21ST IEA-IETA-EPRI GHG EMISSIONS TRADING WORKSHOP

South African experience on carbon pricing opportunities and challenges in the power sector

Environmental & Fuel Taxes | Dr. Memory Machingambi| 13 October 2021

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2030 NDP

STAY SAFE
VACCINATE TO SAVE SOUTH AFRICA
TOGETHER WE CAN BEAT CORONAVIRUS

BACKGROUND – CLIMATE CHANGE POLICY CONTEXT

- Carbon tax forms an integral part of **climate change** response policy package under the **National Climate Change Response Policy (NCCRP) of 2011**, and in **National Development Plan (NDP)** as an important cost-effective instrument
- **The updated NDCs notes carbon tax as an important instrument to achieve targets i.e. 2025 target range of 398 – 510 Mt CO2e and for 2030 of 350 – 420 Mt CO2e.**
- **The Carbon Tax Act No 15 of 2019 was signed into law by the President in May 2019.** The carbon tax came into effect on 1 June 2019.
- **The Carbon Tax Act gives effect to the polluter-pays-principle** and helps to ensure that firms and consumers take these costs into account in their FUTURE production, consumption and investment decisions. Assists in reducing GHG emissions and ensuring SA will meet its NDC commitments as part of its ratification of the 2015 Paris Agreement.
- **The Carbon Tax was introduced at a very low effective carbon tax rate with significant tax-free emission allowances** ranging from 60 per cent to 95 per cent to provide current significant emitters time to transition their operations to cleaner technologies through investments in energy efficiency, renewables, and other low-carbon measures.

GHG INVENTORY, 2015 – DEFF

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2015 GHG Inventory (Estimates) – Categories	Emissions - CO2 Eq (Gg)	Emissions - CO2 Eq (Gg)	Total Emissions - CO2 Eq (Gg)	Percentage Contribution
1 - Energy			424104	83%
A - Fuel Combustion Activities			395139	77%
1.A.1.A - Electricity		224 009		44%
1.A.1.B - Petroleum Refining		3 388		1%
1.A.1.C - Manufacture of Liquid Fuels (Synfuel)		31 299		6%
1.A.2 - Manufacturing Industries and Construction		36 704		7%
1.A.3 - Transport		51485		
Civil Aviation	*4 258*			
Road Transport	*46 676*			9%
Rail Transport	*551*			
1.A.4 - Other Sectors		48 254		9%
B - Fugitive emissions			28 965	6%
2 - Industrial Processes and Product Use			35875	7%
2.A - Mineral Industry		6179		
Cement production	*5 205*			
Lime production	*860*			
Glass Production	*114*			
2.B - Chemical Industry		Not disclosed		
2.C - Metal Industry		37 513		
Iron and Steel Production	*14 094*			
Ferroalloys Production	*13 416*			
Aluminium production	*2 186*			
3 - Agriculture, Forestry, and Other Land Use			(48 890)	(10%)
4 - Waste			22 211	4%
Total National Emissions and Removals			512383	100%
International Bunkers			11599	

SOUTH AFRICA'S POWER SECTOR

- **Fossil fuel power plants account for about 44GW**, **87% of total generation** of total generation capacity in South Africa, compared with **13% generation from low carbon resources (nuclear and renewables)**, **Solar and wind combined provide 3.5GW** of capacity in 2019;
- **The Integrated Resource Plan (IRP)** provides the national electricity roadmap, i.e. sets out a plan for the electricity supply mix that meets forecasted electricity demand, provides outlook on future additions to the electricity mix for the next decade, considering government objectives such as affordable electricity and emissions reduction;
- The **Renewable Energy Independent Power Producers Procurement Programme (REIPPPP)** was set up to increase renewable energy production from the private sector, selection is based on competitive bidding (tariff). Under the programme, **5000 MW is operational by 2019** and a further **2 000 MW (i.e. combined 7 000 MW) operational by end of 2020**;
- The **single buyer market is not conducive** to permitting the market to determine the price of electricity which impedes development of cost reflective renewables projects hence **discussions on unbundling and liberalization of the power market**.

