NWEC
NIGERIA WIND
ENERGY COUNCIL

How Egypt and South Africa Built Successful Utility-Scale Wind Industries

Lessons for Nigeria's Wind Energy Future

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Executive Summary

Across Africa, Egypt and South Africa stand out as the continent's most successful countries in deploying utility-scale wind power. Together, they account for over 60% of Africa's installed wind capacity, host some of the continent's most significant projects, and continue to attract millions of dollars in international investment.

From Egypt's rapid build-out of gigawatt-scale wind corridors in the Gulf of Suez to South Africa's globally respected Renewable Energy Independent Power Producer Procurement Programme (REIPPPP), these two countries demonstrate that large-scale wind deployment is not accidental; it is the product of clear policy direction, strong institutions, bankable project structures, and long-term political commitment.

This case study examines:

- How Egypt and South Africa started their wind journeys
- The policy, regulatory, and investment decisions that enabled their success
- The key enablers and turning points in their wind sectors
- And most importantly, what Nigeria can learn and apply as it positions itself to become a leading wind energy player in Africa.

2. Understanding Utility-Scale Wind Power

Utility-scale wind power refers to large wind farms designed to generate substantial electricity for commercial use. These projects, which can range from 1 MW to over 600 MW, operate under long-term Power Purchase Agreements (PPAs). Their primary offtakers are either national utilities (for grid supply) or major industrial consumers who require a high-volume, reliable power source for their operations.

In Egypt and South Africa, utility-scale wind is now a mainstream component of the power mix, supplying millions of households and displacing millions of tonnes of CO_2 annually. Their experience shows that wind energy is not just an environmental solution but also a strategic tool for industrial and economic development.

2. Egypt's Wind Energy Journey
From Pilot Projects to Gigawatt-Scale Leadership

2.1 Early Foundations (1990s - 2009)

Egypt's wind story began in the 1990s through government-led projects developed by the New and Renewable Energy Authority (NREA). With technical support from Denmark, Germany, and Japan, Egypt developed early wind farms at Zafarana along the Gulf of Suez.

These early projects were not primarily commercial - they were capacity-building platforms. Egypt used them to:

- Train engineers and technicians
- Understand grid integration of wind
- Build institutional knowledge
- Map its wind resources comprehensively

This early investment in learning created the technical confidence that later allowed Egypt to scale rapidly.

2.2 Policy Shift and Market Opening (2010 - 2015)

Recognising the limitations of public funding, Egypt shifted strategy in the early 2010s by:

- Opening the sector to Independent Power Producers (IPPs)
- Introducing Build-Own-Operate (BOO) models
- Establishing long-term bankable PPAs with the Egyptian Electricity Transmission Company (EETC)

This was a critical turning point. Investors now had:

- Clear offtakers
- Predictable revenue streams
- Government-backed contracts

Egypt also introduced a feed-in tariff (FiT) programme, which further signalled seriousness to the market.

Feed-in tariffs (FiT) are not only something Nigeria can adopt but are already part of the existing legal framework; however, their implementation has posed significant challenges for renewable energy development.

2.3 The Gulf of Suez Wind Corridor Strategy

One of Egypt's most strategic decisions was to concentrate wind development in high-resource zones, especially the Gulf of Suez.

Rather than isolated projects across the country, Egypt:

- Designated specific wind zones
- Conducted early environmental and grid studies

- Invested in transmission infrastructure in advance

This reduced development risk and accelerated project timelines.

Today, this corridor hosts:

- Ras Ghareb (262.5 MW)
- Red Sea Wind Project (650 MW)
- West Bakr (252 MW)
- Amunet Wind Power (500 MW)

Together, these projects form Africa's largest concentrated wind generation zone.

