
Lochs to Watts: COWI's Impact on Scotland's Green Energy Horizon

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COWI UK – Glasgow



Who we are!



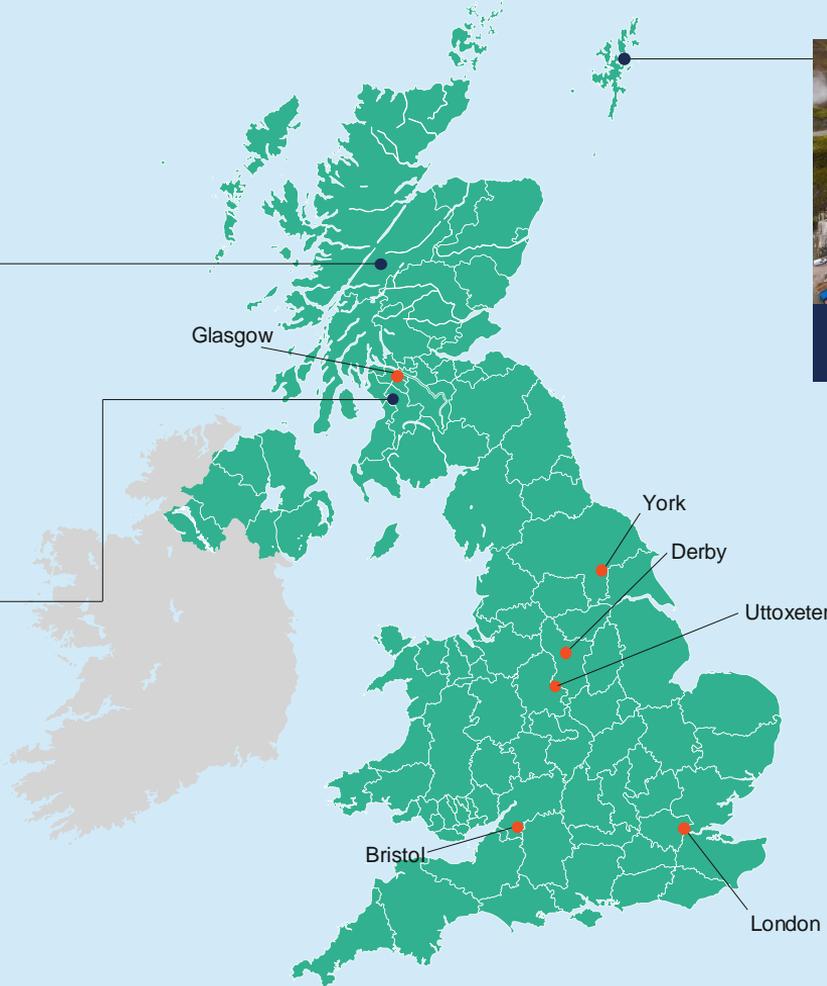
Who we are!



Coire Glas Hydroelectric Scheme



Whitelee Wind Farm



Shetland Islands SHEAP District Heating

Thermal Trails: COWI's Pioneering Impact on UK's District Heating Projects

Tees Valley Heat
and Power Offtake
- Middlesbrough

Nottingham heat
master planning -
zone 1

ST ANDREW'S
UNIVERSITY
BIOMASS BOILER

Steam Pipe Project
Cranfield University

Heat Recovery at
Data Centre - new
data centre at
Lerwick

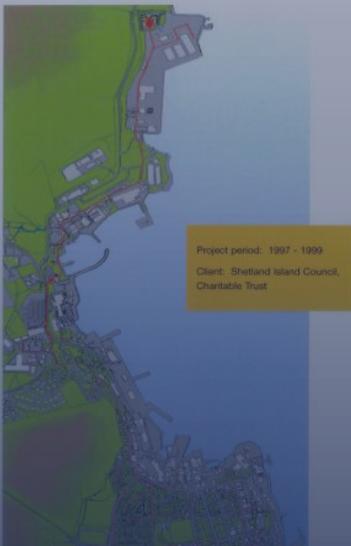
Low temperature
heat study for
London

Shetland Heat
Energy and Power

Lerwick Waste-to-
Energy Facility,
Shetland Islands

University of
Strathclyde CHP
and District Energy
Design Review

District heating
market study for
the United
Kingdom



Project period: 1997 - 1999
Client: Shetland Islands Council Charitable Trust

On 10 October 2000 Shetland Heat Energy and Power won the 2000 Environment Award for Engineers. This Award was launched in 1990 by HRH the Duke of Kent and was this year sponsored by Lloyd's Register, British Energy, Rolls-Royce plc, the Engineering Council and the UK Association of Professional Engineers.

