The South African experience: The national process of carbon tax design and key considerations of the energy sector

Towards a Low Carbon, Sustainable Development : Santiago Chile

Cecil Morden | Chief Director: Economic Tax Analysis | 28 June 2016

national treasury

Department:
National Treasury
REPUBLIC OF SOUTH AFRICA

Overview

1. South Africa's policy response to Climate Change and her international commitments / pledges in this regard;
2. Climate Change related policy work undertaken by three Departments: Environmental Affairs, Energy and the National Treasury
3. Environmentally related taxes in South Africa
4. Distributional & Competitiveness concerns
5. South Africa's GHG emissions profile
6. Details on the rationale, consultation process and design of the proposed carbon tax and developments to date.

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 offsets….

Climate Change Policy Process and Public Consultation

Department of Environmental Affairs

- Long Term Mitigation Scenarios, 2007
- Copenhagen Commitment / Pledge, 2009 (COP 15)
- National Climate Change Response – White paper, 2011
- Mitigation Potential Analysis & Mix of Measures, 2014 & 2015
- INDC, Intended National Determined Contributions, 2015 (CPO 21)
- Mandatory GHG Emissions Reporting, Regulations, May, 2016
- Carbon Budgets, 2015 & 2016

National Treasury

- Environmental Fiscal Reform Policy Paper, 2006
- Carbon Tax Discussion Paper, December 2010
- Carbon Tax Policy Paper, 2013
- Carbon Offsets Paper, April 2014
- Daft Carbon Tax Bill, November 2015
- Draft Carbon Offsets Regulations, 20 June 2016
- Revised Draft Carbon Tax Bill, September 2016 ??

The Energy Sector

Department of Energy

- Designated National Authority (DNA) for the Clean Development Mechanism (CDM)
- Integrated Resource Plan (IRP, 2010 & 2013) (Focus on electricity generation, energy mix)
- Renewable Energy: Independent Power Producers (Wind, Solar, etc.)
- New Coal based Electricity Generation Plants
- Integrated Energy Plan, 2015
- Energy Conservation
- Energy Efficiency Savings
- Will oversee the implementation of the Carbon Offsets (build on work done as the DNA)

Criteria / Design considerations for environmentally related taxes

- **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. taxpayer morality);
- **Legal, technical & administrative feasibility**:
  - *Define taxable commodity - tax base*;
  - *Setting the tax rate;*
  - *Tax avoidance and evasion;*
  - *Collection costs; and*
  - *Compliance costs.*
- **Competitiveness impacts** – 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 there **alignment** with other government policies?)

Environmentally related taxes in South Africa (1)

	R million	2004/05	2005/06	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
1	General fuel levy	19,190	20,507	28,833	34,417	36,589	40,320	43,685	48,467	55,681
2	Air passenger departure tax	412	440	580	649	762	873	879	907	941
3	Plastic bag levy	41	61	111	150	161	152	169	174	182
4	Electricity levy			3,342	5,103	6,323	7,984	8,819	8,648	8,472
5	Incandescent light bulb levy			64	151	144	132	72	91	52
6	CO2 Vehicle emissions tax				626	1,617	1,568	1,711	1,483	1,280
	Sub Total	**19,644**	**21,008**	**32,929**	**41,097**	**45,596**	**51,029**	**55,335**	**59,770**	**66,608**
	TOTAL Tax Revenue	**354,981**	**417,334**	**598,705**	**674,202**	**742,651**	**813,834**	**900,015**	**986,283**	**1,069,857**
	Sub Total / TOTAL	5.5%	5.0%	5.5%	6.1%	6.1%	6.3%	6.1%	6.1%	6.2%

Environmentally related taxes in South Africa (2)

	Y-on-Y % Change	2005/06	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2014/15
1	General fuel levy	6.9%	15.9%	19.4%	6.3%	10.2%	8.3%	10.9%	14.9%
2	Air passenger departure tax	6.8%	5.6%	11.8%	17.5%	14.5%	0.6%	3.2%	3.8%
3	Plastic bag levy	48.9%	39.9%	36.0%	6.9%	-5.1%	11.1%	3.0%	4.3%
4	Electricity levy			52.7%	23.9%	26.3%	10.5%	-1.9%	-2.0%
5	Incandescent light bulb levy			136.5%	-4.8%	-8.5%	-45.5%	26.6%	-42.7%
6	CO2 Vehicle emissions tax				158.4%	-3.1%	9.2%	-13.3%	-13.7%
	Sub Total	**6.9%**	**29.1%**	**24.8%**	**10.9%**	**11.9%**	**8.4%**	**8.0%**	**11.4%**
	TOTAL Tax Revenue	17.6%	-4.2%	12.6%	10.2%	9.6%	10.6%	9.6%	8.5%

Long Term Mitigation Scenarios (LTMS) (wedges) – rank emission reductions

- Escalating CO_2 tax (1)
- Nuclear and renewables extended (2)
- Electric vehicles with nuclear, renewables (3)
- Renewables with learning extended (subsidy) (6, 7
- Industrial, Commercial, Residential energy efficiency (5, 22, 21)
- Passenger modal shift (16)
- Improved vehicle efficiency (14)
- SWH subsidy (25)
- Nuclear (12, 8)
- Cleaner coal (28)
- Land use: afforestation (27)
- CCS (2 Mt & 20 Mt) (26, 19)
- Biofuel subsidy (29, 15)
- Hybrids (23)
- Synfuel CCS (2Mt) (32)
- Limit use of SUVs (36)

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".

