



Willowburn Leisure Centre

Decarbonisation of a leisure centre to provide energy efficient heating and domestic hot water to a leisure facility in the north east of England.



900kW via
3 No GSHPs

54No Boreholes

1 Containerised plant
room manufactured
off-site.

Skid mounted
instantaneous
DHW system.

The Project:

Active Northumberland and Willowburn Leisure are working towards Northumberland County Council's (NCC) strategy to achieve net zero carbon emissions by 2030. As part of the public sector decarbonisation scheme, NCC received funding to replace their existing fossil fuelled heating system with an efficient ground source heat pump system.





Ebtech were appointed to complete the design and build of the new GSHP system which would provide efficient heating to the swimming pool, space heating and satisfy the buildings hot water requirements.

A key challenge when upgrading to heat pump systems is the costs and on-site disruption required to upgrade the internal heat distribution systems.

During the design stage a thermal model and detailed analysis were completed to ascertain if upgrades were required to the internal heat distribution system. The only internal modifications required were to increase the size of the pool heat exchangers to ensure they could operate at the lower flow temperatures.

The domestic hot water production was replaced by a skid-mounted semi-instantaneous hot water generator which included a 2000L storage vessel and plate heat exchangers to enable connection from the low temperature and high temperature heat pumps.



The investment from the Department for Business, Energy & Industrial Strategy (BEIS) has been granted through the Public Sector Decarbonisation Fund and will help the council reach its goal to cut its own carbon emissions in half by 2025

