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South Africa Renewable Energy Sector **2025**



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1 Executive Summary

South Africa’s renewable energy sector has entered a decisive phase in its evolution, shaped by the twin imperatives of energy security and decarbonisation. Over the past decade, the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) has catalysed private investment, mobilising over R290 billion and securing more than 9.6 GW of capacity. More recently, reforms such as the removal of licensing thresholds for embedded generation and the adoption of the Electricity Regulation Amendment Act have unlocked unprecedented private sector participation, signalling a shift from a state-led to a more competitive and diversified market.

The policy and planning environment has expanded significantly. The Integrated Resource Plan (IRP), the Just Energy Transition Implementation Plan (JET IP) and the South African Renewable Energy Masterplan (SAREM) collectively establish a roadmap that links decarbonisation with industrialisation, localisation, and social equity. These frameworks also highlight the scale of investment required, estimated at over R1.5 trillion by 2030, and the necessity of blended finance, concessional funding, and risk mitigation tools to bridge affordability gaps. Installed capacity continues to grow, with solar and wind emerging as the backbone of the new generation. However, grid bottlenecks, particularly in the Cape provinces and the Northern Corridor, present material risks. Eskom’s Transmission Development Plan (TDP) identifies the need for accelerated infrastructure rollout, while the advent of private wheeling agreements and trader licences points to a more flexible and decentralised system.

Corporate power purchase agreements and self-generation projects are reshaping the energy landscape, driven by energy-intensive users seeking cost stability, emissions reductions, and resilience against loadshedding. At the same time, localisation efforts through SAREM aim to stimulate domestic manufacturing of solar modules, wind components, and storage technologies, positioning South Africa within emerging global value chains. Yet skills shortages in engineering, project management, and operations remain a critical constraint, underscoring the urgency of workforce development strategies aligned with the JET.

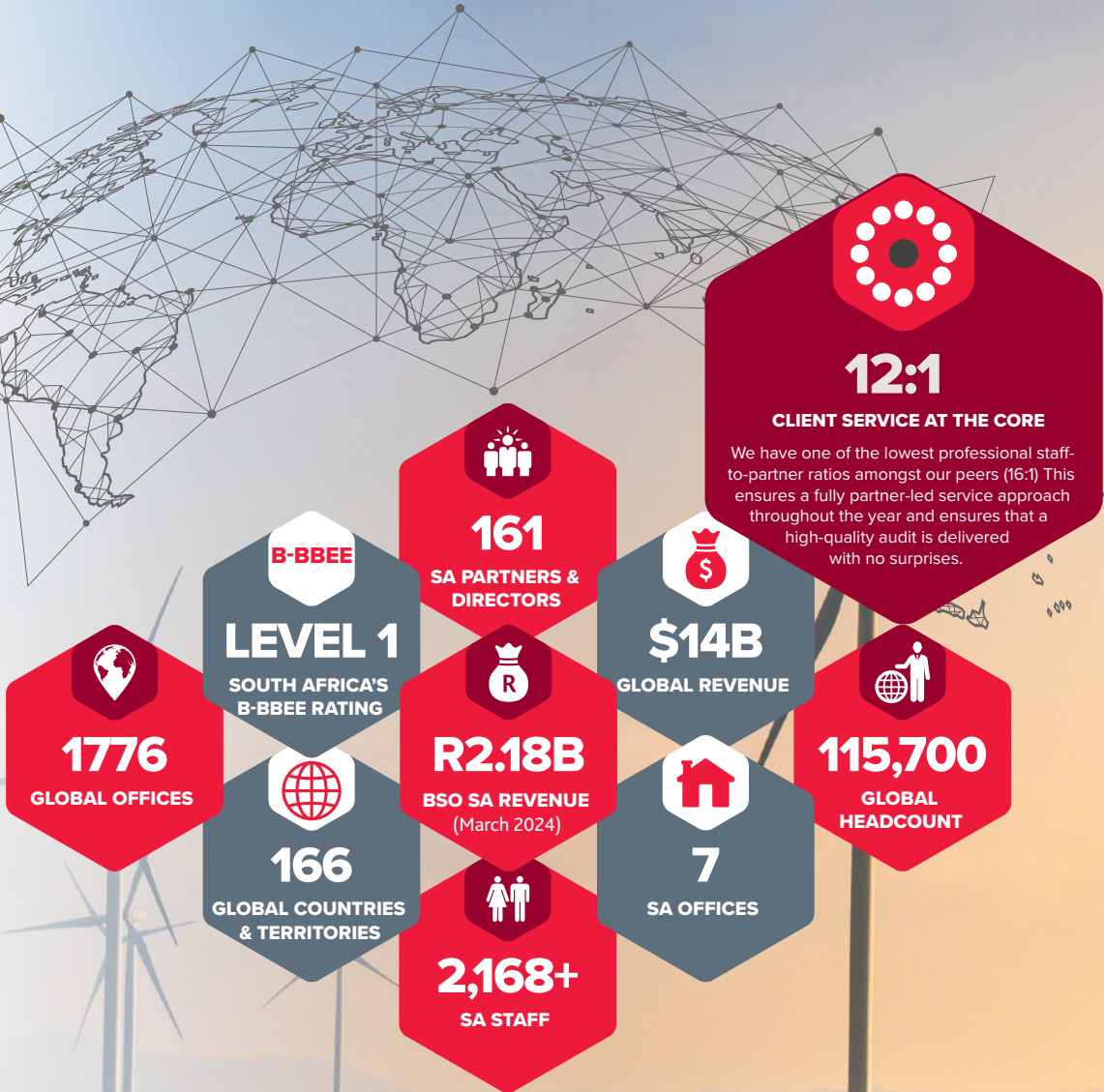
Financing models are evolving to meet sectoral needs. Green bonds, blended finance facilities, and public–private partnerships are becoming central to mobilising the scale of capital required, while fiscal incentives and industrial policy are being refined to reinforce competitiveness. The sector’s forward trajectory is also closely tied to parallel opportunities in green hydrogen, which could anchor new industries and export markets.

Looking ahead, the sector faces a complex risk environment, including regulatory uncertainty, delayed grid expansion, uneven localisation, and social pressures linked to coal phase-downs. Yet these challenges are balanced by enabling conditions: abundant renewable resources, deepening investor appetite, progressive policy reforms, and global demand for low-carbon commodities. Strategic priorities for the coming decade will therefore lie in resolving grid constraints, scaling investment in generation and transmission, accelerating skills formation, and embedding localisation within a just and inclusive framework.



2 About BDO

BDO South Africa is a key member of the BDO global network of public accounting, tax and advisory Firms which provides business advisory services across 166 countries, with approximately 115,700 people working out of 1,770 offices worldwide. Being a member of the BDO global network enables us to advise businesses which are trading and expanding internationally. There are currently 54+ BDO locations in Africa.



Our Purpose – People helping people achieve their dreams and ambitions

At BDO we believe in the elevation effect, where we help people achieve their dreams and ambitions. This is the very essence of BDO. Our motivation is to help people get to where they want to be – whether that's our colleagues, our clients or in the communities we are part of.

BDO has a clearly stated purpose – **our WHY** – which makes BDO unique. It puts into words why BDO exists and is our global organisation's fundamental reason for being, what defines us. As BDO continues to grow in reach, headcount and revenue, **our WHY** shapes how we work with our clients, support our colleagues and help our communities succeed. It helps us make better decisions for ourselves and for all our stakeholders, individually and as a global organisation.

We offer industry expertise, worldclass resources, and an unparalleled commitment to meeting our clients' needs, with **75%** of our clients recommending us. We serve approximately 25 JSE listed companies and over **158** internationally listed clients, who are clear on why they chose BDO.



At BDO we believe in the elevation effect, where we help people achieve their dreams and ambitions.

3 Introduction and Methodology

The renewable energy sector has shifted from a supplementary supply source to a cornerstone of South Africa's efforts to close the electricity deficit, stabilise costs, and advance a lower-carbon economy. Since the launch of the REIPPPP in 2011, it has drawn large-scale private investment, added over 15 GW of capacity, created jobs, and avoided millions of tonnes of emissions. Yet progress is tempered by grid bottlenecks, uneven policy execution, and economic pressures. Momentum nonetheless remains strong, with SAREM, corporate power purchase agreements, embedded generation, and storage procurement reshaping the electricity landscape. The sector now stands at a decisive moment, where vast opportunities are balanced by structural challenges that demand close assessment of policy, capacity, investment, infrastructure, technology, financing, and skills.

The study applied a dual research approach to ensure both breadth and depth of analysis. This combination of structured desk-based evidence and expert consultation grounds the findings in both system-wide trends and operational realities.

- ▶ Desktop research drew on over 180 sector-specific resources, encompassing South Africa's core planning and regulatory frameworks, electricity system statistics, procurement outcomes, grid connection assessments, just transition strategies, industrial localisation policies, financing models and current developments.
- ▶ Primary interviews engaged senior stakeholders across development, trading, corporate procurement, and research. These included Chief Executive Officer of Seriti Green; Executive Director of the SOLA Group; and Chief Engineer at the Centre for Renewable and Sustainable Energy Studies. Their insights grounded the analysis in practical realities and future-facing perspectives.

Summary of Desktop Research	
Overarching Research Areas	No of Resources Consulted
Sector Landscape, Trends & Economic Impact	17
Regulatory & Legislative Environment	18
Installed Capacity by Renewable Source	11
Project Pipeline & Investment Activity	27
Grid Access, Infrastructure & Transmission Constraints	20
Private Sector Participation & Embedded Generation	18
Technology Adoption & Localisation	20
Financing Models & Incentives	13
Workforce Skills, Training & Sector Readiness	13
Key Players & Partnerships	8
Multiple focus areas	17
Total no of resources	182

Summary of Primary Research			
Organisation	Role	Interview Length	Date
Seriti Green	CEO	38 min	28-Aug-25
Sola Group	Executive Director	48 min	28-Aug-25
Centre for Renewable and Sustainable Energy Studies (CRSES)	Chief Engineer	35 min	29-Aug-25

4 Sector Overview and Macroeconomic Context

3.1 The renewable energy sector and its broader economic impact

South Africa’s energy landscape is undergoing a structural shift as renewable energy technologies become central to addressing persistent supply deficits and advancing the low-carbon transition. Historically dominated by coal, which accounts for over 70% of generation capacity,¹ the national energy mix is progressively diversifying. Policy interventions such as the IRP 2023 and the JET IP 2023–2027 have established a framework for accelerating renewable deployment, while simultaneously managing economic, social, and environmental trade-offs.²³

The sector has already delivered tangible contributions to South Africa’s economy. Since the launch of the REIPPPP in 2011, more than R292.² billion in investment has been committed to new energy infrastructure.⁴

By March 2025, renewable energy projects had generated 133,764 GWh of electricity cumulatively, offsetting 129.2 million tonnes of CO₂ emissions and delivering R4.3 billion in socio-economic and enterprise development benefits.⁵ In addition, nearly 93,000 job-years have been created across construction and operations phases, highlighting the sector’s potential as a labour-absorptive industry.

Macroeconomic pressures, including high unemployment, fiscal constraints, and energy insecurity, have reinforced the imperative to scale renewables. Economic modelling suggests that sustainable growth will increasingly depend on shifting away from coal, as renewables represent the least-cost and most climate-compatible energy source.⁶ With installed renewable energy capacity exceeding 15 GW by 2024,⁷ the sector has transitioned from pilot projects to a critical component of national energy security.

“It’s the only game in town from a macroeconomic perspective, we’re building a R15 billion plant in one location in the country, as far as I’m concerned, that’s the biggest construction site in South Africa. It’s both good and bad. It’s good for renewables, it doesn’t say much about the rest of South Africa’s economy.”

Peter Venn - CEO, Seriti Green

“I would say it’s huge. I think it’s been over the last couple of years, it’s been probably the biggest driver of foreign direct investment and I suppose positive sentiment in South Africa.”

Dom Chennells - Executive Director, Sola Group

1. Council for Scientific and Industrial Research (CSIR). 2025. Utility-Scale Power Statistics Report, January 2025. [pdf] Pretoria: CSIR. Available at: https://www.csir.co.za/sites/default/files/Documents/Utility%20Statistics%20Report_Jan%202025_Final.pdf [Accessed 18 Aug. 2025].

2. Department of Mineral Resources and Energy (DMRE). 2023. Integrated Resource Plan (IRP) 2023. [pdf] Pretoria: DMRE. Available at: https://www.dmre.gov.za/Portals/0/Energy_Website/IRP/2023/IRP-2023-for-Public-Comments-User-friendly.pdf [Accessed 18 Aug. 2025].

3. The Presidency. 2023. Just Energy Transition Implementation Plan 2023–2027. [pdf] Pretoria: The Presidency. Available at: <https://www.stateofthenation.gov.za/assets/downloads/JET%20Implementation%20Plan%202023-2027.pdf> [Accessed 18 Aug. 2025].

4. IPP Office. 2025. Independent Power Producers Procurement Programme (IPPPP) Overview Report, March 2025. [pdf] Pretoria: Department of Mineral Resources and Energy. Available at: https://www.ipp-projects.co.za/_entity/annotation/15c9fdd-503c-d00d-b44a-1976b66a1bc4 [Accessed 18 Aug. 2025].

5. Ibid.

6. Polity. 2025. Sustainable economic growth in South Africa will come from renewables, not coal: what our model shows. [online] 13 February. Available at: <https://www.polity.org.za/article/sustainable-economic-growth-in-south-africa-will-come-from-renewables-not-coal-what-our-model-shows-2025-02-13> [Accessed 18 August 2025].

7. GreenCape. 2025. Market Intelligence Report: Large-Scale Renewable Energy. [pdf] Cape Town: GreenCape. Available at: <https://greencape.co.za/wp-content/uploads/2025/04/Large-Scale-Renewable-Energy-2025.pdf> [Accessed 18 Aug. 2025].

4 Sector Overview and Macroeconomic Context

3.2 Main trends, opportunities, and challenges

South Africa’s renewable energy industry has entered a turning point, driven by converging policy reforms, cost declines, and corporate demand. Market liberalisation measures under the 2024 Electricity Regulation Amendment (ERA) Act have introduced competitive electricity trading and expanded private participation.⁸ This has enabled corporates and municipalities to procure power directly from independent producers, with energy aggregators emerging as new market facilitators.⁹

Technological and financial trends are equally significant. Declining solar PV and wind costs have entrenched renewables as the least-cost generation option, with new projects securing tariffs well below Eskom’s average supply cost.¹⁰ Storage solutions, particularly battery systems, are expanding rapidly, supported by the launch of the Battery Energy Storage IPP Procurement Programme (BESIPPPP), which by March 2025 had procured 513 MW across eight preferred bidders.¹¹ Together, these innovations enhance system flexibility, reduce reliance on costly diesel peaking plants, and improve energy resilience.

In August 2025, the National Energy Regulator of South Africa (NERSA) confirmed another sharp electricity tariff increase, continuing a trend of above-inflation adjustments over the past decade. The average tariff now approaches R2/kWh, far exceeding the cost of new renewable projects, which remain in the range of 50 to 60c/kWh. This divergence reinforces the economic case for renewable alternatives, both grid-connected and embedded, and is accelerating the structural shift in South Africa’s energy system.¹²



8. Republic of South Africa. 2024. Electricity Regulation Amendment Act 38 of 2024. [pdf] Government Gazette, Pretoria: Government Printer. Available at: https://www.gov.za/sites/default/files/gcis_document/202408/51100electricityregamendmentact38of2024.pdf [Accessed 18 Aug. 2025].

9. CNBC Africa. 2025. Energy aggregators are paving the way for a liberalised electricity market in South Africa. [online] Available at: <https://www.cnbc.com/2025/energy-aggregators-are-paving-the-way-for-a-liberalised-electricity-market-in-south-africa/> [Accessed 18 August 2025].

10. Department of Trade, Industry and Competition (dtic) and Department of Mineral Resources and Energy (DMRE). 2025. South African Renewable Energy Masterplan (SAREM). [pdf] Pretoria: dtic and DMRE. Available at: https://www.gov.za/sites/default/files/gcis_document/202506/south-african-renewable-energy-masterplan.pdf [Accessed 18 Aug. 2025].

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12. BusinessTech, 2025. Eskom electricity price shock for South Africa with even bigger increases on the way. [online] Available at: <https://businesstech.co.za/news/energy/836185/eskom-electricity-price-shock-for-south-africa-with-even-bigger-increases-on-the-way/> [Accessed 8 Sep. 2025].

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15. ESI Africa. 2024. South Africa: Surface water key to energy mix strategy. [online] Available at: <https://www.esi-africa.com/industry-sectors/water/south-africa-surface-water-key-to-energy-mix-strategy/> [Accessed 18 August 2025].

16. Engineering News. 2025. Energy outlook in SA for 2025: Turning point for renewables, energy storage. [online] 17 January. Available at: <https://www.engineeringnews.co.za/article/energy-outlook-in-sa-for-2025-turning-point-for-renewables-energy-storage-2025-01-17> [Accessed 18 August 2025].

4 Sector Overview and Macroeconomic Context

Opportunities extend beyond generation. SAREM, released in 2025, outlines a localisation and industrialisation pathway intended to anchor manufacturing of renewable components domestically, thereby deepening economic linkages.¹³ Wind power, for instance, is projected to play an increasingly important role in GDP contribution and job creation.¹⁴ Similarly, surface water resources are being evaluated for integration into the energy mix strategy, reinforcing the nexus between energy and natural resources.¹⁵

Emerging innovations also frame the sector’s trajectory. Analysts highlight 2025 as a turning point for renewables and storage,¹⁶ while parallel commentary underscores new opportunities arising from digitalisation, corporate decarbonisation, and evolving policy reforms.¹⁷¹⁸ Collectively, these trends signal that the sector is poised for rapid growth, albeit uneven across provinces.

Yet, structural challenges remain. The transmission grid is highly constrained in resource-rich provinces such as the Northern and Eastern Cape, where available capacity for new projects is depleted until at least 2027.¹⁹ Policy uncertainty, reflected in delays to IRP updates and inconsistent REIPPPP procurement rounds, has at times dampened investor confidence.²⁰ Furthermore, balancing the pace of coal phase-downs with social stability in coal-dependent provinces remains a delicate political and economic challenge.

Looking forward, the renewable energy sector is expected to remain the cornerstone of South Africa’s energy transition. Its growth trajectory will be defined by the ability to unlock grid infrastructure, secure predictable procurement pathways, and leverage localisation to maximise economic impact. While opportunities for investment and innovation are expanding, the sector must navigate persistent risks linked to infrastructure bottlenecks, policy execution, and broader macroeconomic fragility.

“I think that’s maybe just foreign investment. I think businesses, again, while load shedding was happening, it was a way for businesses to potentially offset their diesel bills and make them stay profitable. We saw contracting, a lot less spending. Our economy contracted, which means there’s a lot less spending from across the board and businesses then had dropping revenues. This was a way to really impact bottom lines. Businesses who installed rooftop solar, who procured wheeled renewables, they were able to offset, I would say, a lot of that lost opportunity, that lost revenue. So, I think it’s been a huge impact from what we’ve seen over the last couple of years.”

Dom Chennells - Executive Director, Sola Group

“There are steps in the right direction. I think the government is looking like they’re trying to do the right stuff, but there is a lot of work that still needs to get done. I think the key would be for government to do that expediently and timeously, so that the private sector still has appetite to invest, to stay invested. I think the iron is still hot but it probably won’t stay like that forever if things don’t move soon.”

Monique Le Roux - Chief Engineer, CRES



17. Solar Africa. 2025. 2025 Energy Trends: Key Renewable Innovations in South Africa. [online] Available at: <https://solarafrica.com/insights/2025-energy-trends-in-south-africa/> [Accessed 18 August 2025].

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5 Policy, Regulation and Legislative Framework

South Africa’s energy transition is framed by a complex but evolving regulatory landscape. While the introduction of new laws, plans and procurement instruments has shaped the growth of renewables, questions persist as to whether South Africa’s government is driving the depth of reforms required to build a resilient, decentralised energy system. The policy environment remains central to determining what is and what is not possible in terms of private sector participation, grid liberalisation, and investment in ancillary services. This section examines the key legislative levers currently shaping the sector.

