FIRST INTERIM REPORT ON

CARBON TAX

FOR THE MINISTER OF FINANCE

THE DAVIS TAX COMMITTEE

13 November 2015

Dear Minister

We, as the Members of the Davis Tax Committee, have the honour and privilege to provide you with this report which has been:

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Table of Contents

Abbreviations and acronyms

AFOLU	Agriculture, Forestry and Other Land-Use
BAU	Business As Usual
BCA	Border Carbon Adjustment
BEPS	Base Erosion and Profit Shifting
BTA	Border Tax Adjustment
CCBS	Climate, Community and Biodiversity Standard
CCS	Carbon Capture and Sequestration
CDM	Clean Development Mechanism
CER	Certified Emissions Reduction
CGE	Computable General Equilibrium
CIT	Corporate Income Tax
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide - Equivalent
DEA	Department of Environmental Affairs
DNA	Designated National Authority
DoE	Department of Energy
DOE	Designated Operational Entity
DTC	Davis Tax Committee
DTI	Department of Trade and Industry
EEDSM	Energy Efficiency and Demand-Side Management
ETS	Emissions Trading System
EU	European Union
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GS	Gold Standard
INEP	Integrated National Electrification Programme
IPCC	Intergovernmental Panel on Climate Change
LCA	Lifecycle Analysis
LTMS	Long-Term Mitigation Scenarios
NATMAP	National Transport Master Plan
NCCRP	National Climate Change Response Policy
NDP	National Development Plan
NEMA	National Environmental Management Act
NGO	Non-Governmental Organisation
NH_3	Ammonia
PIT	Personal Income Tax

ppm	parts per million
REIPP	Renewable Energy Independent Power Producer
UNFCCC	United Nations Framework Convention on Climate Change
VAT	Value Added Tax
VCS	Verified Carbon Standard
WTO	World Trade Organization

1. BACKGROUND

In 2002, the Tax Policy Unit of the National Treasury initiated a study on the potential for environmental fiscal reform in South Africa, focusing on the role of the tax system in contributing towards achieving environmental objectives at the lowest overall cost to the economy. This culminated in a draft environmental fiscal reform policy paper, published in 2006, which provided a framework and a set of criteria for considering and evaluating environmental tax proposals (National Treasury, 2006). The intention of this paper was to ensure that environmental tax proposals, devised by both the National Treasury and other government line departments, are developed consistently with economic and tax policy principles so as to achieve coherent policy.

The rationale behind the carbon tax policy, proposed by National Treasury (National Treasury, 2010; National Treasury, 2013), is to internalise part of the external costs of climate change through a price mechanism and to create incentives for behavioural changes, by producers and consumers, towards low carbon, green investments and purchases. The proposed carbon tax seeks to provide the space for economic growth and development of affected sectors by providing a basic tax free allowance of 60% for all sectors coupled with additional allowances for process emissions, trade-exposed industries, possible performance based allowances for firms that perform better than the benchmark and the use of offsets by entities to reduce their carbon tax liability. After consultation with the Department of Environmental Affairs, it was agreed that the carbon tax and carbon budgets would be integrated and aligned during the first phase (2016 to 2020), based on an additional tax free allowance of 5% for the carbon budgets. Subsequent to the first phase, the relative (percentage based) tax free allowances could be replaced with an absolute tax free threshold which could be based on carbon budgets (see section 4.2.1). In October 2015 a Draft Carbon Tax Bill was introduced in the National Assembly (National Assembly, 2015).

This review of the proposed carbon tax by the Davis Tax Committee (DTC) focuses on, among other issues, the design aspects of the tax, the timing of its introduction, alignment between the carbon budgets and the carbon tax and the implications of the tax for key sectors, such as the electricity sector.

2. GREENHOUSE GASES AND CLIMATE CHANGE

Climate change has been defined as “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods” (United Nations, 1992). It is highly likely that global climate change has occurred due to increases in anthropogenic greenhouse gas (GHG) emissions and will continue to do so (IPCC, 2013). To mitigate the impact of climate change, a reduction in the emission of these GHGs will be required. A GHG is any gas in the atmosphere which absorbs and re-emits heat, thereby making the planet’s atmosphere warmer than it otherwise would be (Brander, 2012).

In 2006, the *Stern Review on the Economics of Climate Change* argued that policies be adopted that would lead to no more than 550 parts per million (ppm) CO_2e in the atmosphere (Stern, 2006). A CO_2e or carbon dioxide equivalent describes different greenhouse gases in terms of a common unit. For a particular type of greenhouse gas, a CO_2e signifies the amount of CO_2 which would have the equivalent global warming impact (Brander, 2012).

It is expected that climate change will place severe pressure on Africa (Boko, et al., 2007). Because of the continent’s high dependence on agriculture, changes in climate that impact on temperature and precipitation may affect crop yields significantly. Furthermore, warming would extend the range of mosquitoes responsible for the transmission of malaria, with a concomitant rise in the disease (Boko, et al., 2007). Importantly, Africa would also be prevented from adopting the carbon intensive industrialisation path which has propelled economic growth in the developed world as well as India and China.

The sources of greenhouse gas emissions are diverse, including emissions from agriculture, industrial processes, transportation and waste. Emissions that arise from the activities of an entity, such as a company, are often classified according to where these emissions arise relative to the boundaries of the entity. They include:

a) direct GHG emissions from sources that are owned or controlled by the entity (Scope 1)
b) indirect GHG emissions resulting from the generation of heat (including steam)
c) cooling, or carbon-derived power generated off site but purchased by the entity (Scope 2)
d) indirect GHG emissions (not included in Scope 2) from sources not owned or directly controlled by the entity but related to the entity’s activities (Scope 3),

e.g. in the case of a fuel producer: emissions from the burning of the fuel produced in private motor vehicles would create Scope 3 emissions.

2.1. South African Greenhouse Gas Emissions

South Africa is ranked in the worst 20 countries by total emissions of carbon dioxide (17th in 2013, producing 1.10% of global emissions (Burck, Marten, & Bals, 2014)). Per capita emissions are approximately 10 tons per annum, which is comparable to many developed countries (Letete, Guma, & Marquard, 2008).

Total GHG emissions rose from 390 million tons in 1994 to 433 million tons in 2000 and still further to 563 million tons in 2010 (Department of Environment Affairs and Tourism, 2009; Department of Environment Affairs, 2013). The large reliance on coal by the energy generation sector is a major cause of the carbon-intensive nature of the South African economy. The bulk of these emissions (greater than 80% CO_2e in 2000 (Department of Environment Affairs and Tourism, 2009)) are generated by power generation, metallurgical processes and transportation.

The South African government has committed itself to reducing greenhouse gas (GHG) emissions. At the same time, however, government is dedicated to stimulating economic growth, increasing employment and reducing inequality and poverty (National Treasury, 2010). During negotiations at the 2009 United Nations Climate Change Conference in Copenhagen South Africa committed itself to reduce domestic GHG emissions, to coordinate and develop a coherent policy framework to curb GHG emissions by 34% by 2020, and 42% by 2025, below the business-as-usual (BAU) trajectory, subject to the provision of adequate financial, technological and capacity-building support by developed countries. This commitment has led to the development of a policy framework as encapsulated in the *National Climate Change Response White Paper* of 2011, developed by the Department of Environmental Affairs (DEA) (Department of Environmental Affairs, 2011), which provides an overarching policy framework for enabling this transition.

The fact that emissions of carbon dioxide and other greenhouse gases are changing the earth's climate, potentially imposing a significant global cost that will fall disproportionately on the poor, is recognised in the National Development Plan (NDP) (National Planning Commission, 2011) (see section 4.1).

3. POLICIES FOR THE CONTROL OF GHG EMISSIONS

Climate change is an environmental challenge that will affect everyone globally. Producers of greenhouse gases have rarely been held accountable for the costs of their emissions. This is further complicated by the fact that these costs will only become apparent in the future. Climate change is an example of a market failure because the costs of GHG emissions are not reflected in the final prices of goods and services. Unlike many local market failures, a “tragedy of the commons” situation arises since the effects of climate change transcend boundaries of the particular nation state to which accrues the benefit of carbon consumption, while the costs are borne by the entire globe at various intensities.

Regulations or market-based instruments are needed to correct this market failure by affecting decisions taken by producers and consumers. Policies to restrict GHG emissions and/or promote reductions fall into two categories: command-and-control and market-based approaches.

3.1. Command-and-Control Approaches

3.1.1 Emissions legislation

Regulatory measures to correct environmental market failures include emissions standards which place quantitative restrictions on the level of pollution allowed.

3.1.2 Banned and preferred technologies

Other approaches include the banning of deleterious goods, practices and services and the promotion of beneficial and mitigatory practices and technologies, such as mandated levels for the inclusion of renewable fuels.

3.2. Market-Based Approaches

Command-and-control measures are frequently not economically efficient as all firms need to comply with specific restrictions, regardless of the costs of compliance or mitigation to the individual firms. These measures tend to limit investment incentives because firms have little reason to go beyond compliance as this could lead to stricter regulations in future.

Market-based instruments operate through price mechanisms. Companies gain flexibility in reducing their pollution tax liability.

The two main policy market-based instruments for placing a price on GHG emissions to effect emission reductions are carbon emissions trading and carbon taxes. The former sets targets for the level of emissions though trade in emissions' allowances, while the latter sets a price for emissions directly.

