



Angola

Significant development in a highly promising market

s Aerial view on Luanda at sunset

Angola's economy has been growing fast over the last 12 years. Large investments have been made in the infrastructure of the country, for example in buildings, hospitals, and roads as well as water and electricity supply.

There is a huge demand for electricity due to growing urbanization, especially in the capital city of Luanda with approximately five to six million inhabitants. Angola has an electrification rate of about 30%, which will be increased to 60% by 2025. Through to 2017 the country plans to invest approximately US\$ 20 billion in the energy sector to construct new power stations, transmission and distribution networks and to rehabilitate existing infrastructure. By means of this program, Angola wants not only to improve the energy supply but also to become an electricity exporting country in the Southern African Development Community (SADAC).

Angola's electricity sector is currently organized in public companies within the Ministry of Energy and Water (MINEA).

The major companies are ENE (generation, transmission, partly distribution), GAMEK (Kwanza River authority, generation at HPP Capanda and HPP Cambambe) and EDEL (distribution in Luanda). However, Angola is planning to open up the energy market for private investors in the near future, especially with regard to smaller hydropower projects.

Hydropower projects

A special focus is on the energy production from hydropower, as there is an estimated potential of about 72,000 GWh/year in this country, corresponding to an installed capacity of about 18,000 MW. Angola has already defined potential hydropower projects, which will increase the production ca-

capacity from the existing 1,200 MW up to approximately 7,000 MW. Possible hydropower plant sites are found especially along the Kwanza River, Angola's largest one. Currently, there are two hydropower stations in the middle Kwanza section: HPP Cambambe (operating since 1963; 280 MW) and HPP Capanda (operating since 2004; 520 MW) which mainly supply energy to Luanda and regulate the water level of the Kwanza River.

The government of Angola has decided to build multiple hydropower plants on the Kwanza River in the near future. The first and most important one is the 2,100 MW HPP Laúca. Other hydropower plants are planned for construction along the middle Kwanza section, including HPP Caculo Cabaça (2,100 MW), HPP Nhangue (450 MW), HPP Zenzo I (450 MW), HPP Zenzo II (120 MW), HPP Túmulo do Caçador (450 MW) and HPP Luime (330 MW).



• Kwanza River and future power house access of HPP Laúca

Opportunities for energy generation can also be found on the Cunene River, in the south of the country near the Namibian border. Both countries will cooperate to build the binational Baynes hydropower plant (500 MW - 600 MW). Further, upstream HPP Jamba ia Oma (65 MW) and HPP Jamba ia Mina (180 MW) are also planned.

In addition, at Keve River studies for possible hydropower plant construction for HPP Capunda (330 MW), HPP Dala (440 MW) and HPP Cafula (520 MW) have been undertaken.

With regard to small hydropower projects, amongst others identified projects include: HPP Chiumbe-Dala (26 MW), HPP Chicapa II (42 MW), HPP Luachimo II (10 MW), HPP Lupasso (26 MW), HPP Matala (40 MW) and HPP Lomaum (65 MW).

HPP Laúca

In February 2014, ANDRITZ HYDRO received a contract to supply the electromechanical equipment for Laúca hydropower plant.

This hydropower plant on the Kwanza River will comprise two power houses for which ANDRITZ HYDRO will deliver six 340 MW Francis turbines as well as generators, an eco-flow unit, and additional equipment.

ANDRITZ HYDRO Germany will be responsible for the project management as well as the design and manufacturing of the turbines. The generators will be delivered by ANDRITZ HYDRO in Austria.

During a visit by German Chancellor Angela Merkel in 2011, the Angolan

President José Eduardo dos Santos invited German companies to participate in future hydropower plant projects.

With its manufacturing facility in Ravensburg, ANDRITZ HYDRO owns the largest production site for water turbines in Europe. For ANDRITZ HYDRO Ravensburg the contract for HPP Laúca is the second largest order in their 150-year history.

ANDRITZ HYDRO in Angola

ANDRITZ HYDRO has significantly increased its activities in Angola in recent years. Back in the early 1960s ANDRITZ HYDRO delivered turbines to Angola to, among other projects, HPP Cambambe, HPP Matala and recently HPP Ruacana on the Namibian border (Site report page 26).

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TECHNICAL DATA

Laúca:

Output: 6 x 340 MW
Head: 220 m
Speed: 200 rpm
Runner diameter: 4,100 mm

Middle Kwanza River area

