

GWEC REPORT

The Status of Wind in Africa

JULY 2026





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List of Abbreviations

ABBR.	FULL TERM
AFD	Agence Française de Développement (French Development Agency)
AfDB	African Development Bank
AfSEM	African Single Electricity Market
AIIM	African Infrastructure Investment Managers
ANC	African National Congress
ATI	African Trade Insurance Agency
B-BBEE	Broad-Based Black Economic Empowerment
BESS	Battery Energy Storage System
BII	British International Investment
BOO	Build-Own-Operate
C&I	Commercial and Industrial
CAPEX	Capital Expenditure
CBAM	Carbon Border Adjustment Mechanism
CDG	Caisse de Dépôt et de Gestion (Morocco)
CIF	Climate Investment Funds
CLSG	Côte d'Ivoire–Liberia–Sierra Leone–Guinea Interconnector
CMR	Caisse Marocaine des Retraites
CNSS	Caisse Nationale de Sécurité Sociale (Morocco)
COD	Commercial Operation Date
COMELEC	Comité Maghrébin de l'Électricité
DEG	Deutsche Investitions- und Entwicklungsgesellschaft
DFI	Development Finance Institution
DRC	Democratic Republic of the Congo
DRI	Direct Reduced Iron
DTU	Technical University of Denmark
EAPP	Eastern Africa Power Pool
EBRD	European Bank for Reconstruction and Development
ECA	Export Credit Agency
EDM	Énergie du Mali
EEP	Ethiopian Electric Power

ABBR.	FULL TERM
KIF	Kenya Investment Fund
KPLC	Kenya Power and Lighting Company
kW	Kilowatt
kWh	Kilowatt-hour
kWp	Kilowatt-peak
LCOE	Levelised Cost of Electricity
LCPDP	Least Cost Power Development Plan
LNG	Liquefied Natural Gas
LTWP	Lake Turkana Wind Power
MAD	Moroccan Dirham
MASEN	Moroccan Agency for Sustainable Energy
MENA	Middle East and North Africa
MIGA	Multilateral Investment Guarantee Agency
MoF	Ministry of Finance
MoU	Memorandum of Understanding
MUSD	Million United States Dollars
MVA	Mega Volt-Ampere
MW	Megawatt
MWh	Megawatt-hour
NBET	Nigerian Bulk Electricity Trading
NERSA	National Energy Regulator of South Africa
NREA	New and Renewable Energy Authority (Egypt)
NTCSA	National Transmission Company of South Africa
NWEC	Nigeria Wind Energy Council
O&M	Operations and Maintenance
OCF	Office Chérifien des Phosphates (Morocco)
OECD	Organisation for Economic Co-operation and Development
OEM	Original Equipment Manufacturer
ONEE	Office National de l'Électricité et de l'Eau Potable (Morocco)

List of Abbreviations

ABBR.	FULL TERM
EETC	Egyptian Electricity Transmission Company
EIB	European Investment Bank
EKF	Eksport Kredit Fonden (Denmark)
EN	Envision (turbine model series)
ENTSO-E	European Network of Transmission System Operators for Electricity
EPC	Engineering, Procurement and Construction
EPRA	Energy and Petroleum Regulatory Authority (Kenya)
ERB	Energy Regulation Board (Zambia)
ESCOM	Electricity Supply Corporation of Malawi
ESG	Environmental, Social and Governance
ESIA	Environmental and Social Impact Assessment
ESMAP	Energy Sector Management Assistance Program
EU	European Union
FID	Final Investment Decision
FiT	Feed-in Tariff
FMO	Dutch Entrepreneurial Development Bank
FX	Foreign Exchange
GCCA	Generation Connection Capacity Assessment
GCF	Green Climate Fund
GECOL	General Electricity Company of Libya
GEPF	Government Employees Pension Fund (South Africa)
GW	Gigawatt
GWEC	Global Wind Energy Council
GWh	Gigawatt-hour
HFO	Heavy Fuel Oil
HVDC	High-Voltage Direct Current
IDC	Industrial Development Corporation
IEA	International Energy Agency

ABBR.	FULL TERM
OPEC	Organization of the Petroleum Exporting Countries
OPEX	Operating Expenditure
PGM	Platinum Group Metals
PIC	Public Investment Corporation
PPA	Power Purchase Agreement
PPP	Public-Private Partnership
PV	Photovoltaic
RCAR	Régime Collectif d'Allocation de Retraite (Morocco)
RE	Renewable Energy
REIPPPP	Renewable Energy Independent Power Producer Procurement Programme
RMB	Rand Merchant Bank
SAPP	Southern African Power Pool
SCZONE	Suez Canal Economic Zone
SDG	Sustainable Development Goals
SMBC	Sumitomo Mitsui Banking Corporation
SME	Small and Medium Enterprise
SNI	Société Nationale d'Investissement (Morocco)
SNIM	Société Nationale Industrielle et Minière (Mauritania)
SOMELEC	Société Mauritanienne d'Électricité
SPV	Special Purpose Vehicle
STEG	Société Tunisienne de l'Électricité et du Gaz
TANESCO	Tanzania Electric Supply Company
TDP	Transmission Development Plan
TSO	Transmission System Operator
TW	Terawatt
UAE	United Arab Emirates
UETCL	Uganda Electricity Transmission Company Limited
USD	United States Dollar

List of Abbreviations

ABBR.	FULL TERM
IFC	International Finance Corporation
IFU	Investment Fund for Developing Countries (Denmark)
IPP	Independent Power Producer
IRENA	International Renewable Energy Agency
IRP	Integrated Resource Plan
ISO	Independent System Operator
ITP	Independent Transmission Project
JBIC	Japan Bank for International Cooperation
JETP	Just Energy Transition Partnership
JV	Joint Venture

ABBR.	FULL TERM
VAT	Value Added Tax
VC	Venture Capital
WAPP	West African Power Pool
ZAR	South African Rand
KES	Kenyan Shilling
KETRACO	Kenya Electricity Transmission Company
KfW	Kreditanstalt für Wiederaufbau (German Development Bank)
ZARc	South African Rand cents
ZESCO	Zambia Electricity Supply Corporation

The Global Wind Energy Council (GWEC) is the global trade association for the wind power industry, with over 1,500 members responsible for 70% of the world's wind capacity. Our members include major turbine manufacturers, energy companies, developers, and technology providers. GWEC advocates for the wind industry globally, collaborating with organizations like the IRENA, IEA, local associations and development banks to help governments and policymakers unlock wind energy's full potential. GWEC's mission is to ensure that wind power fulfills its role as one of the key technology solutions to today's energy and climate challenges, forming the backbone of a new clean energy system and enabling trillions of dollars of investment while providing substantial economic and social benefits to host countries.

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Foreword



GWEC published the first Status of Wind in Africa report in 2023 with the continent having just under 9 GW of installed wind. Three years later, we have crossed 11 GW.

The third African country, Morocco, has joined South Africa and Egypt above the 2 GW mark. Egypt is building the first GW-scale wind farm on African soil. South Africa's corporate buyers have signed wind contracts at a faster rate in thirty months than the state procured in fifteen years. These are not small shifts. They are the signs of an industry that has stopped asking whether it belongs on this continent.

And yet, the picture this report paints is also one of stark concentration. Three countries hold nearly nine in every ten megawatts of African wind. The continent's greatest wind resources, in Algeria, Libya, Sudan, and the Sahel, remain almost entirely untouched. Less than 0.02% of Africa's technical wind potential has been built.

The constraint is not the wind. It never has been. The constraint is the set of institutions, contracts, grids, and capital flows that turn wind into electricity, and electricity into industry, jobs, and household power.

What this report shows clearly is that the constraint can be lifted, and that several African countries are showing how. Morocco built a wind industry on a steady procurement calendar and partnerships with its own pension funds. Egypt did it with bankable contracts and a sovereign backstop. South Africa did it twice over, once through public procurement and then again through a corporate market that the government had the courage to allow. None of these countries had perfect conditions when they started. Each of them entered the loop and let one success build the next.

This is the message I want every reader of this report to carry forward. The path from 11 GW to 50 GW will not be drawn by waiting for ideal conditions. It will be drawn by ministries that publish auction calendars, by utilities that honour the contracts they sign, by transmission companies that build wires ahead of generation, by banks that lend in local currency, and by industries that buy clean power because it is cheaper and cleaner than the alternative. Each of these is within reach of every African country today.

Africa's wind story is no longer a story of potential. It is becoming a story of execution. The work of the Global Wind Energy Council, alongside our partners and our growing membership across the continent, is to make sure that execution reaches every country with the wind to harness it.

I hope this report will be useful in that work. I thank the team that produced it, and the developers, financiers, regulators, and communities whose efforts it documents.

Juliana Kainga,
Director - Africa Wind Power, GWEC

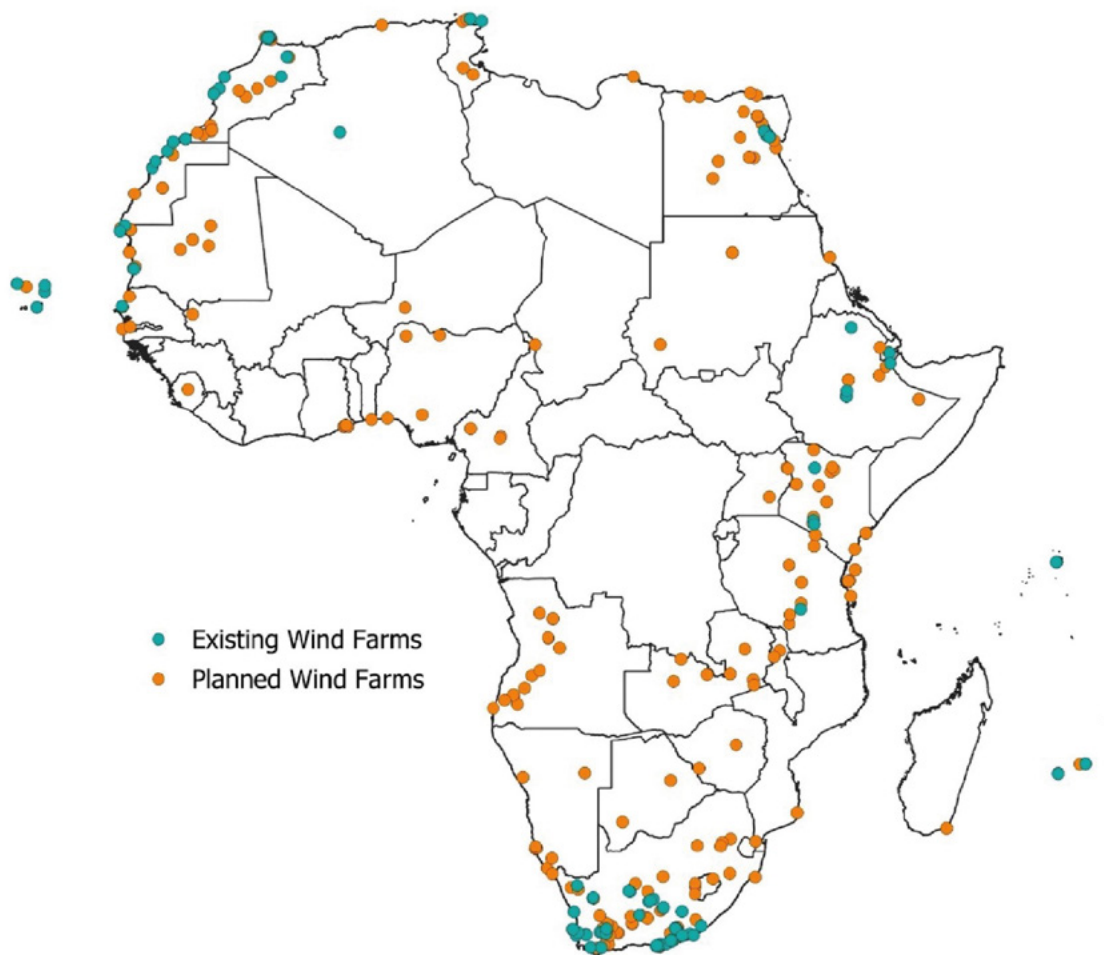


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Executive Summary

Africa's wind sector has crossed an industrial threshold. Installed capacity reached **11.1 GW by the end of 2025**, up from just under 9 GW in 2023. A third country, Morocco, has joined South Africa and Egypt above the 2 GW mark. Egypt is building the continent's first GW-scale wind farm. South Africa's corporate buyers have signed wind contracts at a faster rate in thirty months than the state procured in 15 years.

The question is no longer whether wind belongs on the continent, but how quickly the institutions, grids, and capital flows that turn wind into electricity can keep pace with the technology. The proposed wind projects on the continent are spread across different regions while the built projects cluster around South Africa, Morocco, Egypt, Ethiopia and Kenya as shown in the map below.



Source: GWEC market intelligence 2026

Solar's growth raises the value of wind

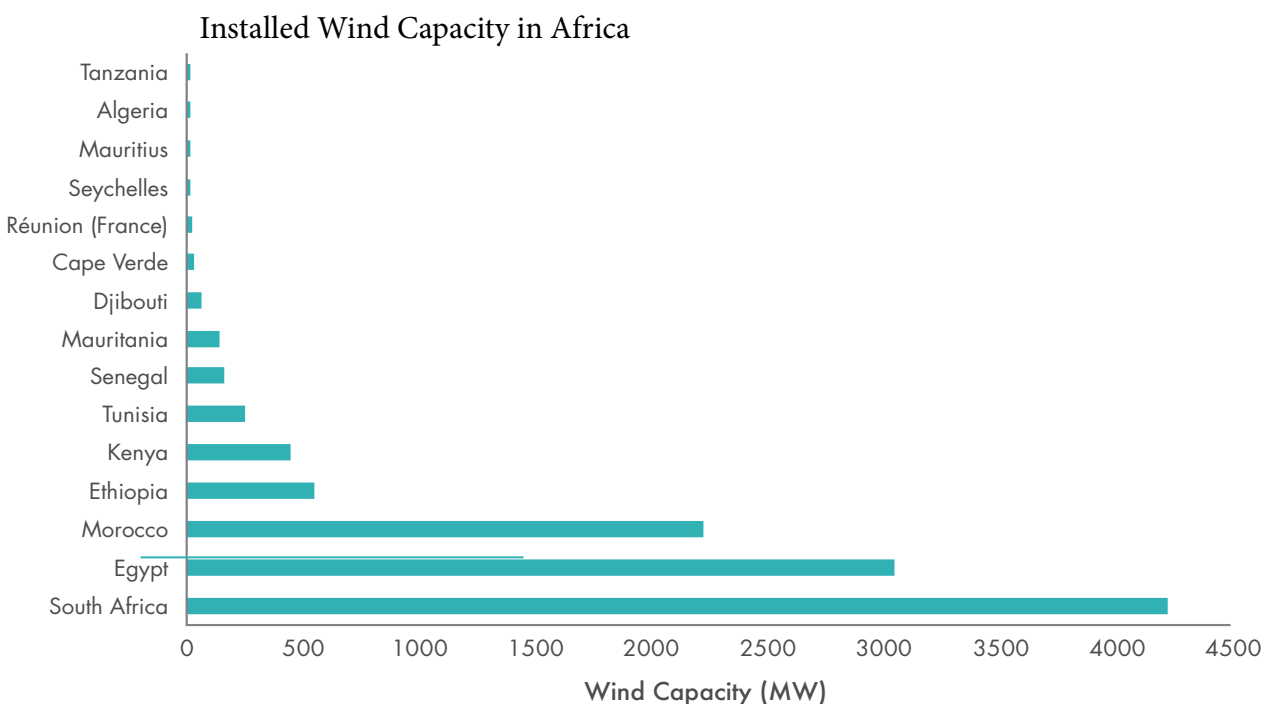
Wind and solar in Africa are growing on different tracks. Solar added around 4.5 GW in 2025, close to three times wind's 1.53 GW, but almost half of that came from rooftop and commercial systems. At utility scale the gap is far narrower. More importantly, solar's growth is changing what power systems need. As daytime solar rises, wind's value lies in extending clean supply beyond daylight hours. The industrial buyers now driving wind demand need supply around the clock. Hybrid wind, solar and storage plants such as First Quantum's 430 MMW project in Zambia show the model and a growing share of new African wind projects above 100 MW are expected to be hybrid by 2030.

A continent of extraordinary resource, marginally exploited

Africa has an estimated **58,400 GW of technical onshore wind potential** (at > 6m/s wind speeds). Less than **0.02% of this has been built**. The continent has capacity factors of 35–42% in the better-resource regions comparing favourably with the European onshore fleet average of approximately 25%. The constraint has never been the wind resource. It has been the set of institutions, contracts, grids, and capital flows that turn wind into electricity, and electricity into industry, jobs, and household power.

A market concentrated, but beginning to widen

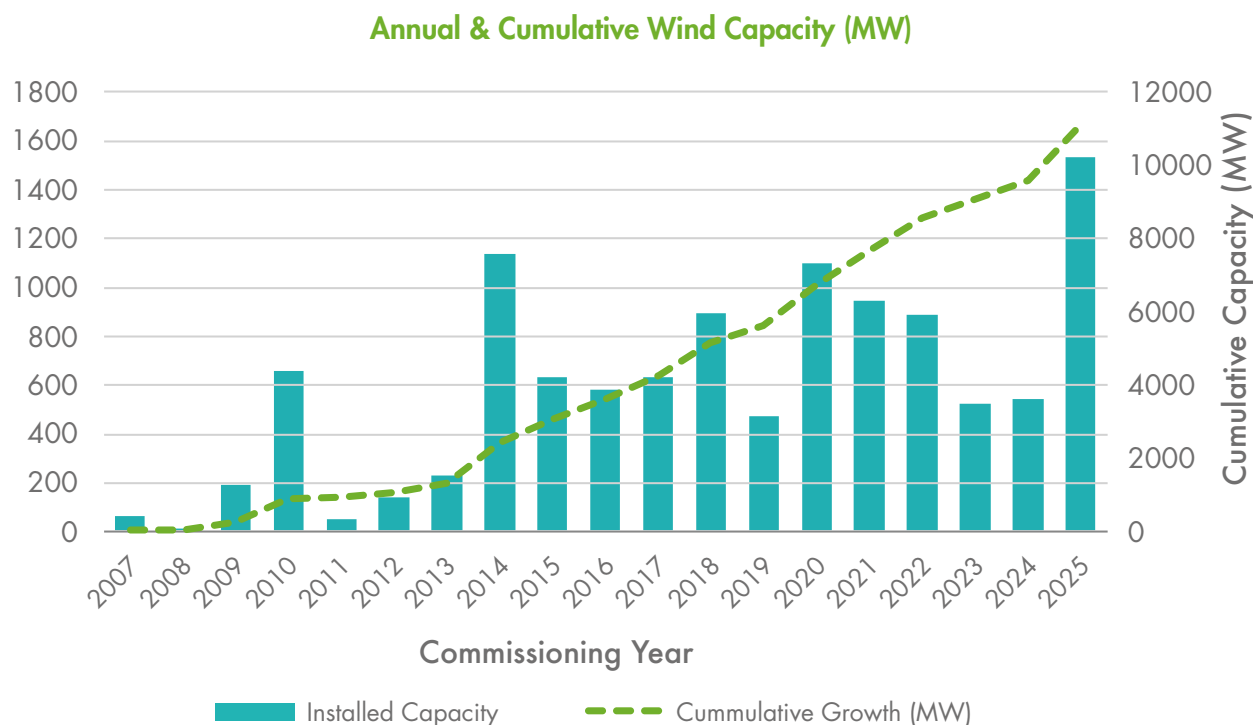
Three countries, South Africa (4.2 GW), Egypt (3.2 GW), and Morocco (2.2 GW), together account for over **85% of Africa's installed wind capacity**. The next tier of Ethiopia, Kenya, Tunisia, Senegal, and Mauritania have installations in the 0.1–0.8 GW range. The countries with the largest technical resources (Algeria, Libya, Sudan) have together built less than 200 MW. This is a resource–institution mismatch. It illustrates that wind is built where bankable offtake, predictable procurement, and competent grids coincide, not only where the wind is strongest.