A price on greenhouse gases is intended to spur changes in producer and consumer behaviour, thereby mitigating climate change. It should encourage a shift to less carbon-intensive (and typically more energy efficient) production technologies by altering the relative prices of goods and services based on their carbon intensity. Furthermore, it should encourage the development of cost effective, low carbon alternative technologies and products as these will mitigate the total cost a firm would need to pay for GHG emissions. The introduction of a carbon price should reduce the price difference between conventional, carbon-intensive technologies and low-carbon alternatives.

Ideally, a carbon price should reflect the marginal external damage costs of carbon emissions. Several studies have attempted to quantify the costs of climate change to society. The levels of carbon prices required to achieve a certain desired level of emissions reduction vary widely from an estimated US$8 to over US$300 per ton CO_2e (National Treasury, 2013), with the Stern Review suggesting a price of US$30/ton (Stern, 2006).

Market-based approaches should ideally be coupled with revenue recycling through reductions in other taxes and targeted support to households as well as incentives for research and development, energy efficiency savings, and the use of renewable energy (see section 3.2.2).

3.2.1 Carbon emissions trading

An emissions trading system (ETS) operates by setting a cap on the level of emissions allowed. Firms are then allocated allowances which they may trade with other firms. An ETS provides certainty about the emissions reduction levels to be achieved but not as regards the resulting carbon price.

A number of ETSs are in operation around the world. The European Union (EU) introduced an ETS in 2005. This ETS covers approximately 45% of GHG emissions (EU Publications Office, 2013). Another ETS is in operation in Alberta, Canada while seven local pilot cap-and-trade schemes have been in operation in China since 2013 (Munnings, Morgenstern, Wang, & Liu, 2014).

In order to work effectively, an ETS needs a large enough number of entities participating in the scheme and adequate trading volumes to generate an appropriate carbon price. It is not suited to oligopolistic markets.

Although an ETS provides certainty about reduction levels, it is subject to imperfections such as over-allocation of allowances. In order to realise the full benefits of an ETS, emissions allowances should be auctioned, rather than allocated for no cost. Over-allocation may drive down prices, cause price volatility and create longer-term market distortions as observed in the case of the EU-ETS (United Nations Environment Programme, 2010). As a consequence, industry may delay investment decisions such as the choice of emissions reduction technologies, as well as reducing necessary research and development of alternative goods, processes and services.

ETSs tend to be administratively complex and involve relatively high transaction costs. They require an oversight body to serve as the regulator that sets emissions baselines, allocates emissions rights and enforces compliance. A market platform for trading must also be established.

3.2.2 Carbon taxes

Carbon taxes price GHG emissions directly. As such, they provide certainty with respect to price but none with regard to emissions reductions. Some of the earliest schemes were implemented in Scandinavian countries in the 1990s while Costa Rica instituted a carbon tax in 1997. Ireland introduced a carbon tax in 2010 to address emissions not covered by the EU ETS. Carbon taxes have also been instituted in British Columbia, Canada, while a proxy tax on coal is in place in India (Gale, et al., 2015 and National Treasury, 2013). Australia passed legislation for a carbon tax (implemented in 2012), to be followed by an ETS, but this was repealed after a change of government (Department of the Environment, Government of Australia, 2014).

A carbon tax can be applied in a number of ways. These were considered in the 2010 discussion paper from National Treasury, viz.:

- a tax applied directly to measured GHG emissions
- a tax on fossil fuel inputs such as coal, crude oil and natural gas, based on their carbon content or
- a tax levied on energy outputs such as electricity and transport fuels.

Ideally, in the first instance a tax should be levied directly on the emissions of actual carbon dioxide equivalents (CO_2e). Such taxes are, however, administratively complex.

The second method is to impose a tax on fuel inputs. The tax is based on either appropriate emissions factors or a transparent and verified measuring and monitoring procedure. This alternative procedure may be necessary in the case of process emissions from manufacturing processes, such as some of those in the cement, glass, iron and steel, aluminium and chemicals industries.

As far as possible, a carbon tax should:

- *be comprehensive*. This will incentivise all CO_2e mitigation options,
- *exploit the fiscal dividend*. Revenues should be used to reduce the deficit, reduce other distortionary taxes or for other economically productive purposes,
- *be set at a level that is credible, stable and rising over time*. This will send clear signals to the market allowing informed decisions in clean technology, and
- *strike a reasonable balance between environmental and economic needs* (Parry, Morris, & Williams, 2015).

In principle, carbon taxes should be highly efficient since they improve the allocation of resources by including what may well be severe distortions in the market price for goods and services (Gale, Brown, & Saltiel, 2015). An effective and efficient carbon tax should aim for broad coverage, covering as many GHGs and sectors as possible. In an ideal environment, it should be applied at a rate equivalent to the marginal social damage costs. Initially, however, it may well be set below these marginal costs, especially when a global carbon price is not in place.

Carbon taxes should be technologically neutral. They do not require a government to decide which specific technologies to support, i.e. to pick winners. Another advantage of carbon taxes is that, unlike ETSs, they can make use of the existing tax system for administration.

Carbon taxes might potentially result in negative impacts on a firm's competitiveness where a firm is trade-exposed. Trade-intensive industries may be defined as those industries in which exports and imports combined are more than 40% of their domestic output, although other authors suggest 60% as the threshold (Jooste, Winkler, Van Seventer, & Truong, 2009; National Treasury, 2013). An approach to address trade exposure is via border carbon adjustments (BCAs) or border tax adjustments (BTAs). BCAs are adjustments to the prices of traded goods based on

some measure of the greenhouse gases embodied in the good. They can be applied to imports (as a tariff) or to exports (as a rebate). There are, however, significant practical and administrative challenges accompanying a BCA, especially when applied as a tariff, in determining the carbon content or emissions over the lifecycle of specific goods and services. BCAs or BTAs could also trigger the imposition of retaliatory tariffs. BCAs are also viewed as being potentially incompatible with World Trade Organisation (WTO) rules.

While carbon taxes may well be instituted to incentivise change leading to environmental benefits, they might also have significant revenue generation potential, e.g. 0.8% of gross domestic product (GDP) in Sweden in 2007. Similar high revenue estimates have been predicted for the implementation of a carbon tax in the USA ((Gale, Brown, & Saltiel, 2015).

3.2.2.1 Carbon offsets

Sometimes GHG producers are unable to implement programmes to reduce GHG emissions. This may be because of existing technology which would require massive investment if it were to be replaced or because the production processes are constrained by chemical reactions producing fixed quantities of CO_2e per unit of product. Such processes cannot be modified to reduce GHG emissions. In many countries where carbon taxes have been proposed, the use of carbon offsets has been developed to counteract GHG emissions in the aforementioned industries.

A carbon offset is an external investment that allows a firm to access least cost mitigation options in a manner that is cheaper than investment in its own operations. Carbon offsets typically involve investment in specific projects or activities that reduce, avoid, or sequester emissions. Through investment in carbon-offset projects, entities will be able to fund GHG-reduction measures implemented by other entities to reduce their own carbon tax liability, often in a manner that is cheaper than what could be achieved through investment in a firm's own operations. Four of the most common categories of offset projects are: biological sequestration (land-use and forestry), renewable energy, end-use energy efficiency and reduction of non-CO_2 GHG emissions, including waste handling and disposal (GSF, 2012).

In order to be useful, carbon offset projects need to be evaluated and validated. A number of different carbon offset standards have been developed to achieve this: the Clean Development Mechanism (CDM) (under the Kyoto Protocol), Verified Carbon Standard (VCS), Gold Standard (GS) and Climate, Community and Biodiversity Standard (CCBS). The CDM standard is often a mandatory one, given its wide international acceptance in the global regulated carbon markets.

Regional standards, such as those developed in Brazil, China, Australia, Costa Rica, Thailand, the UK, Switzerland, Japan, South Korea and California, have been developed to encourage local carbon financing and the channelling of funds to locally developed projects. They often incorporate sustainable development objectives, which are tailored to the host region's context, as well as supporting other domestic priorities, strategies and targets.

Carbon offsets are guided by a variety of principles, which will need to be implemented for a project to be awarded a tradable credit under a specific standard. The principles of being *real, additional and permanent* are pivotal to ensuring the credibility of carbon offset projects. 'Real' offsets require CO_2e reductions specific to a project, with proof that reductions have occurred or will occur at a specific point in time. By implication, such reductions need to be measurable. 'Additional' means that the offsets would not have occurred if a business-as-usual trajectory had been followed. In the context of the CDM mechanism, these projects would not be viable in the absence of carbon finance resulting from direct capital investments and purchases of certified emissions reductions (CERs) by entities in developed countries. 'Permanent' implies that the offsets are unlikely to be reversed. This is especially relevant to land use related projects which face risks such as fire and disease.

While the type of carbon offset project would influence the cost of the project development, the selling price of carbon offsets is generally determined by the market.

3.2.2.2 Revenue recycling

Although the primary aim of carbon taxes is behavioural change, they do raise revenue for the government. This revenue could potentially be used to reduce other taxes, such as personal income taxes and corporate income taxes. By doing so, the level of employment and investment may be boosted, leading to an economic gain. This gain has been termed the *revenue-recycling effect* (Parry, 1997). Other tradable instruments, such as tradable CO_2 permits, especially if provided free, would not have revenue-recycling potential since they raise little or no revenue.

In general, revenue recycling options include possible tax shifting (decreasing other taxes), tax incentives for programmes/investments (especially energy-saving ones), and targeted assistance to low income households (Dinan, 2015). Different types of recycling schemes have been implemented worldwide (Gale, Brown, & Saltiel, 2015).

