BRIEFING NOTE
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Exploring the impact of Phase Two of the carbon tax in a transforming power sector

Authored by Emily Tyler, Nic van Doesburgh, Brett Cohen and Relebohile Khetsi

1 INTRODUCTION

The electricity sector accounts for the largest share of South Africa's greenhouse gas (GHG) emissions, contributing over 40% of the national total [1] . Simultaneously, it offers the highest mitigation potential at the lowest cost[2] and plays a pivotal role in enabling the decarbonisation of other sectors through electrification, such as transport and industry. Decarbonising the electricity sector significantly over the next decade is critical both for meeting South Africa's 2035 Nationally Determined Contribution (NDC) targets and for ensuring economic growth and competitiveness in a rapidly decarbonising world.

The carbon tax, introduced in 2019 has GHG mitigation as one of its main objectives. It is the only GHG emission reduction policy instrument currently in effect. However, the electricity sector has thus far been effectively excluded from paying the tax, both to shield consumers from already-high electricity prices and to avoid placing an additional burden on Eskom, the State Owned Utility, which is already in financial distress. National Treasury's proposed design for the Second Phase of the tax (2026 – 2030) suggests changes that are claimed to both maintain electricity price neutrality while starting to incentivise decarbonisation. Although the intention is sound, the practical feasibility is uncertain. The electricity sector remains monopolistic in structure, dominated by an emissions-intensive coal fleet, faced with tight capacity and grid constraints, is seeing rapidly escalating electricity tariffs, and undergoing a complex reform process.

The objective of this Briefing Note is to explore the implications of the Phase Two carbon tax design for the power sector. The analysis focuses on Eskom as owner of the vast majority of GHG emitting power generators, in particular the country's coal fleet.

The Briefing Note proceeds by defining key terminology used in the Note. It then describes the current and proposed Phase Two carbon tax design for the power sector (Section 2). The implications of the proposed design for balancing price neutrality and mitigation is then interrogated in Section 3. Section 4 considers the implications of power sector reform. Section 5 concludes.

It is hoped that the analysis will assist stakeholders in responding to the draft Phase Two regulations presented in the Draft Taxation Laws Amendment Bill 2025 (TLAB). The analysis also invites further reflection on how electricity sector decarbonisation can be further supported in this critical decade.

[1] *DFFE (2025) National Greenhouse Gas Inventory Report. https://www.dffe.gov.za/sites/default/files/legislations/nemaq_nggireportt_g52067gon5850.pdf*
[2] *PCC (2023) Recommendations from the PCC on South Africa's electricity system. https://pccommissionflo.imgix.net/uploads/images/PCC-Electricity-Planning-Recommendations-Report_2023-06-01-143447_hccs.pdf*

GLOSSARY

Calculated carbon tax: tCO_2e emissions multiplied by the carbon tax headline rate less all applicable allowances.

Electricity price neutrality: A commitment that the carbon tax will not raise overall electricity prices for consumers.

Environmental Levy: A levy on non-renewable power generation imposed from 2009 – end 2025

Environmental Levy offset: The amount that would have been paid as an Environmental Levy prior to Phase Two.

Environmental Levy Equivalent: A carbon tax amount equal to what a taxpayer would have paid had the Environmental Levy still been in force.

RE Premium offset: An offset credit that enables carbon tax–liable electricity suppliers that purchase renewable energy to reduce their calculated carbon tax.

Post-offsets carbon tax: Applicable only in Phase One, a company's carbon tax less both the Environment Levy and RE Premium offsets (generally equivalent to zero).

Post-RE offset carbon tax: Applicable in Phase Two, a company or plant's calculated carbon tax less the (capped) RE Premium offset.

2 THE CARBON TAX IN THE ELECTRICITY SECTOR

In 2019, South Africa introduced a carbon tax with the intention of reducing GHG emissions by putting a price on carbon. The tax is designed on the 'polluter pays' principle where emitting companies must pay a tax based on the amount of direct (Scope 1) CO_2e emissions they emit.

To cushion its economic impact, the carbon tax is being implemented according to a phased approach that starts off slowly but progressively ramps up over time. Accordingly, the tax includes a modest but annually increasing headline tax rate, currently R236/tCO_2e in 2025, and generous allowances of up to 95% to give industries time to adapt. To further ease the burden on consumers and the economy, Treasury committed to electricity price neutrality in Phase One, ensuring the tax does not increase electricity prices. This price neutrality principle is retained into the proposed Phase Two design, however, the mechanism for achieving it differs between the two phases.