Bruun & Sorenson Group's project manager, Mr. Jan Clement, took part in the ceremony at the Science Museum in London. Among the finalists, the district heating project was appointed the overall winner. In the presentation of the project it says:

Shetland is Britain's remotest and one of the smallest communities. The remoteness limits the options for recycling and what to do with its waste. Shetland Islands Council decided to construct a waste to energy plant with the objective to attract waste from Orkney and offshore installations, create jobs and provide energy to the local economy.

Shetland Islands Council Charitable Trust, with EU funding, invested £7 Million in a district heating scheme to distribute heat. In less than two years the scheme gained customers from all sectors of the economy. Customer feed back has been excellent and the system is now selling itself by word of mouth resulting in a long waiting list for connections.

When a major extension currently underway is completed over half the Lerwick population (9000) will be within reach of the scheme. The scheme is unique in Britain in that it based on the Danish model by aiming to serve the whole town.

As consulting engineers Bruun & Sorenson Group was responsible for the design of the waste to energy plant from 1994 and of the district heating network since 1997. An essential element of the heating process is

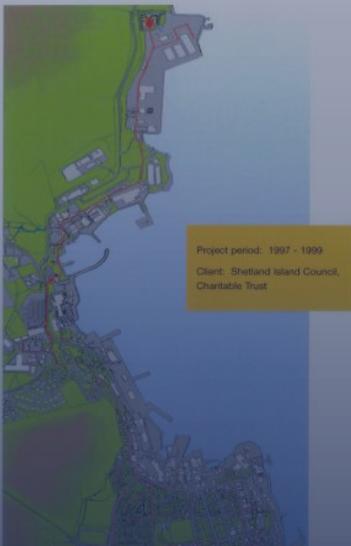


Circular economy on the Shetland Islands

Lerwick District Heating Scheme

- 1998 Waste to Energy facility commissioned & First Customer connection
- 2002 Sound area of Lerwick connected
- 2006 Hot water storage tank installed
- 2008 Additional boiler installed
- 2011 1000th domestic customer connection
- 2017 New Anderson High School connected
- 2022 LPS connection for use of surplus heat

SHETLAND COOPERATION SINCE THE 90TIES



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SHETLAND COOPERATION SINCE THE 90TIES

Leading the way on the Shetland Islands

COWI collaboration with SHEAP

Trusted advisor for +25 years

Network design

Hydraulic simulation

Control strategies

Waste heat utilisation

Digital twin

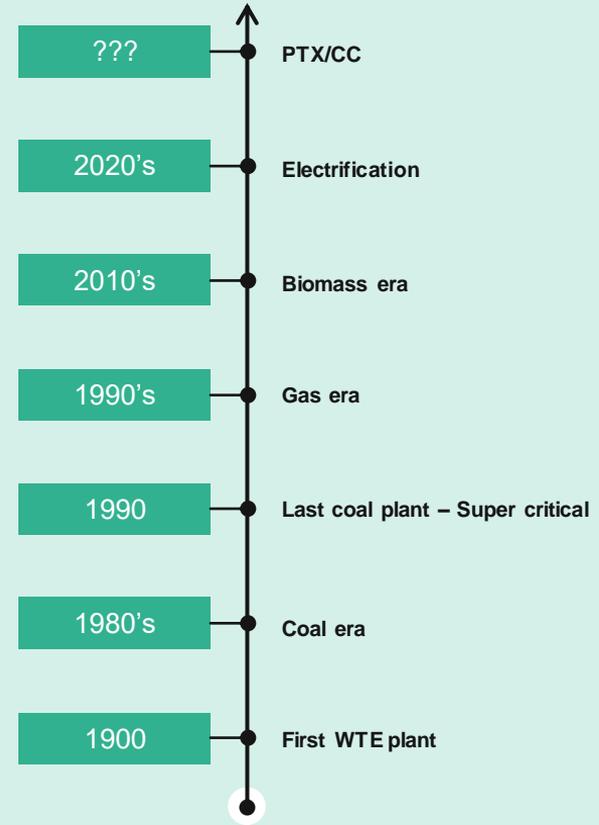
Learnings

A SUSTAINABLE AND CONNECTED SOCIETY

MASTER PLANNING

- Large-Scale Master Planning
- Real-time Modelling
- Maximising Renewable Energy Production
- Future of Space Heating
- Green Energy Storage Solution