Most academic studies have shown that, without revenue recycling, carbon taxes are regressive (Gale, Brown, & Saltiel, 2015), with the after-tax incomes of low income earners being reduced by a greater percentage than those of high income earners. This is because of a focus on direct effects through increases in the cost of fuel and electricity which often form a greater fraction of low income households' expenditures than those of wealthier households (Morris & Mathur, 2015). Some research has, however, found that a carbon tax may contain a progressive element by means of an indirect mechanism, i.e. through higher costs of products produced by energy-intensive sectors (Hassett, Aparna, & Metcalf, 2009). Such goods are generally preferentially bought by high income households who also typically have more choice over the technologies employed in their households.

4. THE SOUTH AFRICAN CONTEXT

4.1. Specific Issues with Approaches to Carbon Pricing in SA

In South Africa, a number of structural, technical and practical challenges hinder a transition to a low-carbon economy. Furthermore, any approach to such a transition needs also to recognise the necessity for South Africa to address critical socioeconomic issues. Nonetheless, in the NDP the opinion has been expressed that "South Africa can manage the transition to a low-carbon economy at a pace consistent with government's public pledges, without harming jobs or competitiveness" (National Planning Commission, 2011).

A shift to less carbon intensive goods, processes and services will most likely require significant reductions in the consumption of carbon intensive products, i.e. cement, steel and aluminium and/or that their production processes become significantly less carbon intensive. In South Africa these industries are important to the economy as well as to the proposed infrastructure building programme. Any climate change mitigation policies which would be implemented need to ensure that these industries can take appropriate and feasible long term decisions.

Some carbon-intensive sectors such as petroleum, mining and chemicals sectors have been experiencing relatively low levels of growth. Cognisance needs to be taken of the impact of a carbon pricing policy on the performance of such sectors, especially given the high level of employment in them.

Because of the oligopolistic nature of a number of sectors, in particular that of energy, a carbon tax is more appropriate than a cap-and-trade scheme in the short to medium term (National Treasury, 2013). It is the intention of the NDP to use a carbon tax system, among various instruments, to reduce carbon emissions from the

electricity industry from 0.9 kg per kilowatt-hour to 0.6 kg per kilowatt-hour (National Planning Commission, 2011).

A number of models of the broad macroeconomic impact of a carbon tax for South Africa have been developed, by, for instance, the World Bank (Devarajan, Go, Robinson, & Thierfelder, 2009), the University of Cape Town for the DEA (Pauw, 2007), the University of Pretoria (Van Heerden, et al., 2006) and the National Treasury (Alton, et al., 2012).

The National Treasury study modelled the impacts of a carbon tax imposed upstream on fossil fuel inputs (coal, crude oil and natural gas) using a dynamic computable general equilibrium (CGE) approach. The model demonstrated considerable CO_2e emissions reductions. A carbon tax of R200/tCO_2 will help reduce emissions by 34% by 2020 and 45% by 2025. In the model, a carbon tax was gradually implemented over a period of 10 years. Different assumptions around revenue recycling are important for modelling of the impact of a carbon tax. Options included reductions in taxes (such as corporate income tax, personal income tax or VAT), increases in direct transfers to households and higher levels of investment by the government.

The modelling done by the National Treasury suggested that there would be only a small negative impact on economic growth if the carbon tax is coupled with revenue recycling. The most positive impacts for the recycling of revenue would emanate from directing carbon tax proceeds towards new productive investments in the respective sectors. Relative to a baseline with free disposal of CO_2, constant world prices and no change in trading partner behaviour, the preferred tax scenario reduces national absorption[1] and employment by 1.2 and 0.6 %, respectively, by 2025.

Attempts were made to model employment effects. It was suggested that labour-intensive sectors would benefit from the tax, as they generally tend to have lower carbon intensity. With the growth in the green sectors, the impact on labour absorption could be positive in the longer term. However, because the model predicts the expansion of some sectors and the decline of others, it is unclear what impact a shortage of skilled labour would have on the expansion of these sectors since skills are not necessarily transferrable across sectors. Furthermore, the model did not address the timing of employment losses relative to employment gains and hence the transitional costs of adjustment were not modelled.

[1] Absorption is an aggregate welfare measure equal to the sum of private and public consumption and investment.

The results suggested that a carbon tax in South Africa would not necessarily be regressive because the tax would affect mainly capital and energy-intensive sectors and therefore the upper deciles of the income distribution. The model suggested that a carbon tax would reduce inequality slightly; furthermore this impact could be enhanced if revenue was recycled through direct transfers to poorer households.

The National Treasury modelling was unable to quantify the value of the benefits of emissions reductions although the level of these reductions was estimated. National Treasury has argued that the results overestimate the costs of a carbon tax and underestimate the benefits from the lower levels of emissions (National Treasury, 2013).

The introduction of a carbon tax could be expected to lead to positive gains equivalent to almost 1% of GDP by 2025, in the presence of a US$30 per ton CO_2e global tax. The results from the R200 per tCO_2e simulation are slightly more negative, but the impacts remain small.

Other early modelling studies suggested that the most positive revenue recycling approaches for employment would be via biofuel incentives and changes to VAT on food (Pauw, 2007). It was argued that the latter would also have the greatest impact on reducing poverty (Van Heerden, et al., 2006). Both studies agree that a GDP dividend would result from food subsidies/reduction in VAT on food.

4.2. National Treasury Carbon Tax Proposal

The *Long-Term Mitigations Scenarios* report (Department of Environment Affairs and Tourism, 2007) and the *National Climate Change Response White Paper* (Department of Environmental Affairs, 2011) recommended the use of market-based instruments in South Africa. In particular, carbon taxes were favoured. This would allow domestic pricing, allowing both emissions reductions and revenue-raising objectives to be met (National Treasury, 2010).

In 2013, the South African National Treasury released a policy paper on carbon tax for public comment (National Treasury, 2013) which was an update of a 2010 discussion paper (National Treasury, 2010). A paper addressing the use of carbon offsets was released in 2014 (National Treasury, 2014). In November 2015 a Draft Carbon Tax Bill was introduced in the National Assembly (National Assembly, 2015).

It has been proposed that a carbon tax be gradually phased in to minimise any negative effects during a transition to an economy that is less carbon intensive. Such an approach has been recognised as sending appropriate policy and price signals to both investors and consumers (Neuhoff, 2008). Importantly, such an approach would

minimise job losses, especially in sectors very sensitive to the costs of a sudden imposition of a carbon tax, as well as the risk of industry undertaking large capital intensive projects and investments, which might require expensive future redesign and retrofitting (Parry, Morris, & Williams, 2015).

The National Treasury expects that early implementation in a gradual manner would reduce the risk of exports being subject to border carbon adjustment (BCA) tariffs and would allow for the early development and/or implementation of cleaner technologies. It was suggested that a carbon tax would promote the development of technologies for carbon capture and storage (National Treasury, 2013).

The tax is intended to serve primarily as an environmental tax that internalises the external damage costs of GHG emissions and contributes towards behavioural change. The level of allowances provided up to a maximum of 95% and the commitment by government to support energy efficiency measures and renewable energy, through both on-budget and tax incentive measures, is indicative that the tax is not proposed as a significant revenue raising instrument.

Such a carbon tax should not be a stand-alone policy instrument but should be aligned with other policies to achieve GHG reductions and minimise adverse impacts on poor households and industrial competitiveness. This is discussed in more detail below.

After consultation, following its 2010 discussion paper (National Treasury, 2010), National Treasury revealed a preference for a fuel input tax (National Treasury, 2013). It was agreed that emissions factors and/or procedures are available to quantify CO_2e emissions with a relatively high level of accuracy for different processes and sectors. The DEA would approve the appropriate emissions factors and procedures, in line with international information published by the Intergovernmental Panel on Climate Change (IPCC). Entities and companies that emit in excess of 100 000 tons of CO_2es annually, or consume an amount of electricity that results in more than 100 000 tons of emissions from the electricity sector, will be subject to mandatory reporting (Department of Environmental Affairs, 2011; National Treasury, 2013). In the Draft Carbon Tax Bill, introduced on 2 November 2015, no specific mention is made of a minimum level of emissions above which tax will be collected (National Assembly, 2015). A taxpayer is defined as a person who conducts an activity as set out in Annexure 1 to the Notice issued by the Minister responsible for environmental affairs in respect of the declaration of greenhouse gases as priority air pollutants. Annexure 1 of the Notice issued by the Minister responsible for environmental affairs does not mention a minimum total emissions level for reporting (Department of Environmental Affairs, 2015). It does,

however, require reporting of combustion emissions for individual combustion installations with energy capacity of 10 MW or above.

The National Development Plan (NDP) supports a carbon tax approach to pricing carbon and notes that if South Africa were to introduce a broad-based carbon pricing regime that covers all sectors at one consistent price, this approach should be coupled with a range of temporary incentives and support mechanisms. It also recommends that some of the revenue could be used to subsidise low income households and fund rebates for clean technologies, further strengthening the price incentives. The NDP has the following to say about carbon mitigation options: “South Africa should initially focus on pursuing those mitigation options that are likely to have the least regrets options, particularly around energy efficiency, that improve the competiveness of local industry, create jobs and represent a net saving rather than cost to the economy and gross domestic product” (National Planning Commission, 2011).

It is important that any carbon tax system implemented takes these considerations into account. Notably, the NDP states that “an equitable transition must protect the poor and the vulnerable from the transitional costs associated with mitigation such as increased costs of energy, food and transport, job losses in carbon intensive industries and the demand for different skills” (p. 211).

