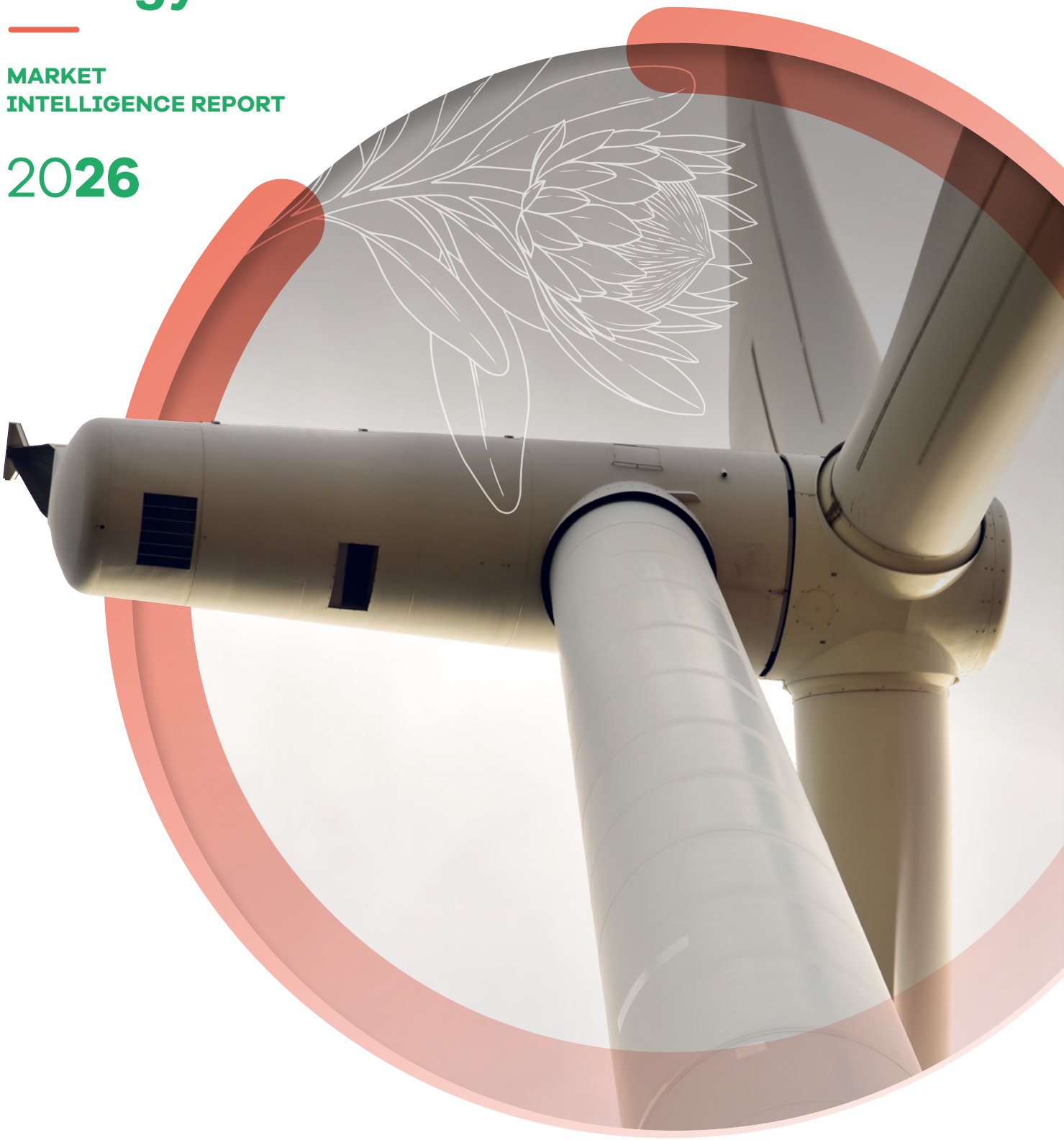
SOUTH AFRICA

National Renewable Energy

MARKET INTELLIGENCE REPORT

2026



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Market Intelligence Report 2026

NATIONAL RENEWABLE ENERGY

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GreenCape is a non-profit organisation that works at the interface of business, government, and academia to identify and remove barriers to economically viable green economy infrastructure solutions. Working in developing countries, GreenCape catalyses the replication and large-scale uptake of these solutions to enable each country and its citizens to prosper.

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List of abbreviations and acronyms

BESS	Battery energy storage systems
BESIPPPP	Battery Energy Storage Independent Power Producer Procurement Programme
BQ	Budget quote
BTM	Behind-the-meter
BW	Bid window
CBAM	Carbon Border Adjustment Mechanism
CSRD	Corporate sustainability reporting directive
DFFE	Department of Forestry, Fisheries and the Environment
DMRP	Department of Mineral and Petroleum Resources
EOSS	Energy One-Stop-Shop
EPC	Engineering, procurement and construction
ERA	Electricity Regulation Act
ESG	Environemental, social and governance
EU	European Union
GCAR	Grid Capacity Allocation Rules
GCCA	Generation connection capacity assessment
IPP	Independent Power Producer
IRP	Integrated Resource Plan
ITIPP	Independent Transmission Infrastructure Procurement Programme
JSE	Johannesburg Stock Exchange
MIR	Market intelligence report
NDCs	Nationally Determined Contributions
NECOM	National Energy Crisis Committee
NERSA	National Energy Regulator South Africa
NTCSA	National Transmission Company of South Africa
O&M	Operations and maintenance
PDALA	Preservation and Development of Agricultural Land Act
PPA	Power purchase agreement
PV	Photovoltaic
RE	Renewable energy
REDZ	Renewable Energy Development Zones
REIPPPP	Renewable Energy Independent Power Producer Procurement Programme
RMIPPPP	Risk Mitigation Indepenedent Power Producer Procurement Programme
SAREM	South African Renewable Energy Masterplan
SAWEM	South African Wholesale Electricity Market
SET	Sectoral emissions target
SEZ	Special economic zone
SSEG	Small-scale embedded generation
TOU	Time-of-use
TSO	Transmission System Operator
WEPS	Wholesale Electricity Pricing System

