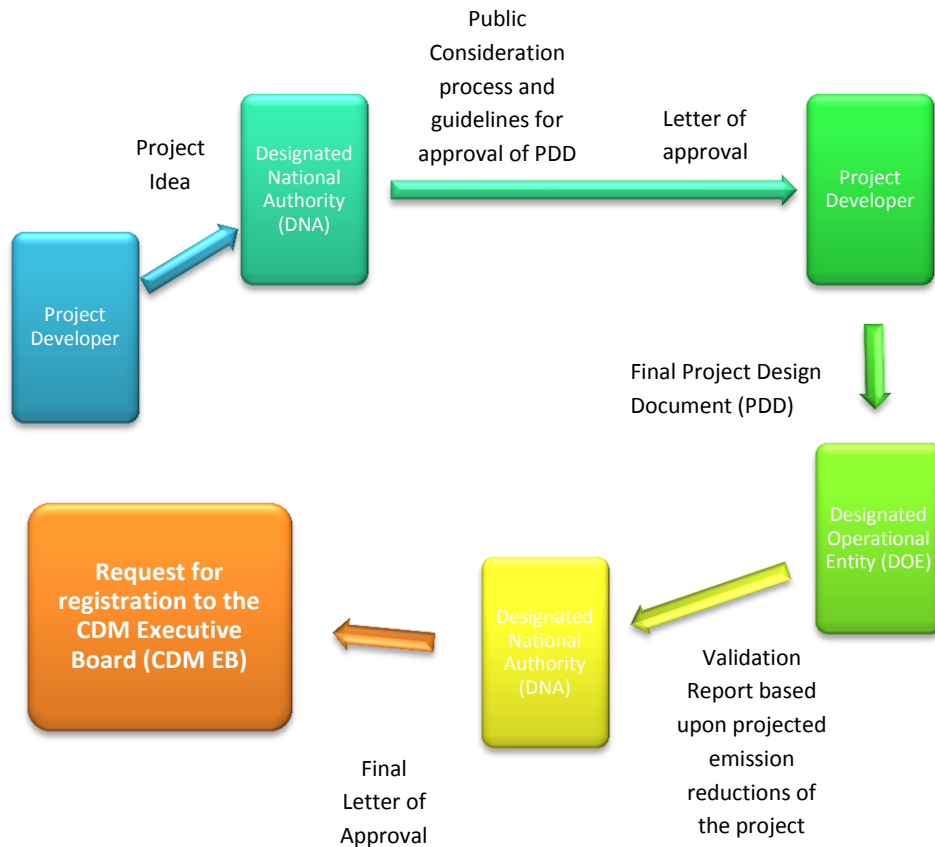


Figure 3: CDM Project cycle

3 6 2 THE CDM PROJECT CYCLE

The CDM has a very rigorous registration process that each proposed project must go through to qualify as a CDM project. This project cycle will now be discussed below.

3 6 2 1 PROJECT DESIGN

Project design requires the Project Participant to develop a Project Design Document (PDD). The PDD is a detailed description of the emissions reduction project and most importantly includes the volume of emissions that are expected to be reduced over a certain period.¹⁹³ The PDD should include an approved baseline,¹⁹⁴ an approved

¹⁹³ It is submitted that a Project Idea Note (PIN) be prepared before a PDD is prepared. A PIN is not a requirement by the CDM, but a PIN can voluntarily be submitted to the Department of Energy (being South Africa’s Designated National Authority as required by the UNFCCC) for assistance in the screening process that will take place when the final PDD is submitted to the CDM. The PIN must contain the outlines of the carbon project, the anticipated emission

methodology¹⁹⁵ for calculating emission reductions, the projects duration and the crediting period, the environmental impact of the project, and any other comments made by stakeholders to the project. Currently, only 22 South African PDD's have been registered by the CDM Executive Board as CDM projects, with only nine having actually issued CER's.¹⁹⁶ These numbers in comparison to other countries' numbers indicate that South Africa has missed out on significant CDM opportunities.

3 6 2 2 NATIONAL APPROVAL

The process of national approval starts by submitting the PDD to the Designated National Authority (DNA).¹⁹⁷ The DNA then publishes the PDD for public consideration for 30 days. After this period, the DNA will consider any recommendations to the PDD and sends final recommendations of the PDD to the Director General for national approval of the project. This process should not exceed a period of 45 working days. If the project is approved, the Project Developer will receive a letter of approval. The letter of approval must be sent to the Project Developer and the CDM EB as a supporting document for the registration of the project with the CDM. The letter must contain the following information:¹⁹⁸

- That the host country has ratified the Kyoto Protocol.
- That participation is voluntary.

reductions, aspects regarding additionally, and the contributions to sustainable development that the project will provide.

¹⁹⁴ The baseline provides a reference standard for each emission reduction case.

¹⁹⁵ The project methodology refers to the set of methods and principles that will be used to implement the mitigation project. The CDM has a "CDM Methodology Booklet" that contains all the methodologies that have been formulated until now. By clearly summarizing, classifying and illustrating the methodologies available under the CDM, and enhancing the means by which to search those methodologies, the CDM Methodology Booklet aims to guide potential CDM project participants through the complex world of methodologies and assist them in identifying methodologies suitable for their project activities. Where a methodology is proposed by a project participant, but it is not contained in the approved methodologies in the CDM Methodology Booklet, the project participant may propose a new methodology for consideration by the CDM Executive Board.

¹⁹⁶ Hodes "A look at South Africa's carbon trading potential" (02-08-2013) <http://www.esi-africa.com/a-look-at-south-africa-s-carbon-trading-potentail/> (accessed on 15-04-2014).

¹⁹⁷ In South Africa the DNA is the Department of Energy.

¹⁹⁸ CDM Executive Board, EB 16, Annex 6, paragraph 1 – available at <http://cdm.unfccc.int/EB/016/eb16repan6.pdf>. (accessed on 16-04-2014).

- And, from host parties, a statement that the proposed CDM project activity contributes to sustainable development.

If the project is not approved, the Project Developer may appeal the decision.

3 6 2 3 VALIDATION

At the same time that the PDD is submitted to the DNA, the PDD must also be submitted to the DOE for validation.¹⁹⁹ Validation is the process of independent evaluation of a project activity by a DOE against the requirements of the CDM as set out in CDM modalities and procedures and relevant decisions of the Kyoto Protocol Parties and the CDM Executive Board, on the basis of the PDD.

3 6 2 4 REGISTRATION

Once the project has been approved by the DNA and validated by an accredited DOE, the Project Developer has to apply to register the mitigation project with the CDM Executive Board.²⁰⁰ The formal acceptance of the mitigation project as a CDM project by the CDM Executive Board is a prerequisite for the processes to follow.²⁰¹

The steps associated to the registration of a CDM project include the following:²⁰²

- Completeness check of the application by the CDM secretariat.
- Vetting by CDM secretariat.
- Vetting by CDM Executive Board.
- If three members of Executive Board request a review of the application, the project undergoes a review, otherwise the project will proceed to registration.

¹⁹⁹ UNFCCC “CDM Project Cycle” (Undated) <http://cdm.unfccc.int/Projects/diagram.html> (accessed on 06-06-2014).

²⁰⁰ Botes <http://urbanearth.co.za/articles/how-to-register-carbon-project-earn-carbon-credits-south-africa>.

²⁰¹ The processes that follows registration include verification, certification and issuance of the CER’s produced by the mitigation project.

²⁰² UNFCCC “CDM Project Cycle” (Undated) <http://cdm.unfccc.int/Projects/diagram.html> (accessed on 06-06-2014).

3 6 2 5 MONITORING

After the project has been registered on the CDM registry the implementation and monitoring of the project begins. The Project Developer needs to prove that the carbon savings predicted in the PDD are valid and that they are realised for the crediting period indicated in the PDD.²⁰³ Accurate record keeping of the performance of the project in terms of the targets set in the PDD is necessary for the project to be audited.

3 6 2 6 VERIFICATION

After a certain period (usually one year) the DOE will conduct an audit of the project to establish whether emission reductions to the amount that was claimed by the Project Developer actually took place. Verification is the independent review and *ex post facto* determination by the DOE of the monitored reductions in anthropogenic emissions by sources of GHG's that have occurred as a result of a registered CDM project activity during the crediting period.²⁰⁴ After verification is completed, certification has to take place. Certification is the written assurance by the DOE that, during the specified crediting period, the project activity achieved the emission reductions as verified.

3 6 2 7 CER ISSUANCE

The DOE submits a verification report with request for issuance of CER's to CDM EB. Once the verification has been completed, the CDM EB will issue the CER's that may be traded under the CDM.²⁰⁵

²⁰³ *Ibid.*

²⁰⁴ *Ibid.*

²⁰⁵ Botes <http://urbanearth.co.za/articles/how-to-register-carbon-project-earn-carbon-credits-south-africa>.

3 6 3 CDM REGISTRY

The CDM EB is responsible for the development and maintenance of a CDM registry.²⁰⁶ The requirements that the registry has to comply with, as stipulated in Appendix D,²⁰⁷ provide that the registry is to be in the form of a standardised electronic database that ensures the accurate accounting of the issuance, holding and acquisition of CER's. As with any registry, the CDM registry has to be administrated by a body capable of ensuring that the registry functions properly. The CDM Executive Board appointed the UNFCCC Secretariat as the administrator of the CDM registry.²⁰⁸ The CDM registry comprises of different accounts as is set out in Appendix D, paragraph 3 of Report of the Conference of the Parties thirteenth session. These accounts include the following:

- “(a) One pending account for the Executive Board, into which CER's are issued before being transferred to other accounts
- (b) At least one holding account for each Party not included in Annex I hosting a CDM project activity or requesting an account
- (c) At least one account for the purpose of cancelling ERU's, CER's, AAU's and RMU's equal to excess CER's issued, as determined by the Executive Board, where the accreditation of a designated operational entity has been withdrawn or suspended
- (d) At least one account for the purpose of holding and transferring CER's corresponding to the share of proceeds to cover administrative expenses and to assist in meeting costs of adaptation in accordance with Article 12, paragraph 8. Such an account may not otherwise acquire CER's.”

²⁰⁶ Conference of the Parties - Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005 FCCC/KP/CMP/2005/8/Add.1 Appendix D, par 1 provides that: “The Executive Board shall establish and maintain a CDM registry to ensure the accurate accounting of the issuance, holding, transfer and acquisition of CER's by Parties not included in Annex I.”

²⁰⁷ Conference of the Parties - Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005 FCCC/KP/CMP/2005/8/Add.1.

²⁰⁸ Conference of the Parties - Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005 FCCC/KP/CMP/2005/8/Add.1 Appendix D, par 1 provides that: “...The Executive Board shall identify a registry administrator to maintain the registry under its authority”.

As with any account, an account held in the CDM registry shall have a unique number to identify the account.²⁰⁹ The account will also have a “party/organisation” for which the account is maintained.²¹⁰ The account holder has the option of “voluntary cancellation” of the CER’s they hold in their accounts. Voluntary cancellation allows project participants who hold CER’s in the CDM registry account to cancel them on their own behalf or on behalf of third parties. This gives the holder of the CER’s access to a broader source of demand for CER’s in the voluntary market, as organisations and individuals wishing to reduce their carbon footprint now have access to high quality CER’s in the voluntary market. Interested buyers can filter and choose available CER’s by country and/or project type to ensure that their purchases are in line with organisational goals or personal preferences.²¹¹

The CDM and all the processes that it coordinates provide many countries with a basis from which to develop national carbon market regimes and is consequently regarded as one of the most effective ways to fight the effects of climate change.

3 7 THE JOINT IMPLEMENTATION MECHANISM (JI)

The Joint Implementation mechanism (hereafter referred to as the JI) is defined in Article 6 of the Kyoto Protocol.²¹² This mechanism allows a country with an emission

²⁰⁹ Conference of the Parties - Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005 FCCC/KP/CMP/2005/8/Add.1 Appendix D, par 5.

²¹⁰ *Ibid.* - The party/organisation is identified by using the two-letter country code defined by the International Organization for Standardization (ISO 3166), or, in the cases of the pending account and an account for managing the CER’s corresponding to the share of proceeds, the Executive Board or another appropriate organization.

²¹¹ UNFCCC, “CDM Registry – Institutional background” (Undated) <http://cdm.unfccc.int/Registry/index.html> (accessed on 09-06-2014).

²¹² Art 6 of the Kyoto Protocol provides that:

- “1. For the purpose of meeting its commitments under Article 3, any Party included in Annex I may transfer to, or acquire from, any other such Party emission reduction units resulting from projects aimed at reducing anthropogenic emissions by sources or enhancing anthropogenic removals by sinks of greenhouse gases in any sector of the economy, provided that:
 - (a) Any such project has the approval of the Parties involved;
 - (b) Any such project provides a reduction in emissions by sources, or an enhancement of removals by sinks, that is additional to any that would otherwise occur;
 - (c) It does not acquire any emission reduction units if it is not in compliance with its obligations under Articles 5 and 7; and

limitation commitment under the Kyoto Protocol (Annex I country) to earn Emission Reduction Units (ERU's) from a mitigation project hosted in another Annex I country. ERU's is defined as the following:²¹³

“An ‘emission reduction unit’ or ‘ERU’ is a unit issued pursuant to the relevant provisions in these modalities for the accounting of assigned amounts and is equal to one metric tonne of carbon dioxide equivalent, calculated using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5.”

Like CER's, ERU's also represent an emission reduction equivalent to one ton of CO_{2e} GHG's. These ERU's may then be used and counted towards meeting the specific country's Kyoto target. The fact that CER's and ERU's both represent the same one ton of CO_{2e} reductions means that the only main difference between these instruments are the countries that trade them. There have, however, been studies that show that the demand for ERU's are not as high compared to the demand for CER's.²¹⁴ The reason for this is that financial players seeking to invest in the carbon market would rather invest in projects hosted in developing countries in compliance with the Kyoto Protocol, than to invest in developed countries. Seeing as this mechanism is based upon a trading relationship between two Annex I countries, it will not be discussed in great detail, as South Africa is not accredited to take part in

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- (d) The acquisition of emission reduction units shall be supplemental to domestic actions for the purposes of meeting commitments under Article 3.
 2. The Conference of the Parties serving as the meeting of the Parties to this Protocol may, at its first session or as soon as practicable thereafter, further elaborate guidelines for the implementation of this Article, including for verification and reporting.
 3. A Party included in Annex I may authorize legal entities to participate, under its responsibility, in actions leading to the generation, transfer or acquisition under this Article of emission reduction units.
 4. If a question of implementation by a Party included in Annex I of the requirements referred to in this Article is identified in accordance with the relevant provisions of Article 8, transfers and acquisitions of emission reduction units may continue to be made after the question has been identified, provided that any such units may not be used by a Party to meet its commitments under Article 3 until any issue of compliance is resolved.”

²¹³ Decision 13/CMP.1, Annex, paragraph 1 of UNFCCC Conference of the Parties - Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005, FCCC/KP/CMP/2005/8/Add.2.

²¹⁴ Saga Commodities “Overview Of The Spread From The Swap EUA's - Kyoto Credits Under The EU ETS” (Undated) <http://sagacommodities.com/?cid=7&NewsId=159&lng=en> (accessed on 12-06-2014).

the JI mechanism. The geographical difference between the CDM and the JI is illustrated in the diagram below.

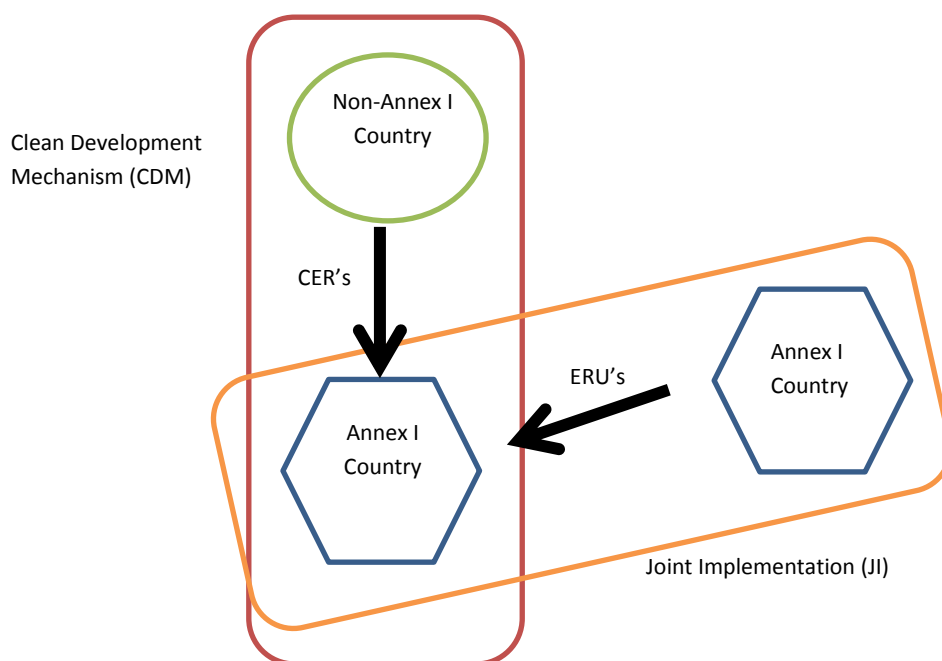


Figure 4: Geographical differences between the CDM and the JI

The JI has certain eligibility requirements that have to be met in order for a country to participate in the mechanism.²¹⁵ There are different procedures for the issuing of ERU's, depending on whether all of the requirements have been fulfilled or not.

²¹⁵ Decision 9/CMP.1, par 21 of UNFCCC Conference of the Parties - Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005, FCCC/KP/CMP/2005/8/Add.2. provides the following:

“Subject to the provisions of paragraph 22 below, a Party included in Annex I with a commitment inscribed in Annex B is eligible to transfer and/or acquire ERUs issued in accordance with the relevant provisions, if it is in compliance with the following eligibility requirements:

- (a) It is a Party to the Kyoto Protocol;
- (b) Its assigned amount pursuant to Article 3, paragraphs 7 and 8, has been calculated and recorded in accordance with decision 13/CMP.1;
- (c) It has in place a national system for the estimation of anthropogenic emissions by sources and anthropogenic removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, in accordance with Article 5, paragraph 1, and the requirements in the guidelines decided thereunder;
- (d) It has in place a national registry in accordance with Article 7, paragraph 4, and the requirements in the guidelines decided thereunder;
- (e) It has submitted annually the most recent required inventory, in accordance with Article 5, paragraph 2, and Article 7, paragraph 1, and the requirements in the guidelines decided thereunder, including the national inventory report and the

If a host country meets all of the eligibility requirements to transfer and/or acquire ERU's, it may follow "Track Procedure 1" as is commonly referred to. Track Procedure 1 entails that when all eligibility requirements are met, the host country may verify emission reductions generated by the emissions reduction project as being additional to what would otherwise have occurred. Upon such verification, the host country may issue the appropriate amount of ERU's.²¹⁶

If a host country does not meet all the eligibility requirements, but only a limited amount of the requirements, the host country has to follow what is commonly referred to as "Track Procedure 2".²¹⁷ Track Procedure 2 entails that the verification of the additional emission reductions has to be done according to the procedure prescribed by the Joint Implementation Supervisory Committee (JISC).²¹⁸ This procedure stipulates that an independent entity accredited by the JISC has to determine whether the relevant requirements have been met before the host party can issue and transfer ERU's.²¹⁹

The latest developments regarding the JI took place at the 34th Joint Implementation Supervisory Committee held in Bonn, Germany. At this meeting the committee

common reporting format. For the first commitment period, the quality assessment needed for the purpose of determining eligibility to use the mechanisms shall be limited to the parts of the inventory pertaining to emissions of greenhouse gases from sources/sector categories from Annex A to the Kyoto Protocol and the submission of the annual inventory on sinks;

- (f) It submits the supplementary information on assigned amount in accordance with Article 7, paragraph 1, and the requirements in the guidelines decided thereunder and makes any additions to, and subtractions from, assigned amount pursuant to Article 3, paragraphs 7 and 8, including for the activities under Article 3, paragraphs 3 and 4, in accordance with Article 7, paragraph 4, and the requirements in the guidelines decided thereunder."

²¹⁶ See Decision 9/CMP.1, paragraph 23 of UNFCCC Conference of the Parties - Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005, FCCC/KP/CMP/2005/8/Add.2.

²¹⁷ A host country which meets all the eligibility requirements may at any time choose to use Track Procedure 2 if the country prefers this procedure to Track Procedure 1.

²¹⁸ The Joint Implementation Supervisory Committee (JISC), under the authority and guidance of the CMP, *inter alia*, supervises the verification procedure.

²¹⁹ See Decision 9/CMP.1, par 24 of UNFCCC Conference of the Parties - Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005, FCCC/KP/CMP/2005/8/Add.2.

responsible for supervising the Kyoto Protocol's Joint Implementation mechanism (the JISC) adopted a plan to sustain the mechanism through 2014 and beyond while contributing to its ongoing evolution as an effective tool for climate change mitigation.²²⁰ The JISC also highlighted certain obstacles that the JI faces. One of the major challenges that the JI faces is low demand from Annex I countries to take part in the JI. This problem is linked to the fact that these countries have low ambitions to mitigate emission levels. Another problem that the JI faces is the fact that JI units are created by converting a portion of a country's total allowable emissions or so-called Assigned Amount Units (AAU's). The problem with this is that the AAU's for the new commitment period of the Kyoto Protocol²²¹ has not yet been issued, thus a large amount of JI units (ERU's) not generated by mitigation projects are not available for trading as they have not yet been issued.

The 34th meeting also led to the JISC looking to the CDM for regulatory inspiration. The JISC decided to in part use the accreditation system²²² of the CDM, subject to endorsement by that mechanism's governing body.²²³ The JISC also decided to recommend that parties to the Protocol closely align the JI's current accreditation system with that of the CDM. It is submitted that the linking of these two mechanisms may lead to an integration of the two mechanisms in the future. This will be beneficial for Non-Annex I countries, as it will consequently lead to more exposure to developed countries and the latest "green" technologies used by developed countries.

²²⁰ Joint Implementation Meeting Report, Joint Implementation Supervisory Committee thirty-fourth meeting, JI-JISC34 held on 17 and 18 March 2014, Bonn, Germany, available at http://ji.unfccc.int/Sup_Committee/Meetings/034/JISC34_report.pdf. (accessed on 15-06-2014).

²²¹ Running from 1 January 2013 to 31 December 2020 as instituted by the Doha Amendment to the Kyoto Protocol.

²²² The accreditation system refers to the system for overseeing the work of the third-party entities that ensure projects comply with JI rules and that emission reductions produced by projects represent real reductions.

²²³ Agenda Item 3.1, par 11, Joint Implementation Meeting Report, Joint Implementation Supervisory Committee thirty-fourth meeting, JI-JISC34 held on 17 and 18 March 2014, Bonn, Germany.

3 8 THE EMISSIONS TRADING MECHANISM (ET)

Emission Trading is set out in Article 17 of the Kyoto Protocol.²²⁴ Parties with commitments under the Kyoto Protocol (Annex I Countries) accepted targets for limiting or reducing emissions for the 2008-2012 commitment period. These targets are expressed as levels of allowed emissions or “Assigned Amount Units” (AAU’s) for the 2008-2012 period. An AAU is defined as:²²⁵

“An ‘assigned amount unit’ or ‘AAU’ is a unit issued pursuant to the relevant provisions in these modalities for the accounting of assigned amounts and is equal to one metric tonne of carbon dioxide equivalent, calculated using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5.”

Article 17 allows Annex I countries with AAU’s to spare (thus emissions allowances permitted to them, but not used), to sell this excess capacity to Annex I countries that exceeded the targets that were set for them in the Kyoto Protocol. This trading mechanism reflects the fact that emission reductions (carbon credits) are traded between countries like any other commodity.

In order to prevent that parties “oversell” units and would subsequently be unable to meet their own Kyoto targets, each party is required to maintain a reserve of carbon credits in a national registry.²²⁶ This reserve is known as the “Commitment Period Reserve” and should not drop below 90 per cent of the party’s AAU’s or 100 per cent of five times its most recently reviewed inventory, whichever is lowest.²²⁷ The party

²²⁴ Art 17 of the Kyoto Protocol provide that: “The Conference of the Parties shall define the relevant principles, modalities, rules and guidelines, in particular for verification, reporting and accountability for emissions trading. The Parties included in Annex B may participate in emissions trading for the purposes of fulfilling their commitments under Article 3. Any such trading shall be supplemental to domestic actions for the purpose of meeting quantified emission limitation and reduction commitments under that Article.”

²²⁵ Decision 13/CMP.1, Annex, par 3 of UNFCCC Conference of the Parties - Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005, FCCC/KP/CMP/2005/8/Add.2.

²²⁶ The registry may contain all the different carbon trading units. These include Emission Reduction Units (ERU’s), Certified Emission Reductions (CER’s), Assigned Amount Units (AAU’s) and Removal Units (RMU’s).

²²⁷ See Decision 11/CMP.1, Annex, par 6 of UNFCCC Conference of the Parties - Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005, FCCC/KP/CMP/2005/8/Add.2.

may not transfer any carbon trading units (CER's, AAU's, ERU's or RMU's) if such a transfer would result in the holdings of such units in the Commitment Period Reserve to drop below the allowed levels. If it is calculated (using the above mentioned formula) that the amount of carbon trading units held by the party drops below the required Commitment Period Reserve levels, the party shall be notified by the Secretariat and, within 30 days of this notification, must bring its holdings to the required level.²²⁸

3 9 THE MARRAKESH ACCORDS

The Marrakesh Accords is a set of agreements reached at the 7th Conference of the Parties (COP7) to the United Nations Framework Convention on Climate Change, held in Marrakesh, Morocco from October 29 to November 10, 2001, on the rules of meeting the targets set out in the Kyoto Protocol. These decisions were adopted by the Conference of the Parties serving as the meeting of the Parties (COP/MOP) at its first meeting in Montreal in November 2005.²²⁹ The Marrakesh Accords forms an integral part for the regulation of the carbon markets and without it, carbon markets would not be operating in an efficient manner. The Marrakesh Accords also established operating procedures, eligibility criteria, roles and responsibilities of parties and role-players, definitions and placed a strong emphasis on improving carbon markets in developing and least developed countries.²³⁰

The Marrakesh Accords was implemented to ensure the proper regulation of the Kyoto Protocol for its first commitment period which started in 2008 and ended in 2012. The question can now be raised to which extent the regulations as stipulated in the Marrakesh Accords will stay effective for the second commitment period which started in 2013 and will end in 2020, but that will only be answered as time passes.

²²⁸ See Decision 11/CMP.1, Annex, par 9 of UNFCCC Conference of the Parties - Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005, FCCC/KP/CMP/2005/8/Add.2.

²²⁹ CDM Rulebook, Marrakesh Accords, <http://www.cdmrulebook.org/333>, (accessed on 30-06-2014).

²³⁰ The complete text of the Marrakesh Accords can be found on the UNFCCC's website - http://unfccc.int/essential_background/library/items/3598.php?rec=j&preref=600001855&data=&volltext=FCCC%2FCMP%2F2001%2F13%2FAdd.1&anf=0&sorted=date_sort&dirc=DESC&seite= (accessed on 30-06-2014).

3 10 THE DOHA AMENDMENT TO THE KYOTO PROTOCOL

The Doha Amendment to the Kyoto Protocol is the international legislative instrument that was put in place to ensure that the second commitment period adheres to both the old Kyoto measures, as well as new measures to help improve the solutions to climate change. The Doha Amendment to the Kyoto Protocol (hereafter referred to as the Doha Amendment) was adopted on 8 December 2012 in Doha, Qatar at the eighth session of the Conference of the Parties serving as the meeting of the Parties (COP 8). The main features of the Doha Amendment include the following:²³¹

- New commitments for Annex I Parties to the Kyoto Protocol who agreed to take on commitments in a second commitment period from 1 January 2013 to 31 December 2020;
- A revised list of GHG to be reported on by Parties in the second commitment period; and
- Amendments to several articles of the Kyoto Protocol which specifically referenced issues pertaining to the first commitment period and which needed to be updated for the second commitment period.

The Doha Amendment was adopted in accordance with Articles 20²³² and 21²³³ of the Kyoto Protocol and was circulated by the Secretary-General of the United

²³¹ UNFCCC Doha Amendment http://unfccc.int/kyoto_protocol/items/2830.php (accessed on 30-02-2014).

²³² Art 20 of the Kyoto Protocol provides that:

- “1. Any Party may propose amendments to this Protocol.
2. Amendments to this Protocol shall be adopted at an ordinary session of the Conference of the Parties serving as the meeting of the Parties to this Protocol. The text of any proposed amendment to this Protocol shall be communicated to the Parties by the secretariat at least six months before the meeting at which it is proposed for adoption. The secretariat shall also communicate the text of any proposed amendments to the Parties and signatories to the Convention and, for information, to the Depositary.
3. The Parties shall make every effort to reach agreement on any proposed amendment to this Protocol by consensus. If all efforts at consensus have been exhausted, and no agreement reached, the amendment shall as a last resort be adopted by a three-fourths majority vote of the Parties present and voting at the meeting. The adopted amendment shall be communicated by the secretariat to the Depositary, who shall circulate it to all Parties for their acceptance.
4. Instruments of acceptance in respect of an amendment shall be deposited with the Depositary. An amendment adopted in accordance with paragraph 3 above shall enter into force for those Parties having accepted it on the ninetieth day after the date of

Nations, acting in his capacity as Depositary, to all Parties to the Kyoto Protocol on 21 December 2012. Although the Doha Amendment has been adopted, it is yet to enter in to legal binding force.²³⁴ The Doha Amendment only enters into force when all prerequisites in accordance with Articles 20 and 21 of the Kyoto Protocol have been met. In accordance with Article 20, paragraph 4 and Article 21 paragraph 7 of the Kyoto Protocol, the Doha Amendment only enters into force for those parties who have accepted it on the nineteenth day after the date that the Depositary has received instruments of acceptance from at least three fourths of the other parties to the Kyoto Protocol. Under the current membership status of countries being parties to the Kyoto Protocol, three fourths represent 143 parties. Thus, only when 143 countries have accepted the Doha Amendment by sending an instrument of acceptance to the Depositary, will the Amendment enter into force.

To date²³⁵ there are 19 parties that have accepted the emission reduction targets that have been set for them in the Doha Amendment.²³⁶ It is important to take note that although the Doha Amendment is not yet in force, it was decided at COP 8 that parties may apply the Amendment and pursue the targets stipulated in the Amendment without the Amendment actually being enforced.²³⁷ It is however

receipt by the Depositary of an instrument of acceptance by at least three fourths of the Parties to this Protocol.

5. The amendment shall enter into force for any other Party on the ninetieth day after the date on which that Party deposits with the Depositary its instrument of acceptance of the said amendment.”

²³³ Art 21 of the Kyoto Protocol provides the requirements that need to be met to amend any Annexes to the Kyoto Protocol.

²³⁴ United Nations Treaty Collection, Chap XXVII Environment - 7 .c Doha Amendment to the Kyoto Protocol, Status as at 02-07-2014 08:06:30 EDT, https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-c&chapter=27&lang=en (accessed on 03-07-2014).

²³⁵ 14 November 2014.

²³⁶ These parties include: Bangladesh, Barbados, China, Honduras, Kenya, Mauritius, Federated States of Micronesia, Monaco, Norway, Sudan and the United Arab Emirates.

²³⁷ Draft Decision -/CMP.8 , par 5 of the UNFCCC Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its Eighth session held in Doha, Qatar from 26 November 2012 to 7 December 2012 provides: “Recognizes that the Parties may provisionally apply the amendment pending its entry into force in accordance with Articles 20 and 21 of the Kyoto Protocol, and decides that parties will provide notification of any such provisional application to the Depositary;” Furthermore it is also important to take note of par 6 that provides the position where a party does not want to apply the Doha Amendment provisionally: “Decides also that Parties that do not provisionally apply the amendment under paragraph 5, will implement their commitments and other responsibilities in relation to the second commitment period, in a manner consistent with their national legislation or domestic processes,

worrying that some of the world's biggest polluters declined to accept and partake in the goals set in the Doha Amendment.

On 15 December 2011, the Depositary received written notification of Canada's withdrawal from the Kyoto Protocol. This action became effective for Canada on 15 December 2012. In a communication dated 10 December 2010, Japan indicated that it does not have any intention to be under obligation of the second commitment period of the Kyoto Protocol after 2012. The Russian Federation also indicated that it does not intend to assume a quantitative emission limitation or reduction commitment for the Kyoto Protocol's second commitment period.²³⁸ Although South Africa has not yet accepted the Doha Amendment, the Amendment does allow parties not included in Annex I to still participate in activities regulated by Article 12 of the Kyoto Protocol (thus the Clean Development Mechanism) which consequently assures the possibility of South Africa partaking in the targets set in the Doha Amendment.²³⁹

Throughout the Amendment it is clear that the second commitment period aims to reach more ambitious goals than those that were set in the first commitment period by the Kyoto Protocol. The most important changes to be found in the Doha Amendment include the following:

- Parties taking on emission reduction targets in the second commitment period (1 January 2013 to 31 December 2020) are required to reduce their total emissions by at least 18 per cent below 1990 levels in the second commitment period.²⁴⁰ It is important to take note that for the first commitment period, the Kyoto Protocol only required that parties reduce their

as of 1 January 2013 and pending the entry into force of the amendment in accordance with Articles 20 and 21 of the Kyoto Protocol.”

²³⁸ Doha Amendment to the Kyoto Protocol, par A, Art 1, Footnotes 13, 14 and 16 .

²³⁹ Draft Decision -/CMP.8 , par 12 of the UNFCCC Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its Eighth session held in Doha, Qatar from 26 November 2012 to 7 December 2012 stipulates: “Clarifies that, for the second commitment period, starting from 1 January 2013, Parties not included in Annex I continue to be able to participate in ongoing project activities under Article 12 of the Kyoto Protocol and in any project activities to be registered after 31 December 2012 in accordance with the provisions of the annex to decision 3/CMP.1.”

²⁴⁰ Doha Amendment to the Kyoto Protocol, par C, Art 3, par 1 *bis*.

emissions by at least 5 per cent below 1990 levels.²⁴¹ It follows then that the new target of 18 percent obviously represents a far more ambitious commitment.