2.1 PHASE ONE (2019-2025)

During Phase One, electricity price neutrality has been achieved through two primary offset mechanisms: the Environmental Levy offset and the Renewable Energy Premium offset.

The Environmental Levy offset

The Environmental Levy is a charge introduced in 2009 on electricity generated from non-renewable sources (fossil fuel-based and nuclear). Unlike the carbon tax, which is calculated based on the amount of *emissions* produced, the levy is charged on the amount of *energy generated* at a fixed 3.5 cents per kWh from all non-renewable sources (nuclear, coal, gas and diesel). Currently, the cost of the Environmental Levy is factored into each qualifying power station's variable costs and passed through to customers in the electricity tariff.

Whilst the Environmental Levy is not explicitly aimed at achieving GHG emissions reductions, there is a large overlap between non-renewable electricity sources covered by the Levy and those emitting GHGs (see Figure 1).

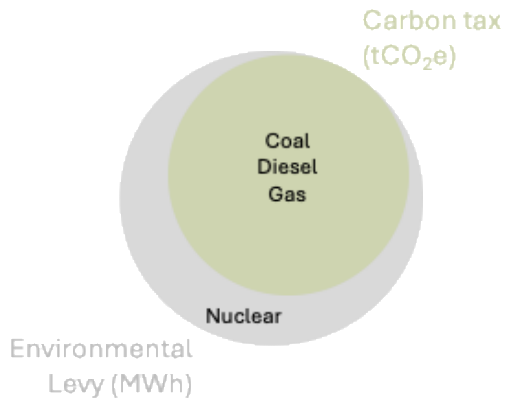

Figure 1: Overlap between taxpaying generation sources for the Carbon Tax and Environmental Levy

As such, some relationship between the Levy and emissions reductions could theoretically have been expected, but limited empirical work has been undertaken to investigate this. Given the overall generation capacity constraints that have led to loadshedding since its introduction, it is unlikely that the Levy would have had any disincentive to power generation from non-renewable sources. However, it may have had a positive influence on renewable power investment.

Under Phase One, Eskom receives a credit equivalent to the value of the Environmental Levy to offset a portion of their calculated carbon tax.

The Renewable Energy Premium offset

The Renewable Energy (RE) Premium offset was introduced purely as a mechanism for fossil-based electricity generation companies to further offset their carbon tax liability against the costs of purchasing renewable electricity. The premium amount is calculated by multiplying the quantity of renewable electricity (in kWh) purchased by the taxpayer[3] by the Rand amount applicable for each technology as specified in the Government Gazette[4].

Achieving price neutrality in Phase One

In Phase One, the two offset mechanisms described above together entirely offset Eskom's calculated carbon tax. Eskom continues to pay the Environmental Levy. This is demonstrated for Eskom in Figure 2 using 2024 data.

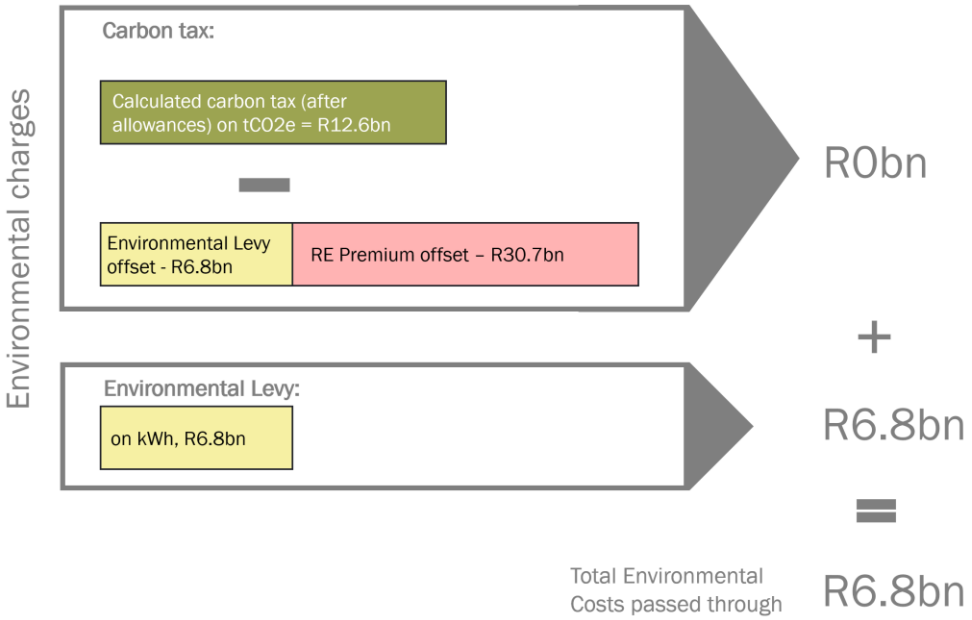

Figure 2: Environmental charges on Eskom's power generation in Phase One of the carbon tax

