

THE SOUTH AFRICAN DATA CENTER MARKET AND THE ESKOM THREAT – OPPORTUNITY OUT OF A CRISIS

A XALAM MARKET BRIEF – DATA CENTER COLOCATION

FOCUS: AFRICA – DATA CENTER COLOCATION
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SUMMARY

- South Africa is facing an acute electricity crisis. Since September 2019, South African electricity customers have been subjected to wide scale power outages.
 - The shutdowns are threatening a South African data center boom. Data center providers are deploying large scale, power-hungry infrastructure right in the midst of acute power scarcity.
 - In the short term, this will unquestionably hurt, by either delaying projects or making services more expensive.
 - Over the long run, we say the South African cloud and data center market will come out stronger for it.
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Smooth seas do not make skillful sailors.
African Proverb.

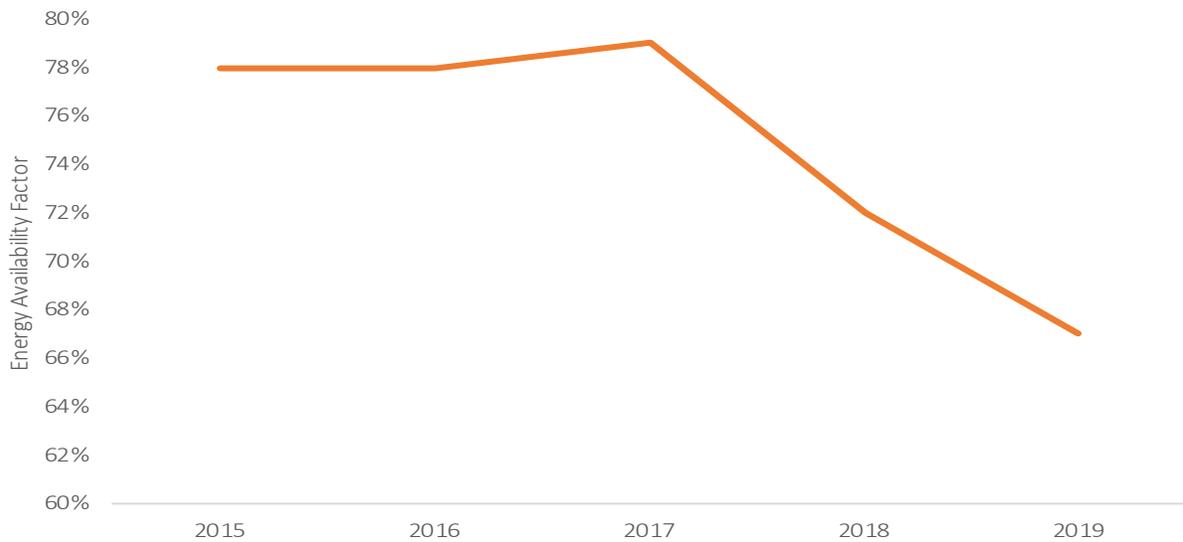
SOUTH AFRICA'S ESKOM PROBLEM

- **South Africa is facing an acute electricity crisis.** Since last September, South African electricity customers have been subjected to wide-scale load-shedding (a euphemism for scheduled power outages) as power utility Eskom struggled to manage an aging power plant fleet. On December 9, the outages reached extreme proportions, with Eskom taking offline 6GW (~15% of its available capacity) of power to avert a collapse of the entire grid.
- **The system is still vulnerable. Only around 68% of Eskom's power generating capacity is effectively distributed to the grid in 2019,** down from around 80% in 2017. Another 3GW-4GW is available off-grid from independent power producers (IPPs) but held up by stringent regulatory constraints on power distribution. Eskom's available capacity has effectively been *declining* over the past two years as maintenance problems piled up and new power plants failed to live up to expectations.

Deep governance problems at the company and stultifying policy paralysis have exacerbated matters. Eskom has warned that bringing its power plant fleet to a more predictable state will likely result in more reduced capacity and uncertainty over the next 18 months.

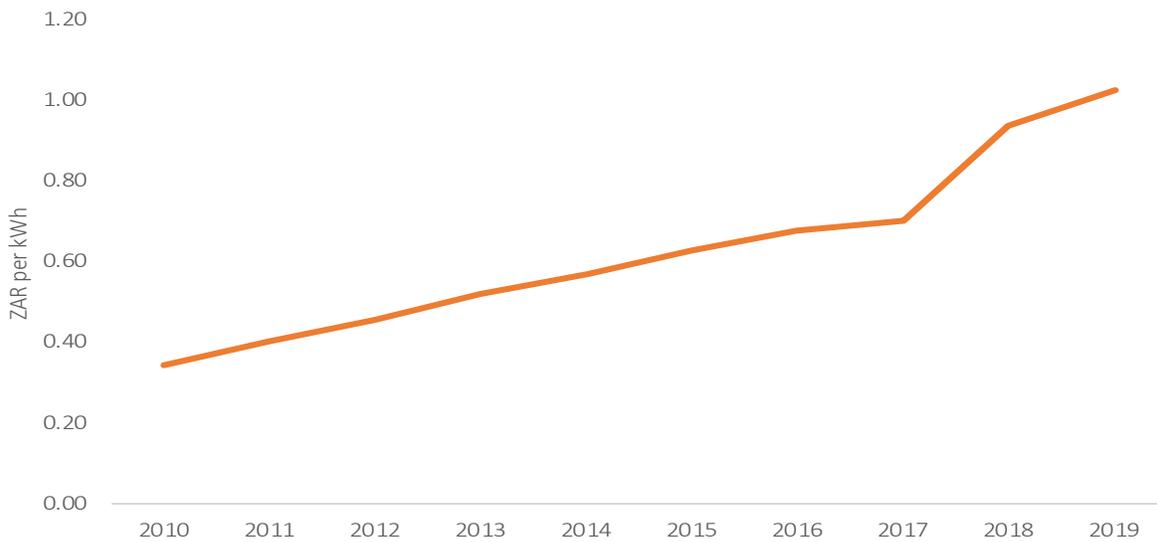
- **The impact of the shutdowns has been predictably disastrous,** sapping an already weak economy and further eroding business confidence. Both the World Bank and the IMF have slashed their forecasts for South Africa's GDP growth to around 0.8% in 2020, barely above an already anemic 0.5% in 2019. By any reasonable assessment, the deterioration of Eskom is now the biggest immediate threat to South African economic growth.