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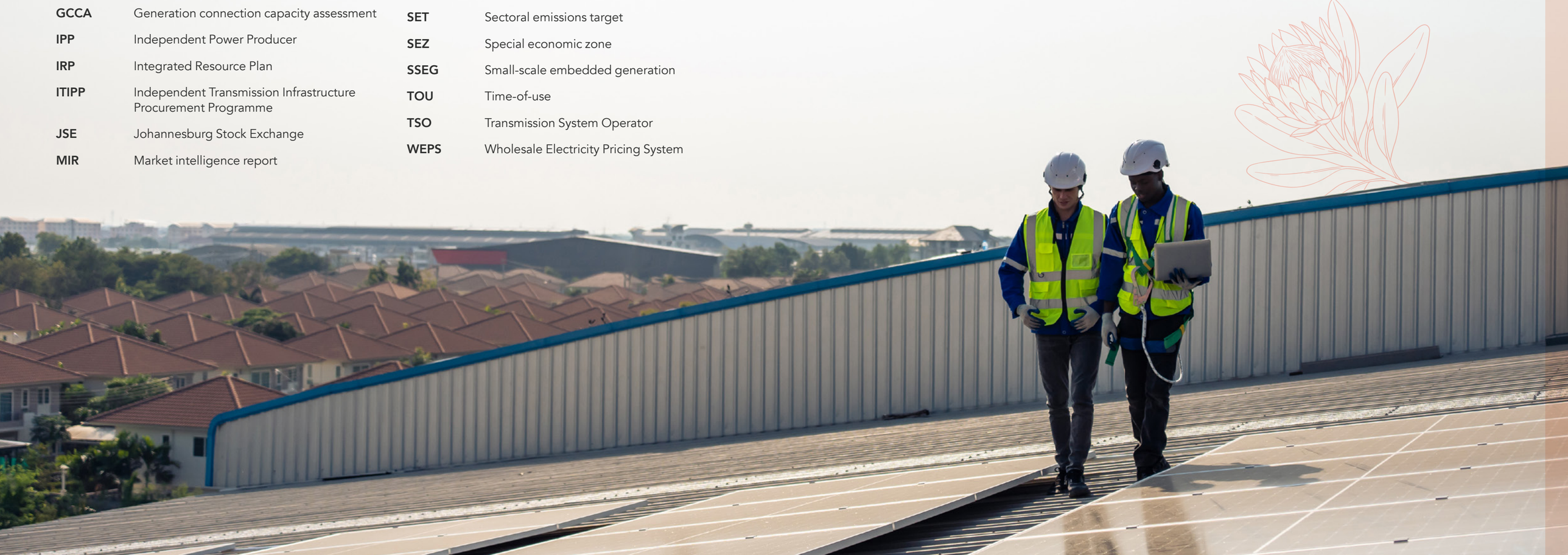


2026 renewable energy investment opportunities snapshot

South Africa's renewable energy (RE) market currently presents two key investment areas: 1) large-scale solar photovoltaic (PV) and wind projects, and associated battery energy storage systems (BESS); and 2) behind-the-meter (BTM) solar PV with BESS for commercial and industrial users.

The **large-scale RE investment opportunity** focusses on buyout or equity financing of late stage RE developments, with the aim of selling electricity to the private offtake market as an independent power producer (IPP). South Africa has an oversupply of renewable energy projects under development with limited grid access, hence investing in late-stage developments lowers risk of a potentially stranded asset and improves likelihood of completing projects before 2030. Late-stage developments in this context refer to RE projects with:

- **Approvals obtained** – land secured; land use and environmental approvals obtained.
- **Ready access to the grid** – located in areas with known grid availability or confirmed grid allocation from Eskom in a grid constraint area.
- **Customers identified** – agreements in place with either energy traders or direct customers.

Historically, South Africa's large-scale RE sector has been driven by public procurement via the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). Most new large-scale RE projects are being developed to supply the private offtake market through business-to-business power purchase agreements (PPA) or through traders acting as aggregators, utilising wheeling[1] to supply green electricity to customers across the country. Incorporating large-scale BESS as part of the RE facility is a more recent development in the private wheeling market with the first project starting construction in 2026. This enables IPPs to offer more flexible generation profiles to meet customer needs.

The **investment opportunity in BTM solar PV and BESS** is focussed on financing greenfield projects for commercial and industrial off-takers. Demand is increasing for fully financed solutions that include operations and maintenance (O&M) through long-term PPAs, presenting an opportunity for long-term returns.

South Africa's RE market offers an **investable opportunity from 2026 to 2030 of R161.2 billion across 12.9 GW** of RE generation capacity, as presented in Table 1

Table 1: Investible RE market in South Africa up to 2030

SEGMENT	GENERATION CAPACITY	INVESTMENT VALUE	DRIVERS	BARRIERS
Large-scale RE (wheeling market)	Wind: 3.2 GW	R54.4 billion	Electricity price stability and affordability of RE solutions driving demand for more wheeling and BTM solutions. Decarbonisation pressure on companies, driving demand for clean energy solutions to move away from South Africa's carbon intensive electricity grid. Energy security, beyond loadshedding[2], with a lack of infrastructure maintenance causing power outages, driving demand for more grid independence for businesses.	Transmission grid constraints limit the amount of new large-scale and BTM projects that can connect to the Eskom network. Limited municipal readiness for wheeling, especially from Eskom into municipalities reduce the available market for wheeling contracts. A slow pace of policy and regulatory alignment to an evolving electricity environment creates permitting challenges, policy uncertainty and a lack of alignment between different government departments and entities. This slows the pace and increases the cost of RE developments.
	Solar PV: 6.2 GW	R62 billion		
	BESS: 0.7 GW / 2.8 GWh storage	R9.5 billion		
BTM solar PV and BESS for businesses	Solar PV: 2.6 GW	R31.2 billion		
	BESS: 0.19 GW / 0.75 GWh storage	R4.1 billion		

1 Wheeling represents the financial transaction that enables access to privately generated electricity through the existing transmission and distribution network to end customers.

2 Loadshedding is a controlled demand reduction mechanism implemented by Eskom to protect the national electricity network form a total blackout.

WHAT'S NEW?

Since the publication of the 2025 Large-Scale Renewable Energy Market Intelligence Report, there have been several important developments in the sector.

2025

APRIL

Eskom time-of-use (TOU) tariff restructuring (1 April 2025): Structural changes included extended evening peak periods and the introduction of fixed charges for residential solar users. Extended evening peak periods creates a stronger business case for commercial BESS for arbitrage while signalling that residential systems face declining financial returns due to higher fixed connection fees.

Signing of the South African Renewable Energy Masterplan (SAREM) (April 2025) – SAREM provides a comprehensive framework for developing South Africa's RE and BESS value chains. This provides policy direction for government departments to develop South Africa's industrial sector and shows commitment to local component manufacturing.

MAY

National Energy Regulator of South Africa (NERSA) approval of Congestion Curtailment (May 2025): Curtailment is recognised as an ancillary service in South Africa; implementation of 4% curtailment in the Western and Eastern Cape allows 1 580 MW of wind power developments to seek financial close (NTCSA 2025).

JULY

National Treasury targeting a R9 billion credit guarantee vehicle (July 2025): The credit guarantee supports independent transmission projects and accelerates transmission build-out and private capital mobilisation. It will operate as a standalone entity with an independent balance sheet and will target a minimum credit rating of AAA[3].

OCTOBER

Integrated Resource Plan (IRP) 2025 update (October 2025): Signals long-term national shift toward higher RE allocations. The proposed balanced energy plan includes 18.4 GW of new solar PV, 35.7 GW of new wind and 4.5 GW of new BESS by 2042. This confirms a sustained, multi-decadal pipeline of public and private procurement, justifying long-term capital deployment in the South African market.

Simplified small scale embedded generation (SSEG) registration process for Eskom-connected customers (October 2025): The removal of professional engineer sign-off requirement for BTM systems connected to the Eskom grid could reduce compliance costs by ~R9 000 per installation, improving the business case for small solar PV installations.

NOVEMBER

NERSA granted the National Transmission Company of South Africa (NTCSA) a Market Operator licence (November 2025): The granting of a licence enables the transitioning the NTCSA into a fully licenced entity. This is the critical precursor to a competitive South African Wholesale Electricity Market (SAWEM), moving the sector away from a single-buyer monopoly toward a transparent, multi-trader environment.

