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5.7 GW
CURRENT INSTALLED CAPACITY

9.9 GW
2025 TARGET (ENERGIA 2025)

60%
ELECTRIFICATION TARGET

$23B
EST. INVESTMENT REQUIRED

Prepared by: **Krishna Singh**
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EXECUTIVE SUMMARY

The Republic of Angola stands at a pivotal inflection point in its energy transition. Despite possessing some of Africa's most significant renewable resource endowments — including 16.3 GW of estimated solar potential, 18 GW of hydropower potential, and 3.9 GW of wind resource — only approximately 30% of the population had access to electricity as of 2024, with rural access below 10%. The government's **Angola Energia 2025** vision targets 9.9 GW of installed capacity and a 60% national electrification rate, requiring an estimated $23 billion in total investment.

Angola's generation mix is already renewables-dominant: hydropower constitutes 61.8% of installed capacity, with fossil fuels at 37.6% and hybrid technologies at 0.6%. However, renewable capacity has stagnated at 4.1 GW since 2022, exposing the gap between resource potential and deployment execution. The country is simultaneously pursuing a bold green hydrogen strategy, positioning itself as a future exporter to Europe through a 600 MW electrolysis facility.

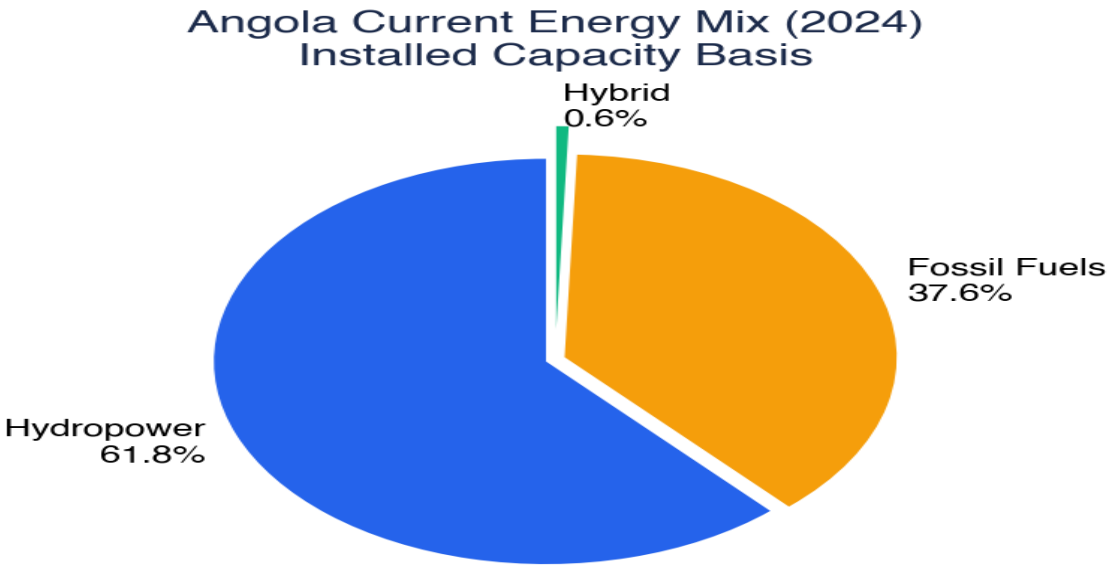
This report provides decision-grade intelligence across ten critical dimensions of Angola's renewable energy landscape.

Key Strategic Findings

Finding	Implication
Renewable capacity stagnant at 4.1 GW (2022–24)	Execution bottleneck in transmission/distribution, not generation capacity
70% of new capacity must come from renewables per Angola 2050	Long-term policy tailwind for solar, wind, and biomass IPPs
Green hydrogen FID expected 2025; 400,000 t/yr by 2027	First-mover advantage in Sub-Saharan Africa hydrogen export market
Updated NDC reduces target from 24% to 11% by 2035	Downgraded ambition reflects financing constraints; signals need for concessional capital
Law 6/25 (July 2025) opens transmission to private sector	First major regulatory opening for foreign investors in grid infrastructure
Estimated $23B required through 2025; only ~$3B committed	Massive private sector opportunity but off-taker credit risk remains critical concern

1. RENEWABLE ENERGY MARKET OVERVIEW

Angola is Sub-Saharan Africa's second-largest crude oil exporter, yet its domestic power sector remains underdeveloped. Current installed generation capacity stands at approximately **5.7 GW**, of which only ~70% is operational due to maintenance deficits and transmission constraints. The country's energy mix reflects its hydrological endowment.



