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INDUSTRY TASK TEAM ON CLIMATE CHANGE (ITTCC) SUBMISSION ON THE DRAFT CARBON TAX BILL (2017)

The Industry Task Team on Climate Change (ITTCC) welcomes the opportunity to comment on the second draft Carbon Tax Bill of 2017, and where appropriate the Explanatory Memorandum (Memo) and Socio-Economic Impact Assessment Study (SEIAS).

The ITTCC is a voluntary, non-profit association established in December 2010. The ITTCC is a sister organisation of the Energy Intensive User Group (EIUG), focussed on climate change policy. Our members are energy and carbon intensive organisations that collectively contribute over 20% to South Africa's gross domestic product (GDP).

We agree that warming of the climate is unequivocal, that human influence is clear and that physical impacts are already occurring. We recognise that climate change poses a complex challenge for global society, with differing country response capabilities, and it is our responsibility to act. The approach needs an integrated South African mitigation approach through which we can contribute to a global solution.

We support South Africa's international commitments to address climate change that consider its current national circumstances, developmental state and socio-economic aspirations. This support is subject to the availability and provision of appropriate technology and financing support from developed countries.

We support a predictable and gradual transition in South Africa to a lower carbon, resources-efficient economy. This must be based on an accurate and up-to-date emissions profile.

We acknowledge the merits of having a carbon price in the economy in the longer term, but not the currently envisaged carbon tax as it is problematic in its design and practical implementation. This carbon pricing can be achieved through DEA's carbon budgeting proposal, with a penalty applied exceedance of the budget.

We aspire to work collaboratively with government departments to develop integrated and sustainable policy for the country - a policy that recognises that South Africa has been deindustrialising and has an urgent need to reindustrialise and become more competitive.

1 KEY MESSAGES

- A carbon tax is neither necessary nor suitable in the current economy.
- South Africa's emissions are presently within the limits of the peak, plateau and decline (PPD) trajectory area and unlikely to increase above this line before 2022 – 2025. Current trends from analysis of the GHG Inventories indicate that any increase in emissions may be even further into the future.
- There must be an integrated and aligned approach to the development of emissions reduction and energy planning policies as these issues are inextricably linked.

2 INTRODUCTION

A carbon tax is neither necessary nor suitable in the current economy. We furthermore assert that any policy instrument to reduce emissions should avoid unduly damaging the South African economy. A low-carbon, resource efficient economy can be achieved through DEA's carbon budget regime, the Integrated Resource Plan (IRP) and the Industrial Policy Action Plan (IPAP).

South Africa has already made progress in mitigation of national GHG emissions, as measured against the National Benchmark Trajectory. Economic growth has been lower than assumed in the business as usual (BAU) trajectory, which has come at a great cost to the economy and consequently to employment. Structural changes to the economy have seen a decline in the carbon intensity of GDP.

A combination of sharp increases in electricity prices has played a large role in electricity sales volumes contracting by more than 14% below 2011 levels, with the largest contractions in mining and industrial sectors. In addition, direct interventions to increase low-carbon electricity supply will further the decarbonisation of the electricity supply industry in South Africa.

The slow economic growth and shift in the electricity supply mix are significant and important considerations in the development and implementation of integrated climate change and energy policy. The long-term consequences of these changes must be understood to ensure that the implementation of climate change policy does not further unnecessarily burden the economy.

Furthermore, the structure of South Africa's electricity sector means that the future electricity mix cannot be shaped by a price signal since its emissions reductions are driven by the Department of Energy's Integrated Resource Plan (IRP) (Government Policy Document). In addition, it is not clear how a carbon tax will be passed through to consumers in the second phase of the tax. We understand that the current intention is to ensure revenue neutrality on the price of electricity for the first phase, however the practicalities of how this will be achieved is yet to be proven and there is no certainty of neutrality for the second phase, which hinders investment and negatively impacts international competitiveness.

Given the structure of South Africa's electricity sector, the IRP and mandatory carbon budget regime are more appropriate to driving and enabling structural change in the largest emitting sector of the economy. Despite many requests from business over the years with updates provided by government in Budget Speeches until 2017, no further clarity has been provided on the alignment of the proposed carbon tax and other emissions reduction instruments such as the carbon budgets.

In the context of these challenges, the focus of policy development in the short-to-medium term should rather be on ensuring cohesive development of policies through alignment with various government departments. Future climate change policies must consider the current national circumstances as well as the structure and state of the economy.