2.4 Key Enablers of Egypt's Success

1. Strong political backing from the presidency and cabinet
2. Clear institutional leadership through NREA and EETC
3. Bankable PPAs backed by sovereign support
4. Proactive grid planning and expansion
5. Investor confidence built through repeat projects

Developers such as ENGIE, Lekela, Orascom, Toyota Tsusho, AMEA Power, and Sumitomo did not come once - they came back repeatedly. That is a powerful signal of market trust.

3. South Africa's Wind Energy Journey
Building a Market Through Competitive Procurement

3.1 Pre-2011: A Fossil-Dominated Power System

Before 2011, South Africa's electricity sector was dominated by coal and controlled almost entirely by the state utility, Eskom. Renewable energy had little presence in the national mix, and private power generation was limited.

However, power shortages, rising emissions, and ageing infrastructure forced a rethink.

3.2 Birth of REIPPPP – A Game Changer (2011)

In 2011, South Africa launched the **Renewable Energy Independent Power Producer Procurement Programme (REIPPPP)**.

This programme changed everything.

REIPPPP introduced:

- Transparent, competitive bidding rounds
- Standardised, bankable PPAs with Eskom
- Clear evaluation criteria (price, local content, community development)
- Strong government coordination

For investors, REIPPPP reduced uncertainty. For the country, it unlocked massive private capital.

3.3 Rapid Scaling of Wind Under REIPPPP

Within a few years, South Africa commissioned multiple large wind farms, including:

- Jeffreys Bay (138 MW)
- Gouda (138 MW)
- De Aar (244 MW)
- Khobab (140 MW)
- Loeriesfontein (140 MW)
- Kangnas (140 MW)

Today, South Africa has over **3.5 GW of installed wind capacity**, making it the largest wind market in sub-Saharan Africa.

3.4 Localisation and Industrial Development

Unlike many countries, South Africa deliberately tied wind development to industrial policy.

REIPPPP required:

- Local content thresholds
- Community ownership stakes
- Skills development programmes
- Job creation commitments

This led to:

- Local manufacturing of towers and components
- Enterprise development in host communities
- Long-term socio-economic benefits beyond electricity

Wind energy in South Africa is therefore not just about power - it is about **industrialisation and inclusion**.

4. Comparing Egypt and South Africa Two Models, One Outcome

Element	Egypt	South Africa
Primary Model	BOO[1] + IPPs[2]	Competitive procurement (REIPPP[3]P)
Key Driver	Centralised state planning	Market-based competition
Geographic Strategy	Wind corridors (e.g, Gulf of Suez)	Multiple high-wind provinces
Local Content	Emerging	Strongly enforced
Grid Planning	Proactive	Programmatic[4]
Investor Profile	International utilities & DFIs[5]	Global IPPs + local investors

Despite different approaches, both achieved:

- Investor confidence
- Scale
- Repeat investment
- Long-term market credibility

5. What Nigeria Can Learn? Strategic Lessons for Wind Development

Nigeria has strong wind potential in the northern regions, coastal zones, and highland areas, but utility-scale wind is still largely untapped. The experiences of Egypt and South Africa provide clear lessons.

5.1 Lesson 1: Policy Clarity is Non-Negotiable

Both Egypt and South Africa sent unambiguous signals to the market:

- Wind is a national priority
- Private investment is welcome
- Contracts will be honoured

1 Build–Own–Operate (BOO)

2 Independent Power Producers (IPPs)

3 Renewable Energy Independent Power Producer Procurement Programme (REIPPPP)

4 Egypt's proactive approach means it aggressively expanded grid infrastructure and capacity ahead of demand, achieving universal access. South Africa's programmatic approach refers to a structured, policy-driven, and procurement-based strategy, such as REIPPPP, that focuses on managing existing, constrained, or reforming systems rather than on rapid, unilateral expansion.

5 Development Finance Institutions (DFIs)

Nigeria must:

- Clearly position wind within national energy plans, which Nigeria is already doing with the European Union (EU) Global Technical Assistance Facility for Sustainable Energy (EU-GTAF) has been commissioned by the Federal Ministry of Power to develop a wind energy action plan and roadmap strategy
- Issue strong policy statements supporting utility-scale wind
- Integrate wind into long-term generation planning

Uncertainty is the antagonist of investment.