4.2.1 Proposal and draft bill details

The carbon tax would cover only Scope 1 emissions of all GHGs from stationary sources in the tax base; i.e. emissions that result directly from fuel combustion and gasification and from non-energy industrial processes. Not only would they include CO_2 but also other GHGs such as hydrofluorocarbons, perfluorocarbons, methane, nitrous oxide, and sulphur hexafluoride too (Department of Environment Affairs and Tourism, 2009). Scope 1 emissions of GHGs from non-stationary sources, e.g. liquid fuel burnt during transport, will be addressed through the fuel tax regime (National Treasury, 2015).

Scope 2 emissions, i.e. indirect emissions from an entity’s use of purchased heat, steam or power, would be addressed by complementary measures and incentives, i.e. energy efficiency savings tax incentives. These should encourage entities to reduce their Scope 2 emissions. It should be noted that in most cases, the entities producing heat and power would themselves be subject to the carbon tax through Scope 1 emissions.

Because of a lack of an international harmonised carbon price and to minimise disruption and adjustment costs during the transition to a lower carbon economy, the

carbon tax would incorporate tax-free thresholds that would be reviewed after five years. These thresholds would be sector-specific and take into account the competitiveness concerns of locally based and trade-exposed carbon intensive industries and businesses.

The proposed carbon tax policy comprises the following key elements:

- A percentage-based threshold (60%) on actual emissions would be applied. Below this threshold, tax would not be payable during the first five years of the implementation of the carbon tax. The high initial level of this threshold will seek to limit carbon leakage, i.e. the displacement of emissions from one country to another because of the relocation of industry.
- Consideration would be given to sectors where the potential for emissions reduction is limited for either technical or structural reasons, such as process emissions. These would initially include the cement, iron and steel, aluminium and glass sectors which are reliant on stoichiometrically fixed chemical processes (i.e. processes in which the chemical reactions occurring create a direct proportionality between the amount of CO_2e produced and the amount of product produced). Because the chemical reactions cannot be changed, neither can the amount of CO_2e produced (National Treasury, 2013).
- Graduated relief would be given to trade-exposed sectors.
- Companies would be allowed to use offsets, up to a limit, to reduce their carbon tax liability. These offset limits would be sector-specific.
- The overall maximum tax-free threshold would be limited to 90%, except for sectors which are exempt during the first five-year period.
- The proposed tax-free percentage thresholds and the offsets for the different sectors would remain fixed during the first five year phase (2016–20). The said thresholds would be reduced thereafter.

Table 1: *Proposed tax-free thresholds for the CO_2e emissions tax and the maximum allowable percentage offsets by sector (National Treasury, 2013; National Treasury, 2014)*

Sector	Basic tax-free threshold (%)	Maximum additional allowance for trade exposure (%)	Additional allowance for process emissions (%)	Total tax allowance (%)	Maximum offset (%)
Electricity	60	-	-	60	10
Petroleum (coal to liquid; gas to liquid)	60	10	-	70	10
Petroleum – oil refinery	60	10	-	70	10
Iron and steel	60	10	10	80	5
Cement	60	10	10	80	5
Chemicals	60	10	10	80	5
Glass and ceramics	60	10	10	80	5
Pulp and paper	60	10	-	70	10
Sugar	60	10	-	70	10
Agriculture, forestry and land use	60	-	40	100	0
Waste	60	-	40	100	0
Fugitive emissions from coal mining	60	10	10	80	5
Other	60	10	-	70	10

Table 1 contains details of the basic tax-free thresholds, allowances for trade exposure, process emissions allowance and maximum offsets by sector.

The agriculture, forestry, land use and waste sectors would be excluded during the initial five-year period owing to administrative difficulties in measuring and verifying emissions from these sectors.

After consultation by National Treasury with the Department of Environmental Affairs, it was agreed that the carbon tax and carbon budgets would be integrated and aligned during the first phase (up to the year 2020), based on an additional tax free allowance of 5% for firms participating in the carbon budget system during the first phase. This makes the overall maximum tax-free threshold 95%.

It is intended that, after 2020, the tax-free thresholds would be reduced and could ultimately be replaced by absolute emissions thresholds.

Schedule 2 of the Draft Carbon Tax Bill (National Assembly, 2015) extends the number of sectors indicated in Table 1. Furthermore, firms will have different thresholds for their combustion related GHG emissions (excluding petrol and diesel GHG emissions), process emissions and fugitive gas emissions.

4.2.1.1 Incentivisation of reductions in carbon intensity

Firms would be incentivised to reduce the carbon intensity of their products. This would be performed by adjusting the basic tax-free threshold by a factor (Z).

This Z-factor would be used to adjust (up or down) the basic percentage tax-free threshold, as follows:

$$Z = \frac{Y}{X}$$

where:

X is the average measured and verified carbon intensity (including both Scope 1 and Scope 2 emissions) of a firm's output,

Y is the agreed benchmark carbon emissions intensity (including both Scope 1 and Scope 2 emissions) for the sector.

The adjustment to the tax-free threshold is determined by multiplying the original percentage threshold by Z. An alternative to the use of agreed benchmark carbon emissions is to use a firm's historic emissions intensity in place of a sector's benchmark intensity.

In the original policy proposal (National Treasury, 2013), adjustments to the basic tax free threshold would be limited to 5 percentage points, up or down. The use of a Z-factor adjustment would be to reward early mitigation efforts. Firms above the relevant benchmark intensity would be penalised. However, in the Draft Carbon Tax Bill (National Assembly, 2015) no mention is made of a penalty. We support this change.

4.2.1.2 Trade exposure and competiveness

Trade intensive industries have been variously defined as those in which exports and imports combined represent more than 40% or 60% of their domestic output (Jooste, Winkler, Van Seventer, & Truong, 2009; National Treasury, 2013).

Concerns have been raised about potential negative impacts on industry competitiveness. To address this, National Treasury has proposed an additional tax-free allowance for trade-exposed industries rather than the use of border carbon

adjustments. The allowance would be structured as graduated relief, depending on a firm's trade exposure, calculated from the firm's exports (or exports and imports) as a percentage of overall sales.

Two formulae were proposed for relief:

$$Y1 = 0.2 \times (E + I) \quad \text{and} \quad Y2 = 0.4 \times E$$

where E and I are expressed as a percentage of total outputs (National Treasury, 2013). The Draft Carbon Tax Bill has settled on the formula for Y2 to determine trade exposure (National Assembly, 2015).

4.2.1.3 Offsets

Because emissions from many chemical processes occur in fixed stoichiometric ratios (e.g. coal gasification, crude oil cracking and the production of cement, iron, steel, glass, ceramic and certain chemicals, such as calcium carbide and titanium dioxide), there is limited potential for mitigation over the short to medium term. CO_2 reductions would require completely novel processes to be developed, based on different chemical reactions. In many cases this is not possible. To address this, an additional allowance for process emissions has been included as well as the use of offsets for carbon-mitigating investments outside a specific sector. These offsets would allow such industries to reduce their carbon tax liability cost-effectively.

It is likely that investment in offsets could generate considerable sustainable development benefits in South Africa, including the channelling of capital to rural development projects, the creation of employment, restoration of landscapes, reductions in land degradation, protection of biodiversity, and the encouragement of energy efficiency and low carbon growth (reported in National Treasury, 2014, based on Camco Clean Energy, 2012).

It has been proposed that, among other aspects:

- credits for projects based only in South Africa be used for offsets. This would promote local sustainable development and job creation as well as supporting the efforts of the National Climate Change Response Policy (NCCRP).
- the projects are outside the scope of activities that are subject to the carbon tax. Only entities, not liable for the carbon tax, would be permitted to implement emission-reduction projects and sell carbon offset credits to entities liable to the carbon tax. These entities would initially include those in tax exempt sectors and those below the tax threshold in other sectors.
- An initial list of eligible projects would be used to stimulate an offsets market. This set would be expanded with time.

A number of projects have already been developed in South Africa under standards such as CDM, VCS, GS and CCBS. It has been proposed that these projects should be considered for use as offsets provided they meet eligibility criteria. Eligible projects would need a certificate, detailing the CO_2e reduction achieved. A South African-specific carbon offsets standard could be considered in the medium term to facilitate cost-effective development of domestic carbon offsets.

The introduction of an offsets market would require a compliance market in South Africa. Carbon offsets should also incentivise investment in least-cost mitigation options in the country, driving investment in GHG-mitigation projects that deliver carbon emission reduction at a cost per CO_2e lower than the carbon tax.

4.2.1.4 Tax rate

In the 2013 policy paper, National Treasury proposed that a carbon tax be introduced at R120 per ton (t) CO_2e above the tax-free thresholds as of 1 January 2015 (National Treasury, 2013). It represents a relatively low carbon price which would be adjusted incrementally over time. It was proposed that the tax rate of R120 per tCO_2e be increased at a rate of 10% per annum until 31 December 2019. This would be followed by a revised tax regime with lower thresholds and a revised tax rate. In the 2014 Budget, it was announced that implementation would be delayed to 2016 (National Treasury, 2014). The Draft Carbon Tax Bill indicates a further delay. The first tax will be levied on emissions produced during the period commencing on 1 January 2017 and ending on 31 December 2017 (National Assembly, 2015).

Because of the tax-free thresholds, the effective tax rates of all sectors will be significantly less than $R120/tCO_2e$. Assuming zero offsets, the maximum effective tax rate in the electricity sector would be R48/tCO2e or US$ $4/tCO_2e$ in the first year. This is about 4% of that proposed in the Stern Review (Stern, 2006).