Policy development and implementation should also be guided by the following principles:

- 1. Predictable and gradual:** Emissions reduction policies must be set out well in advance and the pace and progress of introduction should be clearly laid out in advance.
Reduces investment uncertainty allowing businesses to transition efficiently to low carbon economy.
Encourages investment in low carbon choices, accelerating development of new technologies and reducing the overall cost of abatement.
- 2. Broad based:** Includes a broad range of policy levers and covers the broadest possible range of greenhouse gas emission sources, sinks and low carbon energy options to lower the overall cost of emissions reduction.
- 3. Simple and effective:** Effectively reduces emissions at least economic cost and is simple to implement and administer.
Simple policies increase transparency thereby reducing opportunities to game and reducing administration and audit costs.
- 4. Supportive of technology:** Encourage the adoption of the most efficient low emissions technologies through a carbon price signal, and fiscal measures where market failure can be demonstrated.
- 5. Climate Ready:** The South African government must adapt to reduce adverse impacts of climate change such as severe weather and rising sea levels.
- 6. Development focused:** Addressing the developmental priorities of poverty, inequality and unemployment by enabling the creation of decent work, economic and social transformation, and sustainable energy supply.
- 7. Trade friendly:** Allows the economy to progressively reduce emissions without distorting trade and investment flows or compromising the international trade competitiveness of South African industry in the absence of a global response to climate change.
- 8. Revenue neutral:** The objective must be to change behaviour not raise revenues – if revenues are raised through a price measure, they must be recycled to aid individuals and sectors adversely affected by the policy measures, not be diverted into general revenue.
- 9. Clear Price Signal:** Ensures that a carbon price signal influences producers and consumers such that emissions and carbon consumption are reduced, and the incentive to develop low carbon technologies is increased.

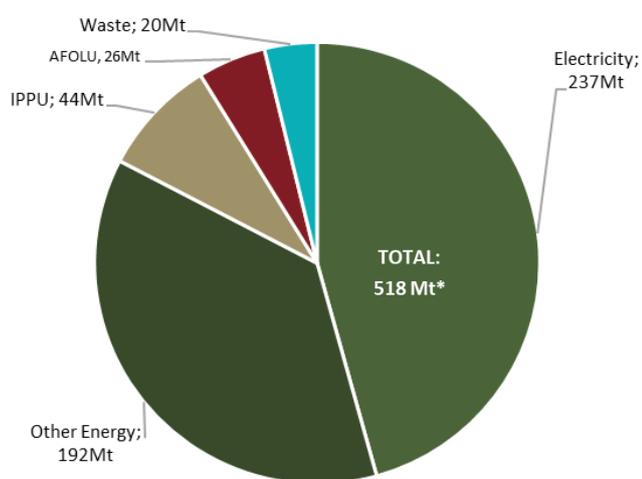
The ITCC supports the comments submitted by Business Unity South Africa (BUSA), and we have accordingly tried to limit repetition of the shared concerns in this submission. Our submission focusses rather on the energy landscape of South Africa, its challenges and the role that the energy mix must play in transitioning to a low-carbon future.

3 COMMENTS

3.1 SOUTH AFRICA’S GHG EMISSIONS TRAJECTORY

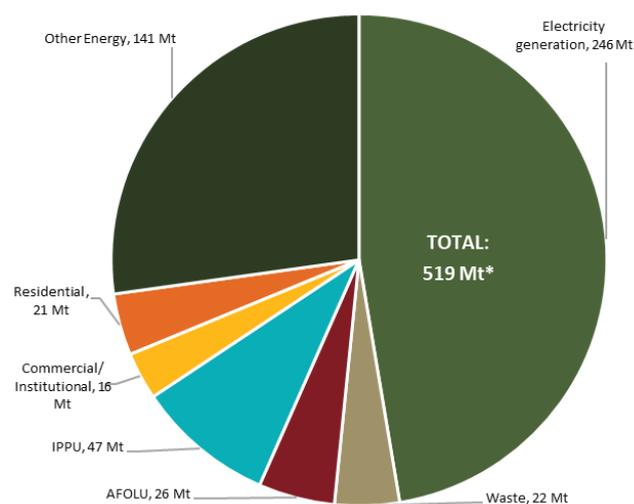
South Africa’s emissions are presently within the limits of the peak, plateau and decline (PPD) trajectory area and unlikely to increase above this line before 2022 – 2025.

