

Deregulation and technology will fulfil South Africa's power needs

By [Caspar Herzberg](#)

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South Africa has long dominated Africa's growth charts. And I believe that the country has the potential to be the fastest growing economy on the continent again. There's one issue that we must address, and that's the issue of electricity. Simply put, South Africa must fix its power shortages and bring the load shedding to zero. To do this, we must talk about deregulation and technology.



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Although South Africa was one of the pioneers of the renewable energy programme in Africa (2007), the reality is that it is still off the pace when it comes to incorporation of renewable energy in its overall energy mix. Much of the country's energy is derived from coal-fired power plants (>86%). Coal was once one of the cheapest sources of power, but those days are long gone. Now, renewables are the cheapest source of power on the planet. And they're quicker and cheaper to scale up.

Two challenges

Why are we struggling to do this? There are two challenges. The first is the issue of who controls the power network. Eskom owns most of the generation and transmission assets. In 1998, South Africa was the first sub-Saharan African country to come up with the idea of privatisation; however, this has proved controversial.

What has changed is costs and supply - South Africa has moved from inexpensive to expensive electricity in recent years. It is estimated that since the events of 2008, the average electricity tariff increase in South Africa has been around 300%. And electricity tariffs will continue to increase in the future at a higher rate, which is unsustainable in the long run. At the same time, there's not enough power to meet the needs of South Africa's people and businesses.

The introduction of a deregulated electricity market could induce more competitive prices as proven in other countries, with a particular focus on renewable energy integration. And this is especially important. The country faces a major shortage in power generation, with load shedding expected to continue for the coming five years. For an economy the size and importance of South Africa, we can and will do better.

Deregulation has always been a big talking point for South Africa's energy sector, but we are seeing more political impetus to change the status quo. Last year President Cyril Ramaphosa has set up a presidential task team to explore the best ways to address the two big issues of power generation and energy debts. One recommendation may be to come up with an independent company to manage the national grid. Another may be to deregulate energy distribution.

Both suggestions would be a fascinating step, as they'd allow for the opening up of the energy sector to new, independent power providers. The political will is there, and there's a realisation that renewables are the solution to South Africa's energy needs. The latest renewable plants produce electricity at a cost lower than would be the case from new coal or nuclear power stations, which has been the preferred choice for a long time.

Old infrastructure

Let's talk about the grid itself now. The majority of our existing electric grids are decades old and were built when electricity needs were simple. South Africa is no different in this respect. Our current grids aren't designed for today's requirements, let alone our future needs. And they're also a major cost.

Globally, transmission and distribution losses amount to \$200bn per year. In Europe alone, annual electric distribution losses represent EUR5bn in waste. In South Africa, Eskom and municipalities lose close to R20bn in losses every year. The ever changing and rising energy demands of the 21st century necessitates modernization in our electric grids. This is especially true in South Africa.

A smart grid is an intelligent digitised energy network that delivers energy in an optimal way, from source to consumption. Smart grids integrate information, telecommunication, and power technologies with the existing electricity system. It introduces a two-way dialogue where electricity and information can be exchanged between a utility and its customers. Smart grids are more efficient, more reliable, more secure and greener.

Why does this matter? There's three key reasons why. Today, when power lines break or power plants can't produce enough power, black outs occur and that is a problem. At the same time, today's grids often rely on a single power source and doesn't provide detailed information on usage, making it difficult to manage. A smart grid is far more responsive to ever-changing environmental and load conditions. The amount of data generated and aggregated will be used to make the grid more reliable, optimize its efficiency and speed up the shift toward renewable energy transition. In effect, this is digitalization at its best, which will support the other two big electricity trends – population growth and decarbonization.

Renewable energy

Smart grids encourage the growth of renewable energy by using solutions like distributed energy resources. The smart grid enables newer technologies to be integrated such as wind and solar. The power generation can now be distributed across multiple sources, so the system is more stable and efficient. Second, smart grids empower consumers and businesses with real-time information on their energy usage, allowing them to understand how they're using energy, which is going to spur behavioural change (research shows that when consumers and businesses know exactly how much energy they consume, they're likely to look for ways to reduce their energy use).

Third, the technology behind smart grids helps utility companies to reduce power surges and outages. One example of this is the self-healing grid we've developed with Stedin, one of the largest utilities in the Netherlands, for a self-healing grid solution in downtown Rotterdam. A blackout caused by a broken cable was resolved in 18 seconds thanks to the network automatically reconfiguring itself to resupply affected customers via another path. It could have taken hours to fix this fault if we were talking about a traditional grid.

Given South Africa's growth, we must make use of the time we have now to transform the energy sector and realise a green recovery. South Africa's population is expected to grow by ten million by 2030, up from the current 58 million today. And many more people will be living in South Africa's cities. South Africa's population is expected to increase by about 27% by 2050 and to become increasingly more urbanised – four out of every five people will be living in South Africa's cities by 2050. When you combine this with the government's ambitious National Development Plan that aims to eliminate poverty and reduce inequality by 2030, it is obvious that we have to future-proof the country's electricity supply. If we're going to keep pace with the demand for electricity, it must be through digital transformation. And that means smart grids and deregulation.

COP26

There's another reason why we need change. This is the year of COP26, when countries are being urged to do more on carbon emissions. South Africa is proposing to deepen its emissions cuts by almost a third in 2030, according to a draft climate plan published this year. Under this plan, South Africa will cut emissions by 28%, compared with its 2015 pledge. This plan relies on "a very ambitious power sector investment plan" and the implementation of a green transport strategy, energy efficiency programmes and a carbon tax to meet the goal.

But we believe the country can do much more – 86% of the country's electricity in 2020 was generated by coal, making South Africa the most coal-reliant among G20 economies. There's hunger to invest in renewables, and South Africa has everything needed to generate all the power it needs from solar, wind and other renewable sources. South Africa must seize this opportunity to stimulate investment in renewable energy solutions through deregulation and technology upgrades. What we need is the courage of our convictions to make this happen, to realise a brighter, cleaner future for all South Africans.

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