



District Heating Schemes

District heating schemes comprise of a network of insulated pipes which are used to deliver heat, in the form of hot water or steam from the point of generation to the end user.

Increasingly popular systems, district heating schemes can now be found in hotels, leisure centres, blocks of flats and council buildings, even towns and villages.

These schemes can deliver heat over several miles of pipe work via underground insulated pipes.

How does it work? ▶

District heating networks provide the means to transport heat efficiently. Currently they can deliver heat up to approximately 20 miles from the central generating plant; although the smaller pipes branching off the main pipes, can be hundreds of miles long.

District heating using biomass comprises of a central boiler system which is then linked to each property or room in the scheme using insulated pipes laid into trenches.



Benefits of District Heating ▶

- ▶ Allows a range of energy generation technologies to work together.
- ▶ Enables the efficient transportation and use of heat for a wide variety of users.
- ▶ Helps manage the supply & demand of energy.
- ▶ Enables fuel flexibility.
- ▶ Lowers cost of energy generation.
- ▶ Increasing fuel efficiency through the use of CHP.
- ▶ Reduces labour and maintenance costs compared to individual systems.
- ▶ Significant reduction of CO2 emissions.
- ▶ Ultimately extending the reach of renewables, providing opportunities for the development of renewable technologies that wouldn't have otherwise been considered.

Solar PV
Solar Thermal
Biomass Boilers
Ground Source Heat Pumps
Air Source Heat Pumps

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Case Study

District Heating System at Portmeirion ▶



ESP Energy have teamed up with Portmeirion Ltd, to install a megawatt Biomass system to provide the village of Portmeirion with heating and hot water.

A dedicated Energy Centre has been erected and will house two 499kW Froling Biomass Boilers and two 620kW backup Hoval Oil Boilers. 3.5 kms of trenching will be excavated to lay the necessary pipe work to connect the system to 27 properties including the Castle and the Hotel.

Portmeirion have invested over £1 million in this project. ESP Energy were successful with their tender bid after over a year of preliminary works.

The whole village will be connected to the district heating scheme including the castle, hotel, town hall, shops, office blocks and self catered rooms. This installation will reduce the sites CO2 emissions by over 71%, saving over 600 tonnes of CO2 a year, future proofing the sustainability of the villages heating.

Throughout this project, the ESP Energy team had to overcome many challenges, including the terrain, the variety of integrations and weather, all this has been achieved in a 4 month timescale whilst the village was still open to the public.

The system will be fuelled by wood chips which will be delivered via an Artic lorry, onto a walking floor into a large chip store.

The fuel will be sourced locally in North Wales, keeping the whole supply chain green, whilst putting money back into the local community.

There is over 35,000 litres of water heated up to 85°C in the buffer stores. And over 50,000 litres in the entire system.

This is a very important project for the industry and follows countries like Austria/Denmark where district heating systems are extremely popular and whole towns/villages are heated like this.

There are limited companies with the skillset, financial stability, experience and workforce who can understand such a project.

ESP Energy are very proud to have been chosen to install such a prestigious system and deliver the project on time and on budget.

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