Source: U.S. International Trade Administration Country Commercial Guide – Angola, February 2024

According to IRENA data, Angola's renewable energy capacity grew from 1.0 GW in 2015 to **4.1 GW by 2022**, but has since stagnated through 2024. Despite stagnation, Angola's 4.1 GW renewable base still exceeds Nigeria's 3.7 GW. Mapping studies by MINEA have identified staggering resource potential: **16.3 GW solar, 3.9 GW wind, and 18 GW hydropower**. The Cuanza River cascade — Laúca (2,070 MW), Cambambe (960 MW), and Capanda (520 MW) — provides over 3,500 MW. The planned Caculo Cabaca dam (2,172 MW) would nearly double this base.

Solar Plant Developments (2023-2026)

Project	Capacity	Location	Status
Luena Solar Plant	25.3 MW	Moxico Province	Operational (2024)
Saurimo Solar Plant	26.13 MW	Lunda-Sul Province	Operational (2024)
Caraculo Solar Plant	~60 MW	Namibe Province	Operational (2023)
Luau Solar Park	~50 MW	Lunda-Leste Province	Operational (2026)
7 PV Stations Batch	370 MW	Various	Completed (Feb 2024)
Biópio Solar (MCA)	~100 MW	Bengo Province	Planned

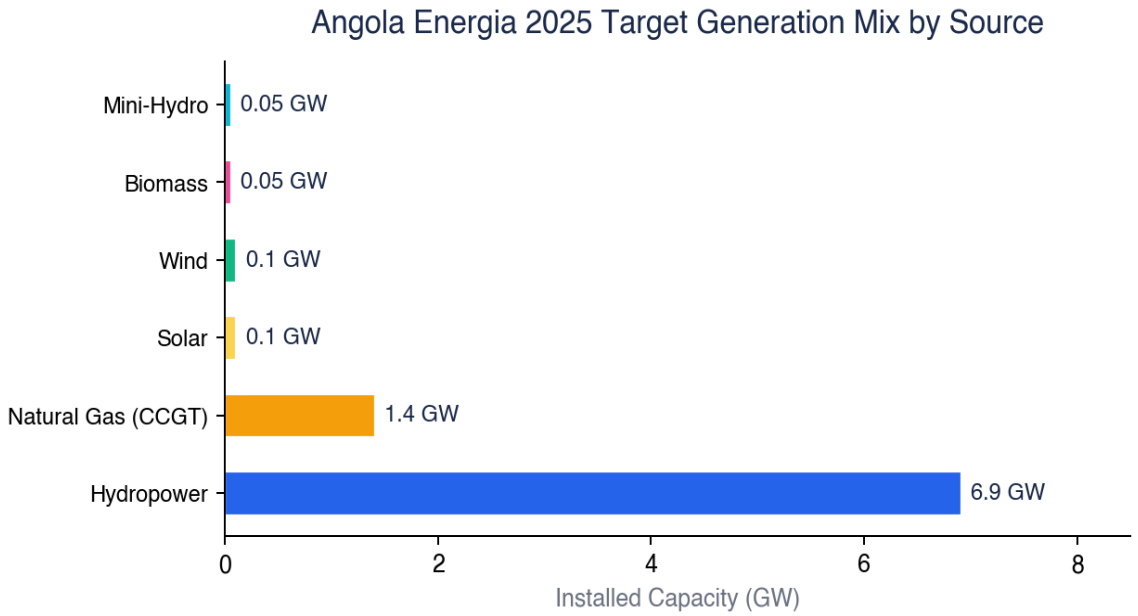
Source: Angola Energia 2025 Vision · U.S. Commerce Dept · Angola2050.com Tracker

2. RENEWABLE ENERGY TARGETS

Angola's renewable energy policy framework is anchored by the **Angola Energia 2025** vision. The strategy sets a renewable-dominant capacity target of **9.9 GW by end-2025**, with over 70% from renewables — a remarkable distinction for a major petroleum producer.

