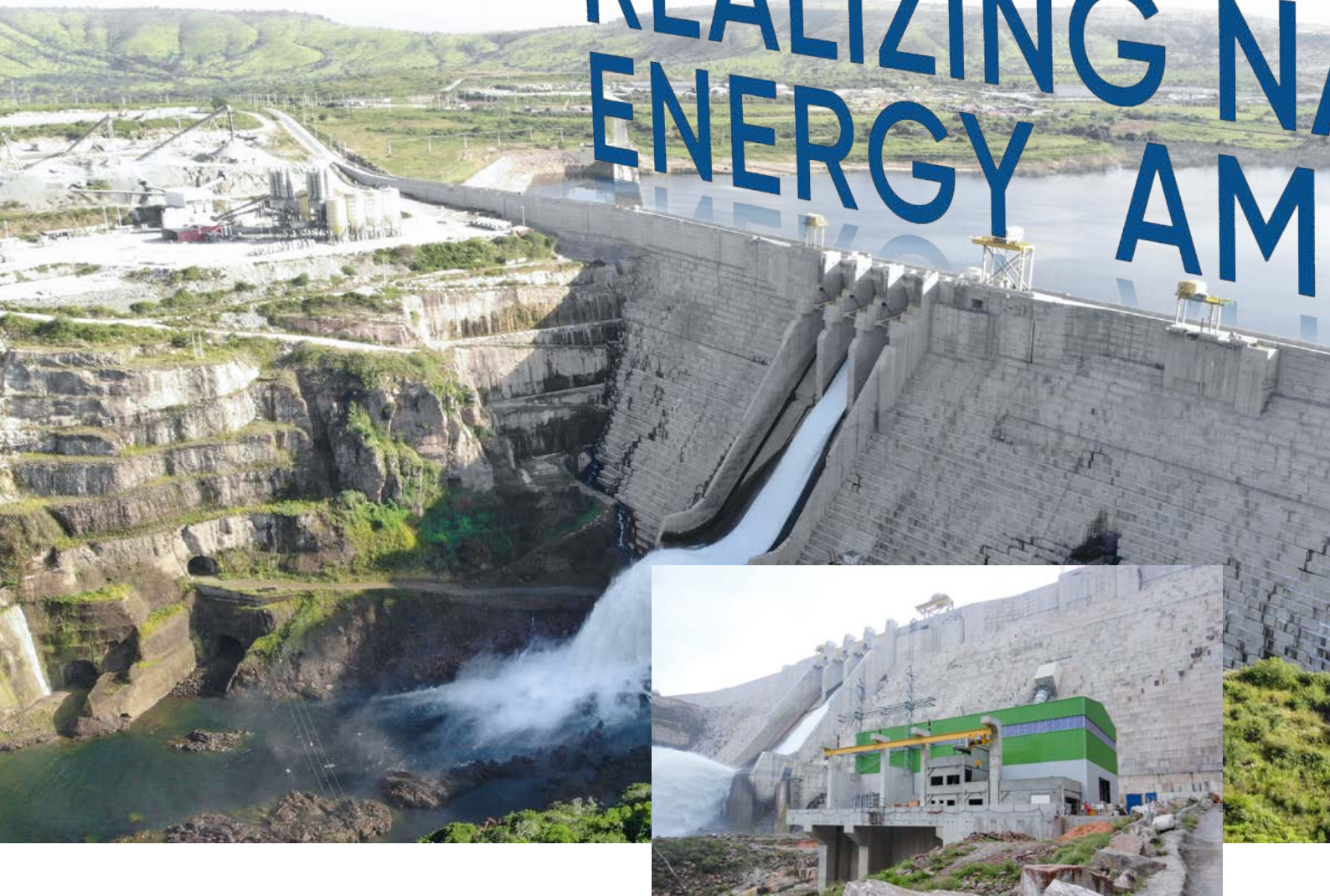


REALIZING NATIONAL ENERGY AMBITIONS



All units of Laúca are running smoothly to the satisfaction of the owner and operator, stabilizing the national grid and meeting dynamic changes in power demand.