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

- South Africa voluntary committed / pledged (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

- **South Africa's Intended Nationally Determined Contribution (INDC) – September 2015:**
  - South Africa's mitigation component of its INDC moves from a "deviation from business-as-usual" form of commitment and takes the form of a peak, plateau and decline GHG emissions trajectory range.
  - **South Africa's emissions by 2025 and 2030 will be in a range between 398 and 614 Mt CO2-eq, as defined in national policy.**
  - The INDC reflects SA's full mitigation potential as assessed in 2014.
  - **The policy instruments under development include a carbon tax, desired emission reduction outcomes (DEROs) for sectors, company-level carbon budgets, as well as regulatory standards and controls for specifically identified GHG pollutants emitters (p.6).**

Addressing both climate change and socio economic development, INDC, Sep 2015

- The INDC is put forward within the context of equitable access to sustainable development and will take **fully into account that equity, economic and social development and poverty eradication are the first and overriding priorities** (p.7).

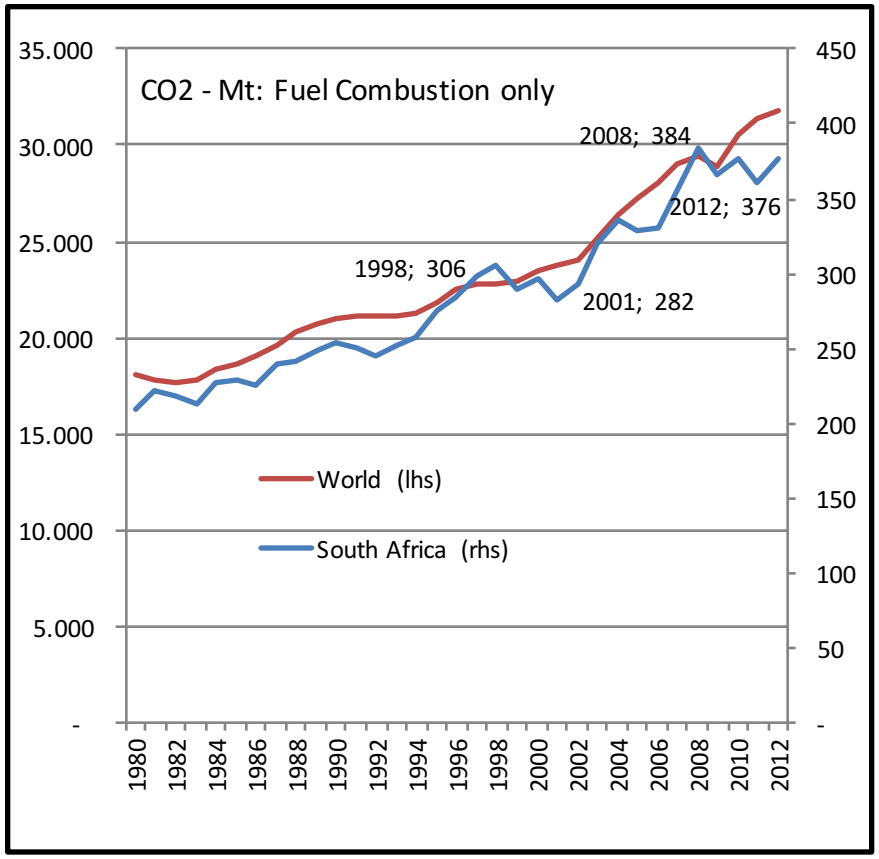
- The PPD trajectory range is an ambitious and fair effort **in the context of national circumstances, and priorities to eliminate poverty and inequality, promote inclusive economic growth and reduce unemployment.** It presents a trajectory that is consistent with a just transition to a low carbon and climate-resilient future (p. 8).

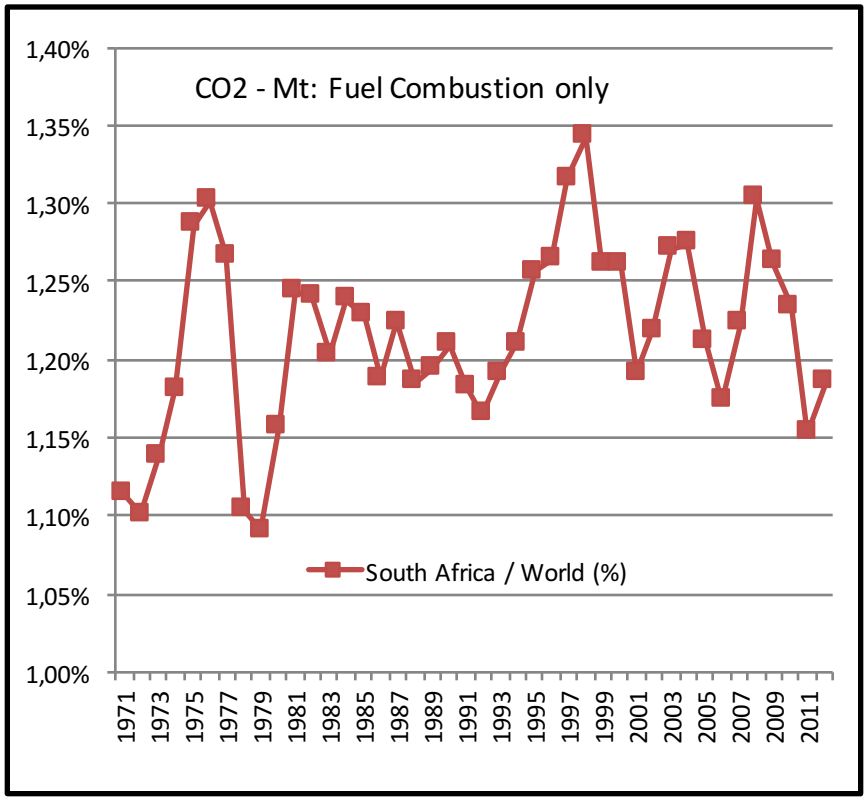
- Generally, **South Africa needs time for development, which is necessary to eliminate poverty, reduce inequality, increase employment and promote inclusive economic growth** (p. 11).

