

## **NEATPUMP – LOW CARBON HEATING ..... NATURALLY**

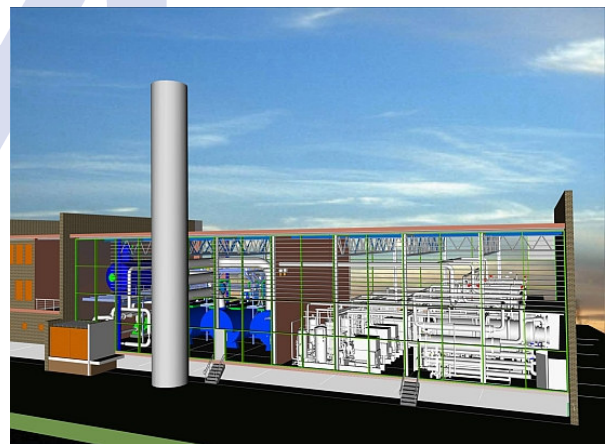
UK firm Star Refrigeration has launched a groundbreaking renewable energy heating system, which will heat homes and businesses across an entire city in Norway.

The Glasgow-based cooling solutions specialist, with Norwegian refrigeration partner Norsk Kulde, has just sold its first **Neatpump** to the city of Drammen. The system will supply hot water pumped through a network of underground pipes for heating over 6,000 homes and businesses in the city.

Star's **Neatpump** will provide up to 15MegaWatts of heat for Drammen, a community of 60,000 on the Drammen Fjord near Oslo. Due to be completed in January 2011, it will be the world's largest district-wide natural heat pump system. It also marks the largest export order in Stars 40-year history as one of the UK's leading industrial refrigeration engineering companies.

Star's **Neatpump** is a renewable energy heat pump that extracts heat from seawater, air or any industrial waste stream, such as air conditioning or large scale cooling processes. This waste heat is captured, compressed, boosted and recycled to provide hot water at up to 90°C for heating buildings on a massive scale.

Heat pumps are becoming increasingly popular across Europe as the heat they deliver far exceeds the energy they consume. District heating sees heat generated in a centralised location distributed for residential and commercial heating.



Star's **Neatpump** in Drammen, Norway

District heat pumps already exist in Scandinavia and across Eastern and Central Europe, providing higher efficiencies than traditional localised boilers. However, many of these first generation systems rely on Hydro Fluorocarbon (HFC) refrigerants, which are thousands of times more potent as global warming gases than carbon dioxide when emitted to the atmosphere.

Unlike its forerunners, Star's **Neatpump** system does not require any synthetic global warming gases (HFCs). It operates using ammonia, a naturally occurring refrigerant that has zero ozone depletion potential. Ammonia has never been used

in a high temperature heat pump allocation of this type. Electricity for the Drammen system is provided by hydropower, making the **Neatpump's** carbon emissions virtually zero.

Star Refrigeration's Director of Innovation Dave Pearson says: "Systems such as the **Neatpump** could literally revolutionise the way we heat factories, hospitals. Office buildings, data-centres, even entire communities across the globe. The technology behind it is so advanced that it can even be configured to deliver district-wide air conditioning, with waste heat providing the energy to drive desalination processes for producing fresh drinking water."

He adds: "At present a shocking amount of heat generated through cooling processes worldwide is simply discarded as waste to the atmosphere. Organisations could now be recycling waste heat from their process, air conditioning and IT cooling systems and boosting it for use in their own and neighbouring buildings."

Star has invested heavily in zero carbon technology and continues to develop new products to provide energy conscious systems for the benefit of customers and the environment. The company has recently appointed a specialist advisor to the team to support further district heating projects worldwide.

Star focuses on the design, manufacture, installation, commissioning and aftercare of industrial refrigeration and HVAC (heating, ventilation and air conditioning) systems.

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