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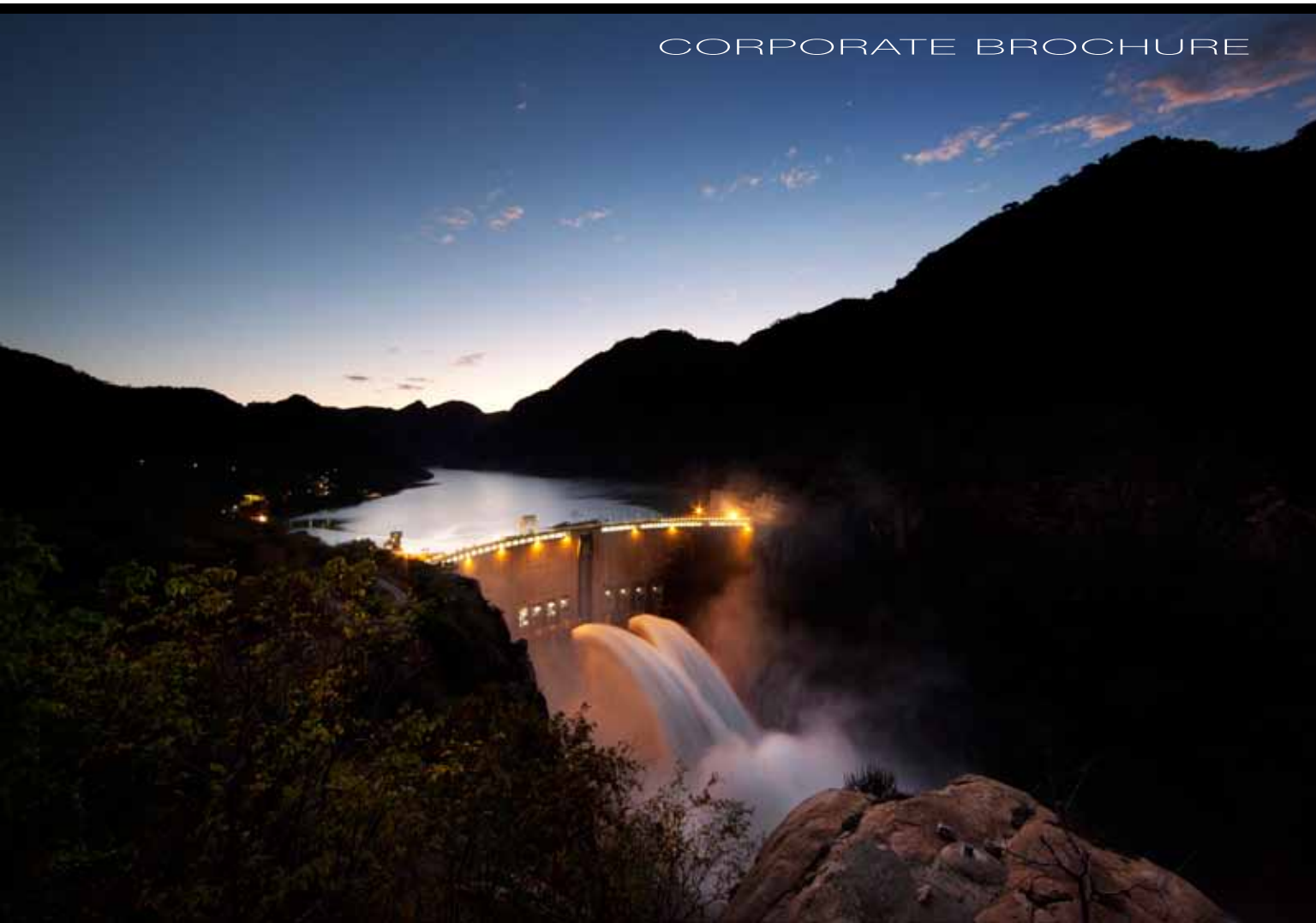
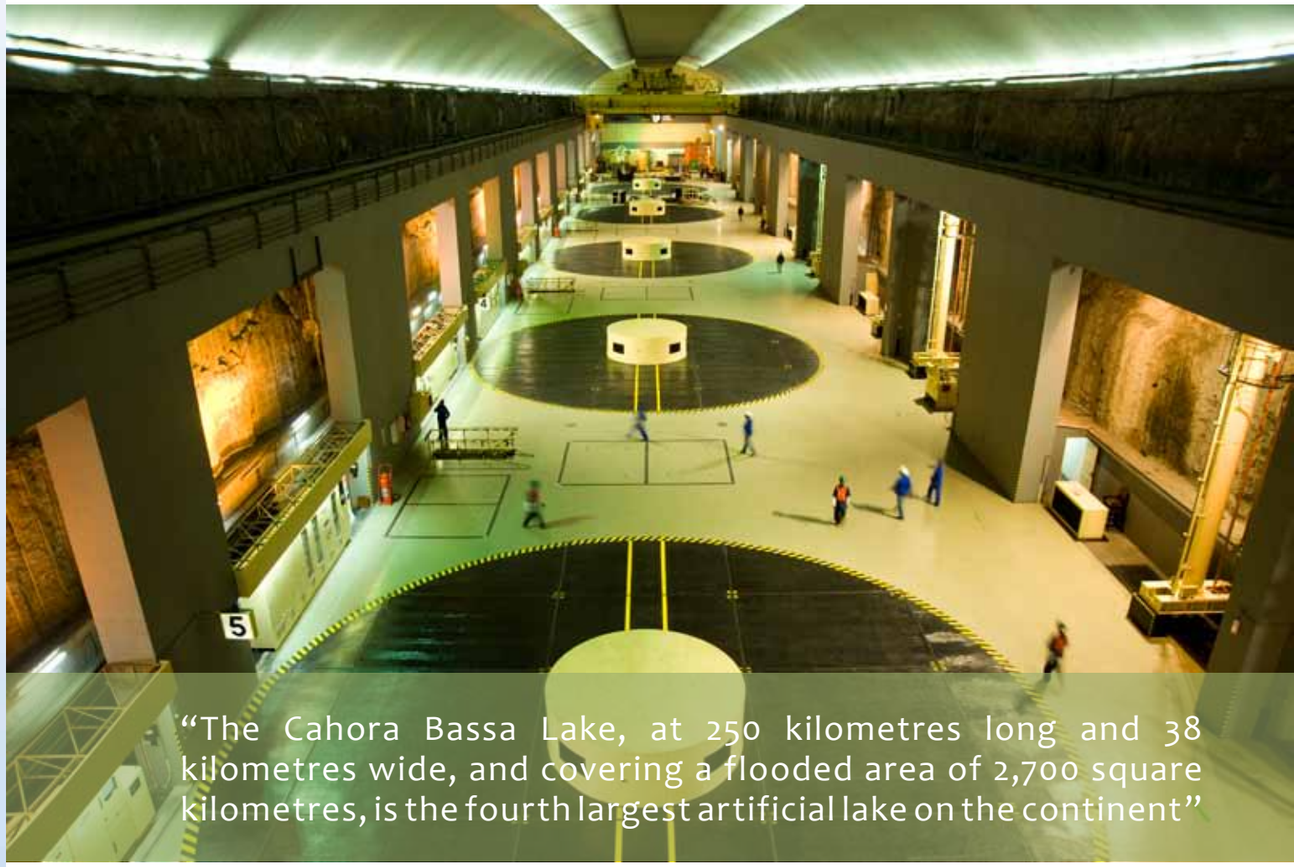