Angola Energia 2025 Capacity Targets by Source

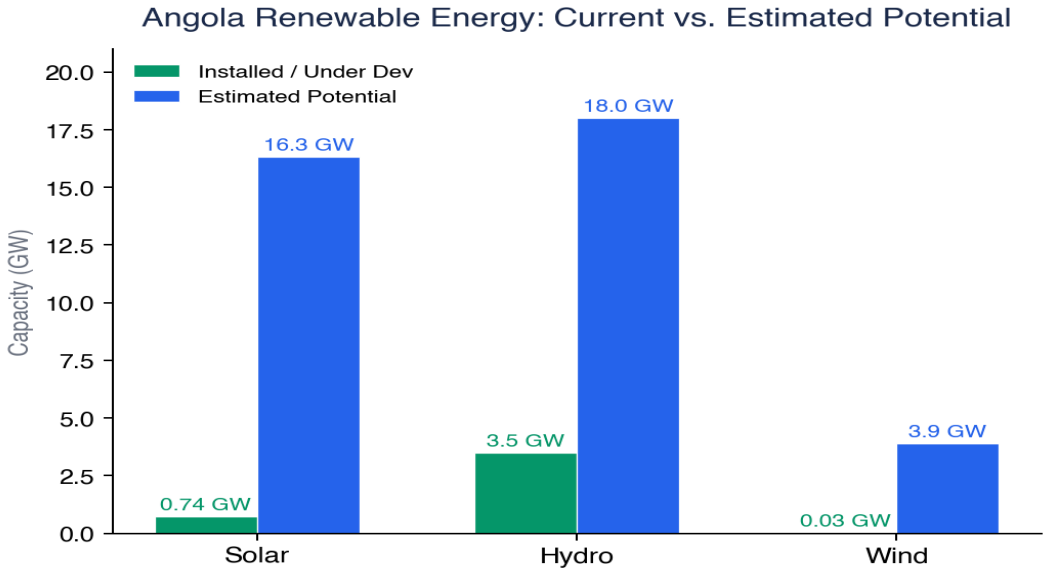
Source	2025 Target (GW)	Share	Status / Key Assets
Hydropower	6.9 GW	~70%	Laúca 2,070 MW, Cambambe 960 MW, Capanda 520 MW
Natural Gas (CCGT)	1.4 GW	~14%	Soyo Phase 1: 750 MW; Phase 2 planned
New Renewables	0.8 GW	~8%	Solar, wind, biomass, mini-hydro combined
Other Thermal	0.7 GW	~7%	Diesel/HFO standby/emergency
Total	9.9 GW	100%	Requires ~$23 billion investment



Source: Angola Energia 2025 Vision · Angola2050.com Dashboard

Beyond capacity, the government targets **60% national electrification by 2025** (from ~30% baseline), with the grid expanding from ~3,354 km to 16,350 km of transmission lines — a nearly 5-fold expansion. The 800 MW new renewables target establishes institutional frameworks for larger-scale deployment post-2025.

Resource Potential vs. Current Deployment



Source: MINEA mapping studies · U.S. ITA · Intelpoint/IRENA

3. HYDROGEN ENERGY STRATEGY

Angola is positioning itself as a pioneer in Sub-Saharan Africa's green hydrogen sector, leveraging two critical advantages: abundant freshwater resources (unlike arid competitors in North Africa and the Middle East) and spare hydropower capacity from the Laúca dam complex.

The flagship project is a **600 MW green hydrogen facility** at the Barra do Dande ocean terminal, developed through a consortium of **Sonangol** (Angolan NOC), **CWP Global**, **Gauff GmbH**, and **Conjuncta GmbH**. Phase 1 targets **400,000 tonnes of green ammonia annually**, with FID in 2025 and first production from 2027. The green ammonia will serve international shipping, green fertilizer production, and as a hydrogen carrier for European offtake.

In May 2026, during German President Steinmeier's state visit, Angola and Germany launched a feasibility study for Angola's National Hydrogen Strategy. Germany's Hydrogen Global Program positions Angola to export ~280,000 tonnes of green ammonia annually to German markets. Angola benefits from 47 river basins of which only 5% are utilized — eliminating desalination costs that constrain arid-region projects.

