Briefing Note: Unlocking the potential of renewable energy for the public sector and communities

Historically, South Africa's electricity mix has relied heavily on cheap and readily accessible coal, with the country's electricity being provided through Eskom's vertically-integrated model. In 2011, the country opened up space in the electricity generation sector for private sector participation, through the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). While this policy move introduced renewable energy technologies into South Africa, the approach effectively locked renewable energy in the private sector, excluding Eskom, municipalities and consumers from renewable energy generation. Indeed, the existing policy framework hinders the public sector and consumers from investing in renewable energy-based solutions.

The Draft 2018 Integrated Resource Plan (IRP) for electricity acknowledged that a mix of renewable energy- and gas-based generation would be the least cost pathway for the country. More broadly, energy systems are rapidly evolving the world over by:

- Shifting to renewable energy technologies which are more environmentally-sustainable and now economically cheaper than fossil fuels;
- Building modular and smart systems that are easy to construct, manage and control, allowing generation sources to match demand as closely as possible; and
- Decentralising production by enabling consumers to generate electricity and become prosumers.

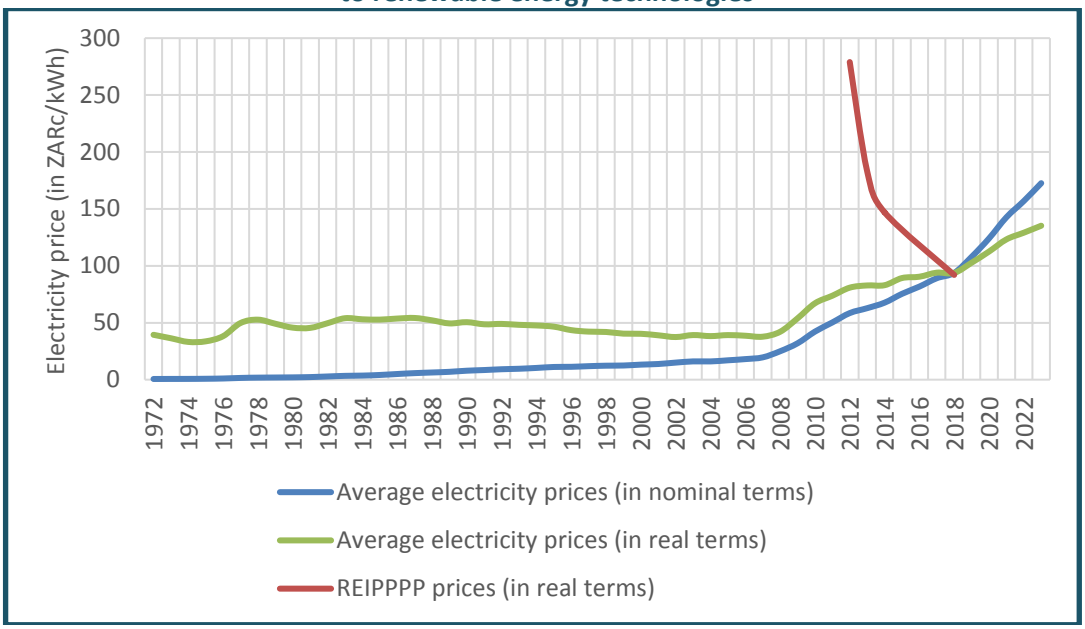
Counterintuitively, South Africa has invested further in coal through the construction of new coal capacity in the form of the Mepudi and Kusile plants. The substantial capital expenditure on these power stations has resulted in a near-quadrupling (in nominal terms) of South Africa's average electricity prices over the 2008-2018 decade and has moved South Africa backwards from a climate policy point of view.

In the meantime, the cost of renewable energy technologies has plummeted. As illustrated in Graph 1, 2018 constituted a turning point with renewable energy technologies reaching R0.92 /kWh, i.e. price parity with the electricity coming from the grid (R0.94/kWh). Renewable energy energies technologies are also much cheaper than the Medupi (R1.34/kWh) and Kusile (R1.01/kWh) power stations, even without accounting for the negative socio-environmental externalities associated with coal burning.

With additional price increases in the pipeline and prices of renewable energy technologies falling further, the competitive edge of renewable energy technologies is evident. Allowing the national utility to invest in renewable energy technologies would enable the country to

harness the benefits of new clean technologies while maintaining financial benefits in the public sphere. By comparison, projects under the REIPPPP are only 48% locally-owned.

