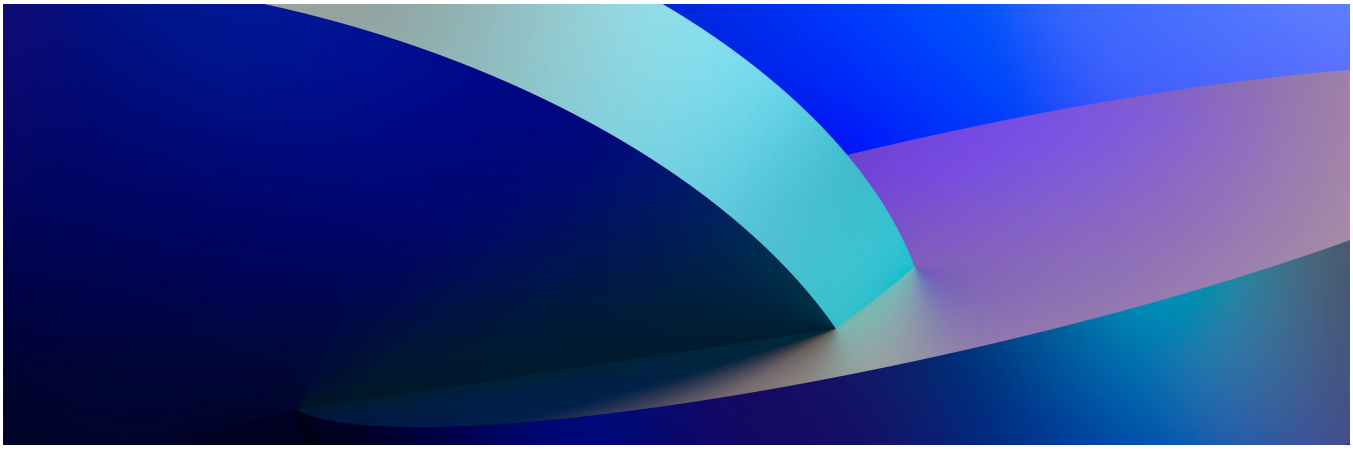

Renewable energy in South Africa

1. Brief overview of the renewables sector

Whilst historically South Africa has been heavily reliant on fossil fuels, in the past ten years, the South African Government has been investing in renewable energy generation mainly through its Renewable Energy Independent Power Producer Procurement Programme ("**REIPPPP**") in order to diversify its energy mix. 1

REIPPPP is a programme designed to increase electricity capacity through private sector investment in solar photovoltaic, concentrated solar, onshore wind, small hydro, landfill gas, biomass and biogas. 2 REIPPPP was initially successful with bid window 1 in 2011, bid window 2 in 2012, 3 bid window 3 in 2013, 4 bid window 3.5 in 2014 5 and bid window 4 in 2018, 6 then stalled between 2018 and 2020, then restarting in 2021 with bid window 5 7 and bid window 6 in 2022.

In August 2020, whilst the REIPPP remained stalled, the Government launched the Risk Mitigation Independent Power Producer Procurement Programme ("**RMIPPPP**") in order to urgently bring online approximately 2000 MW of electricity capacity and to reduce the utilisation of expensive diesel-based peaking open cycle gas turbines. 8 RMIPPPP is different from the REIPPPP as it is technology agnostic. Between March June 2021, preferred bidders were announced with a total contracted capacity of approximately 2000 MW, including Karpowership SA which was awarded preferred bidder status to build a total of 1220 MW in three ports in Coega, Saldanha Bay and Richards Bay. To date this project has been delayed by litigation initiated by disgruntled participants and by various environmental interest groups.

As of 2023 there are approximately 123 projects which have been awarded preferred bidder status and approximately 6200 MW of installed capacity has come online under the REIPPPP. 9 Whilst this is overall positive for South Africa, projects from bid window 5 are only scheduled to come onto the grid in 2025 and bid window 6 is behind schedule with only 6 solar projects being awarded preferred bidder status (totaling 1000 MW). Approximately 23 wind projects from that bid window were not awarded preferred bidder status due to grid capacity issues currently being experienced as a result of a lack of upgrading of the existing grid infrastructure, as well as a lack of investment in the expansion of it in a manner and pace comparable to the pace and investment in the generation of electricity.

