Carbon pricing in South Africa; the merits of a carbon tax

WB – CPLC & NBI

Tax Policy Unit ---- 11 November 2015

national treasury

Department:
National Treasury
REPUBLIC OF SOUTH AFRICA

Climate Change & the Green Economy (1)

- "… climate change is more than just an environmental issue. It is about the continued existence of the human species in harmony with its environment in a sustainable manner".
- "As South Africa, we seek a global regime that ensures that climate change does not reach dangerous levels, while recognising that the priority for developing countries is to address poverty and socio-economic development".
- "As a responsible global citizen, we remain fully committed to contribute our fair share to the global effort to reduce greenhouse gas emissions".
- "A Green Economy is one in which business processes are configured or reconfigured to deliver better returns on natural, human and economic capital investments, while at the same time reducing greenhouse gas emissions, extracting and using fewer natural resources, creating less waste and reducing social disparities".

Climate Change & the Green Economy (2)

- “In promoting this new green, sustainable and inclusive growth focus, we are putting together some policy proposals that will impact on the business sector”.
- “These may include putting a price on carbon and other pollution or on the over-exploitation of a scarce resource through mechanisms such as taxes, natural resource charges or tradable permit systems”.
- “Let me reiterate that we see in the threat of climate change, an opportunity to develop our green, inclusive, sustainable and shared growth”.
- “This would be growth that provides jobs and which improves infrastructure, health, education and all basic services that our communities need to have an improved quality of life”.

Source: President Jacob Zuma, The World Climate Business Summit, Elangeni Hotel, Durban, 03 December 2011 (COP 17)

South Africa's National Climate Change Response White Paper, 2011

- South Africa's response to climate change has two objectives:
  - Effectively manage inevitable climate change impacts through interventions that build and sustain South Africa's social, economic and environmental resilience and emergency response capacity.
  - Make a fair contribution to the global effort to stabilise greenhouse gas (GHG) concentrations in the atmosphere at the level that avoids dangerous anthropogenic interference with the climate system within a timeframe that enables economic, social and environmental development to proceed in a sustainable manner.
- One of the elements in the overall approach to mitigation is: The deployment of a range of economic instruments to support the system of desired emissions reduction outcomes, including the appropriate pricing of carbon and economic incentives, as well as the possible use of emissions offset or emission reduction trading mechanisms …

South Africa's response to its economic & social challenges and to climate change

- South Africa voluntary committed (at COP 15 in 2009) to curb GHG emissions by 34% by 2020 and 42% by 2025 below the BAU trajectory with emissions peaking in 2020 - 2025, stabilising in 2025 - 2035 and declining in absolute terms from around 2035, subject to support from developed countries in the areas of climate finance, capacity building & technology transfers.

- How do be balance the need for higher levels of growth and the energy & carbon intensive nature of our economy with our desire and commitment to help reduce GHG emissions?

- "the choices – the trade offs – we are told we must make between financial success and environmental success, between doing well and doing good, are just plain false (Confessions of a Radical Industrialist, Ray Anderson (with Robin White, 2009) (page xv – xvi)".

The importance (and limitation) of markets (price signals)

- In general, markets provide an efficient (although not necessarily the most equitable) means of allocating scarce resources.
- However, some markets are subject to failures, particularly with respect to environmental goods and services due to the public good nature of these goods.
- This can lead to insufficient consideration of environmental issues in production and consumption decisions.
- Government intervention necessary – regulations, standards, taxes, etc.

Externalities

- An externality is a market failure that occurs when a cost or benefit is imposed on a third party that is not directly involved in an economic activity or transaction. In other words, externalities refer to situations when the production and/or consumption of goods and services imposes costs or benefits on others that are not reflected in the prices charged for the goods and services being provided. An external cost is often referred to as a negative externality while the benefits are classified as a positive externality.

- Positive externalities (“spillovers”): Research & Development, Health, e.g. immunization, basic education, road safety, street lighting, energy efficiency savings, etc.

- Negative externalities (“spillovers”) : Local air pollution, noise, congestion, water pollution, GHG emissions – climate change, etc.

The Poverty Impacts of Climate Change, Economic Premise, The World Bank, March 2011. Number 51

- Over the last century, the world has seen a sustained decline in the proportion of people living in poverty. However, there is a growing concern that climate change could slow or possibly even reverse progress on poverty reduction.
- This concern is rooted in the fact than most developing countries are more dependent on agriculture and other climate-sensitive natural resources for income and wellbeing, and that they also lack sufficient financial and technical capacities to manage increasing climate risk (adaptation).
- Climate change is likely to lead not only to changes in the mean levels of temperatures and rainfall, but also to a significant increase in the variability of climate and in the frequency of extreme weather-related shocks.
- ...much of the poverty impact is expected to be concentrated in Africa and South Asia, both of which would see more substantial increases in poverty relative to a baseline without climate change.

Comparison of carbon taxes and emissions trading scheme

	Carbon taxes	Emissions trading scheme
Price of carbon – certainty and efficiency gains	Price certainty and efficiency gains – price is fixed for a specific time period with built-in policy adjustments for inflation. Possibility of greater efficiency gains due to flexibility around the time period to achieve emissions reductions.	Price uncertainty – potential price volatility depending on the quantity of initial permit allocation and subsequent allocations. Inefficiencies may result from specifying specific time period over which to achieve emissions reduction targets.
Environmental effectiveness – emissions reduction	Emissions reductions – quantity of achievable emissions reductions are uncertain.	Emissions are capped, providing some certainty of the environmental outcome.
Administrative and compliance issues	Able to piggyback on existing tax administrative system and potentially minimises the costs of compliance.	Requires the creation of new institutions to effectively implement a trading scheme. Need for a new tax and accounting scheme for emissions allowances. May involve complex negotiations around permit allocations and high transaction costs.
Visibility of tax	The determination and application of the level of tax is more explicit.	Emissions trading systems pricing and costs are hidden.
Design	Involves consideration of the tax base, point of collection, price level, and mitigating measures.	Requires consideration of scheme coverage, point of obligation and the level of the cap.

