

Glendoe Hydroelectric Scheme, Optimisation and Dam Selection

MIKE SEATON, Scottish & Southern Energy, Perth, UK

JOHN SAWYER, Jacobs, Reading, UK

SYNOPSIS. The Glendoe Hydroelectric Scheme will be the first major conventional hydro scheme to be built in the UK for over 40 years. The scheme will include a 1km long, 35m high rockfill dam, over 18km of hard rock tunnelling, and an underground powerhouse with an installed capacity of 100MW and an operating head of over 600m.

The project was tendered on a design-build basis in order to proceed to contract award in parallel with the planning process. This led to a phased development of the design through a two stage tender process leading onto the detailed design.

The dam is located in the Monadhliath mountains at an elevation of 600m. The natural materials available are the bedrock and glacial fill, which is overlain by peat. A range of dam types were considered through the design process, with the final design developed by the successful construction tenderer. As with any dam a number of alternatives are viable and the final design reflects a judgement on the most efficient construction in the particular site, with due regard to the particular skills of the contractor.

This paper gives a brief overview of the background to the project, the approach to procurement, the scheme optimisation and the choice of dam type.