

WYNDFORD ESTATE, GLASGOW CHP ENERGY CENTRE AND DISTRICT HEATING

Contract Value: **£14.5 million**

Client: **Cube Housing Association**

- > This is an exemplar retro-fit low carbon scheme
- > The scheme will save 7,000 tonnes of carbon emissions each year
- > The metering solution will help residents reduce their energy consumption
- > CHP is very energy efficient and reduces the energy needed for buildings
- > CHP can be very cost effective and help alleviate fuel poverty
- > Central heating in each home is controllable by the occupants, who pay for the heat they use
- > CHP generates electricity at the same time as heat

> Introduction

Vital Energi is helping to reduce fuel poverty in Scotland with its involvement in an innovative multi-million pound scheme to provide low-cost, energy efficient heating and hot water to up to 1900 tenants of Cube Housing Association on the Wyndford Estate in the Maryhill District of Glasgow. In partnership with Scottish and Southern Energy (SSE), Vital Energi is responsible for the detailed design and delivery of a new community energy system – one of the largest of its kind in the UK. At the heart of the £27 million Wyndford scheme is a Combined Heat and Power (CHP) engine, three gas boilers and a thermal store, housed in a new Energy Centre at the edge of the estate, and a network of highly insulated district heating pipes all of which are being designed, supplied and installed by Blackburn and London-based sustainable energy specialist, Vital Energi. The work is due for completion by the end of 2012.



“Cube Housing Asso. set out with very limited resources to deal with a huge objective – to remove existing night-storage heaters and deliver low-cost, low- carbon heating and hot water to 1900 hard-to-heat high-rise, deck access and maisonette homes on its existing 1960’s Wyndford estate in Glasgow.

Vital Energi played a crucial part in helping us to find the solution, and its design expertise, problem-solving ability and speed of work enabled us to access the biggest carbon-reduction grant in the UK. The result is an innovative, multi-million pound scheme that is certainly one of the biggest projects of its kind in Britain.”

Willie Croft, Cube Housing Association, Head of Regeneration

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The Wyndford scheme is jointly funded by Scottish and Southern Energy (SSE) and Scottish Gas. Scottish Gas is providing funding via the Community Energy Saving Programme (CESP). CESP funding is provided by energy suppliers and electricity generators to areas of low income in order to improve energy efficiency standards and reduce fuel bills.

> The Vision

Cube Housing Association has stated that the key aims of the retro-fit low carbon energy scheme at Wyndford are to reduce fuel poverty and ensure that its housing stock meets the decent homes standard. An estimated 658,000 households were in fuel poverty in Scotland in 2010. The homes included in the scheme are all currently heated by electric storage heaters which are less energy efficient and more costly than the new system being installed.

The district heating and CHP plant has been designed to deliver low carbon energy in a cost effective manner to help alleviate fuel poverty.

> The Solution

Vital Energi and SSE were chosen by Cube Housing Association for their partnership approach and because their proposal included individual pre-payment meters in each property which will help tenants control their energy consumption and reduce their bills.

Vital Energi, in partnership with SSE, assisted Cube Housing Association from the start of the project providing operations appraisal and business case advice on revenues available from sales and funding or incentive initiatives. At the core of the pioneering Wyndford scheme is Vital Energi's bespoke Energy Centre which comprises a 1200 kW CHP engine and a thermal store with a capacity of 120,000 litres. Three 4500kW gas boilers provide back-up and peak load heat requirements. The electricity generated by the CHP engine will be exported to the local grid. The CHP system takes away the need for each home to have an individual boiler making it an affordable and energy-efficient way of heating homes. On completion, around 2.7km of underground pipes will distribute hot water from the Energy Centre to the individual buildings connected to the district heating scheme.

The main district heating pipes are constructed from steel and include an alarm leak-detection system. They are highly insulated with a very low thermal loss over long distances ensuring minimal heat is wasted. Mild steel riser and lateral pipework connects the district heating mains to individual properties. Heat is transferred from the incoming district heating pipework, via riser and lateral pipework into the individual properties internal heating system via a heat exchanger contained in a Vital Energi Hydraulic Interface Unit (HIU). The hydraulic interface units provide instantaneous heat and hot water on demand and mean the householder has full control over their heating without the need to have a boiler of their own. Vital Energi contracted Glasgow-based City Building's Royal Strathclyde Blindcraft Industries (RSBi) to install internal pipework in the Wyndford Estate properties because of its unique social ethos which Vital Energi supports. RSBi is one of the most successful supported employment facilities in Europe, which employs over 240 people, more than 50 per cent of whom have a disability.

> Conclusion

With the installation of Vital Energi's new CHP Energy Centre and district heating system, the Wyndford Estate will soon be waving goodbye to poor quality electric heating, huge bills and an enormous carbon footprint. The Wyndford scheme is playing a huge role in helping the city of Glasgow meet its ambitious 30 per cent carbon reduction target. According to The Sustainable Glasgow report, district heating systems will be crucial in ensuring the city meets its targets. To read the report, follow the link below:

<http://www.glasgow.gov.uk/NR/rdonlyres/E4E3CBEB-51FA-42BF-9C0A-112E49C95C71/0/SustainableGlasgowReport.pdf>