- The commitments of the individual parties range from 24 per cent (in the case of Ukraine) to a 5 per cent reduction (in the case of Australia). The European Union²⁴² as a whole is required to reduce its emissions by 20 per cent.²⁴³ This is a major improvement of emission limitation commitments compared to the first commitment period as the biggest emission limitation target for the first commitment period was only an 8 per cent reduction compared to 1990 levels.²⁴⁴
- Parties that accept the Doha Amendment and partakes in the second commitment period may carry over surplus AAU's if the emissions emitted by the relevant party in the first commitment period were less than the Assigned Amount Units granted to that party during the first commitment period.²⁴⁵ This position also applies to CER's and ERU's that were not retired or cancelled during the first commitment period.²⁴⁶

²⁴¹ Art 3 of the Kyoto Protocol provides that: "reducing their overall emissions of such gases by at least 5 per cent below 1990 levels in the commitment period 2008 to 2012..."

²⁴² The European Union and its member states can, in terms of Art 4, par 1 of the Kyoto Protocol, fulfil their Quantified Emission Limitation or Reduction Commitment (QELRC) jointly as a whole, even if individual member states do not meet their 20 per cent reductions as specified in the amended Annex B of the Doha Amendment.

²⁴³ Doha Amendment to the Kyoto Protocol, par A, Annex B to the Kyoto Protocol.

²⁴⁴ Kyoto Protocol, Annex B.

²⁴⁵ Draft Decision -/CMP.8, par 24 of the UNFCCC Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its Eighth session held in Doha, Qatar from 26 November 2012 to 7 December 2012. "Decides also that where the emissions of a Party referred to in paragraph 23 above in a commitment period are less than its assigned amount under Article 3, the difference shall, on request of that Party, be carried over to the subsequent commitment period, as follows."

²⁴⁶ Draft Decision -/CMP.8, par 24(a) of the UNFCCC Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its Eighth session held in Doha, Qatar from 26 November 2012 to 7 December 2012 stipulates that: "Any ERU's or CER's held in that Party's national registry that have not been retired for that commitment period or cancelled may be carried over to the subsequent commitment period, up to a maximum for each unit type of 2.5 per cent of the assigned amount calculated pursuant to Article 3, paragraphs 7, and 8."

- Parties that are committed to the second commitment period are required to review their commitments by the end of 2014 with the view of increasing their mitigation ambitions even further.²⁴⁷
- Another difference, or rather addition to the Doha Amendment, is the inclusion of one more GHG to Annex A of the Kyoto Protocol. This gas is known as Nitrogen Trifluoride (NF₃) and is considered to be a GHG from the beginning of the second commitment period.

3 11 CONCLUSION

All of the legal instruments that have been discussed above have created the basis from which carbon markets can be taken forward both on national and international scales. These frameworks have provided a safety net to help minimize and fight the effects of climate change and if implemented properly, the carbon market may save our environment and ensure the sustainability of it for future generations.

This chapter commenced with a discussion on the general principles of international law and the international conventions and treaties that relate to climate change. This was followed by a discussion on the United Nations Framework Convention on Climate Change (UNFCCC) which forms the international backbone of all legislation related to climate change.

Following this was a detailed analysis of the Kyoto Protocol and the three carbon trading mechanisms that the Protocol implemented, namely the Clean Development Mechanism (CDM), the Joint Implementation mechanism (JI) and the Emissions Trading mechanism (ET). The CDM was discussed in much greater detail than the other mechanisms, as the CDM is the only mechanism that is relevant to South Africa as a Non-Annex I country in terms of the Kyoto Protocol.

²⁴⁷ Draft Decision -/CMP.8 , par 7 of the UNFCCC Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its Eighth session held in Doha, Qatar from 26 November 2012 to 7 December 2012.

The Chapter concluded with a discussion on the Marrakesh Accords and the Doha Amendment to the Kyoto Protocol which both play a pivotal role in the international carbon market. The Doha Amendment to the Kyoto Protocol is of great importance, as it provides new climate change goals and principles that have to be met in the second commitment period from 2013 to 2020.

Following the analysis of the international instruments regulating the international carbon market, it is now necessary to understand what international best practice exists for the regulation of carbon markets. This will be discussed in the next chapter with Australia and the European Union Emissions Trading Scheme (EU ETS) being the focus of the chapter.

CHAPTER FOUR

INTERNATIONAL BEST PRACTICE IN CARBON MARKETS - AUSTRALIA AND THE EUROPEAN UNION EMISSIONS TRADING SCHEME (EU ETS)

4 1 INTRODUCTION

It has already been stated that climate change is an international problem.²⁴⁸ It requires both a national and an international solution in order to reverse the negative effects that have already been done. In the previous chapter the international legal instruments regulating carbon markets were analysed and discussed. However, In order to be able to construct a carbon trading scheme within South Africa, it is necessary to establish international best practice relating to carbon markets.

This chapter discusses the Australian carbon market and the European Union Emissions Trading Scheme (EU ETS) in order to establish international best practice within the carbon market sphere. A study done by the Australian Productivity Commission found that there are already more than 1000 climate policies in place around the world.²⁴⁹ This means that there is a plethora of policies out there for South Africa to draw from before implementing our own carbon market regulations. It is clear from the above then that South Africa is not in danger of acting alone in our efforts to fight the effects of climate change. In fact, we are far from alone and we are in grave danger of falling behind in this regard.

If South Africa is to start implementing a carbon tax system, the Australian carbon policies would provide the ideal comparative reference. This is because Australia has considered every possible carbon policy thus far, be it imposing a carbon tax (as the case will be in South Africa), or trading carbon in an emissions trading scheme, or compensating emissions reductions through their proposed Direct Action Plan. Consequently, the Australian carbon policies will be discussed in great detail below in

²⁴⁸ See Chap 3, par 3 1.

²⁴⁹ Reuters, The Sydney Morning Herald, "Productivity Commission backs carbon pricing", (9 June 2011) available at <http://www.smh.com.au/business/productivity-commission-backs-carbon-pricing-20110609-1fu2j.html> (accessed on 18-09-2014).

order to provide one with a clear reference of both the advantages and disadvantages associated with each system. Before one can analyse the Australian carbon market system and all the relating legislation, one must establish the general differences between the Australian legal system and the South African legal system.

4 2 GENERAL PRINCIPLES OF THE AUSTRALIAN LEGAL SYSTEM

The common law system,²⁵⁰ as developed in the United Kingdom, forms the basis of Australian jurisprudence. In this regard it is important to note that Australia forms a part of the Commonwealth that has its origins in English law as it is one of the United Kingdom's former colonies.²⁵¹ This means that the courts within the different commonwealth countries look to each other's jurisprudence, exchange solutions and thereby create a network of persuasive authority.²⁵² It is distinct from the civil law systems²⁵³ that operate in Europe, South America and Japan, which are derived from codified Roman law. The chief feature of the common law system is that judges' decisions in pending cases are informed by the decisions of previously settled cases that provide precedents and principles to be implemented in similar cases.²⁵⁴ The common law system is based upon the doctrine of "binding force precedent" (*stare decisis*) and provides that every court in the United Kingdom is bound by all decisions handed down by courts superior to it in hierarchy.²⁵⁵

South Africa also uses the common law system that Australia uses and implements precedents that bind future decisions. Although South Africa and Australia share the same common law system, South Africa also makes use of the civil law system and

²⁵⁰ Common law (also known as case law or precedent) is law developed by judges through decisions of courts and similar tribunals, as opposed to statutes adopted through the legislative process or regulations issued by the executive branch. - *Duhaime's Law Dictionary*, "Definition of Common Law" available at <http://www.duhaime.org/LegalDictionary/C/CommonLaw.aspx> (accessed on 23-09-2014).

²⁵¹ Monateri *Methods of Comparative Law* (2012) 25.

²⁵² *Ibid.*

²⁵³ A body of law derived and evolved directly from Roman Law, the primary feature of which is that laws are struck in writing; codified, and not determined, as in the common law, by the opinions of judges based on historic customs - "Civil Law legal definition" available at <http://www.duhaime.org/LegalDictionary/C/CivilLaw.aspx> (accessed on 23-09-2014).

²⁵⁴ A previous decision is only binding where the basic reason underlying the decision, the so called "*ratio decidendi*" covers the instant dispute – see Zweigert, Kötz *Introduction to Comparative Law Third Edition* (1998) 260.

²⁵⁵ Zweigert *et al Introduction to Comparative Law* 259.

consequently South Africa has a very unique hybrid, or mixed, legal system. This means that South Africa, unlike Australia, has both inquisitorial and accusatorial factors influencing our court decisions, although it is predominantly accusatorial. A civil law system is inquisitorial by nature which means that, in court, a judge or other presiding officer plays an active role in the fact-finding of the case before him/her.²⁵⁶ On the other hand, an accusatorial system found in a common law system provides for proceedings where the presiding officer/judge act as a passive referee and the parties to the case argue in order to prove their case.²⁵⁷ The civil law system requires that judges enforce the written law. Up until the nineteenth century, the English and consequently also Australian legal system, regarded statutes as *ad hoc* enactments which as legal sources had much less force than the unwritten common law.²⁵⁸ However, the Australian courts have turned over a new leaf and now adopt a more liberal attitude towards the wording of legislation and the goal that the legislation was implemented towards.

The Australian Constitution of 1901, formally known by its short title, the Commonwealth of Australia Constitution Act, established a federal system of government, under which powers are distributed between the federal government and the states. This means that the individual states of Australia²⁵⁹ have individual control over their own affairs, but they are controlled by the central government when it comes to national decisions. In effect, Australia then has nine legal systems which include the eight states and territory systems and one federal system. However, it is the state and territory criminal laws that mainly affect the day-to-day lives of most Australians. Each of the federal and state systems incorporate three separate branches of government namely, legislative,²⁶⁰ executive²⁶¹ and judicial.²⁶²

²⁵⁶ Meintjies-Van der Walt, Singh, Du Preez, De Bruin, De Freitas, Chinnian, Govindjee, Iya, Van Coller *Introduction to South African Law – Fresh Perspectives* (2008) 135.

²⁵⁷ *Ibid.*

²⁵⁸ Zweigert *et al Introduction to Comparative Law* 265.

²⁵⁹ The Australian mainland is made up of five states (New South Wales, Queensland, South Australia, Victoria and Western Australia) and three territories (Australian Capital Territory, Northern Territory and Jervis Bay Territory), with the sixth state being located on the island of Tasmania to the south of the mainland. In addition, there are six island territories, known as external territories. Australia also claims part of Antarctica as the Australian Antarctic Territory. All states and two of the three internal territories have their own parliaments and administer themselves; all remaining territories are administered by the federal government, but with Norfolk Island having some degree of self-government.

²⁶⁰ See Chap I of the Commonwealth of Australia Constitution Act. Art 1 of the Act provides that:

Parliaments make the laws, the executive government administers the laws, and the judiciary independently interprets and applies them. The South African Constitution²⁶³ also implements a separation of powers in order to protect our democracy and to limit the powers of the state. Section 8(1) of the Constitution lists all the elements of the structures that are bound by the Bill of Rights namely, the legislature, the executive, the judiciary and all organs of state. The Constitution divides the government power into three branches that function independently from one another namely:

- The legislature, which consists of parliament, the provincial legislatures and local councils,²⁶⁴
- The executive, consisting of the president, the deputy president and the other cabinet ministers,²⁶⁵ and
- The judiciary, which is the system of our courts.²⁶⁶

“The legislative power of the Commonwealth shall be vested in a Federal Parliament, which shall consist of the Queen, a Senate, and a House of Representatives, and which is hereinafter called The Parliament, or The Parliament of the Commonwealth.”

²⁶¹ See Chap II of the Commonwealth of Australia Constitution Act. Art 61 of the Act provides that: “The executive power of the Commonwealth is vested in the Queen and is exercisable by the Governor-General as the Queen’s representative, and extends to the execution and maintenance of this Constitution, and of the laws of the Commonwealth.”

²⁶² See Chap III of the Commonwealth of Australia Constitution Act. Art 71 of the Act provides that: “The judicial power of the Commonwealth shall be vested in a Federal Supreme Court, to be called the High Court of Australia, and in such other federal courts as the Parliament creates, and in such other courts as it invests with federal jurisdiction. The High Court shall consist of a Chief Justice, and so many other Justices, not less than two, as the Parliament prescribes.”

²⁶³ The Constitution of the Republic of South Africa, 1996.

²⁶⁴ S 43 of the Constitution of the Republic of South Africa provides that:

“In the Republic, the legislative authority-

- (a) of the national sphere of government is vested in Parliament, as set out in section 44;
- (b) of the provincial sphere of government is vested in the provincial legislatures,
- (c) of the local sphere of government is vested in the Municipal Councils, as set out in section 104; and in section 156.”

²⁶⁵ S 85(1) of the Constitution of the Republic of South Africa provides that:

“The executive authority of the Republic is vested in the President”

Section 85(2) provides further that:

“The President exercises the executive authority, together with the other members of the Cabinet, by

- (a) implementing national legislation except where the Constitution or an Act of Parliament provides otherwise;
- (b) developing and implementing national policy;
- (c) co-ordinating the functions of state departments and administrations;
- (d) preparing and initiating legislation; and
- (e) performing any other executive function provided for in the Constitution or in national legislation.”

From the above it is clear that the Australian legal system and the South African legal system share many key characteristics. As such, the Australian legal system then provides the ideal platform to examine and compare legislation related to carbon markets. The Australian Carbon market legislation will consequently be discussed below.

4 3 PRE JULY 17TH 2014 REGIME: CARBON TAX

In July 2011, the Government of Australia announced the Clean Energy Future Plan that sets out the Government's plan to address climate change by reducing GHG emissions through investment in clean and renewable energy technologies and encouraging the efficient use of energy. The central element of the Clean Energy Future Plan was the Carbon Pricing Mechanism which provides incentives for Australia's largest polluters to reduce their GHG pollution, by requiring them to acquire carbon credits for each ton of GHG pollution they release into the atmosphere, or alternatively pay a fine²⁶⁷ known as a shortfall charge.²⁶⁸ This charge had the exact same effect as a levy in the form of a carbon tax. The scheme was administered by the Clean Energy Regulator.

Compensation to industry and households was funded by the revenue derived from the charge.²⁶⁹ The compensation was to make up and assist households for the price increases that took place as a result of the carbon tax that industries would have to pay.²⁷⁰ In fact, half of the funds raised through carbon tax would be injected back into households to relieve the effects of the said price increases. The rest of the funds will

²⁶⁶ S 165(1) of the Constitution of the Republic of South Africa provides that: "The judicial authority of the Republic is vested in the courts." Furthermore section 165(2) of the Constitution provides that: "The courts are independent and subject only to the Constitution and the law, which they must apply impartially and without fear, favour or prejudice."

²⁶⁷ From 2012 to 2014, the fine/ short fall charge is set at 130 per cent of the fixed price for the relevant financial year multiplied by the number of units in shortfall. The unit shortfall charge creates an incentive to surrender units under the mechanism rather than pay the higher unit shortfall charge.

²⁶⁸ Australian Government website, "Starting Emissions Trading on 1 July 2014 – Policy Summary" (July 2013) 3, available at www.cleanenergyfuture.gov. (accessed on 11-09-2014).

²⁶⁹ Video: "A Price On Carbon – In Five Easy Steps", Uploaded on Jul 10, 2011, available at <https://www.youtube.com/watch?v=zKZFWLrQJJA> (accessed on 12-09-2014).

²⁷⁰ See Chap 5 par 5 10 for more information regarding revenue distribution.

be implemented to invest in clean energy resources such as solar power and wind turbines.

The Carbon Pricing Mechanism mentioned above put a price on the carbon emissions produced in Australia. Consequently this “price on carbon” can be more easily described as a carbon tax levy on emissions. It was introduced by the clean energy legislation which applies to Australia's biggest carbon emitters called “liable entities”. An entity is liable if it is responsible for one or more facilities that emit covered scope 1 emissions²⁷¹ of 25 000 tonnes of CO_{2e} or more in an eligible financial year (i.e. in 2012-2013 or 2013-2014). An entity is also liable if it supplies natural gas, imports, manufactures or produces liquefied petroleum gas or liquefied natural gas for non-transport use in an eligible financial year.²⁷²

The clean energy legislation included the Clean Air Act 2011 no 131 as amended, the National Greenhouse and Energy Reporting Act 2007 no 175 as amended, the Australian National Registry of Emissions Units Act 2011 and the Carbon Credits (Carbon Farming Initiative) Act 2011. The Clean Energy Legislation (Carbon Tax Repeal) Act 2014 has repealed the Clean Energy Act 2011. This abolished the carbon pricing mechanism with effect from 1 July 2014.²⁷³ Liable entities will still be expected to meet their carbon tax obligations for the 2013-2014 financial year. This includes reporting their emissions to the Clean Energy Regulator under section 22A of the National Greenhouse and Energy Reporting Act 2007 by 31 October 2014, and settling their final carbon tax liability for the 2013-2014 financial year by 2 February 2015.

4 3 1 TRANSITION FROM A FIXED-PRICE SYSTEM TO A FLEXIBLE-PRICE SYSTEM

The Carbon Pricing Mechanism was designed to automatically undergo a transition from a “fixed-price” carbon tax system to a “flexible-price” emissions trading system,

²⁷¹ See Chap 2 par 2 5 1 1 for a detailed description on scope 1 emissions.

²⁷² See s 13 of the National Greenhouse and Energy Reporting Act 2007 for more information regarding the threshold requirements pertaining to liable entities.

²⁷³ Australian Government, Clean Energy Regulator, Carbon Pricing Mechanism, <http://www.cleanenergyregulator.gov.au/Carbon-Pricing-Mechanism/Pages/default.aspx> (accessed on 17-07-2014).

but seeing as this system was repealed, it will no longer be configured to an emissions trading system.²⁷⁴ The fixed-price carbon was designed to commence on 1 July 2012 and end on 30 June 2015. During this fixed price period, the Australian Government would sell an unlimited number of carbon units²⁷⁵ at the specified fixed price for the relevant year. Liable entities would automatically surrender these carbon units against their carbon emissions to offset the effect that the emissions have on the environment. In more practical terms, the liable entity may purchase the carbon units and relinquish the carbon units against their carbon tax liability. This means that the liable entity not only supported an emissions reductions project through the purchase of carbon unit, but it also benefits from the carbon unit being used to offset/reduce its carbon tax liability. It is important to note that during the fixed-price period, these carbon units could not be traded or banked for use in future years. The carbon prices were fixed at the following rates:²⁷⁶

- \$23 (Australian Dollar) a ton for the 2012–2013 financial year,
- \$24.15 a ton for the 2013–2014 financial year, and
- \$25.40 a ton for the 2014–2015 financial year. (The 2014-2015 fixed carbon price will no longer be applicable, as the Carbon Pricing Mechanism has been revoked.)

This means that polluters in Australia would pay the above mentioned price for each ton of carbon they emit into the earth’s atmosphere, and consequently, this charge is known as carbon tax. It levies a fee on the production, distribution or use of fossil fuels based on how much carbon their business activities emit. Because the tax makes the use of dirty energy sources more expensive, it encourages utilities, businesses and individuals to reduce their dirty energy consumption and increase energy efficiency through cleaner energy sources. If they invest in cleaner energy sources and emissions reduction activities, they are credited for their mitigating actions and awarded with carbon units. Alternatively, they can acquire carbon units

²⁷⁴ Australian Government, “Starting Emissions Trading on 1 July 2014 – Policy Summary” (July 2013) 3, available at www.cleanenergyfuture.gov.

²⁷⁵ In the Australian carbon market system, the term “carbon unit” is used instead of the term “carbon credit”. These two terms does however have the exact same meaning.

²⁷⁶ Australian Government, Clean Energy Regulator, “Fixed Price 2012-2015” <http://www.cleanenergyregulator.gov.au/Carbon-Pricing-Mechanism/About-the-Mechanism/Fixed-Price-2012-15/Pages/default.aspx> (accessed on 17-07-2014).

by purchasing them from other entities which then indirectly supports the emission reductions that are represented in the relevant carbon units.

4 3 2 ELIGIBLE AUSTRALIAN CARBON UNITS

Section 3 of the Australian National Registry of Emissions Units Act 2011 provides that the following with regards to which carbon units may be traded and which entries may be made into the registry accounts of the various entities:

“Entries may be made in Registry accounts for:

- (a) carbon units,²⁷⁷ and
- (b) Australian Carbon Credit Units,²⁷⁸ and
- (c) Kyoto units,²⁷⁹ and
- (d) prescribed international units.²⁸⁰

²⁷⁷ S 202 of the Clean Energy Act 2011 provides that The Regulator must:

- “(a) as soon as practicable after the commencement of this section, publish on the Regulator’s website a statement setting out a concise description of the characteristics of carbon units; and
- (b) keep that statement up-to-date.”

In accordance with this requirement, the Regulator’s website describes a “carbon unit” as “A unit issued to a person by the Clean Energy Regulator by making an entry, consisting of a unique identification number, in an account kept by the person in the electronic Australian National Registry of Emissions Units. A carbon unit can only be issued to a person if the person has a Registry account and a Registry account can only be opened by a person after the Regulator has considered whether they are a ‘fit and proper person’. Each carbon unit has a vintage year of a particular financial year which is reflected in its identification number”.

²⁷⁸ An Australian Carbon Credit Unit (ACCU) is a unit issued to a person by the Clean Energy Regulator by making an entry for the unit in an account kept by the person in the electronic Australian National Registry of Emissions Units. ACCU’s are issued in accordance with greenhouse gas abatement activities undertaken as part of the Carbon Farming Initiative. Section 152 of the Carbon Credits (Carbon Farming Initiative) Act 2011 provides that: “An Australian carbon credit unit is personal property and, subject to sections 152 and 153, is transmissible by assignment, by will and by devolution by operation of law.”

²⁷⁹ S 61(1) of the Australian National Registry of Emissions Units Act 2011 states that a Kyoto unit includes the following units: (i) certified emission reductions (other than a temporary certified emission reduction or a long-term certified emission reduction); (ii) emission reduction units; (iii) removal units. Information regarding the exact characteristics of these units are to be made available on the Clean Energy Regulator’s website in accordance with s 61(1) of the Australian National Registry of Emissions Units Act 2011. In short a Kyoto removal unit means: “a removal unit issued in accordance with the relevant provisions of the Kyoto rules. It is immaterial whether the unit was issued in or out of Australia” – s 4 of the Australian National Registry of Emissions Units Act 2011.

²⁸⁰ An Australian Issued International Unit (AIU) is a prescribed international unit under s 61 of the Australian National Registry of Emissions Units Act 2011. The Clean Energy Regulator issues an AIU to a person by making an entry, consisting of a unique serial number, in an account kept by the person in the electronic Australian National Registry of Emissions Units. The Regulator can only issue an AIU to a person if the person has a Registry account and a Registry account can only be opened after the Regulator has considered whether the person meets the “fit and proper person” criteria. The Regulator will issue an AIU to a person who has an Australian Registry account when a corresponding European allowance unit (such as a

This Act sets out rules about dealings with:

- (a) Kyoto units; and
- (b) prescribed international units.”

All of the units above represent the same amount of emission reductions, namely one ton of Carbon Dioxide Equivalent gases (CO_{2e}). The pricing was part of a broad energy reform package called the Clean Energy Plan as was mentioned above, which aims to reduce GHG emissions in Australia by five per cent below 2000 levels by 2020 and 80 per cent below 2000 levels by 2050.²⁸¹ The implementation of the carbon tax system indicated a definite emission reductions trend as was evident in many sectors. Nine months after the introduction of the carbon pricing scheme, Australia's emissions of carbon dioxide from electricity generation fell to a ten-year low, with coal generation down with per cent from 2008 to 2009. Furthermore, total annual emissions for the year up to December 2012 are estimated to be 551.9 Mt CO_{2e}. This represents a decline in emissions of 0.2 per cent when compared to the year to December 2011.²⁸²

4 3 3 THE PRINCIPLE OF “NEGATIVE EXTERNALITIES”

It can be argued that carbon tax is based upon economic principle of “negative externalities”.²⁸³ An externality can be described as a cost, consequence or benefit of an economic activity that is experienced by unrelated third parties.²⁸⁴ Externalities can be either negative or positive.²⁸⁵ Pollution provides us with a perfect example of a negative externality.

Kyoto Unit) is transferred into the Commonwealth foreign registry account in the European Union Registry.

²⁸¹ Australian Government, Department of the Environment, “Australia's emissions reduction targets” (Undated) <http://www.climatechange.gov.au/climate-change/greenhouse-gas-measurement-and-reporting/australias-emissions-projections/australias> (accessed on 13-09-2014).

²⁸² Australian National Greenhouse Accounts Quarterly Update of Australia's National Greenhouse Gas Inventory, December Quarter 2012, The Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education, 3, available at <http://www.environment.gov.au/node/35705> (accessed on 13-09-2014).

²⁸³ Dowdey “How carbon tax works” (undated) <http://science.howstuffworks.com/environmental/green-science/carbon-tax4.htm> (accessed on 19-07-2014).

²⁸⁴ Oxford Advanced Learners Dictionary – International Student's addition definition of “externality” 519.

²⁸⁵ An example of a positive externality is the effect of a well-educated labour force on the productivity of a company.

Environmental challenges, such as climate change, air and water pollution occur when the assimilative capacity of a particular environmental resource is exceeded.²⁸⁶ Society is affected by the resulting pollution, and the polluter is often not held accountable for the costs of such pollution. Pollution emitted by a factory, spoils the surrounding environment and affects the health of nearby residents. Thus, it is a negative consequence felt by third parties not related to the production processes of the factory and as such, it can be described as a societal cost which can be seen as a market failure. In order to correct market failures and include these external costs in the prices of goods and services, and hence ensure efficient and environmentally beneficial outcomes, the government intervenes by way of regulations or market-based instruments, such as carbon tax to influence the decision-making processes of producers and consumers. Market-based instruments offer firms flexibility in reducing their emissions tax liability, based on the specific costs they face in abatement. Advocates supporting carbon tax believe that polluters should be held responsible for burning fossil and the consequent societal costs related to it. This is also known as the “polluter-pays” principle.

4 3 4 THE “POLLUTER-PAYS” PRINCIPLE

The polluter-pays principle was first set out in 1974 by the Organisation for Economic Co-operation and Development.²⁸⁷ The principle includes both the costs of prevention and the costs of dealing with the consequences of pollution already caused. Furthermore, the costs are not only limited to costs incurred by humans, but also costs incurred by the environment itself.²⁸⁸ Possibly the best known expression of the polluter-pays principle can be found in the Rio Declaration on Environment and Development of 1992²⁸⁹ which provides in Principle 16 that:

“National authorities should endeavour to promote the internalisation of environmental costs and the use of economic instruments, taking into

²⁸⁶ Carbon Tax Policy Paper, May 2013, 8.

²⁸⁷ Kidd *Environmental Law* 7.

²⁸⁸ Kidd *Environmental Law* 8.

²⁸⁹ Available at <http://www.jus.uio.no/lm/environmental.development.rio.declaration.1992/portrait.a4.pdf>.

account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.”

From the above it is clear that the principle has both preventative and compensatory aspects to it, which ensures the principle is focused in both past and future sustainability.

4 4 POST JULY 17TH 2014 REGIME: DIRECT ACTION PLAN AND THE EMISSIONS REDUCTION FUND

On 17 July 2014, the Australian government abolished the carbon tax to make way for a new climate change policy, known as the Direct Action plan. The current government, as was elected on 7 September 2013, with current Prime Minister, Tony Abbott leading the government was behind this abolishment and the introduction of the new Direct Action Plan. He placed strong emphasis on the fact that carbon taxes, as implemented by the previous government, put a heavy financial burden on Australian households and businesses. The abolishment of the carbon tax and the Clean Energy Package takes effect retrospectively as from 1 July 2014 and aims to lower operation costs for Australian businesses and lower living costs for Australian households.²⁹⁰ Supporters of the Direct Action Plan and the Emission Reduction Fund (see the discussion below) regard the new system as one which provides incentives for businesses to reduce carbon emissions instead of punishing them for emissions, as was the case with carbon tax. The government garnered support for the repeal of the carbon tax and the Clean Energy Package, by highlighting the following benefits that the repeal and the proposed Direct Action Plan would create:²⁹¹

- It would reduce the cost of living by a substantial amount.²⁹² Australian Treasury suggests that removing the carbon tax in 2014-2015 will leave

²⁹⁰ Australian Government, “Repealing the Carbon tax”, <http://www.environment.gov.au/climate-change/repealing-carbon-tax> (accessed on 25-08-2014).

²⁹¹ Australian Government, “Repealing the Carbon tax - What removing the carbon tax will mean for Australians” <http://www.environment.gov.au/climate-change/repealing-carbon-tax> (accessed on 25-08-2014).

²⁹² This decrease in living costs will be the consequence of decreasing retail electricity costs by around 9 per cent and retail gas prices by around 7 per cent than they would otherwise have been in 2014-2015 with a \$25.40 carbon tax.

average costs of living across all households around \$550 lower than they would otherwise be in 2014-2015.

- It would boost Australia's economic growth, increase jobs and enhance Australia's international competitiveness by removing an unnecessary tax, which hurts businesses and families.
- Reduce annual ongoing compliance costs for around 370 liable entities by almost \$90 million per annum.
- Remove over 1,000 pages of primary and subordinate legislation.

4 4 1 THE DIRECT ACTION PLAN

The Direct Action Plan was introduced to Parliament on 17 July 2014 via the Carbon Farming Initiative Amendment Bill 2014, which will replace the Carbon Credits (Carbon Farming Initiative) Act 2011. The new Bill also made a number of amendments to the National Greenhouse and Energy Reporting Act 2007 (NGER Act)²⁹³, the Australian National Registry of Emissions Units Act 2011 (ANREU Act)²⁹⁴ and the Clean Energy Regulator Act 2011 (CER Act)²⁹⁵ to reflect changes made to the Carbon Credits (Carbon Framing Initiative) Act 2011 and to address other minor issues.²⁹⁶ The Carbon Farming Initiative Amendment Bill 2014 is not yet in effect and the next step will be to get the Bill passed through senate. The Bill will take effect on a single day to be fixed by Proclamation. However, if the provision(s) do not commence within the period of 6 months beginning on the day this Act receives the Royal Assent, they commence on the day after the end of that period.²⁹⁷ The earliest date for this to take place will be at the Parliamentary sitting held from 26-28 August

²⁹³ The National Greenhouse Energy and Reporting Act 2007 imposes certain reporting obligations on certain bodies and makes provision for the audit and compliance and verification of emissions reduction projects.

²⁹⁴ The Australian National Registry of Emissions Units Act 2011 is the piece of legislation that establishes a registry for, amongst other things, Australian Carbon Credit Units (ACCUs).

²⁹⁵ The Clean Energy Regulator Act 2011 establishes a Clean Energy Regulator to, amongst other things, administer the CFI Act.

²⁹⁶ Australian Government, Clean Energy Regulator, Introduction of the Carbon Farming Initiative Amendment Bill 2014 (18 June 2014) <http://www.cleanenergyregulator.gov.au/About-us/news-and-updates/Pages/2014-06/18-June-2014-ERF-legislation-tabled.aspx> (accessed on 25-08-2014).

²⁹⁷ Carbon Farming Initiative Amendment Bill 2014 Explanatory Memorandum 9.

2014.²⁹⁸ Although the Bill is not yet effective, its policies and provisions for creating a carbon market system are discussed below.

4 4 2 THE EMISSIONS REDUCTION FUND

The Emission Reduction Fund (hereafter referred to as the ERF) is the central component of the Government's Direct Action Plan. Greg Hunt, the Australian Minister for the Environment, stated in the foreword of the Emission Reduction Fund White Paper, released in April 2014, that the government believes that there is a better way to reduce emissions than by imposing a tax that increases energy costs for businesses and households.²⁹⁹ The current Australian Government believes that the ERF provides a more feasible way for Australia to meet its international obligations under the UNFCCC and the Kyoto Protocol, to reduce emissions of GHG's and meet its emissions reduction target of five per cent below 2000 levels by 2020.³⁰⁰

The ERF system is based on a very simple operational framework that has been proven to work in Australia in other governmental spheres such as water purification tenders.³⁰¹ The ERF system will be based on a straightforward reverse auction process³⁰² where businesses would submit tenders for the quantity and price of the emission reductions that they are willing to offer. This initiative will allow businesses, state and local governments, community organisations and individuals to undertake approved emission reduction projects and to seek funding from the Government for

²⁹⁸ The government will not be able to pass the legislation through Senate to create the Emission Reduction Fund without the support of the Palmer United Party Senators. The Palmer United Party has indicated that any support for the Emission Reduction Fund is conditional to the Coalition Government's support to form an emission trading scheme. This seems unlikely, as the Direct Action Plan and its Emission Reduction Fund does not constitute an emissions trading scheme.

²⁹⁹ In the foreword of the Emission Reduction White Paper, April 2014, the Minister of the Environment, Greg Hunt said that: "Our objective is to conserve our natural environment while ensuring strong economic growth."

³⁰⁰ Doha Amendment to the Kyoto Protocol, Art 1: Amendment, Annex B to the Kyoto Protocol.

³⁰¹ Emissions Reduction Fund White Paper 2014, 11.

³⁰² Carbon Farming Initiative Amendment Bill 2014 Explanatory Memorandum "Reverse Auction" is defined as: "A type of auction in which the roles of buyer and seller are reversed. The auctioneer buys the goods or services from sellers who compete to provide the goods or service to the buyer, with sellers having the incentive to offer lower bids (as opposed to buyers offering higher bids in regular auctions)."

those projects through a reverse auction or other purchasing process.³⁰³ Hence, the two main parties involved in this transaction would be the Government, acting as the buyer of the emission reductions, and the project proponent, be it a business, an individual or an organisation, acting as the seller of the emission reductions.³⁰⁴

The initial plan was that the Emission Reduction Fund would extend from 1 July 2014 to 2020 and would include allocations of \$300 million, \$500 million and \$750 million (amounting to a total of \$ 1.55 billion) over this period.³⁰⁵ However, in the Emission Reduction Fund White Paper released in April 2014, the Government committed itself to the ERF even further by extending the amount to \$2.55 billion with further funding to be considered in the future.³⁰⁶ The cost of administering the Fund will be met from within the existing resources of the Department of the Environment and the Clean Energy Regulator and will be used to buy the emission reductions from the project proponents.³⁰⁷ The Clean Energy Regulator³⁰⁸ will issue ACCU's for emissions reductions that are estimated and audited using approved methodologies. These credits can then be purchased through the Emissions Reduction Fund (controlled by the Government) or used under voluntary carbon offsetting programmes.

