

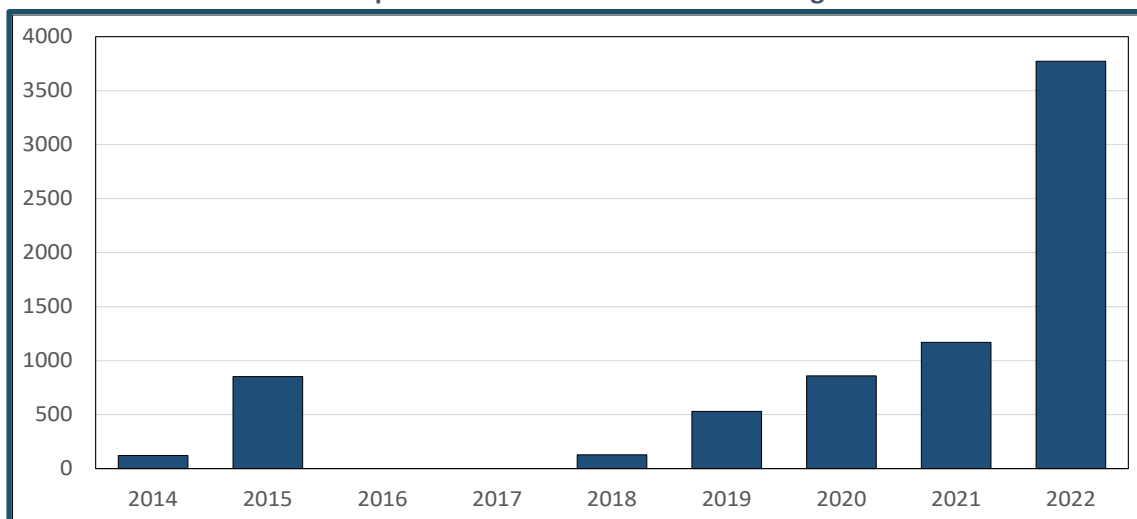
Briefing Note 2: Loadshedding and the economy

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Over the past decade, loadshedding has increasingly affected the economy, due to an aging and poorly maintained national electricity system. According to the Reserve Bank, six to 12 hours of loadshedding costs the economy between R204 million and R899 million¹. Despite these enormous costs, loadshedding increased dramatically through the first quarter of 2023, and the national grid seems unlikely to recover any time soon. In response, businesses have taken on additional costs to bring in their own off-grid solutions. Solar in particular is increasingly attractive, especially in light of the significant support that the latest national budget provides to meet the often high up-front costs.

Since 2018, loadshedding has more than tripled, with the biggest leap in the past year. In 2022, according to the CSIR, South Africa experienced 3773 hours of loadshedding, over twice as much as in 2021 and four times 2020 (Graph 1). At any given time, around 30% of Eskom's capacity was out of service due to breakdowns.²

Graph 1. National hours of loadshedding



Source: CSIR. *Statistics of utility-scale power generation in South Africa 2022*. Slide 110.

Accessed at <https://bit.ly/3l4me7B>.

The core factors behind loadshedding are delays and faults in the construction of new capacity; the consequent strains on Eskom's existing and aging plants; and poor maintenance and extraordinarily poor procurement systems that enable corruption. (See TIPS 2021 report [The coal value chain in South Africa](#). In 2022 Eskom's output fell sharply. Increased private supply only partially offset the decline.

