



Kirkthorpe Hydropower

Commissioning date: November 2016
Location: River Calder, near Wakefield
Turbine: Single Kaplan Turbine
Maximum Output: 500kW
Annual Generation: 2.4 million kWh
Catchment Area: 880 km²
Max turbine flow: 20 cubic metres/sec
Maximum head: 3.79m

THE LARGEST WEIR IN YORKSHIRE

A new low head hydro project is nearing completion on the River Calder at Kirkthorpe, four miles east of Wakefield in West Yorkshire. Work on the project started last Winter, after Wakefield Council granted permission to Yorkshire Hydropower Ltd, a subsidiary of Barn Energy, to build and operate the scheme. When open later this year (2016), it will generate enough electricity to power 800 homes and will be Yorkshire's largest-ever low head hydro-electric project.



The £5.3m hydropower scheme will use the flow of the River Calder to power a single 500kW axial turbine that will generate around 2.3million units of carbon-free electricity per year, equivalent to the consumption of 800 households. It will run 24/7, 10-11 months of the year, for at least the next 100 years. Salmon, eels and other migratory fish will be able to pass the

hydro scheme's weir safely, protected by our 33-tonne custom-designed inlet screen.

The Kirkthorpe project is Barn Energy's second project in Yorkshire. Its first, which is situated on the River Don at Thrybergh near Rotherham, entered service in October of last year (2015) and is generating electricity at full capacity. In addition, Thrybergh's fish passage has resulted in Atlantic salmon being seen upstream at Aldwarke Weir on the eastern edge of Rotherham for the first time in 150 years.

Yorkshire is leading the way with low-head hydro power in this country, and helping to drive a new wave of investment into the country's infrastructure. Thrybergh and now Kirkthorpe, and the other river hydro schemes that we hope will follow, offer baseload electricity and deliver clean energy highly efficiently into the local grid. They are very long-term sources of clean electricity. With the right tariff structure and finance in place, we can build more and larger hydro projects across the North of England, making it a true Northern Powerhouse.



More than 100 people have worked on the Kirkthorpe project, many of whom working for companies based in Yorkshire and the north of England. Yorkshire's ANF Consulting and JNP Group designed the project whilst the Eric Wright Group is the main civil engineering contractor (all were also responsible for the timely delivery of the Thrybergh scheme). Over 85% of the cost of the Kirkthorpe project is capital expenditure spent in the region's economy



CONSTRUCTION PROCESS



Photos from left to right: These photos show the stages of construction over the last year.

KIRKTHORPE FISH & EEL PASS

Kirkthorpe Weir continues to have an adverse impact on biodiversity and the natural heritage of the waterway and the wider catchment as follows:

- i. Impeding the migration of salmon and sea-trout (fish from both these Biodiversity Action Plan (BAP) species from other rivers now annually migrate up the river to the weir) towards their spawning gravels and therefore stopping recolonisation of the river.
- ii. Impeding access for sea and river lamprey (BAP species) that migrate up the River Ouse to spawning gravels in the River Calder
- iii. Impeding eel migration (BAP species) preventing them reaching important nursery habitat.
- iv. Preventing coarse fish (e.g. barbel, dace, chub) from reaching spawning gravels.

We are building massive new fish and eel passes to help secure sustainable fish populations in the river Calder.

This will also assist in securing the future of fish eating predators such as otters (UK BAP), heron and kingfishers (RSPB Amber List) which depend on sustainable fish stocks in the river.

FAST FACTS

4,300,000 

4.3 million cups of tea could be boiled from the electricity we generate every week. That's one for everyone in Yorkshire!

8,300 

8,333 60W lightbulbs could be lit instantaneously by our turbine.



This photo shows out working "Larinier" fish pass at Thrybergh. We are currently constructing something twice the size, 3.8 metres wide, at Kirkthorpe.

FOR MORE INFORMATION

Please go to our website at:

www.barnenergy.co.uk

Or contact us on:

0330 330 9625