South Africa’s final greenhouse gas inventory (GHGI) for 2010, published in 2014, stated that the total emissions for the country were 518Mt (figure 1). The draft GHGI for 2012, published in March 2016 indicated muted growth in emissions in relation to 2010 (figure 2). The inventories post-2012 have not yet been published, however with an average GDP growth rate of 1.5% from 2013 to 2016, it is unlikely that emissions have increased significantly in this period.



Source: 2010 RSA GHG inventory (September 2014)
* Breakdown adds to 519 Mt due to rounding

Figure 1: Final GHG Inventory 2010



Source: 2012 RSA GHG inventory (Draft - March 2016)
* Breakdown adds to 519 Mt due to rounding

Figure 2: Draft GHG Inventory 2012

(Source: Department of Environmental Affairs)

Electricity and Other Energy are the largest emitting sector in the economy, contributing 387Mt in 2012.

A combination of sharp increases in electricity prices has played a large role in electricity sales volumes contracting by more than 14% below 2011 levels, with the largest contractions in mining and industrial sectors. In addition, direct interventions to increase low-carbon electricity supply will further the decarbonisation of the electricity supply industry in South Africa.

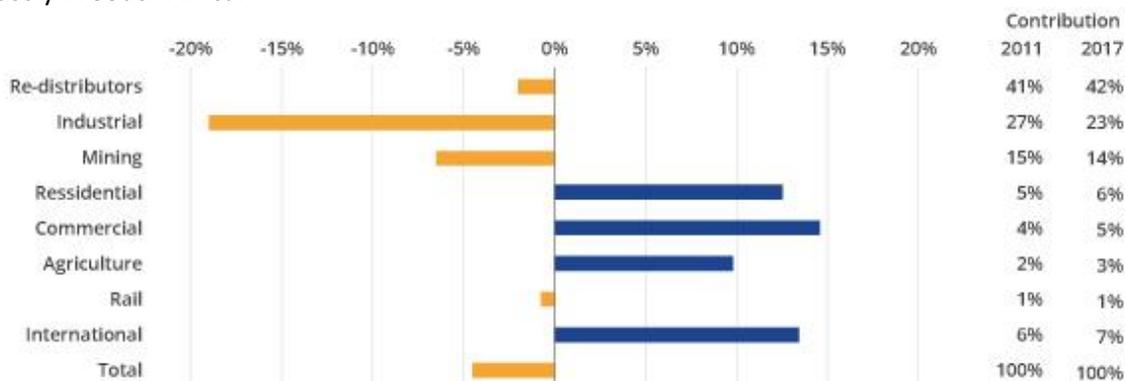


Figure 3: Eskom Sales Growth by Category - 2011 to 2017 (Source: EIUG)

Diversifying the energy mix through increasing the contribution of flexible, low-carbon generation technologies will significantly reduce emissions from this sector (see the “Energy Mix” section below).

Emissions’ growth is only anticipated after 2022 when all units of Medupi and Kusile coal-fired power stations reach full commercial operation. This is illustrated by figures 4 and 5 below.