4.2.2 Revenue recycling

National Treasury has indicated that the design of the carbon tax and the economic modelling exercise should include revenue recycling options, such as possible tax shifting (decreasing some taxes), tax incentives and targeted assistance to households (National Treasury, 2013). Certain of the programmes, duties, levies, etc. that could be incorporated into a revenue recycling programme are considered below. Some of these programmes have already been implemented while others are in the pipeline. Consideration should be given to strengthening these programmes, particularly those that address any possible negative distributional effects of a carbon tax.

Revenue recycling could be directed towards a number of the flagship programmes, identified in the DEA's 2011 White Paper (Department of Environmental Affairs, 2011) which support a shift to a low carbon economy, viz.:

- Climate Change Response Public Works Flagship Programme
- Water Conservation and Demand Management Flagship Programme
- Renewable Energy Flagship Programme, now the Renewable Energy Independent Power Producer Programme
- Energy Efficiency and Energy Demand Management Flagship Programme
- Transport Flagship Programme
- Waste Management Flagship Programme
- Carbon Capture and Sequestration Flagship Programme
- Adaptation Research Flagship Programme
- Research and development support under the Green Fund.

It is important to mitigate the effects of a carbon tax on low income households. The Integrated National Electrification Programme (INEP), which seeks to ensure electricity supply to households, schools and clinics, has been implemented by government. This would need to be strengthened, while an increase in the allocation of free electricity could be considered.

The government has implemented the Energy Efficiency and Demand-Side Management (EEDSM) programme in order to address energy supply security through rolling out specific energy efficiency and renewable energy technologies. The solar water heating framework is aimed primarily at households, while the proposed energy efficiency savings tax incentive is aimed at firms. These measures provide for a deduction against taxable income for verifiable energy efficiency savings. They are aimed at increasing energy efficiency and, consequently, mitigation of GHG.

There is a need to diversify the supply of energy in South Africa. The government is committed to promoting clean, renewable energy sources through special feed-in tariffs for renewable electricity generation through a competitive bidding process for a fixed capacity allocation for a renewable energy technology. The Renewable Energy Independent Power Producer (REIPP) programme can be used as a vehicle to channel international climate funding for renewable energy projects. This programme was introduced by the Department of Energy (DoE) in 2011 when a competitive bidding process for the supply of renewable energy was launched (Eberhard, Kolker, & Leigland, 2014). Similar special tariffs to support the co-generation of electricity are being explored. Co-generation uses available waste

energy from industrial processes. It has been estimated that 3000-4000 MW could become available in South Africa (Goth, 2014).

One approach to reducing emissions in the transport sector is to promote the use of more energy-efficient modes of freight and public passenger transport as well as the use of alternative, cleaner fuels. Such efforts could be supported via revenue recycling.

Because low income households spend a large proportion of their incomes on transport, it is expected that the availability of safe and affordable public transportation would provide some relief to the poor. More reliable transport would also encourage a switch from private to public transport by middle income households. There are initiatives to improve the rail network for freight so as to encourage a shift of freight from road to rail.

Excise duties on liquid fuels (petrol and diesel) and electricity generated from non-renewable energy sources serve environmental, demand-side management and revenue functions. Fuel taxes address externalities such as climate change, local air pollution and those related to road use, such as road wear and accidents.

Given the regulatory structure governing the electricity sector and liquid fuels sector, consideration would need to be given to how carbon taxes are passed on to the consumer as well as to issues such as double taxation. The electricity sector is currently able to pass a carbon tax onto the customer. Given the initial low rate for a carbon tax, National Treasury predicts that double taxation would be small, but a reduction of the electricity generation levy could be considered in future (National Treasury, 2013). Such restructuring should ensure that all large energy intensive users improve their energy efficiency and reduce their emissions, and do not escape the impact and intent of an energy and carbon tax through long-term pricing agreements.

National Treasury has provided further guidance on the revenue recycling options to be used in a draft explanatory memorandum for the carbon tax bill (National Treasury, 2015). These are by way of reducing the current electricity levy, a credit rebate for the renewable energy premium, a tax incentive for energy efficiency savings, increased allocations for free basic electricity/alternative energy, as well as funding for public transport and initiatives to move some freight from road to rail (National Treasury, 2015).

5. ASSESSMENT OF THE NATIONAL TREASURY CARBON TAX PROPOSAL

5.1. Projected Revenue

The 2013 Carbon Tax Policy Paper (National Treasury, 2013) provides no detail on revenue to be expected from the carbon tax as proposed. The goals of a carbon tax are primarily environmentally, rather than revenue, focussed. Given that the principal justification for the carbon tax is to promote the kind of behavioural change which will reduce emissions, the tax should be as fiscally neutral as possible. In short, the carbon tax *should not be seen as a measure to increase the overall tax burden* (paragraph 230 in (National Treasury, 2013)) but rather one that changes behaviour to promote environmental objectives. In particular if it has significant tax/cost implications for the poorer sections of the population, then even greater caution must be exercised. Without a well-defined assessment of the revenue which will be raised from such a tax, it is impossible to assess these fiscal effects. It is imperative that Treasury indicates more accurately what revenue is expected to be generated from a carbon tax before implementing it and also how the burden of the tax will be shifted away from the poorer segments of society, so that it does not have significant retrogressive consequences. Given recent economic changes, including a drop in the potential output of the South African economy, the model needs to be based on the economy as it is in 2015, not on outdated data. We are pleased to note that the Draft Carbon Tax Bill indicates that further modelling is underway.

A further difficulty concerns the purpose of the tax. Treasury argues that the tax is intended to serve primarily as an environmentally related tax that internalises the external damage costs of GHG emissions and contributes towards behaviour change. Over time, the revenues from the tax could also decline as production and consumption patterns shift towards low carbon, cleaner alternatives. Furthermore, the level of allowances provided up to a maximum of 95 percent and the commitment by government to support energy efficiency measures and renewable energy, through both on-budget and tax incentive measures, are indicative that the tax is not proposed as a revenue raising instrument.

However, taking into account the current economic climate, the potential to reduce these taxes in South Africa is currently limited. The National Treasury has indicated recently that some of the revenue will be recycled by way of reducing the current electricity levy (National Treasury, 2015). Thus, read together, these claims amount to the following: a tax focussed primarily on behavioural change will add to the tax burden under our present precarious climate.

5.2. Limits

The Tax Policy limits the maximum percentage of CO_2e emissions which can be free of tax to 90% with an extra allowance of 5% for carbon budgets. Although it is appreciated that price signals are necessary to drive behavioural change, it is uncertain why such a cap is necessary. A higher tax free portion can solely be achieved if firms take action which reflects behavioural change (improved Z-factors and investment in additional offsets). It is appreciated that a cap may promote behavioural change but, as pointed out below, there are certain investments that could be achieved with a higher cap which would still lead to net CO_2 emissions reductions.

5.3. Revenue Recycling and Distributional Effects

In particular, the Policy Paper does not provide firm detail about revenue recycling options to be used. A number of programmes are provided as vehicles which could be supported by recycling, but the level and duration of their support is unclear. The distributional effects of recycling options may vary significantly. Given the importance of reducing poverty and inequality in South African society, it is essential to ensure that these recycling options support not only environmental but also socio-economic objectives. The choice of revenue recycling, whether by specific programmed support or a reduction in corporate income tax (CIT), impacts on corporate decision making. It was the intention of the Policy Paper and the gradual implementation of the carbon tax to provide firms with clear signals. Without details on revenue recycling, such clarity is lost. In the draft explanatory memorandum to the carbon tax bill, National Treasury has indicated that revenue recycling will be used to protect vulnerable households. The carbon tax will be revenue-neutral during the first five years and all revenue will be recycled by means of reducing the current electricity levy, a credit rebate for the renewable energy premium, a tax incentive for energy efficiency savings, increased allocations for free basic electricity/alternative energy and funding for public transport and initiatives to move some freight from road to rail (National Treasury, 2015). Detail, however, is required as to how revenue recycling will be divided among these measures since the split used will determine the actual distributional effects achieved.

Although National Treasury modelling has been reported to predict that a carbon tax in South Africa would be slightly progressive (National Treasury, 2013), it is difficult to assess distributional concerns in detail, such as the impact on low income households, without specific detail (scale and timeframe) of revenue recycling options that are to be implemented. Elsewhere, studies have in fact predicted carbon taxes to be regressive in the absence of such recycling. National Treasury does

indicate that “the tax-free thresholds take into account … distributional concerns, such as the impact on low-income households” (paragraph 33 in (National Treasury, 2013)). It is not clear how these thresholds directly affect distributional concerns. A proper assessment of the distributional impact of a carbon tax would require modelling without revenue recycling. It should also be noted that the modelling made available to evaluate the proposal for a carbon tax was based upon data that appears to be rather optimistic, given the depressed rate of growth at present and the electricity crisis.

5.4. Employment Effects

The current information, provided to the DTC, does not supply specific, detailed information on the impact of the implementation of a carbon tax on employment. A concern is that alternative energy production methods are more skills intensive and may create unemployment among the less skilled. If skill intensities are the same, how long will transition last and how can employment be protected?

Concern exists that the implementation of a carbon tax may lead to an increase in unemployment in the short term while the potential growth of employment in green industries would only occur over the longer term. This could lead to increased hardship in the short term. Furthermore, carbon intensive industries, e.g. mining, may be located in different areas of the country from those where green technologies may be viable. Managing the spatial incidence of adjustment costs, especially for poor and rural provinces and municipalities and local economies dependent on a single sector, would be crucial.

