



PROJECT OVERVIEW

The Queens Quay Development will create over 1,200 homes, commercial facilities and essential infrastructure. The custom-built energy centre houses two 2.65MW water source heat pumps which take water from the River Clyde, extract the latent heat, and use it to deliver heating and hot water to the wider development.

The purpose of the project was to help West Dunbartonshire Council achieve their twin ambitions of maximum decarbonisation, in keeping with their policy of meeting the net zero target by 2045 and addressing the high levels of

fuel poverty in the local community.

Two key tools in meeting these targets were:

vTherm°e HIU – Our electronically controlled Heat Interface Unit which combines market-leading efficiency with enhanced communications and an intelligent core.

Glass App – This has the dual functions of being a cost-effective metering and billing solution for residents and a data display portal bringing to property managers and is designed to bring visibility and control to the end user.

VITAL SOLUTION

Our vTherm°e HIU was specified for 146 homes in phase one and our operatives installed and commissioned all units and will monitor them using the Engineers app. This will allow them to assess the performance of each unit, make a range of remote adjustments where necessary, and ensure that each HIU performs optimally.

The Glass app has been made available to all residents on the development for their smart devices and as a portal on desktop and laptops. In addition to being a multi-functional metering and billing app for residents, it also takes data from the HIU to provide the ESCo with financial

and performance data which they can access through a secure, dedicated portal.

vTherm°e – Meeting the Needs of the Low-Carbon Economy

The Queens Quay development required a HIU which could operate at lower temperatures than traditional heating networks. Some units perform poorly when connected to 4th generation heat networks which results in higher flow rates and narrower temperature differentials which reduces efficiency, increase carbon emissions and drive up costs to the end user. Whilst vTherm°e can operate at traditional temperatures, it

PROJECT SUMMARY:



CLIENT

West Dunbartonshire Energy LLP

PROJECT

Queens Quay Water Source Heat pump Development

TIMESCALE:

Ongoing

THE BENEFITS:

- > The Glass App and Portal - Bringing accurate information to both the customer and ESCo.
- > The vTherm°e HIU delivers market leading performance and is heat-pump-ready.
- > Together they combine to create a smart, in-home energy management system.
- > Weather compensation to make the system more efficient and save customers money.

▶ The Glass App and Portal combine with the vTherm^e HIU to bring the same functionality customers could expect from a brand-name smart home thermostat.



“Glass interacts with the vTherm^e HIU to produce a range of data which can be used to enhance the scheme and make it more efficient. Under performing HIUs can be identified and addressed, meaning each Queens Quay resident will only ever pay for the energy they use. This is a core component of the Heat Networks (Metering & Billing) legislation and our experts can help ESCOs and other managing agents achieve legislative compliance in all areas.”

was designed to be “Heat-Pump-Ready” and was ideal for Queens Quay.

vTherm^e combines intelligent responsiveness, reliability and efficiency to make the vTherm^e essential to achieving the council's twin ambitions of reducing levels of fuel poverty and carbon emissions. To illustrate how important the vTherm^e HIU was to the overall performance of the project, for every degree Celsius that the district heating network's flow and return temperatures were lowered we saw an increase of 1.5% in the heat pump's efficiency. Therefore, optimising the secondary side was crucial to achieving 300%+ efficiency.

vTherm^e Features:

- Lowest VWART of all BESA tested HIUs at 60°C.
- Fully insulated EPP case minimises heat losses, average losses of 31 Watts.
- Case constructed in three sections to facilitate easy access to all components.
- BESA Certified and listed on BESA website to current test regime.
- Innovative cool section to extend sensitive component life

The Glass App – Bringing Transparency & Control to Customers and the ESCo

Glass is our Energy Management Solution and was developed in response to the metering and billing challenges faced by end user customers, Registered Providers and Developers.

Glass for Queens Quay Residents
– Residents of Queens Quay can use Glass to access current and historical consumption data, view balances and simplify processes such as moving in or out through the intuitive Glass App and Portal. It also allows residents make

payments via flexible payment options anytime and anywhere.

Glass for West Dunbartonshire Energy LLP – The network operator can view the energy usage and financial data for the whole Queens Quay development, including commercial properties, or drill down into granular level to look at energy usage within individual properties. In addition to presenting data in an intuitive format and helping to manage debt, Glass streamlines a range of processes such as changes of tenancy, changing tariffs and providing support for vulnerable residents.

The Engineers App – The Engineer app connects to the HIU via Bluetooth and brings a range of features to ensure the HIUs at Queens Quay function as expected. Engineers can remotely access the HIU to help residents set their temperature points and set schedules and view how each HIU is performing.

Combining Glass & vTherm^e to Put Residents in Control

The vTherm^e HIU collects high-resolution data and the Glass app displays and analyses it in a variety of ways. When combined, however, the two are capable of much more, using the two-way communications to bring control to their heating system.

- Heating On/Off Remotely – Control your heating from your smart device.
- Heating Time Scheduling - Make your heating work around your schedule.
- Heating Temperature control – Set your heating in real time with your smart device
- Weather Compensation – The Glass App takes weather data and adjusts to

ensure you have the optimum comfort levels.

This brings the same functionality of a brand-name smart thermostat, but without the additional costs, allowing residents to control their heating, save money and never come home to a cold house again.

Delivering ESCo Budget Certainty Through the Glass Portal

The ESCo needed a level of budget certainty and Glass portal has been a fundamental tool in achieving this. The real-time financial and usage data can be used to perform long-term forecasts for the project which allows the council to have a high-level of confidence in how the system will perform in the future.

Additionally, by setting the HIUs to credit billing mode it will ensure timely payment of revenue from customers rather than allowing arrears to accrue, something which can happen when the system is set to credit billing. This is another key tool in achieving budget certainty and helping residents stay out of debt.

Using Data to Deliver a Fairer, Safer Energy System

In addition to the HIUs, Glass allows access to real-time analysis of performance to optimise the energy centre. As the intelligent system learns how residents use their energy systems it can adapt to achieve higher levels of efficiency. This allows the system to enter a cycle of continuous improvement by using the data to inform changes in the energy centre operation meaning the energy centre, plant and HIUs will always perform at an optimum level.