³⁰³ S 20F of the Carbon Farming Initiative Amendment Bill 2014 provides that:
“For the purposes of this Act, a carbon abatement purchasing process means any of the following processes:
(a) a reverse auction;
(b) a tender process;
(c) any other process;

for the purchase by the Commonwealth of eligible carbon credit units. (It is immaterial whether the units are in existence when the process is conducted).”

³⁰⁴ The Australian Government looked abroad for inspiration with regards to the auction process. The United Kingdom Non-Fossil Fuel Obligation Scheme was a reverse auction for the United Kingdom Government's purchase of renewable energy from renewable energy installations. The scheme began with a tender process, where project bids included a “cost justification” along with a price. This allowed the United Kingdom Government to gather information on likely costs, helping to set price ceilings in future auctions.

³⁰⁵ Emissions Reduction Fund Green Paper 2013, Ministerial Foreword.

³⁰⁶ Emissions Reduction Fund White Paper 2014, 8.

³⁰⁷ Carbon Farming Initiative Amendment Bill 2014 Explanatory Memorandum, 10.

³⁰⁸ Carbon Farming Initiative Amendment Bill 2014 Explanatory Memorandum, “Clean Energy Regulator” is defined as: “The body responsible for administering the Renewable Energy Target, the National Greenhouse and Energy Reporting Scheme, the Carbon Farming Initiative and the Emissions Reduction Fund.”

Three principles guided the design of the ERF namely:³⁰⁹

- Lowest-cost emissions reductions: the Emissions Reduction Fund will identify and purchase emissions reductions at the lowest cost.
- Genuine emissions reductions: the Emissions Reduction Fund will purchase emissions reductions that make a real and additional contribution to reducing Australia’s GHG emissions.
- Streamlined administration: the Emissions Reduction Fund will make it easy for businesses to participate.

Based on these principles, the ERF has three main elements that is outlined in the Carbon Farming Initiative Amendment Bill 2014 Explanatory Memorandum namely: “Crediting emissions reductions, purchasing emissions reductions, and safeguarding emissions reductions.”

The three elements above will not only reduce Australia’s emissions, but will also deliver valuable co-benefits such as relieving financial obligations of households and businesses, improving energy efficiency, and improving water quality. The process involved in achieving these elements will be explained below.

4 5 THE IMPLEMENTATION OF THE DIRECT ACTION PLAN AND THE EMISSIONS REDUCTION FUND

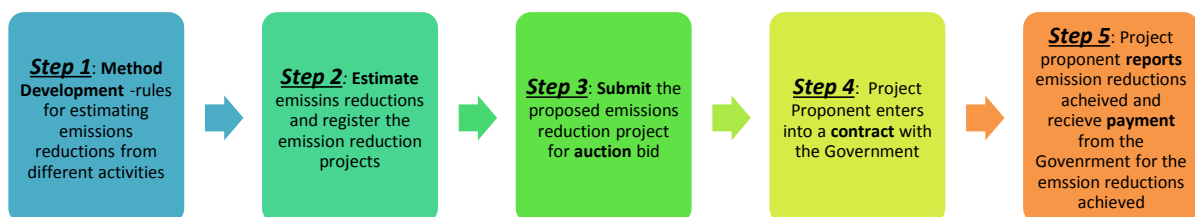


Figure 5: Direct Action plan cycle

³⁰⁹ Emissions Reduction Fund White Paper 2014, 8.

4 5 1 STEP 1: METHODOLOGIES FOR CREDITING EMISSIONS REDUCTIONS WILL BE DEVELOPED

The methodologies for each emission reduction activity, such as energy efficiency and land sector projects, will be developed. To enable a wide range of businesses to participate in the Emissions Reduction Fund, a menu of emissions reduction methodologies will be available. This will enable businesses to choose the methodology that best suits their project.³¹⁰ Emissions reduction methodologies will set out the rules for estimating emissions reductions from different activities. These methodologies will ensure that emissions reductions are genuine, meaning that they are both real and additional³¹¹ to business as usual.

The methodology development process will be monitored by the Emissions Reduction Assurance Committee. The Emissions Reduction Assurance Committee will provide independent, expert advice to the Minister for the Environment regarding the suitability of the relevant methodologies before the Minister approves a methodology for implementation. This will ensure that emissions reduction methods meet the integrity standards of the ERF and are delivering genuine emissions reductions.³¹² Furthermore, it is important to take note that methodologies will be legislative instruments.³¹³ This means they must be made in accordance with the ERF legislation and can be disallowed by the Parliament. This will provide confidence to the community that methodologies will enable crediting of genuine emissions reductions.³¹⁴

³¹⁰ Emissions Reduction Fund White Paper 2014, 27.

³¹¹ Carbon Farming Initiative Amendment Bill 2014 Explanatory Memorandum, “Additionally” is defined as: “A requirement that a project or activity produce emissions reductions that are most likely to be additional to what would have occurred in the absence of the Emissions Reduction Fund.”

³¹² Media Release, The Hon. Greg Hunt MP, Minister for the Environment, “Emissions Reduction Fund White Paper released” (24 April 2014) <http://www.environment.gov.au/minister/hunt/2014/mr20140424.html> (accessed on 29-08-2014)

³¹³ Carbon Farming Initiative Amendment Bill 2014 Explanatory Memorandum, 37.

³¹⁴ Another feature that will provide the community with confidence in the ERF system, is the fact that the Carbon Farming Initiative Amendment Bill 2014 requires public consultation on draft methodologies or methodology variations for a period of 28 days before a methodology can be made. This period may be shortened, but may not be less than 14 days – see Subdivision DB, ss 123D(2) and 123D(3) of the Carbon Farming Initiative Amendment Bill 2014.

There will be two categories of methods available namely Activity Methods and Facility-wide Methods.³¹⁵ This will ensure that a menu of methods will be available to enable a wide range of businesses to participate in the ERF.

- **Activity Methods** will be developed for specific emission reduction activities such as landfill gas capture projects and energy efficiency projects.³¹⁶
- **Facility Wide Methods** will be developed for facilities where emission aggregation is achieved through a number of facility based emission reduction activities. The methods will be developed using existing data that show the facility's emissions over a certain period. The data will be reported under the regulations set by the *National Greenhouse and Energy Reporting Act 2007*.³¹⁷

4 5 2 STEP 2: ESTIMATE EMISSION REDUCTIONS AND REGISTER THE EMISSION REDUCTION PROJECT

Project proponents³¹⁸ will use an approved methodology to estimate the likely emissions reductions from their proposed projects. This is done by establishing what the emissions from a project would have been in the absence of the ERF. This estimation is known as the emissions baseline and it will provide one with a comparable reference to establish the performance of an emissions reduction project.³¹⁹ The most effective way to establish an emissions baseline will vary for the

³¹⁵ Emissions Reduction Fund White Paper 2014, 25.

³¹⁶ To ensure that these methods are up to par with best practice, existing methods implemented by the Clean Development Mechanism will be used to make sure that all requirements of the Emission Reduction Fund are met.

³¹⁷ The key object of the National Greenhouse and Energy Reporting Act 2007 was to provide a single national scheme for the collection of energy and emissions data, and to remove the need for inconsistent and duplicative reporting of this data across jurisdictions. The Australian Government continues to work with businesses to identify areas where the National Greenhouse and Energy Reporting Scheme can be streamlined.

³¹⁸ Amendment 60A, s 5 of the Carbon Farming Initiative Amendment Bill 2014, "Project proponent" is defined as: "project proponent, in relation to an offsets project, means the person who:
(a) is responsible for carrying out the project; and
(b) has the legal right to carry out the project".

³¹⁹ See Chap 2, par 2 5 2 for more information regarding emission baselines.

different types of emissions reduction activities. Here are the three main methods for measuring and establishing an emissions baseline.³²⁰

- Historical method: It will often be the most practical to measure the impact of a project's emission reduction activities relative to historical emissions data. For example, where a piece of land has been used for agriculture and has been cleared of trees for an extended period of time, it would be reasonable to expect that the land will be used for agricultural purposes in the future. If, however, an emissions reduction project, such as a reforestation project, is to be implemented on this piece of land, the impact of the reforestation project, relative to the historical data obtained during agricultural land-use, would be the most effective way to establish emission reductions as a result of the reforestation project.
- Common practice method: Where historical data is limited, it may be difficult to distinguish between additional emissions reductions projects and those that would have taken place under business-as-usual situations. In this case it may be most practical to establish common practice principles and encourage the project proponent to implement activities that *go beyond* these common practice principles.³²¹ Activities implemented by project proponents must not only be above regulatory requirement but should go beyond common practice usually associated with the relevant activities.³²² This will ensure that the emissions reductions achieved are additional and do not form a part of a business-as-usual situation.
- Declining method: Where technology is improving efficiency over time and a business makes an effort to implement these technologies, historical emissions data may not be the best way to establish a proxy for future emissions. In a case such as this, it may be best to assume that emissions will continue to decline under the business as usual. A good example to illustrate this method is the efficiency improvements taking place in the

³²⁰ Prag, Ellis, Bilski (OECD) "Setting Emissions Baselines: Choosing Metrics for National and Sectoral Baselines" (19-20 September 2011) p 3-4, available at <http://www.oecd.org/env/cc/49638985.pdf> (accessed on 28-08-2014).

³²¹ Carbon Farming Initiative Amendment Bill 2014 Explanatory Memorandum, 30.

³²² This could be implemented by establishing a set percentage of abatement for an activity in the project's methodology. Any emissions reductions beyond that percentage are considered additional.

transport sphere. New ways to propel transportation is increasing rapidly, and as a result emissions are declining at a steady pace. However, this method is not very suitable for establishing an emissions baseline, as emissions reductions associated to this method mostly takes place on a business-as-usual- basis.

4 5 2 1 ADDITIONALITY OF EMISSION REDUCTIONS

One of the most important criteria when establishing the emissions reductions achieved by an emissions reductions project is the requirement that the emissions reductions are additional. The ERF requires that the emissions reductions are “genuine” which means that the emissions reductions are real and additional to normal business practice and counts toward meeting Australia’s emission reduction target.³²³ Another principle that is needed to guarantee additionality is the requirement that the emissions reductions projects only get funded by one government funding initiative. This means that only “new projects”³²⁴ will receive the support and funding of the ERF. The reasoning behind this is to ensure that projects do not receive funding from both the ERF and another emissions reductions initiative that existed prior to the commencement of the ERF.

The Carbon Credits (Carbon Farming Initiative) Act 2011 provided for additionality in a number of ways and stipulated that:

- the project must be of a kind that goes beyond common practice and has been listed in the Carbon Credits (Carbon Farming Initiative) Regulations 2011(CFI Regulations), known as the “positive list”; and
- the project must not be required by another law.

The Carbon Farming Initiative Amendment Bill 2014 removes the common practice test,³²⁵ and introduces a requirement that projects must be new and unlikely to occur

³²³ Emissions Reduction Fund White Paper 2014, 29.

³²⁴ Emissions Reduction Fund White Paper 2014, “New projects” means “projects that were not implemented before they have been registered with the Clean Energy Regulator”.

³²⁵ The “Additionality test” based on the common practice principle is set out in s 41(3) of the Carbon Credits (Carbon Farming Initiative) Act 2011 and provides that: “In deciding whether to

as a result of another government programme. The existing criterion that projects must be additional to regulatory requirements is maintained. Amendment 107, subsection 27(4A) of the Carbon Farming Initiative Amendment Bill 2014 sets out the amended additionality test.³²⁶

4 5 2 2 CREDITING PERIOD OF THE EMISSIONS REDUCTION FUND

Another main difference between the proposed new position (Carbon Farming Initiative Amendment Bill 2014) and the old position (Carbon Credits (Carbon Farming Initiative) Act 2011) is that the new position only allows for an emissions reduction project to be registered for one crediting period.³²⁷ The old position allowed for

recommend to the Governor-General that regulations should be made for the purposes of paragraph (1)(a) specifying a particular kind of project, the Minister must have regard to:

- (a) whether carrying out such a project is not common practice in:
 - (i) the relevant industry or the relevant part of the relevant industry; or
 - (ii) the kind of environment in which such a project is to be carried out; and
- (b) whether, apart from Part 2, carrying out such a project would not be common practice in:
 - (i) the relevant industry or the relevant part of the relevant industry; or
 - (ii) the kind of environment in which such a project is to be carried out; and
- (c) any advice given by the Domestic Offsets Integrity Committee under subsection (2); and
- (d) such other matters (if any) as the Minister considers relevant.”

³²⁶ “The additionality requirements mentioned in paragraph (4)(d) are:

- (a) either:
 - (i) the requirement (the newness requirement) that the project has not begun to be implemented; or
 - (ii) if the methodology determination that covers the project specifies, for the purposes of this subparagraph, one or more requirements that are expressed to be in lieu of the newness requirement—those requirements; and
- (b) either:
 - (i) the requirement (the regulatory additionality requirement) that the project is not required to be carried out by or under a law of the Commonwealth, a State or a Territory; or
 - (ii) if the methodology determination that covers the project specifies, for the purposes of this subparagraph, one or more requirements that are expressed to be in lieu of the regulatory additionality requirement—those requirements; and
- (c) either:
 - (i) the requirement (the government program requirement) that the project would be unlikely to be carried out under another Commonwealth, State or Territory government program or scheme in the absence of a declaration of the project as an eligible offsets project; or
 - (ii) if the methodology determination that covers the project specifies, for the purposes of this subparagraph, one or more requirements that are expressed to be in lieu of the government program requirement—those requirements.”

³²⁷ Amendment 38, s 5 of the Carbon Farming Initiative Amendment Bill 2014 “crediting period” is defined as: “crediting period, in relation to an eligible offsets project, means:

emissions reduction projects to be registered for a subsequent crediting periods, provided that the emissions reduction project continue to meet the additionality test and other criteria.³²⁸ Removing the possibility of registering projects for subsequent crediting periods, ensures that the ERF continues to target new projects that build on previous gains.

As will be discussed below, the project proponents will enter into a contract with the Government for a certain crediting period. The Government initially proposed a crediting period/contracting period with a maximum duration of five years.³²⁹ This period was reconsidered in the Emissions Reduction Fund White Paper and consequently extended. The Carbon Farming Initiative Amendment Bill 2014 will provide a standard seven-year crediting period for emissions reduction projects and a 25-year crediting period for carbon sequestration projects.³³⁰ The Bill also enables crediting periods of different lengths to be provided through methodologies.³³¹

When estimating the emissions reductions of a project, it is important to take into consideration emissions that may be caused by the emissions reduction project itself. This is often referred to as “leakage” and must be avoided by deducting emissions caused by the project from the emissions reductions achieved by the project. The Carbon Farming Initiative Amendment Bill 2014 makes provisions for leakage by requiring that methodologies must provide for “deductions” to be made for material increases in emissions that are a direct result of the project.³³²

(a) the crediting period for the project worked out under section 69 or 71; or

(b) a crediting period for the project worked out under section 70”.

Furthermore, the Glossary of the Carbon Farming Initiative Amendment Bill 2014 Explanatory Memorandum defines a “crediting period” as: “The period of time over which activities are eligible to create Australian Carbon Credit Units, noting that emissions reduction may be reported and credits issued after the crediting period.”

³²⁸ Carbon Farming Initiative Amendment Bill 2014 Explanatory Memorandum, 21-22.

³²⁹ Emissions Reduction Fund Green Paper. 31.

³³⁰ Longer crediting periods have been provided for carbon sequestration projects because carbon sequestration projects must retain carbon stores for a minimum permanence period of 25-years and carbon stores in trees and soils take a long time to grow and establish.

³³¹ Item 68 and 69 of the Carbon Farming Initiative Amendment Bill 2014.

³³² Amendment 228, s 133(1)(e) of the Carbon Farming Initiative Amendment Bill 2014.

4 5 3 STEP 3: SUBMIT THE PROPOSED EMISSIONS REDUCTION PROJECT FOR AUCTION BID

After the project proponents have estimated the emission reductions that their project would deliver, they will register their project/projects with the Clean Energy Regulator.³³³ This registration is a prerequisite for a project proponent to partake in the ERF. Thus, if the project is not registered with the Clean Energy Regulator, the Project Proponent will not be able to partake in the auctions and potentially benefit from ERF. In order to register the project with the Clean Energy Regulator, the project proponent must pass the “fit and proper person” test. This test was introduced by the Carbon Farming Initiative Amendment Bill 2014 and replaces the old concept of a “recognised offsets entity” that was a prerequisite for registration in the repealed bill. The “fit and proper person test” is set out in sections 59³³⁴ and 60 of the Carbon Farming Initiative Amendment Bill 2014 and provides that:

- “A person passes the fit and proper person test if:
- (a) the person is a fit and proper person; and
 - (b) the person is not an insolvent under administration; and
 - (c) the person is not an externally administered body corporate.”³³⁵

An important change that the Carbon Farming Initiative Amendment Bill 2014 introduces is the requirement that project declarations must distinguish³³⁶ between Kyoto project and non-Kyoto projects.³³⁷ Instead, the Clean Energy Regulator will issue a declaration that a project is an eligible offsets project.³³⁸ This will ensure that almost all of Australia’s carbon abatement projects are counted towards meeting Australia’s 5 per cent Kyoto reduction target by 2020. Consistent with these changes,

³³³ Project Proponents will also at this point of time be able to submit an application to participate in a forthcoming auction.

³³⁴ S 59 of the Carbon Farming Initiative Amendment Bill 2014 sets out the “Simplified outline” of the “fit and proper person test”.

³³⁵ For more specific definitions with regards to the fit and proper person test applicable to “individuals” and “body corporates”, see s 60 of the Carbon Farming Initiative Amendment Bill 2014.

³³⁶ For the distinction between Kyoto and non-Kyoto projects, see s 55 of the Carbon Credits (Carbon Farming Initiative) Act 2011.

³³⁷ Amendment 42, s 5 of the Carbon Farming Initiative Amendment Bill 2014.

³³⁸ Amendment 99, s 27(2) of the Carbon Farming Initiative Amendment Bill 2014.

new ERF methodologies cannot be made unless they cover emissions reductions that count towards Australia's climate change targets.³³⁹

To ensure transparency and garner the trust of the community, the Clean Energy Regulator will publish details about registered projects on the Emissions Reduction Fund Register. These details will include information on all eligible projects, including the details of the project proponent, a project description, the applicable methodology, the location of the project, and the Australian Carbon Credit Units (ACCU's) to be issued for each project.³⁴⁰ Where a project has been awarded a contract to sell credits to the ERF, additional information will also be included on the Register.³⁴¹

4 5 4 STEP 4: PROJECT PROPONENT ENTERS INTO A CONTRACT WITH THE GOVERNMENT

After the projects have been registered, the Clean Energy Regulator will conduct auctions to purchase emissions reductions at the lowest available cost. The Clean Energy Regulator will set a benchmark price for each auction. The benchmark price will create competitive pressure between project proponents as any project quoting a price above the benchmark price will not be considered at the auction.³⁴² If a project proponent is successful with the auction process, the Government will enter into contracts with successful bidders. These contracts will guarantee payment from the Government for the future delivery of emissions reductions by the project

³³⁹ Currently, the only activities that are not counted towards Australia's climate change target are management of wetland areas such as sea grass meadows, marshes and swamps, and feral animal management - Carbon Farming Initiative Amendment Bill 2014 Explanatory Memorandum 23.

³⁴⁰ The details with regards to the different information that needs to be published by the Clean Energy Regulator are scattered throughout the Carbon Credits (Carbon Farming Initiative) Act 2011 and will not be discussed further.

³⁴¹ S 163 of the Carbon Farming Initiative Amendment Bill 2014 provides that:
"After the Regulator conducts a carbon abatement purchasing process, the Regulator may publish on the Regulator's website any or all of the following information:
(a) when the process was conducted;
(b) the weighted average price for eligible carbon credit units that the Commonwealth is purchasing as a result of the process;
(c) such other summary information (if any) relating to the process as the Regulator considers appropriate;
(d) such other statistics (if any) relating to the process as the Regulator considers appropriate."

³⁴² Emissions Reduction Fund White Paper 2014, 11.

proponents.³⁴³ This means that the Government will only pay for the emissions reductions after they have occurred, been issued with credits for the reductions that took place, and those credits have been transferred to the relevant registry account.³⁴⁴

The contracts will be standardised, as this ensures that projects compete for the funding on equal terms and reduces transparency issues with regards to relationship between the projects proponents and the Government.³⁴⁵ The contracts will set out the payment price of the emissions reductions, as specified at the auction, the quantity of the emissions reductions to be achieved, the crediting period for the emissions reductions to take place and the delivery date of the emissions reductions.³⁴⁶ Managing the emissions reductions project, reporting and verifying the emissions reductions and delivery of the specified amount of the emissions reductions will be the responsibility of the project proponent, as the project proponent will be best suited to manage the project risks.³⁴⁷

4 5 4 1 “MAKE-GOOD” PROVISIONS

The crediting period will provide the Government with recourse action to ensure that the ERF acquires the emissions reductions as specified in the relevant contracts. The contracts will include “make-good” provisions to ensure that the projects proponents deliver the specified emissions reductions in the specified crediting period.³⁴⁸ “Make-good” provisions are common contractual tools requiring project proponents to fulfil their contractual obligations (deliver a specified amount of emissions reductions)

³⁴³ If the project proponent still needs financing to implement the specific emissions reduction projects, these contracts can be used to finalise finance agreements, as it assures the financier of future revenue that will be accumulated by the project.

³⁴⁴ This principle may be open for criticism as upfront payment for the future delivery of emissions reductions may be more effective, as it will stimulate participation from prospective project proponents. Upfront payment may however pose difficulty, as the future delivery of emission reductions is not certain. For upfront payment to take place, the delivery of future emission reductions would have to be highly certain.

³⁴⁵ There are however a range of uncertainties that could affect the delivery of emissions reductions such as natural events like floods and fires. Many of these uncertainties are beyond the control of the project proponent and as such, contracts will make provisions in the event that these circumstances take place.

³⁴⁶ Emissions Reduction Fund White Paper, 11.

³⁴⁷ Emissions Reduction Fund White Paper, 48.

³⁴⁸ *Ibid.*

through alternative means when they are unable to satisfy the original terms of the contract.

A project proponent that does not deliver the contracted emission reductions can obtain emissions reductions from another project.³⁴⁹ For example, a project proponent that generates more emissions reductions than the Government has contracted to purchase could sell their excess emissions reductions credits to participants that need to make up a shortfall under the “make-good” provisions of an emissions reduction contract.³⁵⁰ It is submitted that this “make-good” concept assists in underpinning the integrity of the ERF, as it provides certainty to businesses and the community that action will be taken to ensure that emissions reductions are achieved.

4 5 5 STEP 5: REPORT ON PROJECT(S) AND RECEIVE PAYMENT FOR CREDITS

When the emissions reduction project is underway, project proponents will need to report on the emissions reductions achieved by the project to the Clean Energy Regulator. Once the project proponent has reported the achieved emission reductions to the Clean Energy Regulator, the emissions reductions must be independently verified to ensure that the emissions reductions reported was genuine and additional.

One of the hazardous issues associated with reporting emissions reductions is the possibility of “double counting”. This is the principle where emissions reductions are credited more than once and consequently receive payment for the same emissions reductions on more than one occasion. This may happen where a project proponent reports the same emissions reductions more than once using different reporting methods. The new Bill makes provisions for emissions reductions not to be credited more than once by means of “no double counting test”.³⁵¹ Specifically, the Bill enables

³⁴⁹ Carbon Farming Initiative Amendment Bill 2014 Explanatory Memorandum, 55.

³⁵⁰ In a “make-good” provision situation, the Government will pay the contract price originally established at auction for emissions reductions delivered in the case that the “make-good” provisions becomes applicable.

³⁵¹ Amendment 85A, s 15A of the provides that:

“For the purposes of this Act, an application under section 12 passes the no double counting test if, assuming that a certificate of entitlement were to be issued in respect of the relevant eligible offsets project as a result of the application, none of the carbon abatement that would be reflected in the unit entitlement for the certificate has been reflected in:

the Clean Energy Regulator to not issue credits for emissions reductions that have been reported previously or in relation to another registered project. In the event that an incident of double counting was uncovered, the Regulator would issue a certificate of entitlement that reflects the net emissions reductions reported for the project minus any emissions reductions that have already been credited. This has the effect that emissions reductions which were double counted, are cancelled.

The Clean Energy Regulator is responsible for administering the ERF and applying its rules. As a result, it is the task of the Clean Energy Regulator to assure that all requirements are met before payment for the emissions reductions take place. The Clean Energy Regulator is also the party responsible for all payments to and from the ERF.³⁵² The price payable by the Clean Energy Regulator to the project proponent will be the benchmark price set at the auction stage by the Clean Energy Regulator. The benchmark price is the maximum price that the Clean Energy Regulator is willing to pay for emissions reductions. Payment for emissions reductions at the set benchmark price, will only take place once the emissions reductions have been generated, credited and transferred to the relevant Emission Reduction Fund Registry account.

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- (a) the unit entitlement for another certificate of entitlement issued in respect of the project; or
 - (b) the unit entitlement for a certificate of entitlement issued in respect of another eligible offsets project.”

³⁵² Item 20D of the Carbon Farming Initiative Amendment Bill 2014 provides that:

“The Regulator, on behalf of the Commonwealth, has all the rights, responsibilities, duties and powers of the Commonwealth in relation to the Commonwealth’s capacity as a party to a carbon abatement contract.

- (2) Without limiting subsection (1):
 - (a) an amount payable by the Commonwealth under a carbon abatement contract is to be paid by the Regulator on behalf of the Commonwealth; and
 - (b) an amount payable to the Commonwealth under a carbon abatement contract is to be paid to the Regulator on behalf of the Commonwealth; and
 - (c) the Regulator may institute an action or proceeding on behalf of the Commonwealth in relation to a matter that concerns a carbon abatement contract.”

4 6 THE SAFEGUARD MECHANISM

One of the potential problems that the ERF faces is the possibility that businesses partaking in the ERF will reduce emissions in one sphere of their activities, only to increase emissions elsewhere. If this is to take place, the emissions reduction goal of the ERF will be undermined. This dilemma may be solved by implementing a “safeguard mechanism”. The safeguard mechanism will be developed in conjunction with business stakeholders to provide incentives to not exceed emissions levels beyond historical emission levels.³⁵³

Many businesses will take the opportunities and advantages provided by the ERF to leverage funding to reduce emissions, whilst at the same time increasing productivity and profit margins. As lower emissions technologies and practices are taken up over time, these methods and technologies will become common practice and form a part of business-as-usual standards. This development in “greener” technologies and production processes will come as a direct result of the ERF and as such, it will ensure that businesses do not exceed historical emission levels, but rather reduce emissions even further. The safeguard mechanism will commence on 1 July 2015 and the design will be finalised through further consultation with stakeholders. The detailed design of the ERF’s safeguard mechanism will be implemented through a separate legislative package.³⁵⁴

4 7 THE EUROPEAN UNION EMISSION TRADING SYSTEM AND THE AUSTRALIAN FLEXIBLE PRICING SCHEME

The Australian Carbon Tax system was designed to undergo a transition from a fixed price mechanism to a flexible price emissions trading scheme, as was mentioned above.³⁵⁵ It has also been established that the Australian carbon tax system and all relating legislation has been repealed and as such, it is no longer possible for the system to be transformed into a flexible pricing emissions trading scheme. For purposes of this dissertation, however, the provisions made for the transition to a flexible pricing mechanism remains valuable. The reason for this is because the

³⁵³ Emissions Reduction Fund Green Paper, 35.

³⁵⁴ Carbon Farming Initiative Amendment Bill 2014 Explanatory Memorandum, 7.

³⁵⁵ See par 4 3 1.

flexible pricing mechanism was designed to work in conjunction with the European Union Emission Trading Scheme (hereafter referred to as the EU ETS) as will be explained below.

The Australian flexible price emission trading mechanism was designed to commence from 1 July 2014. This system, unlike the fixed price mechanism, would not put a fixed price on emissions. Prices in the flexible emissions trading scheme would vary according to a supply and demand of carbon units influenced through the set pollution cap, domestic offset projects, international carbon market trends and demand for those units by liable entities and entities participating in the scheme on a voluntary basis. The cap on emissions under the flexible price emissions trading scheme sets the maximum level of GHG pollution that Australia's largest polluters can collectively release in any given year by setting the limit on the total number of Australian carbon units that are available. This means that the pollution cap does not refer to a limit on the amount of emissions that an entity may produce, but rather to the number of Australian carbon units that will be available in each year of the carbon pricing mechanism. Liable entities can only exceed this cap by surrendering units from offset projects or international carbon markets.³⁵⁶

This is where the EU ETS comes into play as it was proposed that Australian entities with a liability to surrender emission units would be able to use emission units from international markets, including the EU ETS,³⁵⁷ to acquit up to 50 per cent of their annual liabilities.³⁵⁸ Now that it is clear how and why the Australian flexible price emissions trading scheme was designed to be linked with the EU ETS, the practical application and functioning of the EU ETS will be discussed.

³⁵⁶ Anonymous, Australian Government, "Starting Emissions Trading on 1 July 2014 – Policy Summary" (July 2013) p 3, available at www.cleanenergyfuture.gov 4.

³⁵⁷ Liable entities will also be able to surrender emission units generated under Kyoto Protocol mechanisms including the Clean Development Mechanism and the Joint Implementation mechanism.

³⁵⁸ It is important to note that the linking of the Australian flexible emissions trading scheme with the EU ETS was only scheduled to start by 1 July 2015. This would be a one way link under which Australian entities would be able to surrender European Union carbon units for compliance with their Australian carbon price/pollution cap liabilities. This will be followed with a full two-way link by 1 July 2018 where European entities would also be able to meet their European carbon prices/ pollution caps by surrendering Australian carbon units.

4 8 THE EUROPEAN UNION EMISSIONS TRADING SCHEME (EU ETS)

The EU ETS was the first, and is still by far the biggest international system for trading GHG emission allowances. Launched in 2005, the EU ETS is now in its third phase, running from 2013 to 2020. The EU ETS has put a price on carbon and showed that it is possible to trade in GHG emissions. The system covers emissions from power plants, a wide range of energy-intensive industry sectors³⁵⁹ and commercial airlines.³⁶⁰ Participation in the EU ETS is mandatory for companies operating in these sectors, but in some sectors only plants above a certain size are included.

4 8 1 “CAP AND TRADE” SYSTEM

Just like the proposed Australian emissions trading system, the EU ETS is also based upon a “cap” and “trade” system. A “cap”, or limit, is set on the total amount of certain GHG’s that can be emitted by the factories, power plants and other entities partaking in the EU ETS system. There have been significant structural changes that have taken place within the EU ETS since the beginning of the third phase (2013-2020). One of the major changes includes the introduction of a single, EU-wide cap on emissions to replace the previous system of national caps.³⁶¹ To ensure that emissions reductions keep on taking place, the cap becomes more stringent over time, which ensures that the system keeps on performing to reach optimum emissions reductions. Furthermore, the same carbon unit “cap” that was proposed for the Australian system also applies in the EU ETS, namely a limit on the amount of *carbon units* that will be issued and available in the EU ETS. The limit on the total

³⁵⁹ These sectors include: power and heat generation, Energy-intensive industry sectors including oil refineries, steel works and production of iron, aluminium, metals, cement, lime, glass, ceramics, pulp, paper, cardboard, acids and bulk organic chemicals.

³⁶⁰ The EU ETS covers CO₂ emissions from flights within and between countries participating in the EU ETS. International flights to and from non-European Trading Scheme countries are also covered.

³⁶¹ Some of the other structural reform changes involved include: 1.) Auctioning, not free allocation, is now the default method for allocating allowances. For those allowances still given away for free, harmonised allocation rules apply which are based on ambitious EU-wide benchmarks of emissions performance; 2.) Some more sectors and gases are included; 3.) 300 million allowances set aside in the New Entrants Reserve to fund the deployment of innovative renewable energy technologies as well as carbon capture and storage.

number of allowances available ensures that they retain their value and that constant demand for the units exists.

The 2013 cap for emissions from power stations and other fixed installations in the 28 EU Member States³⁶² and the three European Economic Area- European Free Trade Association (EEA-EFTA) states³⁶³ was set at 2,084,301,856 allowances. During phase 3 of the EU ETS (2013-2020), this cap decreases each year by 1.74% of the average total quantity of allowances issued annually from 2008-2012.³⁶⁴ This means the number of general allowances will be reduced annually by 38,264,246.³⁶⁵ The EU ETS covers more than half of the total emissions produced in the European Union and covers approximately three quarters of the total international carbon market, with interest growing from the international community.³⁶⁶

The decreasing cap has the effect that in 2020 emissions from fixed installations will be 21% lower than in 2005. Within the cap, companies receive or buy emission allowances (carbon units) which they can trade with one another as needed.³⁶⁷ This will depend on whether they have a shortage or surplus of carbon units that they need in order to cover their relevant carbon reduction obligations.

³⁶² The 28 EU Member states include Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and lastly the United Kingdom.

³⁶³ The three EEA EFTA States include Iceland, Liechtenstein, and Norway.

³⁶⁴ European Commission “Cap for fixed installations decreases each year”, http://ec.europa.eu/clima/policies/ets/index_en.htm, (accessed on 24-09-2014).

³⁶⁵ Thanks to the decreasing cap, it is estimated that in 2020 emissions from fixed installations will be 21% lower than in 2005. The annual reduction in the cap will continue beyond 2020. To achieve the target of a 40% reduction in EU greenhouse gas emissions below 1990 levels by 2030 (as set out in the 2030 Framework For Climate and Energy Policy), the cap will need to be lowered by 2.2% per year from 2021, compared with 1.74% currently. It is estimated that this alteration would reduce emissions from fixed installations to around 43% below 2005 levels by 2030.

³⁶⁶ Video: “The EU Emissions Trading System Explained” uploaded on 19 March 2014, available at <https://www.youtube.com/watch?v=fJrFSLfaeeE> (accessed on 25-09-2014).

³⁶⁷ European Commission “The EU Emissions Trading Scheme”, http://ec.europa.eu/clima/policies/ets/index_en.htm, (accessed on 24-09-2014).