Energy for the future

As African economies develop, many nations have learnt the value of maintaining links to their former colonial pasts. In Mozambique, the Cahora Bassa Dam has delivered energy across Southern Africa for over 30 years. Andrew Pelis explores how Hidroeléctrica de Cahora Bassa has managed to maintain supplies through a turbulent 30 years, with a little help from Portugal

Across Africa the legacy of a colonial past can be seen in everyday life. While many aspects of former regimes undoubtedly led to hardship and misery for millions, one enduring feature has been the infrastructure left behind.

A prime example of this is the Cahora Bassa Dam in Mozambique, built during the Portuguese occupancy in the late 1960s and early 1970s. Despite its relatively short lifespan, this icon of colonialism has survived a civil war, sabotage attempts, financial disputes and international political unrest.



"The Cahora Bassa Lake, at 250 kilometres long and 38 kilometres wide, and covering a flooded area of 2,700 square kilometres, is the fourth largest artificial lake on the continent"

In November 2007, a sale agreement saw the Mozambique government take control of the company which built and subsequently maintained the dam, Hidroeléctrica de Cahora Bassa (HCB), from Portugal. Mozambique paid $700 million for a 67 per cent shareholding in HCB, which later increased to 85 per cent, while Portugal retained a 15 per cent stake. The deal brought closure to a decades-old dispute between the two countries over the rights to the company.

The dam itself represents the largest hydroelectric power scheme in southern Africa and the Cahora Bassa Lake, at 250 kilometres long and 38 kilometres wide, and covering a flooded area of 2,700 square kilometres, is the fourth largest artificial lake on the continent.

The project to build the Cahora Bassa system began in 1969 and took 10 years to complete, with HCB focusing on generating, transmitting and selling clean electricity. The Mozambican Civil War raged for 15 years from 1977, and during this period the dam's transmission lines were regularly sabotaged to the extent that 1,895 towers needed to be replaced and 2,311 refurbished over a distance of 893 kilometres on the Mozambican side of the line.

The dam's original construction plan had involved South Africa in an agreement that decreed Portugal would build and operate a hydroelectric generating station at Cahora Bassa as well as a high-voltage direct current (HVDC) transmission system delivering electricity to the border of South Africa. As the civil war came to an end, HCB selected South African organisation Trans-Africa Projects (TAP) to carry out construction management,

quality assurance and design support service for the rehabilitation of the project. Restoration work began in August 1995 but was hampered by the combination of difficult terrain and areas populated with live land mines, while heavy rainfalls also impacted the programme to restore power lines.