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

Estimated CO_2e – Mt: Fuel Combustion only – (IEA, 2014) (1998 to 2001 = -8%) (2008 to 2012 = - 2%)





GHG Emissions – INDC estimates, 2015

			Mt CO2 eq.	
2030		**World GHG emission: INDC**	55,000	40,000
		South Africa		
		398 Mt CO2 eq.	0.72%	1.00%
		614 Mt CO2 eq.	1.12%	1.54%
South Africa		**% of World GHG Emissions: Fuel Combustion Only**		
1971 to 2012		1.10% to 1.35%		
2008		1.31%		
2012		1.19%		

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%**

Policy responses mitigation, Stern Review

- Carbon pricing is essential for climate change policy.
- Pricing carbon via taxes, tradable permits or regulation means that people bear the full social costs of their actions.
- Encourages firms and households to shift away from high carbon goods and services and to invest in low-carbon alternatives.
- However, range of other market failures and barriers means that carbon pricing alone is not enough.
- Technology policy is vital to bring forward the range of low carbon and high efficiency technologies to reduce emissions.
- A critical element is policies to remove barriers to behavioural change.
- Policies on regulation, information and financing are also important.

Fiscal policy to mitigate climate change: A guide to policymakers.

Michael Keen, Ian Parry and Ruud de Mooij (editors) IMF, 2012

- ".. carbon pricing should ideally form the centerpiece of mitigation efforts…"

- "Carbon pricing also strikes the cost-effective balance between different emission reduction opportunities because all behavioral responses are encouraged up to where the cost of the last tonne reduced equals the emissions price.
- Moreover, the carbon price provides a strong signal for innovations to improve energy efficiency and reduce the costs of zero- or low-carbon technologies.
- By definition, regulatory policies on their own, like mandates for renewable fuel generation and energy efficiency standards, are far less effective as they focus on a much narrower range of emission reduction opportunities.
- A reasonable minimum price to aim for seems to be around $20 per tonne, under either least-cost climate stabilization or damage valuation approaches.
- Establishing a credible time path for progressively rising carbon prices is also important to create stable incentives for long-term, clean energy investments".

Options for intervention to deal with environmental externalities

- **Command-and-control measures (Regulations)**:
  - Use of legislative or administrative regulations that prescribe certain outcomes;
  - Usually target outputs or quantity, e.g. minimum ambient air quality standards, within which business must operate.
- **Market-based instruments**:
  - Policy instruments that attempt to internalise environmental externalities through the market by altering relative prices that consumers and firms face;
  - Utilise the price mechanism and *complement* command-and-control measures. Under certain circumstances MBIs are considered more efficient than command-and-control measures

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 (4)

- Given the concentration of business activities in South Africa and the even greater degree of the concentration of GHG emissions by only a few companies, the implementation of a domestic emissions trading scheme does not present the most appropriate policy response to mitigate climate change in the short to medium term.

Rationale for a carbon price / tax

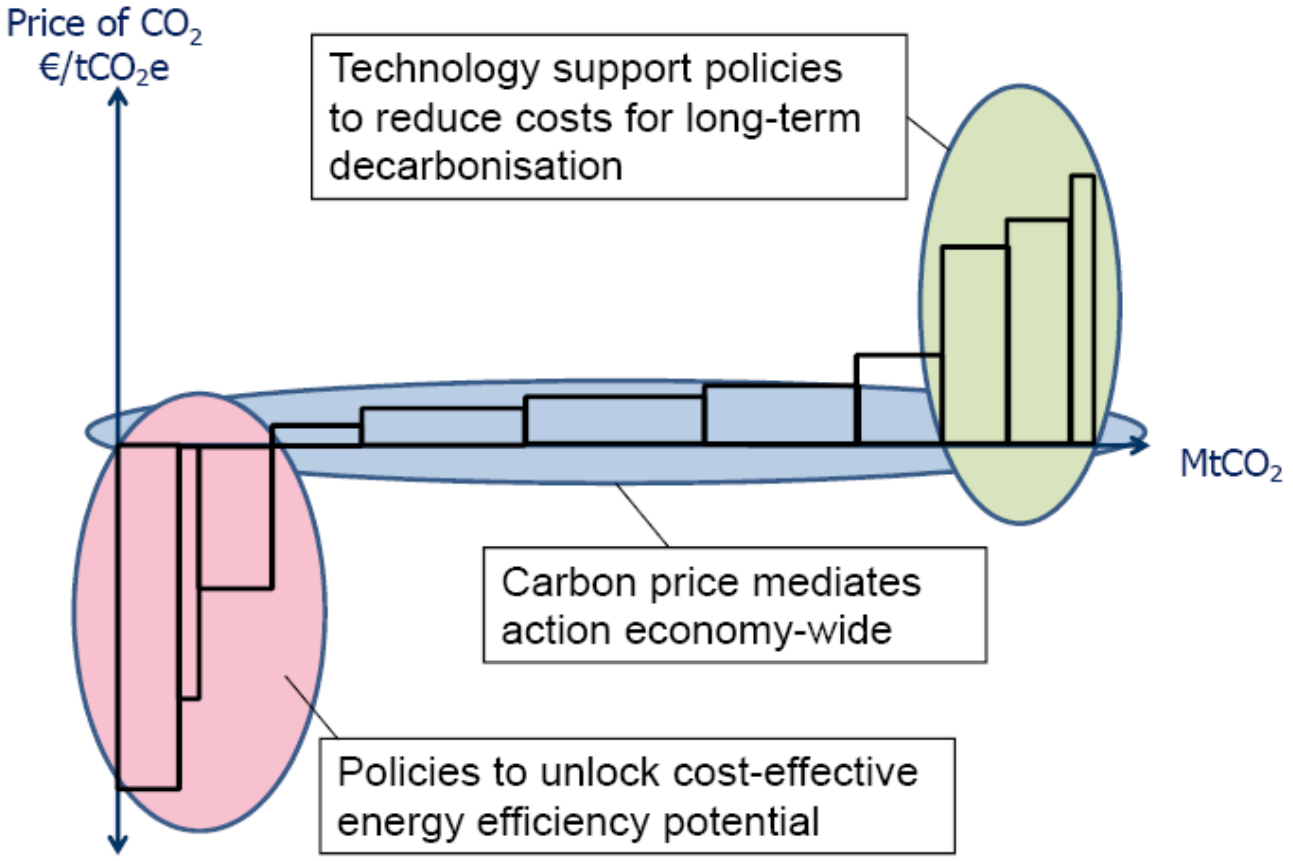
- A carbon tax is a means by which government can intervene by way of a market based instrument to appropriately take into account the social costs resulting from carbon emissions.
- A carbon tax seeks to level the playing field between carbon intensive (fossil fuel based firms) and low carbon emitting 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".

