

CASE STUDY

Kelling Estate



Ten residential properties, holiday lets, farm offices and commercial units all heated from one boiler



Having previously installed a 100kW biomass boiler the decision was made to install a Gilles industrial boiler to heat two tilapia fish farms, retail units, the farm offices, residential properties and holiday lets. Kelling Estate is keen to reduce its carbon foot print as much as possible and in utilising the heat produced from their Gilles boiler, they have also been able achieve this for a significant proportion of the estate.

SYSTEM SUMMARY

Boiler:	Gilles HPK-UTSK 550
Heat Output:	550kW
Fuel:	G50 W30 locally sourced woodchip
Fuel Storage:	Converted grain store with 6.4m sweep collector
Fuel Storage Capacity:	100m ³
Fuel Delivery Method:	Bulk tipped
Annual Heat Load:	898MWh
Annual Fuel Requirement:	320 tonnes
CO₂ Saving:	238 tonnes
Boiler Features:	<ul style="list-style-type: none"> - Automatic ignition - Pneumatic heat exchanger cleaning - Automatic ash removal - Integrated flying ash removal by multi-cyclone dust separator - Data logging, remote maintenance and diagnostics via broadband internet.
System Features:	<ul style="list-style-type: none"> - Variable flow district heating system - Isopex pre-insulated underground pipes - Each property individually heat metered



The system centres on a Gilles HPK-UTSK 550 woodchip boiler



THE BOILER

Images 1 & 5

The Gilles industrial boilers which are recognised as market leading in terms of reliability and performance are fired by an underfeed stoker which improves efficiency by following the natural combustion process of woodfuel. An industrial cell wheel forms a proven barrier to burn-back and contains cutting edges which chop oversize chips before they reach the boiler.

Modulation from 100% to 30% of rated output with flame preservation below 30% allows the boiler to match its output to the district heating system's demand throughout the year.



Properties heated by Gilles 550kW boiler

FUEL STORE

The fuel storage has been designed by Energy Innovations to make the best use of existing infrastructure and a disused grain store has been converted into the boiler's woodchip store. A 6.4m sweep collector has been installed enabling the store to be filled approximately once a month during the winter.



Properties heated by Gilles 550kW boiler

DISTRICT HEATING MAINS

Images 2,3 & 4

The Gilles system was selected for its ability to heat multiple properties at one time and this is achieved through installing Isoplus insulated pipes. Energy Innovations are market leaders in the design and installation of district heating systems and they use Isoplus pipes due to their flexibility and ability to carry hot water with minimal heat loss.



HEAT METERING

Kamstrup heat meters were chosen to monitor the heat usage (in kWh) of each unit heated. Heat meters are installed at each termination for both commercial and residential properties to allow tenants to be charged for their heat in pence per kWh.

Heat meters have also been installed where the heat distribution mains leave the boiler house to monitor system efficiency and identify any system discrepancies.



REMOTE ACCESS SOFTWARE

The boiler is equipped for remote access which allows Energy Innovations office to provide remote assistance to the boiler operator. It is also possible, where required, to make remote adjustments to control parameters thereby maintaining efficient and reliable operation.

GRANT

The installation of the system was supported by the DEFRA run Bio-Energy Capital Grant Scheme.



For further details on our systems, please contact:

East Theberton Hall Farm
Theberton
Leiston IP16 4SE
T: 01728 635 761

West Newchurch Farm
Kinnersley
Hereford HR3 6QQ
T: 01544 322 225

www.energyinnovationsuk.com

E: info@energyinnovationsuk.com



Authorised User No. 00557

