By Appointment to
Her Majesty The Queen
Boilermakers
Cochran Ltd Annan

# Evolve Polymers

Recycling Waste Heat into Valuable Energy

# Heat Recovery Case Study

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| **Location:** | Evolve Polymers, Hemswell, Lincolnshire |
| **Challenge:** | To reduce energy costs by converting waste heat from two existing Aggreko gas generators at the site into process steam used for heat sterilising the waste plastic recycled by the Company. |
| **Solution:** | Installation of a Cochran Heat Recovery Boiler to generates 2 tonnes of steam per hour. |
| **Results:** | Substantially reduced energy costs and carbon footprint, plus a net energy save well in excess of £500,000 pa. |

**Cochran recently installed a Heat Recovery Boiler system for Evolve Polymers at Hemswell in Lincolnshire. The project which made use of exhaust heat from two gas engines was completed in association with leading generator hire company, Aggreko.**

## Evolve Polymers' Company Profile

Evolve Polymers is one of Europe's leading rPET pellet and flake manufacturers, operating the UK's largest and most technically advanced PET bottle recycling plant, processing in excess of 100,000 tonnes of PET packaging every year. Evolve's food grade rPET pellets are approved by the European Food Safety Authority.

## Producing Electricity

Evolve Polymers found they were simply unable to buy enough electricity from the National Grid, so they had to generate it themselves. Two 1.1MW gas-fired generators from Aggreko, enable to produce their own electricity at a price comparable to National Grid charges.

## Producing Steam

Evolve Polymers need steam for their process (bottle washing, label removal, reducing the plastic etc.) and were generating this using an oil-fired boiler.

## The Cochran Solution

The two generators constantly emit exhaust gasses at in excess of 460°C; heat which was previously going to waste. Cochran's extensive experience in Heat Recovery Boiler design enabled the company to develop a hired boiler solution capable of utilising these previously wasted exhaust gases to generate 2 tonnes of production steam per hour.

The cost benefit of utilising recovered 'free' exhaust heat to make steam proved key to the overall viability of this project, effectively aligning the generated electricity costs with grid prices. This solution also offered additional benefits, including a significant reduction in boiler fuel oil consumption.

The annual cost was £614,952, with of around £6,000 per annum: Hire of the Heat Recovery boiler costs them just £6,500 pcm, with no additional running costs - as a result they are saving £542,952 in energy costs every year.

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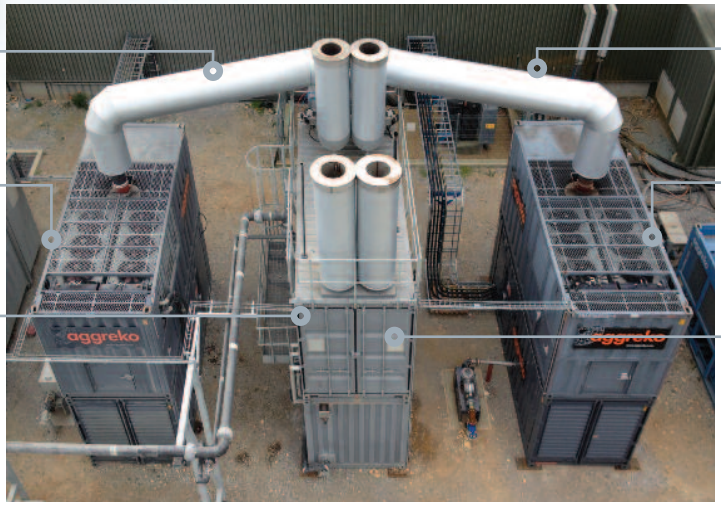
# **Evolve Polymers** Heat Recovery Case Study

Pipework transferring 469°C exhaust gasses from Generator 1 to the Heat Recovery Boiler.

Aggreko Generator 1 producing 1.1 MW of electricity per hour.

Cochran Heat Recovery Boiler producing up to 2 tonnes of steam per hour from exhaust gasses. The flow of gasses can be taken from either or both generators.




Pipework transferring 469°C exhaust gasses from Generator 2 to the Heat Recovery Boiler.

Aggreko Generator 2 producing 1.1 MW of electricity per hour.

Exhaust gasses from the engine(s) are piped into the containerised Heat Recovery Boiler where they heat water producing valuable steam, without additional fuel costs.

### Making a Positive Difference

In addition to cost savings well in excess of half a million pounds, Evolve Polymers have been able to significantly reduce their carbon footprint.

As a company striving to be as environmentally friendly as possible, this is very positive for their image - and for the environment.

### The Heat Recovery Model

Working in association with Aggreko, Cochran have developed a modular rental Combined Heat and Power (CHP) concept that provides cost effective, flexible energy to steam and power consumers; solutions that demonstrate important savings and environmental benefits against mainstream grid supply.

The success of this project is now forming the blueprint for a number of much larger scale projects which are already well underway.



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