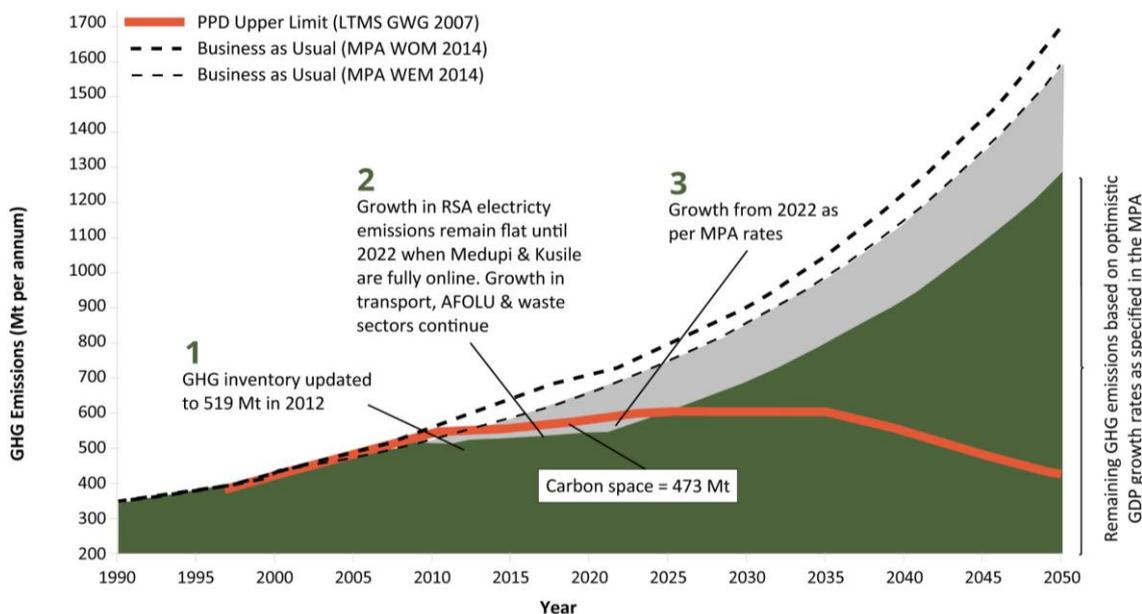
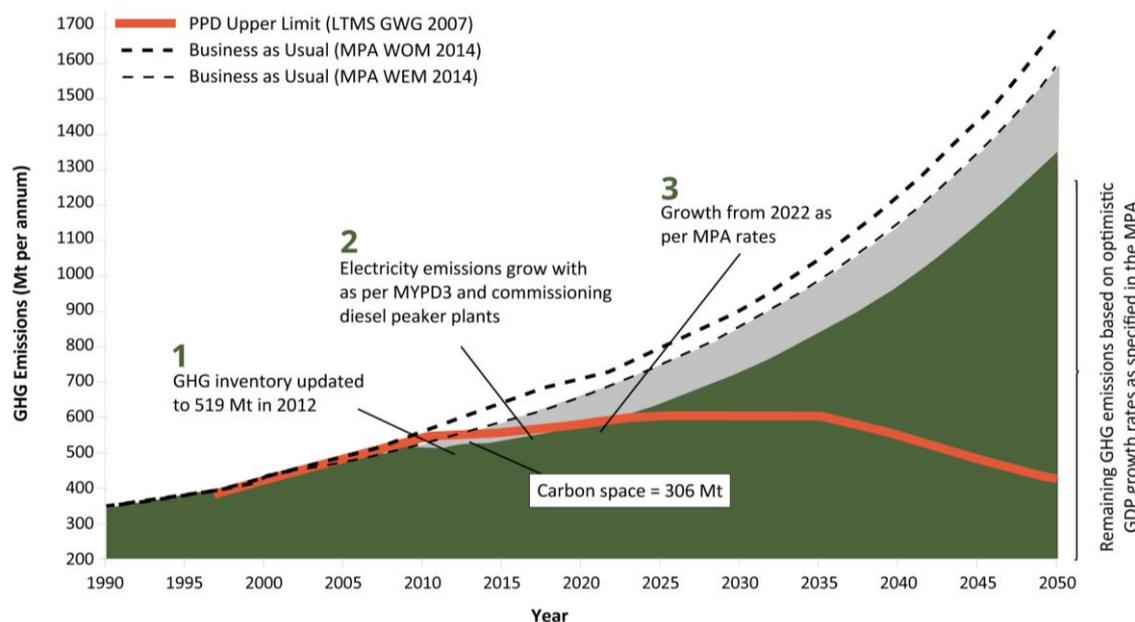


Figure 4: Current GHG emissions growth in relation to upper limit of PPD trajectory (probable growth scenario between 2010 and 2022) (Source: Sasol, 2017)¹

(Source: 2017) Figure



5:

Current GHG emissions growth in relation to upper limit of PPD trajectory (optimistic scenario between 2010-2022)

The implementation of a carbon tax at this time is not necessary and will only further burden our already strained economy.

¹ Sasol. 2017. *South Africa’s projected GHG emission trajectory*. Peer reviewed by DNA Economics and The Green House. Sasol.

3.2 ENERGY MIX

The structure of South Africa’s energy sector means that the future energy mix cannot be shaped by a price signal since its emissions reductions are driven by the Department of Energy’s Integrated Resource Plan (IRP) which is government policy.

The promulgated IRP2010 (2011) and draft IRP2016 (2016) include a policy adjusted carbon constraint requirement to reduce emissions in line with the Peak, Plateau and Decline (PPD) trajectory and South Africa’s Nationally Determined Contributions (NDC) under the Paris Agreement (2015).