DECEMBER

Grid capacity allocation rules (GCAR) implemented (December 2025): Formalisation of the "first-ready, first-served" approach to grid access. This reduces the risk of underdeveloped projects being allocated grid capacity, ensuring that capital-ready projects can move to construction faster than speculative early-stage developments.

Announcement of pre-qualified bidders for the first stage of the Independent Transmission Infrastructure Procurement Programme (December 2025) - Seven companies have been shortlisted to bid on 1 164 km of new transmission lines unlocking 3 222 MW of RE by August 2029. This marks the first concrete entry point for private equity into South Africa's transmission infrastructure, traditionally a state-owned monopoly. This programme will serve as a pilot for future transmission grid developments.

3 An AAA rating is the highest possible rating, indicating low risk of default and strong capacity to repay debt.

1

INTRODUCTION AND PURPOSE

South Africa's electricity market is undergoing a fundamental restructuring, resulting from a dynamic environment characterised by rapid policy and regulatory shifts

This market intelligence report (MIR) provides potential investors with a strategic overview of the resulting renewable energy opportunities, focusing on utility-scale projects and behind-the-meter (BTM) solutions.

The country possesses substantial solar and wind resources, with radiation levels and wind capacity factors exceeding developed international renewable energy (RE) markets, such as in Europe.

South Africa's Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) has historically driven the growth in the RE market, with projects from the seventh and most recent bid window (BW7) now allocated and nearing financial close. Similarly, the battery energy storage system (BESS) market is driven primarily by public procurement through the Battery Energy Storage Independent Power Producer Procurement Programme (BESIPPPP), and to a smaller extent the Risk Mitigation Independent Power Producer Procurement Programme (RMIPPPP). No new BWs were announced on any public procurement programmes at the time of writing.

The market is rapidly transitioning towards private generation and offtake. This shift was facilitated by amendments to the Electricity Regulation Act (ERA) of 2006, which have allowed large-scale independent power producers (IPP) and energy traders[4] to operate in an increasingly competitive electricity market.

The restructuring of South Africa's state-owned company, Eskom, is central to this transition. On 12 February 2026, President Cyril Ramaphosa proclaimed the establishment of the National Transmission Company of South Africa (NTCSA) as an independent entity. Under this model, the NTCSA manages the physical infrastructure, while the Transmission System Operator (TSO) functions as the market operator to facilitate competition (The Presidency of South Africa, 2026).

This is a key step toward the full implementation of the South African Wholesale Electricity Market (SAWEM). This follows an announcement in December 2025, by the Minister of Electricity and Energy, that the NTCSA will be a subsidiary of Eskom Holdings (Eskom 2025), indicating a stronger shift toward liberalisation.

Despite these advancements, the market faces infrastructure challenges due to historical underinvestment in the national grid. While grid connection constraints currently limit the deployment speed of new generation projects, they have also served as the primary rationale for the Independent Transmission Infrastructure Procurement Programme (ITIPP). This programme provides a framework for private capital to participate in the expansion of South Africa's transmission network.

The purpose of this MIR is to assist investors in navigating these market shifts, addressing the expanding private wheeling market, while highlighting the drivers and mitigations necessary for market entry.

In addition to this MIR, GreenCape also publishes market intelligence for the energy, water and agricultural sectors in the Western Cape.

For enquiries or to access GreenCape's services, contact GreenCape's energy sector desk at energy@green-cape.co.za.

2

INVESTMENT OPPORTUNITIES

In 2026, South Africa's RE market presents two key investment areas: 1) large-scale solar PV and wind projects, and associated battery energy storage systems; and 2) behind-the-meter solar PV with BESS for commercial and industrial users.

South Africa has a potential RE market of R161.2 billion by 2030.

Large-scale RE projects refer to systems larger than 1 MW, feeding all generated electricity directly into the transmission or distribution network.

The BTM market refers to RE systems that are installed at the point of consumption, where the electricity generated is primarily used on-site.

This opportunity section is structured as follows:

THE INVESTMENT OPPORTUNITY

Describes the large-scale RE and BTM investment opportunities in more detail.

MARKET DRIVERS

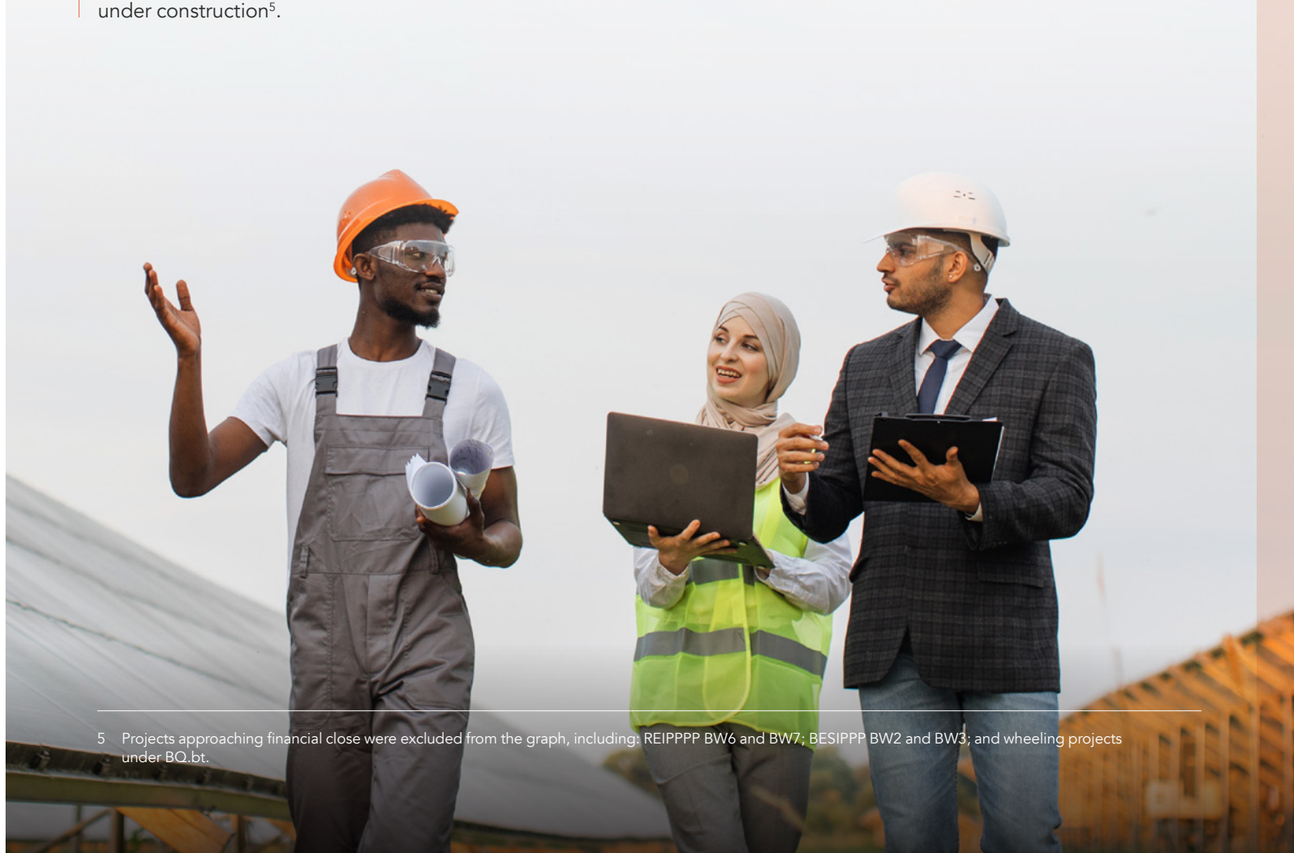
Covers the factors that enhance the development and increase growth of investment opportunities.

