Kensa & Thurrock Council, Chadwell St Mary

F4.1

In a ground-breaking project with Thurrock Council, three high-rise tower blocks will get their storage heaters replaced with Kensa ground source heat pumps that are three times more energy-efficient and set to reduce fuel bills by over 50% for some Thurrock residents.

Key facts

Building

Location	*Chadwell ST Mary, Thurrock, UK*
Number of houses	*Three high-rise towers*
Project type	*Retrofit, replacing storage heaters*
Construction	*??*
Heat distribution	*??*
Apartments heated	*273*
Level of insulation	*??*

Heat pump and source

Number of	*273*
Installed power	*3 -6 kW*
Operation mode	*??*
Heat source	*ground*
Technology	*Shoebox GSHP & SGLA*

Heating system

Heating temperature	*Up to 65°C*

Domestic hot water

Type of system	*individual*
Max temperature	*Up to 65°C*

Other information

Refrigerant	*R134a*
Subsidies	*SHDF*
COP	*3.84 (per hp)*

Lessons to be learned

- The project will demonstrate the potential for ground source heat pumps on Shared Ground Loops to decarbonize multiple properties rapidly and affordably at scale.

The project is set to secure 40-50 percent savings on residents' annual energy bills, a significant benefit considering over half of the recipients have been identified as currently at risk of experiencing fuel poverty.

Cllr Luke Spillman, Cabinet Member for Housing:

"This trailblazing heating solution is the first of its kind for Thurrock Council. This is great news for our residents – it will help us better support our residents and tackle fuel poverty by driving down fuel bills and keeping our homes warmer and greener."

Dr Stuart Gadsden, Commercial Director of Kensa Contracting:

"Ambitious, large-scale projects like this one undertaken by Thurrock Council are key to meeting the Government's targets of 600,000 heat pump installs per year by 2028. Ground source heat pumps on Shared Ground Loops are proven to provide the lowest carbon, lowest running costs and lowest whole-life cost solution, especially for heating high-rise developments. These systems help housing providers lower their environmental impact and future-proof their assets, whilst protecting their tenants from fuel poverty."

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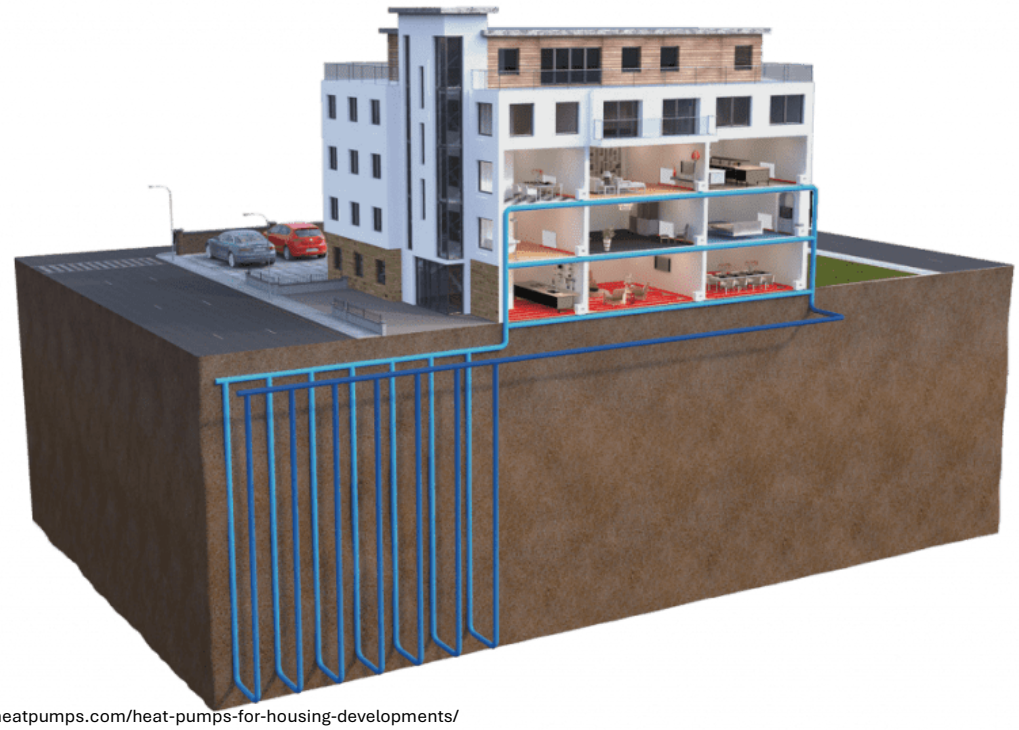

Source: https://www.kensaheatpumps.com/heat-pumps-for-housing-developments/

Description of the technical concept

273 storage heaters across three tower blocks in Chadwell St Mary's, Thurrock will be replaced with Kensa ground source heat pumps inside each flat.

Kensa's Shared Ground Loop Array design features a ground source heat pump per dwelling, which are each connected to a Fifth Generation District Heating ambient loop. This loop receives heat energy from the clusters of ground arrays.

The clusters of ground arrays, usually boreholes, transfer heat temperatures of -5°C to 20°C from the ground to the communal ambient loop, which feeds ambient temperatures to each individual heat pump. The ground source heat pump, typically a Shoebox, then upgrades the ambient heat energy from the ground to provide independent and controllable heat to radiators or underfloor heating for space heating, and a cylinder tank for hot water.

The use of ground arrays with ambient loops offers an opportunity for schemes to utilise waste heat, as well as provide free passive cooling.

Over 34% of all emissions in the UK are attributed to the provision of heat. The installation of the low-carbon heating systems at Chadwell St Mary's is expected to provide a 70%+ reduction in carbon emissions. Over the life cycle of this installation, the total emissions saving of the heat pumps is projected to be 7,080 tons of CO2, improving local air quality.