

CLEANERGY

STIRLING CHP SYSTEMS

Driving the future
of biogas power



TURNING WASTE INTO WEALTH

A CHP system with a difference

The Cleanergy GasBox™ generates electricity and heat from low calorific biogas with a methane gas concentration as low as 18%.



The GasBox is part of Cleanergy's Stirling Combined Heat & Power (CHP) System™. It's the only CHP technology proven to produce both electricity and heat from a methane gas concentration as low as 18% – with multiple applications from biogas and landfill sites to waste water treatment.

In designing our Stirling CHP System we thought outside – and inside – the box. The result is a turnkey solution that not only includes the GasBox, but is supported by a family of services from design, installation, piping and wiring to round-the-clock maintenance and troubleshooting.

With an ROI of just three years, the GasBox puts an end to flaring – empowering producers to generate energy both on-and-off grid more cost effectively and reliably. Why let your gas profits go up in smoke?

Who are we?

We are the world's leading supplier of sustainable stirling energy solutions with installations from Norway to Inner Mongolia, Dubai and the UK. Headquartered in Sweden, our (former Volvo) production facility is built around the latest lean manufacturing principles and is supported by a network of automotive-grade suppliers and partners – all of which guarantees quality and security of supply.

Meanwhile, our blue-chip level board includes the current chairman of the Swedish Trade Council and the former Swedish finance minister. Our investors include the renowned Wallenberg family of industrialists, along with the Nobel Foundation.



THE STIRLING ENGINE

From one Industrial Revolution to another

The stirling engine was invented in 1816 amidst the white heat of the Industrial Revolution.

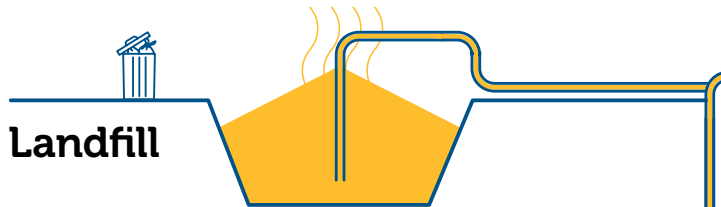
In recent years stirling technology has seen a resurgence with companies looking to harness some of its unique benefits, including fuel independency, low vibrations and long-term durability – which have been used in various applications, from powering submarines to cryogenic cooling, to cogeneration and concentrated solar power.

At Cleanergy we've spent 25 years perfecting our Stirling CHP System. It's proven to perform. Its durability and reliability is beyond doubt. And its potential is enormous.

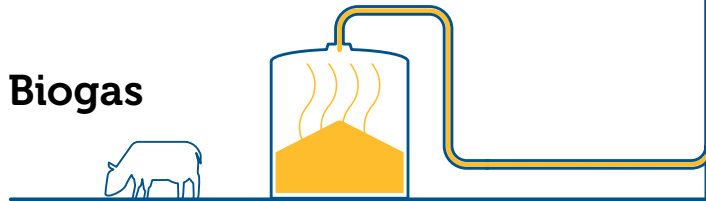
For example, in Sweden, a landfill gas installation for The Swedish Energy Authority (Energimyndigheten) has already exceeded 12,000 operational hours.

How does it work?

A GAS EXTRACTION

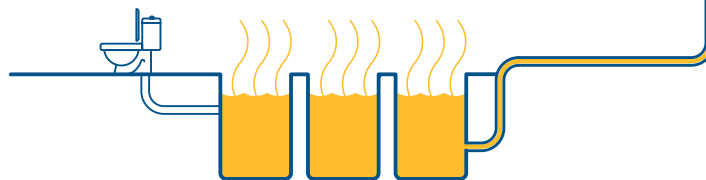


Landfill sites with low methane content typically have one option: flaring. GasBox solves this problem by converting low-grade methane gas into both electricity and heat – extending power production by a potential 20 years compared to conventional CHP solutions.



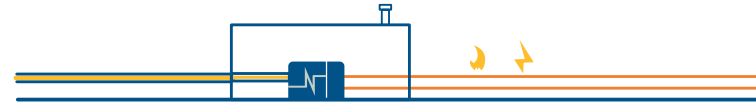
Biogas from manure, food waste and plant residues can now be turned into sustainable energy thanks to GasBox. The system produces heat and power from biogas of any type and quality.

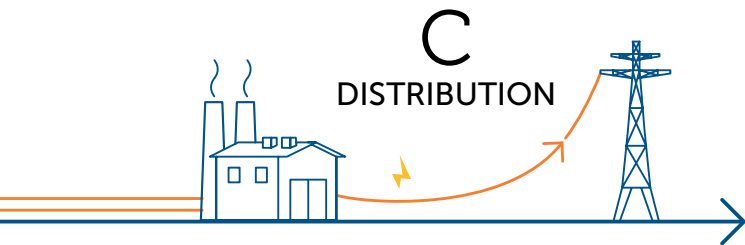
Waste water treatment



Biogas generated at **waste water treatment** facilities can effortlessly be converted into heat and power with Cleanergy's Stirling CHP System.

B PRODUCTION





GASBOX

A five star performer

GasBox is not like other stirling engines or generators.

It's the only CHP system capable of handling low calorific biogas with a methane gas content as low as 18%.

It's the only system that provides ROI in three years - turning waste into wealth.

And it's the only system with a technical lifespan of 200,000 operating hours - up to four times longer than previous external combustion engines solutions.

GASBOX

By the numbers

The proven track record of GasBox is far more than just hot air.

To date we have 130 units with a rated value of 9kW, installed in over 100 locations with some two million operating hours.

Our Stirling CHP solution has been extensively tested by respected third parties like TÜV Rheinland and has won a Blue Angel award for low emission levels.

Meanwhile the UK government body Environment Agency has identified our Stirling CHP systems as a potential key technology for addressing problems with poor fuel utilization at operational landfills.

What's included in the CHP System?

Installed inside a modular container, the GasBox is an autonomous and flexible Stirling engine unit. Also inside the container is a real-time power management system with remote access; a fuel pipe; plus a heat and electricity connection to a house/factory/warehouse with optional grid functionality. Power output is capped at 9kW per GasBox engine unit.



Looking ahead

The roadmap for our success began before there were any real roads – in 1816. Nearly 200 years later the future for our stirling-based technology looks bright.

The market for our stirling CHP system is primarily in Europe (the UK has 2,300 landfill sites alone); as well as North America, China and Japan.

Our ultimate goal? To make renewable stirling solutions a major, lasting part of global power generation. If you share that goal...

Why not be part of it?

Contact us today to discover how GasBox and Stirling CHP technology can help benefit people, planet and profit.

E-mail to chp@cleanergy.com to get in touch with a sales representative. Or give us a call at + 46 532 10020.

More information available at WWW.CLEANERGY.COM





CLEANERGY