Graph 1. South Africa's average electricity price compared to renewable energy technologies

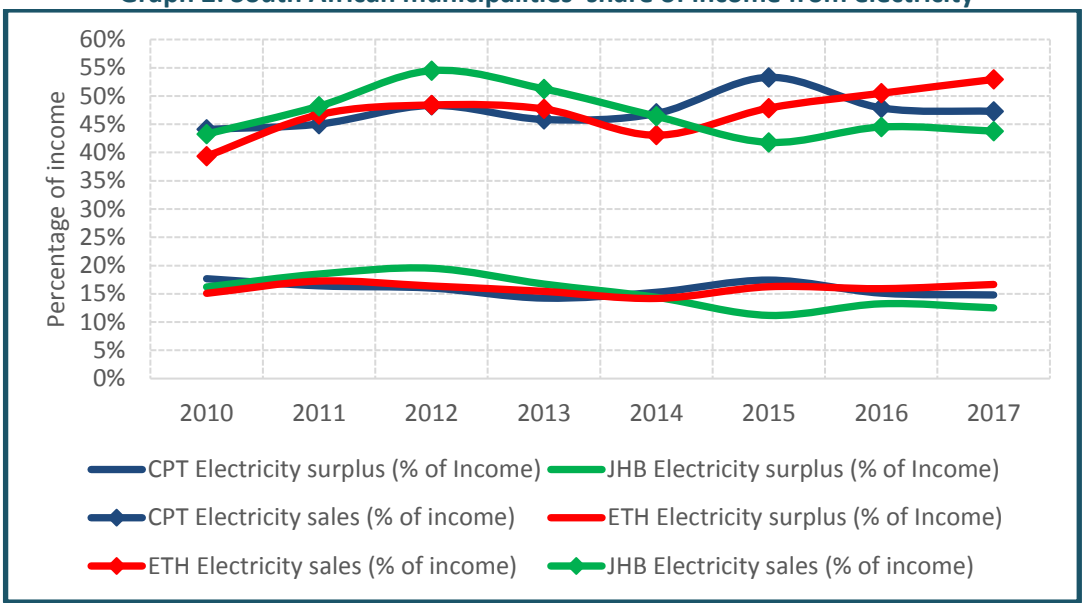


Sources: electricity prices for Eskom, producer price index from Statistics South Africa, REIPPPP prices from the DoE-NT IPP office. Note: real prices in 2018 terms.

Furthermore, the rollout of small-scale embedded generation (SSEG) would bring multiple benefits to the country. SSEG allows consumers to generate (essentially solar-based) electricity for their own consumption as well as feeding excess supply back into the grid. Enabling consumers to turn into prosumers would enable the utility and municipalities to reduce both capital and operational expenditure. As less grid-tied electricity would need to be generated by the utility, less investment in new infrastructure would be required in the long run. In addition, SSEG provides access to cheap and clean electricity. Prosumers can remain responsible for the upfront capital investment, the installation of the smart meters (allowing bidirectional metering), and the maintenance of the systems and the network charges, while Eskom and municipalities have significant liberty to determine the tariff at which they are prepared to buy the electricity from small-scale embedded generators.

The financial benefits are particularly evident for municipalities. In 2018/19, municipalities buy electricity from Eskom at an average tariff of R0.93/kWh, which they resell at a margin. As shown in Graph 2 this operation is a material part of municipal finances. Electricity sales accounted for 44% of municipal revenues on average in 2017, while the gross margin from electricity sales still constituted 11% of municipalities' incomes in that year. Despite potentially decreasing sales, renewable energy technologies would provide municipalities with a source of extremely cheap electricity, in turn having a positive impact on the margin and revenues. Multiple avenues exist for municipalities of the future, from procuring electricity from SSEG to entering the energy services space.

Graph 2: South African municipalities' share of income from electricity



Note: JHB = Johannesburg; CPT = Cape Town; ETH = eThekwini. Source: Statistics South Africa, Financial Census of Municipalities, downloaded from Quantec in February 2019.

Renewable energy technologies have multiple benefits. These benefits have so far been directed to the private sector. A just and truly sustainable transition requires that the public sector and communities are enabled to enter the renewable energy field.