4.1 The South African Renewable Energy Masterplan (SAREM)

SAREM, launched in 2025, represents the most ambitious attempt yet to anchor renewables in a broader industrialisation strategy.²¹ Its primary focus is on localisation, value-chain development, and industrial

policy alignment, aiming to use renewable energy deployment as a lever for job creation, manufacturing competitiveness, and green exports. Analysts suggest that SAREM could catalyse a domestic manufacturing ecosystem for wind and solar components if policy commitments are translated into stable demand pipelines.²²

Yet, the framework is still at an early stage of implementation. While it signals intent to integrate renewables into industrial development, concerns remain about whether sufficient planning has been undertaken to align incentives, skills development, and infrastructure upgrades.²³ Without concurrent investment in logistics, water, and grid systems, SAREM risks remaining a policy aspiration rather than a transformative industrial tool.

SAREM Vision and Key Objectives

Vision			
Industrialisation of the renewable energy and battery storage value chain to enable inclusive participation in the energy transition, serving the needs of society, and contributing to economic revival			
Key Objectives by 2030:			
▶ Grow the economy by fostering the rollout of renewable energy and battery storage projects		▶ Build the capabilities needed for the industry's sustained growth	
▶ Grow the industrial capacity in the renewable energy and battery storage value chain		▶ Build a transformed industry throughout the value chain	
▶ Create and sustain decent employment across the value chain		▶ Contribute to a just transition	
Supporting power demand	Driving industrial development	Fostering inclusive development	Building the capabilities
▶ Market certainty ▶ System readiness	▶ Localisation ▶ Input materials ▶ Trade promotion	▶ Transformation ▶ New entrants ▶ Just transition	▶ Skills and technology development

21. Department of Trade, Industry and Competition (dtic) and Department of Mineral Resources and Energy (DMRE). 2025. South African Renewable Energy Masterplan (SAREM). [pdf] Pretoria: dtic and DMRE. Available at: https://www.gov.za/sites/default/files/gcis_document/202506/south-african-renewable-energy-masterplan.pdf [Accessed 18 Aug. 2025].

22. ESI Africa. 2025. South Africa: Renewable energy masterplan to 'ignite' economy. [online] Available at: <https://www.esi-africa.com/finance-and-policy/south-africa-renewable-energy-masterplan-to-ignite-economy/> [Accessed 18 Aug. 2025].

23. ITNewsAfrica. 2025. Growth challenges in South Africa's renewable energy sector. [online] 14 Feb. Available at: <https://www.itnewsafrika.com/2025/02/growth-challenges-in-south-africas-renewable-energy-sector/> [Accessed 18 Aug. 2025].

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Policy, Regulation and Legislative Framework

SAREM National Targets 2025				
Desired outcome	Target area	Indicator	Baseline	2030
Industrial development	Increase local content in the renewable energy and battery storage manufacturing and associated services sectors.	Local content as a share of total project value: ▶ Solar ▶ Wind ▶ Storage	45% (So) 47% (Wi) 20% (St)	50% (So) 47% (Wi) 60% (St)
Competitiveness	Strengthen the competitiveness of local renewable energy and battery storage manufacturers.	Trade balance for selected renewable energy and battery storage products (LIBs, solar panels, inverters, transformers).	Negative trade balance	Neutral or positive trade balance
Economic growth	Increase investment in the renewable energy and battery storage manufacturing and associated services sectors.	Value of cumulative investment in the renewable energy and battery energy storage key component manufacturing.	R2.5 billion	R15 billion
Job creation	Grow employment in the renewable energy and battery storage manufacturing and associated services sectors.	Number of people (full-time equivalent) employed in renewable energy and battery energy storage key component manufacturing.	2,500 jobs	25 000 jobs
		Youth employment target (share of jobs created).	n/d	50%
Transformed industry	Achieve a higher level of transformation (race and gender) in the renewable energy and battery storage manufacturing and associated services sectors.	Procurement (capital expenditure) from Black-owned manufacturers	<1%	5%
		Procurement (capital expenditure) from manufacturers	<1%	5%
		Share of female employees in the value chain.	30%	50%
		Rollout of Employee Share Ownership	TBD within 6 months of launch	TBD within 6 months of launch
		Plans, and ownership by youth, persons with disabilities and other designated groups.		

5

Policy, Regulation and Legislative Framework

Capacity building and new entrant support	Augment funding for incubation and capacity building of the sector.	Funds allocated by the project company to supplier development: ▶ Construction (share of capital expenditure) ▶ Operation (share of net profit after tax)	1% (Const) 1% (Ops)	1.5% (Const) 2% (Ops)
Youth participation and empowerment	Widen sector contribution to youth empowerment and skills activation.	Share of the renewable energy and battery storage sector participating in Yes4Youth and/or other programmes (such as the South African Wind Energy Association internship programme).	<5%	75%
Skills development	Grow the skill base in the RE and BES manufacturing and associated services sectors.	Skills development expenditure, as a percentage of revenue.	n/d	0.5%
		Share of renewable energy and battery storage manufacturing companies submitting their workplace skills plans and annual training reports.	20%	75%
Technology development	Increase R&D funding in the RE and BES manufacturing value chain.	R&D expenditure in renewable energy-relevant fields.	R500 million	+100% in real terms

Source: SAREM 2025

5 Policy, Regulation and Legislative Framework

4.2 The Electricity Regulation Amendment Act (ERA)

The ERA Act 38 of 2024 is arguably the most significant reform in South Africa’s electricity sector in over a decade. It amends the Electricity Regulation Act of 2006 to enable the creation of a competitive electricity market, allowing multiple buyers and sellers to participate in trading power through the Transmission System Operator.²⁴ This is a step towards unbundling Eskom and liberalising the market, providing corporates, municipalities, and other large users the opportunity to procure power outside Eskom’s monopoly.

Industry stakeholders, however, have cautioned that implementation remains uncertain. While the ERA legally enables competition, the physical and institutional arrangements, from transmission upgrades to regulatory oversight, are still lagging.²⁵ Without strong governance, transparent rules, and adequate investment in transmission, the benefits of liberalisation may be slow to materialise.

4.3 The Renewable Energy Independent Power Producer Procurement Programme (REIPPPP)

The REIPPPP has been the cornerstone of South Africa’s renewable energy expansion since 2011. By March 2025, the programme had procured 9,618 MW of capacity from 137 independent power producers, following the termination of several projects that failed to reach financial close, and had attracted over R292.2 billion in investment.²⁶ It has also generated measurable socio-economic benefits, including R4.3 billion in enterprise and socio-economic development contributions and more than 93,806 job-years during construction and operations.²⁷

Yet, its trajectory has been uneven. Bid Windows 5 and 6, for instance, faced challenges with grid constraints, financial close delays, and the termination of 14 projects (1,424 MW) under Bid Window 5 and 5 projects (1,570 MW) under the RMIPPPP.²⁸ Observers argue that the programme’s stop-start nature has undermined investor confidence and supply chain planning.²⁹ While new procurement rounds, including Bid Window 7 (1,760 MW across eight preferred bidders) and the BESIPPPP (513 MW across eight projects), show commitment to continued renewables growth, the lack of predictability raises questions about the government’s ability to provide a steady investment environment.

“I think... the ERA, I guess it’s allowed for wheeling I think, sort of wheel power and for the unbundling of transmission and distribution, I mean that’s kind of tracking in the right direction.”

Dom Chennells - Executive Director, Sola Group

24. Republic of South Africa. 2024. Electricity Regulation Amendment Act 38 of 2024. [pdf] Government Gazette, Pretoria: Government Printer. Available at: https://www.gov.za/sites/default/files/gcis_document/202408/51100electricityregamendmentact38of2024.pdf [Accessed 18 Aug. 2025].

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27. Ibid.

28. IPP Office. 2025. Independent Power Producers Procurement Programme (IPPPP) Quarterly Report Q4 2024. [pdf] Pretoria: IPP Office. Available at: https://www.ipp-projects.co.za/_entity/annotation/ad5edeb4-bb84-52da-a179-79d1a4068033 [Accessed 18 Aug. 2025].

29. Joub. 2025. South Africa’s NDP 2030: A renewable energy pathway to job creation and economic growth. [online] Available at: <https://joub.co.za/south-africas-ndp-2030-a-renewable-energy-pathway-to-job-creation-and-economic-growth/> [Accessed 18 Aug. 2025].

5 Policy, Regulation and Legislative Framework

4.4 The Integrated Resource Plan (IRP) 2023

The IRP 2023 is South Africa’s official long-term electricity roadmap. It emphasises a diversified energy mix with accelerated deployment of renewables and storage, while managing a gradual decline in coal generation.³⁰ In theory, the IRP is the central planning document that should align procurement, regulation, and investment flows.

In practice, however, its effectiveness has been undermined by outdated assumptions, implementation delays, and a lack of integration with other planning frameworks.³¹ Industry analysts note that the IRP’s projections often do not align with actual procurement outcomes, while delays in updating the plan reduce its relevance to a fast-changing energy landscape.³² Government’s reliance on ministerial determinations to adjust capacity allocations further highlights gaps in proactive, system-wide planning.³³

“I think there is still a lot of excitement from the private sector and willingness to invest. I think specifically with the market [South African Wholesale Electricity Market] that is going to be released early next year. I anticipate it will be released in April next year. I think a lot of people are gearing up for that and hoping that it will open up opportunities for them to trade... I think there’s still so much work, we’re doing a lot of work in terms of getting Eskom, helping them to get ready for the roll out, to get the models sorted, to get their ducks in a row, and my personal opinion is that there is still a lot of work to be done. So, I can’t see that early next year when they anticipate to launch that it will just be full-scale trading that’s happening and imminent move towards open electricity sector and trading.”

Dom Chennells - Executive Director, Sola Group

30. Department of Mineral Resources and Energy (DMRE). 2023. Integrated Resource Plan (IRP) 2023. [pdf] Pretoria: DMRE. Available at: https://www.dmre.gov.za/Portals/0/Energy_Website/IRP/2023/IRP-2023-for-Public-Comments-User-friendly.pdf [Accessed 18 Aug. 2025].

31. Engineering News. 2025. Businesses urged to use enhanced deduction for renewable energy incentive before February 28. [online] 20 Feb. Available at: <https://www.engineeringnews.co.za/article/businesses-urged-to-use-enhanced-deduction-for-renewable-energy-incentive-before-february-28-2025-02-20> [Accessed 18 Aug. 2025].

32. ITNewsAfrica. 2025. Growth challenges in South Africa’s renewable energy sector. [online] Available at: <https://www.itnewsafrika.com/2025/02/growth-challenges-in-south-africas-renewable-energy-sector/> [Accessed 18 Aug. 2025].

33. IPP Office. 2025. Independent Power Producers Procurement Programme (IPPPP) Quarterly Report Q4 2024. [pdf] Pretoria: IPP Office. Available at: https://www.ipp-projects.co.za/_entity/annotation/ad5edeb4-bb84-52da-a179-79d1a4068033 [Accessed 18 Aug. 2025].

34. Eskom. 2025. Just Energy Transition (JET). [online] Available at: <https://www.eskom.co.za/about-eskom/just-energy-transition-jet/> [Accessed 18 Aug. 2025].

35. State of the Nation. 2023. Update on Energy Action Plan, August 2023. [pdf] Pretoria: Government of South Africa. Available at: https://www.stateofthenation.gov.za/assets/downloads/Update_on_energy_action_plan_AUG23.pdf [Accessed 18 Aug. 2025].

36. Government of South Africa. 2007. Free Basic Electricity Policy. [pdf] Pretoria: Government Printer. Available at: https://www.gov.za/sites/default/files/gcis_document/201409/29760.pdf [Accessed 18 Aug. 2025].

37. Engineering News. 2025. NERSA approves generation capacity charge, sets out other retail tariff plan changes. [online] 24 Feb. Available at: <https://www.engineeringnews.co.za/article/nersa-approves-generation-capacity-charge-sets-out-other-retail-tariff-plan-changes-2025-02-24> [Accessed 18 Aug. 2025].

38. Engineering News. 2025. Carbon tax electricity price neutrality extended to end 2030. [online] 19 Feb. Available at: <https://www.engineeringnews.co.za/article/carbon-tax-electricity-price-neutrality-extended-to-end-2030-2025-02-19> [Accessed 18 Aug. 2025].

5 Policy, Regulation and Legislative Framework

4.5 Other notable policy developments

Several complementary policies also shape the renewable energy landscape. The government’s JET IP framework is central to managing the socio-economic impacts of coal phase-downs, including community reskilling and regional economic diversification.³⁴ The Energy Action Plan (2023 update) emphasises emergency procurement and short-term reforms to stabilise supply, although critics argue it is reactive and fragmented.³⁵ Meanwhile, regulatory instruments such as the Free Basic Electricity Policy (2007) and NERSA’s tariff decisions continue to influence affordability and distribution equity.³⁶³⁷

Looking ahead, new proposals such as enhanced renewable energy tax incentives³⁸ together with the creation of the South African Wholesale Electricity Market (SAWEM), signal momentum towards deeper reform. SAWEM, which is scheduled for launch by the National Transmission Company South Africa (NTCSA) in 2026, is designed as a central trading platform where generators, traders and large customers can buy and sell electricity on a competitive basis. The platform aims to increase transparency, improve price discovery and expand access for independent power

producers, thereby accelerating private investment in renewable generation.³⁹ In parallel, the government, in September 2025, has established an interim office to guide the rollout of South Africa’s hydrogen economy, offering institutional coordination and policy direction for this emerging sector. The office is expected to play a catalytic role in linking hydrogen projects to industrial policy frameworks and ensuring alignment with broader transition objectives.⁴⁰

Further institutional consolidation occurred in September 2025, when the Department of Electricity and Energy expanded the mandate of the Independent Power Producer Office and appointed a new head to lead its transformation. The expanded role is intended to accelerate procurement timelines, strengthen oversight of large-scale and embedded projects, and align procurement pipelines with broader just transition objectives.⁴¹

Yet, whether these initiatives will be integrated into a coherent system remains uncertain. The government’s persistent emphasis on expanding generation capacity, without equal focus on complementary investments in workforce development, transmission infrastructure, and industrialisation, risks entrenching a fragmented and piecemeal transition.

“I think there is still a lot of excitement from the private sector and willingness to invest. I think specifically with the market [South African Wholesale Electricity Market] that is going to be released early next year. I anticipate it will be released in April next year. I think a lot of people are gearing up for that and hoping that it will open up opportunities for them to trade... I think there’s still so much work, we’re doing a lot of work in terms of getting Eskom, helping them to get ready for the roll out, to get the models sorted, to get their ducks in a row, and my personal opinion is that there is still a lot of work to be done. So, I can’t see that early next year when they anticipate to launch that it will just be full-scale trading that’s happening and imminent move towards open electricity sector and trading.”

Monique Le Roux - Chief Engineer, CRSES

39. Engineering News. 2025. NTCSA aiming to launch electricity market platform on April 1. [online] 11 Jun. Available at: <https://www.engineeringnews.co.za/article/ntcsa-aiming-to-launch-electricity-market-platform-on-april-1-2025-06-11> [Accessed 18 Aug. 2025].

40. Energize. 2025. New interim office to guide South Africa’s hydrogen rollout. Available at: <https://www.energize.co.za/article/new-interim-office-to-guide-south-africas-hydrogen-rollout> [Accessed 23 September].

41. Engineering News. 2025. DEE outlines expanded role for IPPO as it appoints new head. [online] Available at: <https://www.engineeringnews.co.za/article/dee-outlines-expanded-role-for-ippo-as-it-appoints-new-head-2025-09-02> [Accessed 8 Sep. 2025].

6 Installed Capacity and Energy Mix

South Africa’s current installed capacity profile is a direct outcome of the regulatory and procurement instruments outlined in the previous section. The REIPPPP, IRP, and Eskom’s system planning processes have collectively guided investment decisions, shaping the energy mix as it stands in 2025. The national picture reflects a gradual but accelerating diversification away from coal, even though coal continues to dominate the supply base. This section provides a breakdown of installed capacity by technology, regional distribution across provinces, and the systemic risks and opportunities influencing the sustainability of future capacity growth.

“Surprisingly, we thought... there would definitely be sort of a turn down in terms of private solar connections due to the fact that there isn’t as much load shedding... But it seems like it is still definitely going ahead. People are still investing. There are still new projects coming online, new capacity being added, which is interesting.”

Monique Le Roux - Chief Engineer, CRSES

“I suppose, just about talking behind the meter projects and then also utility scale wheeling. Our primary focus is utility scale solar and batteries. That’s where we as a business are doing most of our work... We’ve seen a lot of wheeling projects, so I guess that’s our primary focus. But big wheeling projects, from a solar point of view, I don’t know if we’re unique in this space. We believe we have one of the few assets that is permitted for batteries, and we’ve taken that project through the financial close above it. It’s a big solar asset that has a significant utility scale battery installed at the site and we’re essentially wheeling a shaped generation profile. We’re wheeling a PV electron that is in peak periods. The business case there seems to be very attractive... We’ve also seen Eskom pushing back on big behind the meter installations... And then I think someone said in the news this week, there was an article that was throwing André de Ruyter under the bus saying he didn’t trust his team at Eskom, there’s a lot of good people at Eskom, and they all just want to be acknowledged, and you’re not going to get the best out of your team if you speak negatively to them. I think I agree with that to a certain extent. But there’s a perceived sentiment that... Eskom is stopping projects connecting into the grid because they haven’t got capacity... and that is resulting in a lower renewable energy project uptake. There’s a lot of demand. There are a lot of projects that want to connect. They just can’t get the transmission infrastructure.”

Dom Chennells - Executive Director, Sola Group

5.1 National capacity by technology

As of 2025, South Africa’s total installed capacity stood at approximately 55,000 MW.⁴² Coal remains the dominant supply source, accounting for just over 70% of the total fleet.⁴³ The balance is made up of renewables, nuclear, diesel and gas peakers, pumped storage, and hydro. The renewable portfolio now exceeds 15 GW, split between wind (6.2 GW), solar PV (7.4 GW), concentrated solar power (0.6 GW), small hydro (0.6 GW) and biomass (0.2 GW).^{44,45}

The REIPPPP has played the most decisive role in scaling this capacity. By March 2025, the programme had procured 9,618 MW across 137 independent power producers, of which 7,335 MW is already operational. These projects have collectively generated 133 764 GWh, offsetting 129.2 million tonnes of CO₂ since inception. Cumulative investment attracted into the economy through REIPPPP exceeds R292 billion, of which nearly one-fifth originates from foreign direct investment.⁴⁶

Coal’s declining share in the overall generation mix is matched by renewables’ growing contribution to actual energy produced. In 2024, renewable technologies supplied just over 10% of electricity sent out, compared with around 5% a decade earlier.⁴⁷ Performance data from Eskom’s renewables portal further highlights consistent year-on-year gains in wind and solar output, with solar PV achieving average capacity factors above 25%, and wind projects averaging around 36%.⁴⁸

42. Council for Scientific and Industrial Research (CSIR). 2025. Utility-Scale Power Statistics Report, January 2025. [pdf] Pretoria: CSIR. Available at: https://www.csir.co.za/sites/default/files/Documents/Utility%20Statistics%20Report_Jan%202025_Final.pdf [Accessed 18 Aug. 2025].

43. Eskom. 2025. Generation Plant Mix (GX-0001-Generation-Plant-Mix-Rev-29). [pdf] Johannesburg: Eskom. Available at: <https://www.eskom.co.za> [Accessed 18 Aug. 2025].

44. Eskom. 2023. Generation Connection Capacity Assessment (GCCA) 2025. [pdf] Johannesburg: Eskom. Available at: https://www.eskom.co.za/wp-content/uploads/2023/10/Generation_Connection_Capacity_AssessmentGCCA-2025finalfinal_rev0003.pdf [Accessed 18 Aug. 2025].

45. Council for Scientific and Industrial Research (CSIR). 2025. Utility-Scale Power Statistics Report, January 2025. [pdf] Pretoria: CSIR. Available at: https://www.csir.co.za/sites/default/files/Documents/Utility%20Statistics%20Report_Jan%202025_Final.pdf [Accessed 18 Aug. 2025].

