

Case Study

Viking Energy Network Jarrow



Client:
South Tyneside Council

Principal Contractor:
Colloide

Value:
£10M

Location:
Jarrow, South Tyneside,
Newcastle, UK

Project:
District Heating

Colloide was selected as principal contractor for the construction of the Viking Energy Network which is a cutting-edge renewable energy scheme that extracts heat from the River Tyne and exports it to 11 buildings in Jarrow, South Tyneside, including high rise flats, school and sheltered housing.

This multi-million-pound scheme is the first of its kind in the UK and delivers the following benefits:

- It slashes carbon emissions by an estimated 1,035 tonnes annually, making a significant impact on environmental sustainability.
- The scheme saves approximately half a million pounds in fuel costs each year, providing substantial financial advantages for the community.

Project Deliverables

Energy Network

The energy network utilises a combination of three renewable technologies, minimising reliance on fossil fuels. The project incorporates:

- A cutting-edge river source heat pump, which extracts heat from the River Tyne, compresses it to elevate the temperature, and converts it into hot water.
- A 1-megawatt solar farm consisting of solar panels that generate electricity to power the heat pump. Any surplus electricity is directed to power council buildings, maximizing energy efficiency.
- A combined heat and power (CHP) back-up system that harnesses waste heat generated during electricity production, ensuring reliable power supply during periods of insufficient solar energy.

Colloide was responsible for designing and constructing an energy centre at Jarrow Staithes, strategically located on the south bank of the River Tyne. This state-of-the-art facility houses the water source heat pump, acting as the heart of the operation. The process involves extracting heat from the river, raising its temperature, and converting it into hot water. The hot water is then distributed to connected buildings through a network of buried district heating pipes, efficiently and effectively meeting their heating needs.

The scheme should run close to carbon neutral for most of the summer.



Scope of works

Riverside site

At the existing quay, we carried out remedial and strengthening works to enhance the structure's integrity. We also installed new platforms to accommodate the water abstraction installation, along with the necessary plant and equipment for water abstraction. This involved meticulous pipework installation to the pump station, facilitating efficient heat transfer.

The construction of the pump station building was a crucial aspect of the project. We built a new facility from the ground up, ensuring solid foundations and incorporating mechanical and electrical (M&E) plant and equipment. Extensive pipework installation was conducted, connecting the pump station to the energy centre. Additionally, external works such as footpaths were implemented to enhance accessibility and functionality.

The energy centre itself was a focal point of the scheme, demanding careful construction and installation. Colloide designed and built a new building to house the M&E plant and equipment. The pipework installation to the energy centre was meticulously executed, guaranteeing efficient heat distribution. External works and footpath development were carried out to optimise usability and aesthetics. To support the project's comprehensive infrastructure, a gas meter house was constructed. This entailed building a new structure and installing M&E plant and equipment, including switchrooms and mains pipework. These installations were essential for connecting the gas meter house to the energy centre. Similar to other components, external works and footpath development were undertaken for seamless integration.

To further enhance the renewable energy capacity, we established a new solar panel farm. This involved constructing foundations or bases on the existing hardstand and implementing electrical services to connect the solar farm to the energy centre. Inverters were installed to ensure efficient electricity generation and utilisation.

Scope of works

Network site

Excavation works were carried out to create a trench measuring 2000 mm wide and 1100 mm deep and 3km in length. This trenching process included all necessary removal, earthwork support, and backfilling activities. It provided the foundation for the installation of new heating pipework and a private wire system. M&E installation encompassed the careful placement of associated fittings and equipment, ensuring seamless integration and optimal performance. New substations were constructed, encompassing the installation of M&E plant and equipment.

Work to existing building plantrooms

Colloide's involvement extended to connecting the new energy network to existing building plant rooms. This included integrating mechanical plants, pipework, fittings, local controls, and ancillaries. The meticulous execution of these connections ensured efficient heat transfer and seamless integration into the overall network.

By undertaking this comprehensive range of works, Colloide played a pivotal role in delivering an impressive and compelling renewable energy scheme. The Viking Energy Network showcases our expertise in designing, constructing, and integrating complex infrastructure components, contributing to carbon reduction, substantial cost savings, and a greener future for the community

Engineering a brighter tomorrow