MARKET BARRIERS

Covers the factors that reduce the attractiveness and increase the risk of the investment opportunities.

2.1 Large-scale renewable energy

Private sector off-take dominates new large-scale RE development, through business-to-business PPAs or traders acting as aggregators, enabled by wheeling legislation which allows RE to be delivered to corporate customers through Eskom's transmission network. The growth in this segment is seen in Figure 1, through the large volume of new RE projects under construction[5].



5 Projects approaching financial close were excluded from the graph, including: REIPPPP BW6 and BW7; BESIPPP BW2 and BW3; and wheeling projects under BQ.bt.

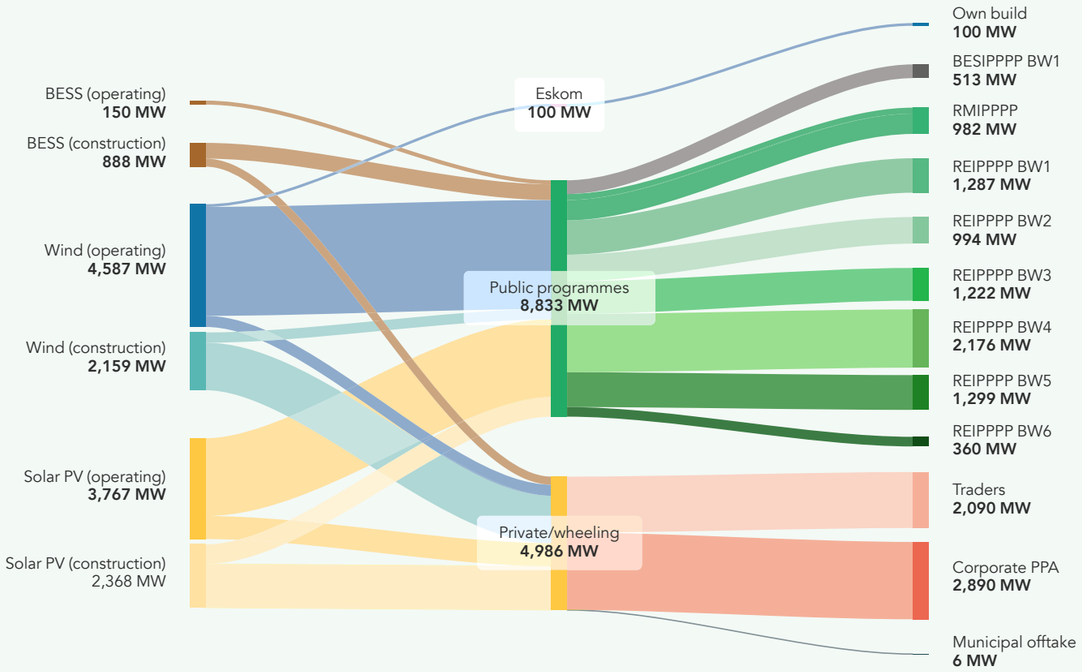


Figure 1: Large-scale RE adoption in South Africa at the end of March 2026

Source: GreenCape analysis[6]

While PPAs have historically favoured long-term bilateral contracts, the growth in energy traders is shifting the market toward aggregated and more flexible contracting structures. NERSA has issued six new energy trading licences in the past two years.

Energy traders are licenced entities authorised by NERSA to buy and sell electricity. In most cases energy traders source electricity from IPPs and on-sell that electricity to various customers, facilitating the match between supply and demand for multiple clients. Energy traders can create more bankable projects by aggregating multiple generation sources and aggregating multiple customer loads.

Grid capacity in South Africa's key RE resource regions – the Northern Cape (for solar) and the Western Cape and Eastern Cape (for wind) – is now fully allocated. Consequently, investment value has shifted to grid-ready RE projects. Investors should prioritise projects with existing budget quotes (BQs) or confirmed grid capacity allocation to bypass the multi-year queue for grid access of speculative early-stage developments. A BQ is an official proposal issued by Eskom setting out the costs, scope and requirements for connecting a RE plant to the grid. It is considered one of the final steps in the development process prior to construction.

Being issued a BQ does not guarantee project completion, since the BQ provides costing and additional requirements for grid connection; however, it is an indication that grid will likely be allocated upon acceptance and compliance with the BQ requirements.

6 GreenCape compiled the data through the mapping of known wind, solar PV and BESS projects considering their life cycles.

South Africa has a substantial pipeline of RE investment, highlighted by the NTCSA's 'Generation Customer Connections Data Dashboard'[7], where NTCSA lists development interest at various stages of project development. The statuses of these projects are highlighted in Figure 2.

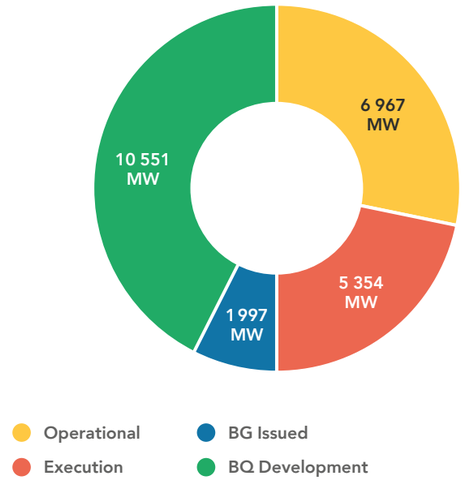


Figure 2: Status[8] of large-scale solar PV and wind projects in South Africa in March 2026 according to NTCSA in March 2026

Source: NTCSA 'Generation Customer Connections Data Dashboard'

Excluded from Figure 2 are projects under early stages of development. According to Eskom's 'Energy Grid Survey', the pipeline of solar PV, BESS and wind projects under development exceeds 217 GW. This highlights a market with an oversupply of developments with limited connection capacity currently available.

The large-scale RE investment opportunity is thus focused on buyout or equity financing of late-stage developments with the aim of selling electricity to the private offtake market as an IPP. Investing in late-stage developments lowers risk for investors by improving likelihood of completing projects before 2030. Late-stage developments in this context refer to projects that have:

- **Approvals obtained** – land secured; land use and environmental approvals obtained.
- **Ready access to the grid** – located in areas with known grid availability or confirmed grid allocation from Eskom in a grid constraint area.
- **Customers identified** – agreements in place with either energy traders or direct customers.

Projects lacking these advantages are less likely to reach construction in the near term; however, through the buildout of new transmission infrastructure and an improved policy environment, projects without these advantages could become attractive investments for investors willing to take on higher risk and longer-term investments.

The market size has been estimated by consolidating Eskom's data on the status of RE projects with recent REIPPPP allocations and data from GreenCape's project database. The total capacity of projects with BQs, excluding the public programmes are used to estimate the private renewable energy projects in late-stage development.

