

**Scottish and Southern Energy
Sloy Reservoir and Power Station
Friday 25 June 2010**

The North of Scotland Hydro-Electric Board was established by an Act of Parliament in 1943. In the first 20 years the Board constructed 54 power stations with a total capacity of over 1,000MW, the water for each being retained in reservoirs by up to 90 dams of varying types and sizes.

One of the first schemes to be constructed by the Board was the Sloy scheme, located on the west shore of Loch Lomond, and less than 40 miles from the centre of Glasgow. Construction started in June 1945 and was completed when the power station came into operation in 1950.

Loch Sloy reservoir has a direct catchment area of 17km², and an extensive network of intakes, pipes and tunnels contributes a further 63km² of indirect catchment to the reservoir. The standard average rainfall of the reservoir catchment is over 3000mm, more than twice the average annual rainfall in Glasgow, and at least five times the average annual rainfall of some areas in the south-east of England.

The dam was the first of 9 buttress dams to be constructed for the North of Scotland Hydro-Electric Board, this being the first of 4 which were designed by James Williamson and Partners. The dam is almost 49m high and 360m long, with 13 No. 8m thick buttresses along its length at 20m centres. At top water level the reservoir has a storage volume of 36Mm³ and a surface area of 1.33km².



Sloy Dam

The reservoir feeds Sloy power station via a 3km long tunnel which emerges from the hillside approximately 197m above the power station. The water is conveyed to the power station via four 2m diameter high pressure steel pipelines.

Power is generated from four turbines with a maximum static head of 277m. The station originally had four vertical Francis turbines each rated at 32MW giving a total output of 128MW. During a refurbishment programme in the 1990s the opportunity was taken to increase the capacity of three of the turbines (Nos 1, 2 and 3) to 40MW each, resulting in a total output of 152MW. The station is currently the largest conventional hydro-electric power station in the United Kingdom.



Sloy Power Station

SSE proposes to install a pump storage facility at the power station which will increase the load factor at the station from 10% to 20%. Two 30MW pumps will be installed in a new building and connected to two of the existing high pressure pipelines (Nos 3 and 4) to provide a link from Loch Lomond back to the reservoir. As well as increasing the load factor the scheme will enable SSE to store excess energy in Loch Sloy during periods of oversupply and reduce the likelihood of renewable energy from other less flexible sources (wind farms, marine energy and run of river hydro) being constrained from the National Grid at times of low demand. SSE hope to obtain Section 36 Consent from the Scottish Government by summer 2010, with construction work programmed to start in spring/summer 2011.