

Torrs Hydro

Case Study

The Torrs Hydro in Derbyshire is the UK's first community funded hydro scheme. The energy project is located where the River Goyt and the River Sett join in New Mills, High Peak, and the electricity produced by the weir is used to power a nearby supermarket.

The Torrs Hydro project was initially discussed by New Mills Town Council and a social enterprise, but was taken over by the local community, with the Friends of Earth UK group coordinator for the area, Richard Body, taking the lead.

The project was set up as an Industrial and Provident Society (now known as a Community Benefit Society), and cost approximately £330,000 in total, with a third of the amount coming from over 200 people and businesses taking shares in the scheme.

Torrs Hydro has been named Archie, due to its Reverse Archimedes screw turbine.

The screw turbine generates electricity which is fed into the local Co-op's grid.

The power output can vary, with the scheme generating anywhere between 5kW on dry days, to up to 50kW in wetter periods – which is enough to power the entire Co-op and export the excess to the National Grid. In 2024, it generated 191,000 kilowatt hours.

A new variable speed control system was installed in 2020 to help improve the scheme's efficiency and power output across a wider range of water levels



Challenge

In 2021, Torrs Hydro experienced an issue with an SEW-EURODRIVE industrial gearbox on their Archimedes screw turbine, which was causing an audible noise. They reached out to SEW-EURODRIVE UK, to ask for their recommendations to solve the issue.

SEW-EURODRIVE assessed the problem, and advised that the gearbox needed to be turned off, as it was running the risk of seizing entirely, which would cause a catastrophic failure if left untreated. SEW-EURODRIVE needed to work to find a quick solution, so that Torrs Hydro could get back up and running with as little downtime as possible.



• Power per day
5kW - 50kW



• Power per year
191,000kW hours in 2024



• Repair completion
2 weeks

SEW-EURODRIVE solution

1. Repair

As part of its assessment, SEW-EURODRIVE recommended repairing the existing gearbox rather than replacing it. As the gearbox was custom-built for the unique hydro project, a repair was a quicker and more cost-effective solution for Torrs Hydro. It also matched their ethos of reduce, reuse, recycle.

The repair process involved the careful removal of the gearbox from the site, which presented logistical challenges, as the building roof had to be taken off, and it was also in close proximity to a historic bridge with narrow access. Other challenges included the lead time on the parts needed for the repair, which needed to be sourced from abroad.

Thanks to detailed planning, the actual process of taking out the gearbox, refurbishing it, and putting it back into the hydro took just two weeks.

2. Lifecycle service

As part of a regular lifecycle service, which involves the process of managing the operation of the gearbox, SEW-EURODRIVE carry out at least one annual oil sample check, to determine the status of Archie's internals. An engineer within the Torrs Hydro team takes the sample, and sends it to SEW to assess.

The sample uses a traffic light system to give an indication of how the hydro is performing, with red and amber indicating that the gearbox needs to be repaired, and green indicating that performance is good.

The gearbox will eventually need to be repaired again in the future, but the regular oil sample checks will give plenty of warning to the Torrs Hydro team, to ensure the hydro doesn't undergo a lengthy period of downtime.



Business Impact

As Torrs Hydro helps to power the local supermarket, the scheme is vital to the surrounding community, meaning the repairs needed to be undertaken as soon as possible. SEW-EURODRIVE UK's quick turnaround ensured that the hydro project could get back up and running again within just two weeks of the gearbox being removed, helping the Torrs Hydro team to continue their brilliant work.

SEW-EURODRIVE UK and Torrs Hydro have maintained an excellent relationship since the gear box refurbishment, with regular oil checks meaning any problems can be identified before they escalate. One of SEW's engineers has even visited the project in his own time, out of personal interest in the incredible scheme.

"Torrs Hydro is such an important project for both the local community and the environment. When the gearbox needed to be switched off, we knew we needed the turnaround for repair to be as fast as possible.

"SEW-EURODRIVE went above and beyond to get things sorted quickly for us, and get the scheme, which we've all put so much time into, back up and running. Their own genuine interest in the project is so great to see, and we're really pleased to keep regular contact with them about how the hydro is doing.

Richard Body MBE, Friends of Earth UK group coordinator and founding director of Torrs Hydro

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