

STORING FOOD MOVING HEAT

A RETAIL
FACILITY CASE STUDY

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Sainsbury's
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Sun 11am - 5pm

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- Clothing and home
- Café
- Starbucks coffee
- Dry clean
- Travel money

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on all Sainsbury's
weekly products

24
hours

Try something new today

Sainsbury's is saving 30% on heating and cooling costs using an advanced geothermal heat exchange system that relies on Armstrong's expertise for component integration.

“This is a pioneering move by Sainsbury's, and the results of the pilot installation at the Crayford store have exceeded all expectations.”

Greg Davis
Greenfield Energy
Director

Sainsbury's

Armstrong Design Envelope ivs pumps monitor the flow within the cooling system and automatically adjust operating speed to match demand. Sainsbury's and Greenfield selected Armstrong Design Envelope pumps for performance, pumping efficiency and intelligent variable speed technology.

Background

Sainsbury's is a leading supermarket chain based in the UK. In line with corporate goals for sustainable operations Sainsbury's has invested in projects to reduce energy usage, reduce packaging waste and reduce food waste in their 930+ stores.

One program to reduce energy usage involved the use of new technology for heating and cooling store locations. With the installation of renewable energy systems based on ground source heat exchangers supplied by Greenfield Energy in partnership with Armstrong, Sainsbury's has taken a major step to reduce energy usage.

At the heart of the renewable solution is the Geoscart™ ground source heat exchange system, designed and supplied by Greenfield Energy, a UK-based company specialising in the delivery of sustainable renewable energy. The Geoscart technology involves a sub-surface array of closed-loop borehole heat exchangers. Drilled at angular displacement (diagonally and/or horizontally) the boreholes provide high-efficiency geothermal heat exchange. Intelligent integration throughout the system contributes to outstanding overall system efficiency, and reduced carbon footprint.

The technology-known as 'geo exchange' or geothermal-uses a series of closed-loop boreholes drilled 200m underground. The rock and soil around the boreholes absorbs heat captured from the refrigeration system in the store.

Benefits

Greg Davis, director at Greenfield Energy commented, “This is a pioneering move by Sainsbury's, and the results of the pilot installation at the Crayford store have exceeded

all expectations. Greenfield Energy provides systems based on a variety of renewable sources, including solar and wind technology, but our Geoscart system is particularly effective for this type of building.”

Armstrong provided variable speed pumps and advanced controls technology to the installation. Like most cooling systems, in-store refrigeration systems are a part load application, requiring varying levels of cooling, depending on store traffic and ambient temperature. Armstrong Design Envelope ivs pumps monitor the flow within the geothermal system and automatically adjust operating speed to match demand. Adjusting operating speed to provide only the flow and pressure required at any given moment, reduces energy usage by as much as 70%, compared to fixed speed alternatives.

Following successful installations in trial sites, including the Sainsbury's store in Crayford, Greater London, the retailer plans to install similar technology at other locations as part of its corporate social responsibility program.

Tech Info

Geoscart skid components include

- 4300 Starline ivs Sensorless 80-250
- 4302 ivs Sensorless 100-150
- Glycol Auto-Fill Unit
- 1000L Expansion Vessel

Ancillary skid components include

- 4392 Startwin ivs Sensorless 50-150
- 4392 Startwin ivs Sensorless 80-200
- 4392 Startwin ivs Sensorless 80-150

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