4 8 2 MONITORING, REPORTING AND VERIFICATION OF EMISSIONS IN THE EU ETS

In order to achieve the targets that have been set by the EU ETS as mentioned above, the EU ETS has to have a reliable system for reporting and verifying emissions reductions. Both, market participants and monitoring and reporting compliance authorities want to have assurance that each ton of CO_{2e} gasses emitted, finds its equivalent of one ton CO_{2e} gas reported. Industrial installations and aircraft operators covered by the EU ETS are required to have an approved monitoring plan, according to which they monitor and report their emissions during each year. The data has to be reported annually in an emissions report and must be verified by an accredited verifier by 31 March of the following year.³⁶⁸ Once verified, entities covered by the EU ETS must surrender the equivalent number of allowances by 30 April of that year.³⁶⁹

This annual procedure of monitoring, reporting and verification as well as all processes connected to these activities, is known as the “compliance cycle” of the EU ETS. To promote administrative efficiency and a harmonised approach in the Member States, the EU ETS has published electronic templates for monitoring plans, annual emission reports which assures robust, transparent, consistent and accurate monitoring and reporting of GHG emissions.

³⁶⁸ See Art 14 of Directive 2003/87/EC Of The European Parliament And Of The Council of 13 October 2003 where paragraph 3 provides that:

“Member States shall ensure that each operator of an installation or an aircraft operator monitors and reports the emissions from that installation during each calendar year, or, from 1 January 2010, the aircraft which it operates, to the competent authority after the end of that year in accordance with the regulation referred to in paragraph 1.”

³⁶⁹ See Art 12 of Directive 2003/87/EC Of The European Parliament And Of The Council of 13 October 2003 where par 2a provides that:

“Administering Member States shall ensure that, by 30 April each year, each aircraft operator surrenders a number of allowances equal to the total emissions during the preceding calendar year from aviation activities listed in Annex I for which it is the aircraft operator, as verified in accordance with Article 15. Member States shall ensure that allowances surrendered in accordance with this paragraph are subsequently cancelled.” and par 3 provides that:

“Member States shall ensure that, by 30 April each year, the operator of each installation surrenders a number of allowances, other than allowances issued under Chapter II, equal to the total emissions from that installation during the preceding calendar year as verified in accordance with Article 15, and that these are subsequently cancelled.”

The entire EU ETS carbon trading cycle is a very extensive process to discuss and as such, the most important processes involved in this cycle have been discussed above. However, Figure 6 below provides a brief overview of this cycle.³⁷⁰

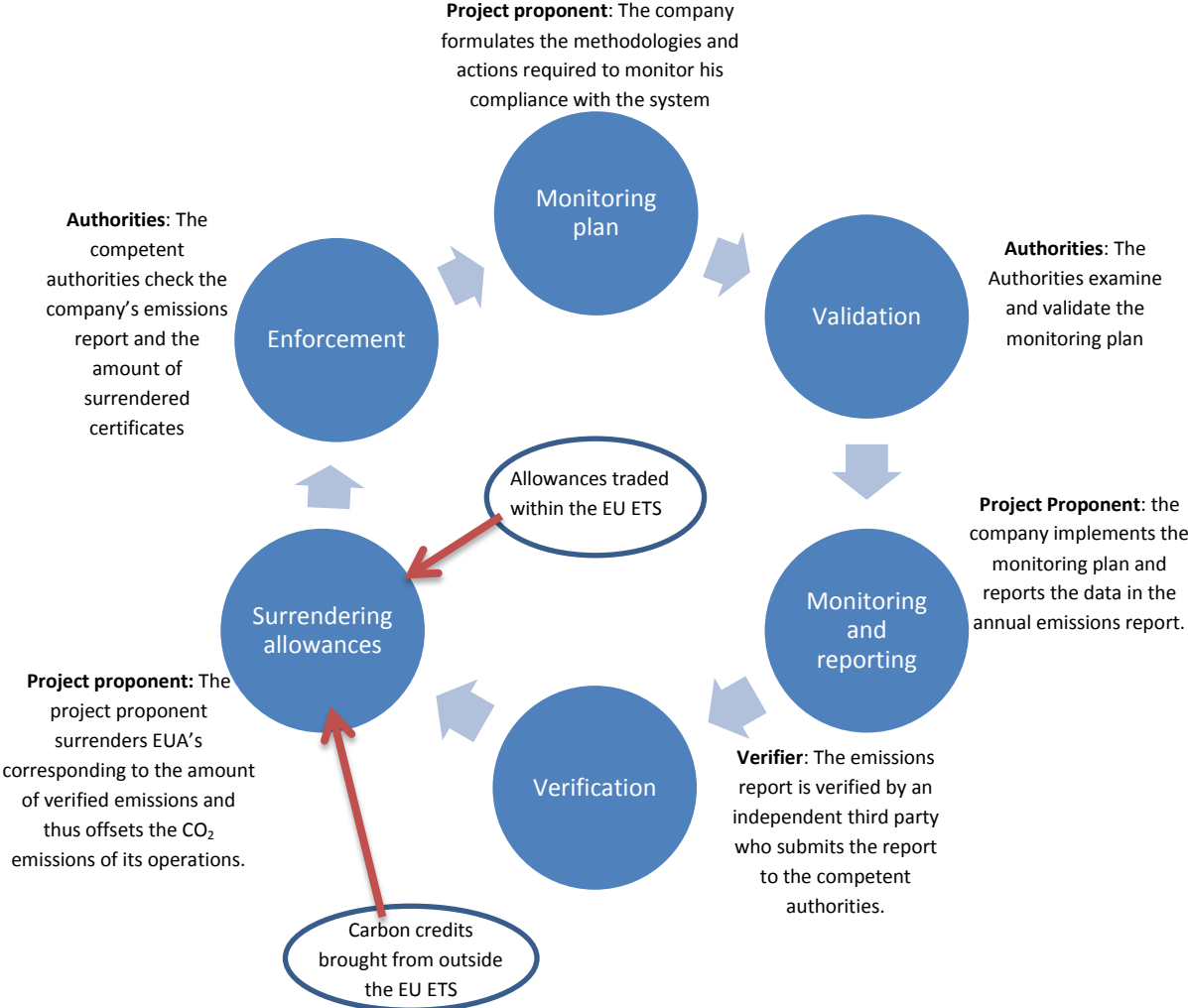


Figure 6: EU ETS carbon trading cycle

4 8 3 NON-COMPLIANCE PENALTIES

After each year a company must surrender enough “allowances”³⁷¹ to cover all its emissions, otherwise heavy fines, known as “civil penalties” are imposed.³⁷² These

³⁷⁰ Presentation: Gemmill, Turano, European Commission: “Overview of planned Commission Projects for 2014” 4th EU ETS Compliance Conference, 3 & 4 June 2013, slide no 3.

³⁷¹ The EU ETS refers to a “carbon credit” as an “allowance”. These two concepts do however represent the exact same principle.

³⁷² Power stations and other fixed installations have a separate emissions cap from the aviation industry. Allowances issued for fixed installations are general allowances, while the aviation

finances are outlined in the Greenhouse Gas Emissions Trading Scheme Regulations 2012.³⁷³ If a company reduces its emissions, it can keep the spare allowances to cover its future needs or else sell them to another company that has shortage of allowances. Like all other carbon units, one allowance represents the right to emit one ton of CO_{2e} gasses into the earth's atmosphere. Should the company not surrender enough allowances in order to cover their emissions they are liable to pay a civil penalty as was mentioned above.³⁷⁴ The penalty is set by the EU Emissions Trading Scheme Directive, which has been implemented across every Member State in the European Union. The civil penalty for failure to surrender allowances is €100 for every tonne of carbon dioxide, i.e. the amount, in tonnes of CO_{2e}, by which your annual reportable emissions exceeded the number of allowances you surrendered, multiplied by €100.³⁷⁵

In order to ensure that participants in the EU ETS have easy access to allowances in order to avoid paying the above mentioned penalties, a platform was required in order to trade with allowances. Consequently the EU ETS makes use of an auction process in order to allocate and trade allowances. The European Commission implemented the EU ETS Auctioning Regulations that govern the auctioning of allowances. This covers the timing, administration and other aspects of auctioning to ensure it is conducted in an open, transparent, harmonised and non-discriminatory manner. It provided for the establishment of a common EU auction platform and granted member states the right to opt out and set up national platforms.³⁷⁶ Certain

sector has aviation allowances. Airlines can use both types of allowances for compliance purposes, but fixed installations cannot use aviation allowances.

³⁷³ Available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/42946/5219-si-greenhouse-gas-emissions-trading-regs.pdf (accessed on 10-01-2013).

³⁷⁴ Par 58(1) of the Greenhouse Gas Emissions Trading Scheme Regulations 2012 provide that:
“(1) Subject to paragraphs (3) and (5), a person (“P”) is liable to the civil penalty in paragraph (2) where P fails to surrender—
(a) sufficient allowances, contrary to regulation 43; or
(b) sufficient allowances or aviation allowances, contrary to regulation 44.”

³⁷⁵ Par 58(2) of the Greenhouse Gas Emissions Trading Scheme Regulations 2012 provide that:
“(2) The civil penalty (“excess emissions penalty”) is the sterling equivalent of 100 Euros for each allowance that P failed to surrender.”;

Also see Art 16 of Directive 2003/87/EC of the European Parliament And Of The Council of 13 October 2003.

³⁷⁶ Because the EU ETS allows member states to set up national auction platforms, there are a range of different Auctioning Regulations available, depending in the relevant member state in which the auction is to be held. All Auctioning regulations are available on the European Union's

countries such as the UK, Germany and Poland exercised this right and operate their own auction platforms.³⁷⁷ The rest of the countries partake in the two main existing auctioning platforms namely the European Energy Exchange (EEX) situated in Leipzig and the ICE Futures Europe (ICE) situated in London, with the EEX being the most common platform for the large majority of countries participating in the EU ETS.³⁷⁸

4 8 4 BACK-LOADING

The auction platforms mentioned above has however seen significant decreases in the trading of allowances. This is a major problem that the EU ETS is facing and entities participating in the EU ETS are becoming increasingly weary of trading allowances on the EU ETS due to the drop in carbon prices. The problem is due to the surplus of allowances available in the EU ETS, which the EU ETS mainly attributes to the economic crisis in Europe and the high imports of international carbon units.³⁷⁹ At the start of phase 3 (2013) the surplus stood at almost two billion allowances, double its level in early 2012, and by the end of 2013 it had grown further to over 2.1 billion.

The EU ETS has come up with certain policy amendments to solve the above mentioned problem. This includes “back-loading” allowances to allow demand for the allowances to increase over time.³⁸⁰ The “back-loading” process involves postponing the auctioning of 900 million allowances until 2019-2020.³⁸¹ This will be done by reducing the volume of allowances to be auctioned off by 400 million in 2014, with a

website: http://ec.europa.eu/clima/policies/ets/cap/auctioning/documentation_en.htm (accessed on 25-09-2014).

³⁷⁷ Department of Climate Change and Energy, “The EU Emissions Trading System Union Registry: how it works, how Kyoto units are used for compliance within the EU ETS and how to participate in carbon allowance auctions”, (22 January 2013) <https://www.gov.uk/eu-ets-carbon-markets#phase-iii-auctioning> (accessed on 25-09-2014).

³⁷⁸ European Commission, Auctioning, http://ec.europa.eu/clima/policies/ets/cap/auctioning/index_en.htm, (accessed on 25-09-2014).

³⁷⁹ European Commission, Structural reform of the European carbon market, http://ec.europa.eu/clima/policies/ets/reform/index_en.htm (accessed on 28-09-2014).

³⁸⁰ European Commission, Structural reform of the European carbon market – “Back-loading” of auctions in phase 3, http://ec.europa.eu/clima/policies/ets/reform/index_en.htm , (accessed on 28-09-2014).

³⁸¹ See Art 1(1) of the Commission Regulation (EU) No 176/2014 of 25 February 2014.

subsequent reduction of 300 million in 2015 and a reduction of 200 million in 2016. This will create the demand that is needed to increase activity and carbon prices in the carbon market. There will then be a period of two years (2017 and 2018) where auctioning will resume normal auctioning volumes. To satisfy the demand created by the back-loading from 2014-2015, the 900 million back-loaded allowances will be auctioned off in 2019 and 2020. 300 million allowances will be auctioned off in 2019 with the remaining 600 million allowances being auctioned off in 2020.³⁸² It is important to take note that this process does not decrease the amount of allowances to be auctioned off, but rather lessens the distribution of auctions over a period of time.

4 9 ANALYSIS: LESSONS LEARNT FROM THE AUSTRALIA AND THE EU ETS

From the discussion above, it is clear that both the Australian carbon trading system and the EU ETS have their advantages and their disadvantages. In the discussion below, “the good, the bad and the ugly” related to both the Australian system and the EU ETS will be discussed.

4 9 1 AUSTRALIAN SYSTEM

The fact that the carbon tax system was revoked in Australia does raise certain concerns regarding the effectivity and practicality of a carbon tax system. This is especially concerning for South Africa, as the government has proposed that the South African carbon tax system will be implemented as from January 2016. But it also provides the ideal platform to examine the faults of the old Australian carbon tax system as well as the concerns related to the new Direct Action Plan.

Direct Action Plan supporters are of the opinion that carbon tax penalises companies for their emissions rather than providing incentives to reduce emissions. It is submitted that although this argument has some merit, the fact that companies are penalised for emissions is indeed the correct way of ensuring emission reductions. The reason for this humble opinion is because carbon tax addresses a negative

³⁸² See ANNEX IV of the Commission Regulation (EU) No 176/2014 of 25 February 2014.

externality as was discussed above. Consequently, it is a tax that is levied on something “bad” rather than something “good”, such as income. Companies have to be held accountable for their emissions. And a carbon tax is the simplest and most effective way of ensuring this accountability.

The carbon tax also has the following advantages:

- The carbon tax system can be implemented quickly. This is a crucial aspect for South Africa, as we do not have the time to develop an emissions trading scheme.
- Carbon taxes are predictable in their costs. The “fixed-price” that Australia imposed on carbon provides stable price signals. This can help business and consumers plan energy spending and provide greater certainty for investments in energy efficiency that has large initial costs. They are economically efficient in that they are transparent, simple and can have a wide coverage of industries and companies.
- It is a permanent incentive to reduce emissions. The price of pollutants does not change, as with the operation of a market-based emission trading like that of the Direct Action Plan.
- Carbon taxes are not susceptible to “strategic behaviour” by firms and non-government organisations that distort any market for trading emissions.³⁸³
- Carbon taxes can be implemented across a wide variety of economies and therefore are a suitable instrument for coordinated international action on reducing greenhouse gas emissions.
- Carbon tax is a revenue source. They could result in other taxes being reduced, or the proceeds of the carbon tax could be redirected to those most affected to ensure that the introduction of a carbon tax remains fair and transparent.³⁸⁴

³⁸³ “Strategic behaviour” includes activities such as purchasing a large number of permits and reselling them later at a profit or viewing carbon credits in a cap-and-trade system as a right to pollute, rather than the incentive to reduce emissions.

³⁸⁴ In this regard, see Chap 5, par 5 10.

However, carbon taxes as a means of controlling GHG emissions also have some disadvantages and consequently lead to the system being repealed in Australia. Some of these disadvantages and concerns include:

- There are no guarantees that emissions will decline if consumption of the goods and services that produce carbon emissions remains unresponsive to price increases.
- The price at which the tax is set to produce the best outcomes cannot be known in advance. Thus the tax may have to go through several changes before having the desired effect. This makes it politically vulnerable as a tax levy that is set too high may lead to significant price increases of goods and services.
- Most importantly, carbon tax, remains a tax, and therefore will always be politically unpopular by its very nature.

In order to counter the disadvantages and concerns listed above and the possibility of an expensive carbon tax it is important that there is a *slow* increase in the carbon tax.³⁸⁵ This allows the economy to make improvements and adjust to the tax at the lowest cost at first and then slowly move to more substantial changes in the price of carbon the carbon tax levy.³⁸⁶

Another important lesson to be learnt from the Australian system is the idea of carbon tax revenue distribution. This was introduced by the proposed Direct Action Plan. In order to compensate for increases in the prices of goods and services affected by the carbon tax, revenue accumulated from the carbon tax would need to be redistributed to companies and households to mitigate the negative effects associated with carbon tax.³⁸⁷

³⁸⁵ One potential problem with adjusting the tax is that the government could become reliant on the revenues of the tax and may be hesitant to reduce it when needed.

³⁸⁶ Shrum KEC Research Fellow, "Greenhouse Gas Emissions: Policy and Economics" 3 August, 2007 18-19. available at http://www.vlib.us/kansasenergy/GHG_Review_FINAL.pdf (accessed on 16-10-2014).

³⁸⁷ Shrum "Greenhouse Gas Emissions: Policy and Economics" 19. available at http://www.vlib.us/kansasenergy/GHG_Review_FINAL.pdf (accessed on 16-10-2014).

The benefits associated with a carbon tax scheme as was implemented in Australia, would outweigh the concerns associated with such a system if it were to be implemented in South Africa. It is submitted then that, although Australia revoked their carbon tax system, it lead to the platform from which to establish what international best practice in a carbon tax scheme *should* look like.

4 9 2 EUROPEAN UNION EMISSIONS TRADING SCHEME (EU ETS)

The biggest problem associated with the EU ETS is the surplus of carbon credit units in the EU ETS system. This causes tremendous decreases in the value of carbon credit units as there is no demand to compensate for the over-supply of carbon units. To rectify this problem, the EU ETS has implemented a “back-loading” plan in order to generate demand for the credits.³⁸⁸ It is submitted however that to prevent a surplus of carbon units all together, a stringent set of rules and regulations is needed to ensure that only certain projects be allowed to generate carbon credits. In South Africa’s case, this would require that only South African generated carbon credits be traded in the South African carbon market. No other carbon units generated from sources outside of South Africa should be allowed into the system.³⁸⁹

The over-allocation of emissions allowances in Phase 1 of the EU ETS provides a crucial lesson from the learning process that the EU ETS is undergoing. Phase 1 was primarily designed to provide learning-by-doing, rather than to stimulate significant emission reductions.³⁹⁰ As a result, allowances were allocated too generously. It is as a result of the EU ETS carbon surplus problem that South Africa is able to make sure that over-supply of emissions do not take place once the South African carbon tax and the accompanying carbon offset scheme is implemented in 2016.

One major problem with cap-and-trade policies is that emissions are capped at a fixed level, regardless of the cost to achieve that amount of reduction. Especially

³⁸⁸ See par 4 9 4 above for a more descriptive discussion on the concept of “back-loading”.

³⁸⁹ See Chap 6, par 6 6 3 4.

³⁹⁰ Merrill, Brown, Hanafi, Petsonk “The EU Emissions Trading System Results and Lessons Learned.” 2012 11 – available at http://www.edf.org/sites/default/files/EU_ETS_Lessons_Learned_Report_EDF.pdf (accessed on 19-10-2014).

given the large uncertainties about the costs and benefits of emissions reductions, this policy could prove unwise. This is especially so in a developing country like South Africa. The economy and the existing socio economic circumstances would not be able to accommodate uncertainties related to high emission reduction costs. If the cap is set too low and the costs of abatement are higher than expected, then the financial hardship may have large negative effects on the economy, which could far exceed the societal benefits gained by the reductions. On the other hand, the cap could be set too high because abatement costs are lower than expected, and the economy would lose out on environmental benefits that could have occurred at low costs, thus reducing economic efficiency.³⁹¹

There are consequently lessons to be learnt from both the Australian carbon market system, as well as the EU ETS. If South Africa acts wisely, an analysis of these systems will lead to a South African carbon market operating in an efficient manner without any of the problems that have been highlighted above.

4 10 CONCLUSION

This chapter attempted to establish international best practice within carbon markets. The Australian system and the European Union Emissions Trading Scheme were used in this regard.

The chapter started off by discussing the basic principles of the Australian legal system. This included some of the differences and similarities between the South African system and the Australian system. This was followed by a detailed discussion on the Australian carbon market system. Firstly the carbon tax position before July 17th 2014 was considered which included important concepts such as the “polluter-pays” principle and the concept of negative externalities. This was followed by a discussion on the post July 17th 2014 position and the proposed Direct Action Plan. This was done by discussing the five steps associated with this system, as well as the proposed “safeguarding” mechanism to ensure that emission reductions keep on improving.

³⁹¹ Warwick, McKibbin and Wilcoxon “The Role of Economics in Climate Change Policy” 2002 *Journal of Economic Perspectives* 16 No 2 107 116.

The link that was proposed (in accordance with the pre-July 17th 2014 position) to be established between the Australian system and the EU ETS was discussed next. This was followed by a detailed analysis on the functioning of the EU ETS. This discussion included the following topics: the monitoring, reporting and verification processes of the EU ETS, non-compliance penalties and the “back-loading” of emission allowances.

After both the Australian system and the EU ETS was analysed, the advantages and concerns associated with each of these systems were considered. The lessons learnt from these systems must now be considered when constructing a South African carbon trading scheme. However, before one can construct a possible South African carbon offset scheme, one must establish what policies already exist in South Africa pertaining to carbon trading and the proposed carbon tax. This will be discussed in the next chapter.

CHAPTER FIVE

THE CURRENT POSITION IN SOUTH AFRICA

5 1 INTRODUCTION

In the previous chapters we looked at the international instruments regulating carbon markets around the world and aimed to establish the international best practice when it comes to the regulation of carbon markets. The question may now be asked what is taking place within South Africa in order to participate in this international market. South Africa has taken major steps to formulate and implement measures to adapt to and to mitigate the effects of climate change. These steps are informed by the country's commitment to reduce its emissions below a baseline level by 2025 as will be stated below.³⁹² This commitment will present challenges for the South African economy, as it depends on the use of fossil fuels and consequently policy designs will require a "greener" path.

To achieve this vision, South Africa will need clear long term strategies for both adapting to the effects of climate change through adaption policies and reducing its carbon emissions to a sustainable level through mitigation policies. This will require local, provincial and national government to embrace climate change realities and act by identifying and putting into effect appropriate policies and measures to help reduce emissions. This chapter aims to examine the different South African policies already existing, and policies that are in the pipeline for implementation to regulate a South African carbon market.

³⁹² See the Copenhagen Accord - Conference of the Parties on its fifteenth session, held in Copenhagen from 7 to 19 December 2009, "Voluntary mitigation pledges of developing country parties." Also see the official letter from the South African Department of Environmental Affairs addressed to the UNFCCC affirming South Africa's Copenhagen climate change commitments and states that: "In accordance with the provisions of Article 12, paragraph 1(b) as well as Article 12 paragraph 4 and pursuant to the provisions of Article 4 paragraph 1 of the Convention, South Africa reiterates that it will take nationally appropriate mitigation action to enable a 34% deviation below the 'Business As Usual' emissions growth trajectory by 2020 and a 42% deviation below 'Business As Usual' emissions growth trajectory by 2025" – available at: http://unfccc.int/files/meetings/cop_15/copenhagen_accord/application/pdf/southafricacphaccord_app2.pdf (accessed on 09-10-2014).

5 2 SOUTH AFRICA'S CLIMATE CHANGE COMMITMENT

South Africa's strategy to make a contribution towards GHG mitigation and adaptation was adopted by government in 2011 when Cabinet approved the National Climate Change Response White Paper of 2011. The South African government acknowledges that climate change is a reality caused largely by GHG emissions and the build-up of these GHG concentrations in the earth's atmosphere. The Department of Environmental Affairs (hereafter referred to as the DEA) has developed the country's response policy (National Climate Change Response White Paper) in this regard, which sets the vision for:³⁹³

- A fair contribution to the global effort to stabilise GHG concentrations;
- Effective management of unavoidable impacts through interventions that build and sustain South Africa's social, economic and environmental resilience and emergency response capacity;
- A long-term transition to a climate-resilient, low-carbon economy and society.

This was after the commitment made by South Africa at the 2009 Copenhagen Conference of Parties (COP 15) to undertake appropriate national actions to curb GHG emissions by 34 per cent by 2020 and 42 per cent by 2025 below business-as-usual levels.³⁹⁴ At COP 15, President Jacob Zuma reiterated the country's commitment to support efforts dealing with the challenges posed by climate change:

“As South Africa, we seek a global regime that ensures that climate change does not reach dangerous levels, while recognising that the priority for developing countries is to address poverty and socio-economic development. As a responsible global citizen, we remain fully committed to contribute our fair share to the global effort to reduce greenhouse gas emissions. However, given our developmental challenges, we will continue the use of fossil fuels in the short to medium term while transitioning to a low-carbon economy, over the long term. We are forging ahead with our programme of greening the economy to improve the economic, social and environmental resilience of the country in the face of climate change. In promoting this new green, sustainable and inclusive growth focus, we are putting together some policy proposals that will impact on the business sector. These may include putting a price on carbon and other pollution or

³⁹³ National Climate Change Response White Paper, 11.

³⁹⁴ This commitment would be subject to the availability of appropriate financial, technological and capacity-building support.

on the overexploitation of a scarce resource through mechanisms such as taxes, natural resource charges or tradable permit systems. Let me reiterate that we see in the threat of climate change an opportunity to develop our green, inclusive, sustainable and shared growth.”

Under the Copenhagen Accord,³⁹⁵ South Africa pledged to undertake Nationally Appropriate Mitigation Actions (NAMA's) to ensure that its GHG emissions deviate from the business-as-usual growth trajectory. The Long-Term Mitigation Scenarios (LTMS) report³⁹⁶ suggests that interventions to mitigate climate change should be informed by, and monitored and measured against, a “peak, plateau and decline” emissions trajectory. In such a trajectory, GHG emissions should plateau during 2025–2035 and begin declining in absolute terms in 2036 (see discussion below for further information regarding the emissions trajectory).

To be able to achieve the above mentioned targets, the South African government has proposed and implemented various policies and strategies to complement the proposed carbon tax system. Each of these complimentary climate change policies will be discussed below.³⁹⁷ The policies discussed below all aim to mitigate the effects of climate change and all support the concept of putting a price on carbon. However, it is another concept that binds these policies and forms the foundation upon which climate change policies are built. This is known as the concept of “sustainable development” which is aimed at providing a safe and healthy natural

³⁹⁵ The Copenhagen Accord Copenhagen Accord - Conference of the Parties on its fifteenth session, held in Copenhagen from 7 to 19 December 2009 is available at http://unfccc.int/documentation/documents/advanced_search/items/6911.php?prirref=600005735#beg. (accessed on 09-10-2014).

³⁹⁶ The Energy Research Centre 2007 Long Term Mitigation Scenarios: Technical Summary, Department of Environment Affairs and Tourism, Pretoria, October 2007 The purpose of the report is to outline different scenarios of mitigation action by South Africa, to inform long-term national policy and to provide a solid basis for our position in multi-lateral climate negotiations on a post-2012 climate regime. – available at http://www.erc.uct.ac.za/Research/publications/07ERC-LTMSTechnical_Summary.pdf.

³⁹⁷ It is submitted that the policies discussed in this dissertation are policies that have the most significance with regards to carbon credits and carbon markets, which forms the main substance of this dissertation. There are, however, other policies which are also aimed at reducing emissions and combatting climate change. These include (but are not limited to): The New Growth Path: The Framework (EDD, 2010); The Integrated Resource Plan (IRP) for Electricity; The White Paper on the Renewable Energy Policy of the Republic of South Africa 2003; The Energy Efficiency Strategy of the Republic of South Africa 2005; The Integrated Energy Plan (IEP) for the Republic of South Africa 2003 and The Energy Security Master Plan for Electricity 2007.

environment for the generations to come.³⁹⁸ Sustainable development forms a part of most environmental policies and can be regarded as an international standard for ensuring and implementing environmental awareness.

5 3 EXISTING SOUTH AFRICAN CLIMATE CHANGE POLICIES

5 3 1 THE NATIONAL CLIMATE CHANGE RESPONSE WHITE PAPER OF 2011

The National Climate Change Response White Paper of 2011 (hereafter referred to as the 2011 White Paper) is the main legislative instrument providing the backbone for all the other climate change policies that will be implemented in South Africa. South Africa is a developing country, therefore; an effective South African climate change response requires economic, social and environmental interventions that integrate mitigation and adaptation elements within a developmental framework. The 2011 White Paper advocates the use of carbon budgeting,³⁹⁹ carbon pricing⁴⁰⁰ and identifying key emission reduction measures for significant GHG-emitting sectors and/or subsectors.⁴⁰¹ The fact that the 2011 White Paper commits South Africa to the possibility of introducing a carbon pricing mechanism with the accompaniment of a carbon offset mechanism shows that South Africa is well on its way to contribute to an international carbon market and to reach its climate change objectives.

³⁹⁸ See Chap 2, par 2 8 1 for a more comprehensive discussion on the concept of sustainable development.

³⁹⁹ Par 6.5, 28 of the National Climate Change Response White Paper 2011 provides that: “The Carbon Budgeting process will identify an optimal combination of mitigation actions at the least cost and with the most sustainable development benefits for the relevant sector and national economy to enable and support the achievement of the desired emission reduction outcomes consistent with the benchmark National GHG Emissions Trajectory Range. Government will actively consult with industry and other key stakeholders in the development of Carbon Budgets and approaches, mechanisms and outcomes.”

⁴⁰⁰ Par 6.1.6, 25 of the National Climate Change Response White Paper 2011 provides that: “Deploying a range of economic instruments to support the system of desired emissions reduction outcomes, including the appropriate pricing of carbon and economic incentives, as well as the possible use of emissions offset or emission reduction trading mechanisms for those relevant sectors, sub-sectors, companies or entities where a carbon budget approach has been selected.”

⁴⁰¹ Par 6.1.2, 25 of the National Climate Change Response White Paper of 2011 provides that: “Defining desired emission reduction outcomes for each sector and sub-sector of the economy within two years of the publication of this policy-based on an in-depth assessment of the mitigation potential, best available mitigation options, science, evidence and a full assessment of the costs and benefits. Where appropriate, these desired emission reduction outcomes will be cascaded to individual company or entity level.”

5 3 2 THE INDUSTRIAL POLICY ACTION PLAN (IPAP)

The South African Government has approved the 2013-2015 Industrial Policy Action Plan (hereafter referred to as the IPAP) outlining government initiatives to accelerate the industrialisation of the South African economy.⁴⁰² The challenge of climate change presents opportunities to develop new industrial sectors and grow sectors with a relatively lower GHG intensity. However a future local and global GHG mitigation regime also presents potential threats to the survival and competitiveness of existing industry; these must be carefully weighed and factored in. The Key Milestones of the IPAP pertaining to emissions reductions in industries are:⁴⁰³

- In 2013/2014 the DEA will conduct a GHG mitigation analysis after which the DEA will set GHG mitigation objectives for industrial sectors.
- In 2014/2015 a Preliminary Industrial Policy Roadmap will be introduced to help the relevant industrial sectors to achieve these targets.

The IPAP identifies renewable energy industrial development as one of the green growth potentials that should be explored. One of the challenges that have always hampered localisation of renewable energy technologies has been uncertainty about the long-term dimensions of the renewables programme. However, the Department of Energy recently announced an additional 3,200 MW available for procurement by 2020.⁴⁰⁴ Another area where the IPAP recognises the development of the South African industrial sphere is the production of energy-/electricity efficient technologies.⁴⁰⁵ Currently, most new energy-efficient machinery, equipment, software and control systems are imported into South Africa and employment creation potential is, therefore, largely restricted to the operation, maintenance and installation of equipment and the retro-fitting space. If South African industries were

⁴⁰² SAnews.gov.za “SA industrial policy plan approved” (15-03-2013) <http://www.southafrica.info/business/economy/policies/ipap-150313.htm#.VET8ofnuhcQ> (accessed on 08-10-2014).

⁴⁰³ Industrial Policy Action Plan, Economic Sectors and Employment Cluster IPAP 2013/14 – 2015/16, 120.

⁴⁰⁴ *Ibid.*

⁴⁰⁵ The IPAP includes an energy-efficiency milestone which include identifying Energy-efficiency products and services (2013/2014-2014/2015) and researching, stakeholder consultation and recommendations for Designation (2013/2014-2014/2015) – see 123 of the Industrial Policy Action Plan, Economic Sectors and Employment Cluster IPAP 2013/14 – 2015/16.

to start producing energy-efficiency projects and services, it could lead to economic growth and increased sustainability of the natural environment. It also provides a platform for possible emissions reductions projects and the consequent generation of carbon credits.

5 3 3 THE NATIONAL DEVELOPMENT PLAN (NDP)

The National Development Plan: Vision for 2030 was published on 11 November 2011 and it builds on working towards South Africa's long-term emission reduction targets and the goal that South Africa's emissions will start decreasing from the year 2036.⁴⁰⁶

The NDP recognises key strategies that the government could implement to help stabilise, and then reduce, South Africa's GHG emissions. It requires a commitment to undertake mitigation actions for ensuring a robust and transparent monitoring, reporting and verification system. Strategies include the following:⁴⁰⁷

- An appropriate mix of pricing mechanisms;
- An expanded renewable energy programme;
- An effective mix of energy efficiency and demand management incentives;
- Regulations to promote green buildings and construction practices;
- Investment in an efficient public transport system.

The NDP supports the use of a carbon price, through a carbon tax, to contribute to a cost-effective, just and well-managed transition to a low-carbon economy that would begin to internalise the environmental and social costs of GHG emissions.⁴⁰⁸ It

⁴⁰⁶ The National Climate Change Response White Paper of 2011 elaborates on South Africa's long term emissions reduction targets as follows:

1. South Africa's GHG emissions will peak during the period 2020–2025, to a range with a lower limit of 398 million tons (Mt) of carbon dioxide equivalent (CO_{2e}) and upper limits of 583 Mt of CO_{2e} and 614 Mt of CO_{2e} for 2020 and 2025 respectively.
2. After the peak, the country's GHG emissions will plateau for up to ten years to a range with a lower limit of 398 Mt of CO_{2e} and an upper limit of 614 Mt of CO_{2e}.
3. From 2036 onwards, emissions will decline in absolute terms to a range with a lower limit of 212 Mt of CO_{2e} and an upper limit of 428 Mt of CO_{2e} by 2050.

⁴⁰⁷ National Development Plan of 2011 175-178.

⁴⁰⁸ National Development Plan of 2011 189-190.

recommends a broad-based carbon pricing regime covering all sectors at one consistent price.⁴⁰⁹ This will support a non-distortionary and smooth transition package comprising of tax incentives and support mechanisms that could be phased out over time.