Source: GWEC market intelligence 2026

The planned pipeline of 186 GW across 259 projects is significantly wider in its geographic spread than the operating fleet. Pre-construction and announced projects extend into Mauritania, southern Algeria, central Sudan, Tanzania, Zambia, Madagascar, Cameroon, and Angola. The announcement-to-construction conversion rate will be the determining variable for Africa's wind trajectory through 2030.

Africa continues to record growth in wind capacity with 2025 being a record year for the MWs installed in a single year. 1.53 GW was installed, mainly driven by Egypt. 2026 and 2027 are expected to have more than 1 GW installed as shown below.



Source: GWEC market intelligence 2026

Bankability without sovereign guarantees

The most important market structure innovation of the past three years has been the captive corporate power purchase agreement. South Africa's 2022 regulatory adjustment, raising the licensing-exempt generation threshold to 100 MW and subsequently removing it entirely, unlocked over 3.3 GW of corporate-PPA wind in under thirty months. This compared to 12 GW across technologies that REIPPPP delivered in fifteen years. The model substitutes a multinational mining or industrial counterparty's balance sheet for a sovereign guarantee that governments are increasingly reluctant to issue. Morocco demonstrates the same logic with a longer history. For frontier markets, the implication is that utility reform is not a precondition for wind development. Corporate PPAs can offer a parallel route.

Local capital is becoming structural

South African banks and pension funds now finance the majority of new build wind in their domestic market in local currency. This avoids the foreign-exchange availability barrier that has historically been priced into African tariffs. These banks include Standard Bank, ABSA, Nedbank, Rand Merchant Bank, the Public Investment Corporation, and Old Mutual's IDEAS Fund. Morocco's Caisse de Dépôt et de Gestion, commercial banks, and pension funds perform an equivalent role in dirhams. Egypt's National Investment Bank and Sovereign Fund are taking equity in GW-scale projects. The DFI-and-international-commercial-bank stack that dominated the first phase of African wind is being repositioned to anchor frontier markets. This is the most replicable structural innovation observed in this report.

Industrial demand is widening the offtaker base

Wind has moved into Africa's industrial supply space through traditional offtake industries. Mines, cement plants, smelters, and fertiliser producers are buying clean power in volumes that exceed what national utilities have procured. Mining-anchored PPAs in Zambia (First Quantum, 430 MW hybrid with 200 MW wind), South Africa (Sibanye-Stillwater, 407 MW), and Mauritania (SNIM/Nour) demonstrate the model at commercial scale. The bigger ambitions of green hydrogen, green steel, sustainable aviation fuel are real but contingent on European demand and transmission. The EU Carbon Border Adjustment Mechanism, transitioning to full charging in 2026, creates a structural premium for green-energy-supplied African industrial output that did not exist three years ago.

Outlook: 30–50 GW by 2035

Should the 186 GW pipeline fully convert, the continent will install wind at the rate currently observed in Latin America. However, conversion is not assured. Realistically, Africa could be at 30 to 50 GW of installed wind by 2035, concentrated in South Africa (15 GW plus), Egypt (8–10 GW), Morocco (5–8 GW), and a long tail of emerging markets in the 0.5–3 GW range. Captive corporate-PPA wind is expected to constitute 50–70% of new build in mature markets.

A growing share of new projects above 100 MW, particularly those serving industrial off takers, is being developed as hybrids with solar and storage, with wind supplying clean power when solar output falls away. At least one operational green-hydrogen-and-ammonia export hub linked to wind is likely, in Namibia or Mauritania. The trajectory can be accelerated by hyperscale data-centre demand for round the clock clean power and green-steel offtake commitments. This growth can be slowed down by Sahel security shocks, EU CBAM rollback, or a global wind supply-chain crunch.

Supportive Regulatory and Planning Framework	Bankable PPA and Credible Offtaker	Grid Capacity Matching Generation Project Pace	Local Content and Industrial Integration
Competitive and Transparent Procurement Program	Domestic Capital Depth with Initial DFI Support	Repeat Developers	Diversified Offtake Opportunities



What it will take

The report identified eight conditions for a successful in-country wind industry as observed by the top African markets. These are shown below.

Considering the eight identified conditions five were the most essential for Africa's successful wind markets. A bankable offtake, a repeated procurement calendar, sufficient local capital, a grid capable of absorbing the energy, and regulatory durability across political cycles. Where these align, the sector has moved from pilot to pipeline within approximately five years.

This has been the case for South Africa after REIPPPP Bid Window 1, Morocco after Law 13-09, and Egypt with the EETC PPA template. Where one is missing, projects stall and tariffs do not clear. The path from 11 GW to 50 GW will be drawn by:

- **Ministries that publish auction calendars:** Committing to specific MW volumes three to five years out, not single auction rounds
- **Utilities that honour the contracts they sign:** This could be backed by governments that back them with explicit Ministry of Finance guarantees or DFI-anchored partial risk cover
- **Transmission built ahead of generation:** This will extend beyond traditional grid expansion to merchant grid investment, independent transmission projects, and cross-border interconnectors
- **Banks and pension funds that lend in local currency:** These will require support by regulatory adjustments that allow pension allocation to operational renewable assets
- **Industries that buy wind power:** This will require a wheeling framework, large investment-grade industrial off takers, and a competent grid operator to coexist.

Each of these is within reach of every African country today. GWEC looks forward to the impending growth of the African wind sector.

Introduction

Three years have passed since GWEC published the first Status of Wind in Africa report. The first edition was, in many respects, a report about potential. It documented a continent with extraordinary wind resources, a handful of established markets, and a long list of countries where the regulatory and financing conditions for wind had not yet aligned.



The question that report posed was whether the conditions for African wind would converge fast enough for the next decade to look meaningfully different from the previous one.

This second edition is written against the background of an answer beginning to emerge. The pace of project commissioning has accelerated. The largest project on the continent is no longer measured in hundreds of megawatts but in gigawatts.

The bankability problem that has shaped utility procurement for two decades is being resolved through routes that did not exist when the first edition was written. The financing stack that delivered the first wave of African wind farms is being repositioned as a different stack moves into the established markets.

New countries are appearing on the project pipeline that were absent in 2023. None of this is to say that the gap between Africa's wind resources and its installed base has closed; it has not. But the shape of that gap is changing.

This report takes stock of that change. It begins with the resource and the installed base, mapping every project above 1 MW that is operating, under construction, or in the planned pipeline across the continent. From there it moves outward through the conditions that determine which projects reach commissioning including the grid. It then proceeds to the industrial demand, and the policy and capital architecture.

The report pays close attention to the markets where wind has crossed into a self-sustaining pace to draw lessons for the markets that have not. It highlights projects that broke new ground, whether through scale, financing structure, offtake design, or the involvement of local capital and local communities. It reviews the constraints that have begun to bind the most advanced markets as a lesson for less mature ones.

This report is a snapshot of the state of the wind market in Africa at the end of 2025. The project pipelines and financial closes are updated to the first quarter of 2026. The African wind market is moving quickly that some of the specific numbers will be outdated within months of publication. The patterns they describe will not. The report covers a continent of fifty-four countries with very different starting points. Where generalisations are made, they should be understood as patterns across the markets that have built wind capacity to date. They are not predictions for every country in every region. Appendix 2 sets out a country-by-country readiness scorecard.

GWEC produced this report in the conviction that the African wind industry is at a moment that rewards careful documentation. It is written to be useful to the developers, financiers, regulators, utilities, off-takers, and communities whose work it tries to describe.

Wind in Africa

The wind power industry in Africa continued to grow, with an additional 4 GW installed since 2023. The total installed capacity (above 1 MW size projects) by the end of 2025 was 11.1 GW¹. This was installed in 92 identified wind farms, mainly in Northern and Southern Africa. As of 2025, 16 projects with a cumulative capacity of 2 GW were under construction across the continent.



2.1. Introduction

The planned wind power capacity was 186 GW in 259 identified wind farms across the continent. These included projects announced, pre-construction and under construction. A total of 351 planned and operational wind farms were identified, as shown in [Figure 2-1](#).

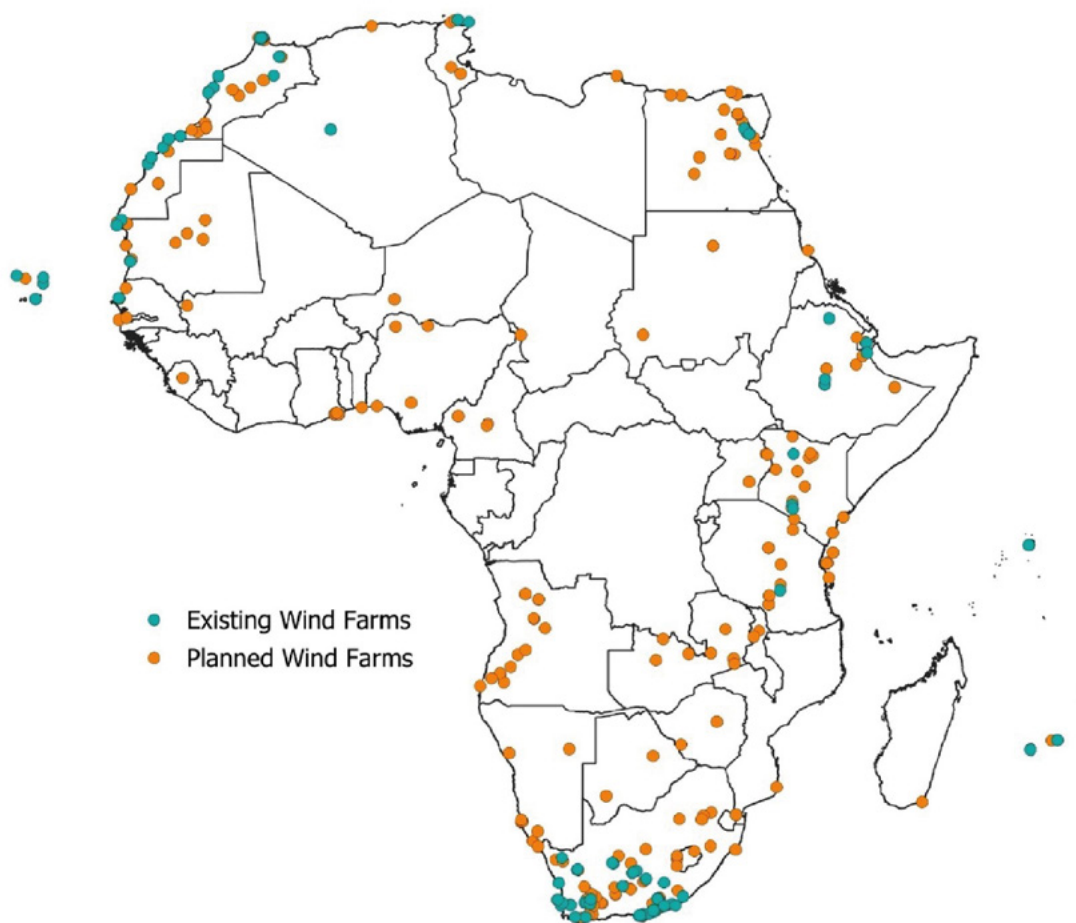
The geographic distribution of Africa's wind fleet follows the wind resource potential of the continent. The operating and under-construction wind farm clusters are located along four corridors: the Atlantic coasts of Morocco and Mauritania; the Mediterranean coast and the Gulf of Suez in Egypt; the Cape provinces of South Africa; and the East African Rift from northern Kenya through the Ethiopian highlands. Outside these four corridors, the operating wind capacity is sparse or non-existent.

The Sahel band, which is geographically continuous with Africa's strongest unexploited onshore wind resource, has only few operating sites. These are clustered around Senegal's Taiba N'Diaye and Mauritania's Boulénouar and Nouakchott regions. Security concerns prevail in the Sahel belt exemplified by the mothballing of the 100MW Dongola Wind farm in Sudan.

¹ Project-level data in this report were compiled by GWEC in April 2026. The database covers all African wind projects above 1 MW capacity that were operating, under construction, in pre-construction, or formally announced as at the end of 2025. For each project the database records location (country, region, coordinates), nameplate capacity, project status (operational / under construction / pre-construction / announced), commercial operation date or expected commissioning year, owner, developer, EPC contractor, debt provider, turbine make and model, and primary off-taker. Information was triangulated across developer disclosures, regulatory filings, financial-close announcements from project lenders, national utility reports, and direct correspondence with industry participants. Where two sources disagreed, the more recent and more proximate source was preferred.. A more detailed methodology and the list of sources is provided in Appendix 1.

The planned fleet also reveals the first wave of Central African announcements in Cameroon and Angola. The planned pipeline of 186 GW is approximately 16 times the size of the installed base. This indicates that the announcement-to-construction conversion rate will be the determining variable for Africa's wind energy trajectory through 2030.

Figure 2-1: Planned and Existing wind farms in Africa



Source: GWEC market intelligence 2026

Additionally, the geographic spread of the planned pipeline is significantly wider than that of the operating base. This gives hope that the installations in the next decade will spread Africa's wind footprint across the continent rather than further concentrating it in the existing five-country dominance. Three countries have 85% and the top five account for nearly 100% of the installed capacity.

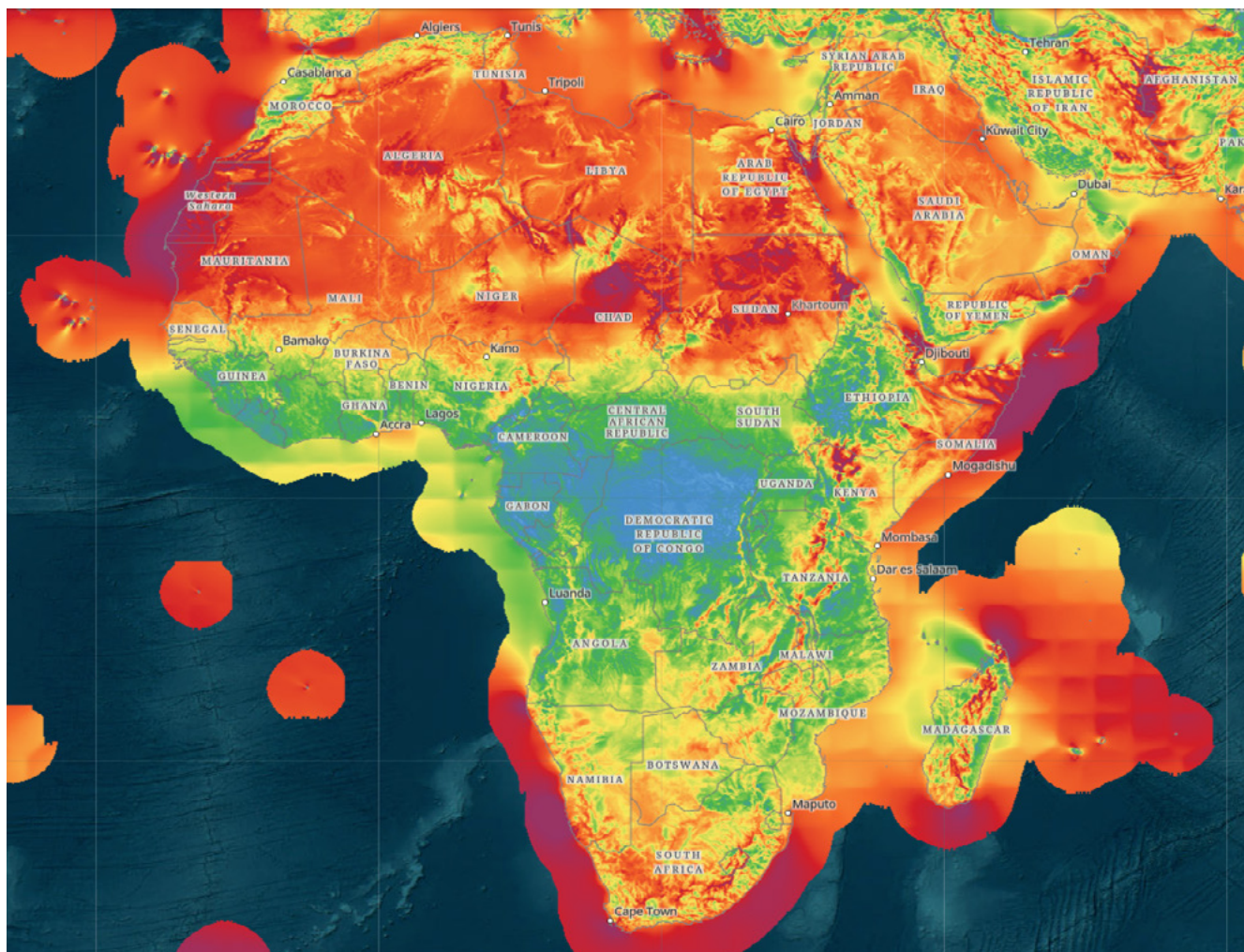
From an ownership perspective, private companies own 78% of the installed wind capacity, while state-owned wind farms represent 22% of the fleet. The more established private operators include Lekela, Infinity, Enel Green Power, ENGIE, Red Rocket, and Mainstream. Public companies and state-owned utilities, such as NREA (Egypt), ONEE (Morocco), EEP (Ethiopia), and KenGen (Kenya), continue to invest directly in wind farms.

2.2. Resource Analysis and Potential Capacity

Africa has a technical onshore wind potential of 58 400 GW², of which only 11 GW has been built. This is less than 0.02%. This gap is not a question of resources but of policy. Eighty five percent of the built capacity is concentrated in South Africa, Egypt, and Morocco, which together account for less than 10% of the continent's wind potential.

The wind resource quality is strong across the continent, with capacity factors ranging between 35% and 42% in the better-resource regions. This compares favourably with the European onshore wind fleet average of approximately 25% and approaches the 45–50% capacity factors typical of the windiest North American sites[1], [2]. The wind speeds on the continent at 100 m are shown in **Figure 2-2**. The highest-potential zones were concentrated along the northern, southern, and eastern margins.

Figure 2-2: Map of wind potential in Africa showing wind speeds at 100m



Source: Global Wind Atlas ³

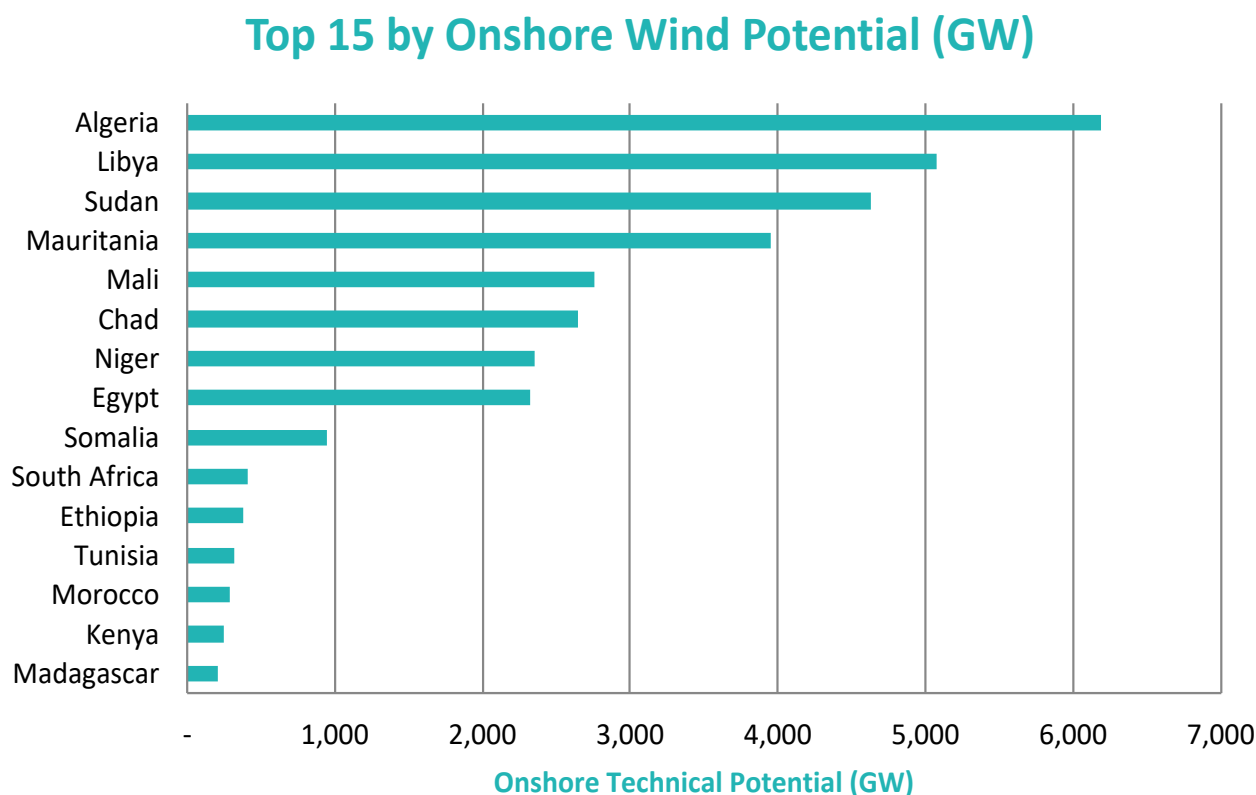
² IFC Everoze estimates for Africa at wind speeds of at least 6m/s. This reduces to 34700 GW at 7.5 m/s and 16600 GW at 8.5m/s.

