



Earth's physical resources: renewable energy.

Hydroelectricity

Narrator

Water power is one of the oldest forms of renewable energy. In many countries, it's a major source of electrical power.

In the UK, large-scale hydropower meets about 2% of electricity requirements. Built in the 1940s Loch Sloy is the biggest hydroelectric scheme in Britain.

A system of tunnels and aqueducts diverts water from the surrounding area into the Loch, 285 metres above sea level.

From the dam, a tunnel carries up to a million gallons of water a minute to pipelines high above the shores of Loch Lomond.

Kinetic energy from the falling water powers four turbines, with a maximum output of 130 megawatts.

The turbines and the valves which open and shut off the flow of water are controlled from Cluny, 50 miles away.

Typically the turbines are started up several times a day.

Sloy can reach maximum output from a standing start in five minutes or less, so it can respond quickly to peaks in demand.

Like most renewables, hydroelectric schemes are capital intensive but cheap to run. For Sloy, the capital cost was incurred in the late 1940s when interest rates were low and payback periods were longer.

Loch Sloy paid for itself many years ago, and now produces very cheap electricity.

In the UK, small-scale hydro schemes currently generate about a hundred megawatts in total.

Medium term subsidies have stimulated many new small scale projects.