Source: Goldblatt, M (2010). *Putting a Price on Carbon: Economic instruments to mitigate climate change in South Africa and other developing countries*. Conference Presentation, Energy Research Centre, University of Cape Town, 24 March, 2010

Carbon pricing vs. Regulation (CAC)

- One of the great advantages of a carbon tax stems from the ability of market-based instruments to achieve efficient, least-cost emissions reductions. Taxes on CO_2 may be able to reduce the costs of achieving a given level of environmental protection compared to traditionally implemented methods such as regulatory policies or emissions standards.
- This is usually the argument when the marginal cost of abating carbon emissions varies across firms or sectors. CAC (command and control) policy instruments cannot fully differentiate between polluters with different marginal costs of abatement, and may force some to undertake high abatement costs that are less efficient. Market-based instruments provide each polluter with an incentive to abate in whichever way they see fit.
- Newell and Stavins (2003) find that the cost of abatement using CAC regulation can be several times the minimum cost achieved by using a carbon tax.

- The potential use of environmental taxes is assessed by, among others, Smith (1992), OECD (1993, 1996), Bovenberg and Cnossen (1995), Fullerton (2001), Bovenberg and Goulder (2002), Stavins (2003), and Newell and Stavins (2003). The seminal work is Pigou (1920).

Carbon taxes and emissions trading scheme (1)

- “Tradable permit schemes are seen as more popular and politically more palatable regulation compared to a tax, largely due to the business sector’s perception that the direct market- based nature of tradable permits impose lower compliance costs on emitters compared to a tax (Svendsen, 1999).
- However, there is no clear-cut evidence in the literature confirming this is so. In particular, the argument that tradable permit schemes are cost effective relative to taxes relied critically on the assumption of the absence of transaction costs and market power, and of risk neutrality and availability of full information.
- These assumptions have been shown to be untenable, particularly because of the effects that market uncertainty has on abatement investment decisions (Betz and Gunnthorsdottir, 2009; Hahn and Stavins, 2011).
- Uncertainty about future emissions permit prices can lead firms to invest more or less than the optimal levels of abatement (Malueg, 1989); thereby raising the total social cost of regulation (Aldy and Stavins, 2013; Hahn and Stavins, 2011)”.

- Bernold Elizabeth, Ancev Tiho and Baltaduonis Rimvydas, Regulating greenhouse gas emissions by an inter-temporal policy mix: An experimental investigation, The University of Sydney, Economic Working Pare Series 2015-15, September 2015.

Carbon taxes and emissions trading scheme (2)

- Although taxes and tradable permit schemes achieve least-cost emissions reductions in a given period, over time price stability through taxation will reduce the long-term costs of carbon emission cuts.

- Although a carbon tax does not set a fixed quantitative limit for emissions over the short term, a tax at an appropriate level and phased in over time to the "correct level" will provide a strong price signal to both producers and consumers to change their behaviour over the medium to long term.

- In practice, the application of both environmentally related taxes and trading schemes requires careful consideration of their design, which is influenced not only by the objectives of economic efficiency, but also by other factors such as sectoral competitiveness and income distribution.

- Freebairn, J. (2009) "Carbon Taxes vs. Tradable Permits: Efficiency and Equity Effects for a Small Open Economy". University of Melbourne.
- OECD (2008) "Environmentally Related Taxes and Tradable Permit Systems in Practice".

Carbon taxes and emissions trading scheme (3)

- A tax presents itself as a potentially simpler regulation for emissions reduction.

- An emissions tax could be set at a rate that would impel polluters to curb emissions to the target level (Miliman and Prince, 1989).

- The steady price signal provided by a tax lends emitters a greater certainty about future compliance costs and the benefit of undertaking investment in abatement. Under certain conditions, an appropriately set tax could result in lowest cost of compliance (Requate, 2005).

Carbon taxes and emissions trading scheme (4)

- Given the developing nature of the South African economy, the implementation of a domestic emissions trading scheme does not present the most appropriate policy response to mitigate climate change in the short term. The reasons include:
-
  - The administrative complexity of a cap-and-trade system
  - The structure of the energy industry – oligopolistic like nature?
  - The uncertain environmental outcomes of some current regional emissions trading systems
  - The windfall gains experienced by some stakeholders
  - The uncertain economic costs to business.
  - The controversy associated with setting specific targets.

Rationale for a carbon price / tax

- A carbon tax is a means by which government can intervene by way of a market based instrument to appropriately take into account the social costs resulting from carbon emissions.
- A carbon tax seeks to level the playing field between carbon intensive (fossil fuel based firms) and low carbon emitting sectors (renewable energy and energy efficient technologies).
- Although this option does not set a fixed quantitative limit to carbon emission over the short term, a carbon tax at an appropriate level and phased in over time to the "correct level" will provide a strong price signal to both producers and consumers to change their behaviour over the medium to long term.

- "The introduction of a carbon price will change the relative prices of goods and services, making emission-intensive goods more expensive relative to those that are less emissions intensive. This provides a powerful incentive for consumers and businesses to adjust their behaviour, resulting in a reduction of emissions".

National Development Plan 2011: on Climate Change

- "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 (p.35)".

- "…. 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 (p.51)".

- "By 2015 … carbon-pricing mechanisms have been put in place (with appropriate exemptions). These are supported by a wider suite of mitigation policy instruments that target specific mitigation opportunities (p.214)".

- "…. reduce carbon emissions from the electricity industry from 0.9kg per kilowatt-hour to 0.6kg per kilowatt-hour".

- "… it is possible to both reduce greenhouse gas emissions from electricity production and still grow the minerals and mineral processing sectors".

