Department of Energy & Climate Change

Non-Domestic RHI
Case study – Fast facts

Technology type:	Open-loop Ground Source Heat Pump
Equipment manufacturer:	NIBE
Equipment model:	F1345
Capacity:	60kW
Installer:	Good Life

Renewable heating solution installed at historic mansion

GSHP modernises the heating of 500-year old property, Aberglasney House

Scenario

Set in the beautiful Tywi valley of Carmarthenshire, Wales, Aberglasney House and Gardens has a turbulent history going back over 500 years. After centuries of ups and downs and changes of ownership, by 1995 the listed building had fallen into a severe state of disrepair. It was bought by the Aberglasney Restoration Trust and an ambitious renovation programme was begun.

The first stage was to bring the historic property's 'lost gardens' back to their former glory. Once this project had been completed, the Trust turned its attention to the house itself. As architectural plans were drawn up for the derelict ground floor, it became clear that the proposed LPG heating system which blew out hot air at ceiling level would be both expensive and ineffective. The Trust consulted local installers, Good Life, for advice about other available options.

Good Life proposed an open-loop ground source heat pump (GSHP) system. Using technology similar to that found in a fridge, the GSHP draws in water from a 300 year old pond in the grounds at Aberglasney and filters it before feeding it back to a heat exchanger within the heat pump unit. This is then used to provide hot water and underfloor heating for the well-insulated property and carried through air ducts to heat to the Ninfarium, an indoor garden in the middle of the mansion that was previously heated by electricity.

"We were looking for a sustainable, economical solution that would provide efficient heating and hot water," says Roger Evans, Director of the Aberglasney Restoration Trust. "The open loop system was spot on for us. As the flooring throughout most of the ground floor was being replaced anyway, it was easy enough to lay the necessary pipework inside the house.

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Roger Evans, Director of the Aberglasney Restoration Trust

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We also had the system retro-fitted into one wing that had already been renovated some time earlier, but without heating. The installers simply took up the suspended timber floorboards, hid the pipes and insulation between the joists and laid more suitable floorboards over the top. The work took about a week to complete, including redecorating."

Modern meets historic

It was crucial to the Trust that the GSHP be completely unobtrusive and not impact on the beauty of the mansion, its original features and its gardens. By using an open-loop system, the impact on the outdoor area was kept to an absolute minimum, and by working with the property's existing culverts - enclosed drains used to channel running water – Good Life was able to keep all the pipework invisible to visitors. An all-in-one intelligent system control unit was tucked away from view in the mansion's cellar, where it can be operated easily and discreetly.

"We knew that any modern, renewable heating solution we chose would have to fit in with the traditional aesthetics of Aberglasney House and Gardens," says Roger. "The heat pump does just that. We have been able to combine the ancient history of the house with cutting-edge technology that will see it through well into the future. If systems like these had been around 100 years ago, there would probably be many more ancient mansions like Aberglasney still standing today."

Good economics

The Trust paid around £55,000 for the GSHP, not much more than the cost of updating the unsightly LPG boilers that it replaced. As well as benefitting from reduced energy bills, it is currently applying for the Government's non domestic Renewable Heat Incentive scheme.

Launched in 2011, the RHI is part of the Government's commitment to increasing the UK's renewable energy use. It provides long-term financial support for installing renewable heating instead of a fossil fuel system, with payments being made over 20 years to reflect the amount of energy used. Aberglasney House is set to receive 4.9p per kW hour of heat produced by the GSHP.

"The upkeep of a listed building like Aberglasney is a costly business," says Roger "We rely solely on our paying visitors and the support of our members, so any Government scheme that helps us to recoup these costs is critical."

For more details on the non-domestic scheme and free information on how to apply visit: **www.ofgem.gov.uk**

- Or call **0845 200 2122** (RHI enquiry line open Monday to Thursday 9am-5pm and to 4.30pm on Fridays).

If you are interested in receiving RHI updates or providing DECC with RHI feedback, please email: **rhi@decc.gsi.gov.uk**