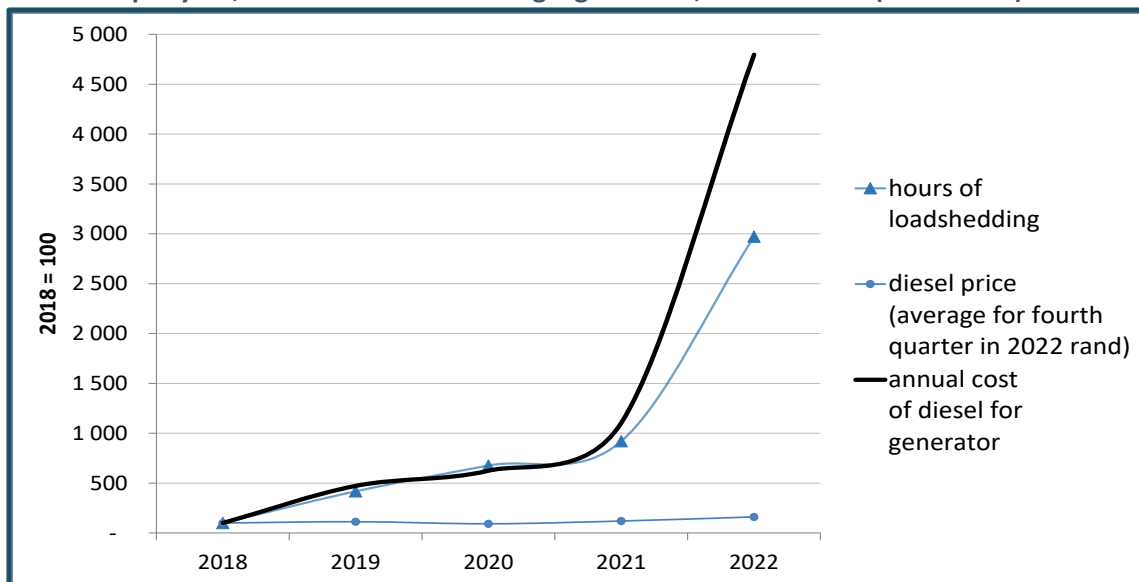
¹ <https://www.engineeringnews.co.za/article/blackouts-may-cost-south-africa-r899m-a-day-reserve-bank-says-2023-02-07>

² CSIR. *Annual hours of loadshedding from CSIR. Statistics of utility-scale power generation in South Africa 2022*. Authored by Warrick Pierce and Monique Le Roux. Accessed at <https://bit.ly/3l4me7B>.

The electricity crisis affects the economy in several ways. First, loadshedding disrupts production, making it difficult for companies to maintain supply to customers and disrupting working time. Second, it can damage machinery and equipment through unexpected shutoffs and power surges. Third, businesses have faced a sharp rise in the cost of electricity as Eskom prices have risen while they have had to come up with off-grid solutions during loadshedding. Eskom tariffs have more than doubled in the past decade, with a further 20% increase in real terms approved for 2023 and 2024. Eskom's revenues increased from 1.5% of the GDP in 2007 to 3.5% in 2021, although the volume of its sales declined. In the same period, local coal sales rose from 0.8% of the GDP to 1.7% with no increase in tonnage. But businesses also face costs if they go off-grid. The costs vary depending on the technology used. Diesel generation is cheaper up front but involves higher generation costs; solar pays for itself through very low operational costs, but requires higher initial investments for a reliable system.

In 2022, the escalation in both loadshedding and fuel prices brought a sharp increase in the cost of relying on diesel. As Graph 2 shows, from 2018 to 2022, the number of hours of loadshedding multiplied almost 30 times. In the same period, the regulated price of diesel in Gauteng increased by 60%. That is, the cost of running a generator for an hour climbed by 60% while the number of hours required rose 3000%. As a result, the cost of using the generator for electricity multiplied by almost 50. That is, a company that used 50 litres of diesel for an hour of loadshedding would spend R8 000 a month on their generator in 2018, but almost R400 000 by the end of 2022. (Graph 2) Some major retail chains spelled out the real-world implications. At the end of 2022, Pick n Pay reported spending close to R350 million in 10 months on diesel, and Shoprite said it spent a billion rand a year.³

Graph 2. Indices of the increase in the diesel price in constant rand, hours of loadshedding per year, and total cost of running a generator, 2018 to 2022 (2018 = 100)

