

Inspirit Energy Holdings plc
("Inspirit Energy", "Inspirit" or the "Company")

Major European Utility to test Inspirit's mCHP boiler-generator

Inspirit Energy (LSE AIM: INSP) announces it has signed a landmark Agreement with a major European Utility company, that will see Inspirit Energy supply and install one of the the Company's first highly efficient mCHP micro co-generation boilers into the Utility's test and verification facilities when the first commercial specification appliances become available later in the year.

The Agreement with the Utility also stipulates that any tests undertaken at its test facilities shall establish the suitability of the mCHP appliance for field trials within their network and subsequent potential commercial entry into the market. Upon successful testing of the Inspirit Energy mCHP appliance, the parties have agreed to discuss the potential to co-operate in field trials of the appliance within their network.

The Utility is one the major leading Energy Utilities in Europe with an extensive customer base of gas consumers in both the industrial and domestic sectors in its region. It is also one of the largest installers of boilers and energy efficiency products in their market place.

The Inspirit mCHP micro co-generation boiler:

Inspirit Energy's new washing machine-sized mCHP micro co-generation boiler is one of the industry's most powerful and energy efficient mCHP appliances for its size with simultaneous generation of up to 15 kilowatts of thermal output and up to 3 kilowatts of electrical output. The appliance's patented engine will take the waste heat from the boiler and convert it efficiently in to electricity; first supplying the installed property and then feeding surplus electricity into the national grid. The appliance to be commercialised will have the flowing specifications:

Table 1: Appliance Data.

Engine drive for electrical	Sterling Engine. Engine has a power piston and a displacement piston running within the same cylinder.
Electrical Power Output	Generates a maximum of 3kW of electricity with 16% net efficiency at 20kW total gas input.
Thermal Output	Up to 15kW at 76% net efficiency with a gas input of 20kW.
Heat to Power Ratio	5:1
Noise Level	50dBA at a distance of 1m.
Weight	Less than 120kg.
Dimensions	650x650x900mm
Water Temp Output	Water temperature output of 45-85°C depending on installation.
Installation	One person installation (gas safe) and electrical connection.
Service	Service interval recommended 12 months in a domestic installation.
CO ₂ Emissions	Estimated CO ₂ reduction of 4 tonnes per year per appliance
Current Patents	3 Registered and 5 Patents Pending.

Inspirit's Development Partners:

The Inspirit mCHP appliance consists of 4 key systems, each of which has been designed with the help of engineering partners:

- **Adigo** has been instrumental in advising on the remodelling of the original heaterhead and regenerator components of the Stirling Engine design (Inspirit's proven prototype) for the final appliance.
- **GE Precision** are a key partner in developing the internals of the Stirling Engine with FEA analysis of the Crankcase, Piston and Rhombic Drive Assembly that converts the heat energy into the motion required to generate the electrical output. This is the driving force of Inspirit's mCHP appliance.
- **Sentec** have designed the control system including the user interface, diagnostics and management of the supply back into the Grid.
- **Enertek** have designed the gas combustion system, heat recovery system and will assist Inspirit in gaining the required approvals certification.

Manufacturing Partners:

- **Malvern Boilers** have been chosen as Inspirit's manufacturing partner to build the initial trial units and to bring the product to market when fully commercialized. Malvern's experience in building small batch gas products and their group of subcontractors are ideal for Inspirit's requirements and they will be in control of the product introduction process and supply chain management.

John Gunn, the Company's CEO, commented:

"This important agreement with a major European Utility, will allow the Company to showcase its technology to the global utility market as the Company moves towards mass manufacturing of the appliance over the coming year."

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