Infrastructure

BESIX gearing up to deliver the Nachtigal Hydropower Plant

In a remote stretch of Cameroonian rainforest along the Sanaga River, about 65 km from the capital Yaoundé, BESIX spearheads the civil works for the Nachtigal Hydropower Plant. The project, being constructed in collaboration with partners NGE Contracting (France) and SGTM (Morocco), is one of the most significant public-private partnerships in Africa. The driving force behind the development, Nachtigal Hydropower Company, comprises EDF, the International Finance Corporation, Stoa Infrastructure and Energy, Africa 50, and the Government of Cameroon, all of whom have provided funding for the project. The hydropower plant encompasses two roller compacted concrete dams of 1.3 km and 0.5 km, a 3.3-km-long and 14-metre-deep artificial canal, and a powerhouse with seven 60 MW turbines to generate power. The Nachtigal hydroelectric project will cover an impressive 30 % of Cameroon's energy needs, with a production capacity of 420 MW.

Project details

Nachtigal Hydropower Plant

Client
Nachtigal Hydro Power Company (NHPC)

Location
Nachtigal, Cameroon

Contract type
Design & Build

Construction period
2018 - 2025

An atypical project site

The project site being located in the rainforest presented unique environmental and logistical challenges. To house all site staff, a new and well-equipped village was built, which included an electricity distribution network, a water treatment plant, and sewerage installations. As the upstream to downstream site is seven kilometres long, a comprehensive network of roads was also created. Due to the site's remoteness, BESIX and its partners decided to lower dependency on external transport by installing a crusher plant which produces aggregates for concrete production and asphalt production for the waterproofing of the canal. The vast majority of the crusher plant's raw materials came from on-site mining activities. In addition to the crusher plant, the site team also installed three concrete batching plants, two asphalt plants, a cut and bend workshop, and a carpentry on site. In addition to saving both time and money, this independence proved extremely valuable during the COVID-19 pandemic.

2023, a pivotal year for BESIX on site

With over 80 % of the civil works finished by the end of 2022, 2023 was a pivotal year for the Nachtigal Hydropower Plant, filled with crucial milestones. At the end of May, water flowed for the first time along the 3.3-km-long and 14-metre-deep inlet canal as part of the first sealing tests. These successful tests were required to check the construction and coating for any leaks, and to confirm the function of the asphalt and concrete connection along the canal. In mid-July, a commemorative ceremony was held to officially mark the start of the impoundment of the reservoir in the presence of the Minister of Water and Energy, Gaston Eloundou Essomba, and representatives of local and traditional authorities, main actors of the energy sector, NHPC, and the consortium partners. The impoundment involved filling the dam for the first time to create the water reservoir that will supply the plant. With this step, the entire project reached 87 % completion. A few weeks later, the plant's labyrinth spillway, which has a capacity of over 6,000 m³/s, was successfully put into service for the first time. Its essential purpose is to safely evacuate excess water in the event of flooding. By the end of 2023, the inlet canal was ready to be filled again, this time permanently after the tests earlier in the year. The canal transports the water from the reservoir to the plant for energy production. Alongside these important milestones for BESIX, the other partners on site also completed vital steps, including finalising the installation of the seven penstocks, completing the main dam, and preparing the instream flow turbine plant for operation.

Final stages

As the project moves into its final stages, the site teams have begun to dismantle installations and return certain areas of the site to their natural state. To help the rainforest thrive once more, indigenous trees and plants are being re-planted. Finishing works include the last concrete works on the small powerhouse and turbines, and on an administrative building. The electromechanical works on the upstream side are also nearly finished. Once all finishing works have been completed, there is only one final step to go: finalising the testing and commissioning of the various components of the project. BESIX and its partners expect to deliver the project fully by early 2025.