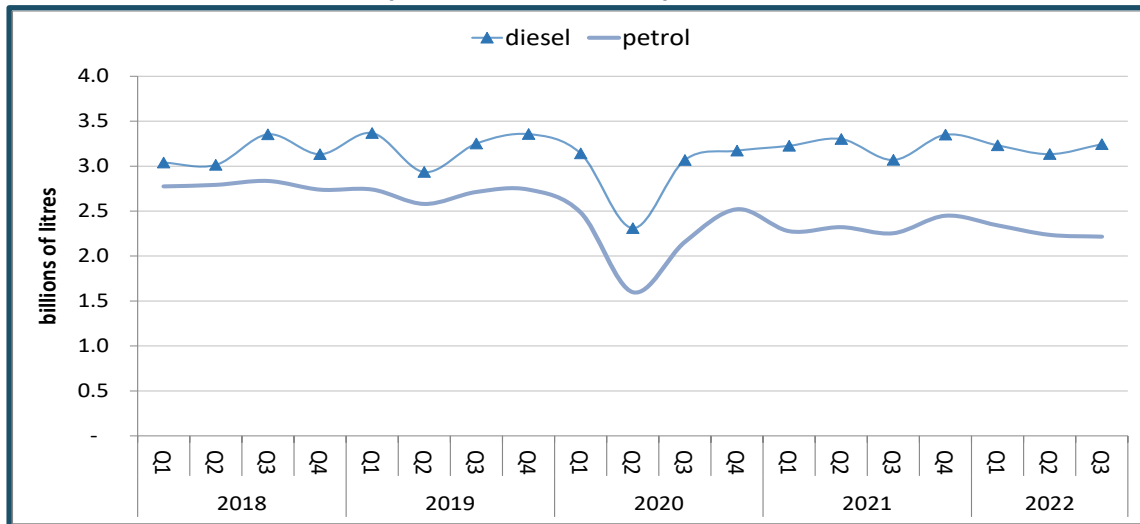


Source: Diesel prices (deflated with CPI) from SAPIA. Old fuel prices. Webpage. Accessed at <https://www.sapia.org.za/old-fuel-prices/>. Annual hours of loadshedding from CSIR. Statistics of utility-scale power generation in South Africa 2022. Accessed at <https://bit.ly/3l4me7B>.

³ <https://mybroadband.co.za/news/energy/479929-pick-n-pay-and-shoprite-spend-r1-million-to-r3-million-per-day-on-diesel.html>

It is difficult to disentangle the impact of loadshedding on national diesel use, since it also faces downward pressure from slower economic growth, especially after the pandemic, and soaring prices. As Graph 3 shows, diesel consumption remained essentially flat from 2018, while petrol consumption fell. Diesel imports have doubled in volume over the past three years, but that also reflects substitution for crude oil purchases as several local refineries have closed.

Graph 3. National consumption of fuel



Source: Calculated from data from DPME. Energy statistics. Webpage. Accessed at https://www.energy.gov.za/files/energyStats_frame.html in March 2023.

The soaring cost of both diesel generation and grid energy have encouraged a turn to solar. In the past decade, rapid technological progress has increased the reliability of solar as well as reducing the cost. As noted in the section on the GDP, an indicator of increased demand emerges from the jump in imports of lithium-ion batteries in 2022. (see Graph 6). Data for other components for solar generation, such as panels, are less accessible because the tariff lines have evolved rapidly in the past few years.

The challenge with solar, especially for smaller businesses, is the high initial investment required for the combination of the panels themselves, a battery and an inverter. As a result, the up-front cost usually runs several times the price of a diesel generator. Operation costs for solar, in contrast, are extremely low. As a rule, over five to 10 years, the savings on Eskom electricity will pay for the initial investment. Taking advantage of those savings, however, requires access to financing. The 2022/3 budget aimed to assist businesses in this regard by providing a 125% tax deduction on the initial costs, no matter how large, from 2022 to 2024. It will also offer credit guarantees for small businesses to invest in solar.

Ultimately, the electricity crisis is forcing a profound transformation in South Africa’s electricity system. Above all, Eskom’s near-total monopoly on electricity generation has become unsustainable. New, smaller-scale, more competitive and cleaner generation technologies have merged rapidly in the past decade. Meanwhile Eskom itself, although nominally state owned, has largely ignored the public interest, as reflected in its soaring tariffs as well as its willingness to use loadshedding to externalise the costs of its shortcomings onto society. The likely end state will be a more decentralised and consequently more resilient electricity system, with lower operating costs for both producers and the environment. In other words, South Africa is caught

up in a classic case of creative destruction, where new technologies and more agile producers displace long-established producers that cannot adapt. As always, the challenge is to manage the attendant disruption in ways that minimise the costs and take advantage of new opportunities.