

Press Release

26 March 2019

South Africa could have cheaper, cleaner and more reliable electricity supply if it transitions to renewable energy, sooner rather than later.

Phasing out coal in the power sector by 2040 would allow SA to fulfil its commitment to the Paris Agreement goal of limiting warming to well below 2° C without significant impact on the economy

These are some of the main findings of a new SA-TIED study undertaken by the University of Cape Town's [Energy Research Centre](#) (ERC). The ERC study is an alternative technical assessment of South Africa's future electricity system to inform debate on the draft Integrated Resource Plan (IRP2019) which was recently presented to Nedlac by the Department of Energy. The IRP is Government's scenario planning for the country's energy needs and is updated regularly to inform policy.

Such debates are critical given the rolling electricity blackouts facing the country. The need for clean energy solutions has also been reinforced by the devastating impact of Cyclone Idai which struck parts of southern Africa. This tragedy once again highlights that any future economic and energy planning scenarios must account for climate change mitigation effort. The ERC assessment does this.

The ERC study finds there is no single or quick-fix solution to South Africa's electricity woes, but rather that a vibrant energy-mix be adopted, to not only save money for consumers, industry and the economy broadly, but also to meet the country's carbon emission targets. Such a mix would include methods to store excess power on grid through utility-scale storage, and off-grid, for example by generating hydrogen, ammonia, and methane, and charging electric vehicles.



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Key Findings

- The study reiterates earlier findings that the future energy supply should come primarily from wind and solar photovoltaics (or PV). Renewable energy plus flexible generation or storage provides the least-cost pathway for the electricity sector. No new coal or nuclear power plants should feature in South Africa's electricity future as their inclusion would require subsidies from consumers.
- Secondly, this study shows that a large-scale procurement programme for battery technology to provide storage capabilities for variable renewable energy should be pursued in South Africa.
- Third, retrofitting stations for compliance with the minimum emission standards (MES) is, for the most part, the least-cost option for the electricity sector (due to the relatively higher costs of new technologies in the period 2020–2025). It is cost-optimal to retrofit Eskom's coal-fired fleet to meet the new plant standards by 2025 rather than retire them, except in the case of Majuba. There are additional potential cost and greenhouse gas emissions savings if compliance with the new plant standards is completely foregone for certain stations (e.g. Duvha and Matla) and they are instead retired early. The study proposes that the Department of Environmental Affairs considers suspending compliance requirements for the best performing (in terms of pollutants) stations and in exchange Eskom agrees to retire the least-performing stations by 2030 latest. For the remainder of the fleet, Eskom should commence retrofitting the stations for compliance with the MES, subject to ongoing cost assessments (e.g. coal costs per station, which may alter whether a station should be retrofitted or retired).

The study also weighs how much decarbonisation South Africa can and should do without putting the economy at risk. It argues the country should pursue rapid decarbonisation of the electricity sector (i.e., using less coal-powered stations), to avoid additional mitigation costs to the rest of the economy. It finds that phasing out coal in the power sector by 2040 is required for South Africa to fulfil its commitment to the Paris Agreement goal of limiting warming to well below 2° C and this is without significant impact on the economy, and therefore South Africa can afford to be more ambitious in its climate mitigation policy.

One of the key critiques of the draft IRP, the study argues, is that it does not adequately address the central problem of climate change mitigation, even though the electricity sector currently accounts for more than 40% of South Africa's emissions. The ERC assessment takes this into account, and provides an economy-wide analysis.

****Ends****

The paper is titled '*Least-cost integrated resource planning and cost-optimal climate change mitigation policy: Alternatives for the South African electricity system*' and can be found [here](#).

Notes to editors:

The SA-TIED Programme

SA-TIED is a unique collaboration between local and international research institutes and the government of South Africa. Its primary goal is to improve the interface between research and policy by producing cutting-edge research for inclusive growth and economic transformation in the southern African region. It is hoped that the SA-TIED programme will lead to greater institutional and individual capacities, improve database management and data analysis, and provide research outputs that assist in the formulation of evidence-based economic policy.

The collaboration is between the United Nations University World Institute for Development Economics Research (UNU-WIDER), the National Treasury of South Africa, the International Food Policy Research Institute (IFPRI), the Department of Monitoring, Planning, and Evaluation, the Department of Trade and Industry, South African Revenue Services, Trade and Industrial Policy Strategies, and other universities and institutes. It is funded by the National Treasury of South Africa, the Department of Trade and Industry of South Africa, the Delegation of the European Union to South Africa, IFPRI, and UNU-WIDER through the Institute's contributions from Finland, Sweden, and the United Kingdom to its research programme.

More information about the programme can be found online [here](#).

*Disclaimer: Please note the research or its outcomes are not policy positions of the South African Government nor do they reflect the views of the partner organisations.

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