In January 2023, the Department of Mineral Resources and Energy amended Schedule 2 of the

Electricity Regulation Act, 2006 ("**Electricity Act**") which has resulted in commerce and industry and households investing in alternative energy solutions such as renewables, many households and smaller businesses opting to invest in cheaper inverters, UPS' (uninterrupted power supply solutions) and lithium-ion batteries.

In parallel to this, in his national budget speech, the South African Finance Minister announced a once-off two-year renewable energy incentive for businesses, with effect from 1 March 2023. Businesses will be able to reduce their taxable income by 125% of the cost of an investment in renewables. A less ambitious once-off one year incentive was announced for households to encourage immediate uptake of solar photovoltaic solutions, but it only entitles taxpayers who install rooftop solar panels from 1 March 2023 to claim a rebate of 25% of the cost of the panels, up to a maximum of ZAR15,000 only for solar panels. However, an average household tends to purchase a 5kW hybrid system which includes panels and battery storage which ranges from ZAR95 000 to ZAR200 000. 10

2. Legislative landscape and policy framework

IRP – Integrated Resources Plan 11

South Africa has been experiencing rolling black outs since 2007, however, this has progressively deteriorated with South Africa experiencing approximately 3 700 hours of load-shedding in 2022 alone, which is an equivalent of 156 days of continuous black-outs. The South African Integrated Resources Plan ("**IRP 2019**") is an electricity infrastructure plan which aims to provide an indication of the country's long-term electricity demand, how this demand will be supplied and what it will cost to meet that demand. However, the last iteration of the IRP 2019 was published in October 2019 incorporating energy forecasts until the year 2030. Whilst there are some concerns that the IRP 2019 is somewhat outdated, the government has made various announcements that it is still being implemented while it is being reviewed and updated. In 2023 the Minister of Mineral Resources and Energy ("the Minister") announced that a new Integrated Resources Plan will be released imminently for public comment and consultation but as at July 2023, the revised Integrated Resources Plan is yet to be published.

The IRP 2019 makes provision for the following new additional capacity by 2030: 12

- 1,500MW of coal;
- 2,500MW of hydro;
- 6,000MW of solar PV;
- 14,400MW of wind;
- 1,860MW of nuclear;
- 2,088MW for storage;
- 3,000MW of gas/diesel; and
- 4,000MW from other distributed generation, co-generation, biomass, and landfill technologies.

Compared to the previous plan, this allocation increased solar PV and wind capacity, and reflected a significant decrease in gas and diesel. It added new inclusions of nuclear and storage capacity but the allocation for solar CSP was removed. Since the IRP 2019, a request for proposal was issued under REIPPP bid window 5 for the procurement of 2600 MW, with a 1600 MW for wind projects and 1000 MW for solar photovoltaic projects split. In bid window 6, the request for proposals was for the procurement of 4200 MW (3200 MW to be procured for wind projects and 1 000 MW to be procured for solar photovoltaic projects) but only 860 MW was awarded for solar photovoltaic projects but, as mentioned above, there was no award for any wind projects. Under the RMIPPPP the request for proposals was for the procurement of 2000 MW of which 1845 MW was awarded on 18 March 2021 and 150 MW on 1 June 2021.