IEA: Estimated GHG { CO_2e } emissions: Sectoral Approach – Fuel combustion only

Mt of CO2: CO2 Sectoral Approach					
	Country	2010		2008	
1 B	People's Republic of China	23.84%	1	22.07%	1
2	United States	17.73%	2	18.95%	2
3 B	India	5.37%	3	4.88%	4
4 B	Russian Federation	5.22%	4	5.40%	3
5	Japan	3.78%	5	3.91%	5
6	Germany	2.52%	6	2.71%	6
7	South Korea	1.86%	7	1.70%	9
8	Canada	1.77%	8	1.87%	7
9	Islamic Republic of Iran	1.68%	9	1.69%	10
10	United Kingdom	1.60%	10	1.74%	8
11	Saudi Arabia	1.47%	11	1.31%	13
12	Mexico	1.38%	12	1.37%	12
13	Indonesia	1.36%	13	1.24%	17
14	Italy	1.32%	14	1.48%	11
15 B	Brazil	1.28%	15	1.23%	18
16	Australia	1.27%	16	1.31%	14
17	France	1.18%	17	1.26%	16
18 B	South Africa	1.15%	18	1.31%	15
19	Poland	1.01%	19	1.01%	21
20	Chinese Taipei	0.89%	20	0.89%	22
21	Spain	0.89%	21	1.08%	19
22	Ukraine	0.88%	22	1.05%	20
23	Turkey	0.88%	23	0.89%	23

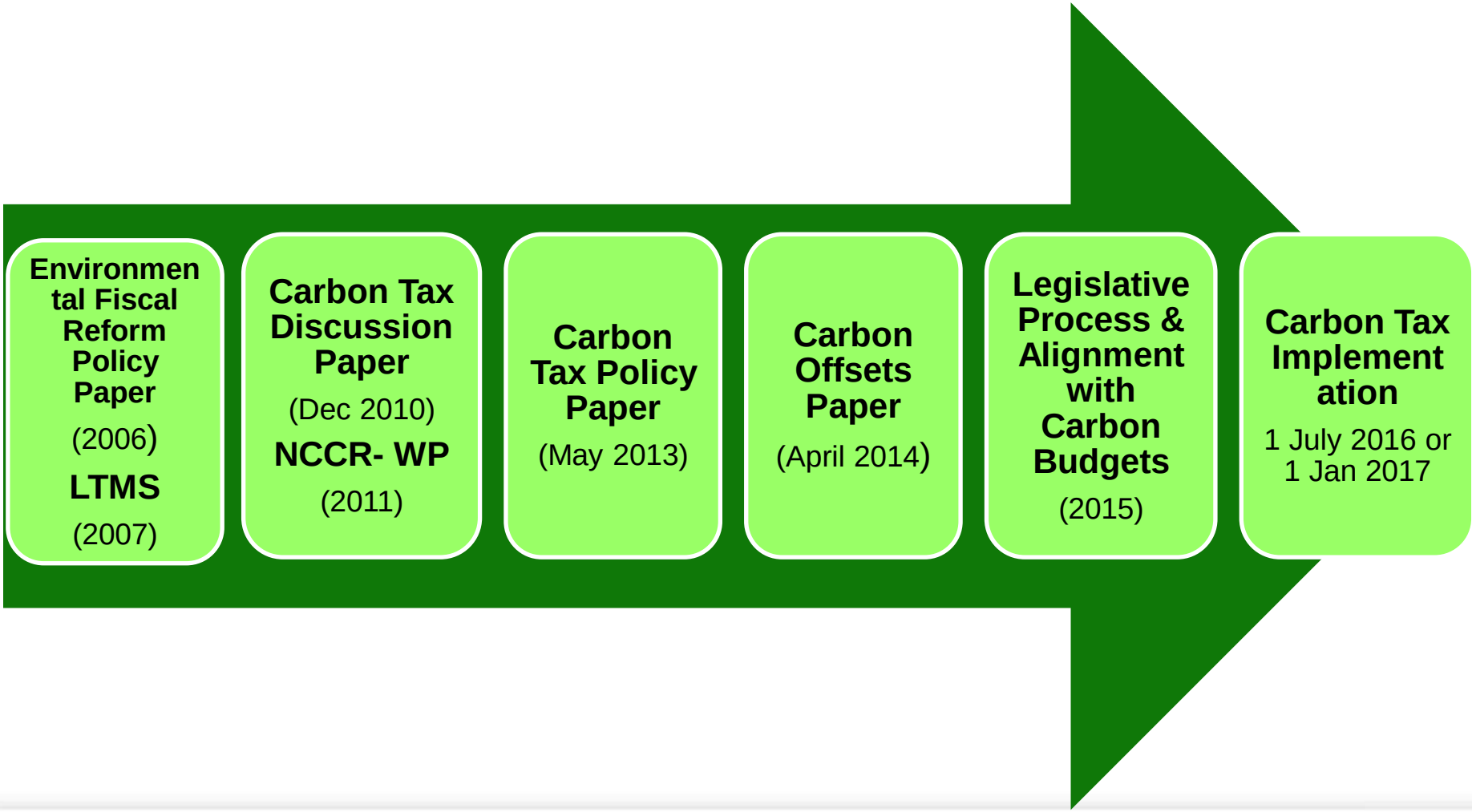
GHG Inventory, 2010 – Estimates, DEA

2010: GHG Inventory (Estimates) -- Categories	Emissions - CO2 Eq (Gg)	Emissions - CO2 Eq (Gg)	Total Emissions - CO2 Eq (Gg)	Percentage Contribution
1 - Energy			428 368	82.66%
A - Fuel Combustion Activities			402 817	77.73%
1.A.1.A - Electricity		236 798		*45.69%*
1.A.1.B - Petroleum Refining		2 284		*0.44%*
1.A.1.C - Manufacture of Liquid Fuels (Synfuel)		28 611		*5.52%*
1.A.2 - Manufacturing Industries and Construction		41 117		*7.93%*
1.A.3 - Transport		47 607		
Civil Aviation	*3 670*			
Road Transport	43 440			*8.38%*
Rail Transport	*497*			
1.A.4 - Other Sectors		44 684		8.62%
B - Fugitive emissions			25 551	4.93%
2 - Industrial Processes and Product Use			44 351	8.56%
2.A - Mineral Industry		4 793		
Cement production	*4 187*			
Lime production	*502*			
Glass Production	*104*			
2.B - Chemical Industry		1 011		
2.C - Metal Industry		37 513		
Iron and Steel Production	*24 147*			
Ferroalloys Production	*11 809*			
Aluminium production	*1 468*			
3 - Agriculture, Forestry, and Other Land Use			(25 714)	(4.96%)
4 - Waste			19 806	3.82%
Total National Emissions and Removals			518 239	100.00%
International Bunkers			2 572	