5 4 THE SOUTH AFRICAN CARBON TAX SYSTEM

The 2010 Carbon Tax Discussion Paper proposed three options for implementing a carbon tax. These options will be discussed below and includes:

- Tax levied directly on measured GHG gas emissions;
- Fossil fuel input tax (tax on coal, crude oil and natural gas, based on carbon contents in the production of these fuel sources); and
- Tax levied on energy outputs (e.g. electricity and transport fuels).⁴¹⁰

5 4 1 CARBON TAX ON MEASURED GHG EMISSIONS

The best option would be to implement a tax directly linked to the actual emissions of GHG's. This will create the appropriate incentives for investments in emissions reduction technologies, such as carbon capture and storage technologies. However, a tax on actual emissions would not be feasible at this stage as will be discussed below.

In principle, environmental taxes based directly on measured emissions can be very precisely targeted. When polluting emissions rise, the polluter's tax liability rises and they pay additional tax proportional to the increase in emissions. Similarly, actions taken by the polluter to reduce its tax liability results in a reduction in emissions. In practice, this proves to be administratively complex because there are a number of emissions sources that needs to be monitored and measured. To be able to apply the carbon tax on actual GHG emissions would require technological capacity or a

⁴⁰⁹ With Annual increases of the carbon price to provide incentives to ensure emissions reductions improve over time.

⁴¹⁰ This option will not be discussed as the energy sector in South Africa is dominated by Eskom, and consequently only Eskom will be taxed if this option is chosen.

system to measure and monitor the quantity of emissions. These costs will depend on the costs of measurement per source, the number of separate emissions sources that need to be covered and the extent to which measurement is incurred solely for regulatory and compliance purposes, rather than as part of normal business activities.⁴¹¹

Levying carbon tax based on direct emissions is the first-best solution to effectively implement the “polluter-pays” principle.⁴¹² This is because it precisely targets the measured emissions produced by the pollutant, and as such, achieves the environmental and emissions reduction objectives. However, the simple fact is that the costs associated with the measurement of the direct emissions and the additional carbon tax would be immensely high. South African companies would not be willing or able to pay such high costs, especially if only certain companies that meet a maximum emissions threshold are to be held accountable for carbon tax levies.

5 4 2 CARBON TAX ON FOSSIL FUEL CONSUMPTION

The second best option would be a fossil fuel input tax (also referred to as a “proxy tax”⁴¹³). This tax is in many instances an equivalent tax base to that of a directly measured emissions tax as was described above. The tax imposed on fuel inputs which produces GHG emissions would be calculated from either approved emissions factors or a transparent, verified measuring and monitoring procedure. This alternative procedure may be necessary in the case of emissions associated with certain processes in specific manufacturing industries. These emissions are caused as a result of chemical reactions taking place in certain industries, such as cement, glass, aluminium and the production of chemicals. A preference for a fuel input tax emerged above the other two options for reasons that will be explained below.

⁴¹¹ Discussion Paper for Public Comment - Reducing Greenhouse Gas Emissions: *The Carbon Tax Option* December 2010, 30.

⁴¹² See Chap 4, par 4 3 4 for more information regarding the “polluter-pays” principle.

⁴¹³ Countries that have introduced carbon taxes or environmentally related taxes on energy have generally used new excise taxes, which are applicable to the quantity of energy sold, and levied at a specific point in the supply chain. The tax serves as a “proxy” for an emissions tax rather than a tax levied directly on emissions.

One of the major benefits of using a fossil fuel based carbon tax is the close correlation between the energy source and the eventual levels of emissions that each energy source produces. This is due to the lack of or unavailability of viable methods and technologies to cleanse these energy sources of the CO_{2e} emissions that they produce.⁴¹⁴ In principle, the carbon content of every form of fossil fuel, from anthracite to lignite coal, and residual oil to natural gas, is known and proportional to the quantity of CO_{2e} released into the atmosphere when the fuel is burned.⁴¹⁵

Practical issues pertaining to the structure and administration of a carbon tax could affect how efficiently it reduces CO₂ emissions. Two options exist for applying a fuel based carbon tax: *upstream*; where fuels enter the economy according to a fuel's carbon content or *downstream*; on emitters at the point where fuels are combusted. The practicality and functioning of both an upstream and a downstream carbon tax levy will be discussed below.

5 4 2 1 UPSTREAM TAX LEVY VERSUS DOWNSTREAM TAX LEVY

Administrative costs are reduced if the tax is levied upstream on fuel producers rather than downstream on fuel users.⁴¹⁶ One of the major advantages of an upstream carbon tax levy is that it accurately reflects the carbon emissions during processing as well as the emissions in the final products, such as petrol or diesel.⁴¹⁷ As a result of the transparency of the tax reflected in the final prices of the products, it encourages lower processing emissions, as well as the use of fuel products

⁴¹⁴ A potential problem arises when pollution abatement can be efficiently achieved through the "cleaning" at the end of the production process. A tax on carbon content of fuels would lead to efficient abatement of GHG emissions, where the "cleaning" of fossil fuels is not a commercially viable option. The acceptability of a carbon tax on fossil fuel inputs rather than on measured emissions therefore depends on the likely speed of these technological developments. Should cleaner fossil fuels become available, a carbon tax on measured emissions might become increasingly feasible.

⁴¹⁵ In practice, per unit of energy (or BTU), natural gas emits the least CO₂ of any fossil fuel when burned, and coal the most, with petroleum (oil) products such as gasoline occupying the middle range. Generally, a BTU from coal produces 30 per cent more CO₂ than a BTU from oil, and 80 per cent more than natural gas. A fossil fuel based carbon tax should be in line with these ratios, with coal taxed at a marginally higher rate than petroleum products and at much higher rate than natural gas.

⁴¹⁶ Fullerton, Leicester and Smith "Environmental Taxes" (2008) NBER Working Paper Series NBER, Cambridge 30.

⁴¹⁷ Fullerton *et al* "Environmental Taxes" 19.

containing less carbon. This price transparency is the result of charging the carbon tax at the earliest stage possible, and not waiting to pass the tax on to fossil fuel users such as companies and households. Some argue that the tax should be levied downstream to ensure that the carbon price is more visible to end users and more likely to figure into energy consumption and planning decisions.⁴¹⁸

For South Africa, an upstream fossil fuel based carbon tax would be relatively easy to implement and administer given the small number of taxpayers involved. Three main industries will be liable to pay carbon tax if the upstream carbon tax is applied, namely, coal producers (mines), natural gas producers (gas processors) and petroleum producers (refineries).⁴¹⁹ A tax on the production taking place in these industries could be applied to the different fossil fuels as follows:⁴²⁰

- Mines could be levied a carbon tax at the mouth of the mine for domestic produced coal, and at the border for all imported coal. The tax would be based on the amount of coal extracted/produced.
- Natural gas could be taxed at the processor or on import.
- Petroleum products could be taxed on the crude as it enters the refinery or on the various products produced from crude oil along with refinery process emissions.

5 5 CARBON TAX THRESHOLDS

South Africa is a developing country that still needs to increase economic growth and tackle other issues such as poverty and unemployment. South Africa has an emerging economy and the introduction of a carbon tax would need to be gradual and sensible in order for entities to be able to afford carbon tax.⁴²¹ One of the key elements that the South African carbon tax system will be designed around is the

⁴¹⁸ Duff "Carbon Taxation in British Columbia" 2008 *Vermont Journal of Environmental Law* 10, 87 107.

⁴¹⁹ Discussion Paper for Public Comment - Reducing Greenhouse Gas Emissions: The Carbon Tax Option, December 2010, 34.

⁴²⁰ Discussion Paper for Public Comment - Reducing Greenhouse Gas Emissions: The Carbon Tax Option, December 2010, 31.

⁴²¹ See Chap 4, par 4 10 1.

concept of a percentage-based threshold.⁴²² This threshold will be based on actual emissions produced by an entity, below which an exemption from the carbon tax will be granted during the first carbon tax phase.⁴²³

The proposed basic tax-free threshold will be set at 60 per cent, which means that a company will be held liable to pay tax on 40 per cent of their total emissions.⁴²⁴ To award companies who emit fewer emissions and engage in mitigating activities to reduce emissions, an offset mechanism will be implemented to reduce entities carbon tax liability where companies will be able to surrender carbon credits against their tax liability.⁴²⁵ However, a limit will be set on the amount of carbon credits that can be surrendered to offset an entity's carbon tax liability.⁴²⁶ The maximum offset percentages will be set at 5 and 10 per cent for the different sectors. This means that an entity will be able to reduce their tax liability by another 5 or 10 per cent above the 60 per cent tax free threshold already provided, depending on the nature of the industry and its production processes.⁴²⁷

In addition to the carbon offset mechanism, firms will be encouraged to reduce emissions even further, by implementing the possibility of adjustments to the basic 60 per cent tax free threshold.⁴²⁸ Adjustments to the 60 per cent basic tax free threshold will be limited to 5 percentage points, up or down. The overall maximum tax-free threshold (including offsets) will be limited to 90 per cent during the first phase of implementing the carbon tax system. This maximum threshold will be

⁴²² Carbon Tax Policy Paper, May 2013, 53.

⁴²³ The Carbon tax Policy Paper provides that the first phase implementation of the carbon tax was planned to be levied from 2015-2019. (see 53-54 of the Carbon Tax Policy Paper). Due to the postponement of the carbon tax by a year to 2016 (see 25 of the 2014 Budget Speech), it is uncertain whether the first phase carbon tax period will also be lengthened by one year (i.e. 2016-2020) or whether the first phase will still end in 2019.

⁴²⁴ Carbon Tax Policy Paper, May 2013, 53.

⁴²⁵ The Carbon Tax Policy Paper suggests that this mechanism will be designed to be similar to the Clean Development Mechanism (CDM) implemented by the Kyoto Protocol and the UNFCCC (see Chap 3). The offset mechanism will be simpler than that of the Clean Development Mechanism (CDM), and administered locally to adapt to local offset projects. Also see Chap 6 for a proposed carbon offset mechanism to accompany the carbon tax regime.

⁴²⁶ The proposed basic tax-free threshold of 60 per cent and the maximum offset percentages of 5 and 10 per cent for the different sectors will remain fixed during the first phase of the introduction of the carbon tax. The percentage tax-free thresholds will be reduced during the second phase and may be replaced with absolute emissions thresholds thereafter.

⁴²⁷ For more information about the carbon offset mechanism, see discussion below.

⁴²⁸ Carbon Tax Policy Paper, May 2013, 54.

decreased progressively in subsequent phases to ensure that progress is made to reach South Africa's emission reduction targets as was discussed above.

A formula will be used to adjust the basic 60 per cent tax-free threshold in order to take into account and calculate the efforts that firms made to reduce their emissions. This will also encourage firms to invest in even cleaner technologies to reduce emissions. The basic 60 per cent threshold, below which the carbon tax will not be payable, may be adjusted using a carbon emissions intensity⁴²⁹ factor for output compared with an agreed sector benchmark. A benchmark is defined simply as a performance measure typically set at a specific reference level. It depends on the goal used to dictate performance by a specific plant, industry or subsector in order to identify possibilities for improvement or for rewarding performance, set baselines in new market mechanisms, and/or determine investments.⁴³⁰

5 5 1 CALCULATING ADJUSTMENTS TO THE TAX-FREE THRESHOLDS

A formula is proposed to calculate a factor (Z) which will be used to adjust (increase or decrease) the basic percentage tax-free threshold. The adjustment to the tax-free threshold is determined by multiplying the original percentage threshold by Z.⁴³¹ The formula to calculate Z is:

$Z = Y / X$ where:

- X is the average measured and verified carbon emissions intensity a firm produces. This includes both scope 1 and scope 2 emissions of a firm's output.

⁴²⁹ Intensity-based emissions refer to GHG emissions relative to another business metric, such as product output, turnover or floor space. Intensity-based emissions reflect a company's GHG performance independently of its economic growth or decline, and allow comparisons with similar companies.

⁴³⁰ Presentation: Litz "Why benchmarking?" Presentation at the Joint International Carbon Action Partnership / North America 2050 Initiative (ICAP/NA2050) Public Workshop on Developing Industrial Benchmarks, Pace University, New York, 24 September 2012. Available at: <http://www.c2es.org/docUploads/Litz%20Benchmarking%20Presentation.pdf> (accessed on 10-10-2014).

⁴³¹ Carbon Tax Policy Paper, May 2013, 54.

- Y is the agreed upon benchmark for carbon emissions intensity (including both scope 1 and scope 2 emissions) for the sector.

Consider the following example to illustrate how the formula is applied to calculate the adjustments that may be made to the basic tax free threshold of 60 per cent: Assume that the agreed upon benchmark for carbon emissions intensity is 0.91 tonnes CO_{2e} GHG's per ton of output. This means that for every ton of production taking place to supply goods and services, a firm is requested to emit 0.91 tonnes of CO_{2e} GHG's or less.

Further assume that the absolute level of GHG emissions a firm may emit is 100 000 tonnes of CO_{2e} GHG's. There are three different emissions producing firms, namely A, B and C. The basic percentage carbon tax-free threshold is 60 per cent. The verified and measured carbon emissions intensity for firm A is 0.91 tonnes of CO_{2e} GHG's per ton of production output. Firm B's verified and measured carbon emissions intensity it is 0.85 tonnes of CO_{2e} GHG's per ton of production output, and for Firm C it is 1.1 tonnes of CO_{2e} GHG's per ton of production output.

The factor by which the basic percentage tax-free threshold (Z) should be adjusted for each of the three firms is: $Z = Y / X$. Thus,

- for firm A: $Z = 0.91 / 0.91 = 1.0000$
- for firm B: $Z = 0.91 / 0.85 = 1.0706$, and
- for firm C: $Z = 0.91 / 1.1 = 0.8273$.

Hence the adjusted basic percentage tax-free thresholds for the three firms are as follows:

- firm A = 0.6 (60 per cent basic tax free threshold) × Z (1.000) thus: $0.6 \times 1.0000 = 0.60000 = 60.000$ per cent
- firm B = 0.6 (60 per cent basic tax free threshold) × Z (1.0706) thus $0.6 \times 1.0706 = 0.64236 = 64.236$ per cent

- firm C = 0.6 (60 per cent basic tax free threshold) × Z (0.8273) thus: $0.6 \times 0.8273 = 0.49638 = 49.638$ per cent

The basic percentage tax-free emissions are therefore:

- Firm A = 60.000 per cent of 100 000 tons = 60 000 tons
- Firm B = 64.236 per cent of 100 000 tons = 64 236 tons
- Firm C = 49.638 per cent of 100 000 tons = 49 638 tons

Given that the carbon emissions intensity for Firm A is the same as the benchmark figure (0.91), its basic percentage tax-free threshold remains unchanged (60 per cent). Firm B is doing better (0.85) than the carbon emissions intensity benchmark (0.91) hence qualifies for a higher basic percentage tax-free threshold (64.236 per cent). Firm C, on the other hand, is doing worse (1.1) than the carbon emissions intensity benchmark (0.91) and has been penalised for this poor performance. Firm C's basic percentage tax-free threshold is reduced from 60 per cent to 49.64 per cent. However, adjustments to the 60 per cent basic tax free threshold will be limited to 5 percentage points, up or down and as such, firm C will have a minimum tax free threshold of 55 per cent. Firm C will not be penalised for their poor performance to the extent that was calculated by the formula.

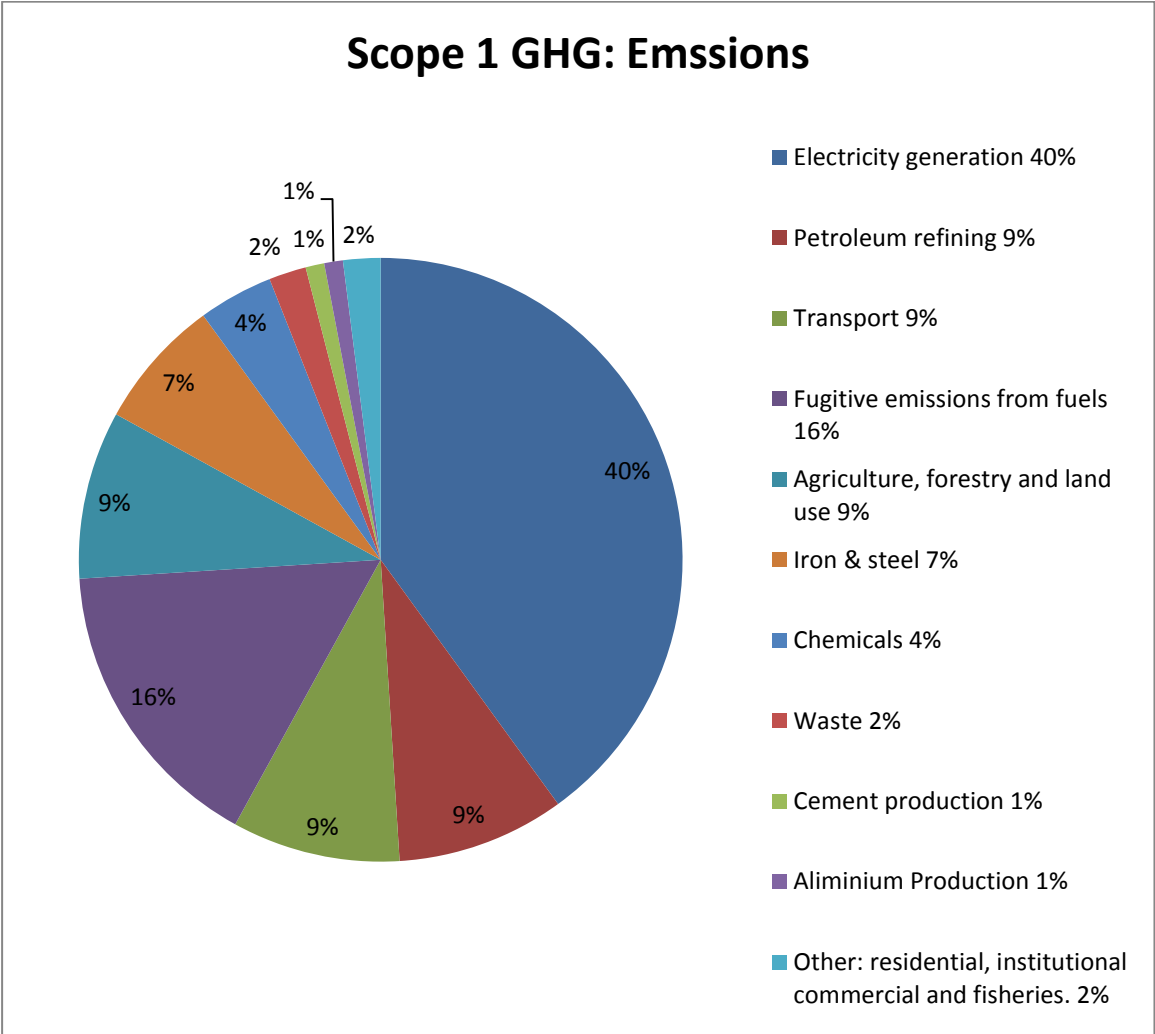
5 5 2 MANDATORY EMISSIONS REPORTING

The Department of Environmental Affairs will prescribe and/or approve the appropriate emissions factors and procedures for measuring, reporting and verifying emissions. Mandatory emissions reporting will also be introduced for entities, companies and installations that emit in excess of 100 000 tonnes of GHG's annually, or consume electricity that results in more than 100 000 tonnes of emissions in the electricity sector.⁴³² Consequently, economic sectors across the board will be impacted either directly or indirectly by the carbon tax as it filters through the economy. The carbon tax will only cover scope 1 emissions,⁴³³ which

⁴³² Carbon Tax Policy Paper, May 2013, 47.

⁴³³ For a concise description on which emissions can be categorised as scope 1 emissions, see Chap 2, par 2 5 1 1.

result directly from the following sources: Electricity generation; gasification (converting coal and gas into liquid form); crude oil refining; mining; cement processing; paper & pulp production; iron and steel production; aluminium production; glass production; chemicals; transport; agriculture forestry; and land use and waste processing. The contribution of each sectors scope 1 emissions to the total emissions of the country is illustrated in the diagram below.



(Figure 7: Information source: Carbon Tax Policy Paper, May 2013)

Complementary measures and incentives will also be rolled out, such as the proposed energy efficiency savings tax incentives to be implemented prior to introducing the carbon tax. This will be done in order to encourage businesses to

reduce their scope 2 emissions⁴³⁴ that result from the use of purchased electricity, heat or steam.

5 6 PROPOSED CARBON TAX RATE

A carbon tax aimed at sustaining the environment for future generations should aim for broad coverage in many sectors. There should be minimum exemptions and exclusions for different GHG's and sectors that do not have to comply with the proposed carbon tax system. This will ensure equality and transparency in the business sector and ensure that every entity is held responsible for their share of emissions. The applied carbon tax rate should be equivalent to the marginal social damage costs as to rectify any negative impacts that production has on the environment. Thus, the aim of the proposed carbon tax is to "correct" the prevailing prices of goods and services that generate excessive levels of anthropogenic GHG emissions.⁴³⁵

The government considered the environmental and social costs that industries and their production processes cause. As such the South African government is proposing⁴³⁶ a relatively modest carbon tax of R120 per tonne of CO_{2e} gasses.⁴³⁷ It is further proposed that the tax rate of a R120 per tonne of CO_{2e} gasses be increased at a rate of 10 per cent per annum⁴³⁸ until the end of the first phase of the carbon tax levy.⁴³⁹ These arrangements will allow for a relatively smooth transition to

⁴³⁴ For a concise description on which emissions can be categorised as scope 1 emissions, see Chap 2, paragraphs 2 5 1 1 and 2 5 1 2.

⁴³⁵ Carbon Tax Policy Paper, May 2013, 58.

⁴³⁶ The Government (the Minister of Finance, Pravin Gordhan) gave no indication in the 2014 Budget Speech whether the postponement of the carbon tax by one year to 2016 would have any effect on the proposed carbon tax rate of R120 per tonne of CO_{2e} gasses. It is therefore presumed that this rate remains the same for the implementation of the carbon tax taking place in 2016.

⁴³⁷ Carbon Tax Policy Paper, May 2013, 58.

⁴³⁸ This annual rate of increase will be reviewed during the second carbon tax phase, with the intention to announce a revised annual rate of increase in the 2020 Budget. A clear price path and timeframes for tax rate increases will provide the necessary price signals and certainty to influence producers' investment decisions over the medium to long term. This will provide companies with a chance to make the necessary financial planning to accommodate the carbon tax rate in their financial well-being.

⁴³⁹ Carbon Tax Policy Paper, May 2013, 58.

a low-carbon economy, taking into account concerns such as international climate change prevention efforts and the burden of higher energy prices on households.

5 7 CARBON OFFSET MECHANISM

A carbon offset mechanism trading with carbon credits generated by GHG emissions reduction projects will enable firms to cost-effectively lower their carbon tax liability. Such a scheme will also incentivise investment in least-cost emissions reduction projects that deliver carbon credits at a cost lower than the carbon tax. This means that when the cost per ton of carbon is considered, the cost of investing in one ton of CO_{2e} emissions reductions, would be less than paying a carbon tax on one ton of CO_{2e} emissions pollution. Such projects can generate considerable sustainable development benefits in South Africa, including channelling capital to rural development projects, creating employment, restoring landscapes, reducing land degradation, protecting biodiversity, and encouraging energy efficiency and low carbon growth.

Entities that have a carbon tax obligation can acquire carbon credits by investing in specific projects or activities that reduce, avoid, or sequester emissions. These projects are developed and evaluated under specific methodologies and standards, allowing carbon credits to be issued. In order to ensure that the proposed carbon offsets mechanism contributes towards South Africa's climate change objectives⁴⁴⁰ and facilitates a transition to low-carbon economy, the following eligibility criteria was proposed for carbon offset projects by the South African government:⁴⁴¹

5 7 1 SOUTH AFRICAN PROJECTS

Only South African-based carbon credits will be eligible for use within the carbon offsets scheme. This will encourage the development of locally based emissions reduction projects whilst also improving socio-economic circumstances through job

⁴⁴⁰ South Africa voluntarily committed at the 2009 UN Conference of Parties (COP) on Climate Change held in Copenhagen in Denmark, to reduce greenhouse gas emissions from projected "business-as-usual scenarios" by 34 per cent in 2020 and 42 per cent in 2025, subject to certain conditions.

⁴⁴¹ Carbon Offsets Paper, April 2014, 7.

opportunities.⁴⁴² While this geographical limitation might have implications on the availability and supply of carbon credits in the initial stages of the carbon tax, it is envisaged that the demand for locally based offsets will provide a significant impetus for project development South Africa.

5 7 2 CARBON CREDITS GENERATED OUTSIDE THE CARBON TAX NET

Emission reduction projects that generate carbon credits must occur outside the scope of activities that are subject to the carbon tax. This is to prevent double counting of carbon credits and the emissions reduced by such a project. Entities falling under the threshold of mandatory emissions reporting requirements are not liable to pay carbon tax during the first phase of the carbon tax regime and will therefore be able to generate carbon credits. Entities that fall within the mandatory emissions reductions reporting requirements and are consequently liable to pay carbon tax will then be able to acquire the carbon credits generated by the entities not liable to pay the carbon tax. To illustrate the principle that only entities not liable for the carbon tax will be permitted to implement emission-reduction projects and sell carbon offset credits to entities liable to the carbon tax, consider the following example:

An entity within the cement sector (carbon tax-liable sector) would be able to invest in a emissions reduction project implemented by another tax-liable sector, such as the iron and steel sector, in order to lower its own carbon tax liability. In this scenario, double-counting of tax benefits would occur as the same carbon reduction could be used to lower the carbon tax liability of both sectors. Although the cement sector invested in the emission reduction project undertaken by the iron and steel sector, the iron and steel sector will use the same reduction (carbon credit) in order to reduce its own carbon tax liability. Thus the same single carbon credit will be

⁴⁴² The countries belonging to the European Union introduced a carbon offset scheme that accepts carbon credits that are sourced from outside their geographical region. However, other countries, such as Australia are increasingly limiting the acceptance of foreign carbon credits into their regimes in order to promote their own climate change objectives.

counted twice (thus two tonnes of CO_{2e} gasses), although it only represents one ton of CO_{2e} gasses.⁴⁴³

Another problem arising from allowing carbon tax liable entities to undertake emission reduction projects and generate carbon credits would be that the tax liable entity would receive income from selling carbon credits generated from the emission reduction project. While a possible income from emission reduction activities would encourage a greater number of offset opportunities, it could also create double-counting problems as there would be incentives for emission reduction activities in the form of both carbon tax liability reductions and revenue from selling carbon credits to other tax liable entities.

5 7 3 STANDARDISED PROJECT APPROVAL APPROACH

In keeping with desired carbon offset principles, a standardised approach, as opposed to a project-based approach⁴⁴⁴ will be implemented to assess and approve emissions reduction projects and methodologies. The standardised approach will provide a list of eligible project methodologies that will be introduced as a starting point to provide certainty and transparency as to which emission reduction projects are acceptable within the South African carbon market. Allowing the offset program administrator to adopt specific offset methodologies before the start of the carbon tax regime will enhance the credibility of offset projects.

⁴⁴³ The difference between these two options is similar to the differences in the application of the Mechanisms under the Kyoto Protocol. Under the CDM, carbon offsets come from outside the taxable activities (outside the scope of capped emissions, i.e. from the non-Annex I countries), while under the Joint Implementation (JI) carbon offsets come from inside the taxable emissions (i.e. from the Annex I countries). The CDM allows offset projects to be developed in non-Annex I countries, which do not have domestic emission reduction targets, and to be used by Annex I countries to meet their domestic emission reduction targets. Under the JI, Annex I countries are permitted to invest in emission-reduction projects in any other Annex I country to meet their domestic emission reduction targets. Thus, the JI creates the possibility that the same offset project may be used for both Annex I countries (double counting principle) whilst the CDM only allows for the offset project to be counted once and consequently represents the correct amount of emission reductions.

⁴⁴⁴ A project-based approach to methodologies entails a system where there is no set of “pre-approved” project types that are eligible. Carbon offset methodologies would be developed by project proponents and reviewed and approved on a case-by-case basis by the offsets programme administrator.

However, this standardised approach will be sufficiently flexible in accepting additional methodologies, so as not to limit the variety of emission reduction projects that can be added once the offset programme has been launched. The list will therefore be expanded as the programme matures to allow new project types to be included in the offset scheme.

5 7 4 APPROVED PROJECT LISTS

Lists of both eligible and ineligible projects should be introduced, based on the value added to the low-carbon transition. An eligible projects list would include project areas that, in addition to carbon mitigation, also have sustainable development benefits and contribute to meeting South Africa's developmental priorities. An ineligible projects list would include projects that would be implemented within the scope of taxable activities following the introduction of the carbon tax. Projects that have little co-benefits and low value, such as the mitigation of industrial gasses,⁴⁴⁵ should also be excluded.⁴⁴⁶

5 7 5 APPROVED CARBON CREDITS

Projects registered or implemented prior to the introduction of the carbon tax regime will have to fulfil specified conditions to be accepted to the scheme. To facilitate a smooth implementation of the carbon offset scheme, it is proposed that carbon credits that were issued prior to the implementation of the carbon tax and have not yet been retired will be eligible for use under the carbon tax.⁴⁴⁷ Emission reduction projects that are currently at an early stage of development, but will be registered before the implementation of the carbon tax, will have to transfer the credits that are issued to them to a South African registry within six months of credit issuance to ensure their eligibility under the carbon tax regime. Any carbon credits issued to

⁴⁴⁵ Industrial gas-related carbon credits have been disallowed in the EU ETS from 2013, due to low value credits with little co-benefits flooding the market.

⁴⁴⁶ A similar approach has been adopted in the Australian carbon offset scheme, where carbon credits are only allowed from carbon offset projects in certain sectors.

⁴⁴⁷ Such credits will only be accepted for the scheme if they are transferred from an international registry to a South African registry within 12 months of implementation of the carbon tax, scheduled for 1 January 2016.

projects after this period will not be accepted in the South African registry and will consequently not be available to relieve any carbon tax burden.

It is envisaged that entities will initially be permitted to use verified carbon credits developed in South Africa, under internationally recognised carbon offsetting standards⁴⁴⁸ such as the Clean Development Mechanism (CDM),⁴⁴⁹ the Verified Carbon Standard (VCS)⁴⁵⁰ the Gold Standard (GS)⁴⁵¹ and the Climate, Community and Biodiversity Standard (CCB Standard).⁴⁵² The development of a South African-specific carbon offset standard could be considered in the medium term to facilitate cost-effective development of domestic carbon credits. The appropriate technical infrastructure to facilitate a carbon trading process would require an administrator of the programme; accredited independent third party verifiers; a carbon credit registry and possibly a carbon trading platform.⁴⁵³ As is has now been established, there exists both compliance carbon markets and voluntary carbon markets. Because the carbon tax will be enforced and regulated by legislation, any offset scheme linked to

⁴⁴⁸ Carbon Tax Policy Paper, May 2013, 86.

⁴⁴⁹ See Chap 3 for a detailed discussion of the Clean Development Mechanism.

⁴⁵⁰ The VCS implemented a Green House Gas Program that is the mechanism that new or existing projects must use to certify they are actively reducing emissions. While there are other voluntary GHG programs throughout the world, none are more widely used than the VCS Program. Under the VCS, projects are issued unique carbon credits known as Verified Carbon Units or VCUs. Each VCU represents a reduction or removal of one ton of CO_{2e} gasses, which can be generated by reducing or removing certain GHGs from the earth's atmosphere. VCUs exist only in the registry accounts and ownership can only be transferred between VCS registry account holders. VCUs cannot be transferred via other databases or paper certificates. - <http://www.v-c-s.org/who-we-are> (accessed on 10-10-2014).

⁴⁵¹ The Gold Standard Registry is a web-based software application that creates tracks and enables the trading of Gold Standard Voluntary Emission Reduction (VER) credits around the world. All Gold Standard VER credits are issued and tracked within the Registry via unique serial numbers. The Registry also serves as The Gold Standard Clean Development Mechanism and Joint Implementation project database, tracking the certification of Certified Emission Reductions (CERs) and Emission Reduction Units (ERUs). - <http://www.goldstandard.org/about-us/project-registry> (accessed on 10-10-2014).

⁴⁵² The CCB Standards identify land management projects that deliver net positive benefits for climate change mitigation, for local communities and for biodiversity. The CCB Standards must be used through a two-step process: 1.) Validation - demonstrates good project design to generate significant climate, community and biodiversity benefits. Successful CCB Validation can help build support for the project among stakeholders and investors. 2.) Verification - is a rigorous independent endorsement of the quality of project implementation and the delivery of multiple benefits. Successful CCB Verification enables the addition of a "CCB label" to verified emissions reductions units such as VCUs. The CCB Standards used alone do not lead to delivery of quantified emissions reductions certificates so they should be used in combination with a carbon accounting standard such as the CDM or VCS. - <http://www.climate-standards.org/ccb-standards/> (accessed on 11-10-2014).

⁴⁵³ See Chap 6 for a proposed South African carbon offset standard.

carbon taxation in South Africa will qualify as a compliance market.⁴⁵⁴ Consider the following example to illustrate how this *compliance market* system will work.

5 8 CARBON OFFSETS WITHIN THE PROPOSED CARBON TAX SYSTEM

To illustrate the working and implementation of the carbon price and the carbon offset scheme as discussed above, consider the following simple calculation.

- Company A emits 100 tons of CO_{2e} GHG's into the earth's atmosphere. At the proposed carbon tax rate of R120 per ton of CO_{2e} GHG's, that amounts to a total carbon tax liability of R12 000 (100 tons × R120 per ton).
- Applying the tax free threshold of 60 per cent, it means that the remaining 40 per cent of the total emissions are taxable. Thus 40 tons of the 100 tons of total emissions are taxable. (100 tons × 40% = 40 tons).
- If only 40 tons of CO_{2e} GHG's are taxable, it means that only 40 per cent of the total R12 000 of carbon tax is payable. Thus company A has a carbon tax liability of R4 800 (R12 000 × 40% = R4 800).
- Company A decides to buy 10 carbon credits at a price of R80 per carbon credit.⁴⁵⁵ Ten carbon credits represent ten tons of CO_{2e} GHG reductions. As a company is allowed to only offset 10 per cent of their total emissions, Company A will only be allowed to reduce their taxable emissions with 10 tons (100 tons × 10% = 10 tons). Buying 10 carbon credits has the effect that company A's taxable emissions are reduced from 40% to 30% of their total emissions. (40% taxable emissions - 10% through surrendering carbon credits = 30% taxable emissions).
- Thus, after the 60 % tax free threshold, and the 10% maximum carbon offset has been applied, Company A has a carbon tax liability of R3 600. (R12 000 × 30% = R3 600).