Green Hydrogen Project Timeline

Milestone	Timeline	Details
Joint Declaration of Intent (Sonangol-Gauff-Conjuncta)	Mar 2023	Signed at Barra do Dande terminal
CWP Global joins consortium	2024	Adds project finance / development expertise
Angola-Germany H■ Study launch	May 2026	Steinmeier state visit; H1 2026 findings expected
Sonangol FID (Phase 1)	2025 (planned)	400,000 t/yr green ammonia capacity
First Production	2027 (target)	First green ammonia exports to Europe
Scale-Up Potential	2030+	Expand to 600 MW electrolysis; additional sites

4. NATIONALLY DETERMINED CONTRIBUTION (NDC)

Angola submitted its updated NDC in 2025. The update has drawn criticism for reducing ambition rather than raising it.

NDC Evolution: Previous vs. Updated

Parameter	Previous NDC	Updated NDC (2025)
GHG Reduction Target	24% below baseline by 2025	11% below BAU by 2035
Baseline Year	2015 (lower emissions)	Revised upward (land-use recalibration)
Target Year	2025	2035
Unconditional Share	N/A	5% (domestic resources)
Conditional Share	N/A	6% (requires international finance)
Estimated Finance Need	Not quantified	~$412 billion total

Angola's NDC defends the reduction as 'realism and implementability,' citing limited technical capacity and a lack of financial support. A complicating factor is Angola's pending graduation from UN LDC status, which currently grants preferential access to climate finance. The NDC warns that "current financial resources are not compatible with the rising ambition set out in the Paris Agreement."

5. THE GENERAL ELECTRICITY ACT (LAW 14-A/96 AS AMENDED BY LAW 6/25)

The General Electricity Law (Law 14-A/96 of 31 May 1996) served as the foundational regulatory framework for nearly three decades. In July 2025, **Law 6/25** introduced the most significant amendments to date.

Key Amendments Under Law 6/25 (July 2025)

1. Transmission Concession Opening: Now possible to award transmission concessions to public or private legal entities for domestic links or cross-border interconnections.
2. Competition in Supply: New provisions enable private traders and IPP electricity sales directly to eligible consumers.
3. Dispatch and System Management: General dispatch must continue to be carried out by a public entity, preserving system security.
4. Grid Extension Models: Supports models allowing the public grid to reach areas not yet covered by the National Transmission Network.

Sector Restructuring and Institutional Roles

Entity	Role	Status
PRODEL	Public electricity production company	State-owned; operates generation assets
RNT	National electricity transmission company	State-owned; network operator
ENDE	National electricity distribution company	State-owned; distribution and metering
IRSEA	Electricity and Water Services Regulator	Independent regulator; tariff setting and licensing
GAMEK	Kwanza River hydro project implementer	Expanded mandate to oversee major power projects

In June 2019, electricity subsidies were cut by 85%, causing rate increases of 77% for industry and 113% for domestic consumers (low-income tariffs remained frozen). These corrections are critical for improving utility viability and making the sector attractive to IPPs.

6. NATIONAL RENEWABLE ENERGY STRATEGY

Angola does not have a single codified 'National Renewable Energy Strategy' as a standalone instrument. Instead, policy is distributed across the **Angola Energia 2025 vision**, the **National Development Plan (PDN) 2023-2027**, and sector-specific directives from MINEA. Key instruments include feed-in tariff design (under development), IPP framework structuring (USAID Power Africa), and the Lusophone Compact gateway. The ALER National Status Report (2022) represents the most comprehensive stocktake of the renewable sector. A national biofuels strategy (2026) is also under development.