³ Global Wind Atlas 3.0, a free, web-based application developed, owned and operated by the Technical University of Denmark (DTU). The Global Wind Atlas 3.0 is released in partnership with the World Bank Group, utilizing data provided by Vortex, using funding provided by the Energy Sector Management Assistance Program (ESMAP). For additional information: <https://globalwindatlas.info>

A recurring pattern throughout this chapter is that Africa's wind resources are fundamentally peripheral. The strongest wind speeds at 100 m traced the coastal margins of Mauritania, Morocco, Mediterranean coast of Libya, Gulf of Suez, Cape of Good Hope, Mozambique Channel, and Ethiopian and Kenyan rift valleys. The equatorial belt from the Congo Basin east through South Sudan and into Uganda (in green and blue) has wind speeds typically below 5 m/s at the hub height and is largely unsuitable for commercial wind generation. This is known as the climatic doldrum effect. Low-latitude continental interiors near the intertropical convergence zone experience light and seasonally reversing winds.

Consequently, Central Africa has limited commercial-grade onshore wind resources, limited to Chad and northern Cameroon. Conversely, the Sahel band, which stretches from Mauritania through Mali, Niger, and Chad into Sudan, shows some of the continent's strongest sustained wind speeds. These are driven by seasonal Harmattan trade winds. However, this region has the least transmission infrastructure.

Figure 2-3: Top 15 countries by onshore wind potential (wind speeds > 7.5m/s)



Source: IFC/Everoze ⁴

The country-level ranking in **Figure 2-3** confirms this geographic pattern. This ranks countries' technical potential at wind speeds of greater than 7.5 m/s [3]. Algeria leads the continent with approximately 6,191 GW of technical onshore wind potential, followed by Libya (5,079 GW), Sudan (4,628 GW), and Mauritania (3,955GW). The top eight countries are all located in either the Sahel band or the Horn of Africa and together account for approximately 85% of Africa's onshore wind technical potential.

⁴ IFC worked in collaboration with Everoze, Vortex and GWEC to conduct the analysis. Everoze drew on high-resolution mesoscale data from the Global Wind Atlas and applied basic constraints for technical restrictions (i.e., slopes, elevation, minimum wind speed, land use cover) and basic environmental restrictions (i.e., population density, protected areas).

Despite being the continent's largest installed wind market, South Africa ranks only sixth in terms of technical potential. Egypt, the second-largest installed market, ranks eighth. Morocco ranks thirteenth. This is a resource–institution mismatch, as shown in the numbers. The three countries that have built 85% of Africa's installed wind capacity together hold less than 10% of its technical potential. The three countries with the largest technical potential (Algeria, Libya, and Sudan) have built less than 200 MW between them.

Mauritania, ranked fourth, is the country in which this mismatch may be resolved first. Its 3,955 GW technical potential (at sites with wind speeds of at least 7.5m/s) is concentrated along the Atlantic coast, which is already partially served by transmission. The proposed Mauritania–Morocco interconnection would create the first physical pathway by which a Sahelian wind resource could reach the Mediterranean market.

Subregional Aggregate

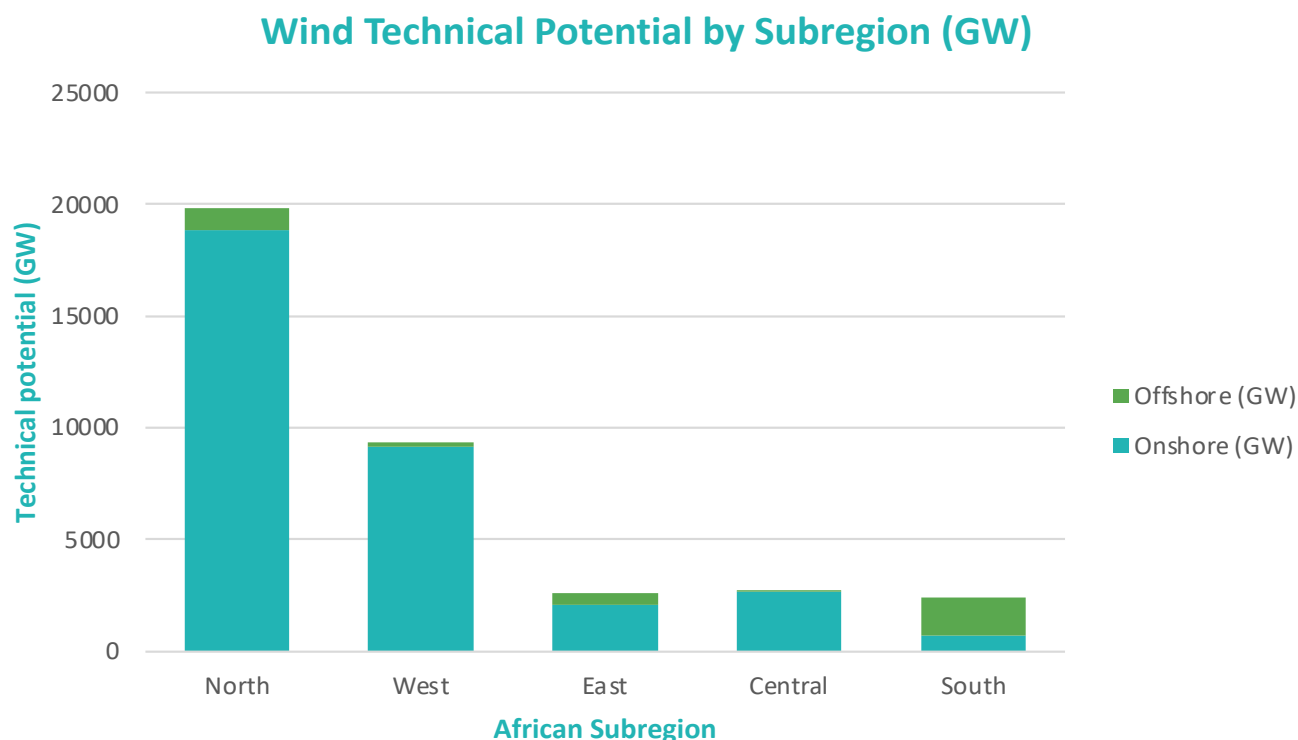
When aggregated at the sub-regional level, **Figure 2-4** shows that North Africa holds the largest technical onshore wind potential at approximately 18,822 GW, driven by Algeria,

Libya, Sudan, and Egypt. Western Africa is second at approximately 9,144 GW, dominated by Mauritania and the Sahel band, reaching east through Mali, and Niger. Central Africa follows with 2651 GW dominated by Chad.

Eastern and Southern Africa hold approximately 2,051 GW and 681 GW, respectively, with Somalia, Ethiopia, and Kenya accounting for most of the total in Eastern Africa. South Africa, and Namibia account for most of the total in Southern Africa. Offshore wind potential added significant additional capacity to the Northern, and Southern Africa [4]. As of 2025, Africa had no operating offshore wind farms.

Sub-regional totals have implications for continental coordination. Wind resource abundance is geographically continuous with the boundaries of the four operational regional power pools (SAPP, EAPP, WAPP, and COMELEC) but is not aligned with national load centres. The implication, developed further in Chapter 4, is that the realisable fraction of this 58,400 GW potential depends as much on the strength of inter-utility transmission and trade arrangements as on national procurement programs.

Figure 2-4: Technical Potential by region (onshore > 7.5 m/s and offshore > 7m/s at 100m)



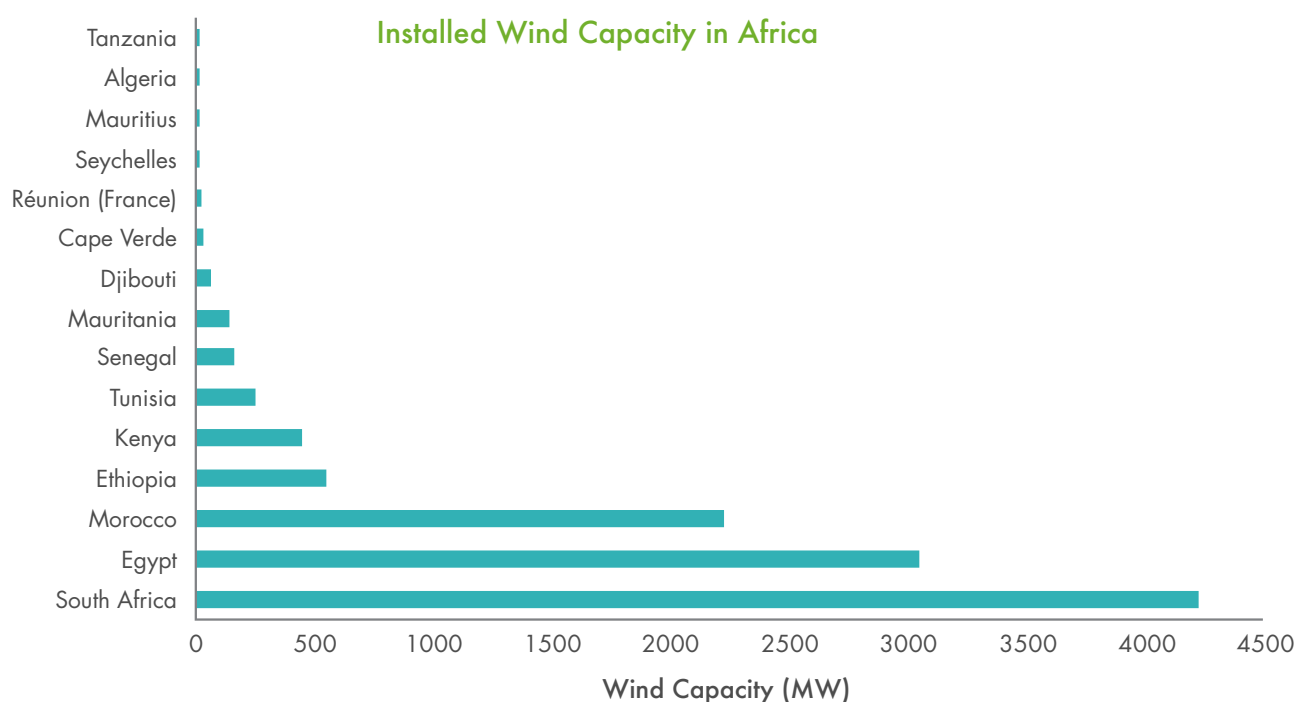
Source: and World Bank/ESMAP [3], [4]

2.3. Installed and planned Wind Farms 2025

2.3.1. Installed wind capacity

Africa's 11 GW installed wind base in 2025 was concentrated in a small group of national markets. Figure 2-5 ranks the continent's wind markets by installed capacity, as at the end of 2025. South Africa leads with approximately 4.2 GW from 43 wind farms, followed by Egypt (3.2GW) and Morocco (2.2 GW). These three markets together account for over 85% of Africa's installed wind capacity. The next tier comprises Ethiopia, Kenya, Tunisia, Senegal, and Mauritania. These countries account for most of the remainder, with each country in the 0.1–0.8 GW range. Smaller fleets exist in Djibouti, Cape Verde, Réunion, Madagascar, the Seychelles, Mauritius, Algeria, and Tanzania, in most cases consisting of a single project or a small cluster.

Figure 2-5: Installed wind capacity in Africa by Country



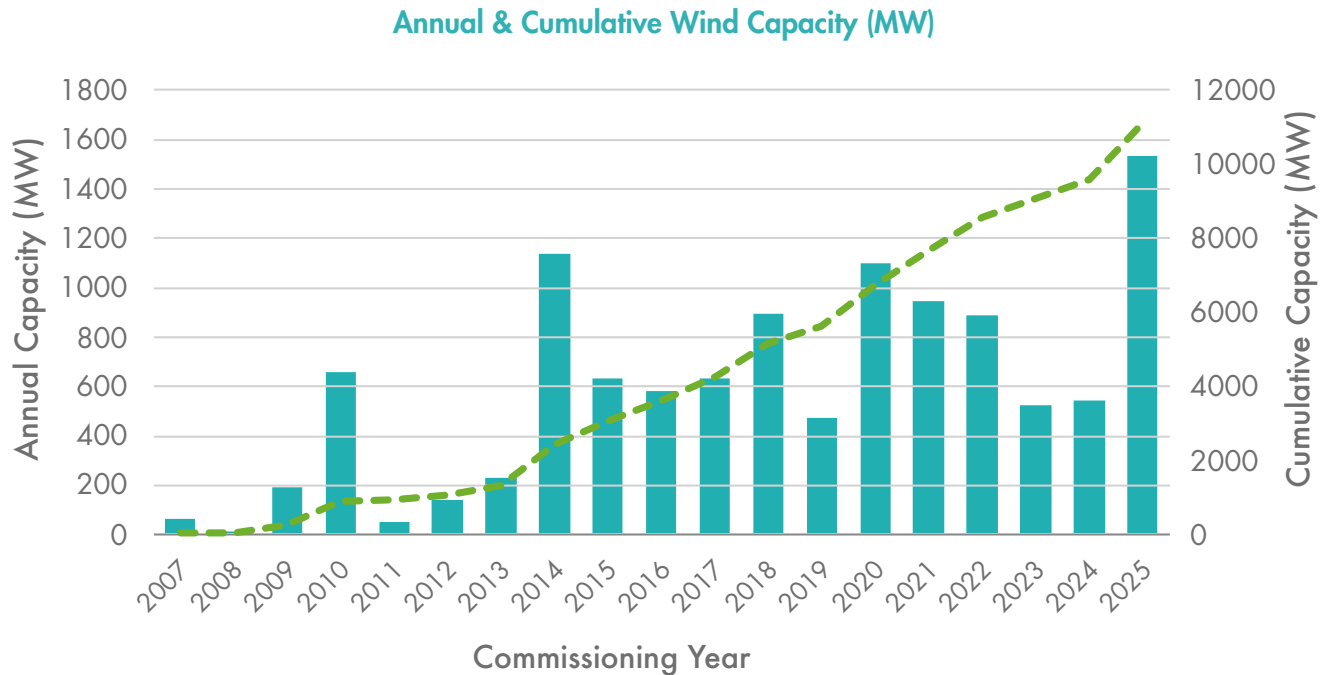
Source: GWEC market intelligence 2026

It should be noted that this ranking does not reflect resource quality; as shown in Figure 2-3. Four of the five largest installed markets (South Africa, Egypt, Morocco, and Tunisia) sit outside the top six on technical wind potential. Three of the continent's resource leaders (Algeria, Libya, and Sudan) appear at the bottom of the installed-capacity table or are entirely absent. The ranking reflects institutional maturity. Each of the four largest markets has a track record of repeated procurement rounds, sovereign or off taker guarantees, and at least one bankable PPA template.

These conditions have proven more determinative of wind-market development than resource quality alone. The gap between the leading bracket and the second-tier points to a structural

cliff in market development that the rest of this report seeks to explain and guide.

Figure 2-6 traces the development of Africa's wind fleet over nearly two decades. The cumulative curve shows three distinct phases. The first, from approximately 2007 to 2013, was a slow opening: annual installations averaged below 200 MW, dominated by Egypt's Zaafarana phases and a handful of pilot projects in Morocco, Tunisia, and Ethiopia. The second phase, from 2014 to 2020, saw annual installations rise into the 400 to 1,000 MW range as South Africa's REIPPPP Bid Window 1–4 projects came online and Morocco's Tarfaya wind farm reached commissioning.

Figure 2-6: Annual and cumulative Installed wind capacity in Africa

Source: GWEC market intelligence 2026

The third phase, from 2021 to 2025, has seen the most pronounced acceleration, with annual installations reaching 1530 MW in 2025. This was driven by the commissioning of Egypt's 500 MW Amunet, the conclusion of South Africa's REIPPPP bid window 5 awards, and the appearance of GW-scale projects under construction in the Gulf of Suez. The cumulative trajectory crossed 5 GW in approximately 2019, 10 GW in approximately 2024, and 11.1 GW by the end of 2025. At the current annual growth rate, the continent would add a further 8 GW by 2030, reaching approximately 21 GW.

However, the planned and pre-construction pipeline of 186 GW implies a far steeper trajectory should announced projects reach financial close. Africa's annual installation rate, while accelerating, remains a small fraction of the global rate. In 2024, the world installed approximately 117 GW of new wind capacity, of which Africa accounted for roughly 2%. Chapter three examines what would be required for the continent's share to rise commensurately with its resource endowment.

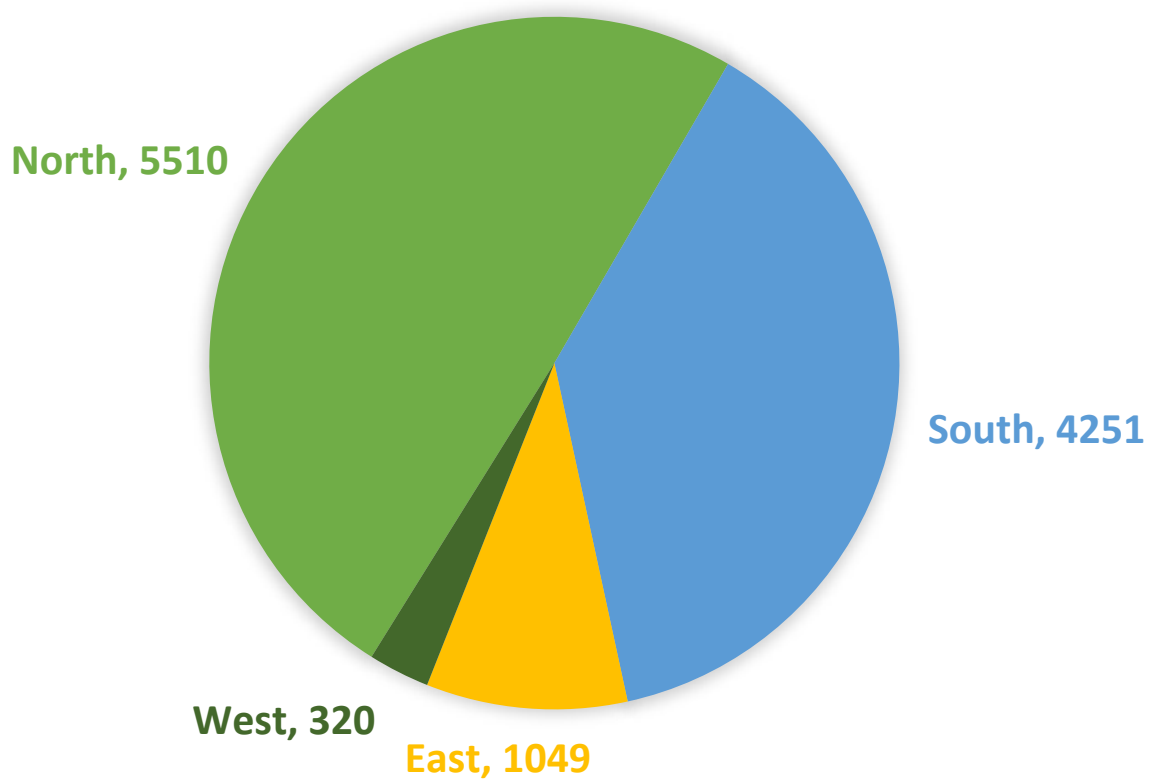
Wind farms are also growing in scale, with the continent currently seeing 500 MW plus, wind farms under development and construction. Egypt is leading this development with the 500 MW Amunet wind farm, which is the largest in Africa, the Ras Ghareb wind farm, which is being expanded to 650 MW, the 580 MW Jabal al-Zeit complex, and the 545 MW Zaafarana wind complex. The Egyptian wind market has surpassed that of Morocco in terms of installed capacity and is set to continue its robust growth.