[3] *Note that certain electricity sector taxpayers, such as Gas IPPs, may not have RE purchases against which to offset their carbon tax, and will therefore pass the difference between tax liability and the Environmental Levy through in their PPA prices, primarily to Eskom. This renders the price neutrality objective not strictly upheld through the Phase One design.*

[4] *National Treasury (2021) Renewable Energy Premium Notice.* https://www.gov.za/documents/notices/carbon-tax-act-renewable-energy-premium-respect-tax-period-purposes-symbol-%E2%80%9Cb%E2%80%9D

Consequently, the carbon tax can have had no impact[5] on mitigation within the sector: generators have no incentive from the tax to reduce emissions, the System Operator has no basis for altering dispatch decisions, and consumers face no incentives to reduce demand or choose lower emitting supply options.

2.2 PHASE TWO (2026-2030)

In November 2024, National Treasury released a Discussion Paper[6] on the Phase Two design of the carbon tax, which is to run from 1 January 2026 to 31 December 2030. The Paper proposed extending the price neutrality commitment for the electricity sector into the second phase, although using a different mechanism that is aimed at better aligning price signals with mitigation incentives.

To do this, the Discussion Paper recommended removing the Environmental Levy, and replacing it with the carbon tax. The carbon tax payable would be limited to a monetary value equivalent to that of the (discontinued) Environmental Levy – the 'Environmental Levy Equivalent'. Emitting companies purchasing renewable power can then continue to offset the remainder of their carbon tax liability using the RE Premium offset. This revised price neutrality mechanism is demonstrated in Figure 3, again using 2024 data to aid the comparison with Phase One outcomes. The outcome is that there are no additional environmental charges to those in place since 2009 on power generation. Price neutrality is in theory achieved. However, the environmental pricing will now be on GHG emissions (CO_2e) as opposed to non-renewable sources (MWh). Given that nuclear power has no GHG emissions, Eskom's environmental charges payable are in fact slightly reduced.

This proposal has since been endorsed by government, in the 2025 Budget Review[7], and reflected in the 2025 draft Taxation Laws Amendment Bill (TLAB). The draft TLAB also includes a penalty tax rate of R640/t for emissions exceeding a company's mandatory carbon budget, as established in terms of the 2024 Climate Change Act.

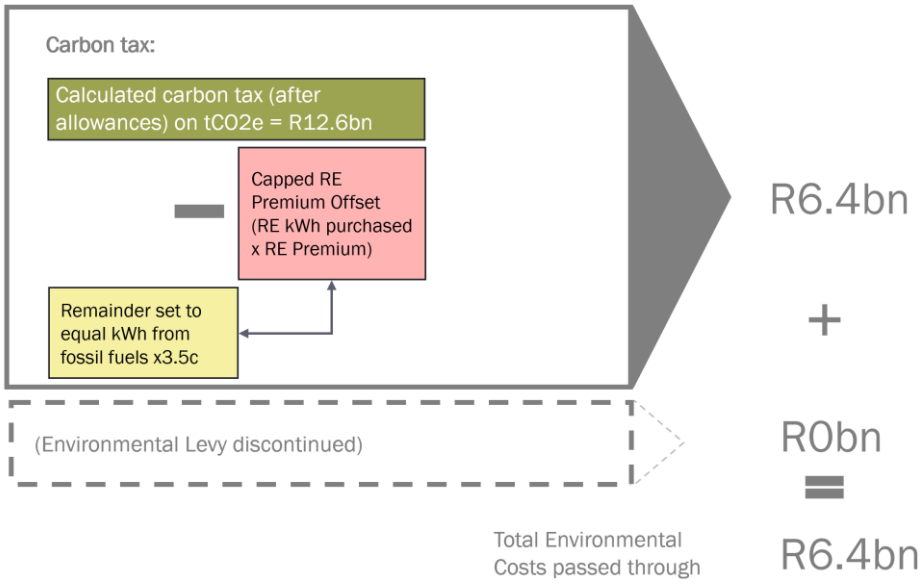

Figure 3: Environmental charges on Eskom's power generation for Phase 2 of the carbon tax