Environmental taxes – Political Economy Concerns

- " … a political impediment to the introduction of environmental taxes is the argument that they harm international competiveness. Partly as a result of concerns regarding international competiveness, many proposals for environmental taxes have been made at the international level. For example the European Community has proposed that a carbon tax be introduced in its member countries, but its implementation is dependent on other major countries introducing measures with comparable effect. These international agreements are inevitably difficult to complete".
- David C . L. Nellor, Environmental Taxes, in Tax Policy Handbook, edited by Parthasarathi Shome, International Monetary Fund (IMF), page 111 (1995).

The Core Policy Mix – a carbon price, energy efficiency and technology policies (IEA 2011)



Carbon tax design considerations – tax base

1. Fossil fuel input tax

   Upstream, where fuels enter the economy, based on the carbon content of the fuel

2. Output tax (down stream)
   a. At the point where the fuel is combusted
   b. Based on average emissions of the production processes?

3. Actual measured emissions
   Measured emissions or estimated emissions based on emissions factors

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 or Direct emissions).
- These emissions relate to energy use (i.e. fuel combustion and gasification) and non-energy industrial processes.
- For all **stationary** direct combustion and process emission sources - based on fuel inputs with approved emissions factors, or an approved transparent and verified methodology (Tier 2 or 3).
- 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).
- The NAEIS / DEA will help with 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

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.

Energy Efficiency Savings Tax Incentive

- The EES tax incentive came into effect from 1 November 2013 & will run until January 2020. Section 12L of Income Tax Act 58 of 1962
- 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.
- The EES tax incentive allows businesses to claim deductions against their taxable income for quantifying energy efficiency savings – measured in kWh equivalent
- The rate at which the deductions is calculated increased from 45 c/kWh to 95 c/kWh as form 1 March 2015

Energy Efficiency Savings Tax Incentive: Regulations, Pre-amble

- **SINCE** it has become necessary to promote the efficient utilisation of energy to safeguard the continued supply of energy and to combat the adverse effects of greenhouse gas emissions related to fossil fuel based energy use on climate change;

- **AND SINCE** energy efficiency saving may be considered as a potentially successful method to guarantee the efficient utilisation of energy;

- **AND SINCE** the intended purpose of a carbon tax is to mitigate greenhouse gas emissions and also to utilise (recycle) some of the revenue to be generated from such a tax to finance incentives to advance the further efficient utilisation of energy;

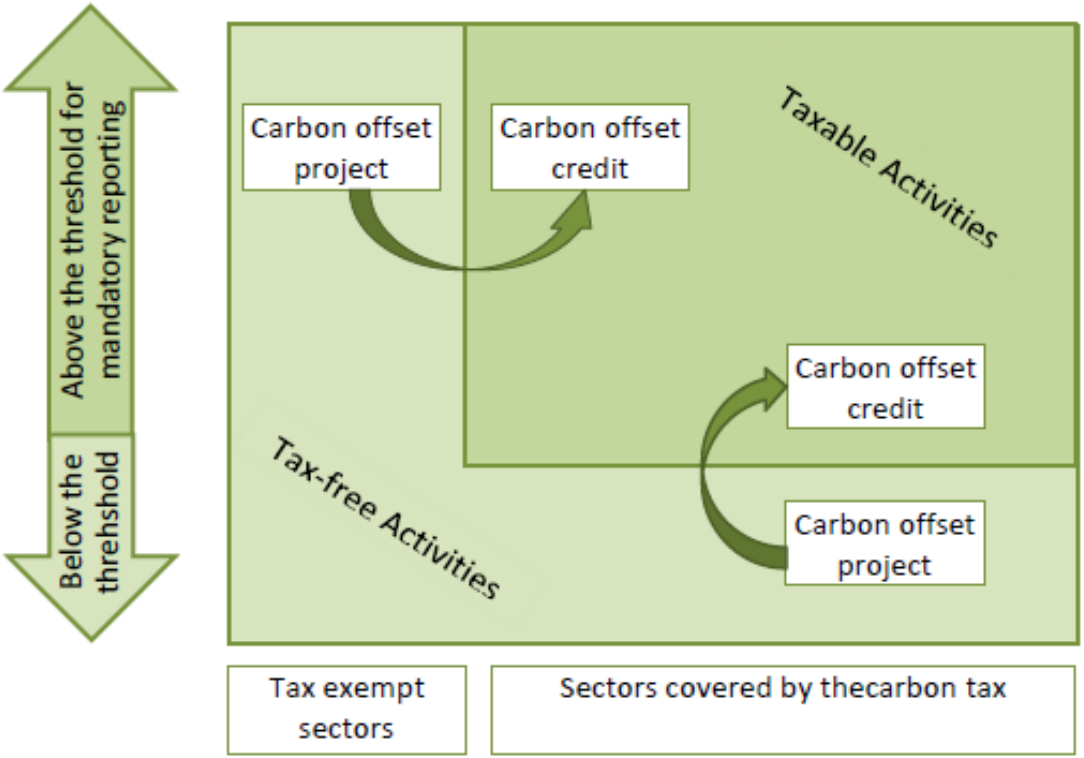
- **THEREFORE** a tax incentive as contained in section 12L of the Income Tax Act, 1962, and these Regulations is devised to encourage the efficient utilisation of energy.