South Africa – GHG, 2012/13: CDP, 2013

	2013 CDP	SA Scope 1	SA Scope 1
	Million of metric tons	**Mton CO2 eqv**	**%**
1	Sasol Limited	59.88	12%
2	Arcelor Mittal South Africa Ltd	11.32	2%
3	Pretoria Portland Cement Co Ltd	4.44	
4	BHP Billiton	2.95	
5	Sappi	2.62	
6	Anglo American	1.95	
7	Gold Fields Ltd	0.79	
8	Mondi Plc	0.73	
9	Anglo American Platinum	0.52	
10	AngloGold Ashanti	0.10	
	Sub Total (Top 10 companies - JSE)	**85**	**16%**
	Sub Total (other 90 companies - JSE)	7	1%
	Eskom	228	44%
	Transport	51	10%
	Other	149	29%
	Total - South Africa	**520**	**100%**

Carbon Tax Policy Proposal – timeline & consultation



Criteria / Design considerations for environmentally related taxes, 2006 paper

- **Environmental effectiveness** – linked to the environmental externality and aim for best design possible;
- **Tax rate & revenue** – tax rate to be phased-in, revenue use in terms of government priorities;
- **Support for the tax** – public support and acceptance is important (e.g. tax payer morality);
- **Legal, technical & administrative feasibility**:
  - *Define taxable commodity - tax base*; or nature of incentive;
  - *Setting the tax rate;*
  - *Tax avoidance and evasion;*
  - *Collection costs; and*
  - *Compliance costs.*
- **Competitiveness impact**s – may require phase in approach to allow adequate time for adjustments;
- **Distributional impacts** – compensating measures may need to be considered; and
- **Adjoining policy areas** – is the instrument capable of contributing to other social and economic objectives? (Is it aligned with other government policies?)

Mitigation targets, competitiveness, carbon leakage, thresholds

- Mitigation targets
  - % below base year – (e.g. 1990, 2000, 2010, etc.)
  - % below business as usual (BAU)
  - Intensity based (CO_2e emissions per unit of output / valued added / GDP)
- Tax free allowance thresholds
  - % based tax free allowance / threshold
  - Absolute tax free allowance threshold
- Setting of thresholds
  - Carbon budgets
  - Grandfathering
  - Benchmarks

Benchmarking, Maarten Neelis (Ecofys) and Brett Cohen (The Green House)

- Definition of benchmarking :
  - General: ‘Comparison of performance to comparable others/peers’
  - In the context of carbon pricing: ‘Comparison of GHG emission performance to comparable others/peers’
- Expressed as GHG emissions per unit of product (or per unit of input)
- Used in EU ETS and California as main methodology for free allocation of emission allowances, to protect competiveness of industry
- Advantages
  - Allows for rewarding early action and is regarded as fair
  - Gives an indication of remaining emissions reduction potential
- Difficulties
  - High demand of data and understanding of industry processes
  - What is “comparable”

Reduction options & benchmark approaches

	Fuel mix choice	Combustion process efficiency	Heat end-use efficiency
Product benchmarks	Included	Included	Included
Heat benchmark	Included	Included	Not Included
Fuel benchmark	Included	Not Included	Not Included
Grandfathering process emissions	N/A	N/A	N/A

Benchmarking – recommendation

Based on international experiences, this study concludes that where possible, product benchmarks (defined as emissions per unit of sector output) should be developed. Developing such benchmarks allows all emission reduction options for companies to be taken into account when determining the benchmark approach. Ideally, the majority of emissions of sectors are covered by such product benchmarks so that the sector is treated in a uniform way.

Options for emissions not covered by product benchmark

Fall-back Approach	Heat production emissions	Fuel Consumption emissions	Process emissions	Electricity emissions
Independent audit	X	X	X	X
Combination of benchmarking for heat, fuel, process and electricity emissions	X	X	X	X
Combination of benchmarking for fuel, process and electricity emissions	X (covered by a single approach)		X	X

Fallback approaches

A benchmark could consist of more than one component:

Product benchmark(s) + 1 or more fallback approaches:

e.g.

Steel: product benchmark for coke and crude steel and fallback approaches for emissions related to downstream processes

Chemicals: product benchmark for heavy emitting upstream processes and fallback for smaller processes

International competitiveness and carbon leakage

- A trade exposure allowance (providing a special maximum 10 percent tax-free threshold for EITI sectors) has been proposed.
- This concession will be structured as a graduated relief. Based on a firms exports as a percentage of sales - - an indication of their trade intensity.
- The measure however primarily focuses on the trade exposure of businesses and does not examine their emissions intensity.
- Further refinement might be required to ensure an optimal provision for international competitiveness relief for trade exposed and emission intensive sectors (scope 1 direct emissions).
- Some private sector stakeholders have requested that border carbon adjustments (BCAs) be explored; e.g. cement, steel, (and even electricity in future), etc.