Based on capital cost, the investment opportunity over the next four years is estimated[9] as:

- **Large-scale solar PV: 6.2 GW or R62 billion**
- **Large-scale wind: 3.2 GW or R54.4 billion**
- **Large-scale BESS: 0.7 GW / 2.8 GWh or R9.5 billion**.

The values indicated provides an estimate of renewable energy projects likely to start construction before 2030 and should not be considered an accurate reflection of all projects that will reach construction stage.

7 It is noted that the NTCSA applies a different methodology to its data, resulting in a different estimate to the GreenCape's analysis.

8 BQ development refers to a project that requested a BQ from Eskom and the BQ is being developed.

9 Based on a cost assumption of R10/W for solar PV and R17/W for wind. For BESS projects, the cost assumptions are R3/Wh storage assuming inverter costs of R1.5/W.

2.2 BTM installation of solar PV and BESS

The BTM market was initially driven by loadshedding mitigation. Reduction in loadshedding occurrences in 2024 and 2025 has significantly reduced demand for solar PV and BESS installations, resulting in consolidation of installers in this market, and a shift towards larger market segments where drivers such as high electricity prices and decarbonisation are more prominent. An analysis of an estimated 2.5 GW BTM solar PV installations for businesses reveals adoption primarily from the basic materials (mining) sector (47%) and real estate investment trusts (19%) which mostly consist of large shopping malls, as illustrated in Figure 3.

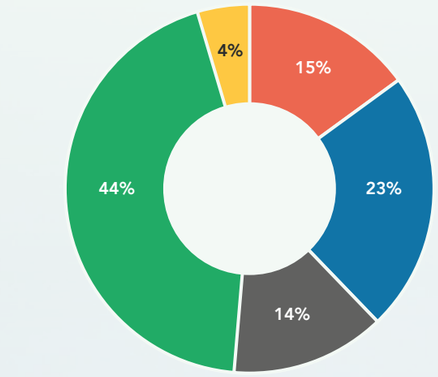
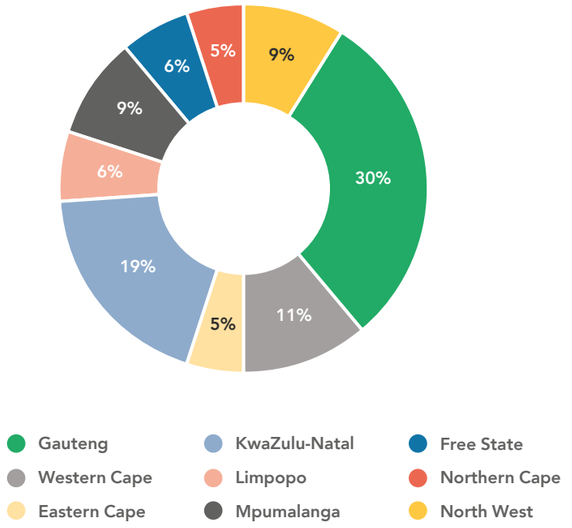


Figure 3: Breakdown of industry demand for BTM solar PV systems

Source: GreenCape project database

Insights from industry engagement include that BTM demand is consolidating, moving away from a high volume of small-scale systems in favour of larger-capacity installations. Furthermore, there is growing demand for BTM systems implemented through PPAs, enabling customers to access solar PV and BESS without the need for substantial upfront investments.

According to Eskom's estimates, total private embedded generation capacity, which includes residential installations, grew from 2.4 GW in 2022 to 7.4 GW in 2025 with most installations having occurred in Gauteng, South Africa's industrial centre, as can be seen in Figure 4. The growth was driven primarily by loadshedding levels that peaked in 2023, as customers installed solar systems coupled with battery storage to mitigate the impact of regular scheduled power outages.



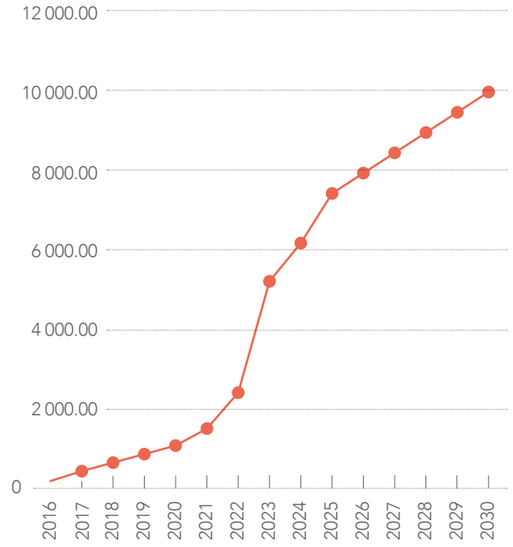


Figure 4: Growth in the BTM solar PV installations with projections up to 2030 and the provincial breakdown.

Source: Eskom embedded generation estimates and GreenCape analysis

The investment opportunities for BTM solar PV and BESS systems are estimated by combining Eskom data and GreenCape market analysis to predict the growth by 2030. Batteries are increasingly integrated with BTM solar PV installations for the diverse benefits they offer including peak reduction, load shifting, backup power and arbitrage. Based on the detailed project information that has been collected, it is estimated that the storage-to-generation ratio in the C&I sector is 0.21 MWh of BESS for 1MW of solar PV installed, and in most cases the storage represents ~4 hours of energy storage.

The investment opportunity would be of interest to energy service companies or IPPs who may have an interest in developing and managing BTM solar PV and BESS systems with the aim of selling the electricity through a PPA model to businesses with a demand for reliable and clean electricity.

Based on the capital cost of the projects, the investment opportunity over the next four years is estimated[10] as:

- BTM solar PV: **2.6 GW or R31.2 billion.**
- BTM BESS: **0.19 GW / 0.75 GWh or R4.1 billion.**

The values indicated provides an estimate of renewable energy projects likely to start construction before 2030 and should not be considered an accurate reflection of all projects that will reach construction.

2.3 DRIVERS

Growth in large-scale RE and BTM solar PV and battery solutions are driven by a demand for predictable and lower cost electricity, decarbonisation pressures on businesses, and the need for energy security.

2.3.1 Electricity price stability and affordability of renewable energy solutions

Eskom's electricity tariffs have been subject to annual above-inflation increases for almost two decades, driven by rising operational expenses, infrastructure upgrades, and debt recovery efforts. In April 2025, NERSA approved a tariff increase of 12.74% for Eskom customers, continuing the trend of above-inflation electricity price increases observed since 2008. Continued above-inflation tariff increases are however not sustainable, given growing social and economic pressure on government to reduce electricity costs. Future increases are expected to moderate toward inflation levels, considering regulatory and political constraints.

10 Based on a cost assumption of R12/W for solar PV and R5/Wh storage with R2/W inverter costs for BESS projects.

The relatively lower cost of electricity from RE sources enables below grid tariff solutions for customers, especially through long term PPAs. This will continue to drive demand for RE solutions. The most relevant tariff to benchmark electricity from RE projects, especially for wheeling, is Eskom's Wholesale Electricity Pricing System (WEPS). WEPS utilises a time-of-use (TOU) tariff structure, illustrated in Figure 5 for the 2025-2026 year, with different tariffs applying during different times of the day[11]. The large difference between peak and standard tariffs is a driver for implementing BESS for load shifting or arbitrage.