Evolution of Eskom's energy availability factor*



*% of generated power that is effectively distributed to the grid
Sources: Eskom

Evolution of South African electricity prices



*Based on average prices paid by industrial customers
Sources: Xalam Analytics estimates; based on Eskom, NERSA data

HITTING THE DATA CENTER BOOM TIMES

- **Eskom's travails are occurring** amidst a South African data center boom, **and as the local cloud market is starting to pick up.** By our estimates, local providers brought online more than 50MW of dedicated data center IT load capacity between 2017 and 2019 as global content providers expanded their networks into the African continent. This is nearly seven times more capacity than was deployed in the rest of Africa over the same period.
- Microsoft Azure and Huawei launched their cloud services from local data centers in 2019. AWS is expected to follow suit this year, with its first Africa region, and Oracle has similarly announced plans to offer cloud services from local data centers this year. Dozens of CDN providers have set up edge nodes in South Africa over the past three years, and in 2019, Africa's largest Internet exchange vaulted into the global Top 3 in terms of the size of the service provider ecosystem, according to data from Cloudscene.
- The outlook has been strong too. We're forecasting South Africa's data center IT load supply to essentially double over the next two years, from a relatively high base. Including self-managed facilities (i.e. cloud providers building their own data centers), the sector's supply capacity will essentially triple in three years.
- **The Eskom outages are threatening this dynamic.** It is a striking paradox, to be sure. Data center and cloud providers are deploying large scale, power-hungry infrastructure right in the midst of deteriorating infrastructure and acute power scarcity. It's the data center equivalent of flying right into a storm; Eskom's failings will either kill the upside of this market – or as we argue, boost it.

IN THE SHORT TERM, ESKOM WILL HURT

- **In the short term, this will unquestionably hurt, by either delaying projects or making services more expensive.** On a broad scale, colocation data center power requirements are relatively small; they account for less than 3% of overall mining and industrial power consumption in South Africa. Mining companies, Eskom's biggest customers, consume almost 15x more power capacity and are thus more exposed to the Eskom risk.
- **But data centers are more sensitive to outages.** Mining production can be paused; uninterrupted power lies at the very heart of the data center colocation model. Eskom is the primary source of power for most South African data center facilities, via local municipalities who purchase from the utility and distribute to customers. With their main source of power at the mercy of intermittent outages, data center facilities are resorting to back-up sources of power to maintain service level agreements. Most are using UPS batteries and fuel-based power generators, both of which carry a higher cost, in terms of impact on expenses and the environment.
- **The increased reliance on back-up sources of power will raise operating costs;** for many providers, the question is now whether, and how much of the rising costs to pass on to their customers. It's a vital question. While demand for colocation is not purely elastic, higher prices would dampen new customer adoption and capacity expansion by existing customers.

South Africa's electricity prices have already been rising by a "natural" average of 8%-10% over the past three years; a similar increase has been allowed for 2020, and Eskom is challenging the electricity regulator in court to secure even higher increases (~16%-20%), arguing that current prices are still not high enough to cover its costs. The Eskom price hikes are automatically passed on to customers; fuel power costs would increase overall prices to colo customers by at least another 10 percentage points¹. This would be doubly painful for customers already bearing the brunt of a flagging economy.

¹ There is a threshold at which power grid electricity would cost more than fuel generator power; indications are that the market remains far from those levels, though continuous increases are fast closing the gap.

WHAT DOES NOT KILL YOU MAKES YOU STRONGER

All the same, we will wait a little more before we slash our forecasts. And perhaps counterintuitively, we argue that there may even be a case for increasing our projections. This is for three main reasons:

- **The Eskom load-shedding strengthens the colocation value proposition in a highly visible way;** if there ever was a situation to highlight the perils of managing a non-core, on-premise data center facility, this surely is it. With Eskom indicating that load shedding is bound to be the new normal over the next 18 months, organizations still managing on-prem data centers must go back to their spreadsheets to assess how much economic sense it still makes to do so. In most cases, it just doesn't.
- **For international providers, the equation is similar** – the broader fundamentals for establishing an edge PoP in South Africa are largely unchanged, even though local enterprise spend is bound to stay tight over the short term. In a context of uncertain power supply, colocation providers offer a power safe haven. The Eskom challenge may even accelerate a South African migration to the cloud – though in this case, there is a more complex set of questions tied to the nature of the workload.
- **Significantly, the Eskom crisis may compel the government to finally introduce more flexibility into the power supply market,** a decision it has long resisted. To relieve pressure on Eskom, the South African government is set to lift some of the constraints on independent power producers, potentially injecting another 4GW to 5GW into the marketplace and giving industrial customers more options. Existing limitations on power self-generation will be lifted, further giving data center providers options to provision their power requirements.
- The bottom line is straightforward: the South African cloud and data center market must ride out this Eskom storm. It will come out stronger for it.

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@xalamanalytics
hello@xalamanalytics.com
www.xalamanalytics.com