

Fixing South Africa's Electricity Crisis

Path Forward

Path forward

The next two years

South Africa is in dire straits at the moment – thus we require triage generation to mitigate loadshedding as quickly as possible.

Feed-in Tariff

Lessons learned from Vietnam has shown that rooftop solar can add capacity quickly with decentralised capital expenditure. The quickest route to get new capacity online would be to heavily incentivise rooftop solar through a feed-in tariff.

At the moment no official feed-in tariff exists in South Africa, although several municipalities offer credit back for distributing excess solar energy into the network – the amounts differ vastly between municipalities - for example the City of Tshwane offers 12c per kWh whilst Mogale City offer R3,62 per kWh.

Although announced in President Ramaphosa’s address to the nation in July of 2022, very little has been done to action this policy.

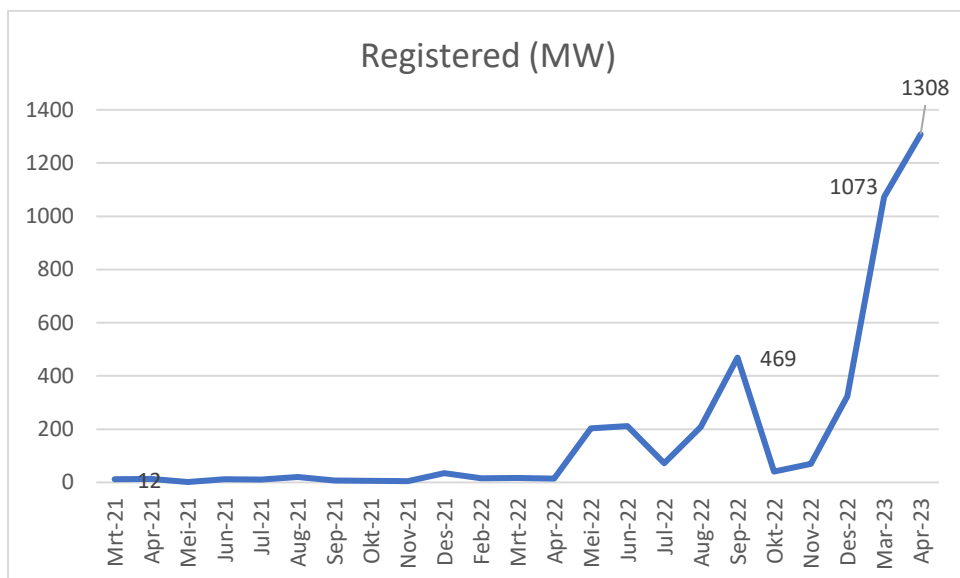
Action Point:

NERSA and Eskom to publish a feed-in tariff guideline for residential as well as commercial rooftop solar.

Wheeling Tariff

After President Ramaphosa announced the removal of the generation limit for registered entities, the private sector has started investing heavily in generation of electricity.

A short summary of the MW registered by NERSA per month shows that 2300MW of generation has been registered year-to-date in 2023. This eclipses the 1600MW that was registered in the whole of 2022.



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The private sector is adding almost 1000MW of generation capacity per month, however in order to dispatch this energy a proper wheeling tariff scheme needs to be in place.

At the moment the wheeling-tariff scheme is woefully inadequate with wildly varying tariffs or in some municipalities none at all.

Eskom itself charges a R6,24 kWh wheeling tariff for less than 300km in peak-times which is disincentivising private generation and distribution.

¹ <https://www.nersa.org.za/wp-content/uploads/2022/08/Gauteng-Province-2022.pdf>

Given the fact that several high voltage lines in traditional renewable energy areas are at capacity, a discount on wheeling from more connected areas could incentivise quicker private generation and get the capacity online quicker.

For example – giving a 20% discount on wheeling tariffs when wheeling from Mpumalanga for five years would greatly increase the uptake of solar and wind generation in Mpumalanga. Mpumalanga already has extensive high voltage capacity that can be utilised.

Action Point:

NERSA and Eskom to publish wheeling tariffs that incentivise private generation and transmission – favouring areas that are more easily connected to the grid.

Connecting to the grid

As can be seen from NERSA's own statistics the private sector is adding generating capacity at an incredible rate. Concurrently rooftop solar is being installed at an unprecedented rate with estimates of up to 3500MW of rooftop solar currently exists in South Africa.

The challenge we face is that these generators aren't being connected to the grid at the same rate.

In order to expedite additional capacity not only being online but also being connected the process of connecting to the grid must be accelerated.

Action Point:

Streamline the process to connect private generators to the grid by decentralising it as much as possible. Increase capacity in Eskom and government to specifically connect private generators to the grid (Including rooftop solar) as quickly as possible. 30 days from application to connection should be the target.

The next five years

South Africa is undergoing an energy transition – ultimately the private sector will be significantly invested in generating electricity.

Wholesale Market

The current framework for electricity is meant to work with a single generator of electricity into a single transmission network with full centralised control over the whole process. Market-forces are simulated to get accurate price signals with constant conflict over tariffs between NERSA and Eskom.

This centralised top-down approach is wholly inadequate in the emerging energy space. In the short-term small-scale triage generation will be able to mitigate much of loadshedding, but ultimately large scale private commercial generators will be needed to increase efficiency of generation.

Without a wholesale market for trading electricity in place these commercial players will not be able to efficiently trade electricity with consumers.

Ultimately South Africa will have to create a wholesale electricity market in which Eskom will be a participant that competes with other private generators to deliver electricity to the consumer at the best possible price.

Lessons from Australia and Vietnam showed that a wholesale market can be enacted in four years, and that it is fully capable of being decentralised to provincial or even metro levels.²

Action Point

Enact legislation and a project plan to facilitate the move away from a monopoly to a wholesale market by 2028. Would be done quicker and safer on a provincial level with interconnectedness between wholesale markets.

² <https://www.nersa.org.za/wp-content/uploads/2022/08/Gauteng-Province-2022.pdf>

Transmission Network

To further facilitate the wholesale trade of electricity and reduce costs to the consumer, government will need to either invest heavily in the transmission network or to privatise it. Large scale commercial generators will need a well-functioning transmission network to deliver electricity to consumers from different parts of the country.

Government's focus should shift to enhancing the high voltage transmission lines to enable private generation to reach every corner of the country.

Action Point

Tax funds should be budgeted for significant increases in the transmission network's capacity, to enable the private sector to spend more capital on generation.

Place of Eskom

It would be folly to think of an energy future that does not include Eskom in some shape or form. South Africa will still have base-load requirements and the transition to private generation will take some time to fully realise.

Eskom will remain one of the big players in the South African energy landscape, but its role will change significantly.

Eskom will have to be broken up into generation, transmission, and distribution.

In a wholesale market for electricity the different entities will participate in different ways.

Generation and Distribution will participate as generators and retailers of electricity in a wholesale market. This would imply that Eskom Generation will have to compete with other players in the energy space for customers – whilst Eskom Distribution will have to compete with private players to offer competitive rates to customers (Similar to Telkom in the mobile space at the moment).

Transmission will have to be renewed into a Market Operator that ensures grid stability but also facilitates the matching of demand and supply whilst forecasting in real-time what the generating requirements will be for the next time-interval.

Transitioning Eskom from monopoly to market player will require extensive training and buy-in from stakeholders and should be planned and budgeted for.

Action Point

Actively manage the transition of Eskom from Monopoly to Market Player in the different spaces it will be required through extensive stakeholder engagement and training. Eskom's new management should have the successful transition as their number one priority.