

Investor Show April 5th 2014



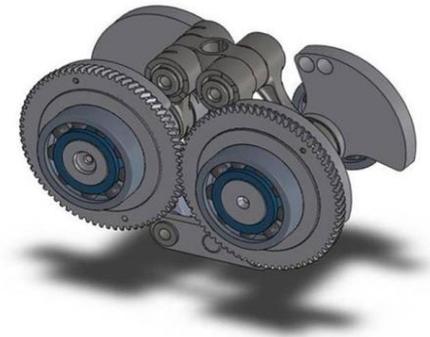
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NEIL LUKE COO INSPIRIT ENERGY HOLDINGS plc

The Inspirit 15kWt 3kWe mCHP Appliance



Cut away case showing the unit



The Rhombic Drive

Inspirit Energy

- **Inspirit Energy has developed a micro combined heat and power (mCHP) appliance, which will compete with, as well as complement existing boiler technology.**
- **It can be installed as a stand alone boiler, a multi-unit cascaded system or in tandem with existing heating and hot water schemes.**
- **This is a disruptive technology with the capability of generating significant amounts of electricity at a local level and so off-setting the demand on centralised power generation facilities especially at periods of peak demand.**
- **It is acknowledged as being a Low Carbon product as it operates at almost 100% efficient in it's delivery of power to the point of use compared with Grid supplied electricity which suffers inherent losses through generation, transmission and switching processes before use.**
- **By comparison with Grid supply one unit could save up to £2,000/yr of electricity cost and reduce CO2 emissions by 4 tonnes/yr.**

Development History

- **The mCHP technology at the heart of Inspirits boiler has benefitted from an extensive period of development that began in the 1980s at Lund University, in collaboration with Kockums of Sweden.**
- **More than two decades of research resulted in the granting of a number of patents regarding the Stirling engine, the driving force of Inspirits mCHP appliance.**
- **Since these beginnings, the technology has undergone an extensive and rigorous development process by Inspirit, in conjunction with Prodrive Automotive Technologies who turned the invention into a fully functioning prototype appliance.**
- **During its development the appliance received Gas Appliance Directive (GAD) approval and successfully completed field trials with the Carbon Trust.**
- **The design is differentiated from other Stirling engines by its characteristics of low noise and vibration due to it using an external heat source from the waste heat in the boiler exhaust and its balanced rhombic drive crankcase.**

Installation and Maintenance

Appliance Details	
Type	Stirling Engine
Electrical output (kW)	3kW
Thermal output (kW)	15kW
Overall efficiency (%)	92%
Dimensions	650x1250x650mm
Heat: Power ratio	5:1
Weight (kg)	200kg
Fixing	Floor standing
Installation options	Stand alone unit or cascade of multiple units Replacement installation or new fit
Installation requirements	1 trained heating engineer

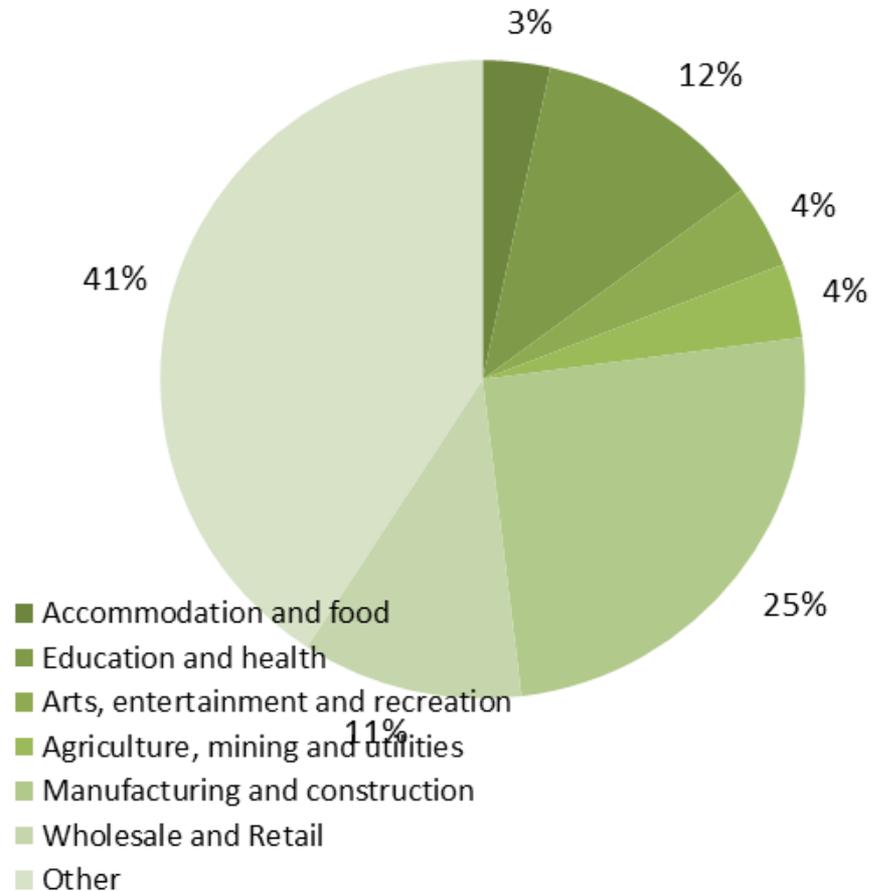
- In recent years, the small to medium commercial boiler sector has seen a move towards the introduction of smaller, modular units and has moved away from large output boilers due to their inherent start up and shut down losses., with multiple, cascaded installations now common place.
- The Inspirit appliance is focused on commercial users with high heat and power requirements, for example fast food outlets, nursing homes, gyms and hairdressing salons.
- It is uniquely positioned in the market as the only Stirling engine powered appliance for small to medium commercial usage.
- Installation is the same as a similar sized floor standing gas boiler and can be carried out by a competent heating installer without specialised knowledge.
- Maintenance is annual and has no extra requirements than a conventional boiler

Market Opportunity

UK small and medium enterprises by sector (Total: 4.478m)



Successful Carbon Trust
Field Trial and Certification



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