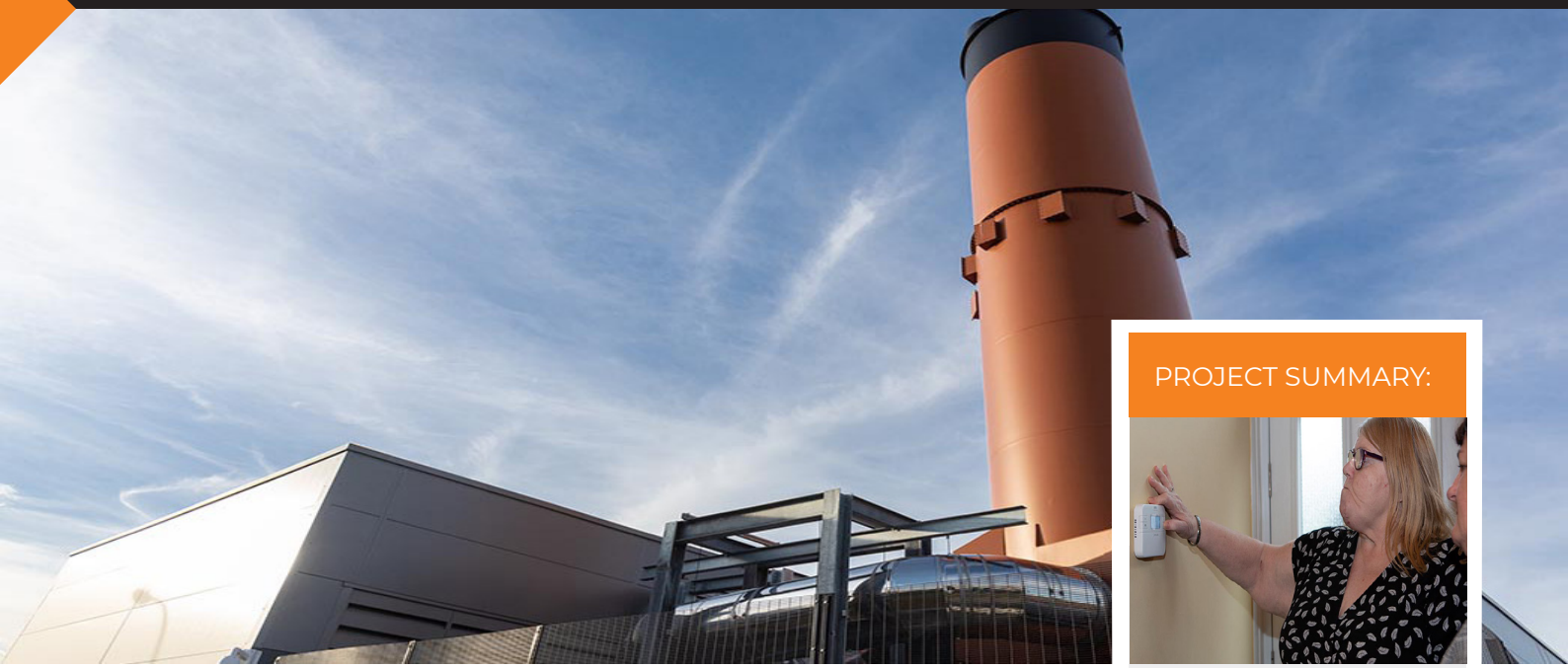
VITAL ENERGi

CASE STUDY

Leeds PIPES

EFW HEAT TAKE OFF, ENERGY CENTRE & HEAT NETWORK



PROJECT SUMMARY:

CLIENT
Leeds City Council

PROJECT
Leeds PIPES

TIMESCALE:
Ongoing

VALUE:
£45m

PROJECT OVERVIEW

The £45m Leeds PIPES project is a significant, city-wide undertaking which involves the creation of two energy centres, a 26.5km district heating network and the upgrade of the in-home heating systems and civic building plant rooms. Our team delivered significant design and programme enhancements to deliver improved performance and our delivery team were able to work in partnership with the council's highways, planning and housing teams.

In addition to the technical challenges, we also worked in partnership with the council to minimise disruption and deliver as much community benefit and additional social value as possible.

VITAL SOLUTION

We constructed two energy centres for the Leeds PIPES project. The Cross Green Energy Centre was created to take waste steam from the nearby Recycling & Energy Recovery Facility (RERF) and convert it into low-temperature heat and hot water. A second energy centre at Saxton Gardens houses gas boilers and was designed to meet peak demand and add resilience to the overall system, ensuring continuity of supply in all circumstances.