The reskilling of workers to support the transition to a low carbon green economy is most likely unavoidable. Since companies are increasingly required to report on their environmental and sustainability efforts under the ISO environmental management standards, National Environmental Management Act (NEMA) requirements for environmental impact authorisations and other reporting processes, it is likely that training interventions for green reporting and auditing are already being put in place. This, nonetheless, does not invalidate the need for more rigorous modelling of the effects on employment.

5.5. Sectoral Application

Paragraph 184 of the National Treasury Carbon Tax Policy Paper states, “…the carbon tax will apply to all direct, **stationary sources** of emissions, including process emissions” (National Treasury, 2013, emphasis added). The transport sector, on the other hand, is addressed in section 7.7.3. In paragraph 220 it is stated

that “emissions from domestic flights will be subject to the domestic carbon tax regime”. Paragraphs 184 and 220 appear contradictory since aviation emissions do not stem from stationary sources. Clarity has, however, been provided in the recent Draft Carbon Tax Bill (National Assembly, 2015) and the explanatory memorandum (National Treasury, 2015). The former indicates that the tax will be levied on total fossil fuel GHG emissions from combustion, less petrol and diesel related greenhouse gas emissions (Section 6). The latter indicates that non-stationary emissions, such as those from the use of liquid fuel in transport, will be taxed via the fuel tax regime.

For the short term it has been proposed that the Agriculture, Forestry and Other Land-Use (AFOLU) as well as the Waste sectors be exempt from carbon tax. This is because of difficulties with measurement, monitoring and verification of non-combustion emissions in these sectors. That said, a number of offset projects have been registered under CDM, VCS, GS and CCBS in these sectors. These projects would be available for firms in other sectors to use as offsets. In the medium term it is suggested that the AFOLU and Waste sectors may be brought into the carbon tax system. Signals about when such a change to these sectors would occur need to be provided as soon as possible. This will allow firms in other sectors to access offsets and to be able to plan future offset investments, rather than relying on a short term strategy. Firms need information now about whether current AFOLU offset schemes will be available in the future. It should be noted that the Draft Carbon Tax Bill has included combustion related emissions, but not others, from the AFOLU sector as taxable (National Assembly, 2015).

Fugitive emissions from coal mining were recognised in the 2013 carbon tax policy paper (National Treasury, 2013) but other fugitive emissions were not. An extended list has been included in Schedule 2 of the Draft Carbon Tax Bill (National Assembly, 2015). South Africa, however, has the potential to meet future energy needs through the release of shale gas by hydraulic fracturing (fracking) (Howarth, Santoro, & Ingraffea, 2011). One complaint lodged against the natural gas industry is over the control of fugitive emissions. It would thus make sense to pre-empt the formation of what may rapidly develop as a sector (as in the USA) by including fugitive emissions from natural gas production together with those for coal by inclusion in the Draft Carbon Tax Bill. Clarifying details around the carbon tax and creating certainty will also aid investment decisions.

5.5.1 The electricity sector

The NDP states that the electricity sector, due to its highly uncompetitive and monopolistic structure (which challenges the effective application of a pricing

instrument), may be granted a rebate on the carbon tax (National Planning Commission, 2011). The document does, however, recognise that an explicit carbon price could provide an incentive for the efficient use of the current fleet of power stations and thus maximise efficiency gains. Nonetheless, such changes can only be effected over the medium to long term because of long lead times in the construction of alternative power generating capacity as well as security of supply concerns.

Because the carbon tax policy proposed (National Treasury, 2013) explicitly includes the energy generation sector, with at least 25% of emissions taxes (assuming the maximum 10% offsets and 5% for participating in the carbon budget system), this would impact strongly on electricity prices. More detail is required about the impact of the carbon tax, as proposed, on short, medium and long term electricity prices. Preliminary information provided to us by National Treasury estimates that every effective R10 per ton CO_2 emissions tax translates into a 1.05 c /kWh addition to the electricity price. Hence, the impact on electricity prices will be between 5.5% (assuming only 60 % tax free allowance) to less than 3%. We take note of the intention to recycle revenue via a reduction in the current electricity levy, although the precise size of this reduction is unclear (National Treasury, 2015).

Another consideration which requires further discussion is the possible effect of the proposed carbon tax on municipal revenues. This tax will increase the operating cost associated with the provision of free basic electricity which will impact not only on Eskom, as a provider of these services, but also on municipalities which perform the distribution and reticulation. Additional funds may need to be channelled to municipalities through the local government equitable share grants to cover this. Furthermore, many municipalities use surpluses from electricity sales to cross subsidise other services. Increasing costs may reduce electricity related surpluses to the extent that municipalities are unable to raise tariffs and also negatively affect municipal sustainability and the grants system.

5.6. Efficiency Factors

The carbon tax proposal suggests the use of Z-factors to modify the threshold at which taxes are first levied. The intention of the use of these Z-(efficiency) factors is to reward companies who strive for lower carbon intensities for their processes and penalise firms which record poorer carbon intensities. The use of efficiency factors depends on the selection of acceptable baselines.

Worldwide, the acceptance of sector-specific or process-specific baselines has historically been a lengthy process, involving government, industry and non-governmental organisations (NGOs). This has required the collection of quality

evidence as well as lengthy discussions and negotiations. In many cases, lifecycle analytical (LCA) approaches have been used, which might differ from location to location. Even where consensus has been achieved, large ranges may exist and debate exists as to whether average or best-practice should be used for baseline efficiencies.

The GHG emissions intensity benchmark study has gone some way to providing greater clarity. Setting the sector's historical baseline will require the availability of significant quality South African data. The baseline which will be used will be a negotiation (based on historical emissions) which National Treasury has indicated it is willing to hold with those sectors interested in using the Z-factor. However, it seems unlikely that sufficient consensus could be reached in time for the implementation of the carbon tax in 2017.

5.7. Trade-Exposed Sectors

The tax proposal rightly identifies that trade-exposed firms will be at an initial disadvantage after the introduction of the tax. The graduated relief proposed addresses this difficulty. It is, however, possible that the proposed scheme could have unintended consequences, such as a switch from South African raw materials to imported raw materials to allow a firm to reduce its tax burden, affecting employment in South Africa.

The Draft Carbon Tax Bill (National Assembly, 2015) proposes that the relief be calculated as

$$X = 0.4 \times B$$

where

> B is the ratio between revenue received from goods that are exported and the total revenue received from all similar goods by the taxpayer

Relief will not be obtained if trade exposure (B above) is less than 5%.

It is furthermore unclear why the relief is capped at 10%. It is understood that capping the relief is a means to drive behavioural change. An alternative is to modify the scale factor (i.e. the coefficient which is currently set at 0.4 above) to a lower value. This would, of course, mean that firms with lower trade exposure would now gain less relief. A compromise would be to use a power function rather than a linear function, so that the maximum relief is still 10% but levels off at higher levels of trade exposure.

5.8. Carbon Offsets

Although offset projects have already been registered in South Africa under various standards such as CDM and VCS, the number and size of projects which currently not only possess CER certificates but are also eligible under the carbon tax is in fact small. Some of the largest projects that have been registered are operated by large South African firms who are subject to the carbon tax and whose own projects would not be eligible as offsets. It is thus doubtful that, in the short term (first five years) after the implementation of a carbon tax, South African firms will be able to utilise the offset scheme to any significant extent. The predictions of available offsets, based on independent studies reported by National Treasury (National Treasury, 2014), appear to be overly optimistic. They appear to include offset schemes which would meet CDM requirements but would not be eligible as offset schemes because the operators themselves fall within the carbon tax net.

For a project to be eligible under the offset scheme, it requires certification of the emissions reductions achieved. For this to be issued, emissions reductions need to be verified. This is undertaken by an independent designated operational entity (DOE). As of 2014, there was only one accredited DOE in South Africa although two other entities had expressed an intention to become accredited. A few international firms also maintain small offices. There is thus currently a lack of capacity in this regard which will affect the time taken for registration of the carbon offset projects, compounding the difficulties South African firms will face in accessing meaningful offsets in the short term.

It has been proposed that projects registered under CDM, VCS, GS and CCBS standards be considered for offsets. Difficulties in this regard have been recognised in the tax proposal. Thus, the international carbon-offsets standard bodies will have to establish a working relationship with the Designated National Authority (DNA) to ensure that the development of the carbon-offset projects would be aligned with DNA's requirements.

Concern exists about whether such a relationship will be established before the implementation of the carbon tax. It might be preferable for a primary standard, i.e. CDM, to be used for all projects, except those that are not covered by the CDM mechanism but are deemed viable. Another standard should be allowed in this case alone. For example, a project that could be registered under both CDM and VCS, should be able to register just under CDM. A list of project types, not covered by CDM, should be produced together with a hyperlink to the appropriate standard. This could be used as the basis for a South African standard. Exemption should, however, be permitted for projects that have already been registered under non-CDM standards. Because the DNA was created to handle CDM projects, capacity

will need to be created as a matter of urgency in the DNA if carbon offsets are to become significant in the short term. The Danish government has provided funding support and a service provider has been appointed to assist in establishing the carbon offsets framework with the DNA, given cognisance of the need to expand the role of the DNA beyond CDM projects approval.