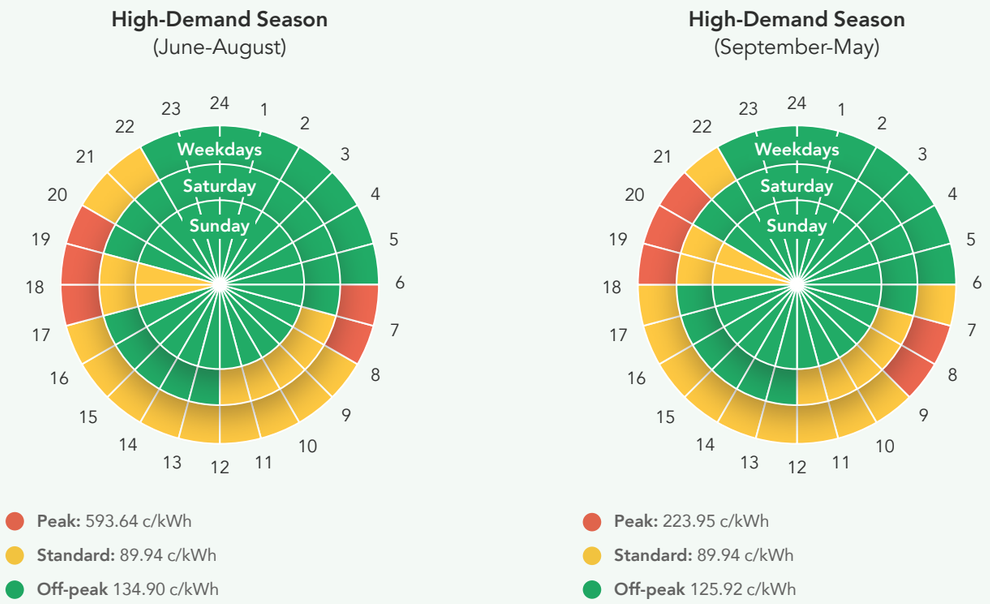


Figure 5: Eskom Wholesale Electricity Pricing System tariffs and time-of-use structure. Numbers around the graphics indicate the time of day.

Source: Eskom Tariffs and Charges 2025-2026

2.3.2
Decarbonisation pressure on businesses

The carbon intensity of South Africa's grid electricity (>82% fossil fuel based) makes Scope 2 emissions[12] reduction a priority for energy-intensive exporters. Beyond environmental, social and governance (ESG) targets, the primary driver for RE procurement is maintaining access to international markets, particularly those governed by carbon-related regulations and requirements.

A key emissions reduction pressure is the European Union's (EU) Carbon Border Adjustment Mechanism (CBAM), which will impose duties on carbon-intensive imports including metals, minerals, and industrial products. CBAM poses a longer-term concern; however, its initial focus on Scope 1 emissions and limited import inclusions in the first phase means that most businesses in South Africa will not be affected by it in the short-term. Businesses identified the European Corporate Sustainability Reporting Directive (CSRD) as a more immediate challenge.

CSRD requires companies above a certain size, including qualifying EU subsidiaries of non-EU companies, to disclose their environmental and social impacts and how their (ESG) actions affect their businesses. Although CSRD is not implemented on South African businesses, many businesses form part of the supply chain of European companies which are pre-emptively requesting information on carbon emissions, setting targets and adjusting their supply chains to lower carbon emission suppliers.

South Africa's Johannesburg Stock Exchange (JSE) also requires ESG reporting as part of best practice guidelines for listed companies, namely the King V (2025) code that came into effect on 1 January 2026. The code is a voluntary framework for corporate governance that requires companies to demonstrate the implementation of the philosophies of the code, including sustainability disclosures. This transparency, combined with heightened scrutiny from investors and international partners, is pushing local companies to demonstrate their commitment to ESG principles and good practice.

11 The tariff structure was adjusted in 2025, representing longer evening peaks and shorter morning peaks, and the inclusion of standard tariffs on weekends.

12 Scope 2 emissions refer to indirect emissions through accessing energy sources, such as electricity.

Additional pressure is expected from the South African Climate Change Act (2024), which came into effect in March 2025. This creates a regulatory framework for a low-carbon economy by establishing sectoral emissions targets (SETs) and mandating greenhouse gas reporting. The Climate Change Act, paired with the Carbon Tax Act[13] published by the National Treasury (2019), signals a significant shift in South Africa's climate policy, which companies are addressing, among others, by investing in RE procurement.

Collectively, these pressures are driving businesses to reduce their reliance on electricity sourced from fossil fuels, through direct behind-the-meter solutions or wheeling.

2.3.3
Energy security needs

A reliance on the national grid to meet energy needs has historically exposed businesses to supply disruptions arising from generation shortfalls leading to loadshedding and poor grid reliability. The prevalence of loadshedding has reduced significantly since its peak in 2023, however, localised power outages remain a challenge.

Wetility, a solar PV service company, tracked the grid outages in 2025 through monitoring installed solar systems on its database, recording over 91 000 unique outage events across all nine provinces, with an average outage duration of 12.1 hours. Outages such as these continue to drive demand for energy storage solutions combined with RE for greater certainty of supply and improved power quality.

At a national level, the accelerated deployment of RE capacity has contributed to a reduction in loadshedding by increasing available generation and diversifying the energy mix. While the frequency of planned outages has declined, unplanned outages linked to ageing municipal transmission and distribution infrastructure, equipment failures, and network disruptions persist across many regions due to poor maintenance. This highlights a structural reliability challenge that is not resolved by generation capacity alone, driving continued demand for investment in RE and BESS, and emphasises the need for investment in maintenance of grid infrastructure.

2.4
BARRIERS AND MITIGATIONS

Investments in RE and BESS opportunities are hindered by the grid connection constraints, the slow adoption of wheeling frameworks by municipalities and a policy and regulatory environment that lags the changes in the market. While South Africa's RE opportunity remains compelling, these barriers collectively increase project timelines, costs, and risk. Addressing coordination failures, improving regulatory certainty, and restoring institutional credibility will be critical to sustained growth in the sector. Despite these challenges, projects can progress to construction and operation by implementing various mitigation strategies.

2.4.1
Grid connection constraints

Limited grid capacity, changing connection requirements, and inconsistent processes create significant development risk. Unclear timelines, lack of transparency, and evolving technical requirements increase costs and can delay or halt otherwise viable projects.

Eskom's latest Generation Connection Capacity Assessment (GCCA) 2025, reported zero available capacity for new large-scale projects in South Africa's most favourable RE zones: the Northern Cape, Western Cape, Eastern Cape, and Hydra Central[14] supply areas. The grid capacity is forward booked, meaning that it includes projects that are at an advanced stage of development with the grid already allocated for future connections. Despite the grid constraints at a regional level, some grid capacity is available at a substation level.

13 The South Africa a carbon tax, instituted in 2019, has ascending emissions costs and accountabilities. The tax is limited to Scope 1 emissions, which thus applies only to direct emitters in the region.

14 Hydra Central is an Eskom designated supply area centred around South Africa's large hydro power plant and water body, the Gariep Dam, covering parts of the provincial boundaries of the Eastern Cape, Western Cape, Northern Cape and Free State.