46. IPP Office. 2025. Independent Power Producers Procurement Programme (IPPPP) Q4 2024/25 Report, as at 31 March 2025. [pdf] Pretoria: Department of Mineral Resources and Energy. Available at: https://www.ipp-projects.co.za/_entity/annotation/15c9ffdd-503c-d00d-b44a-1976b66a1bc4 [Accessed 18 Aug. 2025].

47. Eskom. 2023. Generation Connection Capacity Assessment (GCCA) 2025. [pdf] Johannesburg: Eskom. Available at: https://www.eskom.co.za/wp-content/uploads/2023/10/Generation_Connection_Capacity_AssessmentGCCA-2025finalfinal_rev0003.pdf [Accessed 18 Aug. 2025].

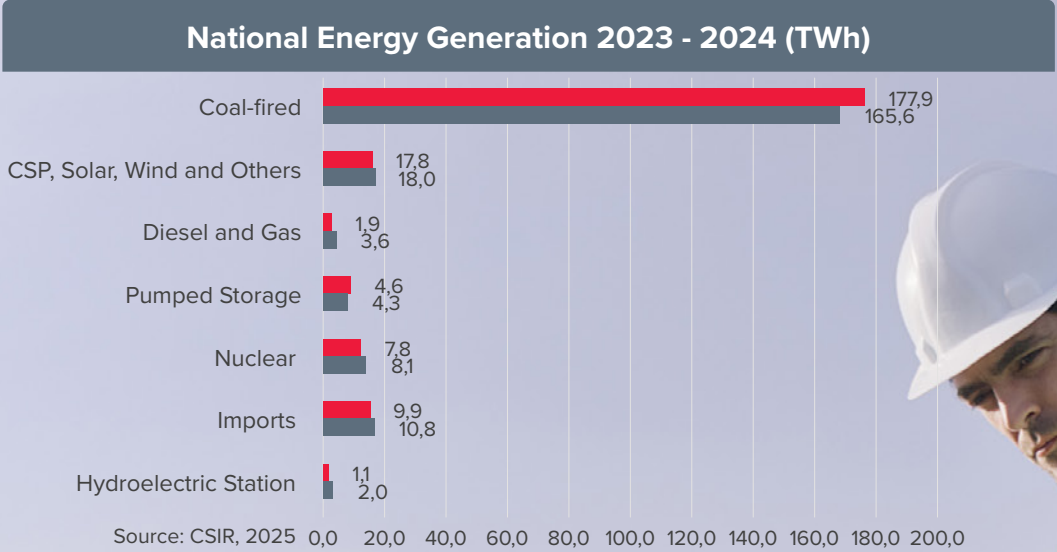
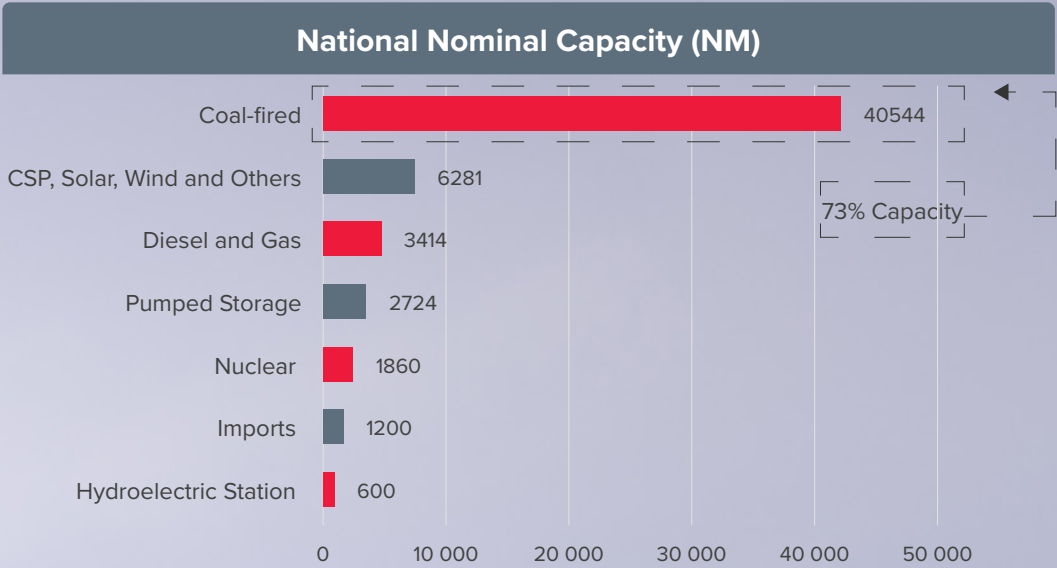
48. Eskom. 2025. Renewables Performance Data Portal. [online] Available at: <https://www.eskom.co.za/dataportal/renewables-performance/> [Accessed 18 Aug. 2025].

49. Eskom. 2023. Generation Connection Capacity Assessment (GCCA) 2025. [pdf] Johannesburg: Eskom. Available at: https://www.eskom.co.za/wp-content/uploads/2023/10/Generation_Connection_Capacity_AssessmentGCCA-2025finalfinal_rev0003.pdf [Accessed 18 Aug. 2025].

50. Energy Capital & Power. 2025. South African government awards 1.29 GW tender for two new projects in solar and BSS. [online] Available at: <https://energycapitalpower.com/south-africa-awards-1-29-gw-solar-615-mw-storage-in-latest-tenders/> [Accessed 18 Aug. 2025].

51. MyBroadband. 2025. South Africa gets R11.6-billion solar plant with biggest thermal battery. [online] Available at: <https://mybroadband.co.za/news/energy/601565-south-africa-gets-r11-6-billion-solar-plant-with-biggest-thermal-battery.html> [Accessed 18 Aug. 2025].

6 Installed Capacity and Energy Mix



Source: CSIR, 2025

52. Eskom. 2023. Generation Connection Capacity Assessment (GCCA) 2025. [pdf] Johannesburg: Eskom. Available at: https://www.eskom.co.za/wp-content/uploads/2023/10/Generation_Connection_Capacity_AssessmentGCCA-2025finalfinal_rev0003.pdf [Accessed 18 Aug. 2025].

53. National Transmission Company of South Africa (NTCSA). 2025. South African Renewable Energy Grid Survey. [online] Available at: <https://www.ntcsa.co.za/south-africa-renewable-energy-grid-and-survey/> [Accessed 18 Aug. 2025].

54. Energize. 2025. SA's largest wind farm gets green light. Available at: <https://www.energize.co.za/article/sas-largest-wind-farm-gets-green-light> [Accessed 23 September].

55. Eskom. 2023. Generation Connection Capacity Assessment (GCCA) 2025. [pdf] Johannesburg: Eskom. Available at: https://www.eskom.co.za/wp-content/uploads/2023/10/Generation_Connection_Capacity_AssessmentGCCA-2025finalfinal_rev0003.pdf [Accessed 18 Aug. 2025].

56. National Transmission Company of South Africa (NTCSA). 2025. South African Renewable Energy Grid Survey. [online] Available at: <https://www.ntcsa.co.za/south-africa-renewable-energy-grid-and-survey/> [Accessed 18 Aug. 2025].

5.1.1 Trends in solar PV

Large-scale solar PV remains the fastest growing renewable segment. Installed capacity now exceeds 7 GW, concentrated largely in the Northern and Free State provinces.^{49,50} Landmark projects include the R11.6 billion solar plant with integrated thermal battery storage, completed in 2025, which demonstrates the emerging trend of hybrid solar-storage systems designed to enhance dispatchability.⁵¹

5.1.2 Trends in wind energy

Installed wind power capacity has reached 6.2 GW, representing the second largest renewable category.⁵² Wind projects contribute disproportionately to actual generation because of higher average load factors relative to solar. Coastal provinces, especially the Eastern and Western Cape, host the majority of the wind fleet.⁵³ Recent approvals indicate continued growth, with the country's largest wind farm receiving the green light in September 2025. Once operational, the Carissa wind energy facility in the Western Cape is expected to materially expand capacity, strengthen the role of wind in the national mix, and deepen the concentration of assets in coastal regions where resource conditions are most favourable. The approval makes Carissa the largest permitted wind project in the country with a planned capacity of 1,000 MW generated from 154 wind turbines. The facility will supply renewable power to Hive Hydrogen's Coega green ammonia project in Nelson Mandela Bay.⁵⁴



57. Energy Capital & Power. 2025. Eenvusa Energy nears launch of 520 MW Koruson 2 cluster in South Africa. [online] Available at: <https://energycapitalpower.com/envusa-energy-nears-launch-of-520-mw-koruson-2-cluster-in-south-africa/> [Accessed 18 Aug. 2025].

58. Eskom. 2023. Generation Connection Capacity Assessment (GCCA) 2025. [pdf] Johannesburg: Eskom. Available at: https://www.eskom.co.za/wp-content/uploads/2023/10/Generation_Connection_Capacity_AssessmentGCCA-2025finalfinal_rev0003.pdf [Accessed 18 Aug. 2025].

59. Eskom. 2023. Generation Connection Capacity Assessment (GCCA) 2025. [pdf] Johannesburg: Eskom. Available at: https://www.eskom.co.za/wp-content/uploads/2023/10/Generation_Connection_Capacity_AssessmentGCCA-2025finalfinal_rev0003.pdf [Accessed 18 Aug. 2025].

60. National Transmission Company of South Africa (NTCSA). 2025. South African Renewable Energy Grid Survey. [online] Available at: <https://www.ntcsa.co.za/south-africa-renewable-energy-grid-and-survey/> [Accessed 18 Aug. 2025].

6 Installed Capacity and Energy Mix

“I think we’re still seeing wind projects coming online. Businesses that have got big renewable energy targets, maybe 2030 or 2035 targets, are looking at their wind to complement their existing renewables mix. But we’re seeing challenges in wind projects. They are a bit more expensive because of grid difficulties, being able to tie in. Across all utility-scale projects, there’s a shortage of wind opportunities and Eskom’s transmission constraints are slowing things down. There is a lot of demand, there are a lot of projects that want to connect, they just can’t get the transmission infrastructure to do that. So, wind is still growing, but it’s being held back by grid access.”

Dom Chennells - Executive Director, Sola Group

5.1.3 Concentrated solar and other technologies

Concentrated solar power (CSP) accounts for 0.6 GW, almost all located in the Northern Cape. Although CSP growth has slowed due to high costs, recent innovation in storage integration is reviving investor interest. Small hydro and biomass projects together add under 1 GW, but remain relevant for niche applications and regional diversification.⁵⁵

“I think in terms of battery and the need for battery commissioning and capacity expansion on our grid, we are really far behind. It should be more prevalent. It should have been something that was rolled out a lot more aggressively if you want to do renewables with that because that’s the only way you can really balance your grid in a sustainable manner, if you’ve got a lot of renewables on there, other than using gas.”

Monique Le Roux - Chief Engineer, CRSES

61. Eskom. 2023. Generation Connection Capacity Assessment (GCCA) 2025. [pdf] Johannesburg: Eskom. Available at: https://www.eskom.co.za/wp-content/uploads/2023/10/Generation_Connection_Capacity_AssessmentGCCA-2025finalfinal_rev0003.pdf [Accessed 18 Aug. 2025].

62. National Transmission Company of South Africa (NTCSA). 2025. South African Renewable Energy Grid Survey. [online] Available at: <https://www.ntcsa.co.za/south-africa-renewable-energy-grid-and-survey/> [Accessed 18 Aug. 2025].

63. Department of Mineral Resources and Energy (DMRE). 2025. Renewable Energy Independent Power Producer Procurement Programme. [online] Available at: <https://www.dmre.gov.za/energy-resources/reipp-programme> [Accessed 18 Aug. 2025].

64. Eskom. 2025. Renewables Performance Data Portal. [online] Available at: <https://www.eskom.co.za/dataportal/renewables-performance/> [Accessed 18 Aug. 2025].

65. Engineering News. 2025. Seriti Green has R25bn to deploy in Mpumalanga but can't get Eskom budget quotes. [online] 25 July. Available at: <https://www.engineeringnews.co.za/article/seriti-green-has-r25bn-to-deploy-in-mpumalanga-but-cant-get-eskom-budget-quotes-2025-07-25> [Accessed 18 Aug. 2025].

66. Eskom. 2023. Generation Connection Capacity Assessment (GCCA) 2025. [pdf] Johannesburg: Eskom. Available at: https://www.eskom.co.za/wp-content/uploads/2023/10/Generation_Connection_Capacity_AssessmentGCCA-2025finalfinal_rev0003.pdf [Accessed 18 Aug. 2025].

67. Eskom. 2023. Generation Connection Capacity Assessment (GCCA) 2025. [pdf] Johannesburg: Eskom. Available at: https://www.eskom.co.za/wp-content/uploads/2023/10/Generation_Connection_Capacity_AssessmentGCCA-2025finalfinal_rev0003.pdf [Accessed 18 Aug. 2025].

68. National Transmission Company of South Africa (NTCSA). 2025. South African Renewable Energy Grid Survey. [online] Available at: <https://www.ntcsa.co.za/south-africa-renewable-energy-grid-and-survey/> [Accessed 18 Aug. 2025].

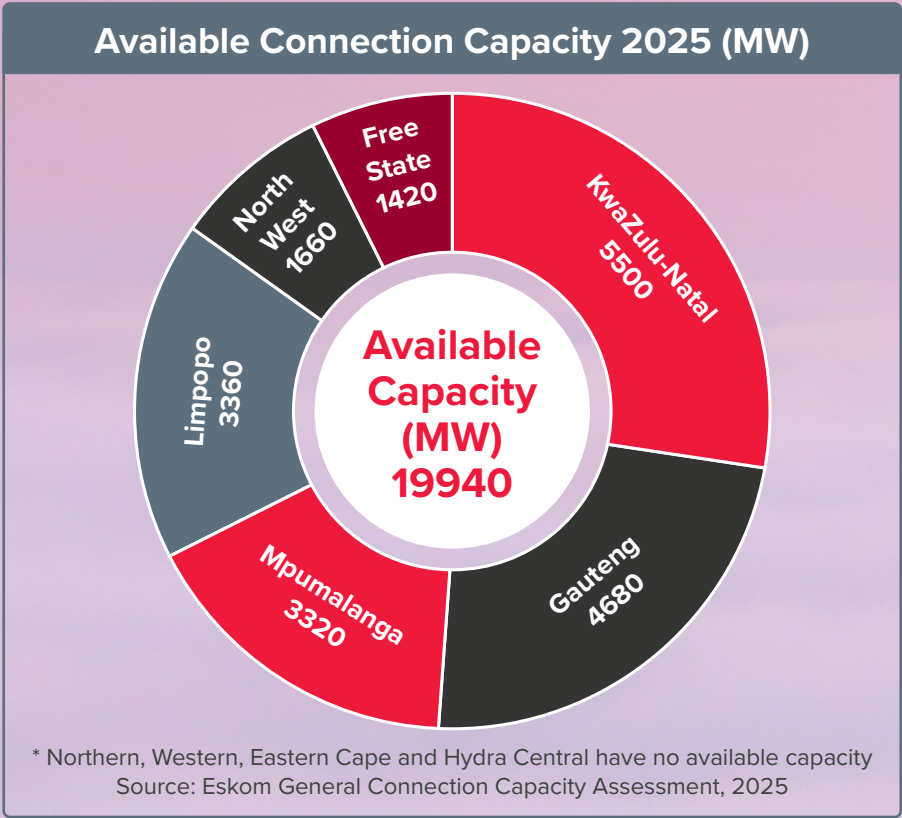
69. Engineering News. 2025. Mega-scale 506 MW Free State solar cluster takes another big step forward. Available at: <https://www.engineeringnews.co.za/article/mega-scale-506-mw-free-state-solar-cluster-takes-another-big-step-forward-2025-09-15> [Accessed 23 September].

70. Eskom. 2023. Generation Connection Capacity Assessment (GCCA) 2025. [pdf] Johannesburg: Eskom. Available at: https://www.eskom.co.za/wp-content/uploads/2023/10/Generation_Connection_Capacity_AssessmentGCCA-2025finalfinal_rev0003.pdf [Accessed 18 Aug. 2025].

6 Installed Capacity and Energy Mix

5.2 Provincial distribution of capacity

The three provinces of KwaZulu-Natal, Gauteng, and Mpumalanga account for two-thirds of all installed capacity nationwide. Other smaller provinces like Northern Cape and North-West draw power from adjacent provinces. This could change in the coming years as more decentralisation takes place to generate power within locations where it's needed.



5.2.1 Northern Cape

The Northern Cape is the undisputed hub of South Africa's renewable build-out. By 2025, the province hosted nearly 60% of installed solar PV capacity.⁵⁶ It also accommodates all of the country's CSP fleet and significant wind installations. The recently completed Koruson 2 cluster (520 MW) consolidates the province's leadership in large-scale deployment.⁵⁷ However, Eskom's Generation Connection Capacity Assessment (GCCA) 2025 indicates that all available grid connection capacity in the Northern Cape has been fully allocated until at least 2027.⁵⁸ This has constrained approvals under Bid Window 7, underscoring the urgency of transmission upgrades.

5.2.2 Eastern Cape

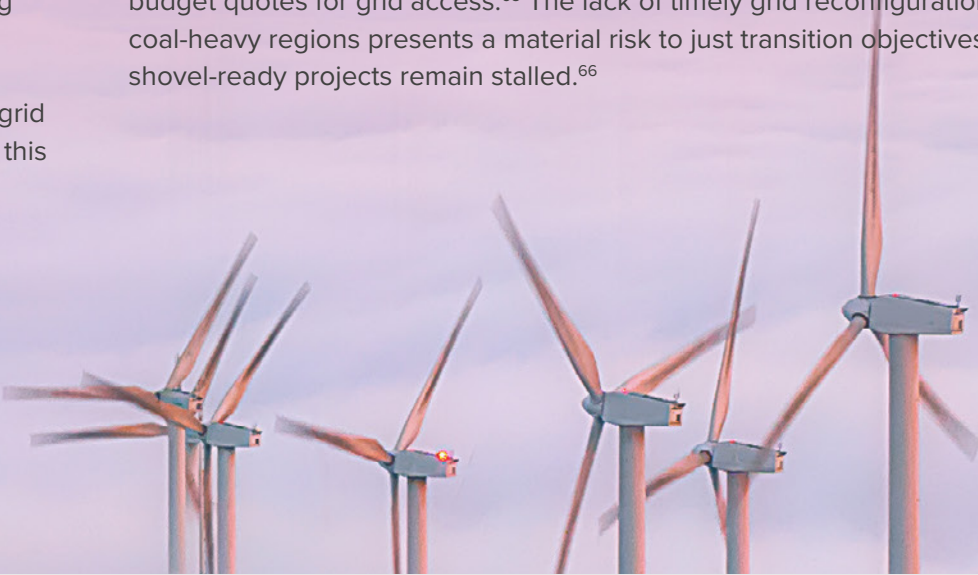
The Eastern Cape has emerged as South Africa's wind powerhouse, contributing close to 2.5 GW of installed wind projects.⁵⁹ Sites along Jeffrey's Bay and Cookhouse remain central to the national fleet, supplying some of the highest load factors achieved in the system. Industry bodies, such as SAWEA, argue that regulatory reform and grid expansion could unlock an additional 10 GW by 2028, much of it in this province.⁶⁰

5.2.3 Western Cape

The Western Cape hosts a modest share of wind and solar projects, constrained by limited land availability and grid saturation.^{61,62} Its role is increasingly defined by innovation in procurement, with the City of Cape Town pioneering direct renewable energy contracts with IPPs.⁶³ Rooftop and embedded solar uptake among industrial and commercial users is also expanding, reflecting the province's strong urban and industrial base.⁶⁴

5.2.4 Mpumalanga

Traditionally the centre of coal generation, Mpumalanga is increasingly targeted for renewable investment as part of just transition initiatives. Seriti Green has announced a R25 billion investment pipeline in the province, though progress has been slowed by Eskom's inability to issue budget quotes for grid access.⁶⁵ The lack of timely grid reconfiguration in coal-heavy regions presents a material risk to just transition objectives, as shovel-ready projects remain stalled.⁶⁶



71. Ibid.
72. National Transmission Company of South Africa (NTCSA). 2025. South African Renewable Energy Grid Survey. [online] Available at: <https://www.ntcsa.co.za/south-africa-renewable-energy-grid-and-survey/> [Accessed 18 Aug. 2025].
73. Eskom. 2023. Generation Connection Capacity Assessment (GCCA) 2025. [pdf] Johannesburg: Eskom. Available at: https://www.eskom.co.za/wp-content/uploads/2023/10/Generation_Connection_Capacity_AssessmentGCCA-2025finalfinal_rev0003.pdf [Accessed 18 Aug. 2025].
74. Ibid.
75. IPP Office. 2025. Independent Power Producers Procurement Programme (IPPPP) Q4 2024/25 Report, as at 31 March 2025. [pdf] Pretoria: Department of Mineral Resources and Energy. Available at: https://www.ipp-projects.co.za/_entity/annotation/15c9ffdd-503c-d00d-b44a-1976b66a1bc4 [Accessed 18 Aug. 2025].
76. Ibid.
77. Council for Scientific and Industrial Research (CSIR). 2025. Utility-Scale Power Statistics Report, January 2025. [pdf] Pretoria: CSIR. Available at: https://www.csir.co.za/sites/default/files/Documents/Utility%20Statistics%20Report_Jan%202025_Final.pdf [Accessed 18 Aug. 2025].