5.2 Lesson 2: Create Bankable Procurement Frameworks

Egypt used BOO models and direct PPAs, while South Africa used competitive tenders (REIPP PP).

Nigeria needs a precise, repeatable procurement mechanism for wind, whether through:

- Competitive auctions
- Feed-in tariffs
- Or structured IPP frameworks

Without this, projects will remain stuck at the feasibility stage.

Nigeria has established Feed-in Tariffs (FiT) and Independent Power Producer (IPP) frameworks for renewable energy, but their implementation has faced significant challenges.

The Nigerian Electricity Regulatory Commission (NERC) introduced the Regulations on Feed-in Tariff for Renewable Energy Sourced Electricity in 2015, which applies to renewable projects with capacities between 1 MW and 30 MW. The FiT framework allows for wind projects up to 10 MW to access structured, pre-approved tariffs to encourage investment, while projects larger than 30 MW may require a more competitive bidding process.

5.3 Lesson 3: Strengthen Institutional Leadership

In Egypt, the New & Renewable Energy Authority (NREA) leads.

In South Africa, the Department of Mineral Resources and Energy leads.

Nigeria must empower the Nigerian Rural Electrification Agency (REA) to ensure clear roles, coordination, and accountability.

5.4 Lesson 4: Invest in Grid Readiness

Both countries expanded transmission ahead of projects.

Nigeria must:

- Plan transmission corridors in high-wind regions.
- Integrate wind into grid expansion plans
- Avoid the "project ready, grid not ready" trap

Grid readiness is as important as generation capacity.

In Nigeria, the Transmission Company of Nigeria (TCN) is currently undertaking a major expansion of the national transmission network. As of late 2025 and into 2026, the company is implementing infrastructure upgrades to increase grid wheeling capacity. This provides room for renewable energy, such as wind energy integration.

5.5 Lesson 5:
Use Wind as an Industrial Tool

South Africa's localisation policy transformed wind into an industrial driver.

Nigeria can:

- Encourage local tower manufacturing
- Promote local assembly
- Link wind projects to skills development

This ensures wind energy supports jobs, SMEs, and technology transfer.

6. Nigeria's Current Position and the Role of NWEC

Nigeria is at an early but promising stage. The Nigerian Wind Energy Council (NWEC) has been:

- Conducting resource advocacy and awareness campaigns
- Supporting data-driven planning and capacity building
- Engaging policymakers on wind integration
- Promoting Nigeria's wind potential to investors and development partners

These efforts align directly with the early-stage activities undertaken by Egypt in the 1990s and by South Africa in the late 2000s.

The difference is that Nigeria now has the advantage of learning from proven African models, rather than starting from scratch.

5. Strategic Pathway for Nigeria
From Potential to Projects

To follow the path of Egypt and South Africa, Nigeria must move through three phases:

Phase 1: Foundation (3 Years)

- Resource mapping
- Policy positioning
- Pilot projects
- Institutional strengthening

Phase 2: Market Creation (4 Years)

- Launch procurement frameworks
- Secure first utility-scale PPAs
- Attract anchor investors

Phase 3: Scale-Up

- Replicate successful projects
- Develop wind corridors
- Localise manufacturing

This is how Egypt and South Africa evolved.

8. Conclusion

Egypt and South Africa did not become wind leaders overnight. Their success is the result of deliberate policy choices, institutional discipline, investor engagement, and long-term vision.

Nigeria has the wind resource, the market size, and the strategic importance to follow this path. What is required now is clarity, coordination, and commitment.

With sustained advocacy from NWEC, supportive government action, and structured market design, Nigeria can move from potential to performance and join Egypt and South Africa as one of Africa's leading utility-scale wind markets.

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