Combining Global Expertise for Local Impact



Shaping the Future of Heat Networks



Geothermal Innovation workshop

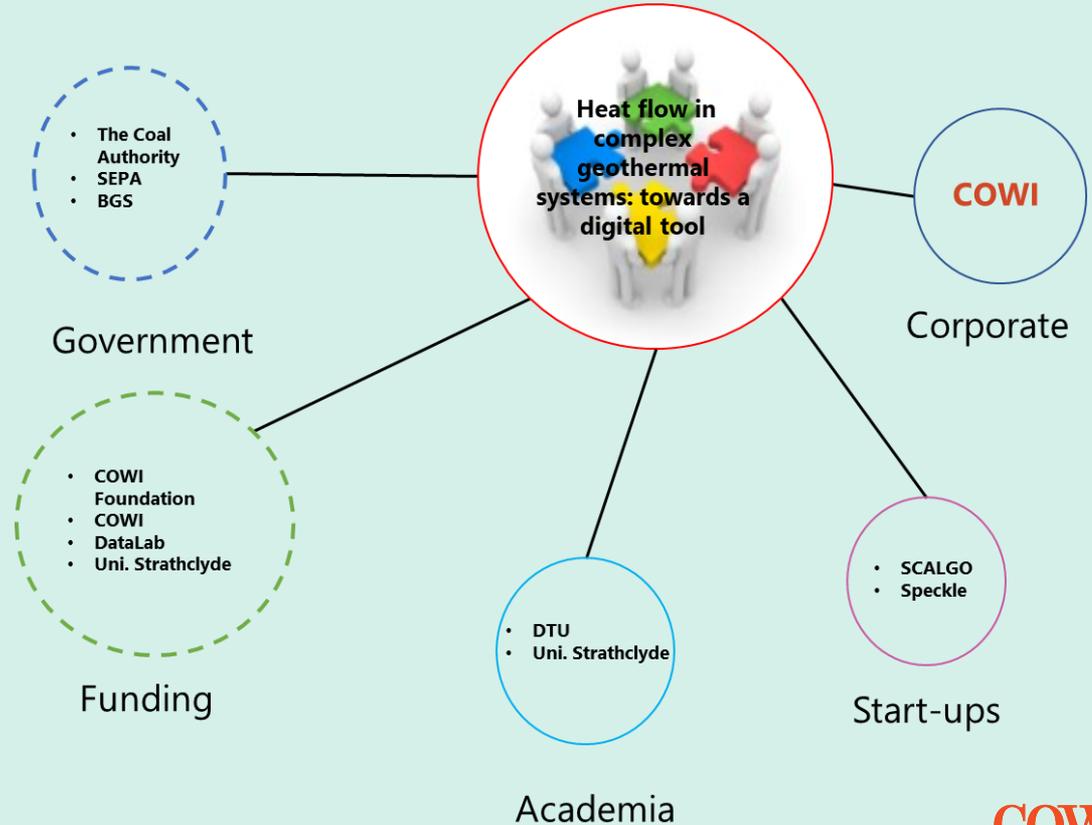
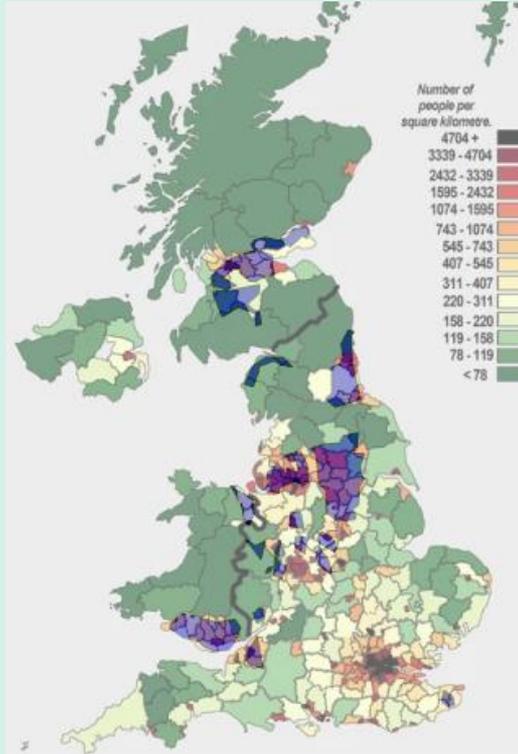


EGPD site trip



EGPD conference

Innovating Together



The Heat is On! Envisioning the Future of District Heating



More buildings will be connected



More energy sources will be supplying heat to the network



Networks will face lower temperatures (sustainable energy sources)



Price of heat will vary (introduction of tariff structure)

Thank you