6 Installed Capacity and Energy Mix

“It’s renewables and coal, so that’s Number One. We need coal, otherwise we couldn’t have this call, our laptops wouldn’t be charged and there wouldn’t be lights on in our buildings. So, we need coal and we need renewables. What government, the Minister, Eskom, doesn’t have the opportunity at the moment is to have a shutdown plan for coal because we don’t have any reserve margin... 50% of the skills that I require I can get out of the coal sector... Very comfortably 50% of the skills that we need we can take out of the coal sector. But what we need to be doing before 2032, 2035 when these coal plants literally get to end of life, we need to be putting renewables into the province. We need to have 20–30 plants out there because that’s how we’re going to crowd in many other economic development aspects and make this sustainable and look at it as just an energy transition.”

Peter Venn - CEO, Seriti Green

5.2.5 Free State

The Free State has attracted growing interest for solar PV development, leveraging open land and favourable irradiation. Installed projects remain smaller than those in the Northern Cape, but grid expansion plans foresee increased capacity availability by 2027.^{67,68} Momentum in the province was reinforced in September 2025, when a mega-scale 506 MW solar and battery storage hub was advanced to the next stage of development by the NOA Group. Once completed, the cluster will be among the largest in the country outside the Northern Cape, underscoring the Free State’s growing role in diversifying South Africa’s solar footprint.⁶⁹

5.2.6 KwaZulu-Natal

KwaZulu-Natal has seen relatively limited renewable deployment, with grid bottlenecks and competing land uses constraining development. Its future role may lie in small hydro and biomass projects linked to the province’s agricultural base.⁷⁰

5.2.7 Other provinces

Limpopo, North West, and Gauteng host smaller projects, mainly embedded generation or municipal procurement schemes. While their combined contribution to national installed capacity remains under 5%, Gauteng’s rapid uptake of rooftop and commercial solar PV (over 4.7 GW behind-the-meter capacity identified by the system operator) is reshaping demand at the distribution level.^{71,72}

5.3 Risk mitigation and sustainability of capacity growth

The rapid build-out of renewable projects has exposed systemic risks, foremost among them the mismatch between project approvals and available grid capacity. The GCCA 2025 highlights that no new capacity is available in the Northern, Eastern, and Western Cape until after 2027.⁷³ This has created a backlog of bankable projects that cannot proceed without transmission upgrades.

Sustainability also requires geographic diversification. Over-concentration of renewables in resource-rich provinces both stresses transmission corridors and undermines system resilience. Embedding renewables into coal regions such as Mpumalanga offers grid-balancing and socio-economic benefits, aligning with just transition goals.⁷⁴

Storage integration remains another critical factor. The BESIPPPP has awarded 513 MW across eight projects, marking early progress. However, this remains far below the scale required to stabilise variable renewable generation. Without accelerated storage deployment, the contribution of renewables to baseload reliability will remain limited.⁷⁵

6 Installed Capacity and Energy Mix

“What I’m saying is the technology is comfortably 3-5 years old by the time we even start permitting it, and then it takes 4-5 years to permit. We’re really living in the last decade when it comes to energy... the government needs to get out of the way so that the pipeline... can be replicated across the country.”

Peter Venn - CEO, Seriti Green

5.4 Outlook for capacity expansion

Installed capacity is expected to rise steadily over the coming decade, driven by successive REIPPPP bid windows, corporate power purchase agreements (PPAs), and embedded generation.⁷⁶ Projections from the IRP 2023 and The Council for Scientific and Industrial Research (CSIR) suggest that renewables could contribute over 30 GW by 2030, effectively doubling today’s capacity.⁷⁷

The sustainability of this growth will hinge on three imperatives. First, expanding transmission to unlock constrained renewable hotspots in the Cape provinces. Second, diversifying geographically to spread risks and benefits more evenly across provinces. Third, embedding large-scale storage and flexible resources into capacity planning.

South Africa’s installed base has proven the viability of renewable energy at scale. Its future trajectory, however, will depend on whether policy, regulation, and infrastructure keep pace with technological uptake and private sector appetite. The coming years will therefore mark a decisive phase in shaping a balanced, reliable, and sustainable energy mix.



7 Investment Trends and Project Pipeline

Having established the evolution of South Africa’s installed renewable energy capacity and the diversification of its energy mix, attention now turns to the financial flows underpinning this transition. Investment trends are a crucial barometer of confidence in the sector, reflecting not only the attractiveness of the country’s policy framework but also its ability to convert ambition into bankable projects. This section examines capital inflows, awarded projects, financial close rates and shifting investor appetite. In doing so, it highlights the sector’s broader potential to generate jobs, strengthen manufacturing capabilities, and catalyse industrial development.



Province	Total Number of Projects	Total Capacity Procured (MW)	Total Capacity Online (MW)	Total In Construction (MW)
Eastern Cape	19	1,733	1,496	224
Free State	7	523	204	315
Gauteng	1	13	8	-
KwaZulu Natal	0	0	0	0
Limpopo	3	118	118	-
Mpumalanga	1	25	25	-
North West	6	395	275	120
Northern Cape	51	3,921	3,463	455
Western Cape	16	1,097	592	505

Number of projects = number of projects that reached Financial Close
Capacity procured (MW) = capacity procured from projects that reached financial close
Source: IPPPP an Overview, 2025

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80. Engineering News. 2025. Mulilo Energy secures R7bn facility from Standard Bank for growth. Available at: <https://www.engineeringnews.co.za/article/mulilo-energy-secures-r7bn-facility-from-standard-bank-for-growth-2025-09-11> [Accessed 23 September].

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82. Ibid.

83. ESI Africa. (2025). DBSA seeks experts to power up IPP procurement. [online] 6 September. Available at: <https://www.esi-africa.com/news/dbsa-seeks-experts-to-power-up-ipp-procurement/> [Accessed 9 September 2025].

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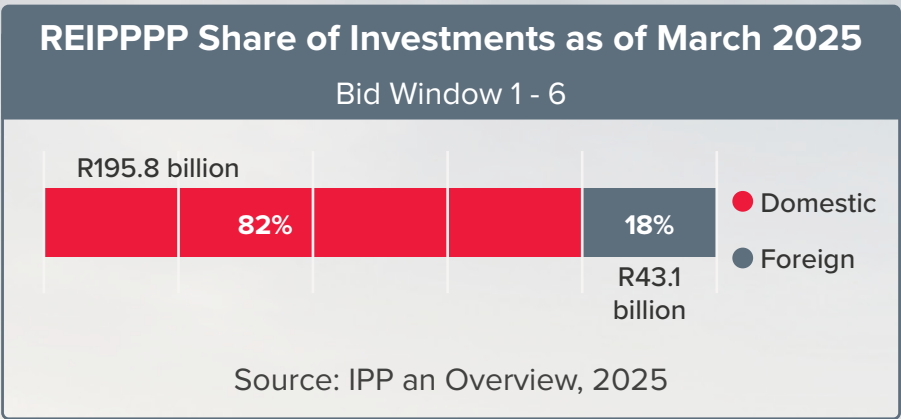
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7 Investment Trends and Project Pipeline

6.1 Capital flows to date

Since the launch of the REIPPPP, renewable energy projects have attracted over R292 billion into the South African economy, of which R52.1 billion represented foreign investment. The programme has facilitated 9,618 MW of procured capacity across 116 IPPs that reached financial close, with 7,335 MW already operational. In addition, refinancing of 32 projects has unlocked R6 billion in nominal savings, demonstrating both investor commitment and the maturity of the financial ecosystem supporting renewables.⁷⁸

This capital has translated into tangible economic benefits. By March 2025, renewable energy projects had generated over 93,800 job-years for South African citizens, while communities located near project sites received R4.3 billion in direct socio-economic and enterprise development contributions. Local procurement accounted for half of the total project spend, while Black Economic Empowerment spend amounted to nearly three quarters. These outcomes underscore the role of investment as a vehicle for both energy transition and inclusive growth.⁷⁹ The strength of investor appetite was reaffirmed in September 2025 when Mulilo Energy secured a R7 billion facility from Standard Bank to fund its growth pipeline. This transaction is one of the largest single financing packages in the sector to date, reflecting confidence in the creditworthiness of IPPs and the bankability of large-scale renewable portfolios. Beyond financing capacity expansion, the facility illustrates the increasing willingness of commercial lenders to provide long-tenor, large-scale capital outside of direct REIPPPP allocations, thereby signalling a maturing financial market for both public procurement and private off-take projects.⁸⁰



6.2 Project pipeline and financial close rates

Despite this strong track record, the investment pipeline reveals both progress and fragility. A total of 20 projects has been terminated in recent years due to their failure to reach commercial close, including 14 projects under Bid Window 5, which represented more than 1,400 MW of capacity.⁸¹ These cancellations reflect the challenges of aligning procurement schedules, financial arrangements, and grid availability.

Nevertheless, momentum remains significant. The REIPPPP Bid Window 7 saw the announcement of eight preferred bidders in late 2024, representing 1,760 MW of capacity. In parallel, the BESIPPPP is advancing, with five projects (513 MW) awarded under Bid Window 1, a further eight (615 MW) under Bid Window 2, and another 616 MW released under Bid

Window 3. Such developments highlight the growing role of storage in anchoring new investment cycles.⁸²

Institutional capacity is also being reinforced to ensure procurement processes remain robust. In September 2025, the Development Bank of Southern Africa (DBSA) issued a call for technical experts to strengthen the management and delivery of IPP procurement.

This reflects the recognition that complex transactions require specialised expertise to accelerate financial close and safeguard the credibility of South Africa's flagship programmes.⁸³

Alongside the public procurement stream, the private market is accelerating; SolarAfrica secured R1.8 billion to advance wheeling projects in early 2025,⁸⁴ while JUWI announced a R6 billion investment to build 340 MW of solar capacity for industrial clients.⁸⁵ EDF Power Solutions committed to adding 500 MW of low-carbon assets annually in South Africa,⁸⁶ and Envusa Energy neared the launch of the 520 MW Koruson Cluster.⁸⁷ At the municipal level, Cape Town progressed its own-build solar plant, supported by a R2.8 billion concessional loan from Germany's KfW.⁸⁸ The project is on track for completion by the end of 2025, signalling the rising importance of metropolitan governments as renewable energy investors.

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7 Investment Trends and Project Pipeline

IPPP Programme Status as of July 2025

Procurement Round	Bid Responses Preferred Bidders		Preferred Bidders		Preparing for Legal Close		Achieved Financial Close and Under Construction		Commercial Operation		Total Investment (R billion)
	No. of Projects	Capacity MW	No. of Projects	Capacity MW	No. of Projects	Capacity MW	No. of Projects	Capacity MW	No. of Projects	Capacity MW	
REIPPPP BW 1	53	2127.7	28	1425.3	0	0	0	0	28	1425.5	49.3
REIPPPP BW 2	79	3232.9	19	1040.4	0	0	0	0	19	1040.4	33.4
REIPPPP BW 3	93	6023.0	16	1435.0	0	0	0	0	16	1435.06	47.3
REIPPPP BW 3.5	3	300.0	2	200.0	0	0	0	0	2	200.0	23.4
REIPPPP BW 4	77	5804.5	26	2205.4	0	0	0	0	26	2205.4	55.0
REIPPPP BW 5	99	9644.0	11	1159.0	0	0	9	879.0	2	280.0	4.9
REIPPPP BW 6	56	9663.7	6	1000.0	4	640.0	2	360.0	0	0	10.1
RMIPPPP	28	5079.5	6	428.0	0	0	3	278.0	3	150.0	33.4
REIPPPP BW 7	48	10218.4	14	3050.0	14	3050.0	0	0	0	0	54.1
BESIPPPP BW 1	17	1643.0	5	513.0	0	0	5	513.0	0	0	16.8
BESIPPPP BW 2	31	2383.0	8	615.0	8	615.0	0	0	0	0	12.8
BESIPPPP BW 3	33	4067.0	5	616.0	5	616.0	0	0	0	0	9.5
PEAKERS	2	1005.0	2	1005.0	0	0	0	0	2	1005.0	-
TOTAL	679	52733.3	148	14692.1	31	4921.0	19	2030.0	98	7741.2	350.2

“The vast challenge we have is in two areas. There are the upfront skills, the lawyers, the bankers, all the people that it takes to get to financial close, which is a seven-year process and we have a huge dearth of lack of skills in that area, and it’s because of the seven-year gap in PPA... Then there’s the challenge of localisation... How do you go and invest in a tower factory or a panel assembly factory when the government has no central repository of the projects, there are no dashboard metrics for each project.”

Peter Venn - CEO, Seriti Green

7 Investment Trends and Project Pipeline

6.3 Investor appetite and emerging patterns

Investor appetite is increasingly shaped by corporate demand for energy security and decarbonisation. The liberalisation of the electricity market and amendments to the ERA have enabled PPAs, positioning corporate off-take as the primary driver of new projects. According to GreenCape, a leading not-for-profit company supporting the development of a green economy in sub-Saharan Africa, estimates reveal that private procurement of solar and wind power could amount to R132 billion by 2030.⁸⁹ Foreign capital flows also illustrate confidence in the sector's trajectory; In 2025, Saudi Arabia pledged R88.15 billion in new investment across renewable projects,⁹⁰ while development financiers such as Germany's KfW and South Africa's Futuregrowth Asset Management have channelled concessional and commercial loans into infrastructure and decentralised projects.⁹¹ In addition, large-scale infrastructure priorities identified by Infrastructure South Africa for 2025/2026 include solar and water projects, underscoring the state's role in crowding-in private capital.⁹²

At the same time, storage has emerged as a critical investment frontier. The Red Sands battery energy storage project, developed by Globeleq and African Rainbow Energy, is set to become Africa's largest standalone facility at 153 MW/612 MWh.⁹³ Eskom has also issued tenders for rooftop PV and battery systems at office sites,⁹⁴ highlighting the transition from utility-scale generation to distributed hybrid solutions.

"We're still seeing a lot of investment coming in through REIPPPP, a lot of interest in business with check books saying... we'll sit back and if we win a project, we'll deploy X number of billion dollars... There's been a lot of appetite, continued growth for private sector platforms and appetite in IPPs, who are servicing businesses."

Dom Chennells - Executive Director, Sola Group

6.4 Government interventions and incentives

South Africa's government has played a decisive role in shaping investor behaviour. The ERA Act of 2024 established a framework for competitive electricity trading, allowing a more transparent market environment.⁹⁵ SAREM is designed to localise manufacturing of renewable energy components, creating pathways for industrialisation and job creation.⁹⁶ The JET IP further envisages the mobilisation of R1.5 trillion over the period 2023-2027, blending public and concessional finance to reduce project risk.⁹⁷

Municipalities are also being incentivised to develop their own projects. Cape Town's concessional finance arrangement with KfW is emblematic of a wider shift toward city-led energy procurement.⁹⁸ Such initiatives not only expand renewable capacity but also strengthen local fiscal and technical capacity.



7 Investment Trends and Project Pipeline

6.5 Opportunities for the broader economy

Beyond electricity generation, renewable energy investments present broader opportunities for industrial development. Local content requirements in REIPPPP have catalysed supplier development, while SAREM aims to formalise and deepen this trajectory by creating competitive manufacturing clusters. The scale of planned investments promises to boost demand for skills across engineering, project management, and operations.

Community benefits are also substantial. Since inception, renewable projects have delivered more than R82 billion in local procurement and supplier development, while investments in enterprise and community programmes have contributed to social upliftment.⁹⁹ These outcomes suggest that renewable energy is not only a solution to energy security but also an anchor for inclusive economic growth.

Investment flows into South Africa’s renewable energy sector therefore demonstrate both the promise and the complexity of the transition. While project cancellations and grid bottlenecks have tempered momentum, capital continues to flow into both public and private pipelines, with international investors, local financiers, and municipalities all playing increasingly prominent roles. The sector has already proven its capacity to generate jobs, attract foreign capital, and drive socio-economic transformation. Sustaining this trajectory will now depend on overcoming transmission constraints, aligning procurement with investor timelines, and embedding localisation within global value chains. This naturally leads into the next section, which explores the grid infrastructure and transmission challenges that will determine the pace and scale of future investments.

“One of our last projects, project Springbok, is a 195 MW solar plant that has just reached COD. It’s very unique in lots of ways, because it’s the first real play to retail power in South Africa. It’s opening up the retail market with flexibility for buyers, while still having anchor off-takers on long-term contracts. From a job creation point of view, it’s been a great success, we had over 500 employees on site for more than a year, working in Virginia outside Welkom. It has had a tangible impact on that community. Having more of those projects, especially in areas where coal plants are shutting down, is critical. With transmission infrastructure opening up, this can become a model for how renewable projects deliver both economic and social value.”

Dom Chennells - Executive Director, Sola Group

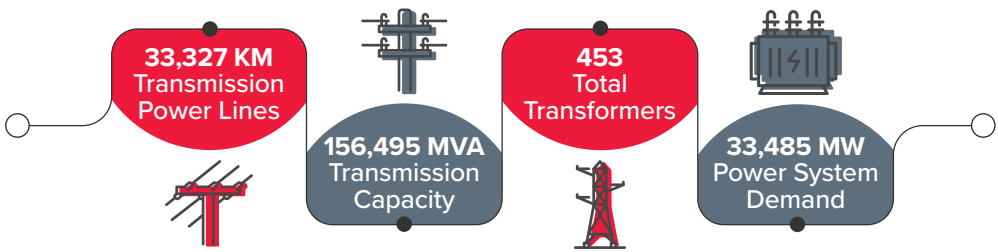


8 Grid Infrastructure and Transmission Challenges

While investment flows into renewable energy have accelerated, the capacity to integrate these projects into the national grid has emerged as one of the most pressing challenges for South Africa’s energy transition. The success of the investment pipeline outlined in the previous section is fundamentally tied to the ability of the transmission network to absorb new projects and distribute electricity across regions of demand. This section explores the structural bottlenecks in transmission, the evolving role of Eskom and its successors, the growing significance of wheeling, and the contribution of private sector efforts to alleviate infrastructure constraints.

7.1 Transmission bottlenecks and grid constraints

South Africa’s grid has been unable to expand at the pace required to match renewable energy deployment. According to Eskom’s GCCA 2025, grid capacity in the Northern Cape, Western Cape, and Eastern Cape has already been depleted, despite these regions having the best wind and solar resources. Remaining capacity is concentrated in provinces such as Gauteng, Mpumalanga, Limpopo, and KwaZulu-Natal, where renewable resource potential is less optimal. This spatial mismatch between renewable resources and available grid capacity has become a defining challenge for the sector.¹⁰⁰



Source: Eskom National Transmission Company, 2025

Developers face considerable uncertainty in project planning due to the lack of grid availability. For many bidders in the REIPPPP rounds, projects were either delayed or cancelled after failing to secure substation connections.¹⁰¹ Transmission corridors take between seven and ten years to plan, permit and build, which has left the system struggling to absorb the near-term influx of renewable projects.¹⁰² The IRP recognises this challenge, identifying the need for a significant expansion of high-voltage transmission lines to move electricity from resource-rich areas in the Northern Cape to demand centres in Gauteng, KwaZulu-Natal and beyond.¹⁰³

“It’s huge. It’s a massive slowdown on how many projects we can bring online. We’ve got 3000 MW of plants just under, that are in various stages of development... At the moment it’s very conservative... it’s been really delayed by the grid side of things. It’s been really hard, not just ourselves but developers in general, getting completely stuck.”