- **Emission Limit 1.0 (EM1)*:** Annual CO2 limit of 275 MT CO2-eq throughout the period (*Selected for Policy Adjusted IRP)
- **Emission Limit 2.0 (EM2):** Annual CO2 limit of 275 MT CO2-eq from 2025
- **Emission Limit 3.0 (EM3):** Annual CO2 limit of 220 MT Co2-eq from 2020

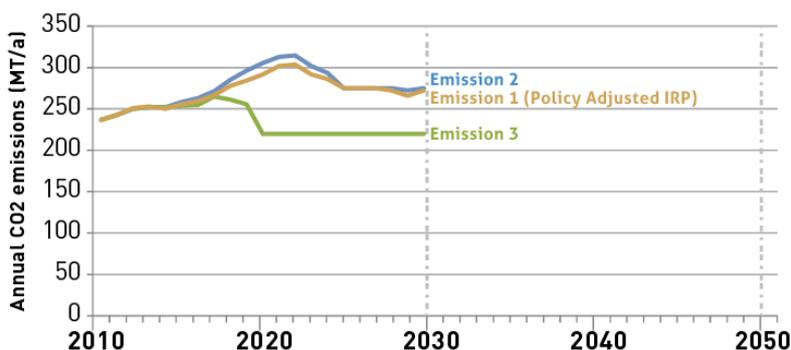


Figure 6: Policy Adjusted Emissions Trajectories - IRP2010

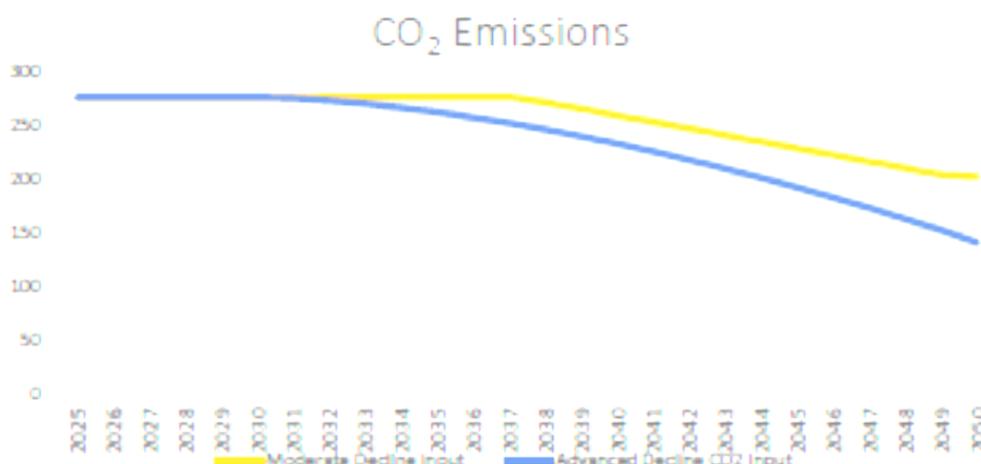


Figure 7: CO2 Emissions Constraint - Draft IRP2016

Notwithstanding business’ call for an updated IRP based on a least-cost, technologically unconstrained base-case, including a carbon reduction policy adjusted scenario – this instrument determines the energy mix of the country.

In this context, the carbon tax will have no material impact on reducing carbon emissions from the electricity generation sector. The carbon tax is a pass-through cost for regulated utilities and will therefore only add costs to the end customer which will already bear the cost of the new build programme via electricity tariffs.

Given the structure of South Africa’s electricity sector, the IRP and mandatory carbon budget regime are more appropriate in driving and enabling the structural change in the largest emitting sector of the economy.

3.3 REVENUE NEUTRALITY ON THE PRICE OF ELECTRICITY

Although not explicit in the draft Bill itself, we understand that the current intention is to ensure revenue neutrality on the price of electricity for the economy for the first phase. This intention is stated in the Memo and the SEIAS as follows:

*During the first phase of the carbon tax (until 2020), the introduction of the tax will have no impact on the price of electricity. This is achieved through the phased approach to the introduction of the tax, the modest effective tax rate during the first phase, **providing a credit for the payments of the electricity generation levy and a credit for the renewable energy premium built into the electricity tariff** complemented by additional budget allocations for free basic electricity... [own emphasis]*

It is not clear how this will be achieved practically and within the current structures of the Custom and Excise Act, the Multi-Year Price Determination (MYPD) methodology and the Regulatory Clearing Account (RCA) methodology.

It is recognised that the MYPD methodology allows Eskom to recover the environmental levy costs from customers and that the levy is therefore treated as a pass-through item for regulatory purposes.

The environmental levy is levied on all electricity generated in South Africa from non-renewable resources (i.e. coal, liquid fuels, natural gas, and uranium). The levy was put into effect from 1 July 2009.