International Competitiveness –
NERA Economic Consulting, December 2011

- In the absence of a global GHG emissions reduction agreement, a carbon tax in South Africa would be imposed in an international context in which some trading partners – as well as other countries with which South Africa competes in export markets – did not face similar carbon costs.
- Industries most at risk of being put at a competitive disadvantage due to the carbon tax are those with energy / or carbon intensive products and those that are relatively homogenous and widely traded globally.
- There are three main approaches to soften the adverse impact on competitiveness:
  - Free allocations (ETS)
  - Domestic tax rebates
  - Border carbon adjustments (levies on imports, rebates for exports or both)

Policy responses to carbon leakage: how to support sectors at risk –

Source: World Bank, vivideconomics, 2015

- **Policy makers have considered and/or adopted a range of policy instruments to reduce the risk of leakage when designing a carbon pricing regime.** These instruments can be split into two main groups: measures that are integrated into design of a carbon pricing scheme, or 'integrated measures' such as free allowance allocation, and measures that are external to and operate in parallel with the carbon pricing scheme, typically known as 'complementary measures'. These include cash transfers to offset some of the carbon cost firms face, rebates on non-carbon taxes, direct support for emissions reduction projects and energy efficiency measures.
- Three main forms of integrated measures are either operating in practice and/or have been discussed heavily in the relevant literature:
  - free allowance allocations;
  - administrative exemptions; and
  - border carbon adjustments (BCAs).

Free allowances – tax free thresholds,
Source, World Bank, vivideconomics, 2015

- Free allowances can be allocated in many different ways but are easiest to analyse when considered through two questions:
  - do the number of allowances change (quickly) as a firm's output level changes?; and
  - are the number of allowances provided to a firm relative to its own emissions (intensity) or to an independent benchmark emissions (intensity)?
- Allocations can either vary relatively quickly as output levels change or can stay fixed in the short- to medium-term. At one extreme allocations can increase or decrease in proportion to a firm's output from one year to the next.
- Assistance can either reflect a firm's actual emissions (intensity) or a 'benchmarked' emissions intensity.
- Combining the two approaches for allocating on the basis of output and emissions intensity suggests four conceptually distinct approaches to assistance.

Alignment between Carbon Budgets and the Carbon Tax Design

- A process of aligning the carbon tax design and the CBs has been finalised, companies allocated a CB will receive a 5% tax-free allowance;
- It is envisaged that during the first phase of the carbon tax (up to 2020) the carbon budgets will be indicative;
- During this period, the total emissions minus all the relative tax-free thresholds (up to 95%) will be the reference point;
- During the subsequent tax phases (from 2021 onwards), the alignment could be designed around carbon budgets as absolute thresholds (absolute units of MtCO2-eq.), with the carbon tax applying to the emissions above that level;
- The alternative would be migrate to a emissions trading scheme (after say 2025) with the auctioning of allowances and some free allocations based on benchmarking.

Proposed carbon tax design features (1)

- A carbon tax at R120 per ton of CO_2e above the suggested tax free thresholds until 2020;
- A basic tax-free threshold / allowance of 60 per cent is proposed;
- Additional tax-free allowance for process emission (10%);
- Additional relief for trade-exposed sectors (maximum 10%);
- A maximum 5% allowance for above average Performance – Z-factor;
- Carbon budget allowance of 5%;
- Tax free threshold for fugitive emissions (10%);
- Carbon offsetting allowed to reduce carbon tax liability (5% or 10%);
- Tax-free thresholds will be reduced during the second phase (2020 to 2025) and may be replaced with absolute emission thresholds thereafter.

2013 Carbon Tax Policy Paper – Tax free thresholds

- The proposed tax-free percentage thresholds and the offsets for the different sectors will remain fixed during the first phase (2015–19). The percentage tax-free thresholds will be reduced thereafter and may be replaced with absolute emissions thresholds. Both the tax-free percentage thresholds and their subsequent replacement with absolute emissions thresholds should be aligned with other initiatives. *(Page 14, paragraph 36)*
- The tax free thresholds for the different sectors will remain fixed during the first phase of the introduction of the carbon tax (2015–19). The percentage tax-free thresholds will be reduced during the second phase (2020–25) and may be replaced with absolute emissions thresholds thereafter.
- 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. The carbon tax design and the tax-free thresholds by sector will have to take cognisance of any unintended consequences, as the incentive to reduce Scope 1 emissions should not result in increasing Scope 2 emissions. *(Pages 53 & 54, Paragraphs 186 and 187).*

Revenue recycling

- In general, “full” earmarking of specific tax revenue streams are not in line with sound fiscal management practices;
- However, the efficient recycling of revenue is important;
- Revenue recycling mechanisms:
  - **tax shifting**: reducing or not increasing other taxes (e.g. the phasing-down of the electricity levy & cedit against Eskom’s carbon tax liability for the renewable energy premium built into the electricity tariffs);
  - **tax incentives:** e.g. the Energy efficiency savings tax incentive already implemented;
  - **“soft” earmarking** (on budget allocations): enhanced free basic energy / electricity programme, improved public transport, Carbon Capture and Storage rebate.

Carbon Tax Design: Tax Base (1)

- The carbon tax will cover all direct GHG emissions from sources that are owned or controlled by the relevant entity (Scope 1) emissions.
- These emissions relate to energy use (i.e. fuel combustion and gasification) and non-energy industrial processes.
- For all **stationary** direct and process emission sources - based on fuel inputs with approved emissions factors, or an approved transparent and verified monitoring procedure.
- For **non stationary** GHG emissions (i.e. liquid / transport fuels) the carbon tax to be incorporated into the current fuel tax regime – an add on.