Regional Installed Capacities

North Africa has the largest installed capacity by region at 5.5 GW. Eastern Africa crossed 1 GW of wind, while the West African wind market remains underdeveloped at 320 MW. No wind farms have been installed in Central Africa. The installed capacity in four African regions is shown in [Figure 2-7](#).

Installed Capacity by Region (MW)

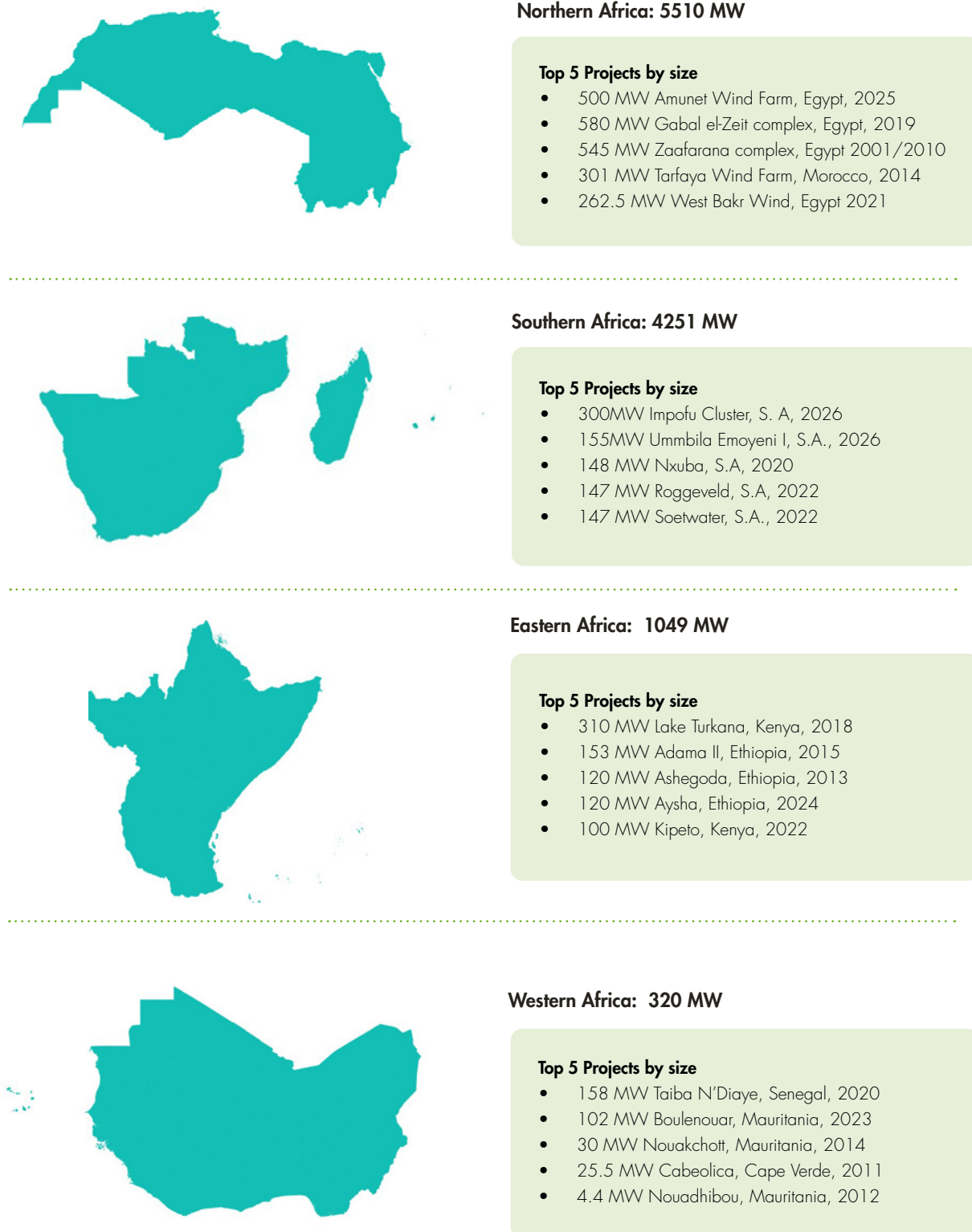
Figure 2-7: Installed capacity in four regions of Africa



Source: GWEC market intelligence 2026

The top five biggest projects per region are shown in **Figure 2-8**.

Figure 2-8: Key projects in Africa's Regions



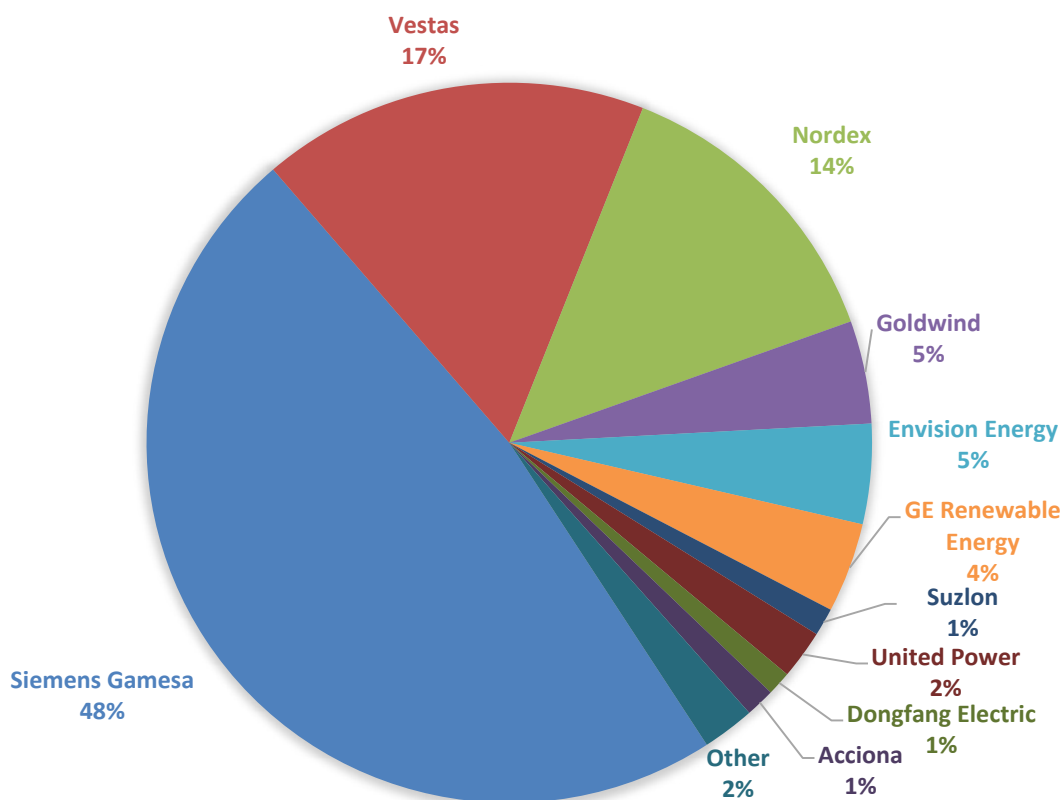
Source: GWEC market intelligence 2026

OEM Activity and turbine sizes

Siemens Gamesa continued to dominate the OEM space in installed wind farms with 48%, same as 2023. A notable increase in market share was recorded by Nordex, Envision, and Goldwind, gaining 1%, 5%, and 3% market shares, respectively. Vestas lost 2% market share in the period settling at 17% market share. **Figure 2-9** shows the market shares of various OEMs.

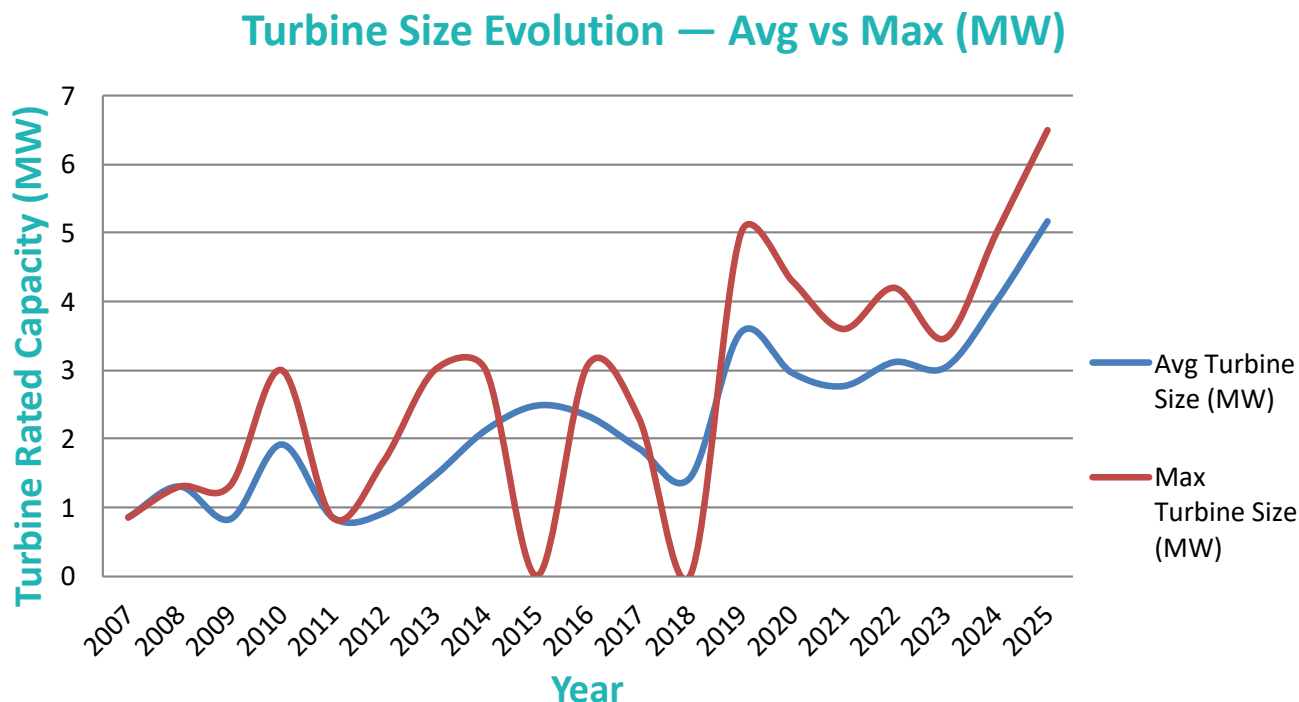
Figure 2-9: Installed wind capacity by wind turbine OEM.

OEMs Market Share



Source: GWEC market intelligence 2026

The average size of wind turbines has been increasing, with 5 MW turbines dominating installations in 2025, up from 1 MW turbines in 2007. **Figure 2-10** shows the steady upward march of turbine unit size on the continent. In 2007, the average unit installed on the continent was 0.85 MW. By 2025, this average had crossed 5 MW. The largest single machines reaching commissioning had crossed 6.5 MW (the Envision EN171 platform deployed at Amunet) and 8 MW (the Envision EN-182 now being erected at the 1.1 GW Gulf of Suez project in Egypt – see section 4.3).

Figure 2-10: Turbine size evolution in Africa**Turbine Size Evolution – Avg vs Max (MW)**

Source: GWEC market intelligence 2026

From 2007 to approximately 2014, the average turbine size was between 1 MW and 2.5 MW in the continent's earliest commercial wind farms. These included the Tangiers in Morocco, Adama I in Ethiopia, and the Zaafarana phases in Egypt.

These farms deployed turbines characteristic of the mid-2000s global fleet. Between 2015 and 2018, the average turbine size increased to the 2.5–3 MW range as the South African REIPPPP delivered bid Windows 1 to 4 projects with Vestas V112 and Siemens SWT-2.3 machines. The most pronounced step occurred in 2019.

The average size increased from approximately 3 MW to over 5 MW within six years, driven by the global commercial availability of the Siemens Gamesa SG 5.0 and Vestas V162 platforms and the appearance of Chinese OEMs (Envision, Goldwind, Dongfang) bringing 5 MW plus, units to African projects.

The implications for Africa's wind economics are direct. A 5 MW turbine produces approximately five-and-a-half times more annual energy than a 1 MW turbine of equivalent vintage. Larger rotors capture lower-wind hours, and larger hub heights reach better wind regimes.

The capital cost per MW also decreases because the balance-of-plant components (substation, access tracks, foundations, and grid connection) do not scale linearly with turbine size. The shift to 5 MW-class units is the single biggest reason why the utility-scale wind LCOE in Africa has fallen below USD 50/MWh at the best resource sites, such as the Gulf of Suez and the Greater Cape.

Africa's wind market is currently installing the same turbine classes that have been deployed in Brazil, India, and the European onshore market, thereby closing the technology gap.

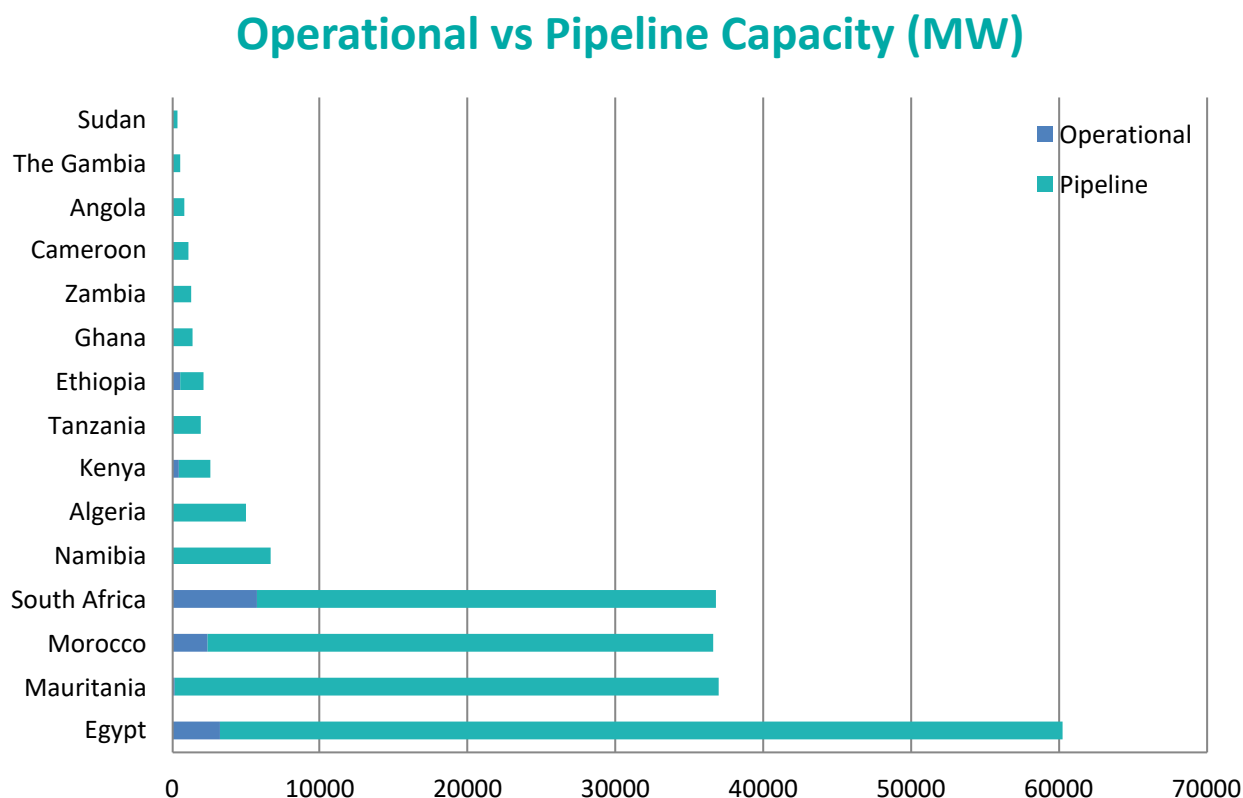
2.3.2. Planned wind capacity

By 2025, 259 wind projects were planned (announced, in pre-construction and under construction). These cumulatively represent a total of 186 GW of planned wind projects across the continent ⁵. The leading markets are Egypt, Mauritania, Morocco, and South Africa, each with over 30 GW of planned and announced wind projects. The continent has seen planned projects expand into offshore windfarms, with 10 proposed offshore windfarms of 6.4 GW announced and in pre-construction. These include projects in Mauritius, Tanzania, Morocco, South Africa, and the Gambia.

Egypt leads the pack in terms of cumulative planned wind farm capacity at nearly 60 GW. The era of GW-scale wind projects is in motion in Africa, with multiple GW-sized projects planned in Egypt, Morocco, South Africa, Namibia, and Mauritania. South Africa, Ethiopia, and Kenya are leading the transition from pipelines to operations. However, the latter two countries have smaller pipelines. South Africa has converted 16% of the pipeline of wind projects into actual constructed wind farms. Egypt remains the largest growth market by capacity and project size, while South Africa continues to dominate the number of projects.

Figure 2-11: Country operational and pipeline capacity

Operational vs Pipeline Capacity (MW)



Source: GWEC market intelligence 2026

⁵ It should be noted that this number includes announcements. The conversion from announcement to constructed project is not guaranteed.

2.4. Case Studies of Projects

Five wind projects have been selected as case studies for this report, illustrated geographically in [Figure 2-12](#). The selection criteria were deliberately mixed. Each project is either the first of its kind in its country, distinguished by its strategic value to the grid, of significant capacity scale, or notable for the involvement of local capital, local off-takers or local communities. Together the case studies cover all four of Africa's wind-active regions. The North (Amunet, Egypt and Jbel Lahdid, Morocco), South (Castle, South Africa), East (Assela, Ethiopia), and West (Boulénouar, and Mauritania). The case studies are intended to be illustrative of the diversity of African wind models. Each project is associated with a different financing structure, off-taker risk profile and replicability potential. These are themes that recur in the critical-success-factor analysis of Chapter 3.

Figure 2-12: Case study projects ⁶



Source: GWEC market intelligence 2026

⁶ **Disclaimer:** This map is provided for illustration purposes only. Boundaries shown on this map do not imply any endorsement or acceptance by GWEC.

Amunet Wind Farm

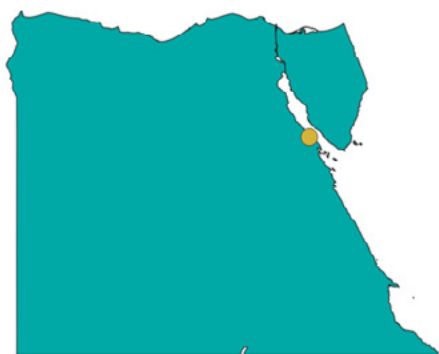
Key Details

Capacity (MW):	500
Owner (s):	AMEA Power & Sumitomo
Developer (s):	AMEA Power & Sumitomo
Debt Provider:	IFC, JBIC, Standard Chartered & Sumitomo
Project Cost (MUSD):	700
Annual Production (GWh):	2500
Turbines:	77 Envision Energy EN171-6.5 turbines of 6.5 MW
Year of COD:	2025



Photo: Courtesy of AMEA Energy

The short-reign Pharaoh of African wind



Location: Red Sea Region, Egypt (28.1338, 33.2602)

Other Statistics

Households Powered:	500,000
Employment (construction)	100
Abated Tonnes CO2/ annum:	1400000

The Amunet wind farm is one of the largest in Africa. It was the largest wind farm in Africa but was overtaken by the 650 MW Ras Ghareb wind farm, which will, in turn, be overtaken by the 1.1GW Gulf of Suez wind farm. These are all in Egypt. A short reign as the largest wind farm in Africa.