Renewables Sub-Targets (Non-Hydro)

Technology	Target / Activity	Progress Indicator
Solar PV (Utility)	~500 MW committed via US EXIM ($900M loan)	Sun Africa contractor; 370 MW batch completed
Solar PV (Distributed)	100 MW target	Luena, Saurimo, Caraculo operational; rural solar villages
Wind	100 MW target	Early stage; resource mapping at Namibe and coastal
Biomass	500 MW target + biofuels strategy	Study phase; cassava/bagasse potential
Mini-Hydro	100 MW target	Multiple small river sites identified

7. PUBLIC-PRIVATE PARTNERSHIP (PPP) LAW

Angola's PPP framework is governed by the Public-Private Partnership Law and associated concession regulations. Energy-sector PPPs are more commonly structured through IPP concessions, BOO/BOT models, and direct bilateral agreements. The government distinguishes strategic national assets (large dams, grid backbone) from bankable generation projects open to private investment.

Private Sector Entry Mechanisms

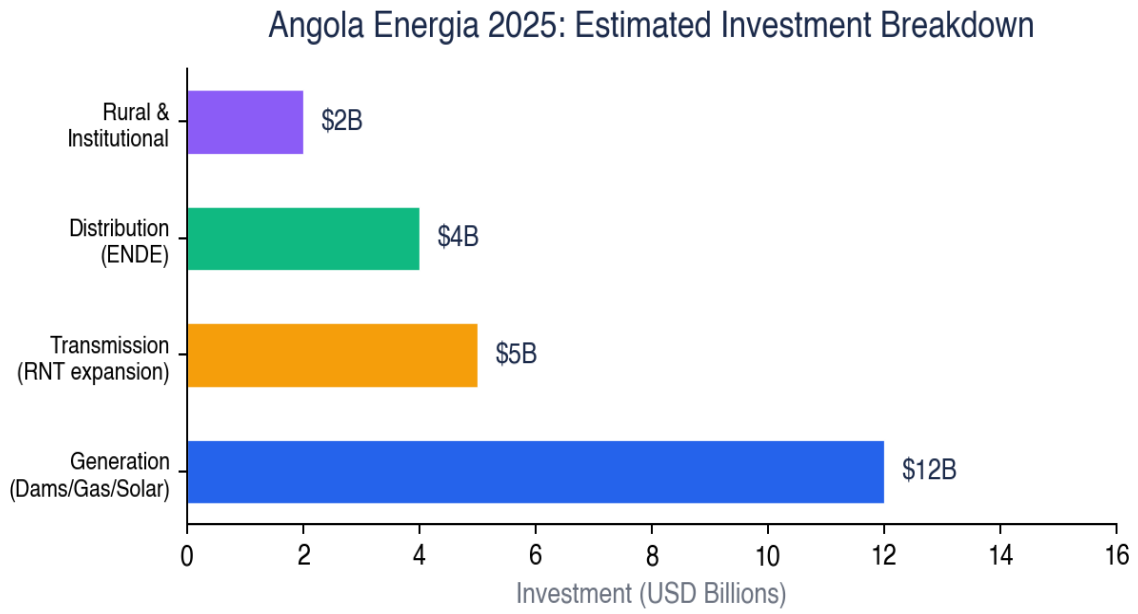
IPP Model: Primary vehicle for private RE investment, requiring PPAs with PRODEL or direct offtake.
Transmission Concessions: Law 6/25 now permits private entities to hold transmission concessions including cross-border interconnections.
Lusophone Compact: Specialized gateway for private renewable projects in PALOP countries, facilitated by ALER and AfDB.
AFIS with EU: The EU's first sustainable investment facilitation agreement (2022, adopted March 2024), easing EU investor entry into Angolan renewables.

Financing Constraints

Five constraints repeatedly block financial close: (1) lack of credible PPAs and offtaker creditworthiness; (2) regulatory uncertainty and IRSEA capacity gaps; (3) foreign exchange risk (Kwanza volatility); (4) grid connection delays and weak transmission infrastructure; (5) difficulty securing land rights and environmental permits. The $23 billion requirement dwarfs publicly committed financing, making private capital essential — but only if these constraints are systematically de-risked.

8. THE ANGOLA 2025 LONG-TERM STRATEGY

Angola Energia 2025 sets three interlinked objectives: (1) **9.9 GW installed capacity**; (2) **60% national electrification**; and (3) diversify the mix toward renewable dominance (>70% clean energy share). The financing model separates public responsibilities (large dams, grid, rural electrification) from private opportunities (gas-fired and renewable IPPs).