Carbon Tax Design: Tax Base (2)

- Entities that engage in activities that produce direct GHG emissions will be liable for the tax and will need to submit their tax returns based on their own / self assessment of emissions.
- Department for the Environment (DEA) is developing a mandatory reporting requirements of emissions in South Africa for economic sectors through the National Atmospheric Emissions Inventory System (NAEIS), which shall begin in January 2016.
- The NAEIS / DEA will help the verification process of the self reported GHG emissions for the purpose of the carbon tax liability. (for SARS' auditing purposes)

Overview of the proposed carbon tax policy package

Revenue

- Carbon tax at R120 per ton of CO_2e
- 60% basic tax free allowance
- 5% tax free allowance for companies participating in the carbon budget process
- 10% tax free allowance for trade exposure
- 10% tax free allowance for process emissions
- 5 or 10% allowance for Carbon Offsets

- Tax free allowance of between **60% and 95%.**

This implies an effective carbon tax rate **of between R6 and R48 t/CO_2e**

Revenue Recycling

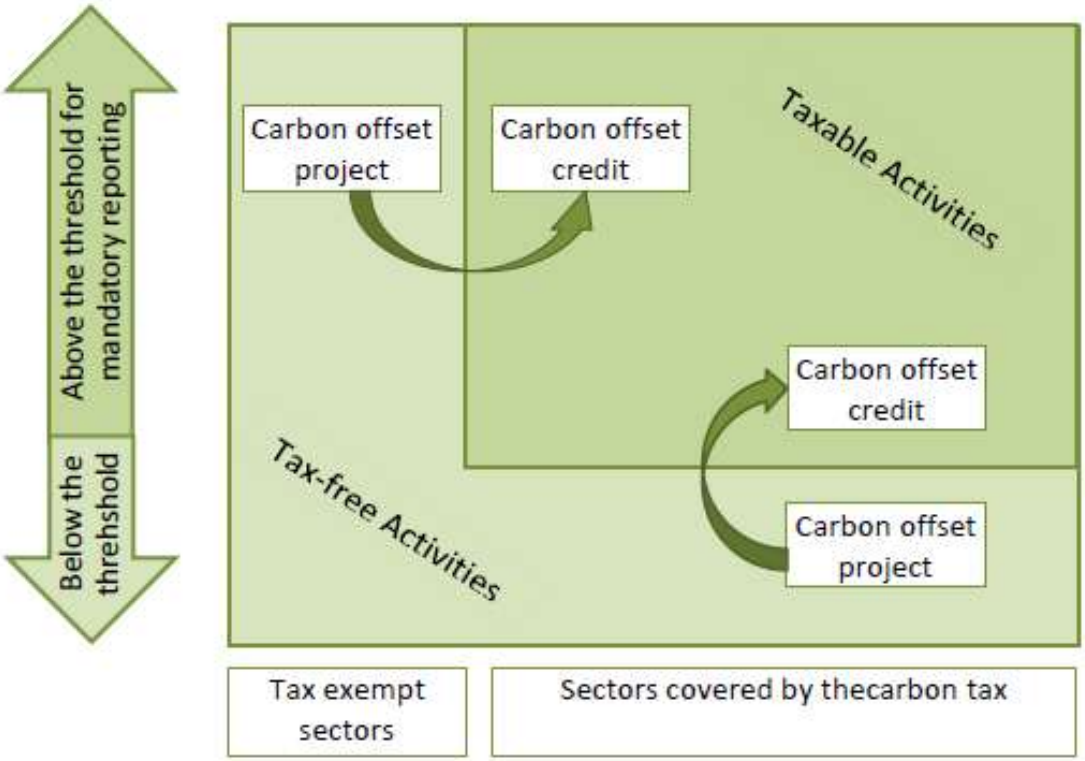
- Energy Efficiency Savings tax incentive
- Phasing down of the current electricity levy of 3.5 c/kWh
- Credit against Eskom's carbon tax liability for the renewable energy premium built into the electricity tariffs
- Enhanced free basic electricity / energy for low income households
- Improved public passenger transport

Policy intent of carbon offsets scheme

The carbon offset component of the carbon tax has a dual purpose:

- To serve as a flexibility mechanism that will enable industry to deliver least cost mitigation, i.e. mitigation at a lower cost to what would be achieved in their own operations, and thereby lower their tax liability; and

- To incentivise mitigation in sectors or activities that are not directly covered by the tax and/or benefiting from other government incentives, especially, transport, AFOLU, waste.



Carbon offsetting under the carbon tax

- It is proposed that initially carbon credits developed under certain internationally recognised carbon offset standards be permitted.
- A potential domestic standard would primarily cover the types of projects that are not well catered for under international standards.
- A specific set of **eligibility criteria for carbon offset projects** has been devised to ensure effective implementation of the offset mechanism:
  - Projects that generate carbon offset credits must occur **outside the scope of activities subject to the carbon tax**.
  - **Only South African based credits** will be eligible for use within the carbon offset scheme.
  - Carbon offset projects registered and / or implemented before the introduction of the carbon tax regime will be accepted subject to certain conditions and within a specific timeframe.
  - **Lists of both eligible and ineligible projects should be introduced**.

Carbon / energy tax – modelling references

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Carbon tax – modelling results

- The overall impact of a carbon tax depends largely on how government recycles the carbon revenues as well as the availability and affordability of greener technologies.
- The overall impact on output when revenues are recycled is modest. In one scenario the level of real GDP is 0.15% lower in the final year - equivalent to lower annual growth of 0.005 percentage points. The estimated reductions is GHG emissions is between 35 and 44% below business and usual by 2030
- Recycling revenue by increasing government savings and investment has large positive gains. Using the revenues to increase transfers to households marginally reduces inequality but results in a small net reduction in GDP as most of the additional revenues are consumed.
- Greener sectors of the economy are generally more labour intensive thus having a positive impact on employment.
- Substantial potential gains from avoiding possible retaliatory tariffs and sanctions as well as lower demand for dirty SA products.