⁴⁵⁴ Carbon Offsets Paper April 2014,13.

⁴⁵⁵ An offset price of R80 per ton is assumed in this example as the offset price will probably not exceed the R120 per ton value of the carbon tax.

5 9 EMISSION REDUCTION PROJECTS IN SOUTH AFRICA

There are currently a number of emission reduction projects in South Africa that have been developed either under the CDM of the Kyoto Protocol or one of the voluntary carbon-offset market standards. These projects all produce carbon credits that will be viable to be surrendered against an entity's carbon tax liability. The projects under the various carbon offset standards will be discussed below.

5 9 1 CLEAN DEVELOPMENT MECHANISM PROJECTS

To date, there are 347 CDM projects that have been submitted to the Designated National Authority (DNA)⁴⁵⁶ that is made up of 209 Project Idea Notes (PINs) and 138 Project Design Documents (PDDs). Out of 138 PDDs, 80 have been registered by the CDM Executive Board as CDM projects with 12 of those projects having been issued with Certified Emission Reductions (CER's). 58 projects are still at different stages of the CDM project cycle.^{457 458}

One of the most recent CDM projects that have been registered with the CDM Executive Board is the Amakhala Emoyeni Grid Connected Wind Farm⁴⁵⁹ which is planned to produce 138.6 MW of clean energy in its first phase of operation.⁴⁶⁰ The project was registered with the CDM on 31 December 2012 and the project's PDD

⁴⁵⁶ The designation of a national authority for the Clean Development Mechanism (CDM) in South Africa is a requirement for South Africa's participation in the mechanism, as defined within the formal rules of the CDM. The main task of the Designated National Authority (DNA) is to assess potential CDM projects to determine whether they will assist South Africa in achieving its sustainable development goals and to issue formal host country approval where this is the case. For more information regarding the South African DNA, see http://www.energy.gov.za/files/esources/kyoto/kyoto_dna.html (accessed on 16-10-2014). Also see Chap 3, par 3 6 1 3 for a discussion on the DNA.

⁴⁵⁷ See Chap 3 for a detailed analysis of the CDM project design cycle and all the parties involved in this cycle.

⁴⁵⁸ The projects discussed above are the most recent CDM projects to be implemented in South Africa. For a detailed list of South African CDM projects, see <http://www.energy.gov.za/files/esources/kyoto/2014/South-African-CDM-Projects-Portfolio-up-to-28February2014.pdf> (accessed on 14-10-2014); also see the DNA's website: http://www.energy.gov.za/files/esources/kyoto/kyoto_dna.html (accessed on 14-10-2014); and for more information regarding the different CDM projects, see <http://cdm.unfccc.int/> (accessed on 14-10-2014).

⁴⁵⁹ Project reference no. 7576.

⁴⁶⁰ CDM website: https://cdm.unfccc.int/Projects/DB/CarbonCheck_Cert1349249257.11/view (accessed on 15-10-2014).

was approved by the CDM executive board on 12 June 2014. The project is planned to contribute 370 665 metric tonnes CO_{2e} GHG reductions per annum with a fixed crediting period running from 01 October 2016 to 30 September 2026.⁴⁶¹ This means that the operation will produce an approximate 370 665 carbon credits per annum which will be available for companies to purchase to enable them to surrender it against their carbon tax liability and consequently reduce the amount carbon tax payable by the company. The wind farm will comprise of 66 wind turbines with the capacity of 2.1 MW each. Produced electricity will be supplied to the Eskom electricity network. The reduction of GHG emissions as a result of the project implementation will be achieved due to reduction of CO_{2e} emissions from combustion of fossil fuel at the existing grid-connected power plants.⁴⁶²

The most recent South African CDM project to be registered with the CDM Executive Board is the “Manufacture and Utilization of bio-coal briquettes in Stutterheim, South Africa”⁴⁶³ which involves a methodology that the CDM refer to as an “Alternative Waste Treatment Process”.⁴⁶⁴ The project was registered on 22 May 2014 and has a fixed crediting period running from 01 January 2015 to 31 December 2024.⁴⁶⁵ The project is planned to contribute an approximate 131 270 metric tonnes CO_{2e} GHG emissions reductions per annum. This means that the operation will produce an approximate 131 270 carbon credits per annum which will be available for companies to purchase to enable them to surrender it against their carbon tax liability and consequently reduce the amount carbon tax payable by the company. The project involves setting up a production facility to manufacture bio-

⁴⁶¹ The total estimated GHG emissions reduction over the 10-year crediting period is 3 706 560 tonnes of CO_{2e} GHG's.

⁴⁶² Blue World Carbon “Amakhala Emoyeni Grid Connected 138.6 MW Wind Farm, Phase 1, South Africa” (undated) <http://www.blueworldcarbon.com/amakhala-emoyeni-grid-connected-138-6-mw-wind-farm-phase-1-south-africa/> (accessed on 15-10-2014).

⁴⁶³ Project reference no. 8369.

⁴⁶⁴ This methodology applies to project activities where fresh waste, originally intended for disposal in a Solid Waste Disposal Site (SWDS), is treated using any (combination) of the waste treatment options listed in Table 1. The project activity therefore avoids emissions of methane associated with disposing organic waste in a SWDS with or without a partial Land Fill Gas capture system – see UNFCCC/CCNUCC Approved consolidated baseline and monitoring methodology, ACM0022, “Alternative waste treatment processes”, Version 1.0.0, 4 - available at https://cdm.unfccc.int/filestorage/_/b/CDM_ACMGQFSTALV373ZUGJHFPFA1XLU23TOGY.pdf/EB%2069_repan11_ACM0022_ver1.0.pdf?t=NEJ8bmRwYXVjfdcM1pKec-O0ZwadwxU0395M (accessed on 16-10-2014).

⁴⁶⁵ CDM website: https://cdm.unfccc.int/Projects/DB/KBS_Cert1353665780.04/view (accessed on 15-10-2014).

coal pellets and briquettes in Sutterheim in the Eastern Cape Province of South Africa. The briquettes shall be sold to existing and/or new facilities wherein fossil fuels such as coal will be replaced with the briquettes. Thus the project activity will replace coal combustion in coal-fired boilers with the cleaner waste-based briquettes.⁴⁶⁶

The major raw materials that may be used for bio-coal briquette production include:

- Sawdust, bark, wood chips and off cuts from saw mills;
- Forestry wastes-thinning, pruning, branches, top and dried leaves collected by communities in the surrounding commercial and municipal forests; and
- Agricultural waste from agricultural activities in the area.

The two projects discussed above form a part of the mandatory carbon market regulated by the Kyoto Protocol and the Doha Amendment to the Kyoto Protocol. This means that only Annex I countries under the Kyoto Protocol will be able to purchase the carbon credits generated from these projects in order to meet their obligations under the regulatory instruments mentioned above. There are however projects that are not regulated and registered with the CDM and are not associated with the mandatory market. These projects form a part of the voluntary carbon market and will be discussed below.

5 9 2 VERIFIED CARBON STANDARD (VCS) PROJECTS

The VCS aims to be a universal, base-quality GHG emissions reductions standard with reduced administrative burdens and costs than that of other GHG standards, such as the CDM. It is currently the largest voluntary carbon standard, which is widely recognised and accepted. Currently there are 1,212 projects registered with

⁴⁶⁶ UNFCCC Project Design Document (PDD) for Manufacture and utilization of bio-coal briquettes in Sutterheim, South Africa, (31-08-2012) p.1 – available at <http://www.energy.gov.za/files/esources/kyoto/2012/PDDasperUNFCCCformat.pdf> (accessed on 16-10-2014).

the VCS with 924 of those projects having been issued with Verified Carbon Units⁴⁶⁷ (VCU's).⁴⁶⁸

There are eight registered South African VCS projects registered to produce VCU's.⁴⁶⁹ The VCS project responsible for the most emissions reductions is the Durban Landfill-Gas Bisasar Road project. The project collects landfill gas and utilises the methane content to generate electricity. This project is estimated to reduce GHG emissions of 378,623 tonnes per annum.⁴⁷⁰

A similar VCS project is based in Johannesburg, South Africa. The Joburg Landfill Gas to Energy Project landfill gas (LFG) collection and utilisation project is located at five of the Johannesburg landfill sites. The project's objective is to collect and destruct/utilise the landfill gas (LFG) generated at these landfill sites in Johannesburg. The project activity will consist of two distinct stages. In the first stage, LFG will be captured and destroyed by using a LFG flare, while in the second stage the captured LFG will be fed to the LFG flare and a modular electricity generation plant. The purpose of LFG flaring is to dispose of the flammable constituents, particularly methane, safely and to control odour nuisance, health risks and adverse environmental impacts. The generator, once installed, will combust the methane in the LFG to produce electricity for export to a local power purchaser.⁴⁷¹

⁴⁶⁷ Under VCS, projects are issued unique carbon credits known as Verified Carbon Units or VCUs. Each VCU represents a reduction or removal of one ton of carbon dioxide equivalent (CO_{2e}), which can be generated by reducing or removing GHG's from the earth's atmosphere.

⁴⁶⁸ "Project and VCU summary" (undated) - <http://www.vcsprojectdatabase.org/> (accessed on 16-10-2014).

⁴⁶⁹ These projects include: BRT Rea Vaya Phase 1A and 1B, Durban Landfill-Gas Bisasar Road, Joburg Landfill Gas to Energy Project, Kuzuko Lodge Private Game Reserve Thicket Restoration Project, Peri-urban bamboo planting around South African townships, Saving the planet, one stew at a time, The Capture and Utilisation of Methane at the GFI Mining South Africa owned Beatrix Mine in South Africa, Tree planting in South African townships - <https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Projects&a=1&t=1> (accessed on 17-10-2014).

⁴⁷⁰ "Durban Landfill-Gas Bisasar Road" (undated) <https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Projects&a=2&i=787&lat=-29%2E81458&lon=30%2E98313&bp=1> (accessed on 16-10-2014).

⁴⁷¹ "Joburg Landfill Gas to Energy Project" (undated) <https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Projects&a=2&i=1240&lat=-26%2E094957&lon=28%2E120397> (accessed on 16-10-1014).

The project is planned to contribute an approximate 304,380 metric tonnes CO_{2e} GHG emissions reductions per annum.⁴⁷²

5 9 3 GOLD STANDARD (GS) PROJECTS

The GS is a standard for renewable energy and energy efficiency projects and the project developers are also required to demonstrate co-benefits. It is widely recognised and accepted, but its use is limited due to its limited scope of projects. There are 223 registered projects, 354 listed projects, 61 validated projects and 152 issued projects associated with the GS with 22 projects in South Africa.⁴⁷³

One of the projects that provide clear evidence that everyone can make a contribution towards emissions reductions and reversing the effects of climate change is the Basa Magogo Efficient Cooking Project.⁴⁷⁴ This project educates rural communities on the efficient use of coal as a domestically utilised fossil fuel.⁴⁷⁵ This project helps to improve health and living conditions of rural communities, provides significant savings for families and reduces GHG emissions by 40,000 tonnes of CO_{2e} gasses per year.⁴⁷⁶

5 10 CARBON TAX REVENUE DISTRIBUTION

The carbon tax should not be seen as a measure to increase the overall tax burden, and as such, transitional measures to address potential adverse impacts on poor, low-income households and industry competitiveness are deemed necessary. This

⁴⁷² *Ibid.*

⁴⁷³ These are the latest statistics dated from the 1st of December 2013 as per the GS website: <http://www.goldstandard.org/about-us/project-registry> (accessed on 17-10-2014).

⁴⁷⁴ The Gold Standard, “Basa Magogo ‘Light It Up Grandmother!’” (undated) <http://www.goldstandard.org/basa-magogo-light-it-up-grandmother> (accessed on 17-10-2014).

⁴⁷⁵ Basa Magogo – which means “light it up Grandmother” in Zulu – was named after a Granny called Nebelungu Mashinini, who, with the help of the Nova Institute, perfected a method of constructing a fire, by placing the coal at the bottom of the stove and adding firewood on top. This new method significantly improves the cooking efficiency, reduces the amount of coal consumed and the smoke produced.

⁴⁷⁶ Video: “Health Improvements Basa Magogo” available at <https://www.youtube.com/watch?v=SIKiBnWEj90> (uploaded on 7 March 2013) (accessed on 17-10-2014).

redistribution of the revenue made through the carbon tax system is also known as “tax recycling”.

There exist various ways in which the revenue made from a carbon tax levy can be implemented and redistributed in order to compensate industries, companies and households for their carbon mitigation efforts. The most common implementation of revenue recycling is to reduce employer’s social security contributions or income taxes which serve as compensation for paying carbon tax and adopting emissions reduction activities.⁴⁷⁷ Studies analysing the impact of carbon tax revenue recycling tend to find positive impacts on both the employment rate and production output of a company.⁴⁷⁸

The principle of carbon tax revenue recycling is driven by the concept of “double dividend” which provides that implementing a carbon tax benefits both the environment, as well as other tax liabilities.⁴⁷⁹ The “double dividend” concept consists of two main parts: the first dividend is commonly understood to be the correction of the environmental externality, whilst the second dividend is understood to derive from the use of those revenues to reduce distortionary taxes⁴⁸⁰ elsewhere in the economy, with consequent lower unemployment and/or higher GDP.⁴⁸¹

When a carbon tax has the effect of reducing other tax forms, as was discussed above, this is known as “tax shifting”. Tax rebates will also be considered for Carbon Capture and Storage (CCS) projects. CCS presents technology that could be used to capture CO_{2e} emissions from the coal combustion and gasification processes in

⁴⁷⁷ Vivid Economics “Carbon taxation and fiscal consolidation: the potential of carbon pricing to reduce Europe’s fiscal deficits” report prepared for the European Climate Foundation and Green Budget Europe, May 2012, available at http://www.foes.de/pdf/201205_CETRiE_Carbon_Pricing_Report_web.pdf. (accessed on 03/10/2014) 19.

⁴⁷⁸ Vivid Economics, http://www.foes.de/pdf/201205_CETRiE_Carbon_Pricing_Report_web.pdf. 20

⁴⁷⁹ Vivid Economics, http://www.foes.de/pdf/201205_CETRiE_Carbon_Pricing_Report_web.pdf. 127.

⁴⁸⁰ Economic theory suggests that a double dividend is only possible where other distortions already exist in the tax system. In an ideal world, there would be no other distortionary taxes that could be cut with the revenue raised from a carbon tax and the environmental benefit would be the only dividend. However, inspection of tax systems all around the world reveals that much of the tax base is distortionary and has the potential to be reduced.

⁴⁸¹ Vivid Economics, http://www.foes.de/pdf/201205_CETRiE_Carbon_Pricing_Report_web.pdf. 128.

South Africa. The CO_{2e} emissions are compressed, liquefied and then transported to a geologically stable site where it is permanently stored underground.

In a country such as South Africa, there are still major socio-economic issues that need to be addressed, such as poverty and access to basic infrastructure such as electricity, water and sanitation. Using part of the revenue generated from a carbon tax to supply communities of these basic services would result in developing socio-economic circumstances, whilst also assuring businesses that the revenue generated from carbon tax is used for a meaningful cause. Support to poor and low-income households to ensure access to affordable, safe, reliable and clean energy should be strengthened. The government has made significant progress in implementing the Integrated National Electrification Programme (INEP), which seeks to ensure electricity supply to all households, schools and clinics.⁴⁸² Another initiative that the government is planning on implementing is the National Liquefied Petroleum Gas Strategy that aims to provide access to safe, cleaner alternative fuels for household use and encourages fuel switching by low-income households.⁴⁸³ Using some of the revenue generated from the carbon tax to fund these initiatives would also result in the development of cleaner technologies and aid the transition to a low-carbon economy. In essence, revenues can be used to assist in adjusting taxes to create further incentives for firms and households to reduce their carbon emissions, and to encourage growth in greener technologies and industries.

5 11 CONCLUSION

This chapter provided an overview of South Africa's climate change policies and analysed the correlation of these policies with the proposed South African carbon tax regime.

⁴⁸² The free basic electricity initiative of 50 kWh per month for indigent households, as part of the Free Basic Energy policy announced in 2003, has been rolled out with varying degrees of success. This initiative should be reviewed and strengthened where possible and options could be considered, such as an increase in the free basic allocation.

⁴⁸³ Department of Energy Strategic Plan 2011/12 – 2015/16 – available at http://www.energy.gov.za/files/aboutus/DoE%20Strategic%20plan%202011_12%20-%202015_16.pdf (accessed on 09-10-2014) 14.

The chapter started off by stating South Africa's commitment to the fight against climate change and looked at existing South African climate change policies, which included the National Climate Change Response White Paper of 2011, the Industrial Policy Action Plan (IPAP) and the National Development Plan (NDP).

This was followed by a detailed discussion on the proposed South African carbon tax which included different ways of implementing such a tax to ensure that it fits into the current financial position that South Africa is in. Succeeding this was a discussion on the tax free threshold of 60 per cent and possible adjustments to the said threshold by using a practical example.

Following this, there was an analysis of the carbon offset scheme that the government aims to implement to complement the introduction of the carbon tax. This included certain factors and requirements that the scheme must adhere to, to ensure that it is compatible with the proposed carbon tax as well as the South African carbon tax regime.

The chapter concluded in a discussion on the mitigation projects that generate/will generate carbon credits and how the revenue from the carbon tax may be recycled in order to improve certain socio-economic issues and to encourage participation in the carbon tax regime.

Following the analysis of South Africa's current stance in the battle against climate change and its participation in a carbon market, it is clear that there is still an immense amount of work to be done before South Africa is ready to fully partake in the international carbon market. The policies that have been discussed above only provide an initial framework to build upon. The infrastructure and stakeholders involved to implement these policies still need to be established. This provides one with the ideal situation to propose a possible carbon trading scheme and to fill the gaps that have been created by the policies discussed above. Formulating a possible South African carbon trading scheme will be the objective of the next chapter.

CHAPTER SIX

A PROPOSED CARBON TRADING FRAMEWORK

6 1 INTRODUCTION

In the previous chapters, the different carbon markets and the legislative frameworks regulating these markets were discussed. This discussion included the international instruments regulating carbon markets, international best practice and the proposed South African carbon tax system. As is clear from the previous chapter, the South African carbon market is yet to meet international carbon market standards and the carbon tax linked with the carbon offset scheme is yet to find its place in the South African financial market. To ensure that the carbon tax and the accompanying carbon offset scheme provide both environmental integrity and economic stability, an infrastructure is required to implement the carbon tax/carbon offset system.

Having analysed the successful carbon market systems operating in the rest of the world, this chapter will draw inspiration from those systems and propose a carbon market system that will operate effectively in the South African context. This proposed system will include the carbon tax/carbon offset cycle (hereafter referred to as carbon trading cycle) and all the parties involved with the system to ensure an efficient system that is on par with international best practice. The National Climate Change Response White Paper of 2011⁴⁸⁴ already makes provisions for “the deployment of a range of economic instruments to support the system of desired emissions reduction outcomes, including the appropriate pricing of carbon and economic incentives, as well as the possible use of emissions offset or emission reduction trading mechanisms for those relevant sectors, sub-sectors, companies or entities where a carbon budget approach has been selected”.⁴⁸⁵

⁴⁸⁴ See Chap 5 for more detail regarding the National Climate Change Response White Paper of 2011.

⁴⁸⁵ National Climate Change Response White Paper of 2011, 25.

This means that it is envisaged that a potential carbon trading system could also be used to allow companies to lessen their carbon tax liability and enable them to make a contribution towards a low-carbon economy.

6 2 TIMING AND IMPLEMENTATION OF THE CARBON OFFSET MECHANISM

The carbon offset mechanism to accompany the carbon tax would need to be implementable by mid-2016, as the carbon tax will be charged from 1 January 2016 onwards.⁴⁸⁶ This timeline would facilitate carbon credits to start trading by the end of 2016 which is the proposed time when GHG emitting companies would start paying carbon tax.⁴⁸⁷ In addition to time constraints, it must be kept in mind that the system will be implemented in an economy that does not have excess resources to allocate to the establishment of a complex trading system.

The best approach to mitigate the risks imposed by the dual constraints of time and resources is to make maximum use of existing commercial and regulatory infrastructure. The approach taken in this respect differs from the approaches taken in many other parts of the world such as Australia and the EU ETS. These carbon trading schemes are designed from the ground up as standalone systems. It is submitted that such an approach unnecessarily complicate the implementation of carbon trading and carbon trading systems. The approach that will be proposed in this chapter considers that the most time and resource efficient option for an offset scheme in South Africa will be to incorporate carbon into existing trading infrastructure.

6 3 CARBON TAX VERSUS A CAP-AND-TRADE SYSTEM

The proposed carbon trading system in this chapter focuses primarily on the development of a trading scheme within the context of the South African carbon tax as was proposed through the different policy papers discussed in the previous

⁴⁸⁶ Carbon Offsets Paper, April 2014, 21.

⁴⁸⁷ Although the carbon tax will be implemented as from 1 January 2016, the entities liable to pay carbon tax will only pay their first tax charge after one year. This is because, like most other tax levies, a calculation period is needed to calculate the amount of carbon tax payable from one year's worth of emissions produced by the company.

chapter.⁴⁸⁸ It is however important to note that the trading of carbon credits can be used in two main regulatory regimes which include:

- Cap-and-trade systems: This is the traditional application of carbon credit trading. In such a scheme carbon credits can be used to meet an emitter's commitment towards its emissions cap. This system forms the basis of the EU ETS as was discussed in Chapter 4; and
- Tax-and-trade systems: Carbon taxes work by pricing emissions directly. This price liability is then reduced by introducing carbon credits to surrender against the carbon taxes. This is the proposal in the South African National Climate Change Response Policy Paper of 2011.⁴⁸⁹

It is important to understand why the carbon tax system was proposed to be implemented in South Africa, as opposed to the cap-and-trade system like the one used in the EU ETS. In the South African context, the main reason for a carbon tax to be more appropriate than a cap-and-trade scheme is because of the nature of the energy sector.⁴⁹⁰ With Eskom being the primary supplier of electricity in South Africa, they can easily control the market and influence prices. Setting a fixed rate on carbon provides a fair and transparent playing field for other electricity providers, such as renewable energy producers, to compete with Eskom when it comes to the charging of carbon taxes.⁴⁹¹

In order to work effectively, an cap-and-trade scheme needs a sufficient number of entities participating in the scheme, as well as adequate carbon credit trading volumes to generate an appropriate carbon price. In South Africa, the oligopolistic nature of the energy sector may fail to meet these requirements as only a small

⁴⁸⁸ These include the Carbon Offsets Paper of April 2014, the Carbon Tax Policy Paper of March 2013, and the National Climate Change Response White Paper of October 2011.

⁴⁸⁹ See par 6 1 above.

⁴⁹⁰ The South African energy market can be described as being a "oligopolistic" market, where there are few energy suppliers, with Eskom being the primary supplier, and as a result of which they can greatly influence price and other market factors. – Carbon Tax Policy Paper of 2013, 9.

⁴⁹¹ Once the other energy suppliers have firmly established themselves within the South African energy market, the carbon tax can be complemented or replaced by a cap-and-trade system at a later stage.

number of entities will be able to compete and trade against the electricity giant that is Eskom.

A cap and trade system involves a fixed cap on emissions at a country level. As a developing country, South Africa is categorised as a non-Annex I country under the Kyoto Protocol.⁴⁹² Unlike countries included in Annex I of the UNFCCC and Annex B of the Kyoto Protocol, South Africa does not (as yet) face a binding target for emissions reductions. However, South Africa made a voluntary commitment to curbing emissions relative to the business-as-usual emissions trajectory, and in line with a peak, plateau and decline trajectory.⁴⁹³ This will provide the necessary flexibility and space for the country's economic development needs while also addressing environmental problems, such as climate change. Seeing as South Africa has no obligatory international emissions cap, it is only logical that South Africa implements the simpler carbon tax system.

Current experience with the implementation of cap-and-trade systems, such as the EU ETS, has shown that trading schemes provide certainty with respect to the levels of emissions reductions required. However, if allowances and carbon credits are inappropriately allocated or over-allocated (as is the case with the EU ETS during its third phase in 2013), it drives down carbon credit prices and creates longer term market distortions.⁴⁹⁴ In addition, investments in research, development and "greener" technologies may be deterred due to uncertainties arising from inconsistent and volatile carbon prices.

It is submitted that in a cap-and-trade scheme like that of the EU ETS, the system has to be able to accommodate both EU allowances and other carbon units such as CER's, VER's and credits bought from outside the EU ETS. All of the carbon units used in the EU ETS have to comply with the EU ETS standards. Therefore, this system has to be able to accommodate a large number of variables. A carbon tax scheme is a much simpler administrative system to control as the carbon units used

⁴⁹² See Annex I of the United Nations Framework Convention on Climate Change of 1992.

⁴⁹³ See par 5.1 of Chap 5.

⁴⁹⁴ For a discussion on the EU ETS market failure, see Chap 4 par 4.9.4.

to relieve the carbon tax is verified by an independent carbon standard such as the CDM or the VCS.

Considering the above reasons, it is clear that a carbon tax scheme coupled with a carbon offset scheme would be the best way for South Africa to have an efficient carbon market. However, there are certain factors that need to be addressed when designing a carbon tax system. One of the most important factors includes whether or not the proposed system will have a positive effect in the battle against climate change and in preserving the environment.

6 4 THE ENVIRONMENT AND THE CARBON TAX SYSTEM

This concept can also be described as the “environmental integrity” of the carbon tax system. Traditionally, environmental integrity in the context of producing and delivering carbon credits is taken as meaning “delivering real, permanent, additional and verified mitigation outcomes, avoid double counting of effort, and achieve a net decrease and/or avoidance of greenhouse gas emissions”.⁴⁹⁵

From the definition above it is clear that the environmental integrity of a carbon tax system depends on the requirement that certain criteria be met as will be discussed in the table below:

Table 1: UNFCCC criteria of environmental integrity

1. Are the emission reductions <i>real</i> ?	The CDM, ⁴⁹⁶ VCS ⁴⁹⁷ and GS ⁴⁹⁸ all comply with this criterion, as the calculation of emissions reductions in each of these carbon standards, are very well established.
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⁴⁹⁵ Report of the Conference of the Parties on its seventeenth session, held in Durban from 28 November to 11 December 2011, FCCC/CP/2011/9/Add.1, par 79.

⁴⁹⁶ See Art 12, par 5(b) of the Kyoto Protocol that states: “Real, measurable, and long-term benefits related to the mitigation of climate change.”

⁴⁹⁷ The VCS Quality Assurance principles require that the VCU’s generated by an VCS project is “real, measurable and conservative: Projects must apply an approved methodology to ensure net GHG emission reductions or removals which must have already taken place, and are measurable.” - <http://www.v-c-s.org/quality-assurance-principles> (accessed in 25-10-2014).

⁴⁹⁸ The Gold Standard Principles (May 2013) - available at <http://www.goldstandard.org/wp-content/uploads/2013/08/The-Gold-Standard-Principles-FINAL-270513.pdf> (accessed on 25-10-2014).

<p>2. Are the emissions reductions <i>permanent</i>?</p>	<p>Proving permanency is a difficult point for some types of projects, such as land-based and forestry projects.⁴⁹⁹ Emission reductions achieved by standard CDM projects are permanent, but not those achieved by afforestation/reforestation CDM projects. The VCS addresses the permanency issue in a realistic way through risk assessments and provisions for the risks, like buffer accounts.⁵⁰⁰</p>
<p>3. Can the emissions reductions be <i>verified</i>?</p>	<p>This issue is addressed in the verification requirements of each carbon standard. Effective and transparent verification is guaranteed through the use of independent verifiers.</p>
<p>4. Are the emissions reductions <i>additional</i>?</p>	<p>Most standards will comply with this criterion as additionality arguments are well developed and matured. Some standards tend to over-emphasise the additionality argument to the detriment of the provision of offsets as additionality can take a relatively long time to prove. Progress achieved by the VCS in the development of “standardised methods” goes a long way towards overcoming the onerous additionality requirements imposed by other standards.⁵⁰¹</p>
<p>5. What is the risk of erroneous <i>exclusions</i> and erroneous <i>inclusion</i> of</p>	<p>The CDM has a very low risk of erroneous inclusion but a very high risk of erroneous exclusion. This situation is detrimental to the aims of the offset scheme and development in general.</p>

⁴⁹⁹ This is because the carbon reduction performance of these projects can easily be influenced by external factors such as natural disasters etc.

⁵⁰⁰ VCS has partnered with international experts to address concerns relating to the permanency of land based and afforestation/reforestation projects. This has been done through the development of a pooled buffer account that holds non-tradable credits to guard against any future reversals of issued VCU's.

⁵⁰¹ Standardised methods can make project development more efficient and cost-effective by eliminating the need to determine additionality and establish baselines project-by-project. This in turn allows for significant scaling up of emission reductions. By integrating the determination of additionality into the methodology, standardised methods provide more certainty to project proponents and investors. Standardised methods can also streamline the establishment of baselines, reducing transaction costs associated with the quantification of GHG benefits. - <http://www.v-c-s.org/standardized-methods> (accessed on 25-10-2014).

emissions reductions projects?	
6. Does the standard provide avoidance of <i>double counting</i> ?	The risk of double counting is reduced where only one standard is used in a region as one carbon credit will not be able to be counted by two carbon standards. The risk can, however, be increased if more than one carbon standard is used. The CDM does not require checks that a project has not been registered under another scheme, whereas this provision is made in the VCS. ⁵⁰²

In order to ensure the environmental integrity of the carbon tax/ carbon offset system, it is important to have clear, guided and reputable standards to measure and verify emissions reductions. The Carbon Tax Policy Paper of 2013 states that existing carbon standards such as the CDM, VCS and the Gold Standard should be allowed into the proposed system.⁵⁰³ The most beneficial aspects of using the existing international standards is that all the standards mentioned above have been accepted on an international level as having sufficient environmental integrity. Other benefits of using existing carbon standards include:

- Time to market: One of the biggest advantages in using existing standards is the relatively short time to market that can be achieved with these systems. The introduction of the South African system will not have to be delayed by the design of a custom built standard.
- Infrastructure: The existing standards all have well proven methodologies, auditors, registries etc. The use of these standards gives direct access to this infrastructure.

⁵⁰² The VCS implemented a method of “targets and measures” that need to be applied to prevent double counting of carbon credit across different carbon standard from occurring. – see VCS Policy Brief Double Counting: Clarification of Rules (01-02-2012) <http://www.v-c-s.org/sites/v-c-s.org/files/VCS%20Policy%20Brief%2C%20Double%20Counting.pdf> (accessed on 25-10-2014).

⁵⁰³ Carbon tax Policy Paper of 2013, 19 provides that: “It is proposed that initially firms could use verified offsets developed under internationally recognised carbon offsetting standards (e.g. Clean Development Mechanism (CDM) and Verified Carbon Standard (VCS)) to reduce their carbon tax liability by up to 5 or 10 per cent of the actual emissions...”

- Scope of supply: Regions that have opted to design their own standards have limited scope for the implementation of offset projects based on the slow rate of development of the methodologies.
- Early supply: The use of existing schemes will allow for a fast start-up of the South African scheme with a potentially significant volume of existing credits.

6 5 THE CARBON TRADING SYSTEM WITHIN THE SOUTH AFRICAN ECONOMY

Not only will the South African carbon trading scheme have to ensure that environmental integrity standards are met, but the system will also have to make sense financially and be able to fit into the South African economy. This principle is also known as the “economic integrity” of the carbon trading system. By using existing trading infrastructure, carbon trading can take place with minimum additional costs and risks related to new infrastructure and as such, ensure the economic integrity of the carbon trading system. Considering the previous chapters and the trading of carbon credits that takes place between the different parties involved, the most important functions of the trading system are:

- Price discovery: The trading platform must provide the means for buyers and sellers to communicate with each other in a transparent way. The main items of information that needs to be communicated are the volume and price of carbon credits offered by sellers, the volume and price of offers made by buyers and the volume and price of transactions concluded. Stated simply, price discovery entails the interplay of supply and demand of carbon credits.⁵⁰⁴
- Clearing and Settlement: The trading platform must provide a secure way of ensuring proper clearing. This is where the intention to buy and sell the carbon credit is transmitted from the seller to the buyer and *vice versa*.⁵⁰⁵ The

⁵⁰⁴ Van Wyk *et al Understanding South African Financial Markets* 245, defines “price discovery” as: “the process of determining market prices (or interest rates) through the interaction of buyers and sellers in a free and liquid market”.

⁵⁰⁵ Van Wyk *et al Understanding South African Financial Markets* 216, fn 7 defines “clearing” as: “the process of transmitting, reconciling and, in some cases, confirming buy and sell security transfer instructions prior to settlement. Sometimes the term is incorrectly used to include settlement”.

trading platform must also ensure that settlement⁵⁰⁶ takes place. This is when the carbon credit is transferred from the seller's registry account to the buyer's registry account and the money for the carbon credit is paid from the buyer to the seller.

Now it is necessary to construct a possible carbon trading structure that will fit into the South African financial system. It is submitted that the most practical way of illustrating how this market will operate, is to present the proposed carbon trading cycle in the diagram below, and then to supply detailed descriptions on how the cycle operates. This cycle will illustrate the process of carbon trading within the South African carbon tax regime. It will also illustrate the principles discussed above, such as environmental integrity, economic integrity and the clearing and settlement of carbon credits.

⁵⁰⁶ Van Wyk *et al Understanding South African Financial Markets* 216, fn 8 defines "settlement" as: "the completion of a transaction, wherein the seller transfers securities or financial instruments to the buyer and the buyer transfers money to the seller".