It has rightly been recognised that a trading platform for carbon offsets should be considered for medium term implementation. This is because such a market will be more efficient. Nonetheless, to be viable it requires sufficient offset projects which can be traded. Because of the complexities of such a market, planning needs to begin in the short term and not wait for the arrival of the next five-year phase. This is not just because of the requirements for market infrastructure, but also so that questions about the interaction of market purchases and the carbon tax regime can be ironed out. For instance, it should be clarified whether carbon offsets may be realised (traded in as offsets) in a later year or must they must be realised in the year in which they were purchased. In addition to the question of whether offset credits may be banked, is that of whether they can be borrowed. It should be noted that verification of emissions reductions may cause delays in CER certification.

It is currently possible for a large GHG emitter in South Africa to register a project under the CDM mechanism and receive CERs for the project which can be traded in non-South African schemes such as the EU ETS. Such a project would not, however, be eligible as an offset in South Africa. Nonetheless, the firm could gain a double benefit from (a) reducing its tax liability in South Africa by lowering its total emissions and (b) using that reduction for CERs to be sold in a market outside South Africa. However, it is unclear what national government's position on such a practice is. It can be argued that such projects would no longer meet the additionality criterion under the CDM mechanism. Even if the reduction may only be used in one market, complications might arise in future where the reduction in CO_2e emissions achieves a higher price in a foreign market than the tax saving in South Africa. This is being addressed by collaboration with the UNFCCC to harmonise how CERs can be transferred and cancelled between the CDM mechanism and the carbon offsets scheme to avoid this double benefit.

The carbon tax policy limits the maximum offset to 5 or 10% by sector. It appears that the rationale behind the differences in the levels is that sectors which already have an allowance for process emissions are allowed a lower offset. A cap on offsets would maintain an economic incentive for entities firstly to decarbonise within their existing operations while secondly having the option to use offsets partially to reduce their liability. Nonetheless, because offsets need to be additional, the effect of

removing the cap (especially for industries with little scope to decarbonise) would still be to drive down net CO_2 emissions.

The allowance for process emissions can be detached from investment in offsets. Given that the rationale behind the carbon tax is environmental and not revenue generation, there is no clear economic reason for not allowing the maximum offset to be 100%. The small size of many offset projects makes them ideal vehicles to experiment with new technology. As such, investment in such carbon reduction projects should be encouraged as far as possible. This will potentially lead to more offset projects becoming available which will make it easier to meet the national carbon budget.

5.9. Double Taxation: The Carbon Tax and Existing Levies

The National Treasury Policy Paper (National Treasury, 2013) indicates that the level of double taxation in the electricity sector, as a result of the carbon tax and the current electricity generation levy (an effective energy tax), is expected to be low. It can be argued that the electricity prices in South Africa are low and also that the externality costs of electricity generation are not fully internalised. Thus, the possibility of double taxation is minimised as the tax is structured in such a way that it does not price all the environmental externalities such as the production of SO_2, NO_x and road damage due to coal haulage etc. Over time, through instruments such as the carbon tax and the electricity generation levy, these costs could be incorporated into the electricity pricing structure. The carbon tax and electricity generation levy could be viewed as two separate instruments, with the electricity generation levy serving as a demand side management tool.

It is unfortunate that the level of double taxation has not been estimated. In order to assess the medium term implications of the tax at a time when the tax-free thresholds have been lowered and the tax rate raised, it is important to place the carbon tax in proper context. It should be relatively easy for National Treasury to estimate the level of double taxation with information about the efficiency of electricity production, electricity distribution and the production mix (coal-fire/nuclear/renewable/etc.), i.e. the amount of CO_2e produced per kWh at the consumer.

5.10. Carbon Budgeting and Carbon Taxation

It is recognised that carbon budgeting is an effective tool for managing GHG gases, both now and into the future. The 2011 White Paper (Department of Environmental Affairs, 2011) highlights taking a carbon budgeting approach to measuring and

monitoring the effectiveness of both existing and proposed policies (Paragraph 4 in (National Treasury, 2013)). "The 2011 White Paper advocates the use of a carbon budgeting approach to identify key mitigation measures for significant GHG-emitting sectors and/or subsectors." Thus, the DEA recognises a carbon budget as the primary mitigation instrument, but with carbon taxes in support (paragraph 25 (Department of Environmental Affairs, 2011)).

The tax policy document of the National Treasury commits itself as follows (paragraph 187): "Both the tax-free percentage thresholds and their subsequent replacement with absolute emissions thresholds should be aligned with the proposed carbon budgets, as per the 2011 White Paper or any subsequent commitments." While in the short term the carbon budgeting approach to be used by DEA will allow a long term strategy for GHG emissions in South Africa to be developed and refined, nowhere in the policy is a mechanism provided by which the carbon tax rate can be aligned with the carbon budget. A 5% tax free allowance for firms participating in the carbon budget system will be implemented in the short term (2016-2020).

5.11. Unintended Consequences

As most of the alternative technologies to reduce carbon intensity, in all sectors, have been developed overseas, the import of low carbon intensity technology would impact negatively on South Africa's Balance of Payments. It is possible that if the royalty fees are paid for the use of intellectual property from overseas, South Africa could become more vulnerable to base erosion and profit shifting (BEPS) through, for example, transfer pricing of the relevant intangibles such as patents (OECD, 2013).

Government has developed a strategy for the local beneficiation of South African minerals (Department of Mineral Resources, 2011). Iron and steel, aluminium and other metal producing industries have high carbon intensities. An unintended consequence of a carbon tax could be to drive beneficiation offshore with harmful effects on currency flows and the exchange rate. It is also possible that this carbon shifting may even increase net global CO_2 emissions.

6. RECOMMENDATIONS

The carbon tax policy proposal and draft carbon tax bill represent commendable schemes to drive a shift to a low carbon intensity economy. Their various elements are designed to protect industries against competition shocks, trade exposure and sector specific disadvantages in the short term through allowances and the use of offsets. There exist a number of concerns, however, with regard to the detailed aspects of the proposal. A number of recommendations on implementation of the tax are thus made below:

DEA greenhouse gas emissions reporting regulations have been developed and will be implemented from 2016. Mandatory GHG reporting requirements become effective in January 2016. It is suggested, however, that the carbon tax be implemented in 2017 but the threshold be set to 100% for the first year, i.e. firms producing Scope 1 emissions should be required to comply and submit returns but should incur no tax liability in the first tax year after implementation. Such an option would provide companies with the necessary data to plan more effectively, allow SARS to fine-tune tax reporting systems and provide National Treasury with additional information to allow for more accurate modelling and revenue forecasting. It would also assist government in developing and testing the necessary administrative systems.

This proposal stems from a concern that a number of key aspects of the carbon tax policy do not at this stage appear to be fully ready for implementation, such as:

1. It is essential that agreement is reached with industry about the Z-factors to be used to promote carbon efficiency improvements. It is recommended that Z-factors of 1 be used in the first two years. This will allow firms to quantify emissions so as to provide historical data on which Z-factors can be based.
2. The offsets market is immature with a very low number of approved projects, all of small size, that meet the stringent criteria for use by the firms. Banking of CO_2e credits in the period should be allowed so that the immaturity in the market is addressed and investment may begin prior to the use of these offsets.
3. Confusion exists in the market as to whether penalties will be applied to firms exceeding proposed carbon budgets from 2020. While carbon budgets are important in assisting the setting of carbon tax policy, the imposition of penalties is a command-and-control procedure is at odds with the economic principles of a market-based carbon tax.
4. The DTC is required to assess South Africa's entire tax regime holistically. Without more up to date modelling, which includes the specifics of the carbon tax policy such as Z-factors and offsets, it is not possible to provide a fully

informed assessment of the tax policy. In particular, the total revenue expected from the carbon tax under different scenarios is required. The most recent modelling presented is from 2012 (Alton, et al., 2012) while other studies predate 2010 (Van Heerden, et al., 2006; Pauw, 2007; Devarajan, Go, Robinson, & Thierfelder, 2009). As a carbon emission mitigation instrument, carbon taxes must represent one of a set of "least regrets options … that improve the competiveness of local industry, create jobs and represent a net saving rather than cost to the economy and gross domestic product" (National Planning Commission, 2011). The DTC is in need of recent modelling, demonstrating that the proposed policy is indeed the "least regrets option". No tax, holding such important implications, can be introduced without a rigorous analysis of its fiscal consequences, particularly concerning the burden that is likely to fall upon those least able to shoulder a further tax load.

5. A more detailed analysis of revenue recycling is needed in order to fully understand the distributional effects of the carbon tax. Although the revenue recycling options have been provided (National Treasury, 2015), the amount of expected revenue recycling should also be provided. Since recycling options include a reduction in electricity levies, a proposed realignment of the tax-mix needs to be studied in order for the DTC to be able to comment on the tax system as a whole.
6. A clarification of the extent of changes to the fuel levy to account for CO_2 emissions from transportation should be provided.
7. The NDP indicates that a carbon tax is to be implemented in a flexible manner, sensitive to employment and environmental impacts (National Planning Commission, 2011). A more detailed analysis of the impact of the carbon tax proposals and revenue recycling is required for the DTC to meet its mandate. Not only should the modelling address total employment but also the impact on employment at different skill levels.
8. More up-to-date modelling results are required to show the impact of a carbon tax on the balance of payments, exchange rates, inflation and fuel, transport and electricity prices. Modelling results would be required that covered both the short and medium term.
9. An analysis of the likely size of double taxation where there are existing levies should be provided.
10. The DTC is mandated to address the South African tax regime beyond the short-term, i.e. beyond the initial 5-year period of the carbon tax. More detail is required about medium term changes under consideration, in particular, the impact on overall revenue generated and revenue recycling.