Grid constraints are being relieved through initiatives targeted at increasing RE capacity. The most noteworthy initiatives are:

- Eskom's priority programme for connecting RE projects focuses on upgrading and installing transformers in the short-term, allowing 13 GW of new RE energy generation capacity between 2024 and 2030. Furthermore, expediting transmission projects are expected to enable the connection of a further 24 GW of RE generation capacity by 2033 (NTCSA, 2024).
- Approval of 4% congestion curtailment[15] by NERSA allowed for more wind energy projects to connect, with an estimated 1 180 MW in the Western Cape and 400 MW in the Eastern Cape. The approval is valid for three years, and, at the end of the three-year approved curtailment period, NERSA will review and adapt the regulation to reflect the necessary levels of curtailment and progress of transmission strengthening projects. Most of the capacity that was released has already been allocated (NTCSA, 2025).
- The Department of Electricity and Energy launched South Africa's first ITIPP, with seven companies shortlisted for implementation. The first BW focuses on seven separate transmission infrastructure buildouts spread across the Northern Cape, Free State, North West and Gauteng, which will unlock 3 222 MW of new RE projects through 1 164 km of new transmission lines (IPPO, 2026).
- Implementation of large-scale BESS projects across key substations through the BESIPPPP. Eskom stated that these projects will aid in the connection of more RE, however no data has been provided on the capacity it could unlock.

Grid inadequacy places additional pressure on projects wanting to connect, since upstream infrastructure upgrades are to be paid by service providers. BTM systems often require Eskom-driven upstream upgrades, such as installing transformer or switchboard equipment, delaying or leading to downsizing of projects.

Beyond grid constraints, growth in the behind-the-meter (BTM) market is increasingly limited by high compliance costs associated with projects above 1 MW. System capacities of 1 MW or above must comply with additional requirements from Eskom and some municipalities, which add to capital expenditures, impacting project financial viability and expected returns. Consequently, developers are incentivised to keep projects under 1 MW or above 5 MW where the project is large enough to absorb the additional costs.

15 Congestion curtailment refers to the practice of limiting the output of RE of certain generators in times when generation exceeds the amount of power that can be evacuated at a given time.

2.4.2
Wheeling readiness

The absence of a standardised national wheeling framework remains a challenge. While Eskom-to-Eskom wheeling is mature, multi-jurisdictional wheeling (between Eskom and municipalities and across municipal boundaries) is hindered by inconsistent municipal administrative frameworks and the varying financial standing of municipalities.

Wheeling from generators connected to municipal networks is technically possible; it is not seen as a short or medium-term opportunity due to additional complexity. The available wheeling scenarios and ongoing developments are summarised in Table 2; no other wheeling scenarios are available in the market at present.

Table 2: Wheeling scenarios available or in development in South Africa

SCENARIO	STATUS	COMMENT
Eskom-connected generators to Eskom-connected medium- and high-voltage customers.	Active for one-to-one wheeling agreements. Eskom is piloting multiple generators to multiple off-takers (portfolio wheeling).	There are many active projects across the country with off-take from mostly large power users, such as mines and heavy industry. Traders play an important role as aggregators.
Eskom-connected generators to municipal-connected customers.	Virtual wheeling in pilot phase. Eskom to municipal customer wheeling is limited to a few unique cases.	Because the virtual wheeling model relies on Eskom refunding the customer directly after the municipality has paid Eskom, the municipality's debt status with Eskom remains a critical risk factor for the security of these rebates.
Municipal-connected generators to municipal connected customer(s) within the same municipality.	Limited availability at selected municipalities with a focus on wheeling of excess energy from a BTM generator.	Out of 257 municipalities nationally, only six have wheeling frameworks in development or being implemented: City of Cape Town, George, Nelson Mandela Bay, Swartland, Greater Tzaneen and Amahlathi.

Virtual wheeling is a new product being piloted by Eskom to simplify the wheeling process for municipal customers. With virtual wheeling, municipal customers will continue to settle their accounts with municipalities as usual, without needing to account for the wheeled energy. After the municipality settles its account with Eskom, Eskom will rebate the municipal customer for any overpayment caused by an energy balance mismatch, due to IPP generation being allocated to the customer. This rebate will be applied to a virtual account created between Eskom and the customer.

2.4.3
Government policy and regulatory misalignment

The transition of South Africa's electricity market occurs under inadequate coordination across government entities, resulting in overlapping mandates, duplicated processes, and conflicting requirements. Challenges noted by businesses include limited capacity and effectiveness in key institutions leading to inconsistent rule enforcement, which reduces confidence in a fair and predictable operating environment.

This leads to challenges for businesses that cause delays and increased complexity throughout project lifecycles. Some of the most noteworthy challenges are highlighted in Table 3.

Table 3: Policy and regulatory challenges that renewable energy developments face

CHALLENGE	MITIGATION
Section 53 applications of the Mineral and Petroleum Resource Development Act, Act no. 28 of 2002 requires land-use approval from the Minister of the Department of Mineral and Petroleum Resources (DMPR) An absence of statutory timelines for feedback often results in substantial delays in response.	Focus developments on land with low mineral potential and utilise the Energy One-Stop-Shop (EOSS) to facilitate inter-departmental follow-ups.
High biodiversity areas, such as Mpumalanga, pose a challenge for bird- and bat monitoring. A lack of institutional capacity and data causes delays or unfavourable outcomes of environmental approvals.	Working closely with relevant departments and relevant non-governmental entities improves the knowledge related to affected species. Furthermore, implementing recommendations provided by commenting authorities and locating projects within Renewable Energy Development Zones (REDZ) improves the likelihood of obtaining environmental approvals.
(GCAR) "first-ready, first-served" approach to grid access, requiring project developers to demonstrate construction readiness before grid allocation. This poses a significant financial risk with the possibility of no grid allocation at the end of the development process.	Forward planning to identify areas with known grid access and that forms part of the transmission development plan improves development viability. This is a key driver to focus investment on projects that are already allocated grid access.
Limited grid infrastructure spending by Eskom, delaying the connection of RE power plants.	It is standard practice for developers to incorporate transmission lines and substation as part of the RE projects at their own cost and handing over the transmission infrastructure to Eskom on completion.
The Preservation and Development of Agricultural Land Act - Act 39 of 2024 (PDALA) was ascended but is not yet implemented. The act aims to preserve agricultural land in South Africa, posing a risk to other land uses such as for renewable energy.	The regulations for PDALA has not yet been published, it is thus essential for industry to monitor the progress of its implentation in order to provide valued imputs when the opportunity rise.

Navigating these challenges and working through the available mechanisms has been integral to advancing projects. Some of the mechanisms that have been created are as follows:

- South Africa's Energy Action Plan was established to end loadshedding and achieve energy security. The plan focussed on five key pillars: (1) Fix Eskom and improve the availability of existing supply; (2) Enable and accelerate private investment in generation capacity; (3) Fast-track the procurement of new generation capacity from renewables, gas and battery storage; (4) Unleash businesses and households to invest in rooftop solar; (5) Fundamentally transform the electricity sector to achieve long-term energy security. The National Energy crisis Committee (NECOM) was established by the Presidency to implement the Energy Action Plan through coordinating various government agencies.
- The EOSS was setup by InvestSA with the goal of addressing challenges faced by RE developers. The EOSS has especially been useful in engaging with different government departments to obtain feedback on applications and permitting.
- The establishment and continued updates of the REDZ. REDZ were set up to fast-track the environmental approval process for RE projects. The Department of Forestry, Fisheries and the Environment (DFFE) maintain a website of geospatial data that project developers can access. A proposed update to the REDZ has been sent out for comment by the Council for Scientific and Industrial Research (CSIR) in April 2026, proposing to increase the boundary area and add additional REDZs.

