

## Ground Source Heat Pump For Existing Property in Hertfordshire



This 1890's house, with its own heated swimming pool building, is situated in a rural village in Hertfordshire and used oil for its heating and hot water production.

### The Problem:

Heating costs for this Hertfordshire home and heated indoor pool were extremely high so the owners brought in WDS Green Energy to find a solution to cutting costs, and to help them create a more environmentally sustainable home.

### The Solution:

Because of the different diurnal and seasonal usage between the house and swimming pool, WDS Green Energy recommended a low temperature **37kW heat pump** for the pool and **40kW high temperature heat pump** for the house, both units sourced from the Dimplex range of **ground source heat pumps**.



Both heat pumps are attached to an array of boreholes drilled in the Autumn of 2011 in the garden area adjacent to the swimming pool. Each of the 11 boreholes is drilled over 100m into the chalky bedrock formed over 90 million years ago in the Cretaceous Period. The water present in the chalk resulted in the drilling rig, operator and part of the garden being turned temporarily into a winter wonderland scene.

An additional borehole was drilled to provide the irrigation water for the extensive gardens and vegetable plot. The hardness of the water precludes its' cost effective use in the house and pool.

To complement the electrically driven heat pumps, WDS also installed **6.72kW of photovoltaic panels** on the roof of the swimming pool building.

### The Benefits:

The photovoltaic panels provide an income from the Feed-In Tariff in addition to off-setting some of the electricity costs from running the heat pumps.

The heat pumps, with their inherent 400% efficiency (4kW of heat from 1kW of electricity) have reduced oil bills by some 50%, and in 2014 they will become eligible for the Renewable Heat Incentive (RHI), and the tariff monies paid thereunder for 7 years.

The RHI is a Government initiative designed to help consumers who use fossil fuels for heating to change to a renewable energy system and reduce their carbon emissions.