Today, the dam system that HCB operates on the Zambezi river system contains five 415 megawatt turbines, with most of the electricity generated at Cahora Bassa being sold to the South African power companies.

Last March, the Portuguese prime minister José Sócrates announced that Portugal intended to sell its remaining shares in HCB. His speech was made during a visit to the dam town of Songo, where he stated: “We are thinking of selling our share in HCB, in a partnership between Mozambican and Portuguese companies.”

Sócrates explained that the move, far from severing links with HCB, would help to develop operations through corporate links that would transfer technology to Africa. “It is important that Portuguese companies remain associated with HCB, because we shall develop HCB together with the Mozambicans.”

The decision came at a time when HCB had reached record levels of hydroelectric production. In 2009 the company produced 16,574 gigawatt hours, an increase of over 12 per cent on the previous year and a level that raised 8.3 billion meticais in revenue. The improved output was very much the result of having access to more generator sets and better transmission and conversion systems—a legacy of the refurbishment work carried out at the power production station in the previous three years. HCB has also benefited from South Africa’s focus on infrastructure development which included refurbishments at its Apollo power station, to where almost 80 per cent of the Cahora Bassa power is delivered.

Commercially, the company is well positioned to help resolve southern Africa’s energy shortage crisis. Mozambique has the second largest capacity to produce clean energy in the region, making companies like HCB potentially attractive investment partners for Portuguese businesses,

Efacec

Efacec is the biggest industrial Portuguese group specialized in areas such as energy, transport, engineering, environment, services and renewable energy. With over 4,800 employees and €1 billion in turnover, the company is present in over 65 countries in all five continents. Efacec's experience allows it to provide services with high-quality standards and its team of experts offers vertical service integration to a vast customer base.

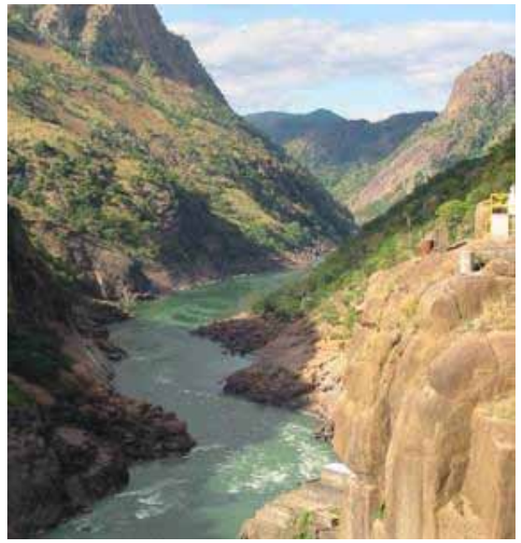
Efacec has had close cooperation with Hydroelectric Cahora Bassa since this company requested Efacec to repair two damaged large power transformers, which were preventing HCB from exploiting its maximum power supply capacity. The effectiveness of both the diagnosis and proposed solution allowed HCB to promptly put these indispensable machines back into service. Efacec continues to have several maintenance, refurbishment and repair contracts for over 50 power transformers located in the facilities of HCB, in Songo-Mozambique.

although there is room for increased production.

One area that HCB is looking for partnership in is the funding of a new project to build a North Bank Power Station. At present the maximum production capacity at Cahora Bassa, through South Bank Power House, is approximately 17,000 gigawatt hours, but the addition of another station would increase revenues for shareholders and importantly help to alleviate some of the power shortage.

Commenting on the idea, Paulo Muxanga, chairperson of the board of directors at HCB said: "The North Station project constitutes the only way for us to increase the power production capacity within our firm. The indicative figures that exist at this time show that close to 800 million dollars are needed for execution of this project, such that it is natural that we speak about it in Portugal, to the end of interesting potential partners—banks and other Portuguese firms working in the energy sector. In fact this is one of our objectives, to make known what the North Station is and in what stage we find ourselves, in order for us to see how to undertake this project."

Initial work on the project has already begun, with two technical studies assessing the hydrological and geotechnical impact of building



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the North Station, which would add approximately 1,200 megawatts of capacity for HCB.

In the meantime, Muxanga said the company is working on other areas of infrastructure improvement: "Another project is the refurbishment of the dam spillways, (for which we have funding in place) which will continue up till 2013/14. We also have a sub-station project, which is budgeted at 100 million euros and which aims to improve the reliability, availability and maintainability of the sub-station which is responsible for conversion of the generated power and thereafter transmits it in HVDC (high voltage direct current).

"It is also necessary to determine the state of the lines. We have around 1,400 kilometres of line—from Songo down to Apollo Inverter Station in South Africa. The state of the lines isn't the best, because they were vandalised during the civil war in the country over their 800 kilometre length, per line (the transmission system up to South Africa is made up from two lines)."

The final word on HCB goes to Portugese prime minister Sócrates and reaffirms those colonial links. Having set aside $124 million from the purchase price of the company to establish an investment support fund, Portugal will now use the money to develop alternative, renewable energy sources. "With money from the past, we are going to build the future," Sócrates commented. www.hcb.co.mz/eng/

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