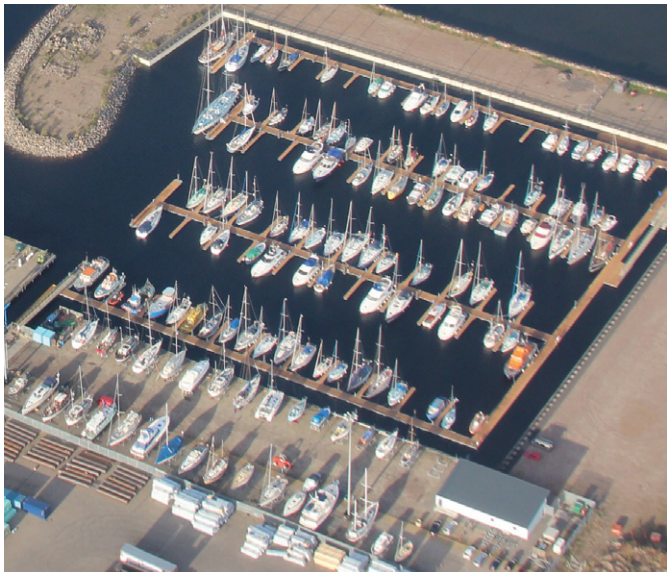
Department of Energy & Climate Change

Non-Domestic RHI
Case study – Fast facts

Technology type:	Ground Source Heat Pump
Equipment manufacturer:	NIBE
Equipment model:	NIBE F1145
Capacity:	8kW
Installer:	Black Isle Renewables



Underwater heat source heats Inverness Marina

Energy drawn from the sea bed provides heating and hot water to the marina's onshore facility.

Scenario

Opened at the end of September 2008, Inverness Marina is a mile out from Inverness City Centre, and just 15 minutes by road from Inverness Airport. The marina has 147 berths, each fitted with electricity, water and wi-fi, and a hard standing area than can accommodate 30 boats for maintenance and repairs.

In May 2013, work was completed on a new shoreside facility that houses Inverness Marina's offices, along with visitors' toilets, showers, a laundry, clubroom and training room. Local Council regulations required that renewable energy technology be installed in the new building. Having considered solar panels, it was decided that a heat pump would be more suitable as it would allow heat to be generated from the marina itself.

Local renewable energy experts, Black Isle Renewables, recommended a NIBE F1145 ground source heat pump as the solution. This system is specifically designed to operate using lake/sea, ground or rock as a heat source.

There was no need for the installers to drill any boreholes or trenches into the ground. Rather, a submerged, 400 metre, closed-loop pipe collector system effectively draws energy up from the bottom of the marina, harnessing enough to heat water in a 750-litre thermal storage tank. This is used for underfloor heating for the well-insulated building as well as hot water for the visitors' washrooms and laundry facilities. The constant sea temperature means that the 8kW system can work at maximum efficiency all year round.

" The GSHP system that Black Isle fitted for us has an integrated control system that we can easily use to programme it according to our specific needs and it's performing really well. We would certainly endorse this technology."

Craig Miller, Administrator at Inverness Marina

"The water temperature at sea bed level in the marina is a relatively constant 10°C all year round," says Craig Miller, Administrator at Inverness Marina. "So, it made sense, both financially and environmentally, to use this natural resource right on our doorstep. The GSHP system that Black Isle fitted for us was easy to install. It has an integrated control system that we can easily use to programme it according to our specific needs and it's performing really well. We would certainly endorse this technology."

Bonus savings

Inverness Marina paid around £12,000 to buy and install the GSHP. It is currently fitting meters to measure how much energy the system is generating so that it can apply 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. Inverness Marina is set to receive 4.9p per kW hour of energy produced by the GSHP.

"We weren't specifically looking to save on our energy bills when we installed the GSHP," says Craig. "But, it's undoubtedly more efficient than the type of electric boiler we were using at our old temporary premises and any money we get back through the RHI will be a welcome added bonus."

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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**

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