Commissioned in October 2025, the Amunet wind farm is owned by AMEA Power of the UAE and Sumitomo of Japan, and was project-financed by a consortium including JBIC, Standard Bank, Sumitomo Banking Corporation, and Crédit Agricole at a project cost of USD 700 million.

It deploys 77 Envision EN171 turbines of 6.5 MW. The project is the first deployment of Envision's 6.5 MW platform in Africa and a step-change in unit size for the continent. The project is sited in the Gulf of Suez wind corridor, where the year-round northerly trade winds deliver capacity factors above 45%.

Amunet's significance is not its capacity but its signal. AMEA Power's ability to take a 500 MW Egyptian wind farm from award to commissioning in under four years set a new pace for the Suez corridor and helped to crowd in the 650 MW Ras Ghareb and 1.1 GW Gulf of Suez projects, now under construction.

Castle Wind Farm, South Africa

Key Details

Capacity (MW):	89
Owner (s):	ACED / AIIM IDEAS Fund / Reatile Renewables
Developer (s):	African Clean Energy Developments (ACED) / AIIM IDEAS Fund / Reatile Renewables
Debt Provider:	Rand Merchant Bank
Project Cost (MUSD):	200
Annual Production (GWh):	309
Turbines:	16 Goldwind GW165/5.56 MW turbines
Year of COD:	2025



Photo: Courtesy of ACED

Trailblazing captive wind



Location: De Aar, Northern Cape, South Africa
(-30.6436, 23.9942)

Other Statistics

Abated Tonnes CO₂/annum:	321000
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The Castle Wind Farm is located near De Aar in the Northern Cape and comprises 16 Goldwind 5.56 MW turbines, 100 m hub height, 183 m tip height. The project is connected to the national grid via the Hydra Main Transmission Substation. Power is wheeled through the ESKOM network to the final consumer, Sibanye Mine.

A 15-year power purchase agreement has been signed with Sibanye Energy (Pty) Ltd for the supply of 89 MW wind-powered renewable energy for Sibanye's mining operations through a wheeling arrangement with Eskom.

The project was funded by an AIIM-led consortium (African Clean Energy Developments, IDEAS Fund, Reatile Renewables), with project debt arranged by Rand Merchant Bank

By June 2025, after only three months of operation, Castle had already generated 56 GWh, avoided 57,000 metric tons of CO₂, and saved the group ZAR 22 million. In addition to its environmental impact, 0.6% of revenue is invested in local community education, health, and skills development programs. The reduced emissions are 5% of Sibanye-Stillwater's Scope 1 and 2 emissions.

Assela Wind Farm (Phase 1), Ethiopia

Key Details

Capacity (MW):	100
Owner (s):	EEP
Developer (s):	EEP
Project Cost (MUSD):	170
Annual Production (GWh):	300
Turbines:	29 Siemens Gamesa
Year of COD:	2024



Photo: Courtesy of Min. Finance Ethiopia

Sustaining the Windy East



Location: Assela, Oromia, Ethiopia
(8.165071, 39.225375)

Other Statistics

Households Powered:	140000
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Assela is Ethiopia's fourth utility-scale wind farm and was developed by Ethiopian Electric Power (EEP) at a total cost of EUR 146 million. Danske Bank loaned EUR 117 million with an additional grant of EUR 28.7million from the Danish government. The project was successfully commissioned.

This project deploys SG 3.4-132 machines of 3.4 MW each. Located in Oromia's wind-rich Arsi zone at over 2,400 m elevation, it complements Ethiopia's hydro-dominated grid by producing the strongest wind energy during the November to April dry season, when hydro output declines.

The project anchors a planned 300 MW build-out at the same site and demonstrates that EEP-led, sovereign-financed wind procurement remains a viable model in Eastern Africa, alongside the IPP route.

Energy from the wind farm supplies approximately 140,000 households and feeds Ethiopia's growing electricity grid, which also exports to Kenya, Djibouti, and Sudan.

Parc Eolien Jbel Lahdid, Morocco

Key Details

Capacity (MW):	270
Owner (s):	Nareva and Enel Green Power
Developer (s):	Nareva and Enel Green Power
Project Cost (MUSD):	314
Annual Production (GWh):	952
Turbines:	54 Siemens Gamesa SG 5.0-145
Year of COD:	2023



Photo: Courtesy of KfW

Continuing the Atlas Class



Location: Essaouira, Morocco
(31.822861, -9.374999)

Other Statistics

Households Powered:	1 200 000
Employment (construction)	100
Employment (Operation)	50
Abated Tonnes CO₂/annum:	580 000

Jbel Lahdid is the most recent addition to Nareva's Moroccan wind fleet and was developed jointly with Enel Green Power as part of the 850 MW five-site Integrated Wind Programme awarded in 2016 by ONEE.

The project comprises 54 Siemens Gamesa SG 5.0-145 turbines, sited along the Atlantic ridge near Essaouira. This wind corridor has average speeds at hub height routinely exceeding 9 m/s and capacity factors exceeding 40%.

The project was financed by KfW, the EIB, and the AFD under Morocco's sovereign concessional facility. The plants' output is sold to ONEE under a 20-year PPA.

Jbel Lahdid continues Morocco's distinctive pattern of large-scale, utility-procured wind expansion. ONEE remains the single off-taker.

Nareva's joint venture with OEMs has proven replicable across the Tarfaya, Aftissat, Midelt, and Boujdour sites and is now being transferred to the Moroccan captive wind market for OCP, LafargeHolcim, and Ciments du Maroc.

Boulénouar Wind Farm, Mauritania

Key Details

Capacity (MW):	102
Owner (s):	SOMELEC
Developer (s):	Elecnor
Project Cost (MUSD):	122
Annual Production (GWh):	300
Turbines:	39 Siemens Gamesa SG 2.6-114
Year of COD:	2023



Photo: Courtesy of AERA

Taming the desert wind



Location: Dakhlet Nouadhibou, Mauritania
(21.269972, -16.699222)

Other Statistics

Households Powered:	100000
Abated Tonnes CO₂/annum:	99225

Boulénouar is Mauritania's largest wind farm and the first project under SOMELEC's renewable expansion program to combine foreign turbine technology with locally trained operations staff. Located 400 km north-west of Nouakchott in the Dakhlet Nouadhibou region, the 102 MW facility comprises 39 turbines of 2.625 MW each. It feeds the Nouadhibou–Nouakchott 225 kV backbone that connects Mauritania's mining and fisheries zones to the capital.

The project produces approximately 300 GWh per year, which is sufficient to power approximately 100,000 households and displaces an estimated 99,000 metric tons of CO₂ annually. This replaces the generation from Mauritania's HFO and diesel fleets.

Boulénouar is strategically important because it anchors Mauritania's position as a future wind export hub. The proposed Mauritania–Morocco transmission interconnection would allow this resource to reach Mediterranean and European markets via existing Spain–Morocco submarine cables.

Boulénouar demonstrates that utility-scale wind power can be built, financed, and operated in Mauritania.

Reflection 1: Contour lines of Africa's wind map.

This chapter confirms that the **resource is concentrated where the load is not**. Africa's largest wind reserves are located in the Sahel, the Horn, and the southern Cape. These geographies are sparsely populated and far from the industrial and urban centres that drive demand.

The **installed capacity is concentrated where the regulatory framework and grid infrastructure exist**, regardless of resource quality. Egypt's Gulf of Suez and South Africa's Greater Cape are not the windiest places on the continent; Mauritania, Algeria, Chad, and Somalia outrank them in terms of raw potential. However, these are the only places where bankable PPAs, viable transmission corridors, and competitive tenders coincide. Africa's 11.1 GW sit at the intersection of resources and institutions, not at the resource frontier.

This implies that the **path from 11.1 GW to 50 GW will be drawn by transmission build-out and market reform**.

The following chapters examine the success factors, grid readiness, and policy levers that will determine whether the 186 GW pipeline becomes operational capacity or remains aspirational.



Critical Success Factors

The successful development of wind projects requires a supportive regulatory framework for renewable energy. This includes countries having a framework that sets goals for the development of renewable energy, including wind.



African markets have great potential for the development of wind energy projects to meet the demand for more electricity to support economic and social development. However, this potential has only been marginally converted into actual projects on the grid. Only approximately 0.02% of the technical potential has been converted into built projects. In this section, we examine the critical factors that have led to success in markets such as South Africa, Morocco, and Egypt. These markets, as well as others, have shown that there are key principles in a market that allow for greater wind deployment. The assessment identified eight critical factors, as shown in **Figure 3-1**. A country readiness assessment is provided in Appendix 2.

Figure 3-1: Critical success factors for wind markets

Supportive Regulatory and Planning Framework	Bankable PPA and Credible Offtaker	Grid Capacity Matching Generation Project Pace	Local Content and Industrial Integration
Competitive and Transparent Procurement Program	Domestic Capital Depth with Initial DFI Support	Repeat Developers	Diversified Offtake Opportunities

3.1. Supportive regulatory and planning frameworks

The successful development of wind projects requires a supportive regulatory framework for renewable energy. This includes countries having a framework that sets goals for the development of renewable energy, including wind. The regulation should support the activities of private power developers by providing a long-term signal on the availability of projects. The framework should principally be targeted at solving a problem for the electricity sector in the country. This could include cost reduction, availing capacity, or greening of the electricity supply by gradually replacing conventional thermal generation.

The wind industry should be aligned with the changing nature of the problem being solved. Additionally, the renewable energy framework should survive political cycles that change government policy. The ability of wind projects to solve the dynamic problems of the electricity market coupled with a strong regulatory framework provides the strongest signal of an execution market for wind.

South Africa, Egypt, and Morocco have pivoted into wind as a consequence of wanting to increase generation capacity in a more climate-friendly approach. These grids are and have been dominated by conventional generation based on coal and natural gas. The interest in wind started from a climate-impact perspective and, due to successful procurement programs, has evolved into a lower generation cost motivation. **Table 3-1** presents a comparative regulatory framework of successful wind markets.

Table 3-1: Regulatory framework in top 5 wind markets

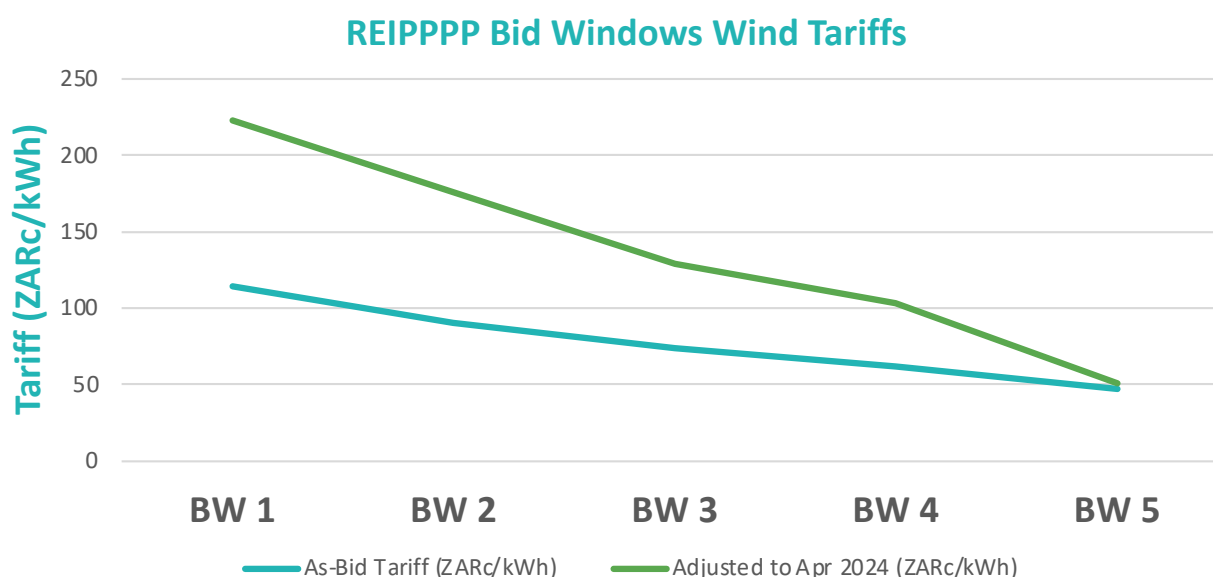
Country	RE Framework	Problem Solved	Results	What worked
South Africa	The Integrated Resource Plan (IRP), issued in 2010, triggered the REIPPPP. It set targets for different technologies, creating space for wind energy. The latest IRP (2025) foresees 34 GW by 2039 and 43 GW by 2042 of new wind generation in South Africa [5], [6].	Diversify generation away from coal	Wind at cost parity Active wind industry 4.2 GW of projects on grid over 43 projects Local supply chains and funding	Clear plan and roadmap True need in cost and climate change abatement
Egypt	The 2014 feed-in-tariffs under Decree 203/2014 introduced guaranteed pricing together with mandatory offtake provisions, bankable PPAs (20 – 25-year PPAs) with EETC[7].	Diversify away from thermal generation (LNG)	Between 2015 and 2020, the RE capacity increased by 340%. 3.2 GW of installed wind capacity in 2025	Quick licensing High volume projects
Morocco	The National Energy Strategy 2009 set a target of 42% for renewable energy by 2020 and 52% by 2030. Law 13-09 allowed for private sector participation in generation[8], [9].	Diversify away from thermal generation (LNG)	Wind power provided 20% of Morocco's installed capacity and 21% of the energy 15 years later. 2.2 GW of installed wind capacity in 2025	Regular procurement program
Ethiopia	The generation sector was exclusively government-owned until recently. The Investment Proclamation 1180/2020 and Investment Regulation 474/2020 explicitly opened power generation to domestic and foreign private investors through IPP/PPP modalities, EPC schemes	Diversify generation away from Hydro-power	545 MW of wind energy on the grid by 2025. This is driven by sporadic government investment. Private sector participation has been on-off. Not a sustainable model, but wind on grid has been observed.	Government grit through EEP investments increased wind. Market stalled due to unclear frameworks (procurement and fiscal) for the private sector.
Kenya	Kenya's renewable energy feed-in-tariff policy of 2008 opened space for wind development by the private sector. The LCPDP planning process includes wind capacity. Current LCPDP 2024/43 includes 1.88 GW of new wind by 2043 [10].	Expand generation capacity Diversify generation mix from hydro and thermal (HFO)		The FiT policy attracted many developers. Market stalled owing to unclear procurement processes (moratoria and on-off auction processes).

3.2. Competitive and transparent procurement programs

Competitive tendering programs, such as the REIPPPP in South Africa, offer a level playing field for investors in wind developers. When organised in multiple rounds, they offer a predictable commercialisation opportunity that allows developers to build a pipeline of projects. Competitive procurement has led to lower prices for wind energy. These tenders also offer a transparent and auditable process, encouraging governments, lenders, regulators, and developers to adopt this route. Standardised documents are available, and the bidding process and evaluation criteria are shared in advance. All three of the top wind countries have competitive tendering processes for the procurement of new capacity. The wind tenders in South Africa saw average prices⁷ drop from 223 ZARc/kWh to 51 ZARc/kWh as shown in [Figure 3-2](#).

Figure 3-2: Wind tariffs in the REIPPPP program in South Africa

REIPPPP Bid Windows Wind Tariffs



Source: FinerGreen [11]

⁷ Prices are adjusted to April 2024.

Although Morocco and Egypt procure through competitive tendering processes, they do not have a structured tendering program. They have sporadic tenders for specific projects and often have confidential tariffs for projects, especially merchant wind farms. However, the two markets achieved sub-5 US cent tariffs more quickly than South Africa. Morocco achieved an average tariff of 3 US cents in 2016 with an 850 MW integrated wind program across five wind sites.

The program was supported by concessional financing from KfW, EIB, AfDB, and the Hassan II Fund. Egypt started with a FiT at 9 US cents, then obtained a competitive BOO tender at 3.8 US cents (250 MW Ras Ghareb wind farm), and is now in bilateral PPAs, likely below 4 US cents (tariffs are confidential or under negotiation). Some recent wind farm tenders with confidential tariffs include the 250 MW West Bakr wind farm, 500 MW, and 150 MW Red Sea Wind Energy land &I.

3.3. Bankable PPA and Credible Offtaker

Wind projects require longterm (20 – 25 year) PPAs with take-or-pay or deemed energy provisions. These should be backed by a sovereign-backed buyer. The merchant market is still nascent in the continent. The PPAs additionally require to have protections against changes-in-law providing regulatory certainty over the contract term. Additional requirements include a foreign exchange framework and step in rights for the lenders, international arbitration, amongst other key terms. These PPAs often additionally require accompanying political risk coverage (ATI, MIGA etc), foreign exchange frameworks, lender security packages, an IFC standard ESIA and defined ESG safeguards.

The majority of wind farms in the continent are targeted at utilities that are state-owned. This implies that there is a need to have creditworthy offtakers. These are few across the continent. Lenders thus require sovereign guarantees. These cover lenders from payment defaults by utilities. This was the case for the EETC–Engie PPA and the KPLC–LTWP PPA, among others. Governments are increasingly moving toward watered-down guarantees or not issuing them at all. They cite the strain on the debt profile of the countries. Alternative offtake opportunities through corporate PPAs are discussed in Section 4.1.

3.4. Domestic Capital Depth with Initial DFI support

The availability and deployment of local capital in the funding of wind projects is a crucial step in the development of a market. Utilities sell electricity to customers and receive payments in local currency, whereas power plants require hard currency payments for most African markets. This creates hard currency availability and convertibility risk which is priced into the tariff for wind energy. This implies that DFIs and credit agencies are required to step in and absorb the risk, as international commercial lenders shy away from or take minimal exposure. Deep local capital in wind can play a significant role in unlocking the sector, as they can work with local currency exposure, thus reducing the need for scarce hard currency.

Local capital participation has been observed in the REIPPPP program, with South African banks such as ABSA, Nedbank,

Rand Merchant Bank, Standard Bank, and Investec actively funding wind projects. These banks contributed 68% of the external debt funding across REIPPPP, with an additional 13% provided by the DBSA and IDC [12], [13]. South African banks fully underwrite (full debt) projects up to 475 MW. In the first quarter of 2026, SA banks have committed debt to 1932 MW of solar and battery projects [14]. This has enabled local currency PPAs and reaffirmed local capital depth for power projects at scale. The local pension schemes such as Old mutual also continue to take equity positions in wind projects further strengthening local capital involvement. This is a structural advantage in the South African market that has propelled more wind developments.

DFIs continue to participate with the AfDB, EBRD, BII, DEG, OPEC Fund, and Arab Energy Fund, funding the 1.1GW Gulf of Suez wind farm in Egypt alongside Acwa. The USD 680 million Lake Turkana Wind Project in Kenya was funded by the EIB, AfDB, FMO, PROPARCO, DEG, Norfund, EKF, EU-Africa Infrastructure Trust Fund, with commercial lending from Nedbank and Standard Bank. The equity was funded by KP&P, Aldwych, IFU, KIF, Vestas, Norfund, Finfund, and others [15], [16]. These DFI stacks provide capital and political-risk comfort that pure commercial lending cannot. This approach to funding provides confidence to local banks and pension funds on the viability of wind projects funding, which will eventually attract them to take a stake in the market, as seen in South Africa.

3.5. Grid Capacity Matching Generation Project Pace

The availability of grid capacity for transmission and transformation at substations is currently the biggest technical hurdle to scaling wind power on the continent. Transmission lines are being developed at a slower pace than developers are able to develop wind farms.