Dom Chennells - Executive Director, Sola Group

100. Eskom. 2023. Generation Connection Capacity Assessment (GCCA) 2025. [pdf] Johannesburg: Eskom. Available at: https://www.eskom.co.za/wp-content/uploads/2023/10/Generation_Connection_Capacity_AssessmentGCCA-2025finalfinal_rev0003.pdf [Accessed 18 Aug. 2025].

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105. Ibid.

106. Republic of South Africa. 2023. Just Energy Transition Implementation Plan 2023–2027. [pdf] Pretoria: The Presidency. Available at: <https://www.stateofthenation.gov.za/assets/downloads/JET%20Implementation%20Plan%202023-2027.pdf> [Accessed 18 Aug. 2025].

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8 Grid Infrastructure and Transmission Challenges

The GCCA further notes that many developers are now siting new projects near existing long-range transmission lines to increase the likelihood of securing a connection.¹⁰⁴ This clustering of projects reduces uncertainty but risks reinforcing grid congestion in specific nodes, while leaving other high-resource areas stranded.

7.2 Substations and regional dispersion

Transmission constraints are most visible at the substation level. Substations in the Northern Cape, Eastern Cape and Western Cape are oversubscribed, with no available connection capacity until new infrastructure is commissioned later in the decade.¹⁰⁵ Eskom's Transmission Development Plan (TDP) outlines long-term projects to build new substations and extend existing ones, but execution remains slow due to financing and procurement delays.¹⁰⁶

The first IPP built transmission substation, The Koruson 400/132 kV MTS, located in the Northern Cape, was energised in early-2025, is designed to connect 1.5 GW of renewable energy to the national grid. Located in a high-demand region, the substation provides additional grid access for renewable projects and signals a potential shift toward private sector involvement in grid infrastructure.¹⁰⁷ While this initiative is still at an early stage, it demonstrates the feasibility of diversifying responsibility for grid expansion beyond Eskom.

7.3 Eskom's role and structural reforms

Eskom's transmission division remains the backbone of the system, though its role is evolving. With the unbundling of Eskom into separate generation, transmission and distribution entities, the National Transmission Company South Africa (NTCSA) is being positioned as the independent system operator.¹⁰⁸ This structural reform, supported by the ERA Act of 2024, is intended to enable open access to the grid and create a more competitive environment for trading electricity.¹⁰⁹

The TDP remains central to this process, providing a 10-year roadmap for network expansion to integrate new renewable energy projects and maintain system reliability. The TDP identifies the need for extensive investment in new high-voltage transmission lines and substations, particularly in resource-rich provinces such as the Northern, Western, and Eastern Cape, where grid bottlenecks currently constrain renewable energy integration. The plan also sets out timelines for strengthening interconnections to ensure system stability, while laying the groundwork for the anticipated scaling up of private generation capacity.¹¹⁰

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120. Engineering News. (2025). Eskom identifies role for itself in future electricity ecosystem. [online] 8 September. Available at: <https://www.engineeringnews.co.za/article/eskom-identifies-role->

8 Grid Infrastructure and Transmission Challenges

Despite this forward-looking framework, Eskom still retains responsibility for executing most new transmission investments. However, fiscal constraints continue to limit its ability to deliver expansion at the pace required by South Africa’s energy transition. The JET IP therefore calls for off-balance-sheet financing and blended finance models, enabling the mobilisation of capital for grid expansion without further straining sovereign borrowing capacity.¹¹¹

7.4 Wheeling as a growing practice

Wheeling, the practice of transmitting privately generated electricity across Eskom’s network to end-users, has become a central mechanism for addressing grid access challenges. Eskom defines wheeling as an agreement between a generator, a customer, and the grid owner to transmit energy from a generation point to an end-use location.¹¹² Updated wheeling rules introduced in 2025 aim to simplify access and standardise charges by providing a single national framework across Eskom and municipal distributors. The reforms include clearer tariff structures, standardised wheeling agreements, and provisions for multi-buyer and multi-seller arrangements. They are designed to reduce the administrative complexity and transaction costs that

previously deterred many corporate off-takers, while also ensuring that grid-use charges are transparent and cost-reflective.¹¹³

Additionally, private traders and corporates are actively embracing wheeling; South African electricity trader, Discovery Green, concluded 5 wheeling agreements across the mining, property, and hospitality sectors, signalling growing confidence in the framework.¹¹⁴ Similarly, SolarAfrica has used wheeling arrangements to advance corporate solar investments, supported by R1.8 billion in project finance.¹¹⁵ In parallel, in August 2025, Vodacom became the first company in South Africa to fully operationalise the virtual wheeling of electricity, delivering on a power purchase agreement with SOLA Group, enabling it to procure and manage renewable power directly. The move illustrates how large corporations are increasingly positioning themselves as both consumers and facilitators of grid decarbonisation.¹¹⁶ Wheeling is seen as critical not only for bypassing immediate grid bottlenecks but also for supporting the liberalisation of South Africa’s electricity market.

“Wheeling is where we inject an electron into the Eskom transmission infrastructure... That energy is then taken off by multiple buyers across the country, that’s wheeling. They’re all Eskom connected buyers, and they are essentially buying energy at a massive discount to Eskom and getting a credit on their energy bill... This concept of virtual wheeling is relatively new. It was announced by Eskom earlier this year and it’s been a concept that has been driven by Vodacom. Vodacom, together with Eskom, have developed this mechanism to allow for the consolidation of multiple small sites. Vodacom is a good example of a business that has 1000s of electricity bills. Each of its cell phone towers are very small users, but they’ve got their own little Eskom account for each of those and for all that wheeling mechanism... It consolidates the data from each of those smaller sites... That credit is then consolidated and paid into a centralised account, as opposed to going on to 2000 different bills... I think importantly, it also allows municipalities and businesses that are not just connected to Eskom, but also municipally connected to receive their power. It’s now opening up a whole lot of different customers that didn’t have access to third party generated power... This plant of ours that we are bringing on today will have the first electrons being credited on this virtual wheeling basis in the country. That’s quite exciting because it’s a proof of concept in some ways.”

Dom Chennells - Executive Director, Sola Group

for-itself-in-future-electricity-ecosystem-2025-09-08 [Accessed 9 September 2025].

121. Engineering News, 2025. Warning that qualifying criteria for private grid procurement could sideline domestic industry. [online] Available at: <https://www.engineeringnews.co.za/article/warning-that-qualifying-criteria-for-private-grid-procurement-could-sideline-domestic-industry-2025-08-26> [Accessed 8 Sep. 2025].

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8 Grid Infrastructure and Transmission Challenges

Who Can Participate on Wheeling of Electricity
Third party wheeling of energy is currently subject to the buyer being connected on a medium-voltage or higher-voltage network and being on a time-of-use tariff.
All generators (private and public) must be licensed/registered to generate and supply the network with electricity. To ensure accelerated access to the open grid, the Government has raised the threshold for private self- or distributed-generation power plants from 1MW to 100MW to only now having to be registered with NERSA, that is, not requiring a licence.
The generator must apply to Eskom for grid connection and pay for a cost estimate letter to be issued, then if the project is to proceed to apply and pay for a budget quote and pay the connection charges quoted in the budget quote.
The customer whose account(s) the energy will be wheeled to, must sign an amendment agreement to their Electricity Supply Agreement to have the account adjusted for the wheeled energy based on the Gen-wheeling tariffs.
To be noted is that the Electricity Supply Agreement must also be in place and be based on a recent version. If this is not the case, a new Electricity Supply agreement would also have to be signed.
The generator must make the budget quote effective to proceed with the connection, sign the “connection and use-of-system agreement” and nominate the buyer(s) of the wheeled electricity in this agreement.
The buyer(s) can be another Eskom customer, a municipality or a customer within a municipal network. The buyer(s) will be required to sign an amendment agreement and pay/update security deposits.
If one of the parties buying the energy is located within the municipal network, the municipality would be the party to sign the amendment agreement with Eskom (not the buyer) and have to agree to allow the wheeling transaction.

Source: Eskom, 2025

7.5 Private sector participation in grid development

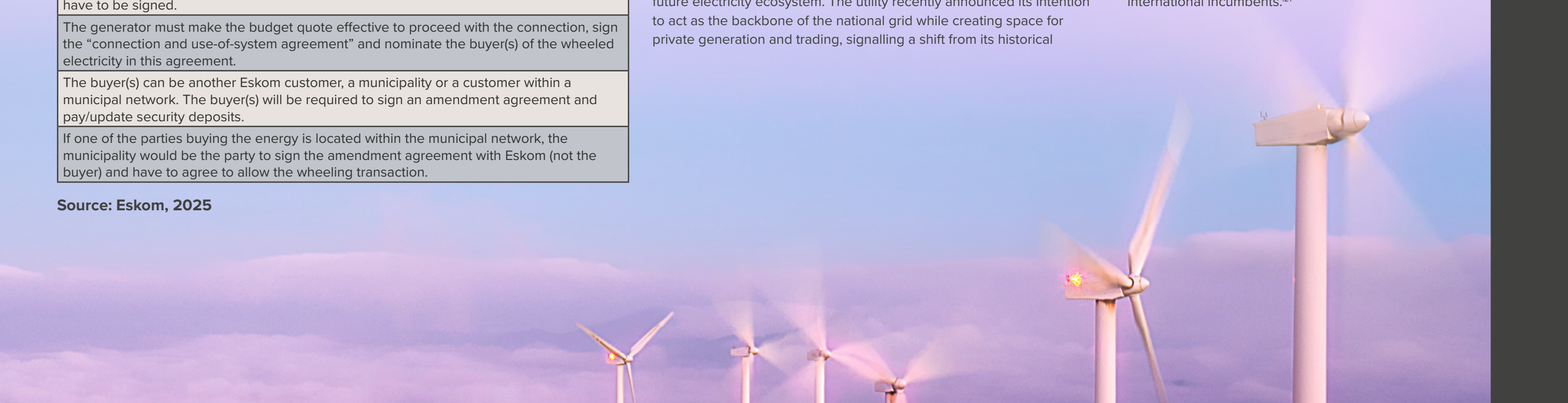
Private sector participation is beginning to extend beyond wheeling into direct grid development. Partnerships between IPPs and infrastructure investors are emerging as a means of accelerating substation construction and upgrading transmission lines. The “step-change” in grid construction, identified by industry analysts in 2025, reflects the urgency of scaling up capacity to unlock the renewable pipeline.¹¹⁷

Collaboration is seen as key; financial institutions, such as Investec, have stressed the need for coordinated frameworks to pool capital, mitigate risks, and shorten delivery timelines.¹¹⁸ A new partnership framework being prioritised ahead of the launch of “Eskom Green”, a planned platform for renewables and grid expansion, illustrates growing momentum in this space.¹¹⁹

Eskom has also begun to clarify its evolving role within South Africa’s future electricity ecosystem. The utility recently announced its intention to act as the backbone of the national grid while creating space for private generation and trading, signalling a shift from its historical

monopoly role. This repositioning aligns with the broader unbundling of the electricity market, where the NTCSA will operate as an independent system operator. Eskom’s strategic repositioning reinforces its importance in stabilising the grid during the transition, even as it acknowledges the growing participation of private developers and electricity traders.¹²⁰

Additionally, recent debates have focused on the criteria governing private grid procurement. In August 2025, industry stakeholders warned that restrictive qualifying criteria could inadvertently sideline domestic suppliers. While the policy shift towards private grid development is widely supported, concerns have been raised that local industry participation may be diluted if rules overly favour international incumbents.¹²¹



8 Grid Infrastructure and Transmission Challenges

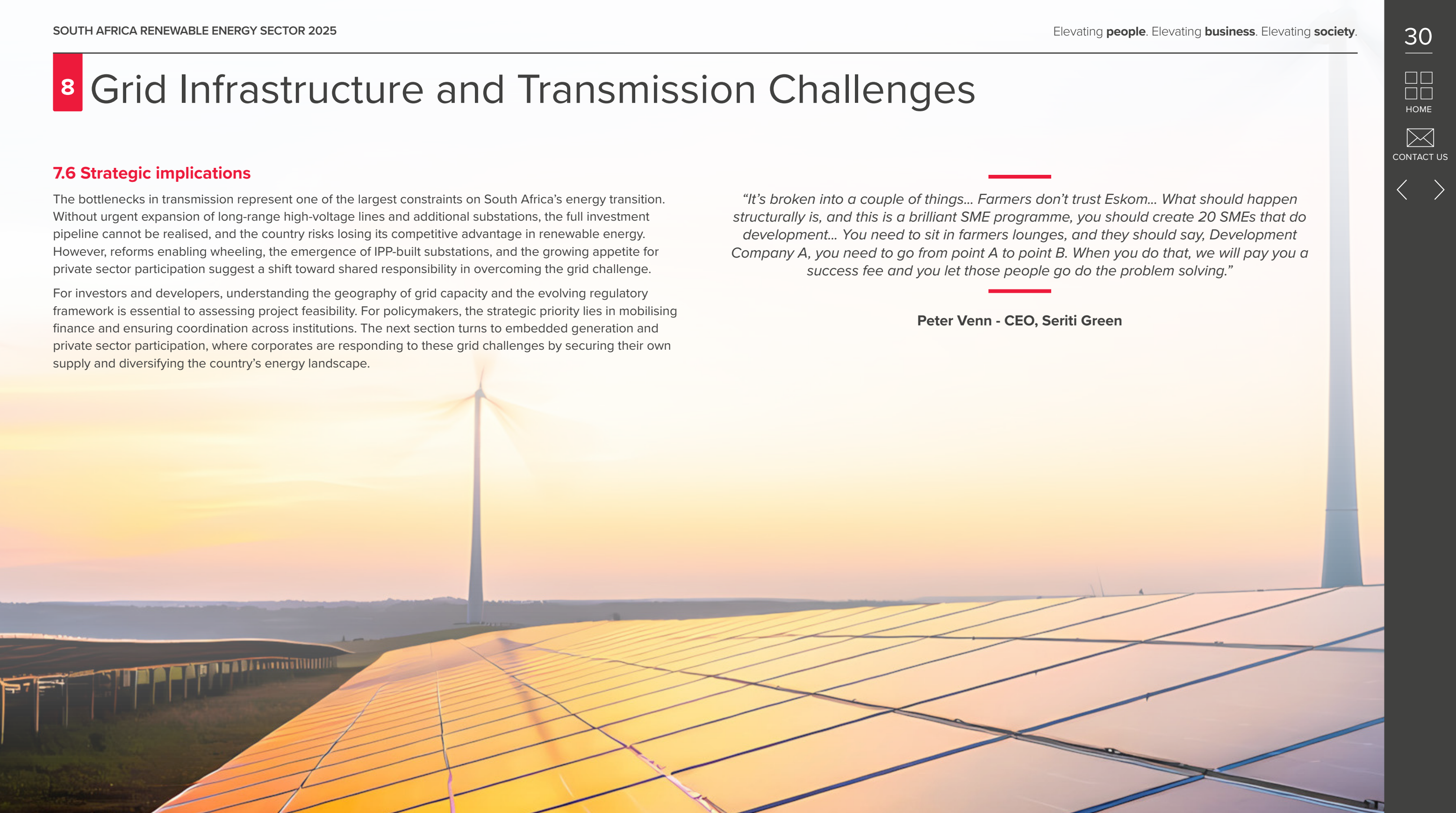
7.6 Strategic implications

The bottlenecks in transmission represent one of the largest constraints on South Africa’s energy transition. Without urgent expansion of long-range high-voltage lines and additional substations, the full investment pipeline cannot be realised, and the country risks losing its competitive advantage in renewable energy. However, reforms enabling wheeling, the emergence of IPP-built substations, and the growing appetite for private sector participation suggest a shift toward shared responsibility in overcoming the grid challenge.

For investors and developers, understanding the geography of grid capacity and the evolving regulatory framework is essential to assessing project feasibility. For policymakers, the strategic priority lies in mobilising finance and ensuring coordination across institutions. The next section turns to embedded generation and private sector participation, where corporates are responding to these grid challenges by securing their own supply and diversifying the country’s energy landscape.

“It’s broken into a couple of things... Farmers don’t trust Eskom... What should happen structurally is, and this is a brilliant SME programme, you should create 20 SMEs that do development... You need to sit in farmers lounges, and they should say, Development Company A, you need to go from point A to point B. When you do that, we will pay you a success fee and you let those people go do the problem solving.”

Peter Venn - CEO, Seriti Green



9 Embedded Generation and Private Sector Participation

The transmission bottlenecks described in the previous section have accelerated the shift toward embedded generation and private sector participation. As investors face uncertainty over grid connection timelines, companies are increasingly securing their own energy supply through corporate PPAs, self-generation facilities, and trading arrangements. This trend reflects both the structural weaknesses of the national grid and the opportunities created by regulatory reforms. The growth of embedded generation is therefore not only a response to operational risks but also a cornerstone of South Africa’s evolving energy architecture.

8.1 Corporate PPAs and self-generation

Corporate PPAs have become a defining feature of South Africa’s renewable energy market. Large industrial users, mining houses, and property developers have adopted long-term agreements with independent power producers to ensure stable, cost-effective electricity supply. According to GreenCape, private renewable energy developments could mobilise investments worth R132 billion by 2030, primarily through corporate PPAs.¹²²

Examples illustrate the scale of this shift. In mid-2025, Eskom launched a 291 MW “Renewable Energy Offtake Programme”, inviting large power users to bid for solar PV supply tailored to reduce their indirect

emissions. The request for proposals sets PPAs of between 5-25 years, with the earliest projects expected to deliver by 2027. The programme, aligned with Eskom’s broader ambition to repurpose coal plants and develop a 32 GW renewables portfolio by 2040, signals the utility’s intent to reposition itself as a green energy provider while partnering with independent producers to overcome financing and grid-connection constraints.¹²³ In tandem, mining companies and commercial property groups have concluded multiple private deals to secure solar and wind power through embedded generation projects.¹²⁴ SolarAfrica, one of the country’s leading developers, has been central to this movement, advancing both rooftop and wheeled generation projects for corporate clients.¹²⁵

Momentum in private procurement is further underscored by South Africa’s first jointly procured PV facility, which came online in August 2025. The project, by Mainstream Renewable Energy strategic partners Air Liquide and Sasol, represents a significant milestone in the evolution of pooled demand aggregation models.¹²⁶

This growth has significant implications for energy security. By diversifying supply away from Eskom’s central grid, corporates are insulating themselves from load-shedding while supporting national decarbonisation objectives. The trend also highlights a decentralisation of energy investment, with private actors becoming key providers of new capacity outside traditional public procurement programmes.

“As we’ve mentioned, we have these stranded assets... There’s still a lot of appetite from private businesses to procure wheeled energy. Whether it’s being sold by a trader or an IPP, it’s being placed with buyers via wheeling or virtual wheeling that’s relatively new. There’s a huge appetite... businesses that are buyers, that are saving hundreds of millions of rands a year on their energy bills.”

