VAHTERUS

Case Stories

Vahterus Technology at The Heart of Queens Quay's Award Winning Heat Pumps

Rebecca Casale, Key Account Manager at Vahterus

Back in 2017, Vahterus UK received a quotation request from Star Renewable Energy for Plate & Shell Heat Exchangers (PSHEs) as part of the landmark Queens Quay heat network project. These PSHEs were to form an integral part of two 2.65 MW River Source Heat Pumps drawing water from the Clyde Estuary. Each heat pump was designed to include four PSHEs operating as a condenser, desuperheater, sub-cooler and oil cooler. One of the main drivers in selecting Vahterus' Plate & Shell technology was its compact size and low ammonia charge.

Five years later, using ammonia as the working fluid, the heat pumps are the largest, hottest, natural-working-fluid, water-source heat pumps in Scotland. In 2021, the European Heat Pump Association awarded West Dunbartonshire

Star Heat Pump in the Energy Centre at Queens Quay. CO2 savings compared to gas are 80% and improving.

Council (which commissioned the project) the '2021 City of the Year' award for its work on the Queens Quay project.

A Leisure Centre, 130 newly built apartments, a Town Hall, two Business Centre buildings and a Health Care Centre are currently being served by the network, which is expanding every month and over the next few years will also include a Hospital, College, and multiple blocks of high-rise accommodation.

In energy terms, $C0_2$ savings on the current system when compared to gas are 80%, and when the grid is fully electrified from renewables (target of before 2030) this will be a 100% CO_2 reduction.

Following on from this award-winning success story, Star is now commissioning two further systems: one in Bristol (3000kW) utilising the floating harbour in Castle Park as the heat source, and a further system in Jarrow, South Tyneside, which utilises the River Tyne.

Commenting on the Queens Quay project, Manager of Star Renewable Energy, **Nicky Cowan** said, 'Heat pumps, whilst an old concept, are not well known. They're relatively simple. The hard bit is to get the best performance and that's where the challenge begins. Star aims to harness every piece of available heat in various heat-exchange processes, but they all interact. I'm really grateful to Paul Button at Vahterus for his diligence, patience and quick responses, which helped us on our way to success.'

Paul Button, Director at Vahterus UK said: 'To see the working benefits of such a successful project with Vahterus technology at it's heart is a very proud moment for us. In the present economic climate, with rising energy costs and inflation, it's encouraging to see systems such as this providing significant savings for users on the Network.'