Wind sites are usually located in remote areas, far from the grid, and rely on transmission availability. Transmission lines are more difficult to develop and often less profitable than generation plants. This was seen in the case of the Lake Turkana wind farm in Kenya, where a 428 km Loiyangalani-Suswa 400 kV transmission line was delayed by nearly 24 months, leading to deemed energy payments. This delay by the state-owned transmission company KETRACO led to a special escrow in

the consumer tariff to pay for the penalties, a matter that is still under investigation by the Kenyan parliament.

However, the continent is currently witnessing growing interest in independent power transmission projects (ITPs), with Uganda, Kenya, Mozambique and South Africa finalising their first projects [17], [18], [19], [20], [21]. This private sector involvement in transmission may accelerate the pace of transmission development.

3.6. Repeat Developers

Successful markets have seen repeat developers build new wind farms. These developers, who already have operational wind farms, understand the market and local conditions for delivering wind farms. They are able to compress the licencing timelines and transfer lessons from their previous projects. This gives lenders a lower risk perception, as developers have experience in the delivery of projects in the market. These new projects are often delivered at lower and faster tariffs and speeds than original projects.

These repeat developers include NAREVA in Morocco. It is a subsidiary of the Société Nationale d'Investissement and holds 2 GW of renewable energy investments in Morocco. It has undertaken projects in consortia with ENGIE, Enel Green Power, and Siemens. The consortium of ENGIE, Orascom, Toyota Tshusho, and Eurus has also undertaken repeat projects in Egypt.

They delivered the 262.5 MW RasGhareb wind farm (the first wind IPP in Egypt) and won the 500 MW Gulf of Suez 2 wind farm. Additionally, they used the same EPC and financiers, adding to the familiarity and experience in the market of the consortium. These repeat developers enable faster project execution through familiarity with the market. This repeat developer trend is also seen in South Africa with Red Rocket, Pele Green, Enel Green Power, and Mainstream among others.

3.7. Local Content and Industrial Integration

The inclusion of local content provisions in wind procurement has increased the skill levels in the countries and community ownership of wind projects. Local content requirements also strengthen investors' social licence to operate. The additional jobs and domestic manufacturing angle strengthen the positioning of the wind industry in a country. The volumes of wind projects in South Africa, Egypt, and Morocco also justify the development of a local supply chain for some components and services for wind farms.

South Africa and Morocco specifically require local content in their tender processes. The tenders of Morocco's ONEE required industrial integration of wind farms to increase from 30% of supplies to 70%. This led to Siemens partnering to build a wind blade manufacturing facility in Tangier, which also served other markets.

The evaluation of South Africa's REIPPPP bids has local content criteria embedded, including local sourcing, community benefits, black economic empowerment, and job creation. These efforts have made the wind industry defensible to different ANC governments under pressure from coal lobbies to slow down renewable development.

South Africa has also established testing and calibration labs and centres for excellence for training on O&M of wind farms, including certifications for working at heights. These localisation efforts provide a solid foundation for sustaining a wind industry.

3.8. Diversified Offtake Opportunities

Most power projects on the continent are developed with the national utility as the offtaker of choice. This often entails the need for sovereign guarantees that countries continue to avoid providing. Bilateral transactions with large consumers, such as mines, are taking route, providing options for offtake away from the utilities. These corporate PPAs with mines, data centres, and manufacturers rely on parent company guarantees and balance sheets. These corporations are usually multinationals with strong credit ratings in their home countries. They can be banked.

This arrangement is more widespread in solar and is now taking firm root in the wind industry. The South African captive wind market has closed over 3.3 GW, compared with REIPPPP's 1.2 GW (across technologies) in 15 years.

AIIM's 420 MW Northern cluster is also set to supply corporate offtakers, such as Rio Tinto and Net Zero Africa. The Castle wind farm supplying Sibanye-Stillwater described in the case study section is an example. The company is set to receive supply from the 103 MW Witberg and the 140 MW Umsinde windfarms. These South African transactions are supported through wheeling provisions in the ESKOM network. Captive wind developments on the continent are further discussed in Section 4.1.

Additionally, the power pools of the continent provide an opportunity for cross-country offtake for wind projects. This has traditionally been done using hydropower but can be done by utilising appropriately developed wind projects. The presence of aggregators in day-ahead markets in the pools will also provide additional offtake guarantee opportunities.

Reflection 2: Market institutions are the key

Africa's successful wind markets share five main conditions of the eight identified: a bankable offtake, a repeated procurement calendar, sufficient local capital, a grid capable of absorbing the energy, and regulatory durability across political cycles. The other three conditions (supportive regulatory and planning framework, repeat developer base, and diversified offtake opportunities) are accelerants.

Where these align, such as in South Africa from the REIPPPP Bid Window 1, Morocco after Law 13-09, and Egypt with the EETC PPA template, the sector has moved from pilot to pipeline within approximately five years. Where one is missing, projects stall, and tariffs do not clear.

These conditions reinforce each other: bankable PPAs attract local capital, local capital compresses risk premia, lower tariffs make the next round politically easier, and longer procurement calendars deepen lender comfort.

South Africa's tariff trajectory, as shown in [Figure 3-2](#), is a consequence of remaining in this loop. Frontier markets are not blocked by infrastructure issues. They are blocked by not having yet entered the loop.



Emerging Trends and Outlook

Africa's wind power market has seen growth with some key developments and trends. This chapter discusses the meaning of crossing the 10 GW mark, trends in captive wind, repowering of wind farms, the beginning of GW scale wind farms, other shifts in wind, and the outlook for the African wind market.



4.1 Captive Wind

Captive wind power projects are developed to supply a single corporate offtake through a wheeling arrangement (beyond-meter) or direct connection (behind-meter). This segment is experiencing rapid growth in Africa, pioneered by Morocco but currently led by South Africa. Morocco has 737 MW of captive wind projects mainly owned by Nareva⁸. The projects include the 200 MW Akhfennir 1 & 2 wind farms supplying LafargeHolcim and OCP, 50MW Fom El Oued supplying OCP, and the 5MW CIMAR/Indusaha wind farm supplying Ciments du Maroc in El Aaiun among others. These windfarms were mostly contracted under grid wheeling framework with ONEE [22].

The captive procurement market in South Africa has overtaken the REIPPPP procurement by the state in South Africa with more wind projects reaching financial close. The trend continues to emerge in Namibia, Zambia and Morocco. The model solves the bankability problem that has held back utility procurement for a decade. Instead of relying on a state utility's creditworthiness, the project rests on the balance sheet of a multinational corporate offtake.

Figure 4-1: Captive wind benefits

Solves Bankability Gap	• Multinational corporate balance sheet • RMB banked Sibanye-Stillwater
Cost Arbitrage	• Cost-of-renewables decline • 15-30% discount to utility tariffs
Carbon-pricing hedge	• CBAM and similar regimes demand lower carbon intensity • Market-access requirement for Europe-bound exports

Renewable PPAs are typically priced 15-30% below state utility tariffs (and CPHlinked rather than discretionary). This has seen corporate off takers save on power costs while decarbonising. This has been widely desired and adopted in the mining, cement, steel smelting and chemicals industries. In these industries the cost of electricity is the single largest cost line. Captive wind power has been embraced by corporates in Morocco and South Africa as highlighted in [Figure 4-2](#).

⁸Moroccan Royal family holding company through the Société Nationale d'Investissement (SNI).

Figure 4-2: Captive wind case studies

Sibanye-Stillwater Portfolio – South Africa	Lafarge and Nareva - Morocco
 Sibanye Stillwater has the most advanced captive wind procurement in the continent. The company targets. The mining group has 92% of its group emissions coming from ESKOM supply and wants to decarbonise as well as reduce production costs. Projects 89MW Castle Wind Farm: Located in De Aar, Northern Cape province. The energy is supplied through a wheeling arrangement on the ESKOM network. The wind farm is covered in the case study section of this report. 318MW Witberg, Umsinde Emoyeni and Springbok: The company has replicated the Castle project by procuring additional wind farms including the Witberg Wind Farm (103 MW) and Umsinde Emoyeni (140 MW) which are under construction. An additional 75 MW will be produced by Springbok solar part of the fleet. These together with Castle will produce 407MW or 68% of the company's 600MW captive renewables target. The projects will displace 30% of Sibanye-Stillwater's Eskom supply at a 1.5 -30% discount (CPI-escalated, fixed real terms over 15 years).	 Morocco's captive market was started after the passing of the Law 13-09 of 2010. This liberalised high-voltage power generation for self-consumption with the surplus being sold to ONEE. Projects 32MW Lafarge Wind Farm: This wind farm is one of the earliest captive wind farms in Africa. Gamesa and Lafarge installed the farm in 2005 to supply the Tetouan Cement plant  200MW Aftissat 1 wind farm: This wind farm was developed by Nareva to supply OCP, LafargeHolcim Maroc and Ciments du Maroc. Nareva has 5 merchant wind farms in the open market supplying industrial companies under PPA including the 200 MW Aftissat 2, 50 MW Haouma wind farm, and the 200 MW Akhfennir 1 & 2.
There are further captive wind projects in South Africa including Richards Bay minerals 140 MW PPA with Khangela Emoyeni wind Farm in KwaZulu-Natal; Seriti Resources 155 MW Mpumalanga wind (supplying its own coal mines); and AllM's Northern Cluster of 420MW that will supply Rio Tinto, Net Zero Africa and other industrial off takers. Over 3.3 GW of corporate PPA wind has reached financial close in South Africa in under 3 years. Trader intermediated captive power is also gaining traction in South Africa with solar projects taking the lead.	The market currently has licensed electricity traders including NOA, Discovery Green, Etana Energy, Lyra Energy and PowerX. Further afield, the recent enactment of the Energy (Electricity Markets, Bulk Supply and Open Access regulations in Kenya open the wheeling opportunity that has held back captive wind in the country. Wind projects that are located far from load centres will now have the opportunity to wheel power. This is likely to reignite the wind market in the country following in the example of South Africa's captive wind market. Kenya currently has 630 MW of Captive power in a 3GW grid. This captive power has mainly been solar PV based.

4.2 Repowering of Windfarms

Wind farms commissioned in the 2000s have reached the end of their life cycle. The resources at the sites where they were installed remain usable, and the technology has greatly improved. Repowering maximises the use of available wind resources, minimises additional land use, and optimises the consumption of materials and project costs. Modern turbines have high performance over the same resource, and grid availability on site is a plus for quicker project delivery. The communities in these areas are also used to having wind farms in the vicinity, and a repowered wind farm will likely have support.

Repowering has been performed in smaller demonstration projects that were built as proof of concept, and newer turbines were installed. The African wind industry is now witnessing the beginning of large-scale repowering projects. The Zaafarana and Koudia Al Baida wind projects repowering in Egypt and Morocco is a premier example of repowering in Africa.

Koudia Al Baida Repowering – 50MW to 100MW

The project was repowered and upgraded to 100 MW. The original 84 Vestas V44/600 turbines of 600 kW capacity were replaced by 20 Siemens Gamesa SG 5.0-132 turbines of 5MW each. **Figure 4-3** shows pictures of the repowered wind farm.

Figure 4-3: Koudia Al Baida wind farm



Source: Siemens Gamesa [23]



The project considered circularity with components recycled and reused in the repowered wind farm. The lattice and tubular towers were recycled in local foundries. Components in the nacelle, such as the gearbox and generators, were refurbished as spare parts. Turbine blades were shredded for use in cement reinforcement [23]. This recycling proves that wind can be both circular and conserve the environment and materials. Repowering also managed the abandonment expenditures for the old wind farm as well as the OPEX and CAPEX for the new wind farm, pioneering the thinking on financial sustainability in repowering projects in Africa. The project also donated 11 decommissioned wind turbines and their electrical parts to local institutions for technician training. This is an essential step in bridging the gap between theory and practice.

Zaafarana Wind Project Repowering – 545 MW to 3.2 GW (hybrid with solar)

The Zaafarana wind project, located about 130 km southeast of Cairo in Egypt's Suez Governorate, is the country's first utility-scale wind farm and one of the largest in the MENA region. It

was developed by the New and Renewable Energy Authority with support from international partners. The project consists of 700 wind turbines with a total installed capacity of 545 MW and offsets approximately 648,000 tonnes of CO₂ emissions annually. As many of the older Nordex, Gamesa, and Vestas turbines approach the end of their operational life, Egypt plans to repower the site into a 3.2 GW hybrid wind and solar facility, making it one of the region's first large-scale wind repowering projects [24].

The repowering initiative aims to replace older turbines with modern, higher-capacity models that can generate significantly more electricity with fewer turbines while reducing maintenance costs and improving efficiency. Preliminary development rights have been awarded to Alcazar Energy and a consortium of Taqa Arabia and Volitalia [25]. The project is also expected to shift from a government-to-government power purchase arrangement to a private-sector Build-Own-Operate model. Environmental management will remain important because the site lies along the Red Sea Rift Valley migratory bird corridor, requiring continued coordination with national bird monitoring programmes.

Figure 4-4: The first 8MW turbine installed in the 1.1 GW Gulf of Suez wind farm



Source: PowerChina

Bigger Wind Farms – GW-Scale Farms drivers

The 1.1GW Gulf of Suez wind project in Egypt when completed will be the biggest single wind project in Africa dwarfing the next two biggest wind farms, also in Egypt. The project was developed by Acwa the Suez wind energy S.A.E, an SPV of the consortium of Acwa and HAU Energy B.V (Hassan Allam Utilities, Meridium and EBRD). Oman Investment authority and the Egyptian Sovereign Fund are equity partners [26].

The wind farm will install 138 8MW Envision EN-182/8.0 turbines with rotor diameters of 182 metres and hub heights of 110 metres. The first turbines were erected in January 2026 by the EPC contractor PowerChina who also constructed the 500MW

Amunet wind farm [27]. Scale is important for the expansion of wind in the continent as it would lead to lower per MW capex costs as fixed costs are spread over much higher capacity. The Gulf of Suez project will be built at USD 950 M/ GW. This would average between USD 1.5 – 2 billion per GW for smaller projects in the continent.

Larger turbines result in larger capacity factors in the 45- 50% range. Larger scale also makes DFI syndication attractive. AfDB, EBRD, IFC, BII, DEG, OPEC Fund, and Arab Energy Fund collectively financed Suez 1.1 GW. This makes the DFI coordination more economic.

Pre-FID Megaprojects to watch

The Hyphen project in Namibia (3.5 GW of wind and solar with 3 GW electrolyser capacity) and Mauritania's AMAN (18 GW wind and 12 GW solar at full scale) and Nour (10 GW) are the next tier. None has reached final investment decision. They all face the constraint of securing committed offtake from European, Japanese, or Korean buyers.

4.3 The deepening of Local Capital

There is a rise in domestic funding for wind projects in Africa. This trend has been driven by pension funds, local commercial banks, sovereign and quasi-sovereign vehicles. These are continuously replacing DFIs and international commercial lenders that dominated project financing in Africa. Morocco and South Africa are trailblazing in this move. This shift resolves the local currency problem that is central to project bankability in the continent. Domestic savings are also deployed to fund domestic infrastructure.

South Africa's wind market is predominantly funded by domestic capital for new projects that are mostly captive. This is a shift from the DFI dominated REIPPPP funding. Standard Bank, ABSA, Nedbank, Rand Merchant Bank/FirstRand, and Investec provide project debt while DBSA and IDC top up the debt. Together these institutions have finance up to 80% of projects. Some examples of local funding are illustrated in **Figure 4-5**.

Morocco's market is funded by local capital systems anchored by the Caisse de Dépôt et de Gestion (CDG)⁹. The CDG has taken equity in Nareva led wind farms. Moroccan pension funds including CMR, CNSS and RCAR have deepened allocations to infrastructure. This has seen them purchase MASEN bonds that provide a pool of domestic funds to be deployed in infrastructure projects. Local commercial banks including Attijariwafa Bank, Banque Centrale Populaire, and Bank of Africa provide senior debt for Moroccan wind farms. This funding is provided in dirhams (MAD). The dirham has been relatively stable allowing for currency hedging. Nareva¹⁰ now controls over 2GW of African wind assets mainly in Morocco, competing with international developers while funded from local sources.

The South African and Moroccan local-finance models differ in detail but share the same logic of long-tenor domestic savings (pensions, post office, public investment funds) deployed against long-tenor renewable cash flows in local currency. Markets that lack either component face the structural forex-mismatch problem that DFI syndicates substitute for. The pension-fund-to-infrastructure pipe is the most replicable single structural innovation in African renewables and is set to grow throughout the continent. Countries with depth of pension savings will see pension funds moving towards this new asset class.

Figure 4-5: South African local funding

Old mutual IDEAS managed Fund

African Infrastructure Investment Managers (AIIM), a division of Old Mutual Alternative Investments, manages the IDEAS Managed Fund. This is a domestic infrastructure equity fund. The fund has invested in Castle, Witberg, Umsinde Emoyeni, and the broader AIIM portfolio of South African wind projects [28]. The capital is from South African pension funds (including the Government Employees Pension Fund, GEPEF – Roggeveld wind farm) reallocating into infrastructure [29], [30]. There were regulatory adjustments that allowed pension trustees to count infrastructure as a separate asset class. The model takes long-tenor pension liabilities and matches them against 15–25-year renewable cash flows.

Mahlako Energy Fund

The Mahlako Energy Fund is a black women-owned financial services group, co-invested in Castle alongside AIIM [28]. This is an example of B-BBEE (Broad-Based Black Economic Empowerment)-aligned domestic capital pools investing alongside traditional pension capital. Mahlako and similar vehicles (Reatile Renewables, Pele Green Energy) are now standard consortium members on captive wind projects. They simultaneously satisfy economic-transformation and capital-mobilisation.

Rand Merchant bank – Project Debt Arranger

Castle's project debt was arranged by Rand Merchant Bank, a South African commercial bank. The lending was done in ZAR, against ZAR-denominated PPA revenues. No FX exposure, no foreign legal jurisdiction, no DFI political-risk overlay. This is what depth of domestic capital looks like in practice. The Castle structure has now been replicated across multiple projects in Sibanye-Stillwater's pipeline.

⁹ Moroccan public long-term savings institution

¹⁰ <https://www.nareva.ma/en/>

Further afield in Nigeria, the Pensions Commission raised allocation limits for infrastructure investment. In Egypt, the National Investment bank and the Egyptian Sovereign Fund have taken equity positions in projects such as the 1.1GW Gulf of Suez wind farm. In Kenya, the capital markets authority is working on infrastructure-bond reforms that will allow domestic insurers and pension funds to invest more in renewable energy projects.

4.4 Other Shifts shaping the African Wind market

There are additional trends worth monitoring in the African wind sector. These together with the five main trends will shape the next decade of wind in Africa.

4.4.1 Hybridisation with solar and storage

Standalone wind farms are giving way to hybrid plants combining wind, solar, and battery storage. The First Quantum 430 MW Zambia project (230 MW solar and 200 MW wind) is a model. The project is solar by day, wind dominant at night, with storage smoothing the transitions. Hybrids dramatically improve capacity factor consistency for industrial off takers and reduce per-MW transmission costs by sharing grid infrastructure. By 2030, most new African wind projects above 100 MW are expected to be hybrid by default.

South Africa's 800 MW Battery Energy Storage Programme is the continent's first procurement at scale. As wind penetration rises, system-level storage moves from optional to essential. Storage is a separate financing class with a different revenue stack (arbitrage and ancillary services and capacity payments), different technical risk profile, and different investor pool.

4.4.2 Offshore wind becoming a reality

African offshore wind has been largely potential assessments. This is now changing with countries like South Africa leading. South Africa's assessment of floating offshore in coastal waters (over 100 GW potential) is now feeding into the 2024 IRP. Ten planned offshore wind projects were identified with a potential 6.4 GW capacity. The Gambia, South Africa, Morocco, Reunion, Mauritius and Tanzania are some of the countries with announced and planned offshore projects. These projects included the 3.5 GW Morocco-UK offshore wind farm, the 810 MW Gagasi offshore

wind farm in South Africa's KwaZulu natal province, and the 200 MW North-East Reunion offshore wind farm in Reunion.