Dom Chennells - Executive Director, Sola Group

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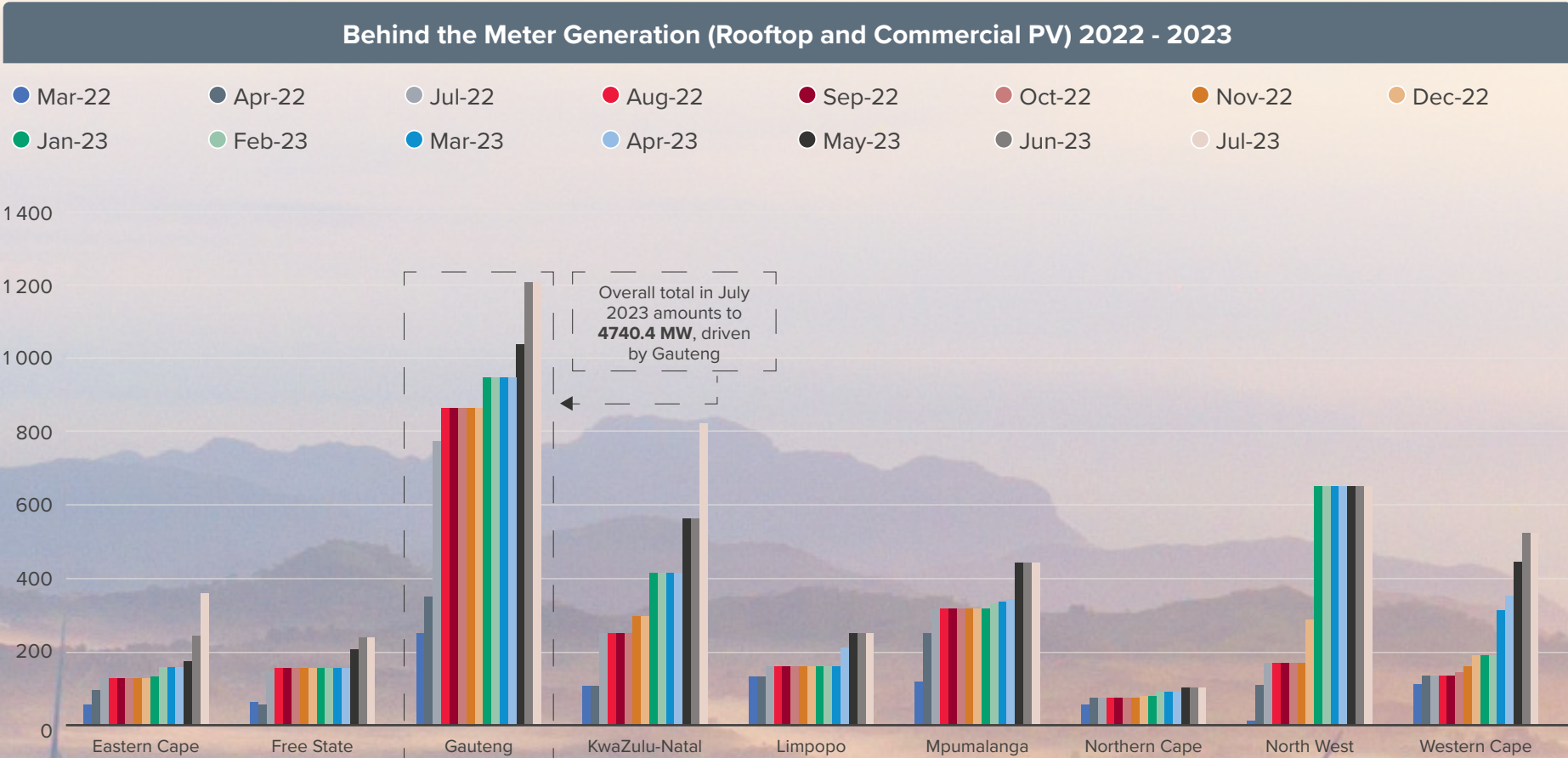
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9 Embedded Generation and Private Sector Participation

“Once there’s a liquid market for energy, then you build against the market and not against a PPA. These PPAs take, I haven’t closed one in less than 18 months, these are 20-year contracts, a long time to negotiate. But if you had a backstop, whether it’s a government feed in tariff of 80 cents for wind, or whether you had a liquid market, it allows the whole thing to open up much quicker. The banks will give you shorter finance. The financing processes will be quicker. We need to address the pipeline issue, get rid of the red tape. I think there are opportunities to partner with Chinese manufacturers. But I do think batteries are very low hanging fruit. I do think smaller transformers are relatively low hanging fruit.”

Peter Venn - CEO, Seriti Green



Source: Eskom General Connection Capacity Assessment, 2025

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9 Embedded Generation and Private Sector Participation

8.2 Licensing reforms and electricity trading

The rise of corporate PPAs has been facilitated by regulatory reforms. The ERA Act 2024 removed the licensing threshold for self-generation projects, allowing embedded facilities of any size to connect to the grid subject only to registration.¹²⁷ This reform has unlocked an unprecedented wave of projects, ranging from rooftop installations at manufacturing plants to utility-scale solar farms built directly for industrial clients.

A parallel development has been the expansion of licensed electricity traders; Apollo Africa, has positioned itself as a new entrant offering scalable trading solutions,¹²⁸ while Enpower secured an import-export licence to facilitate cross-border energy flows within the Southern

African Development Community.¹²⁹ Lyra Energy Trading was also granted a licence by the NERSA in 2025, further deepening the market.¹³⁰ In addition, Sasol has also applied for an electricity trading licence, emphasising its need for flexibility as it explores equity participation in renewable projects.¹³¹ These developments signal the gradual emergence of a multi-buyer, multi-seller market model.

The creation of the NTCSA has been central to enabling electricity trading in a liberalised market. In August 2025, NTCSA applied for a formal Market Operator licence, marking the final step before the launch of the SAWEM. Public hearings on the application commenced in September 2025, opening deliberations on market readiness and institutional safeguards.^{132,133}

Regulatory processes are also being formalised. In 2025, NERSA outlined an eleven-month process to finalise comprehensive electricity trading rules, which will govern the conduct of traders and establish the framework for a competitive market. The rules are intended to provide regulatory certainty and protect market participants, thereby reinforcing investor confidence and supporting the transition towards a liberalised electricity market.¹³⁴ In parallel, NERSA reported registering 111 new generation facilities in the second quarter of 2025, highlighting the scale of private-sector entry into embedded generation.¹³⁵

However, reforms have not been without contention. Eskom has launched a legal challenge questioning aspects of trader licensing, raising concerns about the pace of liberalisation. The outcome of this case will be an important indicator of whether market reforms continue to expand or remain constrained by legacy structures.¹³⁶

advances-green-hydrogen-production-in-south-africa/ [Accessed 18 Aug. 2025].

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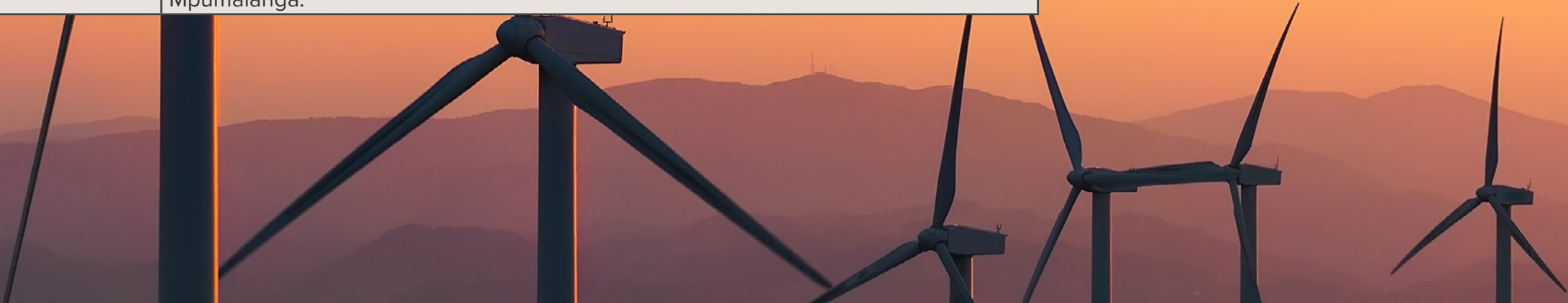
9 Embedded Generation and Private Sector Participation

NERSA Licensed Electricity Traders		
Status	Entity	Description
Licensed	PowerX	First licensed trader in SA; active since 2014, facilitates renewable energy wheeling.
Licensed	EnPower Trading	Independent electricity trader; active in private PPA market.
Licensed	Neura Trading	Licensed trader providing market access for renewable generators.
Licensed	Energy Exchange of Southern Africa	Cape Town-based platform, founded 2017; facilitates corporate renewable energy wheeling.
Licensed	Envusa Trading	Licensed trading entity; facilitates renewable electricity transactions.
Licensed	CBI Electric Apollo	Division of CBI Electric; licensed trader, exploring electricity market entry.
Licensed	Discovery Green	Energy trading subsidiary linked to Discovery; focuses on renewable power sourcing.
Licensed	Green Electron Market	Trader in renewable energy; provides aggregation and wheeling services.
Licensed	GreenCo Power Services	Regional power trader; holds domestic and cross-border trading licences.
Licensed	NOA Trading	Licensed electricity trader; details limited but active in trading market.
Licensed	NTCSA	Eskom’s unbundled transmission entity; licensed for both domestic and cross-border electricity trading.
Pending Hearing	Pioneer Power Trading (Pty) Ltd	Eastern Cape-based applicant; intends trading within Nelson Mandela Bay using municipal wheeling.
Pending Hearing	Nomusize (Pty) Ltd	Applicant proposing to buy from Msenge Emoyeni Wind Farm and supply Natref refinery in Sasolburg.
Pending Hearing	Red Rocket Trading (Pty) Ltd	Affiliate of renewable developer Red Rocket; applied for trading licence in Mpumalanga.

“I think we’ve only started seeing some trading happening at a smaller scale. There’s a lot of companies that set themselves up to be ready to roll once the market is up and running. I think there will be some of it happening, but I can’t see it happening on a large scale. It’s like you’ve got the European market in South Africa in the next couple of years... I’ve read about a case in Australia as well. Where they had the same thing, where companies get wind of the fact that some transmission lines are going to start, or they’re going to take it out of service, or there was a fault, and then suddenly they pull back some other generation, and then they can sell back at really inflated prices. Then you see spot prices that are insane, and it just drives up your whole quarter’s electricity price, because they are these windows where people are really making a lot of money but it is through manipulation of the market.”

Monique Le Roux - Chief Engineer, CRSES

Source: NERSA, Engineering News, 2025



9 Embedded Generation and Private Sector Participation

8.3 Private investment in energy security

The private sector’s role extends beyond PPAs and trading. In 2025, the government has recognised the importance of leveraging private capital, most notably through the Independent Transmission Projects Programme, a R9 billion credit guarantee plan to support grid access for independent generators.¹³⁷ At a broader level, the Minister of Electricity and Energy Kgosientsho Ramokgopa unveiled a R440 billion plan to modernise South Africa’s grid through partnerships with private investors.¹³⁸

Partnership models are already taking shape; Eskom has signed agreements with Exxaro to accelerate renewable integration,¹³⁹ while emerging developers such as Keren Energy are advancing green hydrogen initiatives.¹⁴⁰ Industry bodies such as the SAWEA have also played a prominent role in advocating for regulatory clarity to unlock an estimated 10 GW of wind power by 2028.¹⁴¹

Further signalling the depth of private capital entering the sector, a new renewable energy company, Anthem, was launched in September 2025 with a 2.7 GW project portfolio. The company consolidates the operations of African Clean Energy Developments and EIMS Africa, which are now managed through the AIIM IDEAS Fund, demonstrating both the scale of ambition in private markets and the growing institutionalisation of renewable investment. This development reflects a strategic move

towards aggregation and professionalised asset management, aligning with investor demand for larger, more diversified pipelines capable of attracting international finance.¹⁴² These initiatives demonstrate that embedded generation is not simply a stopgap for grid bottlenecks, but a structural shift toward diversified ownership of energy infrastructure.

8.4 Strategic implications

Embedded generation and private participation represent a profound evolution in South Africa’s energy system. While public procurement remains important, it is increasingly complemented by private projects that are faster to deploy, directly aligned with corporate decarbonisation strategies, and more responsive to the realities of grid congestion.

For investors, the growth of corporate PPAs and licensed trading points to a deepening market where risk can be diversified across multiple actors. For policymakers, the challenge lies in ensuring that the regulatory environment continues to encourage innovation without compromising system stability.

As South Africa’s energy transition advances, the balance between centralised procurement and decentralised private generation will become a defining feature of the national power system. The next section turns to technology adoption and localisation, examining how these dynamics intersect with manufacturing, skills development, and innovation ecosystems.

“I think the biggest hope that there is for it to really take off is to get the electricity markets up and running, because that could open the door for them to do something that is independent of Eskom... but as I said, my opinion on that is that we’ve still very far away from that being realised.”

Monique Le Roux - Chief Engineer, CRSES

10 Technology Adoption and Localisation

The growing role of embedded generation and private sector participation has highlighted the need for continued innovation in technology and local manufacturing. Beyond generating new capacity, South Africa’s energy transition increasingly depends on building industrial ecosystems that can sustain long-term value creation. Research and development (R&D) initiatives, localisation efforts, and the growth of innovation centres are central to this transformation. This section reviews the technologies being adopted, the institutional mechanisms supporting R&D, and the industrial opportunities emerging in areas such as green hydrogen, battery storage, and renewable manufacturing.

9.1 Research and development initiatives

South Africa has a well-established foundation for renewable energy research. The South African Renewable Energy Technology Centre (SARETEC) plays a key role in training technicians and developing applied solutions for wind, solar, and hybrid technologies.¹⁴³ Similarly, the South African National Energy Development Institute (SANEDI) has advanced demonstration projects in areas such as concentrated solar power, energy efficiency, and hybrid microgrids. The 2024/2025 SANEDI Insights Book underlines the importance of collaboration between government, academia, and industry in accelerating adoption, highlighting that applied research must be directly linked to commercial deployment to overcome South Africa’s chronic grid and supply challenges.¹⁴⁴

At a policy level, the JET IP identifies R&D and technology localisation as critical enablers of industrial development.¹⁴⁵ It proposes leveraging concessional finance not only for grid expansion but also for innovation-led projects that build domestic capabilities. These initiatives dovetail with SAREM, which prioritises industrial partnerships and the creation of a globally competitive renewable energy manufacturing base.¹⁴⁶

9.2 Local manufacturing trends

Localisation has become a policy imperative, particularly as South Africa seeks to balance the need for rapid capacity deployment with long-term economic transformation. According to GreenCape, domestic manufacturing of wind and solar components could generate R16 billion in market opportunities by 2030. Current strengths include the assembly of wind turbine towers, mounting structures for solar PV, and selected balance-of-plant components. However, competitiveness is constrained by limited economies of scale, policy uncertainty, and the prevalence of cheaper imports.¹⁴⁷

To overcome these barriers, SAREM outlines measures to deepen localisation, including supplier development programmes, export promotion strategies under the African Continental Free Trade Area, and aligning industrial incentives with energy procurement.¹⁴⁸ The REIPPPP continues to enforce local content requirements, with the 2025 report showing that half of project expenditure has been directed to local procurement.¹⁴⁹ These trends suggest gradual, if uneven, build-up of industrial capability.

South Africa’s reliance on imported renewable energy components underscores the magnitude of the localisation challenge. Trade data, as of September 2025, shows that the country accounted for a third of solar panels shipped from China to Africa since 2021. Its imports peaked in 2023 during the height of the country’s energy crisis, despite its ambitions to scale up domestic production. This dependency reflects the limited depth of local PV manufacturing and highlights the risk of supply chain vulnerability in an environment of intensifying global competition. SAREM identifies component manufacturing as a catalytic opportunity, but the latest figures reveal how far localisation efforts still need to progress to capture industrial value and reduce trade exposure.¹⁵⁰

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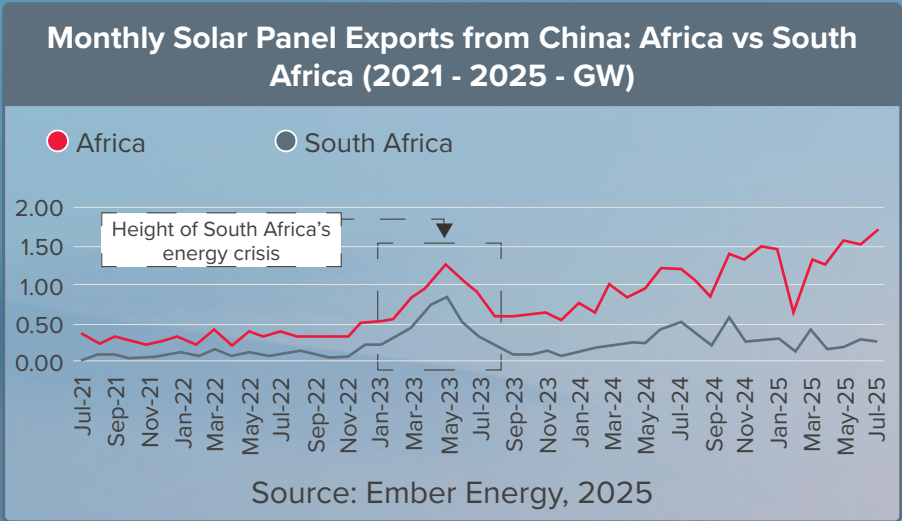
149. Independent Power Producers Office. 2025. IPPPP Quarterly Report Q4 2024/25. [pdf] Pretoria: DMRE. Available at: https://www.ipp-projects.co.za/_entity/annotation/15c9ffdd-503c-d00d-b44a-1976b66a1bc4 [Accessed 18 Aug. 2025].

150. Engineering News. (2025). SA is responsible for a third of Africa’s solar imports. [online] 5 September. Available at: <https://www.engineeringnews.co.za/article/sa-is-responsible-for-a-third-of-africas-solar-imports-2025-09-05> [Accessed 9 September 2025].

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152. Engineering News. 2025. Q Plas Manufacturing launches innovative solar rooftop PV system. [online] Creamer Media. Available at: <https://www.engineeringnews.co.za/article/q-plas->

10 Technology Adoption and Localisation



“What we are looking at is doing a cell assembly factory. We’ve got a pipeline of 200 turbines to come, we’re working closely with our Chinese supplier to try and build out a facility in Mpumalanga. People often underestimate the industrial capacity in that province. Mpumalanga has got a massive industry, boilermakers, mills, heavy engineering, all of it exists to support the big coal power stations and mines. We need to leverage that to support renewables. But again, it’s the chicken-and-egg problem. If there isn’t a visible project pipeline, it’s hard to secure investment. If there was a clear market signal, like a guaranteed standard price for wind or solar, then projects would move faster and localisation would follow naturally.”

Peter Venn - CEO, Seriti Green

On the other hand, in September 2025, the Transnet National Ports Authority and NERSA signed a memorandum of understanding to integrate sustainable energy into port operations. The initiative seeks to leverage renewable generation and storage to enhance the resilience of critical trade infrastructure while creating new demand for locally manufactured technologies.¹⁵¹

9.3 Innovation ecosystems

Innovation ecosystems are expanding through partnerships between universities, applied research institutes, and private developers. SARETEC and SANEDI anchor these networks, while local innovators are contributing practical solutions. Examples include the launch of a new solar rooftop PV system by Q Plas Manufacturing, which aims to lower installation costs for commercial buildings,¹⁵² and the development of sun-tracking systems to enhance the efficiency of concentrated solar power plants.¹⁵³ International firms are also contributing, as seen with Energy America’s AstroVolt system, designed to enhance panel efficiency across African markets.¹⁵⁴

Beyond generation technologies, storage is emerging as a critical area of innovation. South Africa is home to some of Africa’s largest battery energy storage systems, which are being deployed both at utility scale and in commercial installations.¹⁵⁵ These facilities are essential for addressing grid variability and for enabling the integration of higher levels of renewable energy. The CSIR stresses that storage technologies, with demand management, will be indispensable for stabilising the power system in the next decade.¹⁵⁶

“In terms of battery and the need for battery commissioning and capacity expansion on our grid, we are really far behind. It should have been rolled out aggressively if we want to balance the grid sustainably with renewables. Eskom did a few pilot BESS sites across the country, but that only happened because the World Bank required it as part of a loan. From there, it stalled. There was a private sector procurement round which was positive, but Eskom itself has taken more of a wait-and-see approach. The sense I get is they don’t believe renewables will grow exponentially, and they think it will slow down. That’s not sustainable. We need to rework the grid, expand storage, and bring private players in, otherwise we’ll never balance renewables properly.”

Monique Le Roux - Chief Engineer, CRSES

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156. CSIR. 2025. Utility Statistics Report – January 2025. [pdf] Pretoria: CSIR. Available at: https://www.csir.co.za/sites/default/files/Documents/Utility%20Statistics%20Report_Jan%202025_Final.pdf [Accessed 18 Aug. 2025].

