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Heritage

Galloway Hydros, Scotland

Overview

Scotland's Galloway Hydro Scheme was designed and built during the 1930s. It is a complex development with eight dams and five (later six) power stations interlinked by a network of pipes, tunnels and aqueducts. The scheme represents the state-of-the-art of hydropower design for its time and remains an engineering showpiece. A number of issues were raised at the design phase of the development. These included cultural heritage, impacts on industries using the same water resource, fish passage (particularly salmon) and the preservation of the fishing industry based thereon.

Scheme Specifications

Dam Name

Scheme operator
Scottish Power PLC

Size of scheme (MW)
106.5 MW (total across six separate power stations)

Country
Scotland, UK

Catchment area
394 km² for Loch Doon 1025 km² for entire Galloway Scheme

River
Doon, Dee and Ken

Effective reservoir capacity
82.1x10⁶ m³ for Loch Doon

Construction years
1930-36, with a sixth power station commissioned in 1985

Reservoir size
911 hectares

Details on sustainability aspect

Loch Doon existed as a loch prior to the construction of Loch Doon Dam. One notable feature of the loch was a small island with the ruin of a 13th century castle on it. The castle was scheduled under the Ancient Monuments Act as being a site of

archaeological and cultural heritage, owing to its unusual architecture and its link to Scotland's medieval history. As the raising of Loch Doon by eight metres would have inundated the castle, the developers allocated funds to relocate the castle. In conjunction with the Ministry of Public Buildings and Works, the castle was moved stone-by-stone to a site on the shore of the loch, above the new full supply level and within sight of its original island site. All the architectural carved stonework was transplanted, while the wall core of the curtain wall and below-ground archaeology associated with the castle was left *in situ* on the island.

The relocating of Loch Doon Castle is significant in the management of archaeological sites in that it is an early example of large-scale conservation and reconstruction works, which was rare for early 20th century developments, and it has resulted in the ongoing protection of the ruin. The castle site came under state care in 1936, a year after the Galloway Scheme became fully operational.

Today, the Galloway Hydro Scheme's owners, Scottish Power plc pride themselves on their management and preservation of the cultural heritage associated with the development.

Other Aspects

[Fish Passage](#)

Loch Doon has a fish ladder built at the dam wall, installed specifically to protect the salmon population in the Doon River. The ladder is an unusual enclosed spiral design, rather than the more common open pooled channel type. It was constructed as part of the dam rather than a later retro-fit. As well as preserving the migratory fish, this ladder and others on the dams of the Galloway Scheme has preserved the local commercial and recreational fishing industry.

[Longevity of benefits](#)

With a continual production of hydropower dating back to 1936, the Galloway Hydros have been in operation for almost 70 years with the original generator units.

[Energy Efficiency of Operations](#)

The 2 MW Drumjohn Power Station, located on the outlet tunnel of Loch Doon was commissioned in the mid-1980s. It was designed to capture water energy that was being lost between Loch Doon and the 24 MW Kendoon Power Station.

Further Information

http://www.scottishpower.plc.uk/pages/aboutus_companyprofile

<http://www.historic-scotland.gov.uk/>

<http://www.rcahms.gov.uk>

Hill, George; *Tunnel and Dam, the story of the Galloway Hydros*. J. Thomson Colour Printers Ltd. 1991