It is important to note that the removal of the provision for revenue neutrality of the price of electricity at the end of the first phase of the carbon tax (2022) without any corresponding decrease or removal amendment to the environmental levy on electricity, will result on double taxation on electricity. This will result in severe harm to the economy. This uncertainly hinders investment and negatively impacts international competitiveness.

As previously stated, the emissions reductions for this sector should be prescribed in the IRP and not through the imposition of a punitive tax.

Furthermore, the pass through of any penalty, if such arises, for failing to achieve these reductions must be subject to further impact studies and public consultation.

3.4 TIMING OF THE CARBON TAX AND ALIGNMENT WITH OTHER EMISSIONS REDUCTION INSTRUMENTS

A carbon tax is neither necessary nor suitable in the current economy. We furthermore assert that any policy instrument to reduce emissions should avoid unduly damaging the South African economy. A low-carbon, resource efficient economy can be achieved through DEA's carbon budget regime, the Integrated Resource Plan (IRP) and the Industrial Policy Action Plan (IPAP).

The draft Bill and the Memo refer to "until 31 December 2022" and "after 31 December 2022" as the indicators of the first phase and second phase of the proposed tax respectively. The SEIAS refers to a period of 4-5 years for the first phase. If read together, the proposed tax would need to be effective from 1 January 2019 to have been in place for 4 years by 31 December 2022. Furthermore, the 2018 Budget Review states that:

Government proposes to implement the tax from 1 January 2019 to meet its nationally determined contributions under the 2015 Paris Agreement of the United Nations Framework Convention on Climate Change.

The ITCC does not believe that there is sufficient time between now and 1 January 2019 to address all the concerns with the current design of the carbon tax. Furthermore, technical work is still being undertaken on the three regulations that are required to accompany this Bill.

These are:

- The Trade Exposure Allowance;
- The Performance Allowance (z-factor); and
- The Carbon Offsets Regulations.

We do not believe that this work will be completed, and these regulations published for consultation in the time allowed.

It is concerning that the alignment between the carbon tax and the carbon budget regime has still not been achieved. The 5 % allowance for taxpayers that has been allocated to those entities with an approved carbon budget is not adequate replacement of the proper alignment of the two instruments. It is clear from the draft Bill that the carbon tax will overlap with the introduction of the mandatory carbon budget system, which is unacceptable. This misalignment perpetuates policy uncertainty which hinders investment and negatively impacts international competitiveness.

We do not understand why there is still no clear government policy on alignment, when several studies have been undertaken and a range of options to achieve alignment have been proposed. Although the commitment in the explanatory Memorandum (quoted below) and the SEIAS report indicate that there will no double penalty is noted, we do not believe this can be achieved in the absence of a clear policy alignment between the respective government departments.

The Memo states that:

These percentage tax-free thresholds could be reduced in the second phase of the carbon tax to strengthen the carbon price signal and / or replaced with an absolute tax-free threshold in line with the proposed carbon budgeting system. The Department of Environmental Affairs and the National Treasury have completed a study on the most appropriate alignment and integration of the carbon tax and carbon budget instruments post 2020 with the support of the World Bank's Partnership Market Readiness initiative.

A report outlining the key principles and interface options for the integration of the carbon tax and carbon budget instruments has been completed. The mandatory carbon budgets regime will be introduced in a way that is fully-aligned with the carbon tax and resulting in no double penalty. An integrated review process to assess both instruments will be done, which will inform any significant changes in the tax rate and the implementation of the carbon budgets. [own emphasis]

The Department of Environmental Affairs (DEA) has stated its intention to publish legislation that will require mandatory carbon budgets for all sectors from 2021. Currently the DEA and some entities across multiple sectors have agreed to voluntary carbon budgets for the period 2016 to 2020, to pilot this regime and iron out the process and practicalities thereof.

There will therefore, be an overlap of the two instruments for at least two years (2021 and 2022) if our assumptions regarding the timing are correct. In this period, there will be no alignment between the two instruments beyond a 5% allowance, which means there will be double penalties despite statements in the Memo and SAEIS.

The implementation of any emissions reduction instruments must be simultaneous and aligned.

3.5 TAX BASE AND METHODOLOGIES

It is noted that section 4. (1) states that a carbon tax will be levied on the sum of emissions determined in accordance with a reporting methodology approved by the DEA.

However, the ITTCC is concerned that section 4. (2) of the draft Bill does not align with the DEA's approved methodologies for calculating a company's GHG emissions, despite repeated arguments from business that such alignment is essential. We note that this section only applies if a reporting methodology approved by the DEA for the purposes of determining emission factors does not exist, however we assert that there is no such case, and if one arises, this should be addressed by DEA through amendment of their regulations and guidelines.

