

P O L I C Y B R I E F

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Financing Strategies for Renewable Energy Expansion in South Africa

Executive Summary

South Africa faces an energy crisis caused by its underperforming coal power stations and, therefore, needs to solve the maintenance challenges at these coal power stations to address the current energy shortages. In the long term, the country plans to expand its renewable energy procurement from the private sector through the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP), which depends on the private sector's ability to secure finance for plant construction.

During the REIPPPP bidding window (BW) 5 of 2021, it was confirmed that the average cost of renewable energy generation from solar and wind alternatives was cheaper than coal-based energy. In addition, these projects have a shorter construction phase, often reaching the operational phase within two years after concluding a Power-Purchase Agreement with Eskom or a municipality. However, significant financing is required to achieve the 2019 Integrated Resource Plan's (IRP) renewable energy targets, given that the Industrial Development Corporation (IDC) estimates the country needs to allocate ZAR 8,9 trillion to achieve its 2030 targets.¹ Globally, the National Treasury estimates that there

is US\$ 12 trillion set aside to finance sustainable development, but a small percentage is accessed in developing and emerging countries.²

Financing renewable energy projects also requires several interventions working in concert. For instance, there is a need for a clear policy framework, investments in the energy grid and renewable energy data collection practices. Such interventions boost confidence in the industry and improve risk assessments, thereby increasing investors' interest.

Furthermore, the REIPPPP faces challenges with financing due to the Rand-Dollar exchange rate volatility and the lack of specialisation in renewable energy by local commercial banks. To overcome these financial hurdles, leveraging bonds issued by the BRICS New Development Bank (NDB) and changing policies to support Non-Bank Financial Institutions (NBFIs) are essential for securing international investment and appropriate funding for green projects.

To this end, this policy brief concludes with a set of policy recommendations to improve how the renewable energy sector accesses financing, contributing to the sector's expansion.



Introduction

South Africa's energy crisis

On 25 July 2022, in response to the energy crisis after Stage 6 load-shedding in June, President Cyril Ramaphosa announced a range of interventions to add capacity to the energy grid, including expanding the REIPPPP with interventions to double the capacity of BW6 to procure renewable energy from the private sector. President Ramaphosa also established the National Energy Crisis Committee of Ministers (NECCOM), comprised of seven Cabinet ministers.³ The Committee has since warned that the state has no short-term solutions to the high-stage power cuts. To address the immediate crisis, NECCOM focused on six underperforming coal power stations to limit the rolling black-outs affecting the country. Further, the President appointed Kgosisentsho Ramokgopa as Minister of Electricity to concentrate on addressing the immediate load-shedding crisis, underscoring the commitments made by the Executive to address the crisis. These efforts continue while the National Energy Regulatory of South Africa (NERSA), in January 2023, awarded Eskom an annual tariff increase of 18,65% to finance its current challenges.⁴ This short-term view focuses on coal-powered generation but fails to examine the challenges limiting the expansion of renewable energy generation.

Renewable energy is a cost-effective power production alternative

During the REIPPPP BW5, the average cost of electricity supplied by the 25 preferred bidders dropped to its lowest levels, with the cheapest solar and wind bids offered at 37,5 cents per kWh and 34,4 cents per kWh, respectively. The cost of coal-powered electricity generation at this period amounted to 42,1 cents per kWh.⁵ Given the shorter construction time for renewable energy generation and the cost savings, scaling renewable energy generation makes financial sense. In addition, from BW5, 25 preferred bids

that collectively promise to create

13 000 job opportunities over the next 20 years were identified.⁶ Scaling renewable energy expansion will continue to reduce energy generation costs and contribute to the acceleration of job creation.

Given this background, the HSRC's study into Financing Renewable Energy by comparing experiences from South Africa, India and China through public dialogues and interviews with implementing officials reveals financing best practices that can aid the country's renewable energy expansion.⁷

Study findings accessing finance – A central challenge to scaling RE production

Substantial investment is needed to meet the country's 2030 and 2050 renewable energy generation targets. The IDC estimates that the country needs ZAR 8,9 trillion to achieve its 2030 goals, which translates to an annual investment of ZAR 596 billion from 2015 to 2030.¹ The Centre for Sustainability Transitions estimated that the country needs US\$ 250 billion to achieve a just energy transition, which replaces coal power with renewable sources by 2050.⁸ Consistent investment is crucial to accompany a consistent REIPPPP, but the programme's rollout has had significant delays between 2015 and 2021. In addition, as of December 2022, despite the President's initiatives, only five preferred bidders were appointed in response to BW6, promising 860 MW, falling far short of the 5200 MW target for the bidding window.⁹

Lessons from China and India

India and China, like South Africa, have experienced significant challenges in expanding their renewable energy generation capacity. These challenges include inadequate government support, funding, infrastructure, and technical expertise.^{10,11} India and China have significantly developed their renewable energy sectors despite these challenges. One similarity is that they have faced difficulties accessing

financing to scale their renewable energy generation plans. These challenges include a lack of investor confidence and clear and stable government policies to support the growth of the renewable energy sector.^{12,13}

Despite these challenges, India and China have successfully accessed financing to scale their renewable energy generation plans. India has attracted investment from domestic and foreign investors by implementing policies, such as the National Solar Mission and the National Wind Energy Mission. These policies provide long-term policy support and financial incentives for renewable energy development.¹⁴ China has also attracted significant investment in its renewable energy sector through its feed-in tariff policy, which provides guaranteed prices for renewable energy producers.¹⁵

Stable policy environment

A stable policy environment is required to attract and accelerate investment towards renewable energy in South Africa, because investors are risk-averse and seek out countries that succinctly embrace renewable energies and have introduced a sound policy framework that prioritises renewable energy power. The Chinese model is a useful example of how a clear and consistent policy framework can attract substantial financing from the private sector. China's policy framework is established at the Central Government level and is distilled to each subsequent sub-national government, providing a predictable policy environment for investors. In contrast, South Africa's policy framework is perceived as unstable, with challenges noticeable between the City of Cape Town and the national government. In addition, South Africa lacks a comprehensive Green Policy outlining the country's transition from fossil fuels to renewable energy.

