



PROJECT SUMMARY:



CLIENT

Aberdeen City Council

PROJECT

10MW Heat Network Project

THE BENEFITS:

- > 100,000 tonnes of carbon reduction over design lifecycle
- > 800 homes connected across two separate phases
- > 11.6km of district heating pipework installed
- > 4 apprentices employed, 25 weeks of work placement provided.
- > 100 hours of volunteering by project staff, benefitting local organisations.

PROJECT OVERVIEW

The Torry Heat Network is a groundbreaking initiative that takes low-carbon heat from a nearby Energy from Waste (EfW) plant and distributes it through the Torry region of Aberdeen, transforming the way the community generates heat and hot water.

The project is of national importance to Scotland as it will be the first major mainland Energy from Waste district heating scheme and over the course of its lifecycle, Torry will, upon completion, be responsible for over 100,000 tonnes

of carbon reduction.

In addition to delivering the main heat-take-off energy centre and two phases of district heating installation, Vital Energi also designed and built the new district heating substation, which allows the existing HeatNet to be integrated into the wider network.

The project was only made possible because of the close collaboration and partnership created with the council, consultants WSP, and Aberdeen Heat & Power, who operate and maintain the scheme on behalf of the council.

VITAL SOLUTION

Vital Energi designed and built the heat distribution facility which takes waste heat created during electricity generation at the plant and converts it into low-temperature hot water which is used to heat nearby homes.

The facility was built within the former waste transfer station building and is next to the Tullos Energy from Waste recycling centre. The facility also has backup hydrogen-ready boilers which are designed to add resilience, increase capacity during peak demand, and provide heat during scheduled maintenance of the EfW plant.

Overall, this facility can deliver 10MW of heat through the network.

A National First

The Torry Heat Network is the first in mainland Scotland to use waste heat from a combined heat and power energy from waste plant. Scotland has the capacity to process over 1.1 million tonnes of municipal waste in EfW sites, with a further 2.5 million tonnes either under construction or in planning. This untapped resource can significantly reduce heating costs and combat fuel poverty. The project

▶ (Right) A complex section of the 11.6km district heating system being installed.
(Below) The Balnagask substation which was constructed at our pre-fabrication department at our Blackburn Headquarters



“Torry Heat Network will bring low-cost heat to tenants’ homes and public buildings. This will help people with fuel poverty and ensuring they have somewhere warm to live, as well as helping Aberdeen with the goal of reaching net zero for the city.”

CARL CHEETHAM - LEISURE SERVICE MANAGER - WIGAN COUNCIL

demonstrates that Scotland can harness waste heat from EfW plants to decarbonize at scale, deploy city-wide decarbonization projects rapidly, and integrate existing heat networks to create larger, more efficient networks.

Phase 1 District Heating

Phase 1 of the project focused on integrating the existing HeatNet project, serving 146 domestic and three non-domestic customers, including Provost Hogg Care Home, Balnagask Care Home, and Deeside Family Centre. The project also connected Tullos Primary School and Balnagask Social Work Office and Swimming Pool.

We added additional pipework which will connect a further 150 social housing flats comprised of twelve 5-storey and five three-storey residential blocks, with internal pipework prepared for future works by Aberdeen Heat and Power.

Integrating this network involved creating the prefabricated Balnagask substation, acting as the hydraulic break between HeatNet and Phase 1 of the Torry Heat Network. This pre-fabricated substation was constructed by pre-fabrication engineers at our headquarters and then transferred to site.

It includes 2 x 800kW plate heat exchangers, providing a capacity of 1.6MW, capable of serving buildings connected to the HeatNet portion of the network.

Expanding the network

Phase 2 saw us install 3.5km of pipework throughout Torry. When house connections are complete

this will serve approximately 587 homes. This phase primarily involved social housing, with a few private connections and the final connections will to be carried out by Aberdeen Heat and Power.

The project also connected Greyhope School and Community Hub and provided pipework for future connections to several other public buildings, an important part of the network’s planned expansion.

The size and scale of the project

The project is connecting approximately 800 homes and various council-owned schools and buildings. The network can distribute up to 10MW of low-carbon heat through 11.6km of district heating pipework.

Aberdeen City Council are demonstrating that city-wide decarbonisation can be achieved rapidly, and at scale, to bring the dual benefits of decarbonisation and reduced fuel poverty to regions.

Regionally important benefits

Over two phases, 11.6km of highly insulated, below-ground district heating pipework was installed, making it one of Scotland’s largest retrofit heat networks. The project is expected to reduce carbon emissions by approximately 107,000 tonnes over a 40-year period, significantly contributing to Aberdeen City Council’s ambition to achieve net zero by 2045.

Integrating existing networks

The Torry Heat Network integrated and expanded the existing HeatNet network into a much wider scheme. This is one of

the first times this has been done in Scotland and demonstrates the technical feasibility of this approach.

This is something that will be extremely important as networks grow and interconnect to become true, city-wide projects.

Delivering Community Benefits

We believe these large-scale infrastructure projects are the perfect opportunities to learn more about the communities we’re working in and support them in the fantastic work they do. We were able to deliver four apprenticeship opportunities, 25 weeks of work placement and engage with 50 school children. Additionally, our staff contributed almost 100 hours of local volunteering and made significant donations to local causes.

The future of Scotland’s low-carbon heating infrastructure

The Torry Heat Network project has a profound impact at the national level by demonstrating a successful approach to delivering city-wide decarbonization rapidly. Regionally, it contributes to the council meeting their net zero targets and improving air quality. Locally, it transforms the heating systems of social housing throughout the area, addressing fuel poverty in one of Scotland’s most deprived communities. The project’s success is a testament to the commitment, vision, and investment made by Aberdeen City Council to demonstrate the viability of EfW-powered heat networks as a core component of Scotland’s future energy mix.