Hot water is distributed from both energy centres via a 26.5km district heating network. Phase one connected 1,983 homes across a range of multi-storey flats. The second phase extended the heat network into Leeds city centre, down the Headrow to connect several civic and commercial buildings.

In addition to the generation and distribution of the heat we also delivered in-home heating systems for all 1,983 dwellings which consisted of Heat Interface Units, new radiators and controls. As this changeover involved working in people's homes, we liaised closely with the council's housing teams and our own resident liaison team to ensure disruption was minimised. Whilst we were working in the flats, we also installed sprinklers for fire safety as part of our works package. This reduced the number of visits required to each property and kept disruption to a minimum.

Utilising The Project To Deliver Localised Social Value

We approach every project as an opportunity to create local employment

THE BENEFITS:

- Bringing low-carbon and more affordable heat to 1,983 homes in Leeds.
- Utilising waste heat to deliver carbon savings of circa 11,000 tonnes per annum.
- 26.5km of district heating, much of which was installed during the Covid 19 lockdown.
- 60% of budget spent locally and 50% of the labour hired locally.

The project saw 1,983 homes connected to the network in phase one and several of Leeds' iconic civic buildings connected in phase two.

"We liaised with the the council's highways department at the earliest possibility and created a comprehensive traffic management plan, hiring local specialists with an understanding of the area. During this preliminary phase we ensured high quality traffic management drawings were produced and later, that section 171 and temporary traffic regulation orders were issued in time for the road closures."

opportunities and engage local supply chains. This allows us to create some substantial socio-economic benefits for the area.

Our team were able to spend 60% of the budget locally and ensured that 50% of the labour on the project was locally hired. In addition to this we created other employment and training opportunities with 30 work placements, apprentices and work placements for PHD students.

Demonstrating Best Practice & Winning A Silver Considerate Constructor Scheme Award

In 2020 the Leeds PIPES site was awarded a Silver Considerate Constructor award for demonstrating a "fantastic level of consideration towards the public, its workforce and the environment" by adhering to the Scheme's Code of Considerate practice.

To achieve this the delivery team had to demonstrate that they:

* Care about Appearance
* Respect the Community
* Protect the Environment
* Secure everyone's Safety
* Value their Workforce.

The Vital team also completed the Leeds PIPES entry for the CEEQUAL award which is an evidence-based sustainability assessment and award scheme. The project was awarded a rating of Very Good, demonstrating high economic, environmental and social performance.

Creating A Local Development Order to Facilitate Delivery

To facilitate planning, the council implemented a Local Development Order which accelerated the delivery of project by simplifying the planning process. The LDO permitted the development of the district heating network pipes, cables and heat exchange equipment as well as street furniture and informational signage.

Overseeing Construction of Two Energy Centres

The project saw Vital Energi construct two energy centres. The Cross Green energy centre is located near the RERF and takes the excess steam created during electricity production and converts it into low-temperature heat and hot water.

Saxton Gardens houses the boiler plant and is crucial to the efficiency of the network as it contributes to meeting the peak demand on the project. Crucially, it also adds a layer of resilience and can continue delivering heat and hot water during the scheduled maintenance of the energy from waste plant.

We were able to deliver substantial improvements to the original design created by the council's professional team as well as creating innovative methods of delivery to speed up the programme and reduce costs.

One example was to pioneer a "plug and play" approach to our more complex skids, by including packaged boilers. By undertaking all the prefabrication off-site, we were able to lower costs, lower on-site labour, largely reduce hot works and have complete control of the delivery process.

Another improvement to the design was the decision to build the new Saxton Gardens energy centre over the existing energy centre. This allowed us to keep the original energy centre live for as long as possible so it could continue supplying residents. We then demolished the original energy centre once we'd established the new supply.

Working Alongside Transport Upgrade Project to Minimise Disruption

Leeds City Council had commissioned the delivery of a new transport corridor and paving scheme in the city centre. We were able to work with the lead contractor to re-schedule our programme so that we could deliver this section of the district heating scheme alongside this project.

To achieve this, we were "first in the trench", completing all district heating works ahead of other contractors.

Resident Liaison & A Comprehensive Communication Plan

At an early stage we appointed resident liaison officers to co-ordinate the communication strategy for residents through a range of channels. These included website updates, group texts and letters as well as drop in sessions where residents could discuss all aspects of the project.

The project involved extensive works in resident dwellings, and this called for the scheduling of access to homes to perform switchover works. As part of the preparation an analysis of the social demographics of the people affected was undertaken.

Several vulnerable groups were identified, such as the elderly, non-English speaking families, disabled residents, children and people with mental health issues. We implemented measures designed to support these residents which included the provision of interpreters and translators.