The National Treasury has stated in several engagements that a tax law must include the methodology to calculate the tax base on which a tax applies, and for this reason it cannot simply refer to DEA's National Greenhouse Gas Emission Reporting Regulations and technical guideline but must include methodologies. This is also noted; however, we would suggest that DEA is the appropriate party to develop these methodologies:

- The methodologies proposed only provide for tier 1 and in some cases tier 3 methodology, but not tier 2 (as per IPCC guidelines).
- The calculations proposed are unnecessarily complex compared to DEA guidelines.
- The terminology used is not aligned with the DEA regulations and technical guidelines.

To ensure the required alignment between the National Greenhouse Gas Emission Reporting Regulations and technical guidelines and the SARS requirements, the overall approach to determining the amount of greenhouse gas emissions to be taxed must be identical so that:

- Verification of taxable amount of greenhouse gas emissions as required by DEA, Treasury and SARS is facilitated;
- Monitoring of greenhouse gas reduction is undertaken on the same basis for all instruments;
- This requires comparison with the National Benchmark Trajectory; and
- BUSA sees responsibility for achieving this objective as an overall government responsibility.

Section 4. (2) of the Bill should be removed in its entirety. If methodologies must be included, these should be taken verbatim from the approved DEA methodologies for calculating GHG Emissions.

4 CONCLUSION

A carbon tax is neither necessary nor suitable in the current economy.

The proposed carbon tax is not predictable or gradual. The proposed implementation date does not allow sufficient time to address the plethora of challenges with the current design. In addition, the tax will further increase investment uncertainty. Furthermore, the proposed tax is administratively and practically enormously costly and onerous.

South Africa's emissions are within the limits of the PPD trajectory and unlikely to increase before 2022-25. The implementation of a carbon tax at this time is not necessary and will only further burden our already strained economy.

Given the structure of South Africa's electricity sector, the IRP and mandatory carbon budget regime are more appropriate to driving and enabling structural change of the economy. Since the electricity mix is determined by government policy through the IRP, it follows that any tax passed through would be punitive to the end customer. Therefore, emissions reductions for this sector should be prescribed in the IRP and not through the imposition of a punitive tax.

The removal of the provision of revenue neutrality at the end of the first phase without any corresponding decrease or removal amendment to the environmental levy on electricity generation will result in double taxation on emissions from this activity. This will do severe harm to the economy. In addition to exacerbating investment uncertainty, the proposed tax will erode international competitiveness. In addition, there is little evidence to support overall revenue neutrality, especially after the end of the first phase.

There is still no government policy on the alignment of the carbon tax and the carbon budget regime. The 5% allowance is an inadequate replacement of the proper alignment of these two instruments. As is stands, there will be a period of overlap and consequently a double penalty.

The implementation of carbon reduction instruments must be simultaneous and aligned. A penalty could be applied to emissions that exceed the tax-free threshold and this threshold should be in line with the proposed carbon budgeting system as proposed in the above-mentioned report.

The focus of policy development in the short-to-medium term should rather be on ensuring that the best policy or mix of policies are enacted. Future climate change policies must consider the current emissions outlook and the current economic challenges.

5 APPENDIX A

5.1 METHODOLOGIES

On the calculations:

E= (A X B)

- This requires a further division by 1000 to obtain a result in the correct units.
- Application of methodology in 4(2)(a) vs. mass balance approach results in a 140% higher amount of GHG emissions than a company’s approved mass balance methodology as approved under the DEA methodologies.

Fugitive emissions

When the formula $F = N \times Q$ is applied to 100t of coal:

- The formula in the **Carbon Tax Bill** is $F = (N \times Q)$ where **F** is the number to be determined, **N** is the mass in tonnes of solid fuels (in this case coal) and **Q** is the GHG emission factor presented in Table 2 of Schedule 1 which should then be multiplied by the appropriate global warming potential for the respective GHG. The emission factors in Table 2 are the IPCC Tier 2 emission factors:

IPCC Code	SOURCE CATEGORY ACTIVITY			
		CO ₂	CH ₄	N ₂ O
1B1	SOLID FUELS (M³ / TONNE)			
1B1a	COAL MINING AND HANDLING			
1B1ai	UNDERGROUND COAL MINING	0.077	0.77	
	UNDERGROUND POST-MINING (HANDLING & TRANSPORT)	0.018	0.18	
1B1aii	SURFACE COAL MINING	N/A	0	
	SURFACE POST-MINING (STORAGE AND TRANSPORT)	N/A	0	