Source: Angola Energia 2025 Vision · Angola2050.com Dashboard

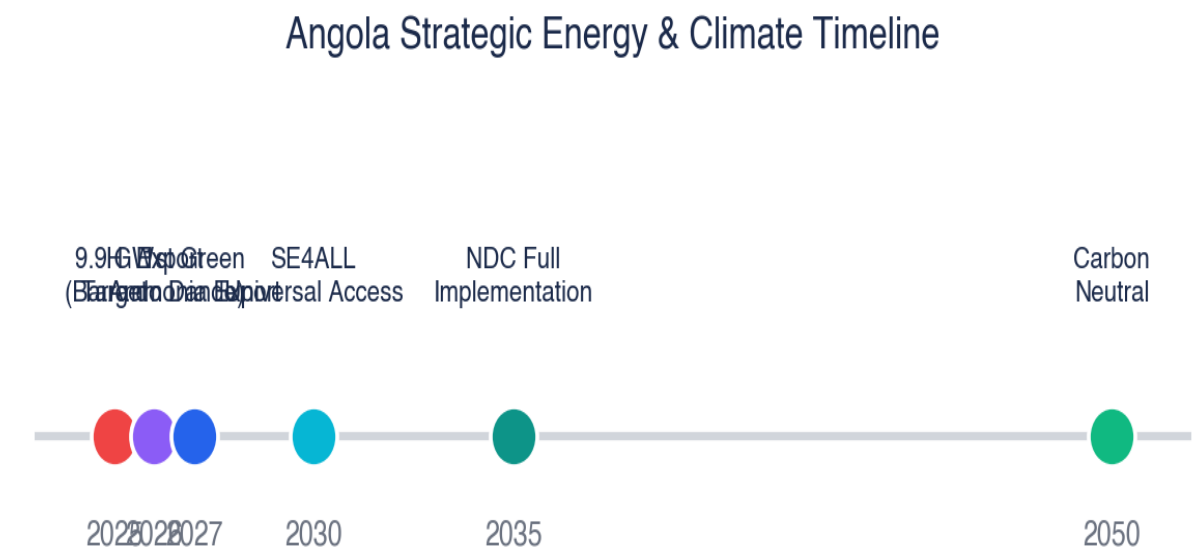
Attracting private investment requires credible PPAs, cost-recovery tariffs, transparent regulation, and offtaker credit enhancement. The government has acknowledged that the previous Angola 2025 strategy largely failed, with over 60% of 2015 indicators not achieved.

9. THE ANGOLA 2050 LONG-TERM STRATEGY

The **Angola 2050 strategy (2024)** is a 432-page, 11-chapter plan setting a transformative target: **95% of new installed capacity must come from renewable sources**. Aligned with AU Agenda 2063 and UN SDGs, it envisions Angola as a regional clean-energy hub exporting green hydrogen and ammonia while providing grid stability to SADC neighbours.

The **Lobito Corridor programme** — supported by over $1 billion in AfDB commitments — exemplifies the integrated industrial-energy-transport nexus. Clean hydropower from the Cuanza cascade could power mineral processing, manufacturing, and aluminium smelting, creating a vertically integrated green industrialization model.