None will reach commercial operation before 2030, but the regulatory groundwork being laid will determine which African countries enter offshore at scale in the 2030s.

4.4.3 CBAM and green-premium pricing

The EU's Carbon Border Adjustment Mechanism transitions to full charging in 2026, with steel, cement, fertilisers, aluminium, electricity, and hydrogen exports affected [31], [32]. African producers exporting to Europe face the choice of decarbonising the supply chain or paying the carbon levy. This creates a structural premium for green-energy-based African industrial output that did not exist three years ago. Mauritanian green steel, Moroccan green ammonia, South African industry push for renewable energy, and Egyptian cement decarbonisation are all responding to this regulatory signal to protect exports.

4.4.4 AI and data-centre powered demand

Hyperscale data centres are beginning to evaluate African sites such as South Africa, Kenya, Morocco, and Egypt for AI training compute. Data centres need 24/7 firm power with clean-energy attribution. This cannot be supplied by standalone wind, but wind-plus-solar-plus-storage can. The hyperscalers (Microsoft, Google, Amazon) would sign 15-year power-purchase agreements at premium prices for projects that meet 24/7 matching requirements.

South Africa is the early focus, but the model is replicable wherever a country has good redundant internet fibre-optic connectivity, political stability, and reliable power supply that is from a renewable (wind, solar and geothermal) resource. This is the next category of corporate off takers after mining and industry.

4.4.5 Climate Finance Instruments Maturity

Just Energy Transition Partnerships (South Africa USD 8.5 billion, Senegal USD 2.7 billion, others under negotiation [33], [34], [35]) are moving from headline pledges to disbursement. The Loss and Damage Fund and the Green Climate Fund are increasingly co-financing renewable projects with explicit just-transition criteria. Concessional climate finance is becoming a routine layer in African wind project capital stacks.

4.5 Market Outlook

The trends in the African wind industry provide an outlook of growth and diversification from traditional models of operation. We predict that by 2035 there will be:

- 30-50 GW of installed wind across Africa. This will be mainly concentrated in South Africa (15 GW plus), Egypt (8-10 GW), Morocco (5-8 GW), and a long tail of new entrants between 0.5-3 GW each.
- Continuation of repowered fleets. These will include Tarfaya (Morocco), Sere (South Africa), and early REIPPPP rounds. These would add 30-50% more capacity from existing sites without expanding land use.
- Captive corporate-PPA wind constituting 50-70% of new build in mature and emerging markets, with utility procurement remaining a parallel channel.
- Local capital (pension funds, domestic banks, sovereign vehicles) financing the majority of new wind build in South Africa, Morocco, and Egypt. Local financing will start to participate in Kenya. DFIs would continue to anchor Mauritania, Namibia, and other frontier markets.
- At least one operational green-hydrogen-and-ammonia export hub linked to a wind farm. This is likely to be in Namibia or Mauritania.
- At least 3-5 gigawatt-scale projects operational, with another 5-10 in advanced construction.

This outlook is subject to certain conditions prevailing and would also be limited if barriers are experienced. These conditions that support or hinder the achievement of the outlook are listed in [Table 4-1](#).

Table 4-1: Conditions in support and hindering the achievement of the outlook

Support for the Outlook	Barriers to the Outlook
• Wider adoption of open access to transmission across Africa • AI/ hyperscaler demand finding African sites at scale. This will compress the captive market timeline by 3-5 years. • Green steel demand from European auto producers reaching firm offtake commitments — would unlock Mauritania and possibly Namibia in the 2026-2028 window. • Egypt or Morocco becoming the second African country to cross 10 GW within 5 years of South Africa	• A failure to clear the South African transmission bottleneck. • A regional security shock affecting the Sahel or Horn that re-prices country risk for emerging markets. • EU rollback of CBAM or hydrogen import targets that undermines the export thesis. • A global wind supply chain crunch (as flagged by GWEC for 2026-2027) that delays construction.

Reflection 3: From emerging to Industrial scale

African wind has stopped being an emerging story and is now an industrial one. The crossing of the 10 GW threshold indicates a level at which lender comfort, skilled workforces, supply chain economics, and political durability begin to reinforce each other. South Africa has crossed 5GW and Egypt will likely follow within the decade.

Five trends have been observed. Captive wind has overtaken the rate of state procurement in South Africa in under three years. This demonstrates that the bankability problem can be solved by substituting corporate balance sheets for sovereign guarantees. Repowering at Koudia Al Baida shows that Africa's earliest wind sites are now assets to be renewed rather than retired. GW-scale projects in the Gulf of Suez are bringing per-MW capex below USD 1 billion, a level that makes DFI syndication and domestic manufacturing economically rational. Local capital, anchored by pension funds in South Africa and the CDG-led system in Morocco, is replacing the DFI-and-international-commercial-bank stack. The additional shifts of hybridisation, offshore announcements, CBAM-driven green premiums, hyperscale data centre demand, and maturing climate finance are widening the set of viable offtakers beyond the national utility.

The outlook of 30 to 50 GW by 2035 is plausible. However, it assumes transmission bottlenecks clear, frontier markets enter the procurement loop described in Chapter 3, and global supply chains hold. It can be accelerated by AI demand and green steel offtake, or set back by Sahel security shocks, CBAM rollback, or a supply chain crunch. The trajectory is no longer determined by whether wind works in Africa. It is determined by whether the institutions and frameworks can keep pace with the technology.

Policy Levers and Investment Opportunities

Wind projects need to have offtake contracts that lenders will find attractive to fund. Hierarchically, this has investment-grade corporate PPAs, sovereign-backed utility PPAs, DFI-anchored standardised PPAs and finally standalone weak-utility.



This chapter explores the policy interventions that governments can make to enable wind in Africa and the investment opportunities that can be targeted in the continent.

5.1 Policy Levers to Accelerate Wind

To accelerate the wind market in the continent, some policy interventions would be required. These are selected based on the experiences of the advanced African markets (South Africa, Egypt, Morocco, and Kenya) and benchmarked against international practice. Countries have varied levels of policy adoption and this listing, though broad, is meant to advise on areas of deficiency.

5.1.1. PPA Bankability

This is the most important reform for further investments in wind. Wind projects need to have offtake contracts that lenders will find attractive to fund. Hierarchically, this has investment-grade corporate PPAs, sovereign-backed utility PPAs, DFI-anchored standardised PPAs and finally standalone weak-utility. GWEC's ambition is for African markets to move up the ladder towards a more bankable PPA. Three recommendations made.

Recommendation 1.1: *Standardised, sovereign-backed PPA template*

Adopt standardised 20-25-year PPA template with clear take-or-pay obligations, dollar-indexed or sovereign-guaranteed tariff escalation, currency convertibility guarantees, and termination compensation triggers acceptable under IFC PS. Egypt's 2014 framework, Morocco's ONEE template, and South Africa's REIPPPP standard documents provide working models.

Recommendation 1.2: *Liability backstop for utility off takers*

Where the national utility cannot reach investment grade, governments should issue an explicit Ministry of Finance guarantee or letter of support on PPA payment obligations (Egypt's EETC model).

A partial risk guarantee from the World Bank/MIGA or AfDB can substitute and supplement for countries with sovereign guarantee challenges.

Recommendation 1.3: *Open the door to corporate PPAs*

Allow direct private-to-private PPAs above utility wheeling charges. South Africa's 2022 raising of the licensing-exempt threshold to 100 MW (then removed entirely) [36], [37] unlocked over 3.3 GW of wind in under 3 years. Countries with mining or industrial corporate off takers and where the utility route is difficult to bank could follow this trajectory. Time-bound deemed approvals (e.g. 90 days) should be adopted to prevent bureaucratic block.

5.1.2. Competitive Tendering

Competitive tendering has proved to deliver a more long-term sustainable market for wind projects as the REIPPPP has shown in South Africa. Competitive tendering encourages the development of pipelines by developers that increase investments, skillsets and support related industries. These then entrench the industry in the country's policies. Bilateral negotiations produce one-off projects that offer sporadic activity at higher costs. The recommendations focus on key auction design decisions.

Recommendation 2.1: Annual or biennial auction calendar with multi-year visibility

Publish an auction schedule that commits to specific MW volumes 3-5 years out, not single rounds. Investors will size their development pipelines and supply chains to expected procurement. South Africa's Bid Window cadence has been the strongest signal in the region. However, the gaps between Bid Window 4 and 5 cost the local supply chain heavily.

Recommendation 2.2: Site-specific tendering in grid-constrained areas

In transmission-constrained regions, governments should tender pre-permitted, grid-connected sites rather than asking developers to identify and develop sites at their own risk. Brazil's reserve auction model, Saudi Arabia's site-specific approach for NEOM, and Vietnam's solar success exemplify this. It reduces development cost and risk and lets governments control the geographic distribution of build-out.

Recommendation 2.3: Simplify bid evaluation

Evaluation criteria with more than 4-5 weighted dimensions introduce challenges in review, slowing award and inviting challenge. Bidding based on price, economic development, and grid integration is sufficient. South Africa's bid evaluation has been criticised as too complex while Morocco's and Egypt's have been deliberately leaner.

5.1.3. Focus on Grid Investment

Transmission constraints limit the level of investments in renewable energy. For African markets that have procurement mechanisms and are bankable the transmission network has become the new frontier of challenge. Transmission line build-out has been slower than the pace of increasing generation. Good wind sites are typically far away from load centres. Transmission investments are however less commercially attractive and harder to finance than generation. The recommendations focus on how to achieve quicker transmission build out.

Recommendation 3.1: System operator with merchant grid investment authority

Separate transmission planning and operation from the legacy utility. Allow the ISO/TSO to undertake merchant grid investment ahead of confirmed generation. This can be financed by socialised tariff or sovereign capital. An anticipatory fund could also be established for transmission investments.

South Africa's and Kenya's Transmission Development Plans have identified the projects for funding. Kenya's KETRACO model, a separate transmission company that built the 428km Loiyangalani-Suswa 400 kV line for Lake Turkana is a regional example. UETCL in Uganda and the newly formed NTCSA continue this trend.

Recommendation 3.2: Embrace ITPs

The continent is seeing the advent of independent transmission projects that crowd in private capital to the transmission space in annuity models similar to those used in toll road construction. Uganda, Mozambique, and Kenya are leading the way with projects by gridworks and Africa50/PowerGrids of India respectively closing in 2026. Gridworks will upgrade four substations in Uganda while the Africa50/PowerGrids project will see the construction of two transmission lines in western Kenya. ITPs bring in capital to make the highways for future generation.

Recommendation 3.3: Cross-border interconnectors

The Southern, Eastern, and Western African Power Pools allow generation in resource-rich countries to serve demand elsewhere. Investing in interconnector capacity (Mozambique-South Africa, Ethiopia-Kenya, Mauritania-Morocco-Spain) provides an export path for landlocked or small-domestic-market countries. The 1,200 MW Ethiopia-Kenya interconnector commissioned 2024 is a proof of concept.

5.1.4. Local Content

Local content requirements can lead to bad project economic outcomes despite their good intentions. Overly prescriptive rules raise project costs without building a commensurate durable industrial and skills base. On the contrary, lax rules leave no substantive industrial base. The working models as seen in Morocco, India and Brazil feature a phased increase, a scoring system as opposed to quotas/mandates and are tied to long-term volume signals in multi-round tenders. Local content should be a policy and not a tax. This can be achieved as recommended below.

Recommendation 4.1: *Phased local content with volume commitments*

Countries should set a starting local-content threshold (e.g. 35% by value) rising over 5-7 years to a target (e.g. 65-70%). This should be explicitly tied to a published procurement calendar with cumulative MW volumes. Morocco's 35 to 70% ramp on the 850 MW Integrated Wind Project is a model. Manufacturers will only invest if they see at least 800 MW per year of regional demand for at least 5 years. This is the threshold to justify local blade production.

Recommendation 4.2: *Scoring mechanism, not hard mandate*

Local content should be a scoring criterion in bid evaluation rather than a binary requirement. South Africa's REIPPPP has local content is one of multiple weighted criteria with developers who exceed thresholds winning extra points. This rewards genuine localisation without forcing uneconomic projects. Hard mandates in markets without supply capacity produce cost overruns or quiet rule breaking.

Recommendation 4.3: *Cluster manufacturing zones*

Designate one or two national locations as wind manufacturing clusters with co-located steel input, port access, and tax incentives. Saldanha Bay (South Africa), Tangier (Morocco), and Suez (Egypt) are examples. Concentrating manufacturing allows for specialisation and efficiency in human and physical resource use.

5.1.5. Permitting and Land Acquisition

The time taken to fully permit wind projects in the continent requires to be reduced. This can typically be between 4 and 7 years. This will delay projects even when the PPA is bankable, competitive procurement has happened and there is grid headroom. Delays add to the pre-construction cost build up in projects.

Recommendation 5.1: *One-stop permitting authority with statutory deadlines*

Establish a single agency with statutory authority to coordinate power project permits (this is better where wind specific), with deemed-approved timelines (typically 90-180 days per stage). Egypt's NREA, and Morocco's MASEN, and The South African IPP office have variants of this. Without this, developers chase signatures across ministries leading to long delays and corruption opportunities.

Recommendation 5.2: *Environmental and social impact assessment standardisation*

Establish pre-approved standard ESIA templates for wind aligned with IFC Performance Standards or Equator Principles. Aspects such as bird migration and bat impact studies have a known scope and methodology. Standardisation will reduce costs. Egypt's Gulf of Suez bird-monitoring protocols, refined across multiple projects can form the basis for a regional standard.

Recommendation 5.3: *Land acquisition highlight*

Where land is held in trust for indigenous or pastoralist communities, early, structured engagement with explicit benefit-sharing prevents the late-stage challenges. Free, prior, and informed consent processes are not optional; treating them as a checkbox creates project-level and reputational risk.

5.1.6. Local Currency Denomination

Wind projects are for the most part financed in hard currency. The loans and capex items are linked to hard currency payments that the developer needs to make. The electricity sold is mainly paid to the utility in local currency. This arrangement creates a forex risk that parties struggle to cover. South Africa solves this and by achieving local currency financing through its deep local banking system. Other countries solve this through automatic forex adjustments in consumer prices allowing the utility to pay in hard currency at the prevailing rates. DFI syndication and insurance against FX-risk is common.

Recommendation 6.1: *Local-currency project finance facility*

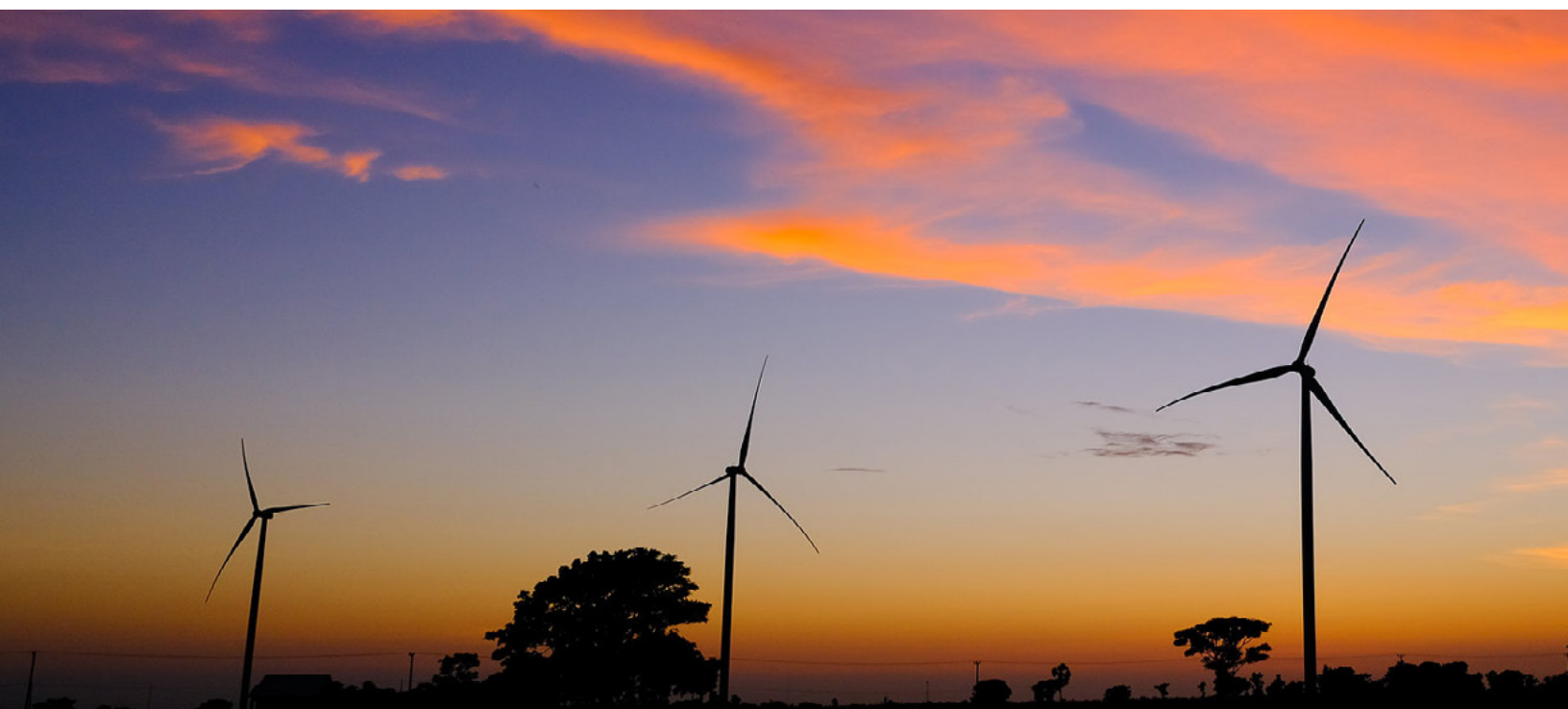
Establish a national or regional facility (capitalised by government, AfDB, or IFC) that provides long-tenor local-currency debt to renewable projects. South Africa's DBSA and IDC fulfilled this role under REIPPPP, providing 13% of all programme debt. AfDB's Sustainable Energy Fund for Africa is a continental version. Projects priced in local currency without FX exposure are more bankable.

Recommendation 6.2: *Pension fund mobilisation*

African pension funds collectively manage over USD 700 billion. Most allocate less than 5 percent to infrastructure [38], [39]. Regulatory adjustments allowing pension funds to invest in operational renewable energy assets (with appropriate caps and credit enhancements) would mobilise long-tenor patient capital. South Africa's Government Employees Pension Fund and Old Mutual's IDEAS Fund are early movers. Replicating this across the continent will secure funding, reduce risk and localise ownership.

Recommendation 6.3: *Concessional first-loss layers in blended finance*

In frontier markets (Sudan, Mali, Niger, Libya, Algeria), commercial capital may not be the first to enter. Concessional first-loss layers from climate finance (GCF, CIF, JET-P style instruments) are required to absorb the political and credit risk that locks out commercial lenders.



5.2 Investment Opportunities

Investment opportunities along the entire wind value chain will need to be harnessed to accelerate the wind industry in the continent. The opportunities are analysed following the stage in the wind value chain and are summarised in Table 5-1 and expounded in this section. These segments have different risk, ticket size and time-to-revenue characteristics.