While these are the correct factors, the formula is incorrect. If this formula is applied to a theoretical mass of coal (say 100t), as proposed in the Bill this is the result:

$$\begin{aligned}
 F &= 100 \times ((0.077 \times 1) + (0.77 \times 23)) \\
 &= 100 \times (0.077 + 17.71) \\
 &= 100 \times 17.787 \\
 &= \mathbf{1778.7 \text{ tCO}_2\text{e}}
 \end{aligned}$$

- The **explanatory Memorandum** presents a different methodology: *“volume per mass which is the underground coal mining” (this part of the sentence does not make sense) ...” the volume per mass has to be converted to a mass by using a density factor”. The Memorandum goes on to say that “In South Africa, this applies to underground coal mining for which the industry developed its own South African specific emission factor. The density factor for methane for underground mining is 0.67×10^{-6} and this converts the methane into a mass which is then multiplied by the GWP to get a CO₂e emissions factor which is then used to calculate the carbon tax payable.” (pg.17)*

This is correct, however in the calculated example, **the conversion factor for converting volume of CH₄ to Mass in the explanatory Memorandum is displayed as 0.67×0.00001 which is 0.67×10^{-5} which results in an order of magnitude error in their emission factor.**

Thus, the calculation of TCO₂e emissions from 100t coal using this methodology would be:

$$F = 100 \times 0.1187$$

$$= \mathbf{11.87 \text{ tCO}_2\text{e}}$$

What the explanatory Memorandum neglects to include in their example are the CO₂ emissions associated with the fugitive emissions as well as the underground post-mining (handling and transport) CH₄ and CO₂ emissions. Their reason for the omission of the CO₂ related emissions is that:

“For South Africa, there is no guidance on the density factor for CO₂ emissions, so they are not included in calculating the underground coal mining fugitive emissions”.

This rationale is flawed as one can calculate the density factor for CO₂ emissions at the same temperature and pressure as the CH₄ density factor (0.18 x 10⁻⁵).

DEA do not give guidance on whether to include the CO₂ fugitives associated with the CH₄.

- Neither of the methodologies presented is what is in the **DEA GHG Technical Guidelines or the IPCC methodology.**

EQUATION 4.1.2

ESTIMATING EMISSIONS FROM UNDERGROUND COAL MINES FOR TIER 1 AND TIER 2 WITH ADJUSTMENT FOR METHANE UTILISATION OR FLARING

CH₄ emissions from underground mining activities = Emissions from underground mining CH₄ + Post-mining emission of CH₄ – CH₄ recovered and utilized for energy production or flared

When the CO₂ and methane factors are combined to derive a single CO₂e conversion, the following calculation is used:

$$[(\text{CO}_2 \text{ EF} \times 1\text{gG} \times \text{stoichiometric density} \times \text{GWP}) + (\text{CH}_4 \text{ EF} \times 1\text{gG} \times \text{stoichiometric density} \times \text{GWP})]$$

The CO₂e factor for underground mining activities is calculated from the IPCC as follows:

- IPCC underground coal mining factor: 0.077 for CO₂ and 0.77 for methane
- Stoichiometric density for CO₂: 0.0000018
- Stoichiometric density for methane: 0.00000067
- South African GWP for methane: 23

$$[(0.077 \times 1\text{gG} \times 0.0000018 \times 1000) + (0.77 \times 1\text{gG} \times 0.00000067 \times 23 \times 1000)] = \mathbf{0.012}$$

The CO₂e factor for underground mines – post mining is calculated from the IPCC as follows:

- IPCC underground coal mining factor: 0.018 for CO₂ and 0.18 for methane
- Stoichiometric density for CO₂: 0.0000018
- Stoichiometric density for methane: 0.00000067
- South African GWP for methane: 23

$$[(0.018 \times 11000) + (0.18 \times 1\text{gG} \times 0.00000067 \times 23 \times 1000)] = \mathbf{0.00281}$$

Using this methodology for 100t coal mined will yield the following result:

$$F = (100 \times 0.012) + (100 \times 0.0281)$$

$$= 1.2 + 2.81$$

$$= \mathbf{4.01 \text{ t CO}_2\text{e}}$$

The draft Bill calculations results in a tax base 440 times higher than the DEA methodology. This wide range of numbers clearly illustrates that there is an issue.