Integrated Strategic Timeline

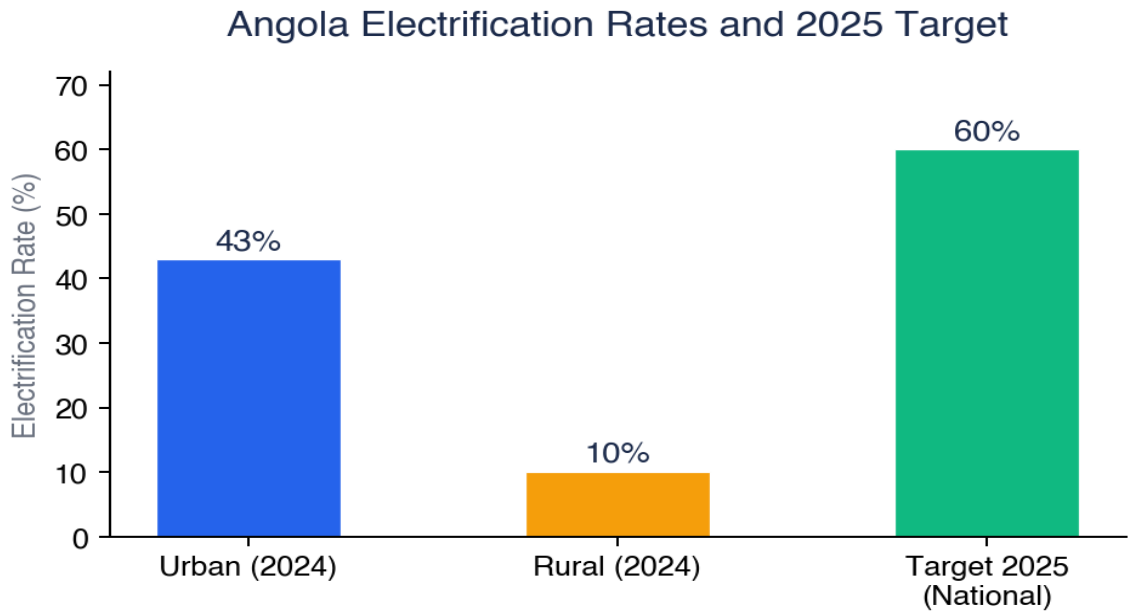


Source: Synthesized from Angola Energia 2025, Angola 2050 Strategy, NDC 2025, and GH2/Sonangol disclosures

10. SUSTAINABLE ENERGY FOR ALL (SE4ALL) 2030 GOALS

Angola is an active participant in the UN SE4ALL initiative with three global objectives: (1) universal energy access; (2) doubling energy efficiency improvement; and (3) doubling the renewable energy share. Angola's SE4ALL Action Agenda was validated in Luanda in August 2016 with AfDB support.

SE4ALL Dimension 1: Universal Energy Access



Source: U.S. ITA · Angola2050.com · IRENA

Angola's ~30% baseline electrification (2024) means universal access requires connecting ~7 million new households. The off-grid strategy deploys: **diesel-solar hybrid mini-grids** (~2 million people), **solar villages** (~500 villages with standalone solar + battery), and **solar home systems** for remote households. The Africa Mini-Grids Programme (Nov 2022) includes Angola among target countries.

SE4ALL Dimension 2: Renewable Energy Share

Angola already exceeds global averages (~74% target vs. global ~40%), though dominance is driven by hydropower rather than solar/wind. The 800 MW non-hydro renewables target under Energia 2025 addresses this gap.

SE4ALL Dimension 3: Energy Efficiency

Energy efficiency is constrained by high T&D; losses (estimated 25-30%), unmetered consumption, and aging thermal assets. Pre-paid meter rollouts and diesel-to-gas switching contribute to improvement, but dedicated energy efficiency legislation and demand-side management remain underdeveloped.

SOURCES & METHODOLOGY

This report synthesizes data from over 30 primary and secondary sources accessed between May 24–28, 2026. Primary government sources include Angola Energia 2025 (via FAOLEX and Gesto Energy), Law 6/25 of 23 July 2025, and Angola's updated NDC submission to UNFCCC. Multilateral sources include U.S. EIA (Feb 2025), U.S. ITA (Feb 2024), World Bank CCKP, and IRENA statistics (via Intelpoint). Specialized sources include GH2.org, TNO Green Hydrogen Mapping Study (2024), ALER National Status Report (2022), and sector publications. Cross-verification was performed for all key statistics.

Category	Key Sources
Government / Policy	Angola Energia 2025 (FAOLEX); Law 6/25; PDN 2023-2027; Angola 2050 Vision; MINEA (via ALER)
Multilateral / Development	U.S. EIA (Feb 2025); U.S. ITA (Feb 2024); World Bank CCKP; IRENA via Intelpoint; UNFCCC NDC
Legal / Regulatory	Miranda Law Firm (Aug 2025); PLMJ / Lexology (Aug 2025); RVA Angola; Afriwise; IEA Policies Database
Industry / Technical	ALER; GH2.org; TNO (2024); CWP Global; Sonangol disclosures; Angola Mining Oil & Gas
News / Analysis	Climate Change News (Oct 2025); Angola2050.com; Intelpoint; RenewAfrica; FurtherAfrica; AEC Week

END OF REPORT