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

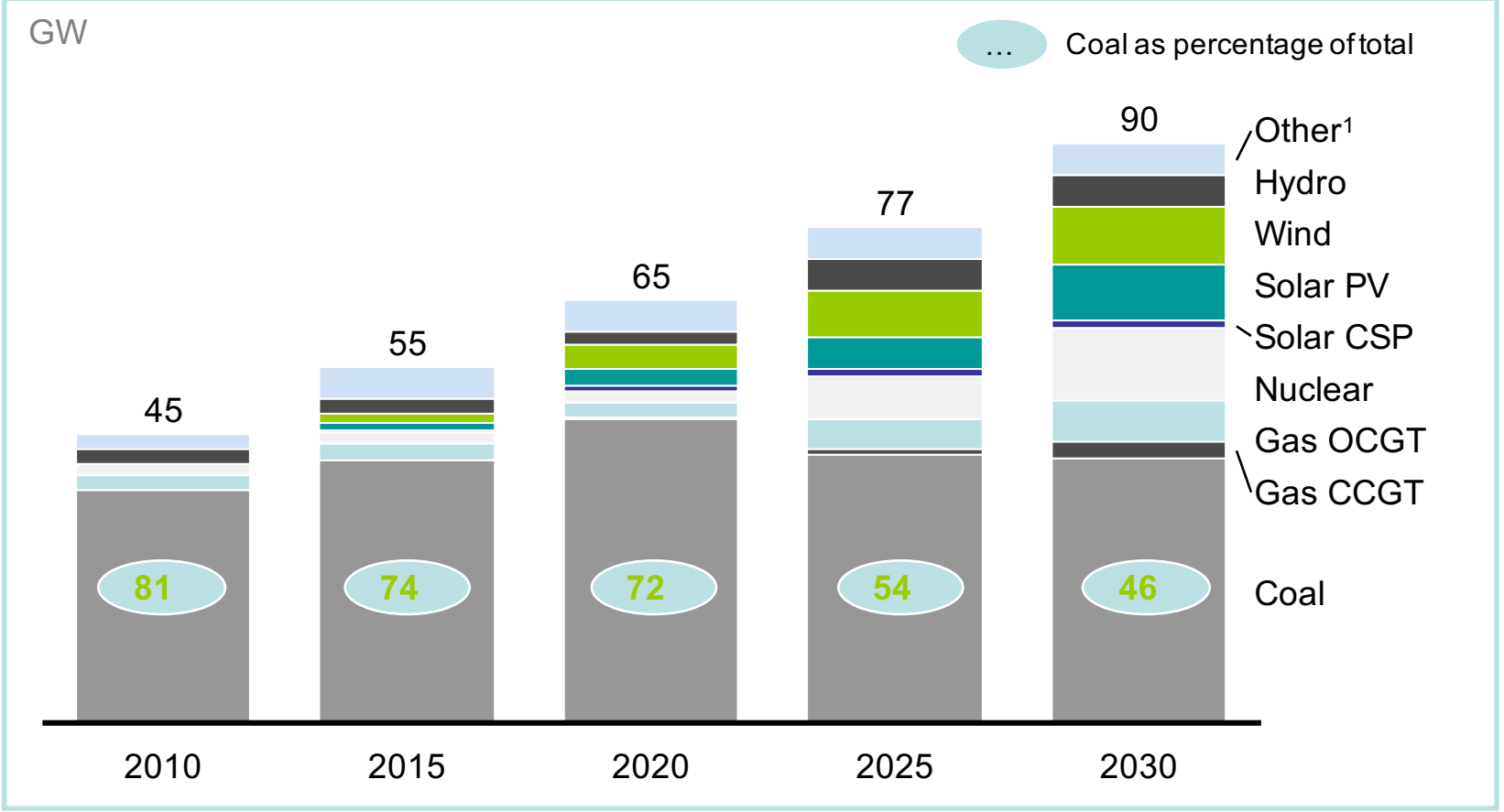
- It is proposed that initially carbon credits developed under certain internationally recognised carbon offset standards be permitted.
- A potential domestic standard would primarily cover the types of projects that are not well catered for under international standards.
- A specific set of **eligibility 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.

Alignment between Carbon Budgets (CB) and the Carbon Tax (CT)

- The process of aligning the carbon tax and the CBs is ongoing, during phase one (up to 2020) companies allocated a CB will receive a 5% tax-free allowance;
- It is envisaged that during this first phase of the carbon tax (up to 2020) the carbon budgets will be only indicative;
- 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. Provided that these budgets can be set at ambitious levels and effectively verified and tightened over time.
- The alternative would be migrate to an emissions trading scheme for some sectors (after say 2025) with the auctioning of allowances and some free allocations based on benchmarking.

