

Bumbuna set for expansion despite confusion over rival plans

African Minerals' need to power its iron ore project seems difficult to reconcile with the government's aims to bring electricity to domestic users, writes **Adrian J Browne**

Lahmeyer International has completed a prefeasibility study for the phase II expansion of Sierra Leone's Bumbuna hydro project for Joule Africa, which signed a memorandum of understanding (MoU) on the project with the government in May. "They will be moving on to the feasibility study straight away," Joule Africa managing partner **Andrew Cavaghan** told *African Energy*.

The full feasibility study is estimated to take 18–24 months, and the construction phase three years. Cavaghan said a new upstream reservoir was planned to regulate the dam to avoid output fluctuations during the dry and rainy seasons. "Altogether we will have a capacity of 380MW," he said.

The MoU was signed on 20 May, then on 24 May, *African Minerals Ltd (AML)*, which is developing the Tonkolili iron ore project, said it had signed an MoU with *China Communications Construction Company Limited (CCCC)* for an engineering study of the infrastructure for phases II and III, to include power from Bumbuna. This followed an agreement by China's *Shandong Iron and Steel Group* to invest \$1.5bn in AML for a 25% stake.

"CCCC, AML and the government of Sierra Leone also intend to establish a joint venture to design an expansion to the Bumbuna hydroelectric power generation facilities to satisfy the power needs of phases II and III of the Tonkolili project," the statement said.

It said that following the completion of the engineering study, and subject to the award of an engineering, procurement, construction and maintenance contract "CCCC will use its best efforts to facilitate debt funding to part finance the design and construction of phase II, phase III and, separately, for the related hydroelectric power infrastructure".

This seems to suggest that AML's plans for the Bumbuna expansion are rather less advanced than those of Joule Africa. AML had originally planned to power Tonkolili with diesel generators in phase I, switching to heavy fuel oil in phase II, but the Chinese involvement would have made investment in costly infrastructure much easier. The Bumbuna dam lies on the Seli River in the Kalansogoia chiefdom of the Tonkolili District, which is 200km north-east of Freetown but only 20km from AML's mine site.

AML's executive chairman is **Frank Timis**, an influential player in the West African natural resources sector, whose *African Petroleum* has Block SL-03 offshore.

Joule Africa wishes to clear up the confusion. "Everyone is desperate for Sierra Leone to increase its power capacity, so it does not come as a surprise that African Minerals had been in conversation with CCCC. African Minerals' press release, which came only a few days after ours, was probably just an oversight. I am sure the company will be pleased that it does not have to spend its own money on this project. And Sierra Leone will be happy as now the project will not be tied to one consumer," Cavaghan told *African Energy*. Joule Africa, which is part of California-based *Joule Investments*, has committed to completing the project within six years.

AML told *African Energy* that whoever builds the expansion, the company is keen to be the baseload off-taker of power from Bumbuna. A technical report commissioned by AML from *SRK Consulting* in June 2010 says: "African Minerals is currently assessing a number of options for energy supply. The base case for the definitive feasibility study is the purchase of power from an independent power producer and expressions of interest have been requested from interested parties."

Pressure on supply

Bumbuna was begun in the 1970s as an Italian aid project but was suspended because of war, corruption and a lack of cash. Built by Italy's *Salini Costruttori*, the 50MW first phase was finally completed in 2009. Post-conflict development, notably in the mining sector, has put pressure on the country's limited power supply and the government immediately started looking for investors for Bumbuna II, which involves expansion of the original site and development of a new site upstream at Yiben.

Sierra Leone's entire installed capacity is around 75MW, and the energy ministry estimates national demand at 350MW, including 150MW from Freetown alone. The capital has regular power cuts, and transmission and distribution infrastructure is badly in need of investment.

At a Sierra Leone investment forum in November 2009, energy minister **Ogunlade Davidson** claimed that Bumbuna II would "comfortably meet growing national demand for a long time", but this claim did not appear to take into account the needs of the mining sector.

AML has known all along that development of Tonkolili would require significant investment in power infrastructure: a company executive told *African Energy* in 2009 that the project could need up to 450MW.

Cavaghan said it was still to be decided how the power would

be used. "This is a partnership – the government's investment in the project will be Bumbuna I – so there will be a joint decision about where this power will be used, but included in this will be industrial uses such as mining. These industries are the bedrock of development because they generate employment for huge numbers of people in Sierra Leone."

Alongside the Bumbuna study, Lahmeyer is preparing a new power sector master plan which "will provide the government with a comprehensive and professional overall view of the development potential of the power sector in Sierra Leone for the next 25 years".

In its 1996 sector master plan, Lahmeyer put national hydro potential at around 1,200MW, from Bumbuna and the Bekongor hydro electric project in Kono district, which has an estimated 200MW potential, as well as a number of smaller projects. Bekongor was among the projects discussed by a Sierra Leonean delegation that visited Beijing in July on a mission from the *Economic Community of West African States*.

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