Angola – With a capacity of more than 2 GW, Laúca is the largest hydroelectric power plant in Angola and the second biggest hydroelectric power facility in Africa. Located nearly 300 km away from the capital city Luanda and on the border between the provinces of Kuanze-Norte and Malanje, construction of the dam created a reservoir with an area of nearly 200 km² holding about 5.5 billion m³ of water.

The main powerhouse is over 270 m long and features six units designed, built and installed by ANDRITZ. Each has a rated power of 335 MW. A separate smaller powerhouse includes an ECO-flow unit which produces about 70 MW.

Nearly a decade in development, construction on the Laúca hydropower plant started in July 2013. At the beginning of 2014, ANDRITZ was contracted to provide the complete electro-mechanical scope of both powerhouses, transformers, and additional components for the switchyard.

Developed in the context of a rapidly growing economy – Angola at that time had one of the fastest

growing economies in the world – the development also had to support and respect the environment, the fauna and flora, social aspects and more.

The first turbine was commissioned in July 2017, with the sixth and final turbine beginning operations in December 2020. Now able to provide approximately 8,640 GWh per year, Laúca not only increased the available electrical power, it is also the backbone of modern grid regulation in Angola. The power capacity and the number of units permit the local operator to stabilize the grid across a large part of the country and to meet dynamic changes in power demand. Furthermore, the excess capacity available also allows the operator to effectively schedule equipment maintenance without impacting the network, permitting much more efficient administration of Angola's power system.

“Laúca is providing about 8,640 GWh per year, enough electrical energy to serve the demand of about 8 million households.”

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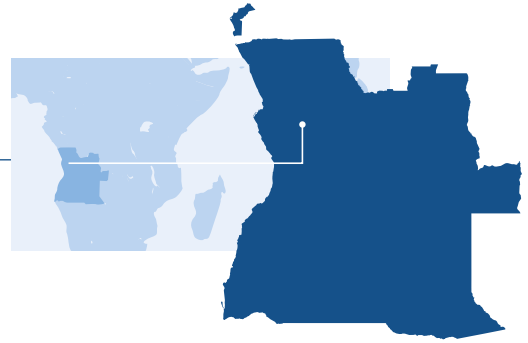


Laúca increases not only the available electrical power, it is also the backbone of modern grid regulation in Angola.

TECHNICAL DETAILS

Laúca:

- Total output: 2,070 MW
- Scope: 6 × 338 MW (Main) / 1 × 72 MW (Eco)
- Head: 200 m (Main) / 118 m (Eco)
- Voltage: 6 × 18 kV (Main) / 1 × 15 kV (Eco)
- Speed: 200 rpm (Main) / 233.77 rpm (Eco)
- Runner diameter: 4,790 mm (Main) / 3,220 mm (Eco)
- Av. annual energy production: 8,640 GWh



The main powerhouse is over 270 m long and features six units, each with a rated power of 335 MW.

To support the development of a local skilled workforce, ANDRITZ supplied a new technical training center that includes modern laboratories. The positive impact of such social aspects also allows the development of more infrastructure like schools and hospitals and presents a benefit for all the people that live in the region.

And by the way, ANDRITZ' Metris DiOMera system is able to support superior management of the power plant by offering remote monitoring and enhanced functionality capabilities such as predictive maintenance. Correctly performed, such an approach can allow maintenance intervals to be considerably extended. And, because of its remote capabilities, these outcomes can be achieved without the need to travel to the powerhouse, resulting in both environmental and economic gains.

In the specific case of Laúca, a software update and partial commissioning of supplied components

was urgently needed in the middle of the Covid 19 pandemic when restrictions on travel were in place. This task was completed from the ANDRITZ location in Germany, assuring the safety and reliability of the plant even when achieving physical access was extremely challenging.

Today, all units are running smoothly. The owner of Laúca – Gabinete de Aproveitamento do Médio Kwanza (GAMEK) – is very pleased with the performance. Angola is among the countries with the largest hydroelectric potential in Africa and aims to have two thirds of national generation capacity coming from hydropower by 2025 as part of its vision to achieve much greater energy access for its people.

ANDRITZ is very proud to play a role in reaching that goal with its work supporting the development of clean sustainable hydropower and plants such as the beautiful hydropower giant that is Laúca.

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