

Natural resources and the environment

SA economy too carbon intense for future global economies

A carbon balance study has highlighted the carbon intensity of the South African economy and specifically its exports: at least 129% more carbon is associated with a dollar earned with exports than a dollar spent on imports, and the carbon footprint of the outflows equates to 37%, on average, of the total carbon emissions of the economy.

"Such figures have serious policy-related implications in a future where international climate-change trade limitations will become stricter and binding," argue CSIR researchers Drs Alan Brent, Russell Wise and Sibbele Hietkamp in a paper to be published in the *South African Journal of Economic and Management Sciences*.



Dr Russell Wise

"A consequence of these stricter international requirements is that they will make South African exports with large associated carbon footprints uncompetitive. Low-carbon products will be preferred because international buyers will be subjected to substantial carbon taxes - likely to exceed the existing (2008) €18.7 per tonne of CO₂e being paid in the European Union Emissions Trading Scheme when importing high-carbon products into those countries.



Dr Alan Brent

"This is likely to negatively impact on the South African mining and manufacturing sectors that rely on export markets. An example is the manufacturing of aluminium. Manufacturing of primary aluminium in Iceland may be preferred in European markets, because the carbon footprint of the Iceland aluminium ingots is in the order of a third of South Africa ingots, due to renewable energy resources being used in that country," they write.

South Africa's grand challenge will be to decouple its economic growth from carbon emissions to remain competitive in a future carbon-constrained global economy and to ensure it meets its socio-economic targets of halving poverty to less than one-sixth of households, and unemployment to below 15%, by 2014.

Together with student Kenney O'Kennedy from Stellenbosch University, the CSIR researchers further argue that South Africa can reduce its export carbon footprint by placing more emphasis on beneficiation beyond refined metals to end products, that is: "South Africa should not export steel, but steel products; not platinum, but exhaust catalysts and jewellery. "

The study also emphasises the requirement of an appropriate government policy mix that supports increased value addition within the economy, while also providing incentives for all stakeholders in the South African economy to decrease the carbon footprints associated with all production and consumption

processes.

"The diversification of the South African electricity mix, and a focus on energy efficiencies in the heavy industry sector, are essential if the carbon footprints of the country's products are to be reduced. This will become increasingly important as international limitations will become stricter and binding, and developed countries will either not buy South African less-beneficiated high-carbon products or will demand discounts, in order to cover the taxes they may face for importing South African carbon," they write.

To facilitate an economic transition, the paper describes a number of challenging policy issues that require urgent attention to remove uncertainty in decision making and to prevent South Africa from committing to a high-carbon, and possible extremely costly, future. An economics research agenda that leads to earlier and better decision making through improved understanding and collaborative engagement of all stakeholders, is therefore proposed for the South African scientific, policy and business communities.

The full paper is available from [Sabinet](#); an electronic copy is accessible *via* CSIRIS and university libraries.

- Wiida Fourie

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Tel: + 27 12 841 2911, technical enquiries: + 27 12 841 2000, fax: +27 12 349 1153, web site feedback: [web team](#)