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159. ESI Africa. 2025. 10 key numbers from the Green Hydrogen Summit in South Africa. [online] ESI Africa. Available at: <https://www.esi-africa.com/business-and-markets/10-key-numbers-from-the-green-hydrogen-summit-in-south-africa/> [Accessed 18 Aug. 2025].

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9.4 Green hydrogen and parallel industry benefits

Among emerging technologies, green hydrogen stands out for its potential to unlock parallel industrial value chains. The launch of the South African Green Hydrogen Atlas and environmental assessment guidelines in 2025 has provided investors with greater clarity on project planning.¹⁵⁷ High-level political support has reinforced momentum: at the African Green Hydrogen Summit 2025, the President and the Minister of Electricity underscored hydrogen’s role in decarbonising exports and attracting global finance.¹⁵⁸

The summit showcased both the ambition and the resources being mobilised. More than R1.49 billion has already been invested in the Hydrogen South Africa programme, while the Public Investment Corporation, the DBSA, and the Industrial Development Corporation (IDC) have jointly committed around R657 million to the SA-H2 Fund, a blended finance facility supporting the transition.¹⁵⁹ The fund has already deployed R355 million in development finance for the Hive Coega Green Ammonia Project, South Africa’s first industrial-scale plant, which aims to produce one million tonnes annually for export. The project is expected to avoid 2.6 million tonnes of CO₂ emissions each year and generate over 20,000 jobs.¹⁶⁰

In addition to the Green Hydrogen Summit commitments, South Africa’s programme has already attracted projects worth an estimated R800 billion, with green hydrogen being positioned as a key feedstock for ammonia and fertiliser production, thereby creating synergies with agriculture while strengthening export potential in the context of tightening carbon border adjustment mechanisms.¹⁶¹ The country’s advantage lies not only in its renewable resource base but also in its mineral endowment, producing around 70% of the world’s platinum supply, a critical input for electrolyser technology.¹⁶²

The continental opportunity is also significant; over 52 large-scale projects have been announced across Africa, contributing toward the Africa Green Hydrogen Alliance’s target of producing between 30-60 million tonnes annually by 2050. With more than 53 GW of renewable projects already in South Africa’s pipeline, the sector has the potential to sustain construction jobs well into the future while anchoring industrialisation.¹⁶³ Yet, experts caution that the country is not ready for full-scale production, citing cost competitiveness and infrastructure gaps as limiting factors.¹⁶⁴

In a notable development in September 2025, the IDC and KfW announced joint funding for a green hydrogen and green ammonia

project in the Northern Cape. The initiative demonstrates the growing role of concessional international finance in scaling frontier technologies and aligns with national ambitions to establish hydrogen as a strategic export industry.¹⁶⁵ Complementing this, Vaal University of Technology partnered with Standard Bank to lead hydrogen energy innovation, focusing on research, skills development, and financing models to accelerate hydrogen’s role in South Africa’s just energy transition.¹⁶⁶

Momentum was further reinforced when South Africa’s flagship R105 billion hydrogen projects advanced to the front-end engineering design stage in September 2025. This mega-project, among the largest of its kind globally, is projected to anchor downstream industries such as ammonia and synthetic fuels, while providing a test case for scaling up integrated hydrogen hubs. Its progress signals a shift from conceptual ambition to detailed engineering and execution planning, an inflection point that strengthens investor confidence and sets a benchmark for the sector’s industrial readiness.¹⁶⁷

Financial innovation is emerging as a key enabler. The SA-H2 Fund is being positioned to crowd-in development and private capital, while SANEDI continues to support pilot and demonstration projects that test hydrogen integration at smaller scales. Together, these efforts highlight hydrogen’s potential not only as an export commodity but also as a catalyst for industrial and socio-economic development.

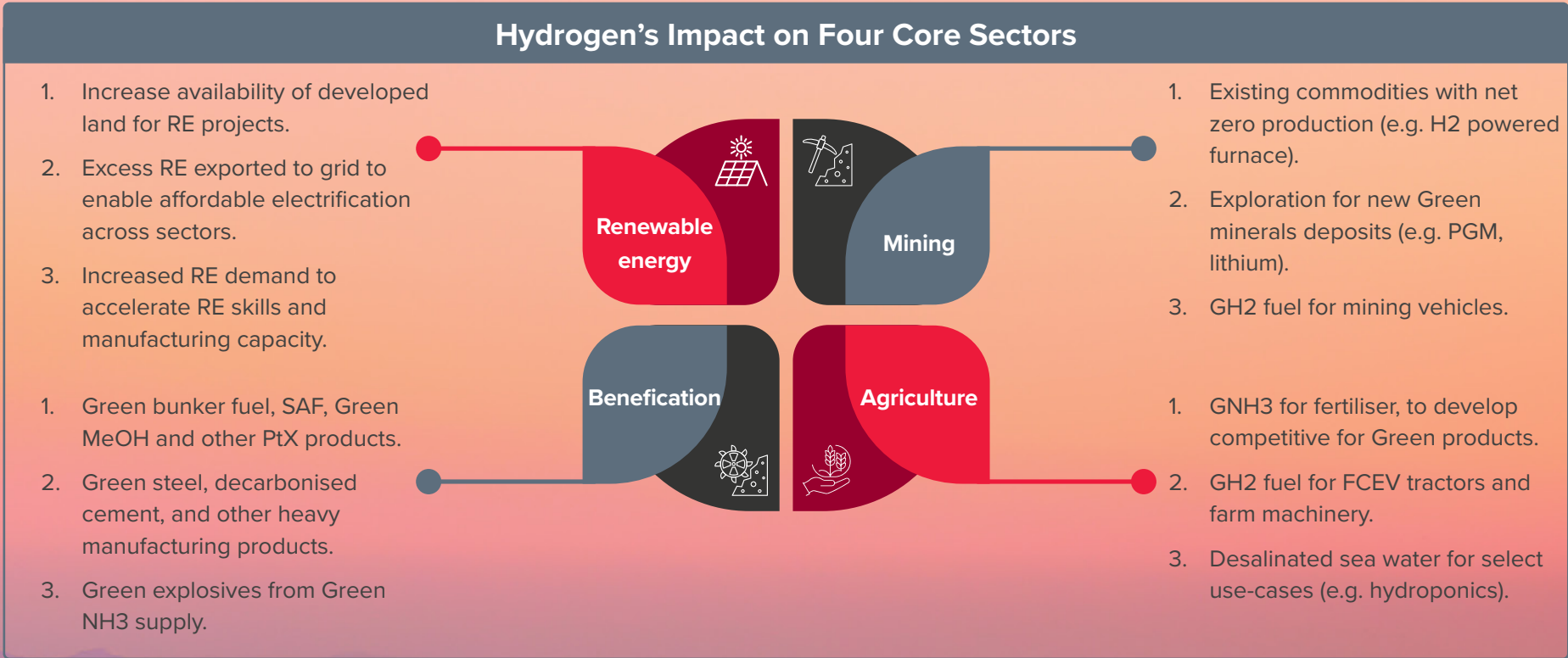
the-green-hydrogen-summit-in-south-africa/ [Accessed 18 Aug. 2025].
163. Ibid.
164. The Conversation. 2025. Green hydrogen is a clean fuel, but South Africa’s not ready to produce it: energy experts explain why. [online] The Conversation. Available at: <https://theconversation.com/green-hydrogen-is-a-clean-fuel-but-south-africas-not-ready-to-produce-it-energy-experts-explain-why-248777> [Accessed 18 Aug. 2025].
165. Engineering News. 2025. IDC, KfW funding green hydrogen, green ammonia project in Northern Cape. [online] Available at: <https://www.engineeringnews.co.za/article/idc-kfw-funding-green-hydrogen-green-ammonia-project-in-northern-cape-2025-09-02> [Accessed 8 Sep. 2025].

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167. Engineering News. 2025. South Africa’s R105bn hydrogen project advances to front-end engineering design stage. Available at: <https://www.engineeringnews.co.za/article/south-africas-r105bn-hydrogen-project-advances-to-front-end-engineering-design-stage-2025-09-12> [Accessed 23 September].
168. Republic of South Africa. 2023. Just Energy Transition Implementation Plan 2023–2027. [pdf] Pretoria: The Presidency. Available at: <https://www.stateofthenation.gov.za/assets/downloads/hydrogen-green-ammonia-project-in-northern-cape-2025-09-02>

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“From what I can tell the business case is still marginal. The demand for clean hydrogen still seems to be, I don’t know if the word is floundering, but it’s not the same as it was around a couple of years ago... We haven’t seen real evidence of that... We are lagging potentially because maybe as a country, Namibia has probably decided that it’s going to strategically push this agenda. But in South Africa, the private sector has decided that... they’re not going to throw money after something that’s potentially no longer as certain as before.”

Dom Chennells - Executive Director, Sola Group



9.5 Strategic implications

The adoption of new technologies and the drive for localisation mark a shift in South Africa’s energy transition from capacity expansion to value creation. By investing in R&D, fostering industrial ecosystems, and leveraging opportunities such as green hydrogen, the country can transform its renewable energy sector into a platform for industrialisation. For policymakers, the priority is to align industrial incentives with procurement frameworks, while investors will need to balance near-term

risks with the potential for long-term returns in manufacturing and parallel industries.

This transition is not without challenges. Local competitiveness remains limited, and the risk of dependency on imports persists. Yet, the foundations laid by SAREM, SARETEC, and SANEDI demonstrate a growing commitment to building a sustainable industrial base. The next section turns to financing models and incentives, examining how capital mobilisation can support this technological and industrial transformation.

11 Financing Models and Incentives

The scale of South Africa’s energy transition requires unprecedented levels of finance. Estimates from the JET IP place the funding requirement at R1.5 trillion over five years, covering generation, grid expansion, skills development and social support.¹⁶⁸ Mobilising such capital demands a mix of domestic resources, concessional funding, and innovative financing instruments. Equally important is ensuring that returns on investment (ROI) are competitive and underpinned by regulatory stability. This section explores the models shaping the financing landscape, from green bonds to blended finance, and assesses the incentives available to investors.

10.1 Concessional finance and blended models

International partners have provided significant concessional support. In 2025, South Africa, through the World Bank’s Climate Investment Funds, has secured access to a R17.63 billion concessional fund to help green industry,¹⁶⁹ while the African Development Bank has committed R8.37 billion to the JET.¹⁷⁰ Germany has also provided a R10.24 billion loan to support the shift away from coal.¹⁷¹ These concessional flows reduce project risks, making it possible for commercial lenders to crowd in additional finance.

The JET IP emphasises blended financing as a central strategy, combining concessional and commercial sources to stretch the impact of limited concessional resources.¹⁷² Instruments such as the SA-H2 Fund, backed by the Public Investment Corporation, DBSA, and IDC, illustrate how blended vehicles can de-risk emerging sectors such as green hydrogen.¹⁷³

“I think the government is starting down the right path with the security package. You need to work on the entire finance package, the guarantees, the risk return, the transmission programme, and then you need to come up with big concessional finance programs that will allow whoever, whether it’s the Norwegian sovereign wealth fund or the British government, to make their necessary returns. But this is where transition funding should go. Unlocking the grid, unlocks 10 renewable projects, so then the government needs to impose on those renewable projects’ certain local economic development targets.”

Peter Venn - CEO, Seriti Green

10.2 Public–private partnerships and grid funding instruments

South Africa’s government has increasingly recognised the importance of public–private partnerships to mobilise large-scale investment. A new grid-funding framework and instrument, announced in 2025, is designed as a template for private participation across state-owned enterprises.¹⁷⁴ This framework is expected to be piloted in the transmission sector, where capital needs are acute and Eskom’s balance sheet is constrained. These measures complement tax-based incentives, such as the enhanced renewable energy deduction, which businesses were urged to utilise before the February 2025 deadline.¹⁷⁵

10.3 Green bonds and ESG finance

Green bonds have emerged as an important tool to channel finance into sustainable infrastructure. The Johannesburg Stock Exchange (JSE) has positioned itself as Africa’s hub for sustainable finance, pioneering green bond issuances that align with international standards.¹⁷⁶ In parallel, According to the Climate Bonds Initiative, green bonds can provide long-term, low-cost capital, helping to address currency mismatch risks that often deter foreign investors.¹⁷⁷

JET%20Implementation%20Plan%202023-2027.pdf [Accessed 18 Aug. 2025].

169. Engineering News. 2025. South Africa given access to \$1bn concessional fund to help green industry. [online] Creamer Media. Available at: <https://www.engineeringnews.co.za/article/south-africa-given-access-to-1bn-concessional-fund-to-help-green-industry-2025-06-13> [Accessed 18 Aug. 2025].

170. Energy Capital Power. 2025. AfDB commits \$475m to South Africa’s just energy transition. [online] Energy Capital Power. Available at: <https://energycapitalpower.com/afdb-commits-475m-to-south-africas-just-energy-transition/> [Accessed 18 Aug. 2025].

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172. Republic of South Africa. 2023. Just Energy Transition Implementation Plan 2023–2027. [pdf] Pretoria: The Presidency. Available at: <https://www.stateofthenation.gov.za/assets/downloads/JET%20Implementation%20Plan%202023-2027.pdf> [Accessed 18 Aug. 2025].

173. ESI Africa. 2025. 10 key numbers from the Green Hydrogen Summit in South Africa. [online] ESI Africa. Available at: <https://www.esi-africa.com/business-and-markets/10-key-numbers-from-the-green-hydrogen-summit-in-south-africa/> [Accessed 18 Aug. 2025].

the-green-hydrogen-summit-in-south-africa/ [Accessed 18 Aug. 2025].

174. Engineering News. 2025. Soon-to-be-launched grid-funding instrument can be used as private participation template by all SOEs – Ramokgopa. [online] Creamer Media. Available at: <https://www.engineeringnews.co.za/article/soon-to-be-launched-grid-funding-instrument-can-be-used-as-private-participation-template-by-all-soes-ramokgopa-2025-02-13> [Accessed 18 Aug. 2025].

175. Engineering News. 2025. Businesses urged to use enhanced deduction for renewable energy incentive before February 28. [online] Creamer Media. Available at: <https://www.engineeringnews.co.za/article/businesses-urged-to-use-enhanced-deduction-for-renewable-energy-incentive-before-february-28-2025-02-20> [Accessed 18 Aug. 2025].

176. Further Africa. 2025. Johannesburg’s green bonds fuel sustainable finance boom. [online] Further Africa. Available at: <https://furtherafrica.com/2025/05/22/johannesburgs-green-bonds-fuel-sustainable-finance-boom/> [Accessed 18 Aug. 2025].

177. Climate Bonds Initiative. 2025. Green Bonds in South Africa: How green bonds can support South Africa’s energy transition. [pdf] Climate Bonds Initiative. Available at: <https://www.climatebonds.net/files/documents/publications/Green-Bonds-in-South-Africa-How-green-bonds-can-support-South-Africas-energy-transition.pdf> [Accessed 18 Aug. 2025].

11 Financing Models and Incentives

JSE Green Bond Criteria
Once a bond is listed on the JSE interest rate market, the Issuer can apply to be eligible for the Green Bond Segment.
JSE Issuer regulation will assess whether the application complies with the Green Bond Standard. The criteria for the Green Bond Segment are based on the following principles:
1. Disclosure of proceeds: The Issuer must provide clear disclosure that the proceeds of the bond will be used for financing or refinancing new or existing eligible green projects (i.e. projects which will have a positive impact on the environment and/or climate).
2. Provide an external review: An independent assessment is required with respect to the use of proceeds, the selection process and the management of proceeds. This may take the form of a second opinion, certification, verification or a rating report issued by a qualified third party.
3. Commit to regular post-issuance reporting: Reports should cover the actual use of proceeds and the expected and actual impact of the allocated projects against the KPIs/benchmarks disclosed ex-ante. The first post-issuance report is required one year after listing a security.

Source: Johannesburg Stock Exchange, 2025

South Africa’s green bond market has expanded rapidly, with municipalities, corporates, and banks issuing instruments to fund renewable projects. This aligns with global trends, where more than R10.05 trillion has been earmarked for hydrogen, renewable and storage investments worldwide.¹⁷⁸ By cementing its role as a continental leader in ESG finance, South Africa is improving both its competitiveness and its attractiveness as an investment destination.

At the household level, the government announced in September 2025 a relief package of R20,000 per homeowner to incentivise rooftop solar adoption. This measure is designed to catalyse small-scale embedded generation uptake, complementing utility-scale investments and broadening participation in the energy transition.¹⁷⁹

10.4 Risk mitigation and ROI

Despite progress, investor concerns remain focused on regulatory certainty, project bankability, and returns. Policy clarity through the ERA Act 2024 has helped reduce uncertainty by affirming the right to trade electricity,¹⁸⁰ while procurement reforms are enhancing market transparency. The ROI of renewable projects in South Africa remains compelling; solar and wind costs are among the lowest globally, while PPAs often provide inflation-linked revenue streams.¹⁸¹ Risk mitigation instruments, such as political risk insurance and guarantees from development finance institutions, further enhance the investment case.

Calls for greater capital mobilisation have also intensified. In September 2025, the B20 South Africa energy task force urged a significant upscaling of transition financing. The group stressed that without expanded flows of concessional and blended finance, South Africa risks falling short of its energy transition objectives.¹⁸²

By interconnecting regulation, finance, and industrial policy, South Africa is moving closer to creating a stable, investable environment. This regulatory-financial nexus is vital to unlocking the project pipeline described in earlier sections.

“The government needs to have a scorecard of all 11 of those projects, the transmission line, plus the 10 renewables. But if the government can’t even keep track of how many projects reach COD or FC in this country... You need to see the transmission line as a crowd in my example of all 11 projects, not just the one transmission line. It includes 10 renewable projects. So that’s what you need to see. You need to see it as a collector. Does this open up that and if you do that right, it should be IFC, World Bank, money coming in at really easy rates.”

Peter Venn - CEO, Seriti Green

178. ESI Africa. 2025. 10 key numbers from the Green Hydrogen Summit in South Africa. [online] ESI Africa. Available at: <https://www.esi-africa.com/business-and-markets/10-key-numbers-from-the-green-hydrogen-summit-in-south-africa/> [Accessed 18 Aug. 2025].

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181. GreenCape. 2025. Large-Scale Renewable Energy Market Intelligence Report 2025. [pdf] Cape Town: GreenCape. Available at: <https://greencape.co.za/wp-content/uploads/2025/04/Large-Scale-Renewable-Energy-2025.pdf> [Accessed 18 Aug. 2025].

182. Engineering News. 2025. B20 South Africa energy task force urges big upscaling in energy transition financing. [online] Available at: <https://www.engineeringnews.co.za/article/b20-south-africa-energy-task-force-urges-big-upscaling-in-energy-transition-financing-2025-09-04> [Accessed 8 September 2025].

183. GreenCape. 2025. Large-Scale Renewable Energy Market Intelligence Report 2025. [pdf] Cape Town: GreenCape. Available at: <https://greencape.co.za/wp-content/uploads/2025/04/Large-Scale-Renewable-Energy-2025.pdf> [Accessed 18 Aug. 2025].

12

Skills Development and Workforce Readiness

Finance alone cannot deliver South Africa’s energy transition without an adequately skilled workforce. The transition from coal to renewables is not only a technological shift but also a socio-economic one, requiring reskilling, youth employment, and community development. This section examines the skills landscape, the gaps that must be addressed, and the strategies being deployed to ensure the workforce is ready to support the energy transition.