TAXES ON THE ELECTRICITY SECTOR

- **Electricity levy** – an environmental levy on consumption of electricity generated from non-renewable (fossil) fuels, including coal, gas as well as diesel and from environmentally hazardous sources, such as nuclear. The levy was introduced as a response to supply-shortage experienced in South Africa and is used as a proxy carbon tax, with some of the revenue used for repairing road damage from coal haulage and supply of solar water geysers priced at ZAR 3.5 c/kWh;
- **Renewable energy premium (IPP levy) in electricity tariffs** – the renewable energy premium which provides a financial incentive for the uptake of low carbon renewable energy technologies under the REIPPPP;
- **Carbon tax** – economy-wide price on GHG emissions to incentivise the transition to lower carbon technologies (support technology development and deployment);
- 2014 PMR Modelling suggests that the carbon tax can have a significant impact in reducing the country's GHG emissions, with an estimated **decrease in emissions of 13 to 14.5 percent by 2025 and 26–33 percent by 2035 compared with BAU.**

PHASE 1 CARBON TAX DESIGN: RATE, TAX-FREE ALLOWANCES AND RECYCLING MEASURES

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Tax rate and emissions allowances

- **Carbon tax at R134per ton of CO_2e**
- 60% basic tax-free threshold
- **Max of 10% tax-free allowance for trade exposure**
- 10% tax-free allowance for process and fugitive emissions
- **Up to 5% performance allowance**
- 5% tax-free allowance for complying with carbon budgets information requirements
- **5 or 10% allowance for Carbon Offsets** – flexible mechanism

- Tax-free allowances of **60-95%** - effective tax rate of
- No impact on electricity prices in the first phase
- Phase 1: 1 June 2019 to 31 Dec 2022

Revenue Recycling

- **Energy Efficiency Savings tax incentive**
- Credit against Eskom's carbon tax liability for the **renewable energy premium** built into the electricity tariffs
- Credit for the **electricity levy**
- Support for the installation of solar water geysers
- Enhanced free basic electricity / energy for low income households
- Improved public passenger transport & support for shift of freight from road to rail

CARBON TAX CONCESSIONS FOR THE ELECTRICITY SECTOR

- Electricity generation activities receive **60% of basic tax-free allowance**, could **potentially claim 10% carbon offsets** allowance, **5% carbon budget allowance**;
- **Electricity price neutrality commitment** – achieved through provision of a credit for the electricity generation levy payments (ZAR 3.5 cents/kWh) and the renewable energy premium against the carbon tax liability of electricity generators;
- An additional revenue recycling measure, an incentive for energy efficiency saving measures (12L Energy Efficiency Tax Incentive);
- Carbon tax estimates equivalent to around **2-4% of current electricity tariff**. Without tax-free allowances, the carbon tax would be 9% - 15% of the electricity tariff depending on customer segment.

REVENUE RECYCLING MEASURES – ELECTRICITY PRICE NEUTRALITY

- To help sectors transition, in addition to the tax free allowances, **revenue recycling measures have been implemented as part of a package of support measures under the carbon tax** i.e. reducing other taxes, tax incentives and targeted on-budget programmes.
- For the first phase of the carbon tax (until 2022), the **introduction of the tax will have a neutral impact on the price of electricity** to cushion low income households and energy intensive industries.
  - This is achieved by providing a **credit for the payments of the electricity generation levy;** and
  - **credit for the renewable energy premium** built into the electricity tariff.
- In addition business already benefits from the **Energy efficiency savings tax incentive.**

REVENUE RECYCLING – ENERGY EFFICIENCY SAVINGS TAX INCENTIVE SECTION 12L

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- The Section 12 L energy-efficiency savings tax incentive was introduced in November 2013 to complement the proposed carbon tax. **This measure was specifically introduced as one of the options for potential revenue recycling**, even though the carbon tax had not yet been introduced.
  - The incentive allows businesses to claim deductions against their taxable income for energy-efficiency saving measures – measured in kWh equivalent. The rate at which the deduction is calculated was increased from **45c/ kWh to 95 c/kWh in 2015**.
  - The South African National Energy Development Institute is responsible for monitoring and verification of energy efficiency savings claims from taxpayers and issues a certificate to the taxpayer endorsing the savings.
- The **manufacturing, mining, transportation, health and social sectors** are the **largest beneficiaries** of the incentive. **Tax expenditures show that cumulative monetary value or subsidy for energy efficiency investments is around R5.49 billion up to 2018/19**.
- **GHG emissions savings estimated at 25.29Mt** and **Energy impact of 25.948 TWh;**
- **National Treasury announced the extension of the duration of the EES incentive in Budget 2019 to 31st Dec 2022 to** align with the first phase of the carbon tax.

NEXT STEPS

- Going forward, **increase the carbon price and reconsider the tax-free allowances** for a more cost reflective carbon tax;
- Increased embedded generation **licensing threshold from 1 MW to 100 MW** announced in June 2021 should allow small and large business to invest in their own renewable energy production;
- Transitioning the electricity sector is a low hanging fruit for South Africa as this drives emissions intensity of the economy;
- The shift to alternate clean energy should be combined with appropriate **investments in upgrading the grid infrastructure** to accommodate renewables;
- Adequate **support measures for vulnerable workers and communities** should be provided to achieve a **just energy transition for all** stakeholders in the short, medium to long-term.