In conclusion, the Committee is deeply cognisant of the impact of a delay in the introduction of a carbon tax. Given the manifest uncertainties, set out above, and

notwithstanding the laudable objective of reducing carbon omissions, it may be that such a tax should initially be introduced with a zero liability in order to ensure that problems of reporting can be addressed and to assist with gathering relevant information. This will subsequently permit rigorous modelling to be undertaken to test, in particular, the potentially regressive effects and recycling options, as well as the implications for employment and the concomitant development of solutions to circumvent these potential problems.

7. REFERENCES

Alton, T., Arndt, C., Davies, R., Hartley, F., Makrelov, K., Thurlow, J., & Ubogu, D. (2012). The economic implications of introducing carbon taxes in South Africa. *UNU-WIDER Working Paper, 2012/46*.

Boko, M., Niang, I., Nyong, A., Vogel, C., Githeko, A., Medany, M., . . . Yanda, P. (2007). Chapter 9. Africa. In M. L. Parry, O. F. Canziani, J. P. Palutikof, P. J. Van der Linden, & C. E. Hanson (Eds.), *Climate change 2007: Impacts, adaptation and vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (pp. 433-467). Cambridge, UK: Cambridge University Press.

Brander, M. (2012). *Greenhouse gases, CO2, CO2e, and carbon: What do all these terms mean?* Edinburgh, UK: Ecometrica.

Burck, J., Marten, F., & Bals, C. (2014). The Climate Change Performance Index 2014. Bonn, Germany: Germwanwatch/ClimateAction Network Europe.

Camco Clean Energy. (2012). *Use of carbon offsets under a South African carbon tax regime.* Johannesburg, South Africa: Africa Clean Energy.

Department of Environment Affairs. (2013). *GHG Inventory for South Africa (2000-2010).* Pretoria, South Africa: Government Printer.

Department of Environment Affairs and Tourism. (2007). *Long term mitigation scenarios: strategic options for South Africa.* Pretoria, South Africa: Government Printer.

Department of Environment Affairs and Tourism. (2009). *Greenhouse gas inventory South Africa (1990-2000).* Pretoria, South Africa: Government Printer.

Department of Environmental Affairs. (2011). *National climate change response white paper.* Pretoria, South Africa: Government Printer.

Department of Environmental Affairs. (2015). *Government Gazette (June) Notice 541: Draft greenhouse gas emissions reporting regulations.* Pretoria, South Africa: Government Printer.

Department of Mineral Resources. (2011). *A Beneficiations Strategy for the Minerals Industry of South Africa.* Pretoria, South Africa: Government Printer.

Department of the Environment, Government of Australia. (2014). *Repeal of the carbon tax – impacts on households and businesses.* Retrieved from http://www.environment.gov.au/system/files/pages/59388d77-a9b5-4e4c-87b7-d732baf7c45b/files/factsheet-impacts-households-and-businesses_0.pdf.

Devarajan, S., Go, D., Robinson, S., & Thierfelder, K. (2009). *World Bank Working Paper 4933. Tax policy to reduce carbon emissions in South Africa.* Washington DC: World Bank.

Dinan, T. (2015). Offsetting a carbon tax's burden on low income households. In I. Parry, A. Morris, & R. C. Williams III (Eds.), *Implementing a US carbon tax.* New York, N.Y.: Routledge.

Eberhard, A., Kolker, J., & Leigland, J. (2014). *South Africa's renewable energy IPP procurement program: success factors and lessons.* Washington. D.C.: Public-Private Infrastructure Advisory Facility.

EU Publications Office. (2013). *The EU Emissions Trading System (EU ETS).* Brussels, Belgium: European Union.

Gale, W., Brown, S., & Saltiel, F. (2015). Carbon taxes as part of the fiscal solution. In I. Parry, A. Morris, & R. Williams (Eds.), *Implementing a US Carbon Tax: Challenges and Debates* (pp. 1-17). New Yorl, N.Y.: Routledge.

Goth, M. (2014, June). Cogeneration – utilising energy otherwise wasted. *Electricty + Control, June*, pp. 46-48.

GSF. (2012). *Carbon offset handbook.* Geneva, Switzerland: The Gold Standard Foundation.

Hassett, K., Aparna, M., & Metcalf, G. (2009). The incidence of a U.S. carbon tax: a lifetime and regional analysis. *Energy Journal, 30*, 155-177.

Howarth, R., Santoro, R., & Ingraffea, A. (2011). Methane and the greenhouse-gas footprint of natural gas from shale formations. *Climatic Change, 106*(4), 679-690.

IPCC. (2013). *Fifth assessment report.* Geneva, Switzerland: United Nations Intergovernmental Panel on Climate Change.

Jooste, M., Winkler, H., Van Seventer, D., & Truong, P. (2009). *The effect of response measures to climate change on South Africa's economy and trade. Final report to the Department of Environmental Affairs.* Cape Town, South Africa: University of Cape Town.

Letete, T., Guma, M., & Marquard, A. (2008). *How do South African emissions compare with those of other countries? .* Cape Town, South Africa: Energy Research Centre, University of Cape Town.

Morris, A., & Mathur, A. (2015). The distributional burden of a carbon tax. In I. Parry, A. Morris, & R. Williams (Eds.), *Implementing a US carbon tax.* New York, NY, USA: Routledge.

Munnings, C., Morgenstern, R., Wang, Z., & Liu, X. (2014). *Discussion paper: Assessing the design of three pilot programs for carbon trading in China.* Washington DC, USA: Resources for the Future.

National Assembly. (2015). *Draft carbon tax bill.* Pretoria, South Africa: Government Printer.

National Planning Commission. (2011). *National Development Plan: Vision for 2030.* Pretoria, South Africa: Government Printer.

National Treasury. (2006). *Draft Policy Paper: A framework for considering market-based instruments to support environmental fiscal reform in South Africa.* Pretoria, South Africa: Government Printer.

National Treasury. (2010). *Discussion paper for public comment - reducing greenhouse gas emissions: the carbon tax option.* Pretoria, South Africa: Government Printer.

National Treasury. (2013). *Carbon tax policy paper - reducing greenhouse gas emissions and facilitating the transition to a green economy.* Pretoria, South Africa: Government Printer.

National Treasury. (2014). *Carbon offsets paper.* Pretoria, South Africa: Government Printer.

National Treasury. (2015). *Draft explanatory memorandum for the carbon tax bill.* Pretoria, South Africa: Government Printer.

Neuhoff, K. (2008). *Tackling carbon: How to price carbon for climate policy.* London, UK: Climate Strategies.

OECD. (2013). *Action plan on base erosion and profit shifting.* OECD Publishing.

Parry, I. (1997). *Climate Issues Brief No. 2. Revenue recycling and the costs of reducing carbon emissions.* Washington, D.C.: Resources for the Future.

Parry, I., Morris, A., & Williams, R. (2015). *Implementing a US Carbon Tax: Challenges and debates.* (I. Parry, A. Morris, & R. Williams, Eds.) New York, N.Y.: Routledge.

Pauw, K. (2007). *LTMS Input Report 4: Economy-wide modelling: An input into the long-term mitigation scenarios process.* Department of Environment Affairs and Tourism. Pretoria, South Africa: Government Printer.

Stern, N. (2006). *Stern Review on the Economics of Climate Change.* London, UK: HM Treasury.

United Nations. (1992). *United Nations framework convention on climate change, Article 1.* New York, N.Y.: United Nations.

United Nations Environment Programme. (2010). *Driving a green economy through public finance and fiscal policy reform.* New York, N.Y.: United Nations.

Van Heerden, J., Gerlagh, R., Blignaut, J., Horridge, M., Hess, S., Mabugu, R., & Mabugu, M. (2006). Searching for triple dividends in South Africa: Fighting CO_2 pollution and poverty while promoting growth. *Energy Journal, 27*, 113-141.

Submissions received

	DATE	NAME
1	20150408	Phillip Lloyd
2	20150408	David Lipschitz
3	20150409	Russell Wood
4	20150422	Blue World Carbon
5	20150430	Columbus Steel
6	20150505	Transnet
7	20150506	Ethanol Producers Association of SA
8	20150506	WWF SA
9	20150506	Richards Bay Minerals
10	20150507	Dr John Ledger
11	20150507	Association of Cementitious Material Producers
12	20150507	SA Petroleum Industry Association
13	20150507	PriceWaterhouseCoopers
14	20150507	CFO Forum (mining)
15	20150507	Road Freight Association
16	20150507	Arcelor Mittal
17	20150508	Energy Research Centre, University of Cape Town
18	20150508	SA Iron and Steel Institute
19	20150508	SAICA
20	20150508	BUSA (with supplementary)
21	20150508	PPC
22	20150508	Glencore
23	20150508	Exaro
24	20150508	Transalloys
25	20150508	Illovo Sugar
26	20150508	Greenpeace
27	20150508	Sasol
28	20150508	Eskom
29	20150508	Omnia Fertilizers
30	20150508	Airlines Association of SA
31	20150508	Chamber of Mines
32	20150508	Project Developer Forum
33	20150508	Imperial Holdings
34	20150508	Charles Ahaiwe
35	20150511	Industry Task Team on Climate Change
36	20150511	Climate Markets and Investment Association
37	20150512	South African Faith Communities' Environmental Institute
38	20150512	Telkom
39	20150514	AIDC
40	20150515	Scaw Metals
41	20150518	Pioneer Foods

	DATE	NAME
42	20150522	Paper Manufacturers Association of SA
43	20150525	Econometrix – summary
44	20150529	Telkom
45	20150729	Groundwork