Impact on electricity and fuel prices

- The electricity price will increase by an estimated 1 cents / kWh for every R10 per ton carbon tax
- Taking into account all the tax free allowances and before the phasing down of the electricity levy and tax incentives the impact of the carbon tax on electricity prices should be between 2.5 to 5.0%
- However, taking into account all the tax free allowances for the period up to 2020, the energy efficiency savings tax incentive and the phasing down of the electricity levy the net impact of the carbon tax on electricity prices during this period should be close to zero.
- Petrol and diesel prices will increase by an estimated 2.5 cents / litre for every R10 per ton carbon tax. This amounts to only 1% of the fuel prices if we assume a minimum 60% tax free allowance.
- So the initial impact of the carbon tax will be modest – it will lay the basis and send a signal to encourage investments in green technologies and production techniques.

Energy Efficiency Savings Tax Incentive: Legislation & Regulations

- Section 12L of Income Tax Act 58 of 1962
- The EES incentive came into effect from 1 November 2013 & will run until January 2020
- Taxpayers that can prove EES from implementing an energy efficiency measures can claim the allowance
- The implementation of the incentives relating to energy Efficiency requires adequate measuring, monitoring and verification of energy use and commensurate efficiencies.
- Only accredited measurement and verification professional can verify the EES
- The taxpayer baseline is adjusted annually with the amount of EES claimed
- Over time some of the carbon tax revenues to be “recycled” to fund this tax incentive.

Energy Efficiency Savings Tax Incentive - cents per kWh of savings

- The energy-efficiency savings tax incentive (EESTI) was introduced in November 2013 to complement the proposed carbon tax. The EESTI will run until January 2020. Some of the carbon tax revenue will be recycled through the EESTI.
- The EESTI allows businesses to claim deductions against there taxable income for energy-efficiency saving measures – measures in kWh equivalent.
- The rate at which the deductions is calculated will be increased from 45c/ kWh to 95 c/kWh.
- As at end of April 2015 (slightly over a year in operation) about 3 826 MWh of potential energy savings was lodged from about 74 registered projects and more than 100 users are registered in the system. Some of the projects come from the most energy intensive users are large in the size of potential energy savings.

Summary

- Policy development & public consultation with regard to a carbon price / carbon tax in South Africa commenced in 2010;

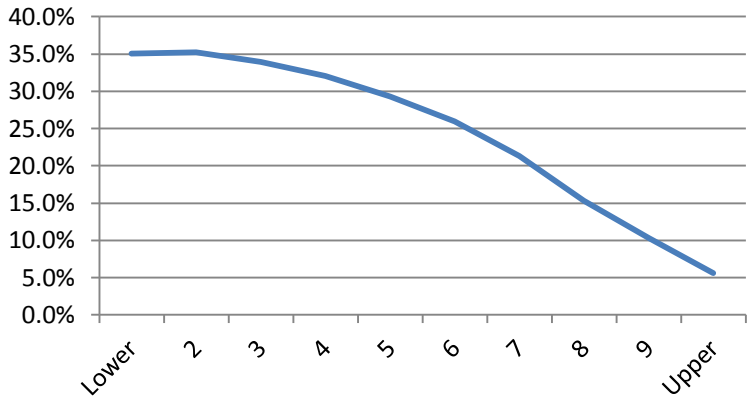
- The Climate Change Response White Paper in 2011 provided the broader policy context for a carbon price / tax as one a suite of measures to address the challenge of clime change and the transition to a low-carbon economy;

- The proposed design of the carbon tax tries to address concerns about the impact of higher energy prices on low income households and on the international competiveness of South Africa firms.

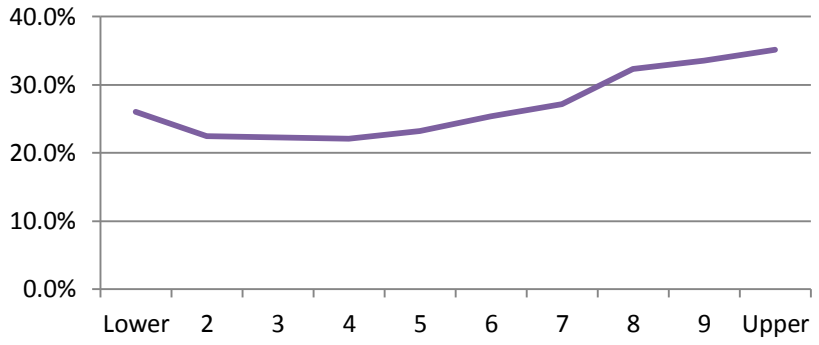
- Thank you

Average % household consumption expenditure by expenditure deciles (2010/11 IES) - (1)

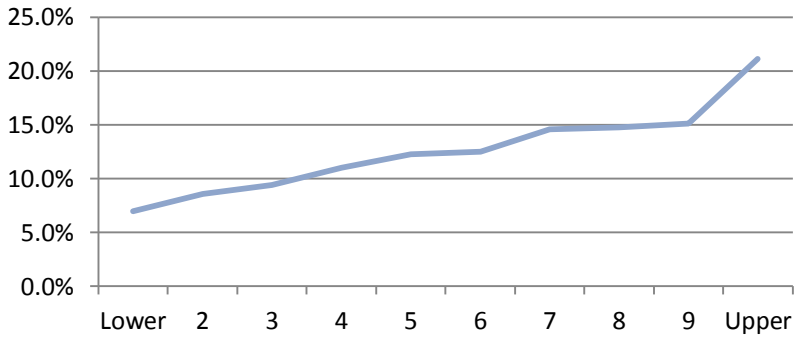
Food and non-alcoholic beverages



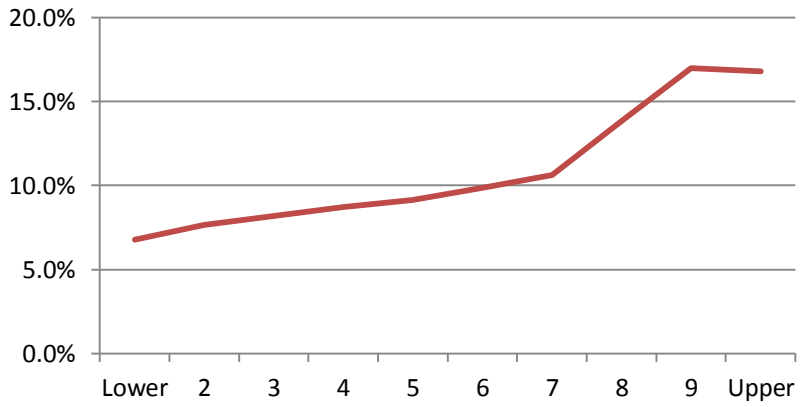
Housing, water, electricity, gas and other fuels



