

CASE STUDY

PATTACK, Ardverikie Estate, Loch Laggan, Scotland



KEY STATISTICS (Turbine 1)

Turbine type: Francis
Mechanical Power: 2053kW
Electrical Power: 1995kW
Net Head: 142
Flow: 2390
Runner Dia: 625
Speed: 1000

KEY STATISTICS (Turbine 2)

Turbine type: Francis
Mechanical Power: 3068kW
Electrical Power: 2995kW
Net Head: 152
Flow: 1525
Runner Dia: 525
Speed: 1000

SCOPE OF SUPPLY

Full Water to wire package including:
2 x Gilkes Francis Turbines
2 x 1000rpm Synchronous Generators
2 x Main inlet valves (Hydraulic weight to close butterfly valve)
Control Panels
Hydraulic Control Modules
Installation
Commissioning

The Pattack hydro project is the largest storage project to be built in the Scottish highlands in recent years, and is the third scheme that Gilkes have been supplied equipment to on the Ardverikie estate. Previous schemes were in 1935 and 1986.

The project has a new mass concrete dam utilising 3,300 cubic meters of concrete. It has created a new small lochan by impounding 196,000 cubic meters of stored water, which is delivered to the turbine via a 6,500 meter penstock pipe.

Due to the storage element of this scheme Francis turbines were selected as the most suitable, achieving a peak efficiency of over 92%. The Gilkes designed control system employs sophisticated programming and algorithms, fine-tuned on site by Gilkes commissioning team, to maximise the storage potential of the site.

The small footprint of the Francis turbines, and by close co-operation with the civils designers, enabled the powerhouse size to be minimised and also partially buried. This minimises any visual impact in this beautiful area.

The Ardverikie estate, on the shores of Loch Laggan, is a popular film location and has made appearances in several films and TV series.