Table 5-1: Assessment of investment opportunities

Segment	Best-fit investor	Risk profile	Time to revenue (Est.)
Project development (early-stage)	Specialist developers, climate VC	High	4-7 yrs
Project equity (construction-ready)	Infrastructure funds, and DFIs, exiting to Local pension funds	Medium-high	2-4 yrs to COD
Project debt (senior, project finance)	DFIs, commercial banks, ECAs, Local commercial and development banks	Medium	15-20 yr tenor
EPC and balance-of-plant	Local construction firms, JVs	Medium	Project-cycle
Tower and steel manufacturing	Industrial groups, JVs with OEMs	Medium	2-3 yrs
Blade manufacturing	OEMs, sovereign-backed JVs	High	3-5 yrs
O&M and asset management	Specialist services, local firms	Low-medium	1-2 yrs
Transmission & substations	DFIs, infrastructure funds and ITP developers	Medium	3-5 yrs
Mining-PPA renewables	Corporate balance sheets, IPPs	Low-medium	1-3 yrs to COD
Green H2 / industrial offtake	Strategic and DFI consortia	High	5-10 yrs
Component services & logistics	Local SMEs, private equity	Low	<1 yr

5.2.1. Component Manufacturing

Manufacturing of wind energy converters is the most demanding and highest-margin segment of the value chain. There is little manufacturing of wind components in the African continent (mainly focused on blades). To breach the gap, a consistent pipeline of projects will be required (at least 800MW/ year for 5 years) together with supportive policies. The manufacture of towers and structural steel, blades, and balance of plant components is considered.

A possible work-around could be the creation of a continent-wide wind investment vehicle backed by AfDB, Afreximbank and strategic OEM partners. This would include investments in different continental hubs for wind for specific components. The returns could be underwritten by long-term offtake commitments from procurement programs.

5.2.1.1. Towers and structural steel

Towers are an easy entry point due to use of structural steel in other related in-country industries. They are bulky, expensive to ship, and use mature steel-fabrication technology that exists in the continent. DCD Wind Towers in Port Elizabeth and Gestamp's Atlantis facility in South Africa demonstrate the model. The cost of the investment is in the order of USD 30-80 million per facility. The payback depends on a stable order book that a multi-round procurement program could provide. The best-fit investors are industrial groups with existing steel capacity, JVs

with international tower OEMs, and sovereign-backed industrial holdings.

5.2.1.2. Blades

Blades are the highest-value single component and the hardest to manufacture. They require specialised composites, exacting quality standards, and global IP-holders (Vestas, Siemens Gamesa, Goldwind) gate-keep entry. The continental volume threshold to justify a single facility is roughly 800 MW/year sustained for 5 years. Today, only Morocco (Siemens Tangier) crosses that line. South Africa, Egypt, and a future Mauritania-Morocco-Algeria cluster could each justify additional capacity. The investment cost is in the order of USD 80-200m. A typical arrangement would require a JV with a global OEM. The best-fit investors include strategic industrial partners, sovereign wealth funds, and large infrastructure funds with manufacturing experience.

5.2.1.3. Balance of Plant and Ancillaries

The expanding wind pipeline creates demand for transformers, switchgear, cabling, fasteners, foundations, and hundreds of smaller items. SMEs and mid-market private equity can find genuine opportunity. The investment requirement would be in the order of USD 5-30m. There are lower technical barriers than blades, and an immediate addressable market. Egypt, South Africa and Morocco are best positioned given existing industrial bases.

5.2.2. Project Development

Early-stage development including site identification, wind measurement, environmental studies, grid connection, permitting, PPA negotiation is the highest-risk, highest-return segment of the value chain. The investments are comparatively smaller at approximately USD 2-20 M /project.

The timelines are long (4-7 years to construction) and unpredictable with multiple points of failure. Most project ideas fail. Successful developers however earn 5-10 times on invested capital at the point projects reach construction-ready status. Failed projects have developers losing money.

Development companies such as Lekela, Globeleq, Scatec, BTE Renewables, Allim, juwi, and Mainstream operate a specialist developer model. They are however typically backed by infrastructure funds with patient 7–10-year capital. They exit the project once it is ready to construct or has few years of operation. They have strong returns but have unpredictable timings on when they can commercialise the development. An opportunity also exists for local companies to partner in project development with these specialist developers for a fee or equity.

Climate venture capital funds (such as Equator Africa and Energy Access Ventures) are also backing African-led developers at series A/B with tickets of USD 5 – 15 M. These require a portfolio approach as project success rates are typically very low. These investors take high risk expecting high returns.

5.2.3. Project Equity (Construction and Operations)

A ready-to-build project with PPA signed, permits, EPC selected and government guarantees has most of its risks abated. These projects then require capital (debt and equity) for construction. The equity funding requirements being in the order of USD 50 – 300 Million for 25 to 30 percent of the project value. The typical equity investors include infrastructure funds (Allim, Meridiam, Inframed, BlackRock CFP), DFIs (FMO, DEG, Norfund, IFU, BII), strategic IPPs (Enel GP, Engie, Globeleq, Pele Green).

Returns are higher where the market risks have dropped while competition is not widespread in the market. These infrastructure funds and DFIs typically also exit the project during operations

in favour of other funds like pension schemes who value the guaranteed cashflows offered by long-term PPA-backed projects.

Project equity in mining-anchored corporate PPA projects (Zambia, South Africa, Ghana) currently offers the most attractive risk-adjusted returns in African wind. This is driven by investment-grade corporate off taker, hard-currency revenue exposure for the miner, and predictable construction. The investments are in the order of USD 20-150 M per project with returns in the 10-14 percent range. They have low country risk relative to utility-PPA equivalents

5.2.4. Project Debt

Senior project finance debt is the largest single capital pool deployed in African wind. This, as is common in project finance transactions, typically represent 65-75% of project cost on long-tenor, non-recourse terms. The returns are however modest by venture capital standards (6-9% all-in for hard currency and higher for local currency). The volume and predictability are however substantial. The best suited investors in this category are DFIs as anchor lenders, and commercial banks for construction.

African pension funds and global institutional investors increasingly seek operational, hard-currency renewable assets. The opportunity is to refinance construction debt at commercial operation date (COD). The takeout the construction lender at a lower rate. This creates a virtuous cycle with the construction lenders recycling capital faster. Pension funds get the long-tenor cash flow they want, and project equity gets a refinancing dividend.

5.2.5. EPC and Construction Services

The engineering, procurement, and construction (EPC) is the segment where local firms can capture meaningful value without needing to overcome barriers in the manufacturing or developer markets. Civil works, electrical interconnection, transport, foundation construction, and balance-of-plant assembly are all addressable at the local level. Most successful African wind EPC firms have entered as junior partners on the first 1-2 projects in their market and grown into full lead-EPC roles by the 4th or 5th. These include Group Five, Power Construction, Murray & Roberts (South Africa); Orascom Construction (Egypt); and Nareva (Morocco).

5.2.6. Operations, Maintenance and Asset Management

Once projects reach commercial operation, they need 20-25 years of routine maintenance, scheduled overhauls, and asset management. The O&M opportunity is therefore prolonged as the life of the project. The margins are lower than development or EPC but cash flows are predictable and recurring. The opportunity for African firms is to displace the OEM-led O&M contracts (typically 5-10 year initial terms) with local providers from year 6 onwards.

South African firms (e.g. SkyWind) and Moroccan operators have done this successfully. The investment requirement is small (USD 5-30 M). The market is however the entire installed base in a region. This opportunity will grow with increased installed wind capacity.

Reflection 4: Policy and Capital move together

Policy levers and investment opportunities are paired interventions that only deliver when sequenced together. A bankable PPA template without a project debt fund produces auctions that stall at financial close. A multi-year procurement calendar without a manufacturing commitment produces blade imports rather than a domestic supply chain. Anticipatory transmission without storage and corporate PPAs produces lines that wait for generation. Each policy lever has a matching investment counterpart, and each investment opportunity rests on a policy precondition.

The implication for African markets is that they do not need the full stack before attracting capital. They need to start with PPA bankability and a first auction and let the subsequent layers build on each other. This was the experience in South Africa, Egypt, and Morocco.

Conclusions

The status of wind in Africa report built a database of every wind project above 1 MW that is operating, under construction, announced, or in pre-construction across the African continent. The database captures 351 projects, of which 92 are installed and 259 are in the pipeline.



The report analysed the resource endowment, the institutional conditions that have enabled or slowed down development, and the grid infrastructure that will determine future build-out. Looking into the future, the report considered the industrialisation pathways that wind can support, the emerging trends reshaping the market, and the policy and investment interventions that can accelerate progress. Six key conclusions were drawn for the consideration of the current state and the desire to expand wind's role in Africa.

6.1. Wind resource is not the constraint

Africa's 58,400 GW of technical onshore wind potential is more than fifty times the cumulative wind capacity currently installed worldwide. Less than 0.02% of this has been built. The countries with the largest resources, Algeria, Libya, Sudan, Mauritania, Mali, Niger, and Chad, have together built less than 200 MW.

The countries that lead in installed capacity, South Africa, Egypt, and Morocco, sit outside the top six on resource. The mismatch is a resource-institution misalignment. It is clear that wind power is built where bankable offtake, predictable procurement, and competent grids coincide. The resource is not the constraint. Closing this gap is the central organising challenge for the next decade.

6.2. The bankability problem can be solved without sovereign guarantees

The most important market structure innovation of the past three years has been the captive corporate power purchase agreement. South Africa's regulatory adjustment in 2022, raising the licensing-exempt generation threshold and then removing it entirely, unlocked over 3.3 GW of corporate-PPA wind in under 3 years.

The captive market has overtaken the rate of state procurement under REIPPPP. The mechanism substitutes a multinational mining or industrial counterparty's balance sheet for a sovereign

guarantee that governments are increasingly reluctant to issue. The model is replicable wherever a country has a wheeling framework, large investment-grade industrial off takers, and a competent grid operator. Morocco demonstrates the same logic with a longer history. The implication for frontier markets is that utility reform is not a precondition for wind development. Corporate PPAs offer a parallel route.

6.3. Local capital is becoming structural

The financing of African wind has shifted. South African banks and pension funds, anchored by Standard Bank, ABSA, Nedbank, Rand Merchant Bank, the Public Investment Corporation, and Old Mutual's IDEAS Fund, now finance the majority of new wind build in their domestic market. This is commonly done in local currency, avoiding the forex availability barrier. Morocco's Caisse de Dépôt et de Gestion (CDG), its commercial banks, and its pension funds perform an equivalent role in dirhams. Egypt's National Investment Bank and Sovereign Fund are taking equity in GW-scale projects.

The DFI and international commercial bank stack that dominated the first phase of African wind is being repositioned to anchor frontier markets. Domestic capital is taking over established wind markets. This is also the most replicable structural innovation observed in this report and will lead to faster scaling of installed capacity. The markets that develop pension-fund-to-infrastructure pipelines will accelerate fastest.

6.4. The 186 GW pipeline is plausible but not guaranteed

Should the announced and pre-construction pipeline of 186 GW be fully converted, the continent will be installing wind at the rate currently observed in Latin America. However, conversion is not assured. The pipeline includes early-stage announcements that may never reach financial close, projects in markets without bankable PPAs, and ambitions that exceed available transmission. A realistic outlook places the continent at 30 to 50 GW of installed wind by 2035. This is likely to be concentrated in South Africa, Egypt, and Morocco.

The addition of a long tail of emerging markets in the 0.5 to 3 GW range is expected. This trajectory can be accelerated by hyperscale data-centre demand finding African sites. Green-steel offtake commitments could unlock Mauritania and Namibia, and by the clearing of the transmission bottleneck, South African wind will be unblocked. The growth can be set back by Sahel security shocks, rollback of the EU CBAM or global wind supply-chain crunch.

Closing Reflection

Africa's wind sector has stopped being an emerging story and become an industrial one. The technology has been proven across four regions in the continent. The financing structures have matured. The bankability problem has been solved in two different ways, sovereign-guaranteed utility PPAs in Egypt and Morocco, and corporate-balance-sheet PPAs in South Africa.

Local capital is deepening. The first GW-scale projects are under construction. The first largescale repowering project has been delivered. The remaining constraint is not whether wind works in Africa. It is whether the institutions, the grids, and the policy frameworks can be built fast enough to keep pace with a technology that is ready to scale. The next edition of this report will measure the answer.



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Appendix 1: Methodology

A1.1 Scope

This report covers wind energy generation projects on the African continent above an installed capacity threshold of 1 MW. Small-scale wind, mini-grid wind below 1 MW, and isolated diesel-displacement applications are excluded. This is included for its institutional significance rather than its scale). Offshore wind is covered separately where projects have been announced. There were no operating offshore wind farms identified on the continent at the time of writing.

A1.2 Project Database

The project database underlying this report was compiled by the GWEC between in May 2026 (For cut-off, end of 2025). The database covers every African wind project above 1 MW that was identified through systematic review of:

GWEC Africa Wind projects Database for 2023

Developer corporate disclosures and project announcements (Lekela, Globeleq, Scatec, ACWA Power, AMEA Power, ENGIE, Enel Green Power, Nareva, Red Rocket, AIIIM, BTE Renewables, Mainstream Renewable Power, and others);

Financial-close announcements from lenders, including the African Development Bank, European Investment Bank, International Finance Corporation, Proparco, FMO, DEG, EBRD, Standard Bank, Nedbank, Rand Merchant Bank, Investec, and Absa;

National utility and ministry publications (NREA Egypt, ONEE Morocco, EEP Ethiopia, KenGen Kenya, KPLC Kenya, Eskom South Africa, SENELEC Senegal, SOMELEC Mauritania, ESCOM Malawi, ZESCO Zambia, NamPower Namibia, among others);

Regulatory filings, including environmental and social impact assessments, generation licences, grid connection studies, and procurement programme award announcements;

Independent project trackers including the Global Energy Monitor Wind Power Tracker, the IFC Africa Wind Atlas project records, IJGlobal Power database, and the Africa Energy Live Data portal;

GWEC Market Intelligence proprietary data on OEM market share and turbine deployment;

Direct correspondence with developers, regulators, and lenders to verify project status and resolve discrepancies between public sources.

Each project record contains, where available: country and region; geographical coordinates; nameplate capacity (MW); project status as at 31st December, 2025 (operational, under construction, pre-construction, announced); commercial operation date (actual or expected); owner and majority shareholders; developer; engineering, procurement, and construction (EPC) contractor; debt providers and equity investors; turbine OEM and model; number of turbines; primary off-taker; and power purchase agreement structure where publicly disclosed.

A1.3 Resource Data

Wind resource data presented in this report draw on two sources. The first is the Global Wind Atlas Version 3.0, a free web-based application developed and operated by the Technical University of Denmark (DTU), released in partnership with the World Bank Group and using data provided by Vortex, with funding from the Energy Sector Management Assistance Program (ESMAP). The Global Wind Atlas provides high-resolution mesoscale data for wind speed at 50 m, 100 m, 150 m, and 200 m heights above ground level, with a horizontal resolution of approximately 250 m. This is also the basis of the World Bank ESMAP report on the offshore wind potential in Africa.

The second is the analytical exercise undertaken by the International Finance Corporation, Everoze, Vortex, and the Global Wind Energy Council, originally published in 2020 and reflected in subsequent IFC and GWEC publications. This applies technical and environmental restriction filters to the raw Global Wind Atlas data to estimate technical onshore wind potential at the country level. Filters applied include minimum hub-height wind speed thresholds; maximum land slope; minimum elevation criteria; exclusion of urban areas, protected areas, water bodies, and high-biodiversity zones; and population density restrictions. The resulting technical potential figures are intended as upper-bound estimates of the resource that could be developed without crossing the principal environmental and land-use constraints, not as forecasts of practical or commercial deployment.

A1.4 Capacity Definitions

In this report, “installed capacity” includes projects that are operating (have achieved commercial operation date as at 31st December, 2025). “Pipeline” or “planned capacity” includes projects that are under construction (have reached financial close and were being constructed, with planned commissioning before 31 December 2027), in pre-construction (post-permit, pre-financial close) and projects that have been formally announced by an identifiable sponsor but have not yet reached pre-construction stage. The installed capacity number does not include the 1.1GW Gulf of Suez wind project that is recorded in the pipeline.

A1.5 Reference Period and Cutoff

Capacity figures are current to 31st December 2025, except where otherwise stated. Annual installation figures refer to calendar-year commissioning. Pipeline figures reflect announcements, construction, and pre-construction projects active as at 31 March 2026, including projects that may subsequently be cancelled or restructured. Financial close announcements are tracked to 31 March 2026. Projects that reached financial close in 2026 are not reflected in the headline numbers but are noted in the narrative where relevant.

A1.6 Limitations

The database has limitations to be noted. First, project information for less developed wind markets is less complete than for established markets. The level of certainty around announced projects in frontier markets is lower than for operating projects in mature markets. Second, pipeline figures include announced projects that may not reach financial close. The conversion rate from announcement to commissioning is treated qualitatively in the narrative rather than quantitatively forecast. Third, some figures (notably OEM market share, captive wind volumes, and local-content shares) reflect GWEC’s proprietary market intelligence and cannot be fully sourced to public documents.

Appendix 2: Country Readiness Scorecard

The scorecard in **Table 0-1** applies the critical success factors to 17 markets. They are grouped into four investment tiers depending on their readiness for investment from an institutional perspective. This ranking is a starter pack for due diligence, but projects can end up being at a higher tier than the country. Additional project specific due diligence is required.

Table 0-1: Scorecard on country readiness for wind investments

Country	Tier	PPA / Off taker	Procurement	Capital depth	Grid	Headline signal
South Africa	Established	Bankable (Eskom and C&I corporate PPAs)	REIPPPP and private market (wheeling)	Deep local banks	Constrained	Mature pipeline; transmission is the bottleneck
Egypt	Established	EETC and MoF guarantee	IPP tenders and FiT	Strong DFI syndicates	Adequate	Largest African wind project (Suez 1.1 GW) under construction
Morocco	Established	ONEE and private (Law 13-09)	Competitive tenders	Local and DFI	Adequate	Wind = 20% of capacity in 2024; industrial integration target 70%
Kenya	Emerging	KPLC PPA (Lake Turkana model) Corporate	FiT, Bilateral, transitioning	DFHed	Improving	Strong project precedent; off taker/FX risk has tested investors
Ethiopia	Emerging	EPP single-buyer	Mostly bilateral	DFI-dependent	Limited	Resource and policy intent both real; bankability in flux
Tunisia	Emerging	STEG and IPP framework	Auctions launched	Local DFI	Adequate	Auctions running but pace slow; near-EU export potential
Mauritania	Emerging	SOMELEC and corporate (mining/H2)	Bilateral and green H2 deals	DFI and strategic	Limited	Coastal resource and green hydrogen anchor (CWP, Chariot)
Senegal	Emerging	SENELEC PPA	IPP and Scaling Solar style	Local and DFI	Adequate	Taiba N'Diaye (158 MW) operational; replicable template
Nigeria	Early stage	NBET (limited bankability)	Mostly bilateral	Local and DFI	Constrained	Resource modest; off taker credit and grid are binding
Madagascar	Early stage	JIRAMA (weak credit)	Bilateral	DFI-dependent	Limited	Coastal resource good; sovereign and utility risk acute
Tanzania	Early stage	TANESCO (Weak credit)	Bilateral	DFI-dependent	Limited	Good Onshore and Coastal resources and acute utility risk

Country	Tier	PPA / Off taker	Procurement	Capital depth	Grid	Headline signal
Algeria	Frontier	Sonelgaz (no track record)	Limited tendering	State-led	Adequate	World-class resource (6,191 GW); IPP framework largely untested
Libya	Frontier	GECOL (politically fragmented)	Effectively none	Minimal	Damaged	Largest untapped: 5,079 GW resource, 0 MW installed
Sudan	Frontier	No bankable off taker	None	Minimal	Damaged	4,628 GW resource; conflict and sovereign risk dominant
Mali	Frontier	EDM (constrained)	None	DFI-only	Limited	2,758 GW resource; security overrides commercial logic
Chad	Frontier	SNE (very weak)	None	Minimal	Limited	Sole large Central African resource; isolated grid
Niger	Frontier	NIGELEC (sovereign-stressed)	None	Minimal	Limited	2,348 GW resource; political transition has paused investment

Tier definitions:

Established = bankable PPAs and active pipeline;

Emerging = at least one financial close, replicable template;

Early stage = isolated projects, weak off taker;

Frontier = world-class resource but institutional stack largely absent.

Tier reflects current states.

Disclaimer: Tier assignments and scorecard categories are GWEC judgments based on current institutional indicators. Country circumstances change quickly, particularly in the Frontier tier where security and political conditions can shift the assessment within months. This scorecard should be treated as an entry point for diligence, not a substitute for it.