Expand grid infrastructure

Implementing agents argue that South Africa must prioritise upgrading the national grid to integrate smart grid and energy storage facilities. It should recognise locations with access to the strongest wind and solar energy sources to improve the project's viability and risk assessment from the investors' perspective. By modernising infrastructure and adopting new digital modelling techniques, South Africa can improve energy efficiency, similar to the gains made by Brazil, India, and China. Access to the market is dependent on the availability of transmission infrastructure. Specific locations might be well-resourced in hydro, solar, and wind energy but have no connectivity or inadequate connectivity to the electricity grid, limiting the option for projects in such areas to supply electricity. Such projects might be limited to the local rural population of the area and are, therefore, not deemed to be a sustainable or profitable investment due to the area's limited demand or the local municipality's inability to procure and distribute power among the local community. South Africa can learn from China and India to improve the bankability and sustainability of renewable energy projects.¹⁶ South Africa can potentially increase investment in the renewable energy mix and energy-efficiency improvement by expanding its grid infrastructure and modernising its energy sector.

Invest in data collection methods

Investing in renewable energy in South Africa requires a robust data collection system that can provide information on wind and solar conditions at development hotspots. The financial sector's lack of statistical data, modelling, grid integration studies, and energy forecasting has contributed to uninformed policy decisions, increased risk ratings for renewable energy projects, and higher interest rates for debt





instruments.¹⁷ The absence of accurate and reliable data makes it difficult for potential investors to access affordable debt instruments.

In India, the prime minister has introduced an inter-ministerial coordinator, NITI Aayog, who guides future policymaking across the various government entities to coordinate their efforts. NITI Aayog is central in coordinating India's monitoring and evaluation framework for its energy sector. Such lessons are beneficial for South Africa's new Electricity Ministry. Coordinating India's large state apparatus is complex, requiring the agency's role. The collected data contributes to evaluating policy and programme interventions.¹⁸ Conversely, when Chinese investors considered constructing large wind energy farms in South Africa after forming a local partnership, they first invested in data collection infrastructure for their selected sites. This data was essential for estimating their investment return.¹⁹

Address exchange rate volatility

As a member of the BRICS New Development Bank, South Africa can accelerate investment towards renewable energy by issuing own-currency green bonds. Similar to the Green Panda Bonds and Green Masala Bonds successfully issued by China and India, these bonds would be denominated in the South African national currency and allow the country to enter into debt in its currency rather than in the US dollar or Euro when securing international financing. This de-dollarisation would reduce the uncertainties caused by fluctuations in currency exchange rates and provide a more stable source of funding for renewable energy projects.^{20, 21}

However, for this to be successful, the BRICS New Development Bank and other multilateral development agencies must develop consistent definitions for "green" projects and support member countries in navigating the risks associated with an investment in renewable energy. To mitigate the risk of currency volatility, investors must consider introducing clauses within their purchase agreements to re-negotiate the sale price over the duration of the contract. This can help to ensure the project's financial viability in the face of sudden exchange rate changes.

To address the dollar volatility, the BRICS is investigating de-dollarisation options and has introduced the BRICS Interbank Cooperation mechanism, allowing BRICS countries to extend lines of credit to each other in local currencies, thereby limiting their exposure to the US Dollar.²² These initiatives, over the long term, attempt to address some of the main challenges experienced by project owners seeking financing. Nevertheless, these mechanisms have been underused and must be dramatically expanded to make a meaningful impact.

Integrating Green Non-Bank Financial Institutions (NBFIs)

NBFIs play a crucial role in developing renewable energy projects by providing access to finance and specialised services. NBFIs, unlike commercial banks, have the flexibility to specialise in climate or renewable energy finance, allowing them to produce more intuitive risk estimates and support smaller loans and projects. They act as intermediaries connecting investors to project owners and thus provide risk-pooling, financial consulting, and money transmission services. NBFIs have had some success in steering corporate capital to sustainable projects by specialising in green banking products and services. They are more agile and able to respond to changes in the market and technology, making their risk assessment models more responsive and resilient to how risks evolve in the market.²³

However, well-functioning NBFIs often bear considerable pressure from regulators, given their lack of a banking license and the increasing amount of funds they manage.^{24, 25} Regulators could, therefore, act to change policies to limit these institutions' perceived risks to the market.

Recommendations

1. The Department of Minerals and Energy should collaborate with the Department of Science and Innovation to develop a skills programme for South African policymakers and the financial sector, focusing on enhancing green financial risk assessment models and investing in wind and solar measurement equipment.
2. The Department of Science and Innovation should create a programme to regularly update and share data on South Africa's wind and solar resources, integrating this information into the finance sector's risk models.
3. Eskom (or a future state entity responsible for the national electricity grid) must upgrade the grid to include smart grid and energy storage facilities, prioritising areas with strong wind and solar resources for integration.
4. The BRICS New Development Bank should issue individual BRICS currency Green Bonds and work with the BRICS Energy Research and Cooperation Platform to standardise 'Green' project terminology.
5. BRICS countries should expand their Interbank Cooperation Mechanism to offer more credit lines in member currencies, reducing reliance on the US Dollar and making these facilities available to non-bank institutions.
6. National Development Finance Institutions should collaborate with Non-Banking Financial Institutions to revise risk assessment models for small-scale projects, ensuring accurate evaluation and assistance in enhancing new power producers' business plans.

Endnotes

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