6 6 THE PROPOSED SOUTH AFRICAN CARBON TRADING SCHEME

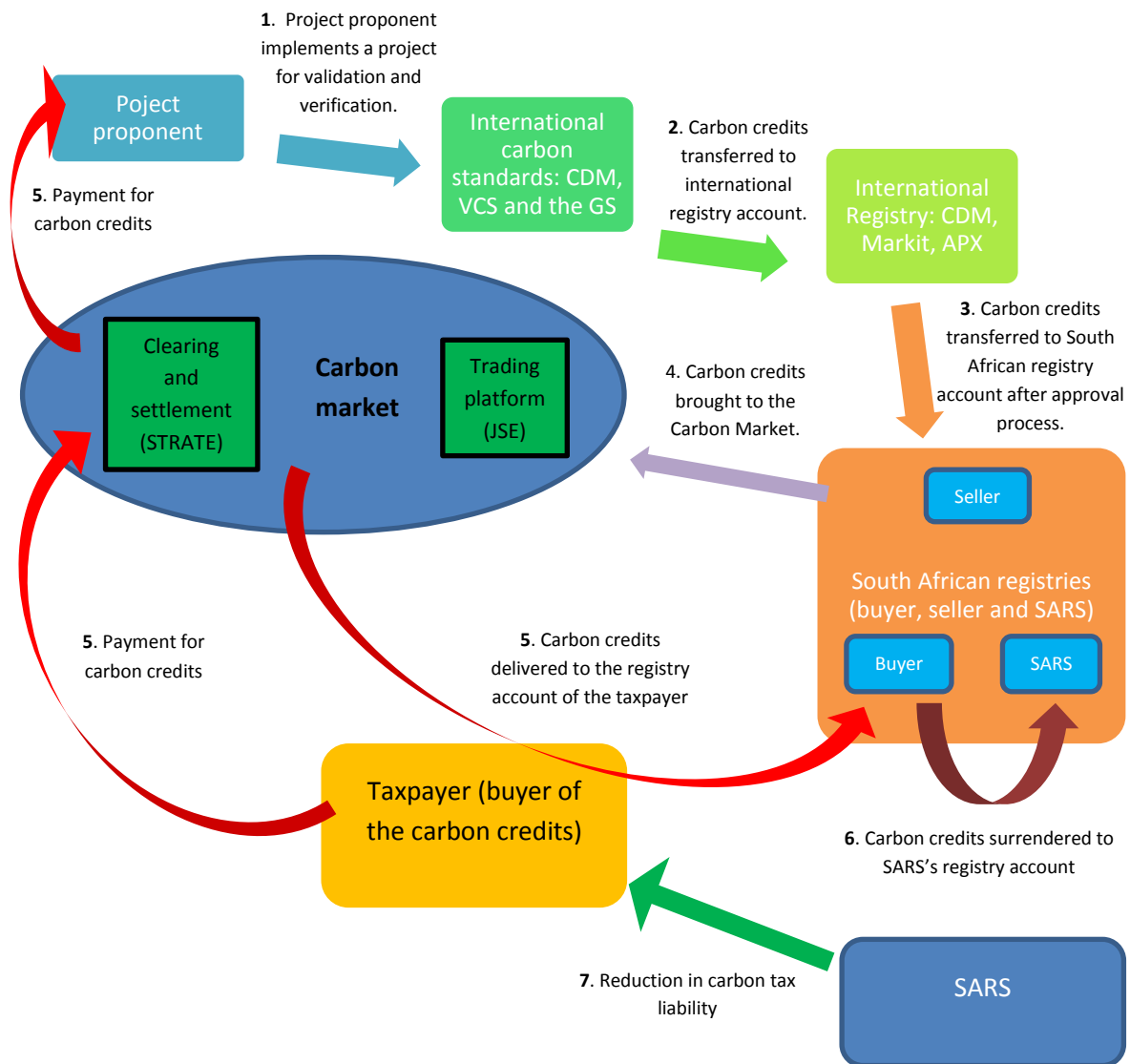


Figure 8: The South African carbon trading cycle

It is submitted that the seven step cycle above represents and illustrates the proposed carbon trading system in South Africa. The seven steps involved will now be discussed in detail below.

6 6 1 IMPLEMENTATION, VALIDATION AND VERIFICATION OF THE PROJECT

The carbon credit provider (project proponent) invests and implements an emissions reduction project.⁵⁰⁷ The emissions reduction project generating the carbon credits must fall outside of the scope of activities that are subject to the carbon tax. This is to prevent that the emissions reductions and consequent carbon credits are double counted.⁵⁰⁸ The project is validated and verified by an accredited auditor of the carbon standard used (the CDM,⁵⁰⁹ VCS⁵¹⁰ or GS⁵¹¹).

An accredited auditor is required during the project validation phase in order to ensure environmental integrity of the carbon offset. Each standard prescribes the competencies required of auditors. Currently this competency is either confirmed by the UNFCCC, or under the ISO 14065 standard.⁵¹² The ISO 14065 was revised in 2013 (ISO 14065:2013) and specifies principles and requirements for bodies that undertake validation or verification of GHG assertions. The ISO 14065 accreditation can be obtained internationally. However, since 2013, ISO 14065 accreditation can also be obtained locally through the South African National Accreditation System (SANAS).⁵¹³ The validity of the accreditation is only three years, after which period the relevant auditor has to renew its ISO 14065 accreditation.⁵¹⁴ Local accreditation could bring the cost of auditing down while creating jobs and building capacity in the green economy.

⁵⁰⁷ The projects proponent can use the carbon credits generated by the project either internally or sell the carbon credits in the market place.

⁵⁰⁸ See Chap 5, par 5 7 2 for more information on the inclusion and exclusion of emissions reductions projects implemented inside or outside the carbon tax liability.

⁵⁰⁹ See Chap 3 for more information regarding the CDM.

⁵¹⁰ See Chap 5, par 5 9 2.

⁵¹¹ See Chap 5, par 5 9 3.

⁵¹² ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. - ISO 14065:2013(English) – available at <https://www.iso.org/obp/ui/#iso:std:iso:14065:ed-2:v1:en>. (accessed on 27-10-2014).

⁵¹³ The South African National Accreditation System (SANAS) is recognised by the South African Government as the single National Accreditation Body that gives formal recognition that Laboratories, Certification Bodies, Inspection Bodies, Proficiency Testing Scheme Providers and Good Laboratory Practice (GLP) test facilities are competent to carry out specific tasks in terms of the Accreditation for Conformity Assessment, Calibration and Good Laboratory Practice Act 19 of 2006. - <http://home.sanas.co.za/> (accessed on 27-10-2014).

⁵¹⁴ More information regarding SANAS and the ISO 14065 accreditation is available at http://home.sanas.co.za/?page_id=211. (accessed on 27-10-2014).

Validation is the process of independent evaluation of a project activity by an independent auditor against the requirements of the specific carbon standard on the basis of the project design document (PDD). Verification is the independent review and *ex post facto* determination by an independent auditor of the monitored reductions in anthropogenic emissions by sources of GHG's that have occurred as a result of a registered emissions reductions project activity during the crediting period. The process of independent validation and verification guarantees the environmental integrity of the system.⁵¹⁵

6 6 2 TRANSFERRAL OF CARBON CREDITS TO AN INTERNATIONAL REGISTRY

After validation and verification has taken place to ensure that the carbon credits generated by the emissions reduction project are genuine and was generated according to the project methodologies used by the different carbon standards, the carbon credits are transferred into the relevant carbon standard international registry. In the case of the CDM this will be the CDM registry⁵¹⁶ and in the case of the VCS or the GS, this could be either Markit or APX. Even though APX and Markit run the registries, these really are part of either the VCS or GS registry systems. In both cases APX and Markit are accountable to the VCS or the GS through a contractual agreement. Consequently APX and Markit are effectively registry service providers or independent administrators and they will both be discussed below.

6 6 2 1 APX

APX Environmental Markets is a leading infrastructure provider for environmental and energy markets in renewable energy and GHG's, including carbon commodities. These commodities include emissions allowances issued by the EU ETS and various other carbon units, such as Verified Emission Reductions (VER's), Emission Reduction Units (ERU's), Certified Emission Reductions (CER's), Verified Carbon

⁵¹⁵ See par 6.4 above.

⁵¹⁶ See Chap 3 par 3 6 3 for more information regarding the CDM registry as well as Conference of the Parties - Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005 FCCC/KP/CMP/2005/8/Add.1.

Units (VCU's), or Carbon Reduction Tons (CRT's). APX has provided carbon trading registries for the "Climate Action Reserve", "American Carbon Registry" and the "Verified Carbon Standard".⁵¹⁷

6 6 2 2 MARKIT

The Markit Registry provides an essential tool for managing carbon credits. It allows participants to track environmental projects and to issue, transact and retire serialised carbon credits. Amongst others, Markit has established registries for the UK Woodland Carbon Code, the GS and the VCS. The Markit registry provides infrastructure that increases transparency, efficiency and scalability within the global environmental markets. The Markit registry supports both project proponents looking to list carbon credits and potential buyers (carbon tax payers in South Africa's case) sourcing projects and carbon credits for their own use. It enables registry account holders to manage environmental projects, credit issuances, transfers and retirements. All documentation is publically available and documentation is reviewed to ensure compliance with relevant environmental market standards.⁵¹⁸

It is submitted that the international registries discussed above may serve a double purpose. This will be discussed in the next section, as these registries may provide excellent platforms to establish South African registry accounts.

6 6 3 TRANSFERRAL OF CARBON CREDITS TO SOUTH AFRICAN REGISTRY

After the carbon credits have been transferred to the relevant international registry account, the carbon credits have to be brought into the South African carbon market scheme. The project proponent who generated the carbon credits through the relevant emissions reduction project can now apply for the credits to be transferred to a South African registry account. This is done by auditing the carbon credits to estimate whether they are appropriate for the South African market using certain rules and regulations. It is submitted that these rules and regulations can best be described

⁵¹⁷ "Registries supported by APX" (Undated) <http://www.apx.com/registries-supported-by-apx/> (accessed on 27-10-2014).

⁵¹⁸ "Markit Registry" (undated) <http://www.markit.com/product/registry> (accessed on 27-10-2014).

as “national appropriateness” measures and involves the introduction of the carbon credits into the national emission trading scheme.

6 6 3 1 NATIONAL APPROPRIATENESS MEASURES

Traditionally the emphasis in the design of carbon trading schemes lies on how to ensure the economic and environmental integrity of the system as was discussed above. In these two areas, sufficient infrastructure is available that can be utilised in the design of a South African system. The national appropriateness factor however, does not normally get the same amount of attention in the design of carbon trading systems. It is submitted that this is a critical error, as the national appropriateness of the carbon units within a carbon scheme may help improve the economic and environmental integrity of a system. There exists various examples of such national appropriateness measures in other carbon trading schemes, but for the purposes of this dissertation, the measures implemented in the EU ETS and the Australian system will be considered.

6 6 3 2 EU ETS APPROPRIATENESS MEASURES

There is a limitation on the trade of certain types of carbon credits in the EU ETS. The introduction of Kyoto carbon units into the EU ETS is made possible by the 2004 Linking Directive (2004/101/EC).⁵¹⁹ The requirements of the Linking Directive were later modified in Article 11(a) of Directive 2009/29/EC¹⁹, which spells out under which conditions CER’s and ERU’s can be used in the EU ETS during phase 3 (2013-2020) of its operation.⁵²⁰ The implementation of the measures listed in these directives is enforced through Article 48(5) of Commission Regulation (EU) No 920/2010 which states:

⁵¹⁹ Art 11(a), par (1) of the Directive 2004/101/EC of the European Parliament and of the Council of 27 October 2004 provides that: “Subject to paragraph 3, during each period referred to in Article 11(2), Member States may allow operators to use CER’s and ERU’s from project activities in the Community scheme up to a percentage of the allocation of allowances to each installation, to be specified by each Member State in its national allocation plan for that period. This shall take place through the issue and immediate surrender of one allowance by the Member State in exchange for one CER or ERU held by the operator in the national registry of its Member State.”

⁵²⁰ See Art 11(a), paras (1) – (14) of Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009.

“The Union registry shall reject any request to surrender CER’s or ERU’s that are prohibited from being used in the ETS in accordance with Article 11a of Directive 2003/87/EC.”

In Commission Regulation (EU) No 389/2013 of 2 May 2013 it states:

“The central administrator shall ensure that CER’s and ERU’s relating to projects hosted in Member States are only held in ETS accounts in the Union Registry if their issuance was not prohibited by Article 11b of Directive 2003/87/EC.”

This effectively makes the administrator of the registry the gatekeeper with respect to which carbon units may be introduced and traded in the EU ETS.

6 6 3 3 AUSTRALIA’S APPROPRIATENESS MEASURES

Before the Australian government repealed the carbon tax system on 17 July 2014, similar national appropriateness measures were applied in Australia. These provisions allowed the use of European Allowance Units (EAU’s) in the Australian system. The legislative instruments regulating the use of these carbon units include the Clean Energy Legislation Amendment (International Linking) Regulation of 2013⁵²¹ and the Select Legislative Instrument No. 78, 2013.⁵²² This link, that was proposed between the Australian carbon system and the EU ETS, involved the holding of an EAU in an Australian EU ETS registry account and the issue of an Australian Issued International Unit (AIU) in the Australian Registry to “shadow” this allowance unit in the Australian system. The AIU could be transferred within the Australian Registry, surrendered for compliance under the Clean Energy Act, or converted back into an EAU in the Australian EU ETS registry account.⁵²³ Liable entities under the Australian scheme may surrender 12.5 % of their liability from Kyoto units (CERs) and 37.5 % from EUA’s.

⁵²¹ See specifically Reg 51 of the Clean Energy Legislation Amendment (International Linking) Regulation of 2013 that provides the conditions for when Australian-issued international units may be issued.

⁵²² These pieces of legislation has since been repealed following the abolishment of the Australian carbon tax.

⁵²³ Attachment A of the Explanatory Statement Select Legislative Instrument 2013 No. 7.

6 6 3 4 PROPOSED SOUTH AFRICAN NATIONAL APPROPRIATENESS MEASURES

Infrastructure to assess the National Appropriateness of carbon credits is the only part of the offset trading system that needs to be built in South Africa. This will require the following aspects to be addressed:

- The rules and regulations for establishing the national appropriateness need to be formulated. This must be the outcome of a process in which all stakeholders are involved and all input is considered when formulating the rules and regulations.
- A custodianship of the rules for national appropriateness needs to be established. It is submitted that the South African custodian in charge of enforcing the national appropriateness measures be vested in the Designated National Authority (DNA).⁵²⁴ The DNA has already been established in South Africa as a prerequisite for participation in the CDM. In South Africa, the DNA is vested within the Department of Energy. Presently, the main task of the DNA is to assess potential CDM projects and determine whether they will assist South Africa in achieving its sustainable development goals and to issue formal host country approval where this is the case.⁵²⁵ It is submitted however, that the South African DNA should be made up of both private and government sector representatives. This will ensure transparency and protect the interest of the private sector.
- The national appropriateness rules and regulations must prescribe that emissions reduction projects must be located inside the boundaries of South Africa.⁵²⁶ Furthermore, projects registered prior to the date of introduction of the carbon tax should be eligible irrespective of other rules and regulations. The motivation for this lies in two areas. The first is that these projects will supply the initial volume into the carbon market that is required to give

⁵²⁴ See Chap 3 par 3 6 1 3 for more information regarding the DNA.

⁵²⁵ The current mandate of the DNA (as per the regulations under s 25(3) of the National Environmental Management Act, 1998: Establishment of a Designated National Authority for the CDM (December, 2004)) are only related to supporting CDM projects within South Africa and will therefore have to be modified to support the South African offset trading scheme.

⁵²⁶ Consideration to expanding this can be given at a later stage to, for example, countries connected to the Southern African Power Pool like Lesotho, Namibia and Botswana. This could create a possible African version of the EU ETS.

liquidity to the trading system. Secondly, any carbon unit that is eligible to be used as an offset elsewhere in the world and which was generated from a project registered when there was no carbon pricing mechanism (carbon tax) implemented in South Africa, should be eligible to be used in South Africa as well.

- If a project is successfully registered under a recognised carbon standard and complies with the South African national appropriateness rules and regulations, it should be issued with an RSA improvement sign of some sort and allowed to be traded as a carbon credit under the South African carbon tax system.

Once compliance with national appropriateness rules and regulations is established, carbon credits are issued into the account of the project proponent in the South African registry. A cancelation certificate has to be obtained from the registry of origin (international registry) to avoid double counting of the carbon credit.

6 6 3 5 SOUTH AFRICAN REGISTRY

The registry is the electronic database in which a carbon credit is stored. No carbon credit can exist outside of a registry, and a credit can only exist in one account at a time. This is why it is so important that a cancelation certificate is obtained from the international registry when the carbon credit is transferred into the South African registry. Having record of the same carbon credit in two different registries may lead to double counting. The full life cycle of the carbon credit trading occurs inside the registry. This includes its issuance, trading and retirement.

The purpose of the registry is to keep an accurate record of the carbon credits in the system and to keep record of ownership of the carbon credits. A registry records the holdings of carbon credits, and any transactions involving those credits, through a structure of accounts. This is similar to the way that banks record balances and movements in money using accounts allocated to individuals or other entities. Process steps that are being addressed in a registry include issuance (bringing new credits into the registry), trade (transfer of credits from one owner's account to

another's account) and cancellation (when a credit ceases to be valid to be used as offset).

Registries clarify ownership of carbon credits by assigning a serial number for each verified carbon credit. When a carbon credit is sold, the serial number and "credit" for the reduction is transferred from the account of the seller to an account for the buyer. If the buyer "uses" the credit by claiming it as an offset against their own emissions or surrendering it against its carbon tax liability (as would be the case in South Africa), the registry retires the serial number so that the credit cannot be resold.⁵²⁷

According to Broekhoff a registration and enforcement system must include:⁵²⁸

- A registry with publicly available information to uniquely identify emissions reduction projects.
- Serial numbers for each carbon credit generated by each project.
- A system to transparently track ownership of carbon credits which makes it possible to track each offset to the project from which it originated.
- A system to easily check on the status of a carbon credit (i.e., whether an offset has been retired).
- Contractual or legal standards that clearly identify the original "owner" of a carbon credit.
- Contractual or legal standards that spell out who bears the risk in case of project failure or partial project failure (e.g. who is responsible for replacing the carbon credits that should have been produced by the failed project).

The transfer of carbon credits from one registry to the next requires special processes. An example of the carbon credits transfer process is the transfer of Australian-Issued International Units (AIUs) to the EU ETS's Union Registry. The process involves the following:⁵²⁹

⁵²⁷ Kollmus, Zink and Polycarp "Making Sense of the Voluntary Carbon Market: A Comparison of Carbon Offset Standards" (March 2008) Stockholm Environmental Institute (SEI) 39.

⁵²⁸ Broekhoff "Voluntary Carbon Offsets – Getting What You Pay For" (18 July 2007) World Resources Institute 10.

⁵²⁹ See Reg 51(1) of the Clean Energy Legislation Amendment (International Linking) Regulation of 2013.

1. Check the validity of the transfer request;
2. Send information to the European Union Transaction Log (EUTL) about the number of AIU's to be cancelled and the account in the Union Registry into which the corresponding number of EUA's must be issued;
3. If the transfer is validated by EUTL, then cancel the AIU's in the Registry by removing the transferred amount from the account in which it was held;
4. Advise the EUTL that the units have been cancelled;
5. Arrange for an equivalent number of EUA's units to be transferred from the Australian foreign registry account in the European Union Registry to the nominated account in the Union Registry.

The international registries discussed above (CDM registry, APX and Markit)⁵³⁰ all provide the ideal infrastructure and ability to serve as a South African registry. Seeing as these registry systems have already been established and have supplied registry services to many entities involved with carbon trading, they will be able to accommodate the needs of a South African registry with minimal additional effort. It is submitted that the South African carbon trading system should not be built on allowing a single registry to establish a monopoly in the carbon market. All the registries discussed above must be able to participate in the South African carbon trading scheme to ensure competitive pricing and fees associated with the administration of a registry system. The only potential problem with allowing different registries to participate in the South African carbon trading scheme, is the possibility that different registry systems will have different standards, which could lead to inconsistencies in the trading and registration of carbon credits and consequent double counting of credits. As such, a binding set of standards will have to be established when the carbon trading system is set up, but a starting point could include the following aspects:

- Quality and validity: The registry must have the systems in place to ensure that credits are only listed when they have been properly validated, verified and approved by the DNA for national appropriateness.

⁵³⁰ See par 6 6 2 above.

- Security: A registry needs to be secure in ensuring that:
 - Ownership of the carbon credits are secure and that the credits cannot be transferred in a fraudulent manner and that double counting of carbon credits does not take place;
 - There must be mechanisms in place to ensure that fraud is detected in the unlikely event that it does occur;
 - Procedures should be in place to ensure the correct actions are taken in the event that fraud is discovered and that the trading of carbon credits is not affected by such events.
- Administration: The registry must be able to prove that it has the required governance and administration in place. This will not be a problem if the CDM, APX and/or Markit registry systems are utilised.
- Accessibility: The registry must be accessible to account holders and market participants.

From the discussion above, it can be submitted that a South African registry system should be created by using existing registry systems such as the CDM registry, the APX registry and the Markit registry. Once a registry system has been put in place to electronically store the carbon credits in different accounts, the carbon credits can be brought to the market place and traded in the South African carbon market.

6 6 4 CARBON CREDITS BROUGHT TO THE SOUTH AFRICAN CARBON MARKET

Once the carbon credits arrive in the South African registry account of the project proponent, the credits can be brought to the carbon market to be traded. A credible trading facility is required to enable the entities included within the scope of the South African carbon tax legislation outlined above⁵³¹ to purchase carbon credits to lower their carbon tax liability. It is therefore proposed that an existing trading platform be used to facilitate the trading of carbon credits.⁵³²

⁵³¹ See Chap 5.

⁵³² Examples of how this can work can be found in the many markets world-wide. For example:

- Trading of the European Allowances and CER's for the European market is done on exchanges such as Blue Next and the European Climate Exchange.

6 6 4 1 CARBON TRADING AND THE JOHANNESBURG STOCK EXCHANGE (JSE)

The Johannesburg Stock Exchange (JSE)⁵³³ is well placed to serve as a primary trading platform for carbon credits of a guaranteed quality, for the following reasons:

- There is a precedent for the government giving the JSE regulatory powers for trading activities in its role in securities trading.
- The JSE has the systems and infrastructure to trade commodities.
- The JSE has the knowhow and experience to trade commodities.
- Access to and interface with existing regulatory platforms.

One of the other advantages of using an existing trading platform is that administrative costs are minimised by outsourcing the infrastructure needed to facilitate a carbon trading system to private sector institutions such as the JSE.

6 6 5 PRICE DISCOVERY, CLEARING AND SETTLEMENT AND TRANSFER OF CARBON CREDITS

The tax payer buys the carbon credits on the market and the credits are transferred to the registry account of the buyer in exchange for payment of the carbon credits to the project proponent. To ensure that the carbon credits are traded according to international standards, the proposed trading platform has to provide proper infrastructure for price discovery and clearing and settlement to take place.⁵³⁴ This is an important factor in any market as the parties to the transaction fulfil their roles as supply and demand participants. To facilitate the carbon credit transaction and the flow of funds from the buyer to the project proponent, a body of sorts is needed to ensure that payment and delivery is achieved.

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- Trading for the Californian Scheme is done on the Intercontinental Exchange, Green Exchange and Carbon Trade Exchange.
 - Trading in South America is done around privately owned exchanges in both Brazil and Chile.

⁵³³ The JSE is the only securities exchange in South Africa. In May 2011 it was ranked 20th (out of 52) in the world in terms of capitalisation and 21st in terms of market turnover. - Van Wyk *et al Understanding South African Financial Markets* 366.

⁵³⁴ See par 6 5 above.

6 6 5 1 STRATE

South Africa's Central Securities Depository (CSD),⁵³⁵ trading under the name Strate, provides electronic settlement for securities for the Johannesburg Stock Exchange (JSE). It is submitted that Strate be used as the electronic clearing and settlement system with respects to the carbon credit transaction. As South Africa's Central Securities Depository (CSD), Strate is licensed to be the independent provider of post-trade products and services for the financial markets. It is important to take note that all carbon credits are in a dematerialised⁵³⁶ (electronic) form and are stored in registries, as was discussed above. Seeing as carbon credits are already in dematerialised form, it is only logical that Strate be used to facilitate the transactions that take place in the carbon market.

Some of the principle features of Strate in the carbon market would be:⁵³⁷

- Electronic records of ownership of carbon credits replace certificates and physical delivery of certificates;
- Trades executed on the JSE must be settled on the settlement date which is currently trade plus 5 South African business days;
- All persons wishing to buy carbon credits and all project proponents owning carbon credits are required to appoint either a broker or a Central Securities Depository Participant (CSDP)⁵³⁸ to act on their behalf and to handle their settlement requirements; and

⁵³⁵ The Financial Markets Act no 19 of 2012 defines a "central securities depository" as: "a person who constitutes, maintains and provides an infrastructure for holding uncertificated securities which enables the making of entries in respect of uncertificated securities, and which infrastructure includes a securities settlement system".

⁵³⁶ Dematerialisation refers to the process whereby paper share certificates are replaced with electronic records of ownership. – Strate website, <http://www.strate.co.za/our-services/dematerialising-your-shares> (accessed on 28-10-2014).

⁵³⁷ Sterling Waterford CCN SPV 4, Offering Circular (27-08-08) 15 available at <http://swsecurities.co.za/files/carbon/Carbon%20Credit%20Note%20prospectus.pdf> (accessed on 26-04-2014).

⁵³⁸ Strate is South Africa's CSD for equity, bond and money market instruments and the CSD Participants are the only market players who can liaise directly with Strate. In order to qualify for this status, they had to fulfil the entry criteria set out by Strate and approved by the Financial Services Board (FSB). The current CSD Participants are ABSA, First National Bank, Computershare, Nedbank, Société Générale, Standard Bank, Link Investor Services, Citi Bank

- Unless parties owning carbon credits specifically request their CSDP to register them as an “own name” holder (which entails a fee), the CSDP or broker holding securities on their behalf will be the registered holder of the carbon credits. Subject to the agreement between the owner of the carbon credit and the CSDP or broker, generally in terms of Strate, the owner would be entitled to instruct the CSDP or broker as to how it wishes to exercise the rights attaching to the carbon credits.

6 6 5 2 COSTS AND MARKET PRICES OF CARBON CREDITS

One of the most important aspects of the design of an offset trading scheme lies in the costs to bring a carbon credit to the market, which will influence and determine the process of price discovery.⁵³⁹ The price of carbon credits, like any other financial instrument on the JSE, is determined by supply and demand of carbon credits in the market. The price of carbon credits will also be affected by the marginal cost of abatement in the industries subject to the emission reduction requirements.⁵⁴⁰ The marginal cost of abatement refers to the marginal additional cost of output (for example electricity output) required to reduce emissions to compliant levels. It is also important to take note that the marginal abatement cost of a single carbon credit may not be lower than R0 per ton of CO_{2e}. This is because anything with a negative marginal abatement cost can be considered to be “business as usual”, in which case additionally, cannot be proven.

The market price of carbon credits will play an important role within the carbon trading scheme in South Africa. In order to generate sufficient demand, suppliers will need to ensure a carbon credit price which is cost effective in terms of the proposed level of carbon tax at R 120 per ton of CO_{2e} gasses. It is only logical that prices may also vary within each standard, depending on the specific project characteristics. Buyers seeking co-benefits to be associated with the carbon credits are prepared to pay higher prices. This would be the case with carbon credits generated by projects

and Standard Chartered Bank. Strate website, <http://www.strate.co.za/our-services/dematerialising-your-shares> (accessed on 28-10-2014).

⁵³⁹ See par 6 5 above for a description of the concept of “price discovery”.

⁵⁴⁰ See Chap 3 par 3 5 for more information regarding marginal abatement costs.

registered with the Gold Standard (GS), as these projects are required to demonstrate co-benefits.⁵⁴¹ Buyers looking to purchase carbon credits to offset their mandatory cap are generally looking at more cost effective options to reduce their tax liability. Until the voluntary market becomes more established in South Africa, cheaper carbon credits will be in greater demand, as buyers in the bigger mandatory carbon market does not have any use for more expensive carbon credits with associated co-benefits. Considering the discussion above, the price of a single carbon credit will have to be lower than the carbon tax associated with one ton of CO_{2e} gas (R120 per ton of CO_{2e} GHG's). If the price of a carbon credit is not lower than the carbon tax levy, the carbon trading scheme will not be viable and the carbon market will fail due to no demand for carbon credits. The reason for this is that it would be easier and cheaper to just pay the amount of carbon tax than to buy carbon credits to offset one's carbon tax liability.

Once clearing and settlement has taken place (i.e. the project proponent has been paid for the carbon credits and the buyer [tax payer] has received the carbon credits), the buyer may proceed to either retain the carbon credits for future use, or choose to surrender the carbon credits against its tax liability.

6 6 6 CARBON CREDITS SURRENDERED TO SARS

To reduce the tax payer's carbon tax liability, he can surrender his purchased carbon credits to SARS. This means that SARS also has a South African registry account with the relevant carbon standard and that the credits surrendered to it by the taxpayer, is transferred to the aforementioned SARS registry account. This account will differ from the other carbon registry accounts, as it will be a "cancellation account". This entails that the carbon credits that are transferred into this account, will be cancelled and prohibited from being traded again.

Note that in this proposed system, SARS is not required to have any knowledge pertaining to carbon credits or the carbon trading mechanism. The DNA (as the custodian of the national appropriateness rules and regulations) and the accredited

⁵⁴¹ See Chap 5, par 5 9 3.

auditors guard over the introduction of carbon credits into the system.⁵⁴² Cancellation of the used credits happens automatically when credits are transferred to the SARS account in the registry by virtue of the fact that the account will be set up as a cancellation account. SARS simply has to allow for a relief of the carbon tax equivalent equal to the amount of carbon credits transferred into the cancellation account by a specific carbon tax payer.

6 6 7 REDUCTION IN CARBON TAX LIABILITY

After the carbon credits have been transferred into the cancellation account held by SARS, SARS is obligated to reduce the tax payer's carbon tax liability. This reduction in carbon tax liability would be equal to the amount of carbon credits transferred into the cancellation account held by SARS. An example illustrating how this reduction in tax liability would be implemented is given above.⁵⁴³ Ultimately, all the processes discussed above are necessary to lead to this final seventh step in the proposed South African carbon tax scheme.

6 7 CARBON CREDIT NOTES WITHIN THE CARBON TAX SCHEME

In Chapter 2 we discussed the nature of the Carbon Credit Note and established that it is not a carbon credit, but rather a derivative based upon a carbon credit, known as a commodity based derivative.⁵⁴⁴ Consequently, the holder of a Carbon Credit Note will not receive a carbon credit, but rather the cash equivalent amount associated to a specific carbon credit.

But the question may be asked how these financial instruments will fit into the South African carbon tax regime. Stated simply: will an entity that is liable to pay carbon tax be able to reduce its carbon tax liability by surrendering Carbon Credit Notes to SARS? The simple answer to this question is "no". An entity is not able to surrender Carbon Credits Notes against its carbon tax liability in the same way in which a

⁵⁴² See paras 6 6 1 and 6 6 3 4 above for more information regarding the DNA and the accredited auditors.

⁵⁴³ See Chap 5, par 5 8.

⁵⁴⁴ See Chap 2, par 2 6 4.

carbon credit can be used to reduce carbon tax liability. The reason for this position will be discussed below.

The purpose of a Carbon Credit Note is to “provide holders of the Note with exposure to an investment in carbon credits through Carbon Credit Notes”.⁵⁴⁵ As such, the Carbon Credit Note is a financial instrument which is not offered to entities liable to pay carbon tax, but rather to institutional investors and to retail investors.⁵⁴⁶ The Carbon Credit Note can then be seen as an investment instrument and not a commodity to be traded and used in the carbon market.

In terms of the Hedging Agreement⁵⁴⁷ associated to the issuing of Carbon Credit Notes, there exist four projects which are expected to deliver carbon credits. These projects also provide a reason why Carbon Credit Notes (and the carbon credits they derive from) are not permitted to be used in the South African Carbon tax scheme. The reason for this is because these projects are all taking place outside of South Africa.⁵⁴⁸ It has been made clear in Chapter 5 that only South African-based projects and the carbon credits generated by these projects will be eligible for use within the South African carbon offset scheme.⁵⁴⁹ This is to encourage the development of locally based projects and address certain socio-economic issues such as access to water and electricity, poverty and unemployment. Seeing as these projects are not

⁵⁴⁵ Sterling Waterford CCN SPV 4, Offering Circular (27-08-08) 17, available at <http://swsecurities.co.za/files/carbon/Carbon%20Credit%20Note%20prospectus.pdf> (accessed on 26-04-2014).

⁵⁴⁶ *Ibid.*

⁵⁴⁷ Sterling Waterford CCN SPV 4, Offering Circular (27-08-08) 17 describes the “hedging agreement” associated to the Carbon Credit Note as: “a forward purchase agreement entered into between the Issuer and the Hedging Counterparty in terms of which the Hedging Counterparty, subject to what is stated below, is obliged to deliver to the Issuer sufficient carbon credits (prior to the Delivery Date) so that the Issuer can fully discharge its delivery obligations under the Carbon Credit Notes on the Delivery Date”.

⁵⁴⁸ These projects include the “Vietnamese hydro project” generating power from a set of river run generators; the “Indian Small Hydro project” where a group of ten small (20 megawatt) independent hydro powered electricity generating facilities in the Himanchal Pradesh and Uttaranchal Provinces of India located on a perennial generate “green” electricity; the “Chinese MSW” project which is a municipal solid waste management project located in the Wuhan Province of China. The project involves the controlled incineration of municipal solid waste for electricity production using German furnace technology adapted for local conditions; the “CIS Gas Venting project” which involves the reduction of methane gas venting in Azerbaijan. Venting occurs when methane gas from oil wells is released directly into the atmosphere as methane. Given that methane is 21 times more powerful as a GHG than carbon dioxide, even a small amount of venting has a relatively large impact on climate change.

⁵⁴⁹ See Chap 5, par 5 7 1; Also see Carbon Offsets Paper, April 2014, 7.

located within South Africa, the carbon credits generated through these projects cannot be used in the South African carbon tax regime.

If the carbon credits were to be generated in South Africa, it would be a possibility to include the carbon credits associated with the Carbon Credit Notes into the South African carbon tax system. Note once again that it is not the Carbon Credit Notes that will be included in the carbon tax system, but rather the carbon credits from which the notes are derived. The reason why these carbon credits can be included in the carbon tax system is because the issuer of the Carbon Credit Notes (Sterling Waterford CCN SPV 4) still has to sell the carbon credits in the carbon marketplace in order to deliver the carbon credit cash equivalent to the holders (investors) of the Carbon Credit Notes. These carbon credits may still be sold to tax liable entities in the proposed scheme described above to enable them to reduce their carbon tax liability. Once again, it is important to note that this is only a possibility if the carbon credits are generated by projects implemented in South Africa (which is not currently the position with regards to Carbon Credit Notes).