[5] *A possible exception here is the two diesel-fired gas IPPs. However the impact here is negligible and so is not considered further in this paper.*

[6] *National Treasury (2024) Discussion paper: Phase Two of the carbon tax.* https://www.treasury.gov.za/public%20comments/TaxationOfAlcoholicBeverages/Phase%20two%20of%20the%20carbon%20tax.pdf

[7] *National Treasury (2025) Budget Review.* https://www.treasury.gov.za/documents/National%20Budget/2025Mar/review/FullBR.pdf ; https://www.sars.gov.za/wp-content/uploads/Legal/Drafts/Legal-LPrep-Draft-2025-21-Draft-Taxation-Laws-Amendment-Bill-2025-16-August-2025.pdf

3 THE IMPACT OF THE TAX ON THE EXISTING SECTOR

By calculating the environmental costs that will be paid by the emitter on the basis of their GHG emissions (rather than on generation from non-renewable sources as in Phase One), National Treasury claims that the carbon tax will have a greater influence on mitigation than the Environmental Levy did. Understanding whether this holds true in practice requires a consideration of the impact of the tax at two levels: power system (Market/System Operator) and company (taxpayer, Eskom).

National Treasury's twin objectives of price neutrality and behaviour change are fundamentally incompatible for the biggest mitigation lever in the sector – the dispatch of lower emissions generation sources, and the resulting investment signals sent.

In South Africa, the System Operator schedules generators for dispatch. To affect mitigation, the costs associated with GHG emissions of each generator would need to be included in this dispatch decision making. The resulting system cost would therefore be greater than if there were no GHG costs considered.

Eskom has been operating an internal electricity market since 2002, where generators submit complex day-ahead bids including generation costs, and technical, safety and local environmental constraints. Based on this, an hourly merit order of supply is established. The Environmental Levy is currently included as a variable cost in each bid.

From Phase Two, fossil plants – predominantly coal and diesel currently, but potentially also gas in future – will be taxed per tonne of CO_2e emitted, rather than based on MWh produced. Theoretically, this change should favour the dispatch of generation using gas over coal and diesel, given the lower emissions intensity of gas per MWh[8], and prioritisation of more efficient coal plants over less efficient plants. However, assuming the objective of price neutrality is strictly enforced, this could only be the case if the calculated carbon tax costs of one or more generators are lower than their Environmental Levy Equivalents (they cannot be higher as they are capped by the Environmental Levy Equivalent). For example, if the calculated carbon tax costs of a highly efficient Combined Cycle Gas Turbine (CCGT) plant were to be lower than its Environmental Levy Equivalent, it may be dispatched before a more emissions intensive plant would.

Whether the calculated carbon cost is lower than that of the Environmental Levy Equivalent at a generator level then becomes an empirical question. Running the numbers shows that it is highly unlikely that the calculated carbon tax of any of Eskom's generation plant would ever be less than its Environmental Levy Equivalent: In 2026, the calculated carbon tax is projected to be between 3.2-5 times higher than the Environmental Levy for coal, 3 times higher for diesel-fired OCGTs, 2.8 times higher for gas-fired OCGTs and 1.8 times higher for gas-fired CCGTs[9]. With successive increases in the carbon tax's headline rate, this gap widens further: by 2030, the carbon tax is expected to be between 4.9-7.6 times greater for coal, 4.5 times greater for diesel-fired OCGTs, 4.2 times greater for gas-fired OCGTs and 2.7 times greater for gas-fired CCGTs.

All Eskom's fossil fuel plants will therefore include the Environment Levy Equivalent in their market bids. The Phase Two price neutrality mechanism will therefore have no effect on dispatch outcomes.

The substitution of the carbon tax for the Environmental Levy will nonetheless have

[8] In South Africa, coal has an average emission factor ranging from 0.92-1.44 tCO_2e/MWh (as disclosed by the National Environmental Consultative and Advisory Forum), whilst diesel and gas OCGTs, and gas CCGTs have emission factors of 0.86 tCO_2e/MWh, 0.80 tCO_2e/MWh and 0.51 tCO_2e/MWh, respectively (sourced from Meridian's Hot Air About Gas study (here).

[9] The calculated carbon tax rate for each year was calculated assuming the taxpayer only claims the basic tax free allowance. To the author's knowledge, Eskom has not yet claimed its offset allowance, and will not achieve NT's proposed performance allowance during Phase Two.

implications for nuclear power. The Environmental Levy has historically applied to Koeberg (South Africa's only nuclear power station) on the grounds that it was classified as a non-renewable energy source. With the transition to the carbon tax in Phase Two, the Levy falls away, and nuclear generation no longer incurs an environmental charge, as it produces no carbon emissions. This will make nuclear power marginally cheaper to dispatch than it was previously.