De-carbonize the power sector: IRP 2010, reducing coal share of total capacity ?? (IRP = Integrated Resource Plan)

Installed capacity by technology until 2030



1 Includes pumped hydro storage, diesel, and cogeneration

SOURCE: IRP 2010-2030

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Renewable Energy Independent Power Producers Programme

- **Objective:** contribute towards security of electricity supply, diversification of the energy mix, emissions reduction and access to energy.

- In line with the Integrated Resource Plan of 2010, the original procurement document provided for procurement of 3 725 MW generation capacity in five different rounds. **In 2013,** the Minister of Energy determined that a **further 3 200 MW of renewables generation capacity was to be procured.**

- Initially a feed in tariff incentive scheme was proposed. However, a competitive bidding approach to the mechanism was implemented via various bidding windows.

Results from the three bidding windows

Technology	Number of Preferred Bids	Net Capacity (MW)	Total Project Cost (ZAR Millions)
Biomass	1.0	16.5	1 062
CSP	5.0	400.0	33 798
Landfill gas	1.0	18.0	288
Onshore wind	22.0	1 983.5	41 177
Solar photovoltaic	33.0	1 483.7	43 308
Small hydro	2.0	14.3	631
Total	**64.0**	**3 915.9**	**120 263**

Source: Renewable Energy Independent Power producers team (March 2014)

21 June 2016, Moneyweb (Nersa = National Energy Regulator of South Africa)

- According to a Nersa report, renewable generation capacity of **2 626.16MW** had been connected to the grid by February 9 this year with 2 144.72MW in commercial operation.
- This capacity is from 43 projects procured under the first and second bidding windows of the Department of Energy's Renewable Energy Independent Power Producer Procurement programme (REIPPP).
- Renewable energy is typically only available when there is wind or sunshine.
- Over the reporting period the capacity factors of solar PV were 25% on average and wind 31%. The capacity factor is the ratio of output over a period compared with its potential output if it were possible to operate at full nameplate capacity continuously over the same period.
- Nersa shows that wind energy production is higher in the afternoon up to and including the evening peak, while Solar PV contributes during the morning peak. There is little difference between the demand during the morning and evening peak, Nersa says.
- This, says Nersa, demonstrates that CSP technology combined with thermal storage is able to supply electricity during peak hours.
- The energy contribution of independent power producers is expected to grow to about 7 000 MW, private investment in the programme currently exceeds R194 bn.

Energy sector impact (pass-through of carbon tax in electricity and liquid fuel prices)

Key Issues/Suggestions

- Electricity sector poses numerous complexities, which might lead to double taxation
  - IRP 2010 has an implicit carbon price & already mandates energy mix for electricity sector hence carbon tax will not change behavioural with regards to the "greenness" of electricity supply.
  - Future of electricity levy?
  - Impact of carbon tax on electricity prices a concern.
- Electricity users (scope 2 emitters) can't influence their supply hence can't reduce the impact of the carbon tax.
- Consider interaction of the carbon tax with fuel levies & pass through mechanism in the liquid fuels sector.

NT's initial responses

- Not all of the IRP 2010 has been / might not be implemented. Look at the "actual' implicit carbon price (i.e. renewable energy premium – nuclear not included) of current electricity supply in any given year and consider a credit / rebate against that year's carbon tax liability OR phasing down of the electricity levy will mitigate impact of carbon tax on electricity prices BUT maintain funding for SWH & coal haulage road repairs or re-include it in the tariff.
- Energy efficiency savings tax incentive (12L) - revenue recycling and provide relief.
- Fuel taxes intended as a source of revenue and also internalising other externalities like road accidents, congestion, local air pollution etc. and not only carbon.
- Some pass through of the carbon tax for refineries (for emissions pre the refinery gate) could be considered – if an agreed benchmark can be established.

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 energy efficiency 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 (up to 2020) 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.
- The initial impact of the carbon tax on economic growth and electricity prices will be modest – it will lay the basis and send a signal to encourage investments in green technologies and production techniques.

Electricity price increases

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Carbon Tax Bill:
2 November 2015, Media Statement

- The tax has been designed to ensure that its overall impact (when taking into account revenue recycling measures) will, in the initial phase, be revenue neutral, and also neutral on the price of electricity. **Hence, taking into account the current state of the mining and other distressed sectors, the combined effect of the rates/exemptions in the carbon tax and the reduction in electricity levy will be designed to ensure that such sectors are not adversely affected when the tax is implemented.** The tax and revenue recycling measures are also designed to be revenue neutral from a macroeconomic perspective, but will not necessarily be neutral for (scope one) companies with significant emissions.

- The tax-free percentage thresholds will remain fixed during the first phase, until 2020. The percentage tax-free thresholds might be reduced thereafter or may be replaced with absolute emission thresholds. Both the tax-free percentage thresholds and their subsequent replacement with absolute emission thresholds will be aligned with the proposed carbon budgets.

Summary

2016 Budget Review, 24 February 2016

- The main aim of the carbon tax is to put a price on the environmental and economic damages caused by excessive emissions of greenhouse gases. A secondary aim is to change the behaviour of firms and consumers, encouraging them to use cleaner technology.
- Given the economic outlook, the carbon tax has been designed to ensure that its overall impact will be revenue neutral up to 2020. The draft Carbon Tax Bill was published in November 2015, with 90 comments received to date. The draft bill will be revised, taking into account public comments and further consultation.