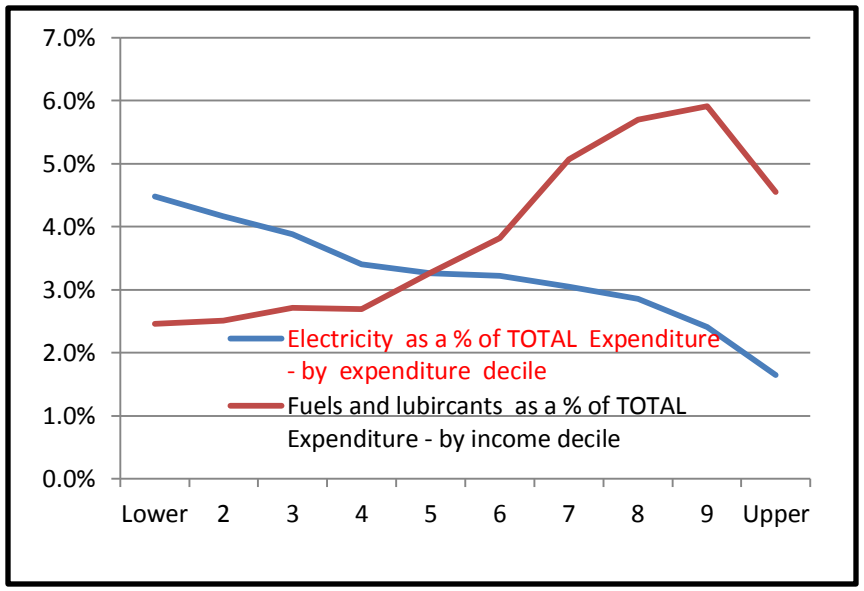
Transport

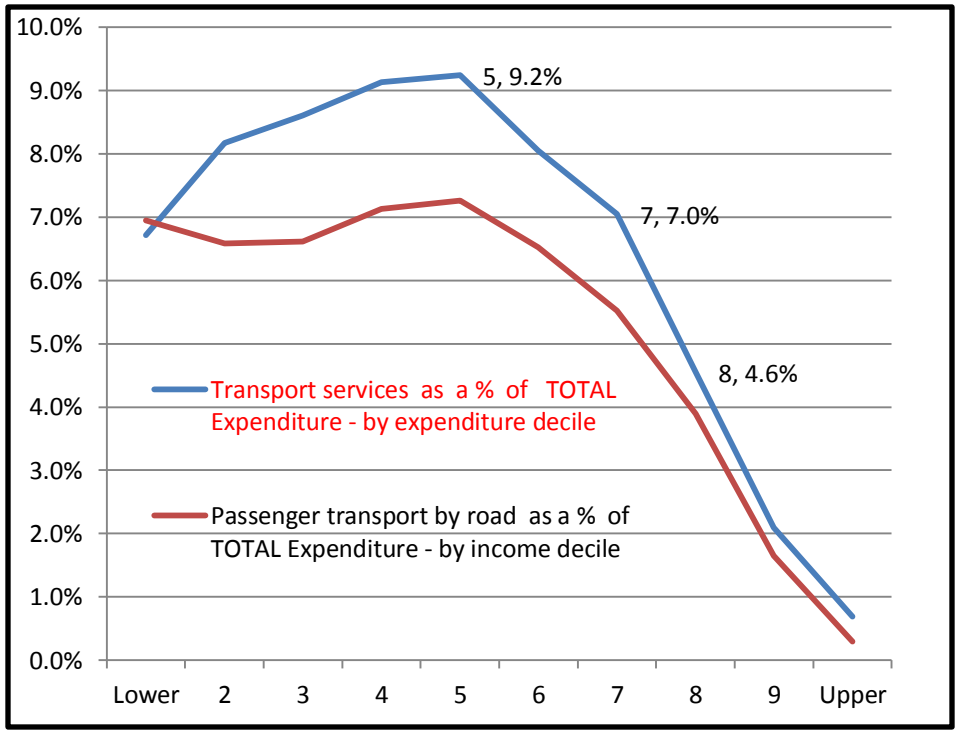


Miscellaneous goods and services



Electricity, Fuel & Transport Services: Average % household consumption expenditure by deciles (2010/11 IES) - (4)





Fuel efficiency standards and carbon taxes:

source: Transport and Energy, Research Findings, International Transport Forum, Leipzig, May 2008

- Intervention to internalize the costs of CO_2 emissions from transport serves to both mitigate climate change and reduce oil consumption at the same time. Carbon taxes are the preferred instrument of many economists to achieve this *because they provide incentives for attainment of the environmental target at least cost*. However, vehicle fuel efficiency of CO_2 emissions standards have some advantages, not least in terms of political acceptability.
- … if a standard is the primary tool adopted for reducing transport sector CO_2 emissions (and the rebound effect is a problem – *i.e. the cost savings resulting from increased fuel efficiency may be taken up by additional driving or upgrading of the power or weight of the vehicle purchase*) a secondary tax element is required – ideally in the form of a carbon tax or alternatively through fuel taxes or differentiation of taxes on vehicle purchase or ownership. It also increases the urgency of introducing tools to manage congestion. p.22

Regulators in Europe were already in discussions with carmakers about new emissions tests,

http://www.bbc.com/news/business-34340301