As a regulated entity, Eskom currently does not directly bear its environmental charge costs, since these are passed on to consumers through regulated tariffs. Consequently, the Phase Two carbon tax will create no incentive for Eskom, at a company level, to reduce its emissions. The same is true of the Environmental Levy under Phase One. Eskom pays the Levy to the South African Revenue Service (SARS), and includes the Environmental Levy as a variable cost of production in its Multi-Year Price Determination (MYPD) tariff application. The National Energy Regulator (NERSA) has allowed this to be passed through in full. The same holds for Phase Two under the current sector structure. Eskom pays the Environmental Levy Equivalent to SARS, and tariffs (to 2028) have been awarded inclusive of the Environmental Levy / Equivalent.

Under the current sector structure, therefore, Eskom will have no greater incentive as a company to pursue GHG emissions mitigation actions internally than it did in Phase One.

The argument set out in this section also implies that the penalty tax rate of R640/t cannot impact mitigation outcomes, as it only increases the calculated carbon tax[10]. Even without the penalty, only the Environmental Levy Equivalent is either paid by Eskom to SARS, or included in generator bids.

4 THE IMPLICATIONS OF POWER SECTOR REFORM

The implementation of Phase Two coincides with the launch of the South African Wholesale Electricity Market (SAWEM), which will replace the Eskom internal market. SAWEM will be open to a broader and expanding range of market participants, providing a more open and transparent platform for electricity trading in South Africa that marks a significant departure from the traditional vertically integrated state-owned utility model. National Treasury sees this transition as supporting the carbon tax in the second phase, stating that "A partially liberalised electricity supply industry combined with the implementation of an effective carbon price will provide important incentives on the margin for behaviour change by electricity generators towards alternative lower carbon energy sources and energy efficiency improvements."[11]

As in Eskom's internal market, individual power stations will submit bids to the SAWEM Market Operator and will be dispatched according to a merit order. A number of transitional measures are being developed to manage Eskom's market dominance in the transition to a fully competitive market. These measures include vesting contracts that will, in effect, ensure Eskom generators remain regulated entities[12]. It is anticipated that NERSA will only allow the pass through of the Environmental Levy Equivalent to maintain price neutrality.

As a result, the price neutrality mechanism employed in Phase Two will not allow for the incentivisation of the dispatch of lower emission Eskom generators beyond the incentives contained in the Environmental Levy, under the SAWEM.

[10] This outcome holds even when all Part II allowances (all except the free basic allowance) are removed as anticipated in section 14A of the draft TLAB.
[11] National Treasury, 2024, Carbon Tax Phase 2 Discussion paper, p8.
[12] While the vesting contracts were initially intended as a transitionary mechanism with the volume of energy covered by regulation declining over the first five years, the vesting contracts are now being considered as a longer-term mechanism.

5 CONCLUSION

National Treasury's Phase Two design for the carbon tax in the electricity sector achieves its objective of price neutrality by ensuring that no additional cost is passed through in electricity prices compared to Phase One. Power consumers pay no more in environmental charges than they have been doing since the Environmental Levy was introduced in 2009. There is actually a slight decrease as nuclear power no longer attracts an environmental charge[13].

However, the Phase Two design will not achieve Treasury's behavioural change objective, even under power market reforms. Mitigation in the power sector is achieved by increased emissions efficiency at the plant level, a change to the power dispatched, and a change in demand for power. For Eskom, by far the sector's largest emitter, the carbon tax is purely a pass through. It claims the tax in its pricing and pays it through to SARS. There is therefore no incentive for Eskom to increase emissions efficiency at the plant level. Because of the size of the calculated carbon tax relative to the Post RE Offset carbon tax, there is also no change to the environmental charge included in the generator bids in Phase Two, and therefore no change to dispatch. Because the tax is price neutral, there can be no change to consumer demand.

However, the transitional market structures being developed as part of the power sector reform process could be leveraged to change this outcome, provided the commitment to price neutrality is (at least slightly) relaxed. This possibility will be explored in a forthcoming Briefing Note.

[13] Despite this, NERSA has already determined electricity tariffs up to the 2027/28 financial year on the basis that the full Environmental Levy amount (including nuclear) will be incurred. Accordingly, there will be no impact on electricity prices, at least for the duration of this period.