Most recent development

- Draft Carbon Offset Regulations was published for comment on **20 June 2016**

Thank You

• Ngiyabonga:	IsiZulu
• Enkosi:	IsiXhosa
• Thank you:	English
• Dankie:	Afrikaans
• Ngiyathokoza:	IsiNdebele
• Ke a leboha:	Sesotho
• Ke a leboga:	Northern Sotho:
• Re a leboga:	Setswana
• Siyabonga:	SiSwati
• Inkomu:	Xitsonga
• Ndo livhuwa / Ro livhuwa:	Tshivenda

Consultations - Comments on 2013 Carbon Tax Policy paper - high level summary (115 submissions)

- **52.2%** support a carbon tax as a carbon pricing mechanism;
  - **26.1%** gave a yes and **26.1%** a qualified yes (yes-but) and propose that elements of the proposed carbon tax design be tweaked to improve the effectiveness of the tax and reduce potential negative consequences;

- **41.7%** (no-but) acknowledge the need for a carbon price, but either did not propose a specific measure to that end or felt that command and control measures and other instruments should be pursued (e.g. the implicit carbon price in the IRP2010, an emissions trading scheme, etc.) to achieve an effective reduction in GHG emissions;

- **94%** of the submissions (yes, yes-but & no-but groups) acknowledged the need for a carbon price;

- **6%** felt climate change cannot be linked to anthropogenic emissions and hence there was no need for carbon pricing.

2013 - Key issues raised by stakeholders (1)

General comments on the proposed carbon tax:

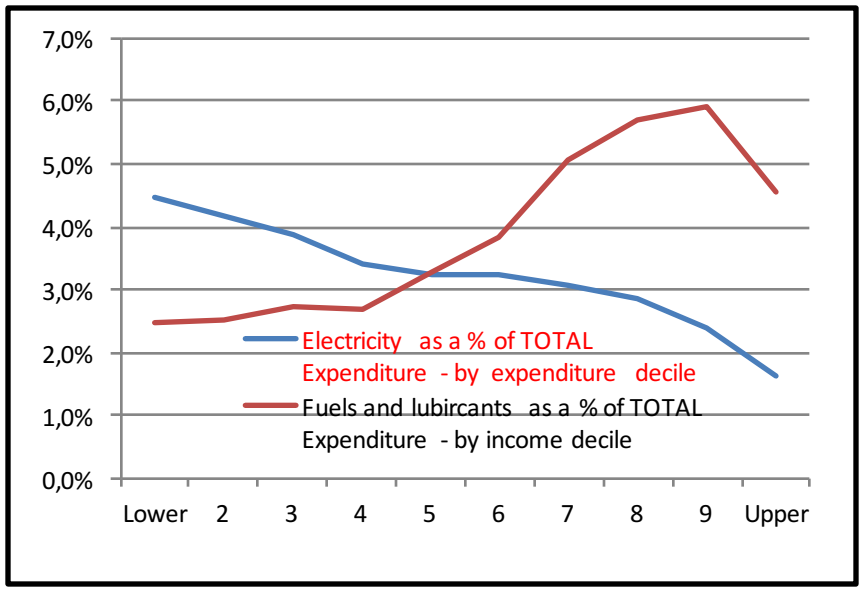
1. Better alignment of the carbon tax policy with the National Climate Change Response Policy (NCCRP) and other government policies / plans; e.g. IRP-2010, National Development Plan (NDP), IPAP, etc.;
2. Long term certainty – decrease in tax free thresholds and increase tax rate post 2019
3. Need for additional modelling of the economic & social impact of the tax;
4. Take into account current economic conditions - wait for a more robust recovery?
5. International negotiations – timing, etc.
6. Impact on firms
7. Why the need for a carbon tax in South Africa? (Are we trying to lead?, are we following?, should we impose an explicit carbon price / tax?)

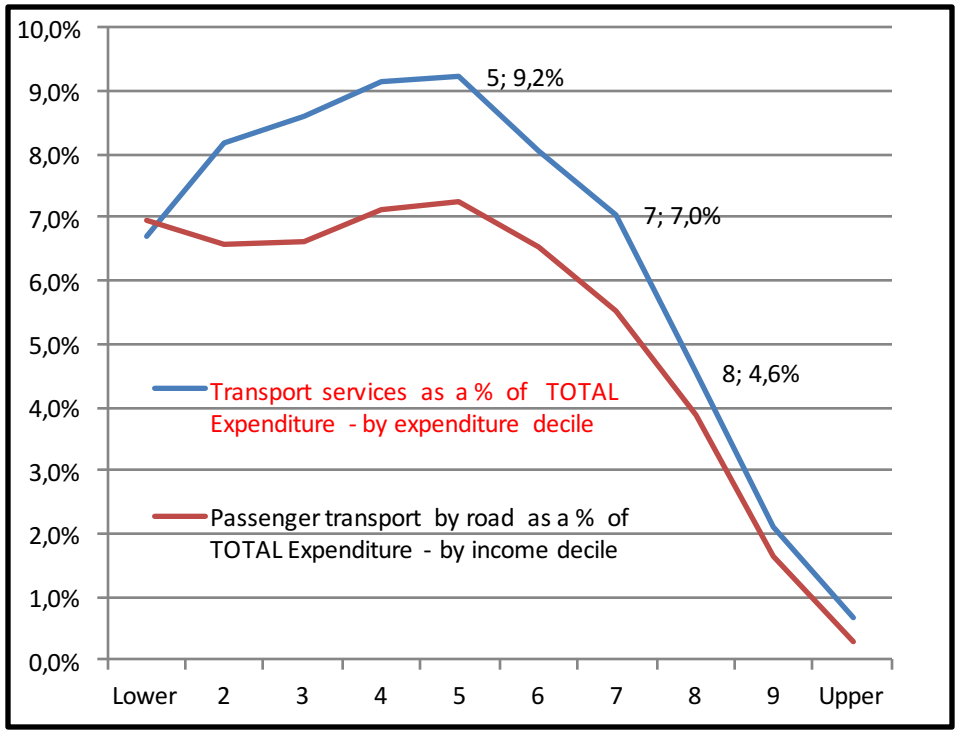
2013 - Key issues raised by stakeholders (2)