3

EMERGING OPPORTUNITIES

The energy sector in South Africa is dynamic and has a rapidly changing policy and regulatory environment, with fundamental shifts in how the electricity network operates.

New opportunities are starting to emerge within the energy space which should be monitored for longer-term investment opportunities or by investors interested in higher risk, early market entry opportunities. Some of the longer-term opportunities are outlined below.

3.1.1
Independent transmission buildout

The first phase of the ITIPP is a pilot rollout of 1 164 km of new transmission lines. However, NTCSA's Transmission Development Plan 2025-2034 estimates a need for 11 494 km of new transmission lines and 210 transformers to be built by 2034, requiring an estimated R112 billion capital investment for the first 5-years (NTCSA 2024). The NTCSA utilises internal capability and external engineering, procurement and construction (EPC) companies; however, limited capital and capacity necessitate the need for a new funding model. The ITIPP could prove to be a viable alternative. This will enable substantial investment opportunities for grid infrastructure in the long-term.

3.1.2
Battery arbitrage and peak shaving

Battery arbitrage refers to the idea of purchasing energy and storing it while tariffs are low and then feeding back into the grid when the feed-in-tariffs are high, making use of price differentials to generate revenue. As the cost of storage continues to decrease and the price differences in time-of-use tariffs increase, an opportunity to shift peak demand and leverage tariff differences through arbitrage will start to emerge. Successful projects will require careful modelling of local tariff structures and demand profiles to determine the regional feasibility of these mechanisms.

3.1.3
Participation in the South African Wholesale Electricity Market

A major shift in the market is taking place as the process of unbundling Eskom continues and the country prepares for the beginning of South African Wholesale Electricity Market (SAWEM). SAWEM is intended to create competitive electricity pricing and stimulating further private sector investments into the electricity sector. The first implementation step is expected in late 2026, subject to regulatory and implementation timelines, focusing on internal trading within Eskom before broader rollout. SAWEM will enable private developers to sell electricity directly into a market rather than relying on long-term PPAs to develop projects.

3.1.4
Renewable Energy Certificates and carbon credits

Renewable Energy Certificates (RECs) exist in South Africa to track and certify the environmental benefits of RE generation, but trading and market mechanisms for RECs remain underdeveloped. The domestic market is currently voluntary due to a lack of regulatory frameworks and market liquidity to support large-scale trading of RECs. The local REC market primarily caters to voluntary corporate buyers who want to demonstrate their commitment to sustainability, rather than acting as a financial mechanism to incentivise further renewable deployment.

3.1.5
Green hydrogen developments

Green hydrogen remains a long-term opportunity that could stimulate large RE demand. While there has been expressed interest from the private sector, with pilot projects and feasibility studies being done, commercial projects have not yet materialised. The primary bottleneck to commercial deployment remains the absence of bankable off-take agreements.

GreenCape's Green Finance Desk has compiled and continues to maintain a database of funding sources and incentives that could be relevant to companies operating in the clean technology space: https://greencape.co.za/archives/green-finance-databases/

4

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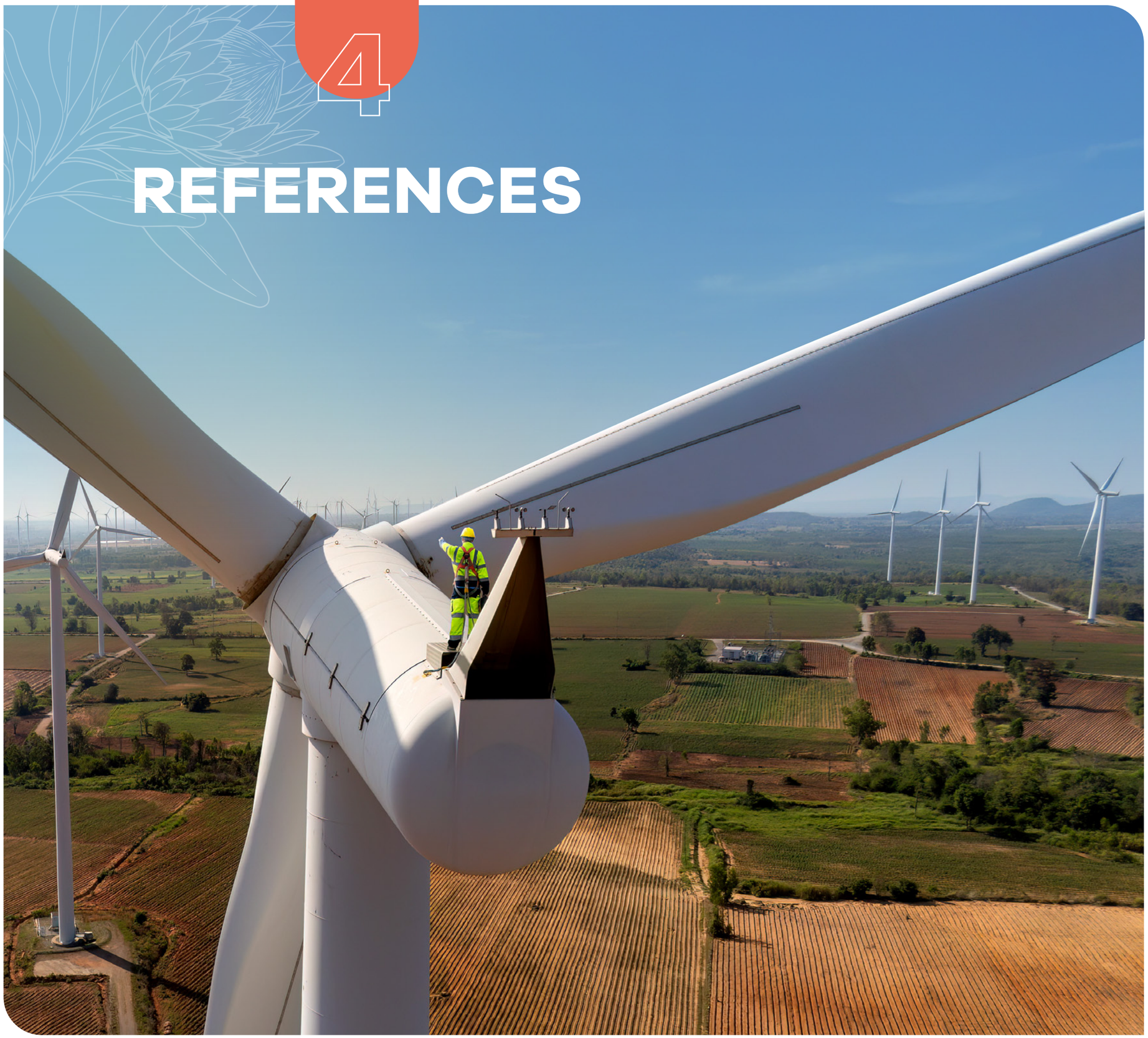

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