



Africa Energy Futures: Angola

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Over the last five years, how has the energy mix changed, and what have been the key drivers?

In the last five years, Angola's energy mix has changed considerably. Installed capacity is now over 4,889 GW, distributed by the following types of power generation: (i) hydro at 61%, with a capacity of 3,005 GW; (ii) thermal at 31% with an installed capacity of 1,866 GW; (iii) natural gas at 7%, with 0.375 GW; and (iv) renewables at 1% with 0.063 GW.

The power sector is in an important phase of transition and exit from a long period marked by a generation deficit and unreliable supply with constant blackouts. The heightening and rehabilitation of the Cambambe dam, as well as the Soyo and Laúca power stations, with more than 3.5 GW capacity, constitute a fundamental reinforcement that allows for a more stable energy supply.

Important supports in terms of generation, mainly in the Northern System, made it possible to reduce the production deficit and the use of diesel to produce electricity. The Public Electricity Production Company (PRODEL) is expected to reach 5.4 GW of installed power by 2022. Public efforts in terms of production should be based on the operationalization of projects in the finishing phases and on the maintenance, relocation and reconversion of fuels from existing thermal power stations.

However the government's focus goes beyond the completion of ongoing projects. It has prioritized access to energy: stating that it is essential to guarantee access to water and to bring the electricity produced from the Kwanza River and natural gas from Soyo to at least 50% of Angolan families and companies by 2022.

What is the outlook for the energy and natural resources sector in the next 5 years? In particular:

Key policy decisions

Angola 2025's Long-Term Strategy foresees a 25% growth in energy consumption to meet the needs of the Industrial and Tourism Development Hubs. These hubs were created by the Angolan executive's development policy to boost investment in the industrial and tourism sectors. The strong growth perspective of the industrial sector is supported by more than 160 specific structural projects, at different stages of development. These are grouped into clusters whose high energy needs and strong growth prospects give rise to the 25% growth in energy consumption.

It is foreseeable that a series of decisions may be taken by the government in this context, such as: (i) an increase in the average rate of electrification, at the national level, to cope with disparities and inconsistencies regarding access to energy; (ii) optimizing the location and availability of existing thermal generation, as well as increasing installed capacity, particularly in new and renewable energies, with a view to replacing fossil fuels; (iii) the progressive replacement of public

investment in electricity generation by long-term private financing, in where public financing will be reserved for investments that have a structuring nature which result in medium and long term positive impacts in one or more sectors.

Main policy challenges

- Converting agreements into prepaid and universal medium voltage telemetering (distribution);
- Implementing the Commitment Program for Solar Energy, solar hybridization of thermal power plants, thermal biomass power plants in the east, solid urban waste plants in Luanda and Benguela, launching the first wind farms in Angola; Investing in renewable energy is seen as priority for the government, with a target capacity of 500 MW by 2022. The intention was to launch an ambitious energy program for both new and renewable projects.
- Developing management contracts for municipal systems interconnected to the grid, license isolated municipal systems and create management entities in partnership, as well as ensure the rental and distribution of individual solar systems in isolated areas (municipal and rural distribution); and
- Establishing the Rural Electrification Agency, a joint public and private entity that has the objective of meeting the power needs of people living in rural/remote areas, ensuring access to electricity in a sustainable and consistent way.

The anticipated role that renewables and/or new technologies will play

Renewables alongside new technologies will take the following role:

- Maximizing access to power;
- Facilitating energy efficiency and sustainability;
- Developing the transport network, through interconnections that allow national participation in the regional power pool;
- Attracting foreign direct investment and facilitating infrastructure development, which will result in job creation; and
- Contributing to Angola's economic recovery.

What are the key investment opportunities in the energy and natural resources sectors over the next to ten years?

The Angolan Government has created investment incentive models to be adopted in the renewable energy sector. Through the Atlas and National Strategy for New Renewable Energies plan, a framework to encourage investment in renewable energy was proposed that focuses on attracting private initiatives to the sector.

The plan states that by 2025, at least 7.5% of the electricity generated in the country will come from renewable energies. Therefore, the main investment opportunities in the energy and natural resources sectors in the next five to ten years are:

- Installation of solar panels in certain locations.
- Wind is considered the best bet, both for the replacement of fossil fuels and for the installation of large-scale farms.

It should be noted that solar energy has undergone major technological improvements in recent years, being today considered one of the cheapest sources of electricity in Angola.

- Focusing on the country's hydroelectric potential, as well as the development time of long-term projects (as they are vast in scale).
- Integrating natural gas with hydroelectricity, allowing for a safe and reliable energy supply even during dry periods, while retaining financial competitiveness. It is expected that the use of gas in the production of electricity in the provinces of Luanda, Benguela and Namibe, albeit on a small scale, will also make gas infrastructure and logistics viable for the country's industrialization.
- Financing renewable energy projects, sustainability and social awareness projects are also an opportunity to be considered.

With particular focus on sustainability, and on reducing carbon emissions, how will the energy and natural resources landscape change over the next five to ten years?

In 2020, Angola approved a Draft Resolution to join the Paris Agreement. The fact that this agreement respects the principle of common responsibility and that it aims to prevent the dangerous interference of humanity in the global climate system, limiting the average warming of the earth to two degrees Celsius by the end of the century has been making the

government address – even if unofficially – policies that foresee targets to reduce carbon emissions.

It is essential to plan and implement the energy transition in Angola according to an appropriate scale and time horizon. In this regard, oil revenues are expected to finance projects that increase the installed capacity of renewable energy in the short and medium term.

In addition, the global reduction in the consumption of fossil fuels in the medium and long term will result in a lowering of the price of crude oil in international markets, which could make the exploration and production of oil fields in Angola (which are mostly in deep waters) unfeasible, with high economic and environmental costs.

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