Specific comments on the carbon tax design features centred on:

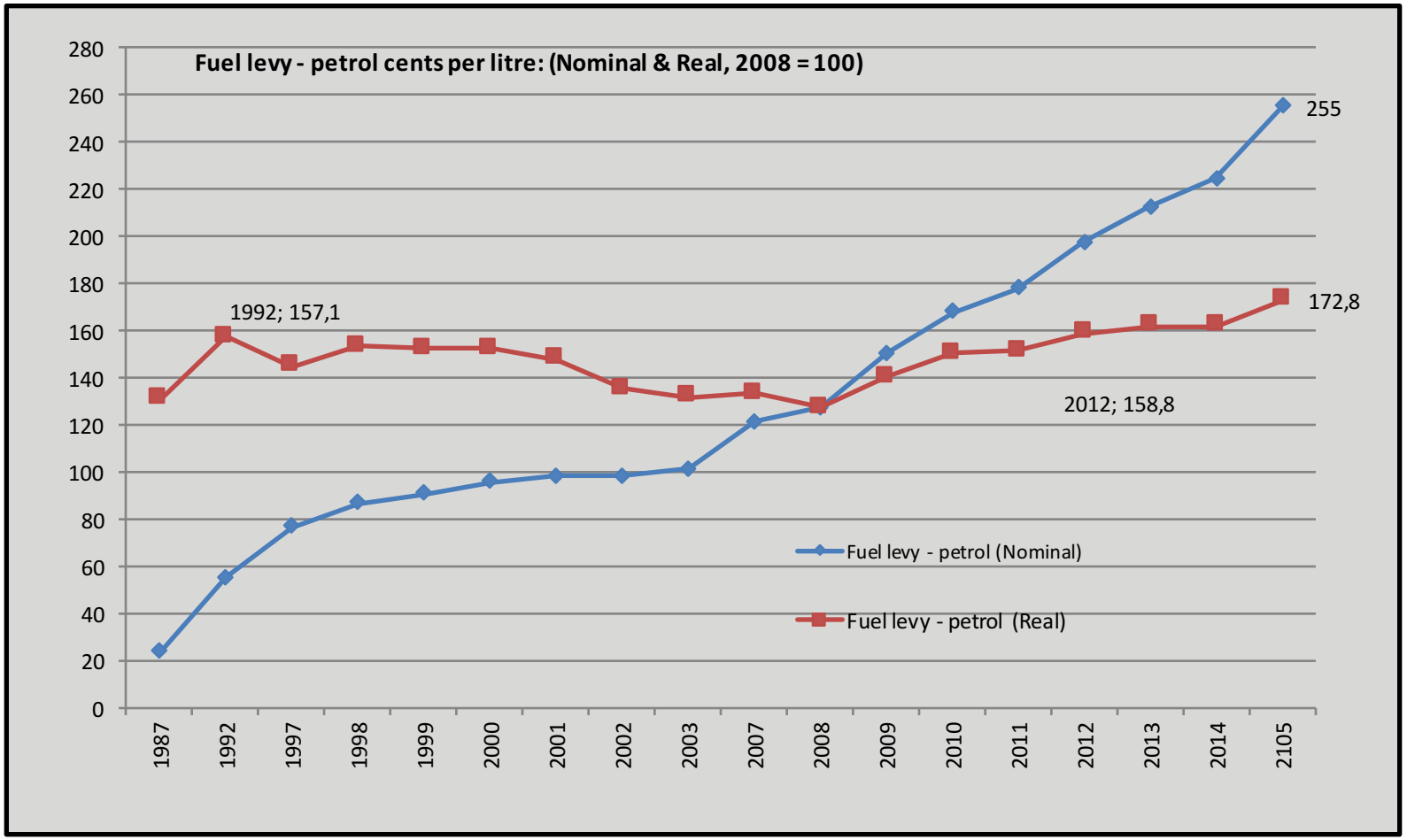
1. Energy sector
   - Impact on electricity prices – IRP2010, complete exemption?
   - Liquid fuel – no pass through mechanism - should there be one?
2. Sectoral classification: tax free thresholds & process emissions (sectors?);
3. Emission intensities, benchmarks & the Z-factor;
4. Revenue recycling: relief for low income households & protect competitiveness .
5. Competitiveness – review nature of relief for emission intensive and trade intensive (EITI) sectors;
6. Tax base and administration – Measuring, Reporting & Verification;
7. Deductibility of carbon tax payments for income tax purposes
8. Offsets; why the need for the 5% or 10% limits and for additionality?.

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





General Fuel Levy - Petrol



Fuel taxes in South Africa

Table 4.9 Total combined fuel taxes on petrol and diesel, 2014/15 – 2016/17

	2014/15		2015/16		2016/17	
Cents/litre	**93 octane petrol**	**Diesel**	**93 octane petrol**	**Diesel**	**93 octane petrol**	**Diesel**
General fuel levy	224.50	209.50	255.00	240.00	285.00	270.00
Road Accident Fund levy	104.00	104.00	154.00	154.00	154.00	154.00
Customs and excise levy	4.00	4.00	4.00	4.00	4.00	4.00
Illuminating paraffin marker	–	0.01	–	0.01	–	0.01
Total	**332.50**	**317.51**	**413.00**	**398.01**	**443.00**	**428.01**
Pump price: Gauteng (as in February)[1]	1 206.00	1 129.17	1 009.00	926.09	1 215.00	943.17
Taxes as percentage of pump price	*27.6%*	*28.1%*	*40.9%*	*43.0%*	*36.5%*	*45.4%*

1. Diesel (0.05% sulphur) wholesale price (retail price not regulated)

Source: National Treasury