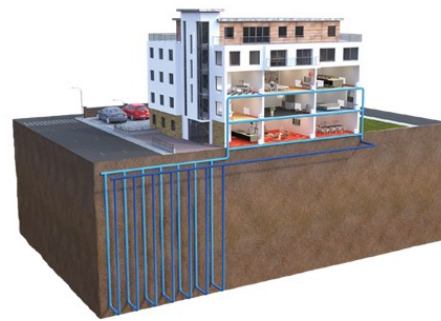


The future of heating

Individual ground source heat pumps (GSHPs) at each dwelling linked to a communal ground array provided free-of-charge to the house builder.

- ✓ Superior SAP ratings
- ✓ Low running costs
- ✓ System architecture/ownership model mimics gas boiler installations
- ✓ Ultra efficient, reliable and durable
- ✓ UK manufactured
- ✓ Competitively priced



The Key Details

The Kensa Group has developed an innovative funding and delivery model, which has dramatically cut the capital cost of GSHP installations at residential new build properties.

The technology is now competitively priced with other heating options, as the cost of the communal ground array is not borne by the house builder.

Instead, major energy companies are keen to own and maintain the ground array, which could be designed and delivered by Kensa. The energy companies will then receive an income via the Non-Domestic Renewable Heat Incentive (RHI).

The house builder will purchase the heat pump and hot water cylinder (from Kensa) and will have freedom to involve its own preferred plumbing contractor in the installation programme.

Kensa will oversee the work and accredit each installation onto the Microgeneration Certification Scheme (MCS).

The house purchaser will own the heat pump, maintain an account with their own preferred electricity supplier, settle their own bill and pay a small annual connection fee for use of the ground array.

The model closely mimics arrangements to support gas boiler installations.

The Technology

Visit www.kensaheatpumps.com/video/how-a-ground-source-heat-pump-works/ for information on how a ground source heat pump works.

In its 4th Carbon Budget, the Committee for Climate Change projected that over 4m heat pumps will be installed by 2030 to support its belief that this technology is the best option for displacing fossil fuel boilers.

For information on why GSHPs are the most compelling heat pump variant, read www.kensaheatpumps.com/wp-content/uploads/2016/03/CD-Viewpoint-p22.pdf.

The Shoebox Heat Pump

Kensa has launched the award-winning Shoebox heat pump, the world's smallest and quietest GSHP which is ideally suited to the modest heat loads in new UK dwellings. Designed to be positioned underneath the cylinder within an airing cupboard, the Shoebox range includes two variants with a peak output of either 2.75 or 5.5kW at typical operating conditions. Remarkably efficient, reliable and durable, the Shoebox heat pump is a compelling choice for both on-gas and off-gas developments.

Communal Ground Arrays

Kensa has pioneered the adoption of communal borehole-based ground arrays in the UK as they offer commercial and technical benefits.

Crucially, a smaller number of deeper boreholes can be deployed reducing the drilling time and minimising costs.

Equally, the design integrity is enhanced as there is no risk that an exceptionally high heat use property will exhaust the output from the ground array; a possibility when specifying individual boreholes.

Most importantly, the communal nature of the ground array means that any installation qualifies for the Non-Domestic RHI funding as a district heating system, a strand that supports new build developments. This allows the ground array installation cost to be borne by others.

Typically each phase of any housing development is linked to its own unique ground array so the concept 'scales' with the delivery of the site.

Compliance with Building Regulations

The remarkable efficiency of GSHPs simplify compliance strategies with building regulations. House builders can either reduce the specification and cost of other elements of the dwelling or promote the new builds as extremely energy efficient with higher SAP ratings.

| Heating system | DER | TER | % reduction | SAP rating | EI rating |
|--|-------|-------|-------------|------------|-----------|
| GSHP communal – SAP default (=ASHP communal) | 14.48 | 24.49 | -40.9 | B 82 | B 88 |
| GSHP – SAP default | 17.23 | 24.49 | -29.6 | B 84 | B 86 |
| ASHP – SAP default | 22.79 | 24.49 | -6.9 | C 79 | B 81 |
| Gas boiler + 0.23kWp PV – PCDB (Vaillant ecoTEC pro 24H Combi) | 16.88 | 16.91 | -0.2 | B 84 | B 86 |
| LPG boiler + 0.58kWp PV – PCDB (Vaillant ecoTEC pro 24 Combi) | 17.74 | 17.77 | -0.2 | C 77 | B 86 |
| Oil boiler + 1.88kWp PV – PCDB (Worcester Greenstar 18/25 Combi) | 19.32 | 19.34 | -0.1 | B 89 | B 84 |
| Gas boiler – PCDB (Vaillant ecoTEC pro 24H Combi) | 17.96 | 16.91 | FAIL | - | - |
| LPG boiler – PCDB (Vaillant ecoTEC pro 24 Combi) | 20.62 | 17.77 | FAIL | - | - |
| Oil boiler – PCDB (Worcester Greenstar Heatslave II 18/25 ERP Combi) | 28.66 | 19.34 | FAIL | - | - |
| Electric storage heater | 34.15 | 24.49 | FAIL | - | - |

Home Owner View

GSHPs offer the lowest cost heating¹ and are completely unobtrusive, operating quietly from an internal cupboard.

GSHPs are remarkably reliable and durable and require no mandatory annual servicing, ideal for 'buy to let' investors.

¹ Nottingham Energy Partnership, <http://www.nottenergy.com/>

An Award-Winning Case Study

- 53 houses with individual ground source heat pumps connected to micro district ground arrays.
- Louth, Lincolnshire.
- New Linx Housing Trust.



Pricing

Ground source heat pumps will be very competitively priced when compared to air source heat pumps and oil/LPG boilers. They may offer the lowest cost choice for on-gas properties thanks to the superior SAP rating

reducing the costs of other elements of the build specification. To obtain a budget quotation for any development, contact Kensa on **0845 680 4328** or info@kensaheatpumps.com.

Kensa Heat Pumps: In Brief

- Long-established heat pump market leader. 21-25% share of UK water/ground to water heat pump market. (BSRIA 2012-2015)
- Over 4,500 Kensa heat pumps installed in domestic properties.
- Est. 1999. Unrivalled experience/expertise.
- Largest range of ground source heat pumps on the market, including the world's smallest and quietest heat pump for new build properties.
- Award winning projects, products and facilities.

2016 Best Client (National Housing & Maintenance Forum Awards) | 2015 Community Heating Project (Heating & Renewables Awards) | 2015 Green Deal & ECO Project (Energy Efficiency & Retrofit Awards) | 2013 Retrofit Project of the Year | 2013 Renewable Project of the Year (H&V News Awards) | 2013 Business of the Year (Western Morning News Awards)

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