Electricity Regulation Act, 2006 13

Schedule 2 of the Electricity Regulation Act, provides for electricity generation (without storage) licensing exemption thresholds. For a long time the generation threshold was below 1MW. This was then increased to 10MW and subsequently to 100MW. These increases in the exemption threshold were made in reponse to the huge licencing backlogs and time taken to issue licencses. In January 2023 Schedule 2 of the Electricity Regulation Act was amended again but this time to remove the 100MW exemption threshold and not to replace it with another treshhold. However, understandably the requirement for registration and compliance with the Grid Code remains for generation facilites with a point of conncetion on the grid. The removal of the threshhold is aimed at ensuring an increase in investments by the private sector in electricty generation and storage. There has been a very postive response from the commercial and industrial sector taking up this opportunity, and benefits all independent power producers ("**IPPs**"). These changes have also created a new market for traders and aggregators in bulk electricity generation and supply.

The following are some successful projects that have taken place or will commence as a result of the lifting of the licensing exemption:

- *Adams Solar PV (SOLA Group)*
  This 10 MW solar photovoltaic power plant is situated in the Northern Cape, and will provide 28 million kWh of clean electricity to Amazon Web Services annually.
- *Castle Wind Farm (Sibanye-Stillwater)*
  This 89MW wind farm to be built near De Aar in the Northern Cape for Sibanye Stillwater as the offtaker.

Electricity Regulation Bill 14

The draft Electricity Regulation Amendment Bill ("**Bill**") was published for comment in February 2022, and it was approved for tabling in Parliament at the end of March 2023, but the Bill is yet to be finalized by the national legislature. The Bill is intended to, amongst other things, "*align the country with the international best practice in energy and provide for the functions of a Transmission System Operator, and for a licensing framework for power generation, transmission, distribution and trading*". The Bill represents a shift to a competitive multimarket electricity supply industry for South Africa which is a deviation from the long standing vertically integrated model where for a long time the state utility Eskom has been largely responsible for generation, transmission, and distribution of electricity. This comes at a time where there have been ongoing but inconclusive announcements for the unbundling of Eskom.

3. Transmission Development Plan 2022

In response to grid capacity constraints, Eskom has published its Transmission Development Plan 2022 ("**TDP**"), 15 which is a ten-year plan, outlining how the long-term electricity requirements in South Africa shall be met, by maintaining the legislated adequacy and reliability of the transmission grid. The TDP indicates the need for a significant acceleration in grid related investments to facilitate the integration of 53 GW of new generation capacity, mostly from renewable energy sources over the next ten years. The transmission grid would need to be augmented by the construction of approximately 14 218 km of new high voltage transmission lines, the deployment of 170 transformers, with a capacity of 105 865 MVA, 40 capacitors and 52 reactors to support stable and reliable grid operations.

According to Eskom's current Generation Connection Capacity Assessment published in March 2022, 16 grid capacity in Northern and Western Cape is fully depleted while the Eastern Cape has a low grid capacity which is making it increasingly difficult to connect new renewable energy projects to the grid

as was seen from bid window 6. It is estimated that approximately ZAR372 billion would be required over the next 10 to 12 years to finance the expansion of the grid. 17 This increases the need for independent projects in order to expand the country's power grid. Case studies show that this approach has been successful in other developing countries like Brazil, Kenya, India and Peru.

It will take a considerable amount of time to see results from the TDP and the relaxation of the regulatory regime, but it is encouraging to see the South African Government and the private sector collaborating to find reliable and cost-effective solutions to addressing the constraints faced by the country in relation to the energy dilemma.

3. Interim Grid Capacity Allocation Rules

In the context of the continuing rolling black outs, the outcome of bid window 6, the grid capacity constraints and the new amendments to Schedule 2 of the Electricity Regulation Act, Eskom has sought to introduce new Interim Grid Capacity Allocation Rules ("**IGCAR**") which are aimed at levelling the playing fields between IPP projects participating in REIPPPP and private IPP sector projects participating in distributed generation. Currently both sectors are competing for limited grid capacity in South Africa. The IGCAR are aimed at ensuring that as many generators are connected to the grid as soon as possible and ensuring that there is no grid hogging. In the week of 23 July one of the IPPs launched an urgent interdict to block Eskom from implementing the IGCAR on the basis that the rules are unlawful, unreasonable, and irrational, and that they will hinder new operations. On 31 July 2023, the interdict was dismissed.

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