HYDROPOWER UPDATE



The Lesotho Highlands Water Project (LHWP) is a multi-billion Maloti/Rand bi-national project between the Governments of the Kingdom of Lesotho and the Republic of South Africa, which was established by the Treaty of 1986 and the 2011 Agreement signed between the governments of the Kingdom of Lesotho and the Republic of South Africa. The Project harnesses the water resources of the Lesotho highlands through the construction of a series of dams and tunnels for the mutual benefit of Lesotho and South Africa, supplying water to the Gauteng region of South Africa and hydropower to Lesotho.

The first phase (Phase I) of the multi-phased project was completed in 2004 and the second phase (Phase II) is currently underway.

Article 8 of the Phase II Agreement determined that the hydropower generation component of Phase II would comprise a pumped storage scheme utilising the existing Katse Reservoir as the lower reservoir and a new upper reservoir in the Kobong valley, or any other scheme to generate hydropower. This determination was made following the initial hydropower feasibility studies which were conducted in 2008 and 2011.

The Agreement further stipulated that the implementation of the Kobong pumped storage scheme was subject to the outcome of further detailed feasibility studies. These further studies would include:

- A market survey
- A transmission line integration study
- Geotechnical investigations
- A study of legal and commercial arrangements

At the same time, these studies were to explore alternative viable hydropower generation schemes that will increase the electricity generation capacity in Lesotho to meet the country's electricity requirements.

Further Feasibility Studies

Following an open tender process, in late 2016 the LHDA appointed a Joint Venture comprising EDF (France), GIBB (RSA) and Multiconsult (UK) to undertake the further feasibility studies on hydropower prospects in Lesotho. Following completion of these feasibility studies, the pumped storage scheme option was deferred due to the prevailing unfavourable economic conditions, and conventional hydropower was recommended as a more feasible option to meet Lesotho's energy needs. Three potential sites were identified: two on the Senqu River and the third site on the Malibamats'o River at Oxbow in the northern district of Botha-Bothe.

Oxbow Hydropower Scheme

In November 2021, the government of Lesotho confirmed the Oxbow Hydropower Scheme and gave the go-ahead for the hydropower engineering, Environmental and Social Impact Assessment (ESIA) and the Resettlement Action Planning (RAP) studies.Procurement for these components is underway.

Sited on the 'Malibamats'o River, the Oxbow scheme includes a gravity dam, tunnels, high pressure steel pipeline, 80MW power station, 132kV transmission line linking it to the 'Muela substation and a tailrace channel to convey the generation discharge through a transfer tunnel to the 'Muela reservoir to ensure that the dammed water is put back into the LHWP for onward transfer to South Africa. Although physically separate from the 'Muela hydropower plant, the two schemes are complementary. Working as a peak plant for approximately seven hours per day, Oxbow's 80MW capacity will add to 'Muela's installed capacity of 72MW."

The Oxbow Hydropower Scheme increases security of power for Lesotho and will reduce the country's dependence on electricity imports.

