

Waltham Forest Beaumont Road Estate

CHP and community heating replace electric system



The heating systems are served by a new, central plant room housing two 408 kW gas fired CHP units and four boilers. The CHP units also supply electricity to power the boilerhouse and for sale to the local electricity company.

As well as a new heating system, homes were also fitted with a heat recovery ventilation system and draughtproofing to doors and windows.

- £4,800 cost per dwelling

- 39% average reduction in heating costs

- 52% average reduction in total CO₂ emissions

Estate profile

The Beaumont Road Estate is the largest in the London Borough of Waltham Forest. Built in the mid to late 1960s, the Estate comprises three 21 storey blocks and an assortment of four and six storey blocks, together with a small number of bungalows and terraced houses. In total, the 33 blocks contain 898 homes. Together, the three 21 storey blocks house some 40% of the residents of the Estate.

Prior to refurbishment, the Estate was heated mainly by electric storage heating and suffered from poor energy performance and condensation. Residents experienced difficulty in achieving adequate warmth.

Adding community heating

The Council decided to carry out a complete refurbishment the Estate and, funded by the Department of the Environment's Green House Demonstration Programme, this was carried out in 1993/1994.

The main feature of the programme was the installation of a new community heating system based on combined heat and power (CHP). Following consultation by the Council, three-quarters of the residents of the Estate chose to participate in the programme, leading to a CHP-based community heating scheme serving 686 dwellings.

The refurbishment included the installation of a wet panel radiator heating system, incorporating heating for domestic hot water, in each home.

The new community heating scheme is managed under an energy services agreement. The energy services company is responsible for the purchase of gas to fuel the boilers and CHP units, the generation of heat at the plant room and its distribution to the homes. It also manages the sale of excess heat to an adjacent leisure centre, the sale of excess electricity generated on-site to the local electricity company, and maintenance of the whole system (including heating distribution pipes and heating equipment in the homes).

Cost

The total cost of the heating refurbishment project was £3.3 million, equivalent to £4,800 per dwelling. An additional £1 million was spent on asbestos removal, new water booster pumps and tanks, and heat recovery ventilation systems.

Savings

Energy costs savings ranged from more than £200 a year to small net increases in heating and hot water bills as residents heated their homes to comfortable conditions for the first time. The average reduction in heating costs was 39%. Primary energy use and total carbon dioxide emissions are also down, by 46% and 52% respectively.

Heating is now paid for on a predictable, fixed charge basis according to the number of bedrooms in the home: weekly charges range from £5 for one bedroom homes to £6.60 for three bedroom homes.

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Included in the £4,800 per dwelling were:

Installation work

- new, central plant room housing two CHP units and four boilers
- a new wet panel radiator heating system in each flat
- a new hot water heating system in each flat
- draughtproofing of doors and windows

Resident consultation

- regular newsletters on the upgrading scheme
- a show flat to allow residents to view the proposed scheme
- an open day at the new plant room
- advice on operating the new system and general energy advice

Cost of new heating system per dwelling: £4,800

39% average reduction in heating costs to consumers

46% average reduction in primary energy used

CO₂ emissions prior to
scheme upgrade

6361 tonnes per annum

CO₂ emissions after
scheme upgrade

3035 tonnes per annum

SAVINGS

52% reduction
in CO₂ emissions

*"Community heating converted my home from a cold, uncomfortable house which I dreaded each winter into a little haven of warmth and welcome. I can now face this coming winter with confidence"
- resident of the Estate.*

For further information contact:

David Green, Director
Combined Heat and Power Association
Grosvenor Gardens House
35-37 Grosvenor Gardens
London SW1W 0BS

Tel: 0171 828 4077
Fax: 0171 828 0310
E-mail: info@chpa.co.uk