11.1 Skills gaps in the renewable sector

The rapid growth of renewable energy has exposed sector-specific skills shortages. According to GreenCape, South Africa’s renewable energy growth is being hampered by acute shortages of skilled professionals across the project lifecycle. Specific gaps are identified in engineering disciplines such as electrical, civil, and mechanical engineering, which are essential for plant design and integration into the grid. Equally, project management expertise is in short supply, with developers highlighting the need for specialists who can navigate complex procurement, financing, and regulatory processes. At the operational level, there is a shortage of technicians trained in solar PV and wind turbine maintenance, including fault detection, repair, and optimisation.¹⁸³

Similarly, SAREM complements these findings by pointing to the underdevelopment of skills in local manufacturing and assembly of components such as blades, towers, inverters, and battery systems, which are critical for achieving localisation and job-creation targets. SAREM calls for structured training pipelines through TVET colleges, SETAs, and Skills Development Zones to address these deficits and to ensure that domestic supply chains can meet rising demand.¹⁸⁴

SAREM: Number of People Enrolled in Selected Education/Training Programmes 2021

Type of institution	Qualification	Level	Number of people enrolled
Public HEIs	Electrical, electronics and communications engineering	▶ Diploma, Bachelor, Honours, Master’s or PhD	18,778
	Civil engineering		15,622
	Manufacturing, Engineering and Technology		330
TVET	Engineering and related design	▶ National Certificate (Vocational)	17,962
	Electrical infrastructure and construction	▶ Levels 2-4	16,945
	Engineering Studies	▶ N6 (part-time qualification)	15,065
Community education & training college	Technology	▶ General Education and Training ▶ Certificate: Adult Basic ▶ Education and Training Level 4 ▶ qualification	633
Private college	Manufacturing, engineering and technology	▶ Occupational Qualifications	1,764
	Engineering Studies	▶ N6 (part-time qualification)	3,455
SETA-supported programme	Electricity and water	▶ Learnership	157 workers and 634 unemployed people
		▶ Skills programme	1,074 workers and 77 unemployed people
		▶ Internship	45 unemployed people
	Manufacturing, engineering and related services	▶ Learnership	3,209 workers and 379 unemployed people
		▶ Skills programme	2,344 workers and 379 unemployed people
		▶ Internship	45 unemployed people
	Electrician	▶ Artisanal learning programmes	3,016

Source: SAREM, 2025

184. Department of Trade, Industry and Competition. 2025. South African Renewable Energy Masterplan (SAREM). [pdf] Pretoria: dtic. Available at: https://www.gov.za/sites/default/files/gcis_document/202506/south-african-renewable-energy-masterplan.pdf [Accessed 18 Aug. 2025].

185. Independent Power Producers Office. 2025. IPPPP Quarterly Report Q4 2024/25. [pdf] Pretoria: DMRE. Available at: https://www.ipp-projects.co.za/_entity/annotation/15c9fdd-503c-d00d-b44a-1976b66a1bc4 [Accessed 18 Aug. 2025].

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187. Engineering News. 2025. Energy Council launches Energise Mzansi information campaign. [online] Creamer Media. Available at: <https://www.engineeringnews.co.za/article/energy-council-launches-energise-mzansi-information-campaign-2025-02-11> [Accessed 18 Aug. 2025].

12 Skills Development and Workforce Readiness

At the same time, the REIPPPP shows that while more than 93,000 job-years have already been created in renewable projects, the bulk of employment has been in short-term construction roles. Sustained industrial development will require a workforce capable of long-term operation, manufacturing, and innovation.¹⁸⁵ The Department of Science and Innovation has recently warned that similar gaps threaten South Africa’s hydrogen ambitions. In particular, the absence of large-scale local manufacturing capacity for electrolyzers and fuel cell components, coupled with shortages of specialised technicians and researchers, risks slowing the commercialisation of green hydrogen. Without targeted investment in training and industrial capability, hydrogen projects may rely heavily on imports, undermining localisation objectives and limiting the sector’s contribution to inclusive growth.¹⁸⁶

“Even for us, we really struggle to get good engineers to do it. We’ve got too much work at the moment, and to get experienced engineers that do good work is really hard... There are a lot of inexperienced people, but it’s such a frustration to employ them and try to train them. As soon as you train someone and they actually do a decent job, they leave for something better, or they get a better opportunity. That is definitely a huge concern and that is our biggest struggle at the moment, is to get really good skilled people.”

Monique Le Roux - Chief Engineer, CRSES

‘I think our construction sector is strong with regards to skills... We have the skills, we have the knowledge. I am personally seeing people on our site come back from overseas, from Vietnam, come back to deliver projects. I don’t think it’s skills in the construction sector. The vast challenge we have is... the upfront skills; lawyers, bankers, all the people that it takes to get to financial close.’

Peter Venn - CEO, Seriti Green

11.2 Training initiatives and platforms

The South African government and broader industry have also launched initiatives to bridge the gap; The Energy Council of South Africa’s Energise Mzansi campaign aims to raise awareness and encourage participation in the renewable sector.¹⁸⁷ A further step to address sectoral skills shortages is the launch, in early-2025, of the Power Up platform, a flagship initiative under SAREM. The platform is designed to align education and training provision with the skills demanded by the renewable energy industry. It will work directly with higher education institutions to embed sector-specific competencies into curricula, thereby creating more coherent and predictable career pathways for young South Africans entering the industry. The initiative seeks not only to reduce the persistent mismatch between training supply and labour

market demand but also to accelerate the development of a workforce capable of supporting South Africa’s energy transition.¹⁸⁸

Simultaneously, Youth-focused programmes are proliferating; In 2025, the DLO Energy Skills Initiative in Gauteng, invited young people to apply for training in solar PV cleaning and maintenance,¹⁸⁹ while complementary initiatives have been launched nationally to expand youth participation and inclusion in the energy economy. Development finance is also being channelled into training, with the AfDB awarding R17.63 million to the National Business Initiative, specifically for green skills development in 2025.¹⁹⁰ Industry associations are also advancing inclusion. In September 2025, SAWEA reported tangible progress in positioning women at the forefront of renewable energy development. The initiative forms part of a broader effort to diversify the sector’s workforce and strengthen its social impact.¹⁹¹

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193. ESI Africa. 2025. 10 key numbers from the Green Hydrogen Summit in South Africa. [online] ESI Africa. Available at: <https://www.esi-africa.com/business-and-markets/10-key-numbers-from-the-green-hydrogen-summit-in-south-africa/> [Accessed 18 Aug. 2025].

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196. ESI Africa. 2025. 10 key numbers from the Green Hydrogen Summit in South Africa. [online] ESI Africa. Available at: <https://www.esi-africa.com/business-and-markets/10-key-numbers-from-the-green-hydrogen-summit-in-south-africa/> [Accessed 18 Aug. 2025].

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12 Skills Development and Workforce Readiness

SAREM Interventions Aimed at Building Capabilities

Implementation plan element	Category	Intervention	Timeframe	Mandate/ decision maker	Implementer
Map and build skills	Catalytic intervention	Develop and run a digital matchmaking platform (PowerUp) between industry, education providers and social compact partners, creating a demand-led skills and planning communication hub, to address skills priorities in the sector.	By launch	PowerUp Steering Committee	PowerUp Steering Committee
	Supporting intervention	Continuously update (every two years) and enhance the mapping of (technical and non-technical) skills required for the renewable energy and storage value chain.	Ongoing	DHET, DSI	DHET, DSI, QCTO, CHE, SETAs, PowerUp
	Supporting intervention	Based on mapping, develop and implement a set of standardised trainings and qualifications (made of new and amended trainings and qualifications), in line with agreed SAREM targets.	Ongoing	DHET, DSI	QCTO, CHE, SETAs, TVETs, Universities, SARETEC
	Supporting intervention	Establish a PSET infrastructure capacitation programme to enhance the accreditation of training providers.	1 year	DHET, DSI, SETAs	SETAs and industry
Activate skills	Catalytic intervention	Consolidate and expand internship programmes/opportunities in the renewable energy and storage sector by participating in Yes4Youth, in line with agreed SAREM targets.	Ongoing	Industry	Yes4Youth, Harambee, industry
	Supporting intervention	Design and roll out a programme for Artisan Recognition of Prior Learning in the renewable energy and battery storage value chain.	1 year	Industry, SETAs	Industry, SETAs, Training institutions

12

Skills Development and Workforce Readiness

Foster technology upgrading and commercialisation	Catalytic intervention	Establish an OEM-led cluster platform linking the different parts of the value chain (OEMs, Tier 1 and Tier 2 companies) to enhance transparent communication on OEM specifications/ expectation and well as support the upgrading of local manufacturers’ technical capabilities and quality standards (including technology transfer).	1 year	Dtic, OEMs	Dtic, OEMs
	Catalytic intervention	Establish a match-making platform between innovators and possible users to accelerate the adoption of new renewable and energy and storage technologies, along with innovative funding model for running costs of trials.	1 year	SANEDI, TIA	SANEDI, TIA, Isle
	Supporting intervention	Establish a collaborative platform for technology users to review emerging renewable energy and storage technologies.	1 year	SANEDI, TIA	SANEDI, TIA, Isle
	Supporting intervention	Scale up business incubation and capacity building support to emerging suppliers, in line with agreed SAREM targets.	Ongoing	DSBD/Seda, private sector	SAREBI
	Supporting intervention	Re-establish a Manufacturing Technology Centre for renewable energy and storage technologies.	1 year	DSBD/Seda, private sector	SAREBI
	Supporting intervention	Set up Solar Research Facility to support the integration of local innovations into existing value chain.	1 year	DSI	CSIR, industry

Source: SAREM, 2025

“The biggest sort of thing that you would need to do is, they always talk about the brain drain, but to try and to stop the drain, to put some plug into that. I think the easiest way to do that is to give people some confidence that the country is going somewhere... I think on a political level, if there can be some confidence given that things will improve, that it won’t deteriorate, then you’ll have a lot of people who would want to stay in South Africa, and want to invest and that’s what you really need. It doesn’t help that all your best people leave and you just try and fill that gap. It’s really difficult.”

Monique Le Roux - Chief Engineer, CRSES

12 Skills Development and Workforce Readiness

11.3 Localisation and workforce development

Localisation is closely tied to workforce readiness; SAREM outlines how localisation targets in manufacturing will require new technical skills pipelines.¹⁹² 21 Sector Education and Training Authorities have been mobilised to direct resources toward relevant skills programmes, linking industrialisation with job creation.¹⁹³ The SANEDI 2024/2025 report further emphasises the importance of integrating R&D with training, ensuring that skills are developed in tandem with technological adoption.¹⁹⁴

Complementing these efforts, the JET Skills Desk was formally launched in September 2025 to prepare the workforce for the energy transition. The platform is intended to coordinate curriculum design, vocational training, and alignment with emerging industrial demand, thereby institutionalising skills planning for the just transition.¹⁹⁵

These measures are essential not only for achieving localisation but also for addressing South Africa's broader unemployment challenge. With more than 40% of the population living in food insecurity, building domestic demand through job-creating industrial growth is as much a social imperative as an economic one.¹⁹⁶

11.4 Strategic implications

The workforce dimension is a linchpin of the just transition. Without adequate skills, localisation strategies will falter and concessional finance will be underutilised. By integrating skills development with financing frameworks, South Africa can ensure that projects deliver inclusive growth alongside clean energy.

The interconnection between finance, regulation, and localisation forms the backbone of South Africa's energy transition. Mobilising finance is essential, but its impact depends on the availability of skills to convert investment into real capacity on the ground. In turn, targeted training and localisation strategies ensure that this growth is embedded within the domestic economy. Taken together, these elements illustrate the systemic approach required to advance the country's renewable energy ambitions. Looking ahead, attention now shifts to the outlook, risks, and strategic priorities that will shape the sector's future trajectory.

13 Outlook, Risks and Strategic Priorities

The outlook for South Africa’s renewable energy sector is shaped by the tension between structural risks and enabling reforms. Over the past decade, renewables have moved from a peripheral role to a central pillar of the national energy system. Installed capacity has exceeded 15 GW, with IPPs delivering more than 133 TWh to the grid since the inception of REIPPPP.¹⁹⁷ Yet, as the country stands at a critical juncture, the sustainability of this trajectory will depend on how effectively key risks are managed and how new opportunities are leveraged.

12.1 Emerging risks

The most immediate challenge remains the constrained transmission grid. Resource-rich provinces such as the Northern and Eastern Cape have already exhausted available grid capacity, forcing developers to seek alternatives in less optimal locations. Eskom’s GCCA indicates that relief from new transmission corridors will only materialise from 2027 onwards, which risks delaying large-scale wind and solar projects. Without accelerated investment in the grid, procurement programmes and private wheeling arrangements will struggle to scale at the pace required.¹⁹⁸

Policy uncertainty is a further risk; While the IRP 2023 outlines diversification pathways, delays in its finalisation and updates have created mismatches between policy intent and procurement execution.¹⁹⁹ The cancellation of more than 20 projects across recent bid windows underscores the fragility of the pipeline when financial close depends on synchronised regulatory, financial and grid readiness.²⁰⁰ Similarly, the ERA Act of 2024 has set out the foundations for a competitive market, but its practical implementation will require careful sequencing to avoid market instability.²⁰¹

Economic headwinds add a layer of complexity; Fiscal constraints limit the state’s ability to guarantee large-scale borrowing for grid and generation assets. This places pressure on blended finance instruments and concessional funding to bridge investment gaps. Simultaneously, rising unemployment and persistent inequality highlight the risks of a transition that fails to secure distributive benefits. The pace of coal decommissioning

must therefore balance climate commitments with social stability in provinces dependent on fossil fuel value chains.²⁰²

12.2 Enabling developments

step in opening the electricity market to multi-buyer and multi-seller arrangements.²⁰³ Coupled with the ERA reforms, this provides the framework for corporate power purchase agreements and direct supply contracts to flourish.²⁰⁴

Investment appetite remains robust. By March 2025, over R292 billion had been committed through IPP programmes, with 9.6 GW procured reaching financial close. The parallel acceleration of private market transactions is equally significant, with corporates increasingly securing long-term renewable supply to hedge against escalating Eskom tariffs. The launch of the BESIPPPP further diversifies the supply base and provides system flexibility.²⁰⁵

Industrial policy is also emerging as a decisive enabler. SAREM sets ambitious localisation targets of 50% for solar, 47% for wind, and 60% for storage by 2030. It also seeks to increase employment in renewable component manufacturing tenfold, embed transformation across ownership structures, and boost youth and female participation in the value chain.²⁰⁶ If implemented effectively, these measures could create stronger economic linkages, reduce import dependency, and broaden the socio-economic impact of the energy transition. This complements the JET IP, which sets a R 1.5 trillion investment framework for electricity, new energy vehicles, green hydrogen, skills and municipalities.²⁰⁷

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13 Outlook, Risks and Strategic Priorities

12.3 Strategic priorities

Looking ahead, five strategic priorities stand out for the period to 2030:

1. Unlocking grid capacity

Fast-tracking the TDP and piloting off-balance-sheet financing structures will be essential to relieve congestion in high-resource provinces. Without grid expansion, generation growth will remain constrained regardless of procurement schedules.

2. Consolidating policy and regulatory certainty

Ensuring timely updates of the IRP and consistent REIPPPP windows will rebuild confidence. Implementation of the ERA 2024 market reforms must be carefully sequenced, with clarity on market rules and governance to attract new traders and financiers.

3. Mobilising blended finance

Expanding the JET Funding Platform and scaling green bond issuances can unlock

concessional and private capital. Transparent frameworks to align domestic finance with international climate funds will strengthen bankability and reduce sovereign risk.

4. Anchoring localisation and skills

SAREM's localisation targets should be embedded in procurement design to guarantee predictable demand for domestic manufacturers. Parallel investments in skills ecosystems, particularly in Mpumalanga, Northern Cape and Eastern Cape, will be necessary to sustain a just transition and secure employment outcomes.

5. Diversifying the technology base

Green hydrogen, battery storage and new energy vehicles should be integrated into industrial strategy to capture export opportunities and build resilience. This diversification will expand South Africa's positioning in global value chains while decarbonising domestic production.

12.4 Outlook to 2030

The renewable energy sector is positioned to double its contribution to the national energy mix by 2030, potentially surpassing 30 GW of installed capacity if procurement schedules and private investments are realised. Storage integration and market liberalisation are expected to stabilise supply and reduce reliance on costly peaking plants. Industrial policy reforms, anchored by SAREM, could transform renewables from a narrow energy solution into a broad economic catalyst, unlocking manufacturing opportunities, jobs and exports.²⁰⁸²⁰⁹

However, the pace of progress will hinge on whether South Africa can reconcile its infrastructure bottlenecks, fiscal limitations, and social imperatives with the urgency of its energy crisis. The coming years will therefore be decisive: a coherent execution of reforms could cement renewables as the backbone of a resilient, inclusive and competitive economy, while failure to act could see the transition stall in the face of compounding risks.

"To me it's quite clear, the wholesale market is important. I think South Africa's never really had a way for businesses to access renewables... It's important that the momentum gets kept up on that. It sounds like NERSA is pushing that, that's moving very quickly... Eskom needs to be held to account. Eskom needs to decide what it's going to do, unbundling... Then I think the third thing is probably transmission. That's just the grid, strengthening of the grid just has to happen."

Dom Chennells - Executive Director, Sola Group

"Doing business in Africa is hard and we choose to do hard things, otherwise I might be living in the Netherlands or somewhere else. So, it's going to be incredibly hard, and we need to persevere. I am seeing positive turnarounds at the senior levels of government, like a true turnaround, but there's a huge gap between the implementation people of government... and the people at the top."

Peter Venn - CEO, Seriti Green

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14 Credentials

The global energy revolution is here: the industry is growing fast, shaped by new technologies, business models and ecosystems. Although the South African energy generation sector has its constraints and concerns, the tide of renewable energy has turned and new ways of generating, storing and monitoring our consumption of energy will become increasingly the new standard.

Governments and businesses must now rise to the challenges of a just energy transition to an affordable and sustainable energy supply. This new global focus has created substantial opportunities for developers, technology suppliers and investors – particularly in South Africa, where solar and wind power can be game-changers.

How we assist Investors

BDO has considerable experience providing customised solutions in the energy production sector.

This includes assistance with managing:

- ▶ Project Identification & Validation
- ▶ Financial close of the project (before or after)
- ▶ Transactions across the overall asset/s life cycle
- ▶ Project Finance and SPV Structuring
- ▶ Construction phase of the project / the infrastructure asset
- ▶ Procurement phase of the project
- ▶ Production / Operations & Maintenance (O&M)

In South Africa, we have developed and reviewed financial models for renewable energy projects. Specifically, we have experience in the development of financial models, input reviews, taxation advice and bid preparation.

To date we have been involved in:

- ▶ The bid preparation of REIPPPP projects for submission to the Department of Energy
- ▶ Setting up corporate structures for companies expanding into South Africa and Africa
- ▶ Performing outsourced accounting services, including back-office administration, public officer and bookkeeping services for energy clients, especially IPP's and investment companies operating in the local renewable energy sector
- ▶ Auditing several energy sector clients across the country
- ▶ Providing taxation advice – individual, corporate and expatriate
- ▶ Performing valuations of active projects and project pipeline assets for IPP's and investment holding companies within the renewable energy sector
- ▶ Performing buy-side financial and tax due diligences on active REIPPPP projects
- ▶ Reviewing financial models for accuracy, as well as compliance with International Financial Reporting Standards (IFRS) requirements and local tax legislation.

How we assist Renewable Companies.

Market pressure on energy and other resources have combined with increased regulation to create new business priorities such as net zero and regenerative energy consumption. This is driving the world towards lower carbon generation through demand for more resource-efficient, climate-friendly goods and services.

BDO has vast experience in advising its clients through this new market landscape and understands the intricacies of the local market as well as the regulation that governs it. We support our clients in

conceptualising the feasibility of investing, developing and constructing renewable energy projects to ensure the sustainability and longevity of their investment. At BDO we offer various support services to ensure your company can operate compliantly while our clients focus on the operational challenges they face.

These services include:

- ▶ Actuarial services
- ▶ B-BBEE Verification Services
- ▶ BDO Digital
- ▶ Business restructuring
- ▶ Corporate finance
- ▶ Cyber security
- ▶ Finance transformation
- ▶ Forensics
- ▶ Infrastructure advisory
- ▶ People advisory services
- ▶ Risk advisory
- ▶ Strategy & growth advisory
- ▶ Supply chain management advisory
- ▶ Sustainability services
- ▶ Wealth
- ▶ Assurance (including Statutory audits and Agreed Upon Procedures)
- ▶ Performing buy-side financial and tax due diligences on active REIPPPP projects
- ▶ Reviewing financial models for accuracy, as well as compliance with International Financial Reporting Standards (IFRS) requirements and local tax legislation.



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