From the above it is clear that although the Carbon Credit Note provides access to carbon credits, it will not be associated or traded in the South African carbon trading system as it was proposed above. The Carbon Credit Notes only provide an investment opportunity to those looking to invest money in a more sustainable and environmental friendly way.

6 8 CONCLUSION

The purpose of this chapter, and indeed the entire dissertation was to provide recommendations regarding the actions to be taken to allow for the implementation of a carbon trading system with the introduction of the carbon tax in 2016. Based on time limitations and the fact that South Africa is financially restricted with regards to a carbon market, it is proposed to utilise existing infrastructure as far as possible. Furthermore, instead of building a carbon offset trading system from scratch, it is recommended to benefit from lessons learnt and experience gained internationally in the carbon trading sphere.

A carbon offset trading system in South Africa should ensure environmental and economic integrity, as well as national appropriateness; concepts that were discussed and explained in this chapter. Without these concepts being realised, the purpose of a carbon tax and the introduction of a carbon trading scheme would be undermined. It was illustrated in this chapter that a carbon trading scheme appears to be viable in South Africa as part of a carbon tax regime and will be able to fit into the South African financial market. Such a trading scheme will assist the South African economy in achieving least cost mitigation options. Carbon trading will support the private sector by minimising the cost impact of carbon tax on the economy. But most importantly, a carbon trading regime coupled with the carbon tax regime will support the fight against climate change.

This chapter commenced with a discussion regarding when the carbon trading scheme would need to be ready for implementation. This was followed by a discussion of the reasons why a carbon tax scheme would be a more appropriate carbon trading mechanism for South Africa than that of an emissions trading scheme. Following this, the environmental and economic integrity associated with any carbon trading scheme was analysed.

This was followed by a proposed carbon trading scheme for South Africa that formed the majority of the contents of this chapter. The steps discussed in this chapter can be summarised as follows:

- The project proponent invests in an offset project. This project and the offset provider must be outside the carbon tax liability to avoid double counting.
- The project is validated and verified by an accredited international carbon standard such as the CDM, VCS, or GS. This process guarantees the environmental integrity of the system.
- The credits generated by the project are issued into the international registry in terms of the scheme under which the project was developed. In the case of the CDM this will be the CDM registry and in the case of the VCS or GS, this could be either Markit or APX.
- The project proponent who is the owner of the credits can now apply for the credits to be transferred to the South African Scheme. This is done by

auditing the credits for National Appropriateness according to certain regulations and rules. This audit could be done by the CDM, VCS or GS or the Designated National Authority.

- Once the credits arrive in the account of the offset provider, he can bring the credits to the market to be traded on a trading platform such as the JSE. Strate will be used as the electronic clearing and settlement system.
- The tax payer buys the carbon credits on the market. The credits are transferred to the registry account of the buyer.
- The tax payer surrenders the credits into the cancelation account of the South African Revenue Service (SARS).
- The tax payer receives a reduction in his tax liability that is equal to the CO_{2e} value of the surrendered credits.

The chapter was concluded by a discussion on the place of the Carbon Credit Note in the proposed carbon trading scheme. It was submitted the Carbon Credit Note may not be used in the proposed South African trading scheme, but that the possibility exists for the carbon credits, which the Carbon Credit Notes are based upon, to be used in the South African carbon trading scheme.

CHAPTER SEVEN

CONCLUSION

7 1 INTRODUCTION

In this chapter, a summary of the previous chapters will be presented, followed by a pertinent conclusion.

7 1 1 CHAPTER ONE

This chapter served as an introduction to the dissertation as it provided an explanation of the terms “carbon credit” and “carbon markets”. It also provided the problem statement, objectives, significance, limitations and an outline of the chapters of this dissertation. Lastly, it included a summary of the research methodology used.

The exact nature and a definition of a carbon credit was established in chapter two of this dissertation. However, an initial definition of a carbon credit was provided in chapter one to establish a foundation for the dissertation to build upon.

This definition stated that:

“Carbon credits are intangible tradable instruments that a company acquires for funding projects which assists with the reduction of GHG’s in the earth’s atmosphere.”⁵⁵⁰

Furthermore, it was necessary to establish from the offset of this dissertation that there exists two different carbon markets, namely the mandatory carbon market and the voluntary carbon market.

The global mandatory market (also known as the “compliance” carbon market) for carbon credits is dominated and regulated by two main instruments/treaties, namely

⁵⁵⁰ Gwina “Carbon Credits, the future of infrastructure development finance” (7 April 2010), <http://www.polity.org.za/article/carbon-credits-the-future-of-infrastructure-development-finance> (accessed on 29-01-2014).

the Kyoto Protocol and the UNFCCC.⁵⁵¹ The voluntary market on the other hand trades with carbon credits that are dealt with under voluntary programs and thus regulated by instruments not directly related to the UNFCCC and the Kyoto Protocol. The voluntary market is a much smaller market where individuals, companies and governments purchase carbon credits in order to manage and mitigate their own GHG emissions.⁵⁵²

The problem statement was attributed to the need to examine and evaluate the workings of the international carbon market sphere in order to construct a possible framework for the regulation of a South African carbon market. This analysis would highlight any legal shortcomings that were/are present in these systems. Highlighting any major problems in these systems would help to formulate a possible South African carbon market framework.

The primary objective with the dissertation was to:

Examine and evaluate the existing international regulatory frameworks that exist pertaining to the regulation of carbon markets and then construct a possible regulatory framework for the regulation of carbon credits in a South African carbon market based on international best practice.

The secondary objectives of the dissertation were to:

- Highlight any legal gaps and issues that might arise in South African carbon markets;
- Inform policymakers, who would be able to take note of such gaps;
- Gain an understanding of the history of the legal framework currently in place to regulate carbon markets from an international environmental perspective.

The significance of this study was attributed to the urgent need for South Africa to start participating in trading with carbon credits in order to contribute to the fight

⁵⁵¹ See Chap 3, paras 3 3 and 3 5 for a concise discussion on these instruments.

⁵⁵² Taiyab “Exploring the market for voluntary carbon offsets” 2006 *IIED emissions trading* 1 8-9.

against climate change. In view of international developments, the South African carbon market is outdated in comparison with international best practice. It was therefore necessary to evaluate the current situation and provide a new perspective on how South Africa can implement a lucrative carbon market. The approach taken with regards to the research provided the opportunity to analyse both international and South African developments in the carbon market sphere. This dissertation therefor contributes necessary information to provide solutions in a complex field of the law that is relatively unknown in South Africa.

This dissertation has the main objective of proposing a framework to regulate the South African carbon market. However, in order to achieve this objective, it was necessary to examine international law and also examine the proposed South African carbon tax. Although the dissertation analysed these aspects, it was by no means a dissertation based upon the principles of international law, nor did it have tax law as its foundation. These aspects were only discussed in order to establish how a carbon market should operate. If these aspects were left out, the objective of the study would not have been achieved.

With regards to the research methodology, a comparative approach was deemed appropriate. The main sources consisted of international legislation and regulations, draft legislation and literature such as articles and textbooks. Being a relatively new area of the law, there are very few comprehensive sources pertaining to carbon markets. As such, electronic resources and journal articles were heavily relied on to supply sufficient information to address the objectives of the study.

7 1 2 CHAPTER TWO

This chapter aimed to put into perspective the issue of what is really being bought and sold in a transaction involving carbon credits. The chapter discussed the exact legal nature of a carbon credit and the Carbon Credit Note and established how these concepts would fit into the South African financial market system.

The chapter started off by discussing the different definitions that have been constructed to describe a carbon credit. After careful analysis of these definitions, a

new definition was proposed to culminate the most important principles set in the different definitions that were analysed. This was followed by setting a distinction between a “carbon credit” and a “carbon offset” as it was submitted that although these two concepts are linked with one another, they have different meanings.

This was followed by a discussion on the concepts of becoming ‘carbon neutral’ and measuring one’s “carbon footprint”. The different methods associated with these concepts and the different categories of emissions (scope 1, scope 2 and scope 3) was analysed. This was in order to establish a background to carbon credits and clarify the purpose they would be used for (in order to minimise ones carbon footprint and become carbon neutral).

After certain terminology relating to the carbon market was discussed, the legal nature of carbon credits and Carbon Credit Notes was considered. This included both international perspectives pertaining to the nature of a carbon credit, as well as South African perspectives on the matter. The carbon credit as a ‘commodity’ and the Carbon Credit Note as “commodity based derivative” were discussed with the conclusion that both these concepts can be regarded as “financial instruments” for purposes of the South African financial market. Forward contracts, futures contracts and Exchange Traded Notes (ETN’s) were also discussed seeing as the Carbon Credit Notes relate to these derivative instruments.

Following the discussion on the nature of a carbon credit, factors that influence the prices and production of carbon credits were discussed, such as changes in weather patterns and the possible downturn in world economic activity. The chapter concluded with a discussion on the history and rationale behind the concept of carbon markets and also provided a glimpse at the international instruments that would be discussed in chapter three. Part of the last section of the chapter included a focussed discussion on the concept of sustainable development and how it provides the carbon market with a focus point to mitigate the effects of climate change.

7 1 3 CHAPTER THREE

This chapter deals with the international law regulating climate change and discusses the different international instruments that have been implemented to regulate carbon markets. These international legal instruments paved the way in the carbon market sphere and established the ideology of associating a monetary value to carbon and GHG's.

The instruments and frameworks that were discussed in this chapter provided a safety net to help minimize and fight the effects of climate change and if implemented properly, the carbon market created by these instruments may save our environment and ensure the sustainability of it for future generations.

This chapter commenced with a discussion on the general principles of international law and the international conventions and treaties that relate to climate change. This was followed by a discussion on the UNFCCC which forms the international backbone of all legislation related to climate change. Although the Convention does not provide legally binding obligations, it does provide a framework for parties to the Convention to initialise emission reduction activities and also provides a process for agreeing on specific actions to be taken at a later stage.

Following the discussion on the UNFCCC was a detailed analysis of the Kyoto Protocol and the three carbon trading mechanisms that the Protocol implemented, namely the Clean Development Mechanism (CDM), the Joint Implementation mechanism (JI) and the Emissions Trading mechanism (ET). The CDM was discussed in much greater detail than the other mechanisms, as the CDM is the only mechanism that is relevant to South Africa as a Non-Annex I country in terms of the Kyoto Protocol. As such, the CDM was analysed by means of discussing the CDM project cycle as was illustrated in a diagram.

The chapter concluded with a discussion on the Marrakesh Accords and the Doha Amendment to the Kyoto Protocol which both play a pivotal role in the international carbon market. The Doha Amendment to the Kyoto Protocol is of great importance,

as it provides new climate change goals and principles and reinforces the old Kyoto principles that have to be met in the second commitment period from 2013 to 2020.

7 1 4 CHAPTER FOUR

This chapter aimed to establish international best practice relating to carbon markets in order to construct a possible framework to regulate the South African carbon market. International best practice was established by evaluating the Australian carbon market and the European Union Emissions Trading Scheme (EU ETS).

The chapter started off by discussing the general principles of the Australian legal system. This included some of the differences and similarities between the South African system and the Australian system. In this section the common law based Australian legal system was analysed and compared with the hybrid legal system (common law combined with civil law) that South Africa has. Furthermore it was also established that South Africa and Australia share the principle of 'separation of powers'. This means that the powers of the government are divided into separate bodies known as the legislature, the executive, the judiciary and all organs of state.

This was followed by a detailed discussion on the Australian carbon market system. Firstly the carbon tax position before July 17th 2014 was considered which included important concepts such as the "polluter-pays" principle and the concept of negative externalities. This was followed by a discussion on the post-July 17th 2014 position and the proposed Direct Action Plan. This was done by discussing the five steps associated with this system, as well as the proposed "safeguarding" mechanism to ensure that emission reductions keep on improving. The fact that the fixed carbon tax system was revoked on the 17th of July 2014 at first appeared to be problematic. However, after a careful analysis, it provided the opportunity to evaluate both the pre- and post-July 17th position and draw from the failures and successes associated with both these systems. It consequently provided for a more comprehensive study and the ability to construct a better framework in Chapter Six.

The link that was proposed (in accordance with the pre-July 17th 2014 position) to be established between the Australian system and the EU ETS was discussed next.

This was followed by a detailed analysis on the functioning of the EU ETS. This discussion included the following topics: the monitoring, reporting and verification processes of the EU ETS, non-compliance penalties and the “back-loading” of emission allowances.

After both the Australian system and the EU ETS was analysed, the advantages and concerns associated with each of these systems were considered. The lessons learnt from these systems were noted and used later to construct a proposed framework to regulate the South African carbon market.

7 1 5 CHAPTER FIVE

This chapter aimed to examine the different South African policies that relate to the implementation of a South African carbon market. The policies that were discussed in this chapter only provide initial suggestions with regards to the implementation of a lucrative South African carbon market. The infrastructure and stakeholders that would be involved in such a market still needs to be established. However, in order to construct a possible South African carbon market scheme, one would have to know the visions and policies already in place to ensure that such a scheme would fit into the current South African market.

The chapter started off by stating South Africa’s commitment to the fight against climate change. This included that South Africa would undertake appropriate national actions to curb GHG emissions with 34 per cent by 2020 and 42 per cent by 2025 below business-as-usual levels. Furthermore this section discussed the existing South African climate change policies, which included the National Climate Change Response White Paper of 2011, the Industrial Policy Action Plan (IPAP) and the National Development Plan (NDP).

This was followed by a detailed discussion on the proposed South African carbon tax which included different ways of implementing such a tax to ensure that it fits into the current South African financial position. This included “upstream” and “downstream” taxation methods as well taxing emissions directly versus taxing emissions on fuel production and usage. Succeeding this was a discussion on the tax free threshold of

60 percent and possible adjustments to the said threshold by using a practical example.

Following this, there was an analysis of the carbon offset scheme that the government aims to implement to complement the introduction of the carbon tax. A carbon offset mechanism trading with carbon credits generated by GHG emissions reduction projects would enable firms to cost-effectively lower their carbon tax liability. Such a scheme would also incentivise investment in least-cost emissions reduction projects that deliver carbon credits at a cost lower than the carbon tax. Paragraph 5 8 in this chapter is of great importance as it illustrated exactly how the carbon tax coupled with the carbon offset scheme will operate with regards to calculating an entity's carbon tax liability. This section also included certain factors and requirements that the scheme must adhere to, to ensure that it is compatible with the proposed carbon tax as well as the South African carbon tax regime.

The chapter concluded in a discussion on the emissions reduction projects that are generating/will generate carbon credits. This was done by discussing the emissions reduction projects associated with each of the carbon standards, namely the CDM, the VCS and the GS. This section also included a discussion on how the revenue from the carbon tax may be recycled in order to improve certain socio-economic issues and to encourage participation in the carbon tax regime.

7 1 6 CHAPTER SIX

Having established the nature of a carbon credit; analysed the successful carbon market systems operating in the rest of the world; and evaluated the exiting South African policies that relate to the introduction of a carbon market, this chapter aimed to draw inspiration from this information and propose a framework to regulate the South African carbon market.

The purpose of this chapter, and indeed the entire dissertation, was to provide recommendations regarding the actions to be taken to allow for the implementation of a carbon trading system with the introduction of the carbon tax in 2016. Based on

time limitations and the fact that South Africa is financially restricted with regards to a carbon market, it was proposed to utilise existing infrastructure as far as possible.

Concepts discussed in this chapter included “economic integrity”, “environmental integrity” and “national appropriateness”. It was illustrated in this chapter that a carbon offset scheme appears to be viable in South Africa as part of a carbon tax regime and will be able to fit into the South African financial market. Such a trading scheme will assist the South African economy in achieving least cost mitigation options. Carbon trading will support the private sector by minimising the cost impact of carbon tax on the economy. But most importantly, a carbon trading regime coupled with the carbon tax regime will support the fight against climate change.

This chapter commenced with a discussion regarding when the carbon trading scheme would need to be ready for implementation should the carbon tax be implemented in January 2016. This was followed by a discussion on the reasons why a carbon tax scheme would be a more appropriate carbon trading mechanism for South Africa than that of an emissions trading scheme. One of the major reasons (amongst others) included that Eskom, being the primary supplier of electricity in South Africa, can easily control the market and influence prices. Consequently Eskom would dominate an emissions trading scheme and be one of the only parties involved in such a system. A carbon tax ensures that a wide spectrum of entities is held liable to pay the tax and a predetermined tax rate. This would ensure a more fair and transparent carbon market system without domination by Eskom.

Succeeding this was the proposed framework to regulate the South African carbon market. This section formed the bulk of the chapter and included discussions on:

- The project proponent;
- Validation and verification of the emissions reduction project by an accredited international carbon standard;
- International registries that held the carbon credits. In the case of the CDM this was the CDM registry and in the case of the VCS or GS, this was Markit or APX;

- Transferral of the carbon credits to the South African scheme. This is done by auditing the credits for National Appropriateness;
- The JSE and Strate that may provide the trading platform, electronic clearing and settlement infrastructure; and
- The reduction of an entities carbon tax liability through surrendering carbon credits to SARS.

The chapter concluded with a discussion on whether or not a Carbon Credit Note and the carbon credits that the Notes are derived from may also be utilised to reduce one's carbon tax liability. This discussion confirmed that only carbon credits that are generated in South Africa may be used to reduce one's carbon tax liability.

7 2 CONCLUSION

The purpose of this dissertation was to provide some clarity in a field of law that is yet to find its feet in South Africa. The research that have been done and the methods applied to do so was directed towards answering a lot of legal questions that existed with regards to the regulation of carbon markets at both a domestic and international level. It was established, that for purposes of the South African financial market, a carbon credit can be regarded as a commodity and as such, a financial instrument.

This dissertation revealed that although South Africa has made a commitment to reduce emissions and there are policies in place to help fight the effects of global warming, legislative reform to conform to international best practice in carbon markets is imperative. In this regard, this dissertation also revealed that there are still major faults and risks associated with existing international best practice. Although South Africa is well behind with regards to the implementation of a carbon market, it provides policymakers the opportunity to learn and draw from the successes and failures associated with carbon markets systems from around the world. It is recommended that policy makers should strive to ensure that the South African legal framework pertaining to a carbon market is sufficiently aligned with the principles, methodologies and recommendations as provided for by the international institutions providing best practice.

This dissertation recommends that for the purposes of establishing a successful South African carbon market, existing infrastructure must be utilised to mitigate the risks imposed by the dual constraints of time and resources. Utilising existing commercial infrastructure will ensure that a framework is in place to regulate the South African carbon market by the time that the carbon tax is implemented in January 2016. It is submitted that the proposed framework to regulate the South African carbon market illustrates this principle and it provides clarity as to how the carbon market will operate in South Africa.

Throughout the study it was clear that the only way to convince entities around the world to emit less GHG's and to contribute towards the fight against climate change, is to attach a monetary value to emissions. Pricing carbon is the only way to sanction entities that emit GHG's and compensate entities who mitigate GHG's. Considering the current international situation with regards to climate change and global warming, it is fair to say that the carbon market is yet to reach its full potential, both financially and environmentally. Whether at a domestic or international level, it is submitted that the carbon market is going to grow in coming years to become one of the biggest markets in the world. The time for South Africa to start participating in such a market has come.

In conclusion then, this dissertation revealed the need for a sound and robust legal framework to regulate a South African carbon market trading with carbon credits.

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ANNEXURE A

GLOSSARY AND ABBREVIATIONS

A

AAU

Assigned Amount Unit

ACCU

Australian Carbon Credit Unit

APX

Leading infrastructure provider for environmental and energy markets in renewable energy and GHG's, including carbon commodities.

Annex A

Refers to Annex A of the Kyoto Protocol that sets out the six GHG's and the various sectors/source categories to be addressed in order to reduce these GHG's.

Annex B

Refers to Annex B of the Kyoto Protocol that lists the countries with the commitments under the Kyoto Protocol and also stipulates the commitments that need to be achieved by each country. The parties contained in Annex B are based upon and are virtually the same as those listed in Annex I of the UNFCCC.

Annex I country

Developed country as listed in the UNFCCC and the Kyoto Protocol.

Additionality

Additionality is the requirement that the greenhouse gas emissions, after implementation of a emissions reduction project, are lower than those that would have occurred in the absence of the emissions reductions project.

Asset backed security

Debt securities created through securitisation that are backed by a pool of financial assets. The interest payments and principal repayments on these securities are made from cash flows generated by the underlying assets.

B

Back-loading

Involves postponing the auctioning of emission allowances in order to allow demand for the allowances to increase over time.

2011 White Paper

National Climate Change Response White Paper of 2011

C

CCB Standard

Climate, Community and Biodiversity Standard

CCS

Carbon Capture and Storage

CDM

Clean Development Mechanism

CDM EB

Clean Development Mechanism Executive Board

CER

Certified Emission Reduction

CERSPA

Certified Emission Reduction Sale and Purchase Agreement

CO_{2e}

Carbon dioxide equivalent gasses

CO₂

Carbon Dioxide

COP

Conference of the Parties

COP/MOP

Conference of the Parties serving as the Meeting of the Parties.

CSD

Central Securities Depository

CSDP

Central Securities Depository Participant

Carbon credit

Tradable intangible financial instrument in the form of a commodity, that represents the right/allowance to emit one tonne of carbon dioxide (or the mass of another greenhouse gas with a carbon dioxide equivalent [CO₂e]) into the earth's atmosphere.

Carbon Credit Note

A commodity-based derivative listed as asset-backed securities (ABS's) in the Investment Product Sector of the JSE main board.

Carbon footprint

Represents the total greenhouse gas emissions caused directly and indirectly by an organisation or company and is measured over a certain period of time (usually 12 months).

Carbon market

A market, be it either a voluntary or a compulsory market, that is created from the trading of carbon units to encourage or help countries and companies to limit their carbon dioxide emissions.

Carbon offset

The counteracting of carbon dioxide emissions with an equivalent reduction of carbon dioxide in the atmosphere.

Carbon offset mechanism

A mechanism where tax liable entities will be able to surrender carbon credits against their carbon tax liability and consequently reduce the amount carbon tax payable by such an entity.

Carbon neutrality

Refers to achieving net zero carbon emissions by balancing a measured amount of carbon released with an equivalent amount sequestered carbon, or buying enough carbon credits to make up the difference.

Carbon Pricing Mechanism

The Australian pre-July 17th regime that, as part of the Clean Energy Future Plan, provides incentives for Australia's largest polluters to reduce their greenhouse gas pollution, by requiring them to acquire carbon credits for each ton of GHG pollution they release into the atmosphere, or alternatively pay a fine known as a shortfall charge.

Carbon Standards

Refers to the different institutions responsible for validating, verifying and certifying emission reductions such as the CDM, the VCS and the GS.

Carbon tax

Carbon tax is an environmental fee (per ton of CO_{2e}) levied by governments on the emission of greenhouse gasses caused by the production, distribution or use of fossil fuels such as oil, coal and natural gas.

Carbon tax revenue recycling

Also known as tax/revenue recycling which refers to redistribution of the revenue made through the carbon tax system to households and companies.

Carbon units

Refers to all forms as carbon credits that represent an emission reduction of one tonne of CO_{2e} gasses.

Clean Energy Regulator

The Australian body responsible for administering the Renewable Energy Target, the National Greenhouse and Energy Reporting Scheme, the Carbon Farming Initiative and the Emissions Reduction Fund.

Clearing

The physical exchange of payment instructions.

Climate change

Refers to the statistical distribution of weather patterns when that change lasts for an extended period of time.

Commodity based derivative

A financial instrument that derives its value from an underlying commodity (carbon credit).

Commodities market

The market where commodities are traded which can be divided into the physical commodities market and the financial commodities market.

Convention/Treaty

A written agreement between states or between states and international organisations, operating within the field of international law.

Crediting period

The crediting period for an emissions reduction project refers to the period for which emissions reductions are verified and certified by a designated operational entity for the purpose of issuance of certified carbon credits.

D**DEA**

Department of Environmental Affairs

DNA

Designated National Authority

DOE

Designated Operational Entity

Dematerialisation

The elimination of physical certificates or documents of title which represent the ownership of securities so that the securities exist only as electronic records.

Derivative

Any financial instrument or contract that creates rights and obligations and that derives its value from the price or value, or the value of which may vary depending on a change in the price or value, of some other particular product or thing.

Direct Action Plan

The Australian governments post-July 17th 2014 climate change policy which would provide financial incentives for polluters to reduce emissions through a Emissions Reduction Fund.

Direct emissions

Emissions from sources that are owned or controlled by a reporting entity.

Doha Amendment

Doha Amendment to the Kyoto Protocol - international legislative instrument that was put in place to ensure that the second commitment period adheres to both the old Kyoto measures, as well as new measures to help improve the solutions to climate change.

Double counting

Emissions reductions are credited more than once.

Double dividend

Refers to a concept that consists of two main parts: the first dividend is commonly understood to be the correction of the environmental externality, whilst the second dividend is understood to derive from the use of those revenues to reduce distortionary taxes elsewhere in the economy, with consequent lower unemployment and/or higher GDP.

E

EEA

European Environment Agency

EEA-EFTA

European Economic Area- European Free Trade Association - The three EEA EFTA States include Iceland, Liechtenstein, and Norway.

ERF

Emission Reduction Fund

ERU

Emission Reduction Unit

ET

Emissions Trading mechanism

ETN

Exchange Traded Notes - ETN's are unsecured debt securities issued by an underwriting bank. Like any other debt instrument, they have a maturity date and their credit risk is linked to that of the issuer, the funds obtained by the issuing of an ETN are invested directly in a particular benchmark which could be a commodity index or a single commodity derivative. The return on an ETN is therefore directly linked to the performance of the benchmark.

EU

European Union

EU ETS

European Union Emissions Trading Scheme

EU Member States

28 EU Member states include Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and lastly the United Kingdom.

Emissions baseline

Refers to a reference standard for each emission reduction case to ensure that emission reductions take place in relation to the reference standard.

Emissions cap

A limit that is set on the total amount of certain greenhouse gases that can be emitted by an entity.

Emissions reduction

Refers to the reduction of greenhouse gases in the earth's atmosphere.

Emissions reduction project/mitigation project

A project that reduces the emission of greenhouse gases in the short- or long-term which results in the generation of carbon credits.

E

FMA

Financial Markets Act 19 of 2012

FSA

Financial Services Authority - body responsible for the regulation of the financial services industry.

Financial commodities market

The commodities market where commodities-based financial instruments are traded.

Financial instrument

A claim against a person or institution for the payment of a future sum of money and/or periodic payment of money.

First Commitment Period

Referring to the period from 2008 to 2012 in terms of the Kyoto Protocol.

Forward contract

An OTC-traded contract to buy or sell a precise quantity of a certain underlying commodity at a precise price, place and time in the future.

Futures contract

An exchange-traded contract to buy or sell a precise quantity of a certain underlying commodity at a precise price, place and time in the future.

G

GHG's

Greenhouse Gasses

GHG Protocol

Greenhouse Gas Protocol - sets the global standard to measure, manage, and report greenhouse gas emissions.

GS

Gold Standard

Global warming

Global Warming is the increase of earth's average surface temperature due to effect of greenhouse gases, such as carbon dioxide emissions from burning fossil fuels or from deforestation, which trap heat that would otherwise escape from earth.

H

Hedging

Action taken to protect against the risk of an adverse outcome

Hedging agreement

For purposes of this dissertation refers to a forward purchase agreement entered into between the Issuer and the Hedging Counterparty in terms of which the Hedging Counterparty, subject to what is stated below, is obliged to deliver to the Issuer sufficient carbon credits (prior to the Delivery Date) so that the Issuer can fully discharge its delivery obligations under the Carbon Credit Notes on the Delivery Date.

Host country

A country in which an emissions reduction project is implemented

I

INEP

Integrated National Electrification Programme

IPAP

Industrial Policy Action Plan

IPCC

International Panel on Climate Change

ISO

International Organization for Standardization

Indirect emissions

Emissions that are a consequence of the activities of the reporting entity, but occur at sources owned or controlled by another entity.

J

JI

Joint Implementation mechanism

JISC

Joint Implementation Supervisory Committee

JSE

Johannesburg Securities Exchange Limited – The exchange for listed shares and certain derivative instruments in South Africa.

K

Kyoto Protocol

Kyoto Protocol to the United Nations Framework Convention on Climate Change - an international agreement linked to the United Nations Framework Convention on Climate Change, which commits its Parties by setting internationally binding emission reduction targets.

L

LFG

Land Fill Gas

LTMS

Long-Term Mitigation Scenarios

Leakage

Emissions that may be caused by the emissions reduction project self

M

Mt

Mega tonne (a unit of mass equal to one million tonnes)

MW

Megawatt - a unit of power

Make-good provisions

Contractual tools requiring project proponents to fulfil their contractual obligations (deliver a specified amount of emissions reductions) through alternative means when they are unable to satisfy the original terms of the contract.

Mandatory market

Entities participate in this market in order to comply with emission reduction targets set by legislative instruments to avoid penalties associated with non-compliance of said emission reduction targets.

Marginal abatement costs

Reflects the cost of one additional unit or ton of pollution that is abated, or not emitted.

Markit

Leading infrastructure provider for environmental and energy markets to track environmental projects and to issue, transact and retire serialised carbon credits.

Marrakesh Accords

The Marrakesh Accords is a set of agreements reached at the 7th Conference of the Parties (COP7) to the United Nations Framework Convention on Climate Change, held in Marrakesh, Morocco from October 29 to November 10, 2001, on the rules of meeting the targets set out in the Kyoto Protocol.

N

NAMA's

Nationally Appropriate Mitigation Actions

NDP

National Development Plan: Vision for 2030

NEMA

National Environmental Management Act 107 of 1998

Non-Annex I country

Developing country

National Appropriateness

Refers to the criterion that carbon credits must comply with certain rules and regulations before they can be used in a certain jurisdiction/country/carbon trading scheme.

O**OTC**

Over-the-counter

Oligopolistic

A market condition that exists when there are few sellers, as a result of which they can greatly influence price and other market factors.

Operational boundary

This boundary defines which operations and activities (and the consequent emissions) within the organisational boundary will be included in a company's business operations.

Organisational boundary

This boundary dictates which related businesses and operations will constitute the company for the purposes of reporting on greenhouse gas emissions.

P

PDD

Project Design Document

PIN

Project Idea Note

Physical commodities market

The commodities market where physical commodities such as meat, maize, iron and gold are traded in physical quantities.

Primary carbon credits

Primary carbon credits are purchased from mitigation projects that are not yet in operation. These credits are often forward sold, based on the expectations of the quantity and quality of carbon credits that will be produced by the specific mitigation project.

Price discovery

The general process used to determine prices of securities in the marketplace. These prices are dependent upon market conditions affecting supply and demand.

Project Proponent

The entity who implements a emissions reduction project in order to generate carbon credits.

R

RMU

Removal Unit

Reporting

Refers to the accurate measurement of emissions by a company and the duty to accurately and truthfully report said emissions to a relevant authority.

S

SANAS

South African National Accreditation System

SARS

South African Revenue Services

Safeguard mechanism

A mechanism to incentivise companies to not exceed emissions levels beyond historical emission levels.

Scope 1 emissions

All direct greenhouse gas emissions which includes emissions such as refrigeration, air conditioning and most of all fuel burnt by company-owned assets, which include all company owned motor vehicles.

Scope 2 emissions

Indirect emissions caused by purchased electricity, heat or steam.

Scope 3 emissions

Indirect emissions caused by air travel and paper use and many other sources.

Secondary carbon credits

Secondary credits are those credits that have already been issued from mitigation projects already in operation. These credits are sold repeatedly by different companies until it is eventually bought by the final consumer who will submit and surrender the credit in order to meet its emission reduction target.

Second Commitment Period

Referring to the period from 2013 to 2020 in terms of the Kyoto Protocol and the Doha Amendment to the Kyoto Protocol.

Securities

As defined in section 1 of the Financial Markets Act No. 19 of 2012 - Listed and unlisted shares, depository receipts and other equivalent equities in public companies, other than shares in a share block company as defined in the Share Blocks Control Act, 1980 (Act No. 59 of 1980); debentures, and bonds issued by public companies, public state-owned enterprises, the South African Reserve Bank and the Government of the Republic of South Africa; derivative instruments; notes; participatory interests in a collective investment scheme as defined in the Collective Investment Schemes Control Act, 2002 (Act No. 45 of 2002), and units or any other form of participation in a foreign collective investment scheme approved by the Registrar of Collective Investment Schemes in terms of section 65 of that Act; and instruments based on an index; units or any other form of participation in a collective investment scheme licensed or registered in a country other than the Republic; the securities contemplated in paragraphs (a)(i) to (vi) and (b) that are listed on an external exchange; an instrument similar to one or more of the securities contemplated in paragraphs (a) to (c) prescribed by the registrar to be a security for the purposes of this Act; rights in the securities referred to in paragraphs (a) to (d), but excludes money market securities, except for the purposes of Chapter IV; or if prescribed by the registrar as contemplated in paragraph (d); the share capital of the South African Reserve Bank referred to in section 21 of the South African Reserve Bank Act, 1989 (Act No. 90 of 1989); and any security contemplated in paragraph (a) prescribed by the registrar.

Settlement

The fulfilment of a financial contract either by physical delivery of the underlying goods or by net cash payment.

Strate

Share Transactions Totally Electronic Limited

Sterling Waterford

The issuer of Carbon Credit Notes being an Investment Management and Corporate Advisory business and specializes in management and advisory services related to listed and unlisted securities.

Sustainable development

The use of natural resources in such a way as to meet the needs of the present generation, without compromising the right to natural resources of future generations to enable them to meet their own needs.

I

Tax-free threshold

A threshold based on actual emissions produced by an entity, below which an exemption from the carbon tax will be granted.

U

UNFCCC

United Nations Framework Convention on Climate Change.

United Nations

An international organization founded in 1945 after the Second World War by 51 countries committed to maintaining international peace and security, developing friendly relations among nations and promoting social progress, better living standards and human rights.

V

VCS

Verified Carbon Standard

VCU

Verified Carbon Units

Validation

The process of independent evaluation of a project activity by an independent auditor against the requirements of the specific carbon standard on the basis of the Project Design Document (PDD).

Verification

The independent review and *ex post facto* determination by an independent auditor of the monitored reductions in anthropogenic emissions by sources of GHG's that have occurred as a result of a registered emissions reductions project activity during the crediting period.

Voluntary market

Entities voluntarily participate in this market by purchasing carbon credits to